

Appendix B

Cape Cod Commission Approval of the Town of Orleans Comprehensive Wastewater Management Plan as a Development of Regional Impact

(October 13, 2011)

3225 MAIN STREET • P.O. BOX 226
BARNSTABLE, MASSACHUSETTS 02630



CAPE COD
COMMISSION

(508) 362-3828 • Fax (508) 362-3136 • www.capecodcommission.org

DATE: October 13, 2011

TO: George Meservey
Director of Planning & Community Development
Town Hall
19 School Street
Orleans, MA 02653-3699

FROM: Cape Cod Commission

RE: Development of Regional Impact
Cape Cod Commission Act, Sections 12 & 13

APPLICANT: Town of Orleans Board of Selectmen

PROPERTY OWNER: Town of Orleans at Town Hall, 19 School Street, Orleans

PROJECT #: EOEEA #14414 – DRI # 09008/JR09008

PROJECT: Town of Orleans Comprehensive Wastewater Management Plan

LOCATION: Tri-Town Septage Plant, Overland Way, and Town-wide

RECORDING:
Certificate of Title # 88668 Lots 7, 8, 9, 10, 11, 12, 21, 22, and 23 on Plan 31048-B
Certificate of Title # 134857 Lot 13 on Plan 31048-B
Book 3483 Page 69
Book 4304 Page 171

DECISION OF THE CAPE COD COMMISSION - SUMMARY

The Cape Cod Commission (Commission) hereby approves with conditions the application of the Town of Orleans (Town) for the Orleans Comprehensive Wastewater Management Plan (CWMP) as a Development of Regional Impact (DRI) in accordance with Sections 12 and 13 of the Cape Cod Commission Act (Act). This decision is rendered pursuant to a vote of the Cape Cod Commission on October 13, 2011.

PROCEDURAL HISTORY

In May 2009, the Town of Orleans sought voluntary joint MEPA/Commission review of the CWMP through submission to MEPA of an Expanded Environmental Notification Form/Draft CWMP. The Commission and MEPA held a joint hearing on the draft CWMP/Expanded Environmental Notification Form (EENF) on June 16, 2009, where a Commission

Subcommittee formulated comments for inclusion into the MEPA scope for the EIR. On July 10, 2009, the Secretary of EOEEA issued a Certificate on the draft CWMP/EENF that set out the EIR scope and also allowed the Town to proceed with an S/FEIR.

The Commission held a joint hearing with MEPA on January 18, 2011 on the S/FEIR, where the Subcommittee formulated comments and voted to submit a comment letter to MEPA on the Single/Final EIR. On January 28, 2011, the Secretary of EOEEA issued a Certificate on Orleans' revised CWMP S/FEIR stating, "the project adequately and properly complies with the Massachusetts Environmental Policy Act (MEPA) and its implementing regulations." Section 7(c)(vi)[1] of the Commission's *Enabling Regulations* stipulate that "the Commission shall hold a public hearing to review the project within 45 days of the Secretary's certification of the adequacy of the final EIR..."

The Commission held the first public hearing on March 1, 2011 at Orleans Town Hall to consider the Town's CWMP as a Development of Regional Impact and additional public hearings and subcommittee meetings as listed below.

Date	Meeting Type	Venue
March 1, 2011	Public Hearing	Orleans TH
March 24, 2011	Public Hearing	CCC Library
April 14, 2011	Public Hearing	Assembly
April 28, 2011	SubCom	CCC Library
May 24, 2011	Public Hearing	CCC Library
June 9, 2011	Subcom	CCC Library
June 15, 2011	SubCom	Brewster TH
July 7, 2011	SubCom	Assembly

At a meeting on 6/15/11 at Brewster Town Hall, a Commission Subcommittee voted to forward the CWMP to the full Commission for consideration. On October 13, 2011, the final public hearing was held before the full Commission on the draft written DRI decision for the Orleans CWMP. The Commission voted unanimously to approve the project and draft decision as a DRI with conditions.

PROJECT DESCRIPTION

The Comprehensive Wastewater Management Plan (CWMP)/Single Final Environmental Impact Report (SFEIR) from the Town of Orleans and its consultants provides a strategy for wastewater management to achieve reductions of nitrogen loading to restore and protect Orleans's marine embayments. The CWMP also addresses fresh water ponds; areas with septic system problems associated with frequent pumping, intensity of use, and mounded systems; provides modest capacity for expanded residential housing in the commercial district; opportunities for regional management; and an adaptive management approach for its implementation.

The CWMP proposes a six-phase wastewater management plan that will collect and treat up to an annual average wastewater flow of 0.64 million gallons per day (MGD) from 2,800 properties to meet nutrient Total Maximum Daily Loads (TMDLs) for: Pleasant Bay, North side embayments to Cape Cod Bay, and Nauset Marsh/Town Cove. The CWMP also accommodates

septage and sludge handling and proposes 5 clustered treatment systems which will hasten nutrient removal. The CWMP also addresses estimated treatment capacity, fresh water pond quality, problematic septic systems, and modest growth in the Central village. The wastewater flow analysis reported in the CWMP reflects a detailed build-out analysis that predicts a 26% increase in residential flows and an 8% increase in commercial flows over a 15- to 20-year implementation period. The Phased Plan also targets nutrient reduction through certain non-structural elements, including a fertilizer control program, stormwater management, a water conservation program coupled with a wastewater flow and load reduction initiative, enhancement of embayment flushing rates, and land use controls.

The 2008 estimated capital cost of the CWMP is \$150 million dollars over the 15 to 20 year implementation period. The average cost to a homeowner is estimated at \$2,600 per year. The Town has adopted a cost recovery policy that incorporates property tax assessment to pay for 80% of the capital costs and relies on betterments for the remaining 20% of the costs.

Wastewater management planning has been underway in Orleans since the year 2000. Commission Water Resources staff has been involved with the project from the beginning. Staff has provided direct technical assistance and oversight of grants through the County's former Wastewater Implementation Committee and Water Protection Collaborative. Commission Water Resources staff has reviewed and commented on all aspects of the CWMP, including the scope of work for the CWMP in February 2006, the initial Needs Assessment of February 2007, the Alternatives Screening Report of December 2007, the Detailed Evaluation of Alternatives in May 2008, the Recommended Plan in August of 2008, the Draft CWMP in 2009, and the Single/Final EIR in 2010/2011. Commission staff met frequently with Town and Massachusetts Department of Environmental Protection (DEP) officials and attended public hearings on the project. The County funded an independent engineering review of the CWMP dated September 30, 2010, which concluded the CWMP was "based on good engineering judgment and scientific bases."

JURISDICTION

This project comes under the jurisdiction of the Commission pursuant to Section 2(d)(i) of the Commission *Enabling Regulations Governing Review of Developments of Regional Impact*, which requires proposed development for which an EIR is required to be prepared under the provisions of MEPA to undergo DRI review.

MATERIALS SUBMITTED FOR THE RECORD

In addition to the list of materials submitted for the record (see Table 1 below), the application and notices of public hearings relative thereto, Commission staff's notes and correspondence, the minutes of public meetings and hearings, and all other written submissions received in the course of the proceedings are hereby incorporated into the record by reference.

TABLE 1: Materials Submitted for the Record	
Materials from Cape Cod Commission	Date Sent
Letter, Andrea Adams (AA) to GM, Comments on Natural Resources and Historic/archeological resources at Tri-Town site	2/9/09
Draft Staff Report on CWMP/Expanded ENF	6/9/09
Hearing Notice – Joint hearing	6/16/09
Minutes – Joint Hearing	6/16/09
Fax cover sheet, Copy of 6/26/09 Subcommittee letter to Secretary on	6/29/09

CWMP/Expanded ENF	
Copy of 6/26/09 Subcommittee letter to MEPA on Expanded ENF	6/29/09
Email, AA to GM, DRI process	2/3/10
Email, Kristy Senatori (KS) to Tom Cambareri (TC), Scheduling of review	12/14/10
Email, AA to GM, DRI process	
Email, AA to GM, DRI process as it relates to MEPA review	12/14/10
Email, AA to Nicholas Zavalas (NZ), MEPA Analyst, Publication of Single/Final EIR in Monitor	12/15/10
Email, AA to staff, Request for comments on Single/Final EIR	12/15/10
Email, AA to Subcommittee, Scheduling hearing	12/22/10
Email, AA to GM, Scheduling of hearing dates	12/27/10
Email, AA to GM, NZ and Town Clerk, Notice for hearing	12/28/10
Letter, Joyce Brookshire, Eastham Commission Member, Resignation from OCWMP Subcommittee	1/3/11
Email, AA to GM, Hearing agenda	1/6/11
Cover Memo, AA to Subcommittee, Transmittal of information from the record: 6/19/09 draft Minutes, CD of CWMP/Single Final EIR as PDFs, Executive Summary, Table of Contents, Copy of 11/10/09 information from Mary Hartley, 2/23/10 letter from MHC	1/6/11
Email, AA to GM, List of Subcommittee members	1/7/11
Email, AA to Augusta McKusick, Confirming receipt of comment letter	1/10/11
Email, Tom Cambareri (TC) to GM, Copy of CWMP at local library	1/11/11
Email, AA to GM and NZ, Staff report on Single/Final EIR	1/11/11
Email, AA to Subcommittee, Staff Report and Email from McKusick	1/11/11
Cover Memo, AA to Subcommittee: Copy of Staff Report and Email from McKusick	1/11/11
Staff Report	1/11/11
Email, Patty Daley (PD) to NZ, Email from Michael C. Farber (MF)	1/13/11
Email, PD to MC and others, Concerning postponement of Joint Hearing on 1/18/11	1/13/11
Telephone Log sheet, AA with Beverly Carney (BC), MEPA process	1/14/11
Cover Memo, AA to Subcommittee: 1/12/11 letter from Carole Ridley, 1/13/11 Email from Fran Meaney to PD, 1/13/11 Email from Michael Farber (MF) to PD, 1/13/11 Email from MF to PD, 1/13/11 Email from MF to KS, 1/13/11 Email from PD to NZ, 1/3/11 Email from PD To MF, 1/13/11 Email from Kevin Cassidy to PD, 1/13/11 Email from MF to PD, 1/13/11 Email from MF to PD	1/14/11
Hearing Agenda for 1/18/11	1/18/11
Hearing Outline for Subcommittee for 1/18/11	1/18/11
Email, AA to Roger Putnam, Hearing Outline	1/18/11
Hearing Notice – Joint Hearing	1/18/11
Sign In Sheet – Joint Hearing	1/18/11
Minutes – Joint Hearing	1/18/11
Email, AA to Subcommittee, PDFs of Emails received	1/18/11
Color PowerPoint Presentation, Water Resources	1/18/11
Color Power Point Presentation, Staff Report	1/18/11
Cover Letter, Roger Putnam, Subcommittee Chair, to Secretary, Transmittal of staff report as comment letter on Single/Final EIR	1/18/11

Email, AA to GM and NZ, Copy of Subcommittee comment letter	1/19/11
Email, AA to Subcommittee, Copy of comment letters and Emails received	1/20/11
Email, TC to AA, Response regarding MF public records request	2/8/11
Email, AA to MF, Response to his 2/8/11 public records request	2/9/11
Email, AA to GM, Hearing Notice	2/9/11
Email, AA to GM, Request for comment on local criteria for DRI approval	2/9/11
Email, AA to GM and Town Clerk, Copy of Hearing Notice	2/10/11
Email, AA to GM, Confirmation of receipt of comments on local criteria for DRI approval	2/11/11
Email, AA to GM, Discussion of Staff report	2/17/11
Staff Report	2/22/11
Cover Memo, AA to Subcommittee except Peter Monger, Transmittal of information submitted for the record: Staff Report, Draft Minutes from 1/18/11 hearing, Copies of comment letters and Emails, CD of Town's PowerPoint presentation at 1/18/11 hearing, CD of information & comments from PA	2/22/11
Cover Memo, AA to Peter Monger, Subcommittee Member, Transmittal of information received: Staff Report, Commission staff PowerPoint presentations at 1/18/11 hearing, Information provided to Subcommittee since 1/11/11, Draft Minutes from 1/18/11 hearing, Emails and comment letters received since 1/11/11, CD of Town's PowerPoint presentation at 1/18/11 hearing, CD of information from PA	2/22/11
Email, AA to GM, Copy of Staff report	2/22/11
Email, AA to Susan Leven, Brewster Town Planner, Copy of Staff report	2/22/11
Email and colored attachments, Elizabeth Taylor, Subcommittee member (ET), to Andrea Adams	2/23/11
Email, AA to ET and KS: Confirm receipt of information	2/23/11
Email, ET to AA: Not going to continue to be on Subcommittee	2/23/11
Email, AA to ET: Confirmation of receipt of Email	2/24/11
Email, AA to ET: Response to request for draft 1/18/11 Minutes and record of Hearing (video)	2/25/11
Email, ET to AA: Confirmation that she will remain on Subcommittee	2/28/11
Hearing Outline for Subcommittee	3/1/11
Hearing Notice - DRI Hearing	3/1/11
Minutes - DRI Hearing	3/1/11
Email, AA to Paul Ammann (PA), Copy of Hearing Outline	3/1/11
Letter, AA to GM, Deems DRI application substantially complete	3/1/11
Staff Report Power Point - Copy of Overview	3/1/11
Staff Report Power Point - Copy of Water Resources Comments	3/1/11
Hearing Sign In Sheet	3/1/11
Email, AA to GM, Request for copies of PowerPoints given by Town, Dr. Weiskel, and Mr. Dudley at 3/1/11 hearing	3/2/11
Email, AA to Susan Leven, Transmit copy of one Commission staff PowerPoint presentation	3/2/11
Email, AA to PA, Acknowledges receipt of his request for copies of PowerPoint presentations	3/2/11
Email, Gail Hanley, Commission Clerk, to Orleans, Brewster and Eastham Town Clerks, Hearing Notice for continued procedural hearing	3/2/11

Email, AA to PA, Correct inaccurate date in prior Email: Continued hearing will be on 3/15/11; Procedural Only	3/2/11
Email, Heather McElroy (HM) to AA: Correct inaccuracy in staff PowerPoint concerning Natural Heritage and Endangered Species program comments to date	3/4/11
Email, AA to GM: Transmittal of the 2 Commission staff PowerPoints from 3/1/11 hearing	3/4/11
Email, AA to Susan Leven: Transmittal of second (Water Resources) staff PowerPoint from 3/1/11 hearing	3/4/11
Email, AA to PA, Follow up on request for copies of Commission staff and Town Power Points used at 3/1/11 hearing	3/7/11
Letter, AA to PA, with CD: Copies of Commission Power Points and those given by Town, Brian Dudley (DEP), and Dr. Wieskel at 3/1/11 hearing	3/8/11
Email, HM to AA: Correct inaccuracy in 2/22/11 Staff Report on open space issue – Not required for Town projects	3/10/11
Email, AA to PA: Copies of Power Points being sent by mail on CD	3/11/11
Hearing Notice – Continued Hearing on 3/15/11 – Procedural only	3/15/11
Minutes – Hearing Officer	3/15/11
Memo, AA to Subcommittee: Information submitted for the record	3/16/11
Staff Report (Summary and update of 2/22/11 staff report)	3/16/11
Email, Anne Reynolds, GIS Dept. Manager to PA: Population density mapping	3/16/11
Email with attachment, AA to GM: Copy of March 16, 2011 staff report	3/21/11
Email, AA to Nello Trevisan: Receipt of Email	3/22/11
Copy of MEP Linked Watershed Embayment Model – Framework for Public Comment (Included in record by Tom Cambareri (TC))	3/22/11
Email, AA to Gail Hanley (GH): Add VR to list to receive hearing notices	3/22/11
Email, AA to VR: Confirm receipt of her 3/22/11 Email and comments	3/22/11
Email, AA to VR: Clarify that 3/23/11 is public meeting not hearing	3/23/11
Meeting Notice – Subcommittee Meeting	3/23/11
Memo, AA to Subcommittee: Materials submitted for the record – 3/21/11 Email and comments from Nello Trevisan; 3/21/11 Email and BLOG from MF; 3/22/11 Email and comments from VR; 3/17/11 Technical Memo from Edward Eichner, SMAST; 3/14/11 public comment draft of MEP Linked Model (Received by TC on 3/22/11)	3/23/11
Subcommittee Meeting Outline	3/23/11
Color Slides, Copy, Used by TC at 3/23/11 Subcommittee meeting	3/23/11
Minutes – Subcommittee Meeting	3/23/11
Email, AA to GH: Update of Subcommittee membership, next steps	3/24/11
Email, GH to Town Clerks: Posting continued hearing and meeting	3/24/11
Email, AA to GM: Copy of information submitted for the record to date	3/24/11
Email, AA to VR: Copy of slides used by TC at Subcommittee meeting; Subcommittee meeting on 4/11/11 and hearing on 4/14/11	3/24/11
Email, AA to GM: Clarify impacts to coastal resources from sewer line construction	3/29/11
Hearing Notice – Procedural Only	3/31/11
Minutes – Hearing Officer	3/31/11
Email, AA to GM: Update on Subcommittee meeting and hearing	4/4/11

Email, GH to Town Clerks in Orleans, Brewster, Eastham – Updated posting of notice for cancelled meeting and continued hearing	4/4/11
Email with attachments, Heather McElroy (HM) to Holly Trevisan: Information on Box Turtles and NHES program	4/6/11
Email, HM to Holly Trevisan (HT): Box Turtles and NHES program	4/7/11
Email, AA to HT: Clarify location of next hearing (on 4/14/11)	4/7/11
Memo, Andy Koziol: Transportation Level of Service analysis	4/7/11
Meeting Notice – Subcommittee meeting (cancelled)	4/11/11
Email, AA to PA: Receipt of comment letter; 4/14/11 hearing location	4/8/11
Email, AA to GM: Copies of materials in record 3/23/11 to 4/8/11	4/8/11
Staff Report	4/8/11
Email, AA to GM: Copies of 4/8/11 staff report	4/8/11
Memo and attachments, AA to Subcommittee: staff report; draft 3/23/11 minutes; 3/23/11 staff slides; 4/6/11 and 4/7/11 Emails from HM to HT on Box Turtles; 4/7/11 Transportation Memo; 3/29/11 & 3/31/11 letters from GM; 3/23/11 Email from James Gallagher; Two 4/6/11 Emails from HT to HM on Box Turtles; and 4/8/11 Email and letter from PA	4/8/11
Hearing Notice – Continued public hearing	4/14/11
Email, AA to GM: Copy of letter from David Farquhar	4/14/11
Copy of Water Resources Staff Report Power Point slides	4/14/11
Copy of Staff Report Power Point Slides	4/14/11
Hearing Outline	4/14/11
Minutes – Continued public hearing	4/14/11
Hearing Sign In Sheet	4/14/11
Email, GH to Brewster, Eastham and Orleans Town Clerks, Notices for 4/28/11 continued hearing and 5/24/11 meeting	4/20/11
Email, Jessica Wielgus, Commission Counsel, to GM: Hearing process	4/21/11
Email, AA to GM: Request for letter from Ms. Fulcher, Orleans Board of Selectmen (not sent as part of 4/21/11 Email)	4/25/11
Email, AA to GM: Follow up on GM request for materials submitted and audio file of 4/14/11 Subcommittee hearing	4/26/11
Email, AA to Sue Leven, Brewster Town Planner: Response to her inquiry for draft decision	4/26/11
Phone Log, AA to Beverly Carney: Appeal of Commission decisions	4/27/11
Meeting Notice – Subcommittee Meeting	4/28/11
Email, AA to GM: Response to his request to be kept informed of Subcommittee questions	4/28/11
Email, AA to GM: Follow up to his request for materials from record	4/28/11
Email, AA to Susan Broderick, Brewster: Acknowledge receipt of letter by Email from Brewster Town Administrator	4/28/11
Email, AA to GM: Forward copy of letter from Brewster Town Admin.	4/28/11
Email, Thomas Cambareri to Paul Neidzwiecki: Copies of Power Point presentations related to assimilative capacity of Namskaket Marsh	4/28/11
Email, AA to Susan Broderick: Public officials welcome to attend meetings and hearings	4/28/11
Letter, AA to GM: Copies of materials from the record and audio file of 4/14/11 hearing (on CD) (By hand)	4/28/11

Meeting Outline	4/28/11
Minutes – Subcommittee meeting	4/28/11
Memo, AA to Subcommittee: Copies of materials submitted at 4/14/11 hearing; 4/20/11 letter from Ms. Fulcher and 4/27/11 Email from MF (distributed at meeting)	4/28/11
Email, AA to GM: Follow up to materials provided by hand on 4/28/11	4/29/11
Email, AA to Sue Leven, w/attachs: Follow up to her request for copies of Commission staff reports	4/29/11
Phone Log, AA to VR: Follow up to discussion at 4/14/11 hearing	4/29/11
Letter, AA to Sue Leven: Copies of Commission staff Power Points	
Email, GH to Brewster, Eastham, Orleans Town Clerks – Notices	5/13/11
Email, AA to Sue Leven, Sarah Raposa, Sheila Vanderhoef on continued hearing and meeting on 5/24/11	5/17/11
Email, AA to Administrative Staff at Eastham Town Hall- Hearing Notice for 5/24/11	5/18/11
Email, AA to GM and Commission staff: Subcommittee still in deliberations, so no DRI decision; hearing on 5/24/11 for testimony; Hearing and record may close 5/24/11 or 5/27/11	5/18/11
Phone Log, AA to BC: Returned her phone call of 5/17/11 about hearing	5/18/11
Email, AA to Commission staff: Copy of PA's Email of 5/19/11	5/19/11
Email, AA to GM: Copy of PA's Email of 5/19/11	5/19/11
Email, AA to PA: Receipt of his Email and attachment	5/19/11
Email, AA to GM: Response to his Email about next steps in process	5/20/11
Cover Memo, AA to Subcommittee – Copies of materials from the record: Draft 4/14/11 and 4/28/11 Minutes; 5/12/11 Brewster proposal; 5/17/11 Email from AA to Sue Leven, Sheila Vanderhoef; 5/18/11 Email from GM on DRI decision; 5/18/11 Email from AA to GM; 5/19/11 letter from Paul Ammann, Edward Daly and Jeffery Eagles; 5/18/11 letter from Peter Norton, Brewster BOS Chair; 5/20/11 Email from GM on process; 5/20/11 Email from AA to GM on process; 5/20/11 Email and letter from GM on response to Paul Ammann including Article #4 from Town Meeting; 5/24/11 Email from GM with response to Paul Amman; 5/24/11 Email from Beverly Carney	5/24/11
Hearing Notice – Continued hearing	5/24/11
Continued Public Hearing Minutes	5/24/11
Meeting Notice	5/24/11
Email, AA to Beverly Carney: Receipt of her Email of 5/24/11	5/24/11
Email, AA to GM: Copy of 5/24/11 Email from Beverly Carney	5/24/11
Email, AA to GM, Sue Leven and Sheila Vanderhoef: Notice that hearing period and record will close on 5/27/11	5/24/11
Email, AA to Sue Leven: Please clarify Email on 5/18/11 letter	5/24/11
Hearing Outline	5/24/11
Sample Motions on Findings for Review and Approval	5/24/11
Hearing Sign-In Sheet	5/24/11
Email, AA to Commission staff: Copy of 5/25/11 Email/letter from GM	5/25/11
Email, AA to GM: Receipt of 5/25/11 Email and letter	5/25/11
Email, AA to GM: Acknowledge request for copies of materials submitted at 5/24/11 hearing and until record is closed	5/25/11

Email, GH to Brewster, Eastham and Orleans Clerks: Meeting Notice	5/25/11
Email, AA to Susan Leven, Sheila Vanderhoeff, Sarah Raposa and GM: Subcommittee to hold meeting on 6/9/11 at 1:00 PM	5/25/11
Email, AA to PA: Receipt of Email and PDF attachments	5/27/11
Email, AA to Carol Spade: Receipt of 5/26/11 Brewster Conservation Commission letter	5/27/11
Memo, AA to Subcommittee: Materials submitted since 5/24/11	6/2/11
Meeting Notice	6/9/11
Minutes – Subcommittee meeting	6/15/11
Email, Len Short to AA: Copy of Email from MF (10:10 AM)	6/29/11
Email, Len Short to AA: Copy of Email from MF (10:43 AM)	6/29/11
Email, Len Short to MF (4:31 PM)	6/29/11
Draft written decision	7/1/11
Signed Extension Agreement	7/7/11
Letter, Attorney Elizabeth Enos, to MF, public records request, copy of draft 7/1/11 written decision	7/8/11
Email, Len Short, Orleans Commission member, to AA; Transmission of Email from Augusta McKusick	7/14/11
Email, Len Short to Augusta McKusick; About her 7/14/11 Email	7/14/11
Email, AA to MF; No Subcommittee meeting on 7/19/11	7/15/11
Hearing Notice	7/21/11
Meeting Outline for 7/21/11 Commission meeting	7/21/11
Signed Extension Agreement	9/15/11
Memo and attachments, AA to Subcommittee: Copy of draft decision, copy of draft 6/9/11 and 7/7/11 Minutes	9/21/11
Draft written decision	9/16/11
Meeting Outline	9/27/11
Meeting sign in sheet	9/27/11]
Minutes – Subcommittee meeting	9/27/11
Email, KS to GM and others – Draft written decision	10/3/11
Email, KS to Subcommittee – Draft written decision and meeting	10/3/11
Draft written decision	10/7/11
Meeting Outline	10/7/11
Minutes – Subcommittee meeting	10/7/11
Email, KS to GM and others – Copy of draft decision	10/7/11
Commission Staff PowerPoint of draft decision	10/13/11
Materials from Applicant	Date Received
Draft CWMP, Prepared by Wright-Pierce, dated October 2008	2/5/09
Draft CWMP, Prepared by Wright-Pierce, Expanded ENF/Single EIR and Joint Review Application	4/29/09
Draft CWMP, Prepared by Wright-Pierce (WP), dated April 2009 (Paper copy and CD)	5/1/09
Transmittal memo, Heather Merriman, WP, copy of draft CWMP/Expanded ENF and CD	5/1/09
Abutters List (Surrounding Tri-Town site)	5/19/09
Letter, John Kelly, Town Administrator, to Secretary Bowles, clarification of draft CWMP and Expanded ENF	6/22/09

Email, George Meservey (GM), to AA, DRI process	2/2/10
Email, GM to AA, Acknowledgement of response on DRI process	2/3/10
Printout, Orleans CWMP, Flows at Tri-Town Site	February 2010
Cover letter, Michael Giggey (MG), WP, to Secretary Bowles, Response to comments on Expanded ENF	12/13/10
Email, Town Clerk, Hearing Notice has been posted	12/28/10
Email, GM to AA, Request for list of Subcommittee members	1/6/11
Color PowerPoint Slides (93), Town's Presentation at 1/18/11 hearing	1/18/11
Email, GM to AA, Will respond to issues raised	1/19/11
Email, GM to AA, Reservation of room at Town Hall on 3/1/11	2/7/11
Letter, GM to Paul Niedzwiecki, CWMP consistency with local bylaws and Local Comprehensive Plan (by Email)	2/11/11
Email, GM to AA, Speakers at 3/1/11 hearing as part of Town's presentation	2/28/11
CD containing video of Joint Commission/MEPA hearing on 1/18/11	2/28/11
Letter, GM to Roger Putnam, Subcommittee Chair, Response to comment received at 1/18/11 hearing	3/1/11
Color Power Point Slides, Wright-Pierce, Given as part of Town's presentation at 3/1/11 hearing	3/8/11
Color PowerPoint Slides, Dr. Wieskel, USGS, Given as part of Town's presentation at 3/1/11 hearing	3/8/11
Email, GM to AA: Clarification concerning Power Point slide used by Brian Dudley (DEP) at 3/1/11 hearing	3/8/11
Email, GM to AA: Concerns about open space requirements	3/9/11
Email, GM to HM: Concerns about open space requirements resolved	3/10/11
Email, GM to AA: Comment letter, with attachments: Response to comments and questions raised at 3/1/11 hearing	3/11/11
Letter, GM to AA: Hard copy of letter sent by Email on 3/11/11	3/14/11
Email, GM to AA: Information on sewers in public and private roads	3/15/11
Email, GM to AA: Request for copies of information submitted by public and Towns, others, to date	3/24/11
Email, GM to AA: Letter on private roads post sewer construction	3/29/11
Letter: GM to Roger Putnam: Hard copy of 3/29/11 Email	3/30/11
Email, GM to AA: Memo on impacts to coastal resources	3/31/11
Letter, GM to Roger Putnam: Hard copy of 3/31/11 Email	4/1/11
Email, GM to AA: Question on Subcommittee meeting	4/4/11
Letter, Ms. Fulcher, Orleans Board of Selectmen (BOS) to Subcommittee	4/14/11
Email, GM to KS: Letter from Ms. Fulcher, Orleans BOS	4/21/11
Email, GM to AA: Request for Subcommittee Minutes of 1/18/11, 3/1/11 and 3/23/11	4/21/11
Email, GM to AA: Letter from Ms. Fulcher, Orleans BOS (not sent as part of 4/21/11)	4/25/11
Letter, Ms. Fulcher, Orleans BOS (Also sent by Email 4/25/11)	4/25/11
Statement of Cooperative Intent with Town of Brewster (2 pages)	5/12/11
Email, GM to AA: DRI decision drafted and agenda for 5/24/11 hearing	5/18/11
Email, GM to TC: Study of alternate wastewater treatment systems per	5/20/11

Town Meeting vote and copy of Article #4	
Email, GM to AA: Next steps in review process	5/20/11
Email, GM to AA, with attachment: Response to comments from Paul Amman, Edward Daly and Jeffery Eagles	5/24/11
Letter, GM (by hand at hearing): Copy of response to Paul Amman, Daly, Eagles	5/24/11
Email, GM to AA, with attachment: Letter from Margie Fulcher as final comments	5/25/11
Letter, David Dunford, Orleans Selectman	5/26/11
Email and attached draft decision, GM to PD and TC: Town's comments on draft decision	9/12/11
Materials from Local, State, Federal Agencies	Date Received
Letter, Massachusetts Historical Commission (MHC), reconnaissance survey requested, and further review as project proceeds	5/18/09
Secretary of EOEEA, Certificate on Expanded ENF	7/10/09
Letter, MHC, further review as project proceeds	12/23/10
Note, on Snow Library stationary, Confirm delivery by Commission staff of CWMP to Library	1/11/11
Letter, to Secretary Bowles and Paul Niedzwiecki, from Patricia Hughes, Chair, Brewster Comprehensive Wastewater Planning Committee	1/18/11
Letter, to Secretary Sullivan and Paul Niedzwiecki, from Arnold Henson, Chair, Orleans Conservation Commission	1/18/11
Letter, Sims McGrath, Vice Chair, Orleans Board of Selectmen, Comments on CWMP	1/18/11
Email and Letter, with attachments, to Secretary Sullivan and Paul Niedzwiecki, from Jane Crowley, Eastham Health Agent on behalf of Selectmen	1/24/11 Email received 1/21/11
Secretary of EOEEA, Certificate on CWMP/Single Final EIR	1/28/11
Email, Susan Leven, Brewster Town Planner, Request for Staff Report	2/15/11
Letter, Linde MacLeod, President, Orleans Conservation Trust	3/1/11
Email, Susan Leven, Request for copies of Commission staff's PowerPoint presentations used at 3/1/11 hearing	3/2/11
Letter, Edward Lewis, Chair, Brewster Board of Selectmen, to Margie Fulcher, Chair, Orleans Board of Selectmen	3/7/11
Edward Eichner, Senior Water Scientist, to TC: Email and Technical Memo – Namskaket Marsh Estuary Watershed	3/17/11
Email, Sue Leven, Brewster Town Planner, to AA: Request for draft decision	4/26/11
Email, Susan Broderick, Administrative Assistant, Brewster Town Administrator, with attachment: Copy of letter from Brewster Town Administrator	4/28/11
Email, Town of Brewster, with attachment: 5/18/11 letter on CWMP addressed to Paul Niedzwiecki	5/19/11
Email, Sue Leven to AA: Correction to Town's letter of 5/18/11	5/24/11
Email, Sue Leven to AA: Clarification of correction to Town's 5/18/11 letter	5/24/11
Letter, Stephen McKenna, Chair, Brewster Conservation Commission	5/27/11
Letter, Peter Norton, Chair, Brewster Selectmen	8/16/11
Materials from General Public	Date Received

Letter, with attachments, from Mary Hartley to Secretary Bowles	11/10/09
Letter, with attachments, from Mary Hartley to Secretary Bowles	4/7/10
Email, from Augusta McKusick	1/11/11
Email, from Carole Ridley, to AA, NZ and others, Comment letter	1/12/11
Email, from Michael C. Farber (MF), to PD and others	1/13/11
Email, from Fran Meaney to PD and others	1/13/11
Email, from MF to KS and others, request postponement of hearing	1/13/11
Email, from Kevin Cassidy to PD and others, postponement of hearing	1/13/11
Email, from MF to PD and others	1/13/11
Email, from MF to PD and others	1/13/11
Email, from MF to PD and others	1/18/11
Email, from MF to PD and others	1/18/11
Email, from MF to PD and others	1/18/11
Email, from MF to GM, PD, KS and others	1/18/11
Email, from MF to PD, NZ and others	1/18/11
Copy, provided by Vicky Reis, Black and white printout of slides from 2/15/05 presentation by Peter K. Weiskel, USGS	1/18/11
Copy, Color brochure of <i>Orenco's Effluent Sewers</i> and a 11/23/09 My View Article by Gary P. Clifton, from <i>Cape Cod Times</i>	1/18/11
Letter, Carolyn Kennedy, Comments on CWMP	1/18/11
Second Letter, Carolyn Kennedy, Orleans Pond Coalition, to Secretary Sullivan and Paul Niedzwiecki	1/18/11
Letter, Douglas Pluciennik, Comments on CWMP	1/18/11
Second Letter, Douglas Pluciennik, Comments on CWMP	1/18/11
Letter, Ben Buck, Comments on CWMP	1/18/11
Letter, David Farquhar, Comments on CWMP	1/18/11
Letter, Beverly Carney (BC), Comments on CWMP	1/18/11
Letter, Alan McClennen, Jr., Comments on CWMP	1/18/11
Second Letter, Alan McClennen, Jr., Comments on CWMP	1/18/11
Email, KS to MF, Legal Notice of MEPA Hearing	1/18/11
Email, Kevin Cassidy, to AA, Comments on CWMP	1/19/11
Email, MF to NZ and KS, Contacting Mary Hartley	1/19/11
Email, Augusta McKusick, to Glenn Cannon, Schedule for next hearing	1/24/11
Letter, Brian and Judy Embleton, to Secretary Sullivan	1/24/11
Email, with attachments, Paul Ammann (PA) to TC, Comments on CMWP	2/1/11
CD, Copy of Paul Ammann's comments on CWMP	2/1/11
Email, MF to Vicky Reis and others, Groundwater Protection Fund	2/7/11
Email, MF to GM and KS, Public records request	2/8/11
Email and color attachments, MF to AA: CapeCodLiving BLOG/Cockle Cove Creek	2/8/11
Email, MF to Various, CapeCodLiving BLOG/Cape Cod Groundwater Protection Fund	2/20/11
Email, Paul Schwartz, National Policy Coordinator, Clean Water Action, to MF, Namskaket Marsh	2/22/11
Email, MF to Paul Schwartz, Namskaket Marsh	2/22/11

Email, MF to Various, MA Conservation Foundation / V Coalition for Buzzards Bay	2/22/11
Packet of Materials, from Mary Hartley, Groundwater Protection Fund	3/1/11
Copy, Color brochure of <i>Orenco's Effluent Sewers</i> and a 11/23/09 My View Article by Gary P. Clifton, from <i>Cape Cod Times</i>	3/1/11
Letter, Beverly Carney, Comments on CMWP	3/1/11
Letter, Jeffrey Eagles, Comments on CWMP	3/1/11
Letter, Len Short, Comments on CWMP	3/1/11
Letter, Carolyn Kennedy, Comments on CWMP	3/1/11
Letter with attachments, Vicky Reis, Comments on CWMP and ACEC	3/1/11
Letter, Douglas Pluciennik, Comments on CWMP, ACEC, SMAST	3/1/11
Letter, Nello Trevisan, Comments on CWMP	3/1/11
Letter with attachments, Nello and Holly Trevisan, Information on George D. Hofe Memorial Conservation Area	3/1/11
Email, PA to AA and others, Request for copies of Commission staff PowerPoint presentations and Town's PowerPoint presentations given at 3/1/11 hearing	3/2/11
Email, PA to AA: Acknowledges hearing date is 3/15/11 and hearing will be procedural only	3/3/11
Email, PA to AA: Response to 3/7/11 Email concerning copies of Power Point presentations	3/11/11
Email, PA to AA: Received CD with Power Points by mail	3/11/11
Email with attachment, Pete and Ellie Johnson – Holly Trevisan's letter on the George D. Hofe Trust (Sent to Commission Member Taylor)	3/14/11
Email, with attachment, Mark Robinson – Letter from Linde MacLeod, Orleans Conservation Trust dated 3/1/11) (Sent to Commission Member Elizabeth Taylor)	3/14/11
Email, Fran McClennen to KS: File Review	3/14/11
Letter, Ben Buck, Comments on Orleans CWMP	3/15/11
Email, PA to AA: Population density maps	3/15/11
Email, PA to Anne Reynolds: Receipt of information on population density maps	3/17/11
Email, MF to AA and KS: Cape Cod Living – BLOG – <i>Groundwater Protection Fund Going Old Salt on Namskaket</i>	3/21/11
Email, Nello Trevisan to AA: Comments on CWMP	3/21/11
Email, Vicky Reis (VR) to AA: Comments on CWMP (Includes comments made at 3/1/11 public hearing)	3/22/11
Email, VR to AA: Question on public hearing on 3/23/11 (3/23/11 is a public meeting)	3/22/11
Email, VR to AA: Follow up of telephone conversation with AA	3/23/11
Email, Holly Trevisan (HT), to HM: Box Turtles and NHES program (attached to HM 4/6/11 reply)	4/6/11
Email, HT to HM: Box Turtles	4/6/11
Email, HT to AA: Confirm understands next hearing is on 4/14/11	4/7/11
Email and attachment, PA to AA: Comment letter on staff citations of the June 2009 Woods Hole Group (WHG) report	4/8/11
Letter, PA to TC: Copy of letter on WHG report (also by Email 4/8/11)	4/8/11
Letter, DF to Subcommittee: Comment letter	4/14/11

Letter, PA to Subcommittee: Comment letter	4/14/11
Copy of Comments presented at hearing: Chet Crabtree	4/14/11
Copy of Comments presented at hearing: Jeffrey Eagles	4/14/11
Copy of Comments presented at hearing: Carolyn Kennedy	4/14/11
Copy of Comments presented at hearing: Jane Corlette	4/14/11
Copy of Comments presented at hearing: Len Short	4/14/11
Copy of Comments presented at hearing: Judith Bruce	4/14/11
Four (4) color photographs from Steve Ellis	4/14/11
VR to Subcommittee: Copies of information including 10/10/08 <i>Cape Codder</i> article; Census Bureau fact sheet on Orleans; Tidal Atlas information; 7/30/09 letter and attachments to Michael Farber from Daniel McKierman, Massachusetts Division of Marine Fisheries; ENF form for Project # 13833, Little Namskaket Creek and US Wildlife Service summary sheet on Coastal Wetland Conservation Projects for Fiscal Year 2002 (culvert on Namskaket Creek)	4/14/11
Email, MF to AA and others: Groundwater Protection Fund Alert	4/27/11
Email, VR to AA: Clarified that she wanted Minutes of 4/14/11 hearing	5/12/11
Email, PA, Edward Daly, Jeffery Eagles, with attachment: Comments	5/19/11
Email, Beverly Carney to AA: Comments on project	5/24/11
Letter, Nello Trevisan: Comments on project	5/24/11
Letter, David Farquhar: Comments on project	5/24/11
Letter, Edward Daly: Comments on project	5/24/11
Letter, Alan McClennen: Comments on project	5/24/11
Packet of information, VR: 5/09 Phase 8 supplemental site investigations, site 241 from CWMP; 1/19/01 letter to Secretary Sullivan of EOEEA with its attachments; 6/2/10 letter from Orleans Board of Selectmen to Barnstable County Commissioners on MEP Methodology Section 11.2.2 of CWMP - Public consultation process - Wright-Pierce; April 2009 draft, Table 7-5, treatment plant sites, Wright-Pierce; May 2008 draft, Section 5.12-Suitability of treatment facility sites, Wright-Pierce; From 2008 Orleans Town Report - Town Meeting Article 9 - Orleans CWMP; <i>Cape Codder</i> , 10/10/08 article, <i>Draft Wastewater Plan Leads Warrant</i> ; <i>Cape Cod Times</i> , 5/10/11 article, <i>Large Majority Backs New Study of Sewer Systems</i> ; Table 2-2, CWMP, Current Wastewater Flows, Wright-Pierce; Listing of Massachusetts Areas of Critical Environmental Concern, June 2009; Summer, 2003 - Description of Inner Cape Cod Bay ACEC; Town of Orleans: Town Map, Chart of Site Characteristics, Slides 1-7; Cape Cod Atlas of Tidally Restricted Marshes (5 pages); Three pages of color GOOGLE maps showing Tri-Town site; 4/3/09 LEC color Aerial Orthophoto of Tri-Town site; Color Aerial Orthophoto showing Box Turtle habitat; Orleans CWMP, color figures 1, 2, 3, 4, 11-2 showing existing and proposed treatment facilities; Three pages of color photographs of views of Tri-Town site taken 2/11/09; Site locus of Tri-Town site, August 2005; USGS File Report, 95-290: <i>A Nitrogen-Rich Septage Effluent Plume in a Glacial Aquifer, Cape Cod, MA, February 1990 through December 1992</i> , Leslie DeSimone et. Al., 3/5/10 Memo, Attorney Michael D. Ford, to John F. Kelly, Orleans Town Administrator; 7/7/88 letter, MA Division of Marine Fisheries, to Orleans Board of Selectmen, closures of shellfish beds; 7/30/09 letter,	5/24/11

Daniel J. McKierman, Division of Marine Fisheries, to David Farquhar; Orleans CWMP, Figure 14, Site 241, Particle Tracks – Wright Pierce; Comments from Nello Trevisan on George D. Hofe Memorial Trust Conservation Area; Newspaper article, Nello Trevisan, MY VIEW, <i>Sewage Plant Imperils Two Marshes</i> ; Large size color GOOGLE map showing Tri-Town site	
Letter, with attachments, Marty Hartley: Comments on project	5/26/11
Letter, with attachments, VR: Article, <i>Orleans Oracle</i> 11/15/90; Article, <i>Cape Codder</i> , 11/27/90; Article, <i>Cape Cod Times</i> 10/26/90; Article, <i>Cape Codder</i> , 9/18/90; <i>Orleans Oracle</i> , Opinion, 11/1/90; Article, <i>Cape Codder</i> , 11/27/90; Article, 11/8/90; Article, <i>Orleans Oracle</i> , 12/27/90; Article, <i>Cape Cod Times</i> , 4/12/97; Article, <i>Cape Cod Times</i> , 9/17/90; Article, <i>Orleans Oracle</i> , 10/25/90; Article, <i>The Advocate</i> , 11/8/90	5/26/11
Letter, with attachments, Allan McClennen: Comments on project	5/26/11
Email with attachmtns, PA to AA: Letters from himself & Jeffrey Eagles	5/27/11
Email, MF to various people: Groundwater Protection Fund – New Alert	6/27/11
Email, MF to various people: Public Records Request for USGS Test Results	6/28/11
Email, MF to various people: Public Records Request	7/12/11
Letter, Pam Curren, Objection to project	7/14/11
Letter, Ed DeWitt, Executive Director, APCC	10/6/11
Beverly Carney	10/11/11
Jon Fuller	10/13/11

TESTIMONY

March 1, 2011 Subcommittee DRI Hearing

The Commission Subcommittee held a public hearing for the purpose of receiving comments on Orleans Comprehensive Wastewater Management Plan (CWMP) as a Development of Regional Impact (DRI). The Subcommittee heard presentations on the CWMP by the Commission staff, Town staff, and the Town's consultants. The Subcommittee heard comments and questions on the CWMP from persons who attended the hearing. The Subcommittee approved the draft Minutes of the January 18, 2011 joint hearing with MEPA as presented. The Subcommittee voted to continue the hearing to March 15, 2011 at 10:00 AM at the Commission's office in Barnstable for procedural purposes.

Mr. Meservey discussed the process of developing the Orleans CWMP and the public involvement over the past ten years and used a series of PowerPoint slides to illustrate his points. Mr. Meservey handed out a written response to comments made at the January 18th hearing to the subcommittee for the record, as well as an engineering evaluation of the nitrogen loading at the Nanskaket Marsh system in response to a question brought up by Mr. Taylor. Mr. Meservey then invited Mike Giggey of Wright-Pierce to make a presentation on the overall CWMP.

Mr. Giggey began his presentation by reviewing the CWMP process and the EENF and S/FEIR review process and stating that the driving force is to reduce nitrogen loading in embayments and eliminate as many as 2800 septic systems while addressing sanitary needs, pond protection, water supply protection and provide an allowance for affordable housing. Mr. Giggey discussed the process by which the current plan was chosen and noted that it was most

favored by 70% of respondents. He discussed the benefits of this plan and what it entails. Mr. Giggey provided a time line for completion and noted the environmental factors involved and the estimated cost of completing all six phases, and stated that using a Tri-Town site will save the Town's money. Mr. Giggey also noted that the MEPA process has been completed since the last public hearing and on January 28, 2011 the EOE secretary found that the Orleans Comprehensive Management Plan properly and adequately complies with the Massachusetts Environmental Policy Act. He stated that comments were made by agencies that are deeply involved with the environmental issues that impact Orleans such as Marine Fisheries, Coastal Zone Management, and the Department of Environmental Protection. He stated that he wanted to address some of the comments that were made. He referred to a comment relating to STEP systems and confirmed that the town could save money by using these systems and they will be analyzed and to the extent that they make sense will be utilized at certain sites. He then noted that the Town did thoroughly look at decentralized options, but it would cost about 40% more than the plan that was chosen and it did not have the support of the public that participated in the process. It was also confirmed by an engineering report that the decentralized options were neither feasible nor cost-effective. Mr. Giggey stated that at the last hearing he also heard comments about the science, and whether there was adequate science to support the plan. He stated that a recognized expert was hired to look at the plan and the CWP is based on the "science of record." It is the accepted science across the Cape, well documented, and the Town's independent consultant has approved the plan. He stated that the Applicant is asking for DRI review of the plan, not the science behind it. He went on to address a comment dealing with the improvement of water quality in Pleasant Bay. He stated that the Pleasant Bay Alliance has looked at ten years of data in Pleasant Bay and the report stated that most stations showed no statistically significant change in water quality in most stations and in headquarters. He noted that DEP has looked at the 2007 breach and warned not to rely on it because it would not be around for long. Mr. Giggey then discussed a question relating to the removal of wastewater from one watershed and adding it to another. He stated that today there is approximately 44 million gpd of recharge. He noted that as a result of the project, Pleasant Bay will have a reduction in recharge by about a quarter of a million gallons per day. There will also be a reduction in the Nauset Watershed, but an increase in Cape Cod Bay, and the increase was what was questioned in the last hearing. The increase will be about 6%. He noted that the year to year variations in recharge are much more drastic than the variation that results from this plan. He noted that in 1950 the recharge in the watershed stayed there because there was no town water system.

Mr. Giggey reviewed the four different ways to characterize the Tri-Town site in respect to effluent disposal and showed slides relating to the mounding under current and proposed conditions and what they indicate. Mr. Giggey acknowledged that with the proposed upgrades to the Tri-Town site, the amount of flow would increase, but the nitrogen loading from the flow would decrease. Mr. Giggey said the project impacts to Namskaket Marsh used in the CWMP are conservative relative to the MEP's assumptions. He said the marsh has adequate capacity to assimilate the annual nitrogen loads expected with the proposed project. He said the MEP reports indicate the marsh has the ability to assimilate 37,000 pounds per year, and the CWMP project represents a 13,700 pound per year load with expected growth. He noted that septic systems create nitrogen plumes and that the discharge from a wastewater treatment plant would be lower than that from a septic system. Mr. Giggey said the creek channels in the marsh are where the majority of the nitrogen absorption occurs.

Dr. Peter Wieskel, Associate Director, MA/RI US Geological Survey, presented a PowerPoint presentation. He reviewed the USGS's involvement in hydrogeologic investigations at the Tri-Town site from 1989 to the present. He noted this included tracking the development of a

nitrogen plume, an ecology study in Namskaket Marsh and baseline water quality data in Namskaket Creek, sampling in 2003 of the aquifer below the marsh, and resumption of water quality sampling in 2004 and again in 2010. He used a series of slides representing the marsh cross-section to describe the plume's interaction with the marsh. He said the maximum plume concentration was approximately 15 mg/liter versus a septic system at 30 mg/liter. He said there are four possible routes from plume discharge, and discussed the relative likelihood that the plume would discharge in each of these areas in the marsh. Dr. Wieskel said the most likely flow path for the plume is in the creek zone or deep flowpath. He said this is based on the relative geology, salinity levels (which are an indication of groundwater discharge), and the flowpath of the plume. Dr. Wieskel showed slides indicating locations of potential additional monitoring sites, which are still subject to discussion and indicated some sites would include sampling in the creek bottoms and another set of wells further downgradient along public roads. He noted sampling had started at three sites in the creek (Sites A, B, E) during ebb tide, looking at nitrogen loading. He compared current samples to those taken in 1993-1996, and noted the data sets show the same relative nitrogen concentrations which indicates no impact from the plume.

Brian Dudley, MA Department of Environmental Protection (DEP), used a single Power Point slide (#71 in Mr. Giggey's presentation) to describe the DEP's involvement in the CWMP and groundwater discharge permit program. He said the state's groundwater discharge program would involve a hydrogeological evaluation, a review of down-gradient receptors, a review of plant design plans, and would include public comment and a monitoring plan.

Ms. Andrea Adams, Senior Regulatory Planner for the Commission provided an overview of the project and discussed the Commission's jurisdiction and Commission staff analysis. She reviewed each section of the Regional Policy Plan, as covered in the Commission's Staff Report, beginning with Natural Resources. She noted a "no take" letter from the Natural Heritage and Endangered Species Program and that Natural Heritage may require a Conservation Management Plan which could include ways to address the open space requirements of the Regional Policy Plan ("RPP"). She emphasized the benefits of reuse of the Tri-Town site and existing disturbed areas and the growth-neutral policy of the CWMP. Ms. Adams noted that the Tri-Town site does not impact coastal resources, but some project components may impact dunes, beaches, and Land Subject to Coastal Storm Flowage (LSCSF), and reviewed a variety of measures to address compliance with Coastal Resources Minimum Performance Standards. Ms. Adams stated that in the area of Heritage Preservation and Community Character, in a letter dated December 20, 2010, the Massachusetts Historical Commission (MHC) determined that the project is unlikely to impact significant archaeological resources at the Tri-Town site. The Town will conduct a survey for archaeological resources at sites selected for Cluster systems and the project will be reviewed by MHC and Old Kings Highway Historic District (OKHHD). Ms. Adams noted that the project is likely to be consistent with RPP Minimum Performance Standards for protection of archeological sites and historic structures and consistent with distinctive areas. In the area of Transportation, Ms. Adams stated that staff estimates a reduction in septage truck trips to the Tri-Town facility once the site is upgraded as stated in the Single/Final EIR, and that the Town should provide estimates of all daily and peak hour trips. Ms. Adams noted the RPP Standards in this area and stated that the Tri-Town plant's driveway should be analyzed to determine if it meets the sight distance standards and the Town should conduct Level of Service at the Tri-Town plant's site drive. Ms. Adams concluded her portion of the presentation by introducing Mr. Tom Cambareri from the Commission's Water Resources staff to discuss Water Resources and the conclusion.

Mr. Tom Cambareri, Hydrologist and Water Resources Program Manager at the Cape Cod Commission provided a PowerPoint presentation in which he reviewed some of the key Minimum Performance Standards in Water Resources, some of the siting issues related to the project, addressed the science involved from the staff's perspective, and highlighted suggested potential conditions of a DRI for the subcommittee's consideration. Mr. Cambareri reviewed the goals of the Water Resources section of the RPP and several Minimum Performance Standards within those goals and the Plan's compliance with these Standards. Facility siting, Mr. Cambareri stated, is one of the most difficult challenges of any CWMP and there is a host of criteria to evaluate the suitability of sites. He reviewed the criteria and the process for selecting suitable sites. He compared the annual flow and annual nitrogen load of the Tri-Town site with the proposed Wastewater Treatment Facility at the initial phases and noted that although the flow increases significantly, the concentration of treatment effluent is less. He also stated that the numbers do not account for hydrogeologic underflow and the assumptions are conservative. Mr. Cambareri stated that the Consultant Model indicates that 70% of effluent flow may discharge into Namskaket Creek but USGS studies indicate a larger percent of effluent flow passes beneath the Marsh to Cape Cod Bay. He then compared the existing and build out loads at Namskaket Creek and noted that the threshold load for Namskaket is 36,925 lbs/yr. He presented a slide demonstrating town contribution to wastewater flow into Namskaket watershed and stated that approximately 58% comes from Brewster, 23% from Orleans residential, and 19% from Orleans commercial.

Mr. Cambareri explained the MEP approach and noted that the science behind it is comprised of watershed delineation, nitrogen loading, hydrodynamic models, ecological conditions, and water quality models. Mr. Cambareri stated that many questions were raised about the science, and Commission staff reviewed the information that was handed to them and looked at the Woods Hole Group Peer Review Report from June 2009 on Pleasant Bay MEP and some of the conclusory points were that MEP is a high quality and necessary endeavor, and the overall modeling approach is well conducted and the hydrodynamic model appears to be reasonably calibrated and verified, and the MEP report for the Orleans portions of Pleasant Bay represent a strong foundation for developing a course of action to develop and comply with site specific TMDL requirements. The core recommendations from the report, Mr. Cambareri stated, are to encourage the Town to prepare for a phased wastewater facilities planning approach with incremental steps for complying with TMDL requirements. Depending upon how the estuarine system responds, future phases or plans for wastewater control could be modified, and Mr. Cambareri stated that this is the essence of an adaptive management approach, which he recommended the Town pursue as part of its overall long term compliance strategy. Mr. Cambareri noted that the regulatory status is that the MEP technical reports have been accepted by DEP and EPA as critical loads and have become the TMDLs which have been adopted by Barnstable County according to the Regional Policy Plan. Mr. Cambareri then concluded his presentation with recommended DRI Conditions for consideration and findings for approval. He summarized the criteria for approval of DRIs according to the Commission's *Enabling Regulations* and noted a letter from George Meservey dated February 11, 2011, stating that the plan is consistent with the local comprehensive plan and development bylaws and that since there are no DCPCs in Orleans, this criterion does not apply.

Mr. Peter Graham asked if it is staff's opinion that the plan is consistent with the Regional Policy Plan.

Ms. Adams stated that Mr. Cambareri had demonstrated areas where the project is consistent and Ms. Adams presentation covered other areas of the Regional Policy Plan. She said that staff's general recommendation is that more information is needed in the areas of Natural

Resources, Open Space, and Transportation, so staff is not yet ready to determine consistency with respect to those issues at this time.

Mr. Cambareri noted that the project would be consistent with Water Resources with appropriate conditions.

Mr. Graham asked that staff provide a list to the subcommittee of issue areas where the project is consistent and where it is not.

Ms. Elizabeth Taylor stated that she did not see any mention in the staff report that the marsh area is an Area of Critical Environmental Concern (ACEC) and that she would like to see that in the report. She also stated that she knows there are some issues with the shellfish beds, and that it's not a nitrogen issue but a fecal coliform or E. coli issue. She said she does not know whether that is from effluent from local septic systems or mammals and birds but that should also be mentioned in the report.

Mr. Putnam asked for comments from Federal, State, Regional and local Officials.

Mr. Sims McGrath, Vice Chairman of the Board of Selectmen for the Town of Orleans, member of the Governing Counsel for the Cape Cod Water Protection Collaborative and a former member of the Planning Board spoke about the Town's CWMP and stated that it relies on adaptive management and allows for unanticipated changes. Mr. McGrath stated that a lot of money has been spent by the Town in eliminating as much uncertainty as possible and that the Town is supporting other CWMP review opportunities. He said that maintaining healthy estuaries is a benefit to all the surrounding communities and that the Town looks forward to reviewing and considering the comments and conditions of the staff report and that the Board hopes that the subcommittee will find that the CWMP meets the criteria for a DRI.

Mr. David Dunford, Orleans Selectman, said he had been the Chairman of the Board of Selectmen when the draft CWMP had been brought before the Town Meeting. He said the final CWMP had a number of uncertainties and the Adaptive Management Plan was key. He said he believed the CWMP benefit was greater than its detriments, but those detriments should be reduced. He said the Subcommittee should consider whether the CWMP would result in the proposed benefits, and that the review by the National Academy of Sciences would be beneficial. Mr. Dunford said the Subcommittee should require ongoing monitoring of Namskaket. He expressed concern that the cost of wastewater management would push middle and low-income residents to locate off Cape. He said the CWMPs proposed use of alternative and innovative systems should be strengthened. Mr. Dunford said Pleasant Bay should be re-tested to account for the new break and suggested the classification of Rock Harbor system and boat basin should be re-evaluated. He suggested its current classification was too restrictive.

Mr. Martin McDonald, Eastham Selectmen, said the project had regional impacts. He said Eastham's problems with wastewater management, including siting of a facility, would not be easily addressed. He paraphrased a previously submitted comment letter. He said a joint system at the Tri-Town plant, which Eastham was currently part of, would be the best option for addressing wastewater treatment in parts of Eastham. He said discussions had begun with the Orleans Board of Selectmen and the potential cost savings from a joint planning effort and joint facility were important. He said he shared Mr. Dunford's concern that the classification of Rock Harbor was too restrictive.

Mr. Putnam asked for public comments, using the signup sheet.

Mr. Len Short said the Orleans Pond Coalition supported Orleans CWMP, and he did as well. He said the plan is well conceived and appropriate and its adaptive management plan is key to addressing impacts to ecosystems. Mr. Short recommended the Subcommittee endorse the CWMP.

Ms. Beverly Carney said she did not support the CWMP with respect to Box Turtle impacts in particular. She expressed a concern that there would be a significant impairment to wildlife and plant habitat. She said the proposed cluster systems would only require local review and may negatively impact Box Turtles. She said she supported the Area of Critical Environmental Concern (ACEC) for Pleasant Bay and the 1989 construction of the Tri-Town plant. Ms. Carney said the CWMP is not sufficiently comprehensive. She said a couple hundred voters at a Town Meeting is not an endorsement of the Town as a whole. Ms. Carney said the adaptive management plan is not adequate and the Tri-Town plant is adequate to address the nitrogen loading concerns, as an existing and efficient technology. She urged the Subcommittee to reject the CWMP.

Ms. Pat Hughes, Chair, Brewster Comprehensive Wastewater Planning Committee, said Brewster supports Orleans CWMP efforts. She said the Town of Brewster supported the ACEC designation for Pleasant Bay. She said Brewster is concerned about the plume from the Tri-Town plant and a more comprehensive effort is needed to characterize the plume. She said the Town welcomes the Commission staff's and DEP staff's efforts in working with Orleans and Brewster to determine the assimilative capacity of Namskaket Marsh and Cape Cod Bay. She said the excess capacity of these systems to absorb nitrogen must be carefully and equitably managed.

Mr. Jeff Eagles said the resignations of himself and other members of Orleans Wastewater Management Design Validation Committee had been misrepresented at the January 18, 2011 hearing. He said the resignations were not related to the State's Open Meeting Law. He said the members resigned because they were not able to carry out the duties they had been assigned because of mis-information and personal attacks on their reputations. Mr. Eagles said the members who had resigned read their letters of resignation into the record of an October 14, 2009 Selectmen's meeting. He said an ad hoc citizens group had been formed after this point and the follow up group had kept the Board of Selectmen informed of its work and had submitted 36 questions to the DEP. He said the citizens group had issued reports in March 2010 and these reports had also been submitted to MEPA through Ms. Mary Hartley. Mr. Eagles said this information had also been submitted to the Commission. He said the MEP focus on nitrogen loading and reduction is too limited and the need is for overall water quality improvement. He said the investment made must improve water quality. He supported Mr. Dunford's comments and said the MEP is unlikely to appropriately address the needed water quality improvements in Rock Harbor and Pleasant Bay. He said a review is needed by the National Academy of Sciences. He cited Chesapeake Bay as an example and said the costs should be reduced and the desired water quality improvement outcome ensured.

Ms. Carolyn Kennedy said she had given a statement at the January 18, 2011 public hearing. She said one of the issues that had not as yet been discussed is bacterial contamination. She said the Town is working diligently to address these issues through the Highway Department, from stormwater runoff, including working with NSTAR, so other entities would also clean up their stormwater sources. She said the CWMP looks at the estuaries and fresh water pond impacts and they continue to show impacts from septic systems. Ms. Kennedy urged the Subcommittee to move the CWMP process forward.

Mr. David Farquar said the problem with Orleans CWMP is that it is not comprehensive enough, and does not examine all of the reasonable alternatives. He said the plan needs to look more at decentralized systems. He noted a petition requesting this was delivered to the Board of Selectmen over a year ago. He said decentralized systems are less expensive than the proposed project. He said the CWMP should not go forward without an MEP report or TMDL for North Inlet or Town Cove. Mr. Farquar said this is an important element of the overall plan. He said there are doubts about the nitrogen removal goals for Pleasant Bay and that the Commission had supported a National Academy of Sciences review. He said more study was needed to justify the overall expense. He said the capital expense for designing a plant in a certain way is not justified if the loads in Pleasant Bay are different.

Ms. Holly Trevisan submitted information for the record on the George D. Hoffe Conservation Area. She said this Conservation Area covers much of Namskaket Marsh. She used a large map to indicate the Conservation Area which she said is approximately 50 acres in total, mostly marsh, but some upland. She said the purpose of the Conservation Area is to maintain the area, and is coordinated with the Orleans Conservation Trust. She said special monitoring should be put in place to gauge impacts to the marsh from septic systems. She said the RPP Natural Resources/Open Space area requires that adverse impacts to wetlands are to be avoided. She said the Secretary's Certificate on the Single/Final EIR indicates that 67% of the effluent from the Tri-Town plan would discharge to Namskaket and Little Namskaket Marsh. Ms. Trevisan said this constitutes an adverse impact to the marsh and suggested it would also put a damper on further conservation bequests.

Mr. Steve Ellis said he does not support the CWMP or the science it is based on. He said there are too many unanswered questions. He said there were Spade Foot toads in the area, and that the area is archeologically sensitive. He put some materials he said he had found in the area on the bench where the Subcommittee was sitting. Mr. Ellis said there was an active herring run in the area and a clay dam under Sky Meadow, and that the Tri-Town plant's effluent plume would move in response to this dam. He expressed concerns about impacts to shellfish beds and to the herring run and doubt about the veracity of the computer models used as part of the CMWP. Mr. Ellis noted the Orleans DPW was causing stormwater runoff impacts from a pipe that he said he had been told would be blocked off. Mr. Ellis said the costs of the proposed program would drive more homeowners out of Orleans.

Mr. Skip Norgeoi said he worked in marine construction for 35 years. As such, he said he understood contracting. He said the information in the CWMP is not correct and none of the tests are correct because the railroad tracks act as a dike and split the Cape into two pieces hydrologically. He said he is concerned about impacts to wildlife such as turtles and terrapins. He expressed concern about negative impacts to the marsh. He said the Woods Hole Oceanographic Institute had done work to show that the railroad tracks act as a dike or levy and effluent is moving into Town Cove. He expressed concerns about impacts to ponds, particularly from nitrates. He said nitrogen is the basis of the marsh's growth, and for the overall marsh food chain. Mr. Norgeoi said the marsh is archeologically significant. He said dye tests should be done to determine where the Tri-Town plume is going.

Mr. Gary Clinton said Orleans needed to consider decentralized wastewater treatment. He said the Commission was conducting a density analysis for the entire Cape. He said the wastewater solutions should and will be different in different areas of the Cape. He disagreed that the Town's public information sessions showed a Town-wide consensus and noted the relatively low turnout (400 people) as compared to the Town's overall population. Mr. Clinton said the Town

needed to investigate the use of STEP septic systems Town-wide. He noted the bulk of the costs from a traditional wastewater treatment plant are in the collection system, and STEP systems are significantly more cost effective. He said the proposed cluster systems are inadequate. He said the adaptive management plan discussed in the staff report is inadequate, in that too much is still unresolved. He noted Mashpee is looking closely at STEP systems and said the CWMP needed to provide a detailed comparison of a STEP system and a traditional sewer system, including information on system design and implementation.

Ms. Vicki Reis said that in 1985, the state designated the Namskaket Marsh system as an ACEC. She said state law relative to ACEC designation requires preservation, restoration or enhancement of the ACEC resources. She said adverse effects to the ACEC must also be minimized. Ms. Reis said Dr. Wieskel's 2005 presentation stated that creek salinity was a function of groundwater discharge to the creek system and mixing with Cape Cod Bay water. She said salt marshes are one of the most productive ecosystems on Earth. Ms. Reis expressed concern that the salinity range in the marsh would negatively degrade the marsh habitats. Ms. Reis said the plume modeling indicates 700,000 gallons of fresh water would enter the ACEC daily, and that this large volume of fresh water would negatively impact the marsh and its salinity. Ms. Reis said these questions were included in the MEPA process through submission to MEPA by Ms. Mary Hartley, and were not addressed. She said the CWMP did not address salinity changes. She said the Secretary of EEOEA was charged to preserve, restore or enhance the ACEC resources, and had not done so. Ms. Reis said the Subcommittee had a duty to deny the proposed project unless it can be shown that there would be no impacts on the ACEC. She suggested the CWMP analysis of the estimated discharge was incorrect, and that the DEP had not addressed Ms. Hartley's questions in the MEPA process. She said the CWMP was not comprehensive.

Mr. Ed Kissell said Ms. Reis had brought up issues of concern to him.

Mr. Nello Trevisan said he had two areas of concern. One was the impact to the ACEC. He also said it was critical to preserve the marsh and that a significant amount of fresh water will discharge to it. Mr. Trevisan also expressed concern about the location and direction of the Tri-Town plant plume, in that he had been told previously that it would flow to Cape Cod Bay. He noted the plume runs under residential areas. He said he had had experience with plumes in his work/career and expressed concerns about the impacts to adjacent septic systems from the plume. He said the proposed project had too high a cost, and did not result in the protection of the marsh and fresh water resources.

Mr. William Grant used a series of figures mounted on foamcore to illustrate his points. He expressed concern about impacts to the marsh from the Tri-Town plant plume and the impacts from the increased fresh water discharge. Mr. Grant said the proposed cost of the plan was staggering, and would not address the impacts. He said the Town should implement cluster systems for hot spots and in the downtown area to protect the marshes.

Ms. Jane Corlette expressed concern about impacts to the freshwater ponds and Cape Cod Bay. She said she did not believe the proposed decentralized systems would work. She said she had experience with a FAST system at her house, and that it did not perform as advertised, taking out much less nitrogen. She said these systems were also hard to monitor and expressed concerns about impacts to the marshes. She noted Dr. Wieskel's comment that the plume was confined by a clay layer.

Mr. Clinton asked if he could respond to Ms. Corlette.

Mr. Putnam said he could.

Mr. Clinton said Ms. Corlette's system was for a single house. He said the systems he had been discussing could collect and treat effluent from up to 1,000 houses.

Mr. K. George Borrnazian said he had been active in the servicing of sewer treatment plants in New York and New Jersey and the costs of the CWMP are unrealistic. He said the plan needed more follow through by scientists and engineers.

Mr. Stuart Peck said the Town should use common sense when trying to figure out complicated issues. He expressed concern about the fresh water transfer from Pleasant Bay to Cape Cod Bay and the marsh.

Mr. Ed Kissell expressed doubt that the clay layer would successfully confine the Tri-Town plant's effluent.

Mr. Paul Ammann, former Chair of the Validation & Design Committee, said he'd read the MEP reports for the various resource areas carefully. He questioned whether the SMAST and MEP models would work. As a result, he questioned whether the CWMP project would result in a betterment of the water quality as desired. He said there is more nitrogen going out of the water bodies than can be accounted for in the models. He noted the Validation Committee had submitted 36 questions as part of technical reports, and these had been submitted to both the DEP and Commission. He said Mr. Dudley had responded, but only answered one of the questions. He noted no TMDL had been developed for Rock Harbor and the boat basin. He requested copies of all the PowerPoint presentations given at the hearing and for an opportunity to submit additional comments.

Ms. Adams said the Commission staff report and PowerPoint presentations, and those given by the Town, including Mr. Giggey and Dr. Wieskel would be made part of the record.

Mr. Putnam asked for final comments.

Ms. Adams said the Subcommittee would need to discuss whether or not the CWMP, as a DRI, was consistent with the tests for a DRI approval and suggested the Subcommittee continue the hearing for procedural purposes to March 15, 2011 at 10:00 AM at the Commission's office in Barnstable, MA so they may find another time to meet.

Mr. Virgilio noted the staff report indicated the project would use road Rights of Ways. He asked that the Town clarify the proposed sewer routes, particularly the overland ones, and whether or not this project aspect would involve potential land takings, and if so, whether this cost included in the CMWP.

Ms. Adams said the staff would seek answers to Mr. Virgilio's question.

Ms. Taylor moved to continue the hearing to March 15, 2011 at 10:00 AM at the Commission office in Barnstable, MA for procedural purposes. Mr. Graham seconded the motion, and it was unanimously approved.

March 15, 2011 Hearing Officer

Ms. Adams acted as a Hearing Officer on March 15, 2011 at the Cape Cod Commission office to

continue a pro-forma hearing on the Orleans CWMP DRI to March 31, 2011 at 10:00 AM at the Commission's office. No presentations, testimony or substantive action was taken on the project at this time. Also present at this Hearing Officer was Ms. Fran McClennen.

March 23, 2011 Subcommittee Meeting

The Commission Subcommittee met to discuss the CWMP and review a March 16, 2011 staff report. The subcommittee voted to hold a subcommittee meeting on Monday, April 11, 2011 beginning at 1:00 PM at the Cape Cod Commission Office in Barnstable. The subcommittee voted to continue the public hearing to Thursday, April 14, 2011 beginning at 6:00 PM at the Assembly of Delegates Chamber in Barnstable.

Mr. Ernest Virgilio moved to accept the minutes of March 1, 2011. Mr. Peter Monger seconded the motion and it came to a unanimous vote.

Mr. Putnam invited Andrea Adams, Senior Regulatory Planner, to provide an overview of the March 16, 2011 staff report.

Ms. Adams noted the additional materials provided in the subcommittee's packet and stated that March 16, 2011 staff report was a bulleted summary of the February 22, 2011 staff report. She stated that the report mentions questions asked by the subcommittee member Virgilio related to the installation of proposed sewer lines and disturbed public and private Rights-of-Way. She said that enclosed with the staff report was a March 15, 2011 response from Mr. Meservey, Orleans' Planning Director, in which he states that the majority of the work will be in the Rights-of-Way of public roads, and if a need arises for the sewers to go across private roads, there is a process for that under State law, and it will be followed.

Ms. Adams noted that the rest of the report is a summary of the 2/22/11 staff report and reviewed it with the subcommittee beginning with Natural Resources.

Mr. Putnam asked the subcommittee if this area needed to be considered any further aside from the outstanding issues or if it was satisfactory to the Commission.

Ms. Taylor asked whether the unresolved issues, such as NHESP's determination, would remain open after the Commission finishes with the DRI review.

Ms. Heather McElroy, Commission staff's Natural Resources Specialist, stated that the NHESP review process would likely not conclude until after the Commission DRI review process so the subcommittee would likely have to condition the project on the Town receiving approval from Natural Heritage. She said that the Town has a consultant working with Natural Heritage and that the project may not result in a take, but if it does the Town will have to address this.

Mr. Putnam asked if the subcommittee/Commission could condition the DRI on whatever mitigation is required for plant and wildlife impacts.

Ms. McElroy answered affirmatively. She stated that she has had a conversation with the Natural Heritage reviewer working on the Orleans CWMP, and she has a great deal of confidence that the Town has been working closely with NHESP to reduce the impacts to Eastern Box Turtles.

Ms. Taylor asked how the bullet points in front of them relate to the 2/22/11 staff report.

Ms. Adams stated that the bullet points in the March 16, 2011 staff report are summaries of the issues raised in the last staff report. She acknowledged that there are a few cases where the 3/16/11 staff report offers clarifications of staff comments, such as with the NHESP, but there is not any new information per se.

Ms. Taylor stated that she still does not see any mention of the fact that Namskaket Marsh is an Area of Critical Environmental Concern (ACEC).

Ms. Adams assured her that it would be acknowledged.

Ms. McElroy also noted that since the 3/16/11 staff report came out, she has had a conversation Mr. Meservey, and he had said that the Town would be willing to abide by a condition in the Commission's decision to provide wetlands restoration, as opposed to replication, as a way of addressing possible impacts from the project to wetland buffers. Ms. McElroy said wetland restoration is consistent with the Commission's standards.

Mr. Virgilio asked about the Rights-of-Way issue, and suggested that private roadways may be in good shape or in bad shape right now. As such, he asked what the condition of the roads would be once the project was completed.

Mr. Meservey stated the roads would be restored to the same condition or better after CWMP related construction had ended, and that he would be willing to put that in writing for the record.

Ms. Adams then proceeded to discuss Open Space issues in the 3/16/11 staff report. She noted that Regional Policy Plan (RPP) Minimum Performance Standard (MPS) OS1.3 exempts municipal projects for municipal purposes from the RPP Open Space provisions and therefore, the Town is not required to provide open space for development associated with the CWMP.

Ms. Adams reviewed the bullet points under the Coastal Resources section of the staff report with the subcommittee point by point, noting that if there are no impacts from construction to coastal resources, many of these points are recommendations to make the project more consistent with the RPP or to protect vital municipal infrastructure from coastal storm flowage.

Mr. Putnam asked if any of these impacts would occur from the proposed project.

Ms. Adams said that she believed many of the references to Coastal Resources MPS were technical assistance-type comments.

Ms. Adams summarized Heritage Preservation/Community Character by stating that Massachusetts Historical Commission (MHC) has determined that significant archaeological resources are unlikely to exist at the Tri-Town site and that a survey should be conducted at cluster system sites, so as to determine if there may be archaeological resources. Ms. Adams said the Town has committed to conducting this survey during the CWMP preliminary design phase. She stated that the project appears consistent with the applicable RPP MPS related to Heritage Preservation/Community Character, and as such, Commission staff suggests the project can be conditioned to allow the necessary surveys to take place.

Under Transportation, Ms. Adams noted that the 2/22/11 staff report indicated that the Town should provide information regarding total daily trip generation for all vehicles for the new wastewater treatment facility, including expected peak hour trips. She said a March 8, 2011

memo from the Town clarifies that the plant is expected to generate less than 25 peak hour trips, and therefore a review of crash records and safety components is unnecessary. She stated that the site distances at the site drive on Overland Way are also adequate based on the information that has been provided, but that a Level of Service analysis for Overland Way has not yet been provided.

Mr. Glenn Cannon, Director of Technical Services for the Commission, stated that the Level of Service analysis would be addressed in the following weeks, but that he does not anticipate a problem.

Ms. Adams noted that thus far, the staff report has covered every issue area aside from Water Resources.

Mr. Cambareri, Water Resources Program Director for the Commission, began on page 2 of the staff report, noting that the CWMP should incorporate the findings of the Nauset Marsh/Town Cove Massachusetts Estuaries Program (MEP)-Technical Report, but because the completion of the study has been significantly delayed, the Town has decided to move forward with a placeholder percent removal of 55%. Mr. Cambareri stated that Commission staff agrees with this decision and recommends that the Town include any revisions in its preliminary project design as a condition of DRI approval when the MEP report is available.

Mr. Richard Roy asked when the MEP Technical Report would be coming out.

Mr. Cambareri responded that it would probably be coming out after the summer.

Mr. Roy asked how 55% was chosen for percent removal.

Mr. Cambareri explained the process for the subcommittee and provided a series of PowerPoint slides to address Ms. Taylor's question relating to the marsh's assimilative capacity. He then showed a slide, which demonstrated the proposed wastewater treatment facility nitrogen budget which replaced the Tri-Town site with the proposed wastewater treatment facility and increased use for that site to 11%, and reduced the excess capacity to 66%. Mr. Cambareri discussed the theoretical build out that resulted in 33% excess capacity suggested by the MEP versus the anticipated build out of 6% resulting in around 60% excess capacity. He noted that the question he was hoping to have answered by the SMAST team related to the split between the Towns of the resulting build out. The final slides that Mr. Cambareri presented showed the mean tide and daily wastewater treatment facility volumes and a contoured plot of modeled salinity in Namskaket Creek system. Mr. Cambareri noted that these slides should answer a number of questions that have been raised, including a letter that came to the Commission from the Town on March 11, 2011. He continued to review the Water Resources section of the staff report with the subcommittee, noting that Massachusetts Department of Environmental Protection (DEP) should clarify the distinction between Little Pleasant Bay and Pleasant Bay, which are treated with separate Total Maximum Daily Loads (TMDLs) and Commission staff continues to urge DEP and MEP technical staff to revisit this issue. He addressed staff report comments on pond impacts and suggested conditions. He stated that Commission Water Resources staff will work with the Town to include specific monitoring of groundwater levels and water quality and stream flow measurements and water quality of the upper marsh system streams in the Adaptive Management Plan and that the Towns of Orleans, Brewster and Eastham should continue their efforts in the evaluation of regional alternatives to allow for cost savings and treatment efficiencies.

Mr. Cambareri reviewed the time line of completion with the subcommittee to demonstrate how adaptive management will take place and stated that the CWMP contains an Adaptive Management Plan to assure TMDL compliance through monitoring and reporting. He said that cluster system design review should also evaluate minor expansion of the collection areas to achieve additional nitrogen removal as part of DRI review. He stated that the CWMP has design review listed in Phase II, but noted that staff suggested moving that component to Phase I.

Mr. Meservey agreed with Mr. Cambareri that the Town would move the design review of cluster systems from Phase II to Phase I.

Mr. Cambareri stated that Commission Water Resources staff would work with Orleans to finalize various aspects of the scope of the Adaptive Management Plan (ADP), prior to moving forward with the preliminary design as a part of the DRI review. He said this includes implementation of the ADP and milestones, documentation of capital expenditures, compliance with the groundwater discharge permit, reporting on Estuary water quality monitoring, summary of habitat assessments that may be completed by the Town, DEP and others, continued coordination with the Pleasant Bay Alliance, and potential evaluations and changes as needed. He noted the items that are proposed for monitoring within the Adaptive Management Plan as listed in the staff report.

Ms. Taylor and Mr. Cambareri discussed how SMAST established a baseline for habitat changes. Ms. Taylor noted the monitoring should include a habitat assessment.

Ms. Adams suggested that the water quality monitoring plan would include nitrogen and salinity, but suggested the other parameters should be discussed with the Town because they would be obligated to do the monitoring. She noted monitoring programs typically establish the baseline, the frequency of monitoring, and the number and type of monitoring wells or sampling points.

Mr. Cambareri added that if the Town sees changes during monitoring, then that might lead to a biological type of assessment of the upper marsh. He suggested there would need to be a threshold or sentinel level of a parameter, so staff will need to discuss this with the Town.

Ms. Taylor asked whether monitoring would include the whole marsh.

Mr. Cambareri stated that it would be done through sampling of the upper marsh and mid-marsh sentinel stations to get an idea of the water quality because in the lower marsh, the salinity profile is such that it becomes more difficult to distinguish the marsh from Cape Cod Bay. He then continued his presentation of the staff report, reviewing the progress items to be reported as part of the Adaptive Management Plan.

Ms. Taylor asked about the other ponds that were in trouble and why they were not mentioned in this report.

Mr. Cambareri stated that the other ponds are mentioned in the plan but they are not in this staff report because it deals with areas where there were still issues to be discussed and there are no outstanding issues with those ponds.

Ms. Taylor asked if any of Mr. Cambareri's recommendations regarding the other ponds have changed.

Mr. Cambareri replied that they have not.

The subcommittee discussed the Adaptive Management Plan and Mr. Cambareri stated that the preliminary design plan will take place from 2013-2015 and the conditions that the Commission places on the project will allow for opportunities for discussions with the Town and consultants to fine-tune it. He said once the CWMP moves forward the Commission will be measuring progress and monitoring improvements in the water quality.

Ms. Taylor asked if the project will come back for changes after the MEP model review workshop takes place.

Mr. Cambareri stated that it would come through the Commission as a modification and suggested the Town would also need to file a Notice of Project Change through the MEPA office.

Ms. Adams stated that it could be conditioned in the Commission's decision.

Ms. Taylor stated that Brewster should be part of the process since the Towns share the marsh.

Mr. Cambareri stated that the Towns of Brewster, Eastham and Orleans should continue to discuss the use of the Tri-Town facility as a regional solution and noted the assimilative capacity in the marsh, and stated that Commission staff has tried to shed some light on what the share is for the anticipated nitrogen loads within the watershed and Namskaket marsh.

Ms. Adams stated there will need to be a decision by the Towns about whether they will link into the Tri-Town facility, once upgraded, and as to the resource's assimilative capacity. She noted the marsh does not respect the Town boundary and stated that what she was hearing from Ms. Taylor is that Brewster should not be unduly disadvantaged in terms of having assimilative capacity that it can use if the Town chooses not to pursue regional partnership with Orleans.

Ms. Taylor said that if one Town were dumping sand into another Town it would be very cut and dried, but since it is nitrogen loading, it is more difficult to grapple with. She expressed concern about the Tri-Town facility's impact to the marsh.

Mr. Putnam suggested that perhaps Ms. Wielgus should look into the issue. Mr. Putnam asked what percentage load Brewster is currently contributing to the marsh and said he thought it was 18% of the load.

Mr. Cambareri stated that Brewster is contributing 2/3 or more of the load.

Mr. Putnam asked about the next steps.

Mr. Monger moved to continue the subcommittee meeting to Monday, April 11, 2011 beginning at 1:00 PM at the Cape Cod Commission in Barnstable. Ms. Taylor seconded the motion and it was unanimously approved.

Mr. Virgilio moved to continue the public hearing to Thursday April 14, 2011 beginning at 6:00 PM at the Assembly of Delegates Chamber. Mr. Roy seconded the motion and it came to a unanimous vote.

March 31, 2011 Hearing Officer

Ms. Adams, Cape Cod Commission Senior Regulatory Planner, acted as a Hearing Officer on

March 31, 2011 at 10:00 AM at the Cape Cod Commission office to continue a pro-forma hearing on the DRI to April 14, 2011 beginning at 6:00 PM at the First District Court House, Assembly of Delegates Chamber, Barnstable, MA. No presentations, testimony or substantive action was taken on the project at this time.

April 11, 2011 Subcommittee Meeting was cancelled

April 14, 2011 Subcommittee Hearing

The Subcommittee held a continued public hearing for the purpose of receiving comments on Orleans Comprehensive Wastewater Management Plan (CWMP) as a Development of Regional Impact (DRI). The Subcommittee heard presentations on the CWMP by Commission staff and public comments. The Subcommittee voted to hold a meeting on April 28, 2011 at 3:00 PM at the Commission's office in Barnstable. The Subcommittee voted to continue the hearing to May 24, 2011 at 4:00 PM at the Commission's office in Barnstable.

Ms. Adams provided a PowerPoint presentation on the April 8, 2011 staff report, which is an update to the February and March staff reports. She noted the two prior staff reports had discussed Coastal Resources and Transportation issues. In the area of Coastal Resources, Ms. Adams said construction at the Tri-Town treatment plant site does not impact coastal resources, but some project components, primarily sewer lines, may impact dunes, beaches, and Land Subject to Coastal Storm Flowage (LSCSF). She noted the Town had submitted a 3/31/11 letter in response to comments made in the 2/22/11 and 3/16/11 staff reports. Ms. Adams said the proposed CWMP has a public benefit by mitigating existing water quality impacts to fresh and coastal water quality. Ms. Adams also noted that the Town has clarified that where structures associated with the project are in LSCSF or 100 feet of a coastal resource, and where no feasible alternative exists, the Town will file a Notice of Intent with the Conservation Commission and the Conservation Commission's Order of Conditions will identify the mitigation measures. Ms. Adams said the Town has noted that Section 12.0 of the CWMP includes various mitigation measures designed to address coastal resources impacts. Ms. Adams said Commission staff suggests the Town implement a long-term biological monitoring program for indirect impacts and suggested that such a program could also be a condition of the Adaptive Management Program.

Ms. Adams noted the Town's 3/29/11 response to Transportation issues related to impacts to private and public roads brought up at the 3/23/11 meeting and that the Town will restore roads impacted by sewer line construction. She said a 3/8/11 Memo from Wright-Pierce responds to most of the other issues related to Transportation that were raised in the Staff Reports and reviewed these issues with the subcommittee.

Mr. Tom Cambareri, Commission Hydrologist and Water Resources Program Manager, presented on the Water Resources section of the Regional Policy Plan (RPP). He reviewed the Goals and Minimum Performance Standards (MPS) of the RPP with the subcommittee and discussed how the CWMP meets these goals and standards. He said Commission staff would be looking at the site design relative to MPS WR7.1, MPS WR7.2, MPS WR7.3, MPS WR7.4 and MPS WR7.9, to ensure there was no direct discharge of stormwater, that onsite infiltration was used, and that there was bio-infiltration.

Regarding the issue of assimilative capacity, Mr. Cambareri showed slides of the capacity of the Namskaket system by its existing capacity and excess capacity. He showed a slide which indicated Brewster was using 7% of the system capacity, Orleans 7%, the Tri-Town 19%, leaving 67% excess capacity. He said the numbers were from the MEP report. He showed slides

indicating a proposed nitrogen budget for the marsh with the redeveloped Tri-Town plant which indicated that there would be 63% excess capacity. He showed a slide which included a theoretical build out for the Towns of Brewster and Orleans (as in the MEP Technical Report) and with the proposed sewer plant also on line. He said this indicated there would be 37% remaining excess capacity. He showed a slide of the relative build out, 70% would be from Brewster and 30% from Orleans and a slide of the practical build out from the CWMP, which allows for 26% growth. He said this would leave 56% excess capacity in the Marsh system. He reviewed other measures of assimilative capacity in the water and wastewater management and suggested there is no definitive method to assign assimilative capacity. He suggested the Towns of Brewster and Orleans consider reserving an amount of the marsh's assimilative capacity.

On freshwater flows and dilution, he showed a slide of the mean tidal volume in the marsh and the flow from the treatment facility. He showed a colored slide of the salinity contours and noted the MEP provides yearlong data on the flow at the Creek at Hurley's Bog which shows low salinity (2.4 parts per thousand). He said at 70% the proposed plant's Phase 2 rate would be 0.25 parts per thousand. He said adding the flow at low tide to the Creek would make it about 1.5 million gallons per day and noted that the flow is somewhat diluted. He said the aquifer is over 300 feet thick, which slows moving discharge at the marsh area. He said this is a significant amount of freshwater flow coming in along all the marsh margins and the drainage boundary is something on the order of 400 million gallons per day. Mr. Cambareri noted that the hydrologic assumptions are conservative and Dr. Weiskel's information is even more conservative relative to the location of the plant plume. Mr. Cambareri noted that the MEP technical reports are accepted by the DEP and EPA as determining the nitrogen critical loads and have become established TMDLs which are adopted by Barnstable County in the RPP.

Mr. Cambareri addressed a point made in a 4/7/11 letter about a choice of quotes in Mr. Cambareri's report at the 3/1/11 hearing. He said the Woods Hole Summary Report notes the level of skepticism involved with complying with the TMDLs. Mr. Cambareri said the Report notes there may be a tendency to avoid public expenditures and for stakeholders to develop conclusions that are inconsistent or at odds. He said the Report acknowledged that it would potentially increase confidence in the MEP report and identify potential sources of uncertainty. He said that Commission staff is confident in the MEP science and that the proposed CWMP will result in a reduction in nitrogen, and an improvement in water quality. He noted the primary use of Septic Systems to treat wastewater on the Cape has resulted in declines in water quality.

Mr. Cambareri then addressed the breach that that occurred in Pleasant Bay in 2007 and he noted the phases of the CWMP would allow for the incorporation of new information and technology which is particularly important with respect to the upper headwaters and the impaired ponds. He noted Section 11 of the CWMP dealt with the scope of the preliminary design and it allows the Town to confirm and update decisions reached during the planning process based on several factors and confirmatory modeling. Mr. Cambareri said the modeling would then feed into sewer phasing and the Tri-Town site disposal limitations. He noted it could also be adjusted for negotiations between Orleans, Brewster and Eastham on regional solutions and stressed the importance of regionalization. He said the Adaptive Management Plan would also be updated based on annual monitoring reports which would include re-assessing the CWMP with respect to Cedar Pond. He touched on the non-structural methods to address nitrogen removal and noted Commission staff suggested the Town of Orleans move the design of cluster systems up in the project schedule, so that implementation of some components can occur in Phase I and also suggested the Town evaluate expansion of cluster

systems to achieve additional nitrogen removal. He noted the components of an Adaptive Management Plan that would be part of the DRI decision on the Town's CWMP.

Mr. Putnam asked for comments from Federal, State, Regional and local officials.

Ms. Fulcher, Chair, Orleans Board of Selectmen, submitted a copy of a letter for the record, and read her remarks into the record. She said the Board of Selectmen believes wastewater issues on Cape Cod must be addressed to protect natural resources for the enjoyment of current and future residents. Ms. Fulcher said the Town trusts the responses to the Commission's questions have been satisfactory, and that the Town will continue to answer any questions. She also commented on environmental protection and regionalization issues and noted the CWMP has undergone MEPA review prior to commencement of Commission review and that it would also require a Groundwater Discharge Permit and a formal site assignment from the MADEP. She said the CWMP had been carefully engineered to allow the Town to move ahead on its initial phases while having the flexibility to incorporate new information and technology into later phases. She said that Orleans, Brewster and Eastham have a history of working together to solve wastewater problems and noted the Tri-Town Groundwater Protection District had been in effect since 1985 and the Towns had worked together to build a single treatment facility. She said the Orleans CWMP provides an opportunity for the Towns to continue working together and noted a Regionalization Study funded by the Water Protection Collaborative demonstrated that the Towns could save money by pooling resources on a sewer facility. She said the three Boards of Selectmen had met together on several occasions to discuss their needs and interests and these discussions had been informal and cordial. She said they understood the issues did not respect political boundaries and that questions regarding Namskaket Creek should be resolved between the Brewster and Orleans Selectmen. Ms. Fulcher said the CWMP as presented is consistent with the Regional Policy Plan and merits approval.

Mr. Putnam asked for questions from the Subcommittee.

Mr. Monger asked if any thought had been given to managing pharmaceuticals in wastewater.

Ms. Adams noted that based on her history of working with hazardous wastes, she was very aware of the issues surrounding management of pharmaceuticals. She said the County and Cape Towns have been aggressive in seeking services to deal with household hazardous waste and the best and easiest way to manage pharmaceuticals is to return them to doctor's offices. She said the issue would need to be resolved at the federal level to address the problem nationwide.

Mr. Cambareri said the proposed wastewater treatment plant (WWTP) would provide a high level of nitrogen treatment and it could provide an opportunity to remove pharmaceuticals from wastewater. He said there are current state regulations dealing with this for WWTPs located in Wellhead Protection Areas/Zone IIs but there is no outright prohibition. Mr. Cambareri said keeping residential density low also helps address the issue of pharmaceuticals from humans in wastewater. He said there are non-profits and other groups working to better characterize the problem. He said there are very few, if any, detections of compounds in wells not in village centers as opposed to those surrounded by development.

Ms. Taylor asked if the WWTF design would be flexible enough to incorporate future methods to address pharmaceuticals in wastewater.

Mr. Cambareri said the way to help address this is through the Adaptive Management Plan, and its monitoring/compliance program. He noted the Groundwater Discharge Permit (GWDP), which is renewed every five years, would likely incorporate ways to deal with pharmaceuticals in wastewater.

Mr. Putnam asked for public comments.

Vicki Reis submitted written comments on behalf of Mr. Paul Amman and read a copy of his letter into the record. Reading Mr. Amman's letter, she said on March 11, 2011, Mr. Meservey, on behalf of the Town of Orleans addressed several issues that were raised at the March 1, 2011 public hearing on the Orleans CWMP. Mr. Amman's letter commented on a number of these issues. First, reclassifying Rock Harbor under the MEP he said, is wrong because it has never been peer reviewed and is not available to the public. He said the water quality measured by MEP in Rock Harbor is equal to or better than that in both Namskaket and Little Namskaket Creek at similar locations. Neither of these two systems has been classified by the MEP as impaired and the MEP reason for declaring Rock Harbor as impaired is because of unhealthy benthic community in the Rock Harbor boat basin. He said that MEP associates this observation with nitrogen in the water column, and ignores the main cause, which he says is that salt marsh organic matter is transported from the Rock Harbor salt marsh into the periodically dredged boat basin during ebb tides. He says this is the source of the problem, not nitrogen in the water column. He also said the Rock Harbor boat basin has been determined by DEP to be an open embayment, not part of the larger marsh system, because it has been dredged. But the Rock Harbor boat basin, he said, is strongly influenced by the tidal exchange with the marsh system and the current classification of the Rock Harbor boat basin is open to challenge. He said simple calculations show that nitrogen concentrations in the boat basin cannot be reduced to the MEP specification even if all septic nitrogen is removed. He also noted that a TMDL report has not been issued and probably will not be available until 2015 or later and the TMDL document for Rock Harbor will not be released until after the MEP study on Cedar Pond is completed. The letter went on to discuss Namskaket salinity change and showed table values on the salinity, discussed Mr. Meservey's statement regarding freshwater in the salt marsh and the Wright-Pierce evaluation of the potential freshwater inputs to Namskaket Creek, and addressed the impacts to Namskaket Marsh and the ACEC.

Ms. Reis then made comments of her own behalf. She said she also had a packet of information to submit to the Subcommittee. She said the concept of adaptive management was not sufficient to solve the problem and used the Tri-Town plant as an example, saying it has failed in that the plant was over-built, and has had operational, financial and management problems. Ms. Reis said Namskaket Marsh was designated an Area of Critical Environmental Concern (ACEC) in 1985 and it includes hundreds of acres of salt marsh, shellfish beds, salt ponds and critical habitat. Ms. Reis noted the ACEC provides important storm surge protection and recreational opportunities. Ms. Reis noted the closures of shellfish beds dating back to 1988 and no one from the Towns of Brewster or Orleans have contacted the state to determine why the beds have been closed. She said the Namskaket and Little Namskaket Marsh have been declared impaired waters and tidally-restricted salt marshes on the Commission's website. She said restoration projects have been done by the DEP and her packet of information included an ENF for one of them. Ms. Reis said the Subcommittee has heard that the Town voted on the CWMP. She said the Town voted in October 2008 on a draft plan and a newspaper article makes note that it was a draft, and that the final plan would also be the subject of a future vote, which has not happened. She said there was not overwhelming Town support for the CWMP and that only 100 people turned in surveys. She noted the Town was losing population, and the build-out analysis in the CWMP was flawed. She said the CWMP includes a lot of ambiguous language

and Dr. Wieskel does not know where the plant plume is or where it is going. She said she appreciated that the Subcommittee was taking its time in reviewing the CWMP and stated that the Town residents were concerned about impacts to the natural resources, and the fiscal impacts to the residents.

Jeffrey Eagles read a copy of his written comments into the record. He said he was a professional engineer and environmental scientist by training. He discussed the impact that the proposed Orleans wastewater treatment plant would have on salinity levels and the plant and animal habitat in the Namskaket and Little Namskaket tidal salt marshes. He said he had read the March 2011 letters from the Town of Orleans and Wright-Pierce and differed with their conclusions. He said the Commission should keep in mind the DEPs two objectives in pursuing nitrogen reduction, which were water quality improvement and healthy plant/animal habitats. He noted that averages are not instructive and both the Town and Wright-Pierce use averages to compare the sewage treatment plant's freshwater discharges, incorrectly comparing them to the groundwater flow rate and to the Marsh's tidal prism. Averaging the impact over the whole marsh, the percentage increase of freshwater is small. However, Mr. Eagles said this is in conflict with how the discharge will actually enter and move through the marsh as it will not be uniformly spread over the marsh. He noted Dr. Weiskel's presentation highlighted this, noting Dr. Weiskel's points that the impacts would be localized to the marsh's margins and in creek beds. Mr. Eagles said the increase in freshwater flows in localized areas in the marsh will negatively impact plant and animal habitat through salinity changes and will degrade habitats. He said Namskaket and Little Namskaket Marsh are two sensitive natural open space areas and part of an ACEC, which the Commission staff reports and Town letter fail to acknowledge. Mr. Eagles said Massachusetts's law protects ACEC and requires us to protect them as well. He said the Orleans Conservation Commission and the Orleans Conservation Trust also have a duty to protect the ACEC. Mr. Eagles noted a joint meeting on 2/12/09 to discuss a list of engineering solutions for improving water quality in Pleasant Bay and that one of the suggested solutions was to pump oxygen-rich seawater into Meetinghouse Pond. He said the Orleans Conservation Trust declared this was not allowed because it would alter the salinity of the Pond, which is part of the Pleasant Bay ACEC. He questioned why the Town would reject an engineering solution which would alter the salinity of part of the ACEC but will not acknowledge the proposed CWMP will do the same thing relative to the Marsh, which is also part of an ACEC. He questioned why the Pleasant Bay ACEC would be improved in a manner that would damage the Marsh ACEC. He urged the Commission to protect the plant and animal habitat in the Marsh ACEC.

Carolyn Kennedy said she had served as the Chair of the Marine and Freshwater Quality Task Force which is tasked with conducting sampling in Orleans, and also assisted in sampling in the Namskaket Creek to determine the impact of the Tri-Town plant. Ms. Kennedy said that since June 2010, the group, under the direction of Dr. Wieskel, United States Geological Survey (USGS), has sampled in 3 locations, alternating with a USGS employee, so that the Creek is sampled twice a month. She said the results of these samples and tests show no trends versus the prior round of samples in 2003-2004. Ms. Kennedy said a new sewage treatment plant would provide a higher level of nitrogen treatment, resulting in a no-net increase in groundwater. Ms. Kennedy noted the Task Force members have been in the Marsh over the seasons, including the winter, and that the Marsh is vibrant based on noted animal tracks and other animal observations. She noted there have been concerns raised as to why the shellfish beds at the mouth of Namskaket Creek have been closed. Ms. Kennedy said in the 1980s, the Orleans Shellfish Officer selected the most productive beds to undergo surveys. She said the ones at the mouth of the Creek were not selected to undergo the required survey because they were not the most productive areas in Town. She said the state determined that high fecal

coliform levels from animals in the Marsh precluded the Creek beds from being opened to human harvesting. She said the animals in the Marsh act as a reservoir for these bacteria. Ms. Kennedy said these determinations occurred prior to the Tri-Town plant being brought on line in 1989-1990.

Jane Corlette acknowledged the Commission's review of the CWMP and the CWMP's flexibility. She said the important issue is the deterioration in fresh and salt-water quality. She said she's seen the deterioration over her own lifetime. Ms. Corlette said the impacts are from septic systems and to a lesser extent, lawn fertilizers and stormwater runoff. She said the DEP will also review the project and will not grant a GWDP unless the Marsh will remain healthy. She supports continued monitoring of the Marsh and noted sewerage is a tested technology to address the main issue, nitrogen, and possible pharmaceuticals affecting the Marsh.

Chet Crabtree said he was a member of Orleans Planning Board but was speaking as a private concerned citizen. He said the plan under consideration is unique in that it will be implemented over two to three decades. He said this multi-year, multi-phased approach offers sufficient flexibility to make corrections as improved technologies are available. He said the Town has closely examined both a centralized and decentralized system, and after extensive review, the Town has chosen a centralized system, which will serve 52% of the Town's homes. He said this approach was approved at a 2008 Special Town meeting and the Town later modified the plant to include up to five decentralized cluster systems in remote locations near waterways and wetlands. He said these cluster systems will be installed as part of an earlier phase, in order to more quickly address the quality of ponds and bays. He said the plan can also determine if the cluster systems should remain or be connected to the larger sewer system. He said the Orleans Planning Board, cognizant of the DRI approval process, reviewed the CWMP for its consistency with the Commission Act, Regional Policy Plan, Orleans bylaws and Orleans Comprehensive Plan and concluded that the CWMP is consistent with all four of these.

Len Short said he was in support of the CWMP, and suggested that the Subcommittee and full Commission endorse it as well. He said his support was based on protecting all of Orleans's waters, ponds, marshes, and estuaries. He said these represent the aesthetic and economic heart of Orleans. He said the CWMP is adaptive to new technologies and approved by the County. He said it is critical that all Orleans' waters, including the Namskaket Marsh system, stay below the TMDLs to maintain a healthy ecosystem. He said questions have been raised and responded to and urged the Commission to move the Orleans CWMP forward.

Judith Bruce said she was speaking for herself, although she had been a member of the Orleans Wastewater Management Steering Committee for six years. She said she had been to all the hearings, and understood the concerns related to the Marsh and impacts on abutting properties from plant effluent. She compared the current debate to that which had taken place related to the Boston Harbor sewage outfall pipe. She said she had been opposed to this project. However, she said that ten years of monitoring of the outfall pipe indicates no negative impacts have resulted. She said monitoring of the Tri-Town plant to date shows no negative impact to the Namskaket area. Ms. Bruce said the proposed and current monitoring should continue, including sampling to determine where the effluent plume is flowing. She urged the Commission and DEP to make project approval contingent on a strong monitoring component for the life of the plant. She said the CWMP's Adaptive Management plan would respond to changing conditions and technology and suggested the Town consider using treated effluent in public buildings for toilet flushing and to irrigate ball field and golf courses as a way to conserve plant capacity. Ms. Bruce said use of the decentralized cluster systems was a good idea. She said the Town of Brewster has been involved in discussions to date, and urged the Boards of

Selectmen to work together to resolve common issues. Ms. Bruce said the health of the ACEC would continue to deteriorate, and said the CWMP and sewerage was part of addressing this problem. She urged the Commission to approve the CWMP.

Nello Trevisan said Adaptive Management in this form is trial and error. He questioned what would happen if the proposed plan did not work. He said the Marsh already has a balance of salt and fresh water and was concerned that the proposed 600,000 gallons per day of plant effluent would disrupt this balance. Mr. Trevisan said he thought Mr. Cambareri said that the discharge "*might be somewhat polluted*" but that this was not a problem.

Mr. Cambareri said he was not certain of the context of what Mr. Trevisan was talking about.

Mr. Trevisan said that fresh water is a pollutant at low tide and he thought it was illegal to pollute anything in an ACEC. He acknowledged the nitrogen loading level will be low enough that it will not hurt the Marsh but said the fresh water effluent from the plant will hurt the Marsh. Mr. Trevisan said averages do not work in this situation, with respect to the fresh water impacts to the Marsh. He said he had understood that the plant plume would carry the fresh water under the Marsh to Cape Cod Bay, where it would be diluted, which he now understood would not be the case. He said the Commission's Executive Director was quoted in the newspaper as saying that he was concerned about the \$4-\$8 billion dollars of wastewater expenditure on the Cape, and that that amount of money would cause such a drain on middle and low-income residents and homeowners that they would leave the Cape, significantly changing the Cape's demographics. He said the CWMP has a proposal for how this would be paid for, and the owner of a \$300,000 home would have their taxes increased by 125%, which is over double. He said the tax increases on higher valued homes is significantly less, between 65% more for a \$600,000 home, and 40% increase on a \$1.5 million dollar home. He acknowledged 40% of \$1.5 million was a large number, but the burden is on the low and middle-income homeowners. He recommended these issues needed to be addressed before the CWMP moved forward.

Steve Ellis said he had heard Spade foot toads calling outside, behind the Tri-Town plant site. He said they were an endangered species.

Mr. Ellis said that as a fisherman whose family has lived in the area for over 350 years, he is very concerned about the impacts to the Marsh. He said Orleans' Town activities, from the Department of Public Works and the Harbor Master are impacting the Marsh. He noted the state highway drains into the Marsh and he noted the work that had been done to open up culverts to increase tidal flushing. He said it is obvious to him that Orleans Town officials do not care about the Marsh. He said his family was leaving the Cape next year due to the increasing tax burden. Mr. Ellis said the treatment plant effluent would negatively impact the shellfish beds and eelgrass. He said the shellfish beds at the mouth of Skaket Creek are the largest beds in Brewster and in the Town of Orleans on the Bay side. He said these were closed in 1987 because of *E. coli*. He said Mr. Mayo in Provincetown said these beds are closed now because of chemicals. Mr. Ellis said the endangered species study and the ecological report for the project are questionable. He quoted a portion of the report that states that the site should be recommended for an eligibility determination to the National Register of Historic Places. Mr. Ellis also said that there has never been a herring fishery in the creek, but they do go up the creek to the ponds. Mr. Ellis concluded that there were too many questions, and he thinks people were getting paid off. He submitted four color photographs for the record.

Eric Schwab said he lived in Hyannis. He said he was involved with Barnstable's sewer plan and the Orleans' CWMP is a cookie-cutter copy of Barnstable's plan. He said it would result in higher density housing. He said the Town of Orleans was making a really bad mistake.

Mr. Putnam asked for any other comments or questions from the subcommittee.

The subcommittee agreed to save questions for the subcommittee meeting.

Ms. Taylor moved to hold a Subcommittee meeting on April 28, 2011 at 3:00 PM at the Commission offices. Mr. Roy seconded the motion, and it came to a unanimous vote.

Ms. Taylor moved to continue the hearing to May 24, 2011 at 4:00 PM at the Commission office in Barnstable, MA. Mr. Roy seconded the motion, and it was unanimously approved. The Subcommittee adjourned.

April 14, 2011 Subcommittee Meeting

The Subcommittee meeting scheduled for after the public hearing on April 14, 2011 was not held.

April 28, 2011 Subcommittee Meeting

The Subcommittee met to discuss the Orleans CWMP and review the staff report. The meeting was continued to Tuesday, May 24, 2011 to begin immediately following the continued public hearing to be held at on May 24, 2011 at 4:00 PM at the Cape Cod Commission Office in Barnstable.

Mr. Putnam invited Andrea Adams, Senior Regulatory Planner for the Commission, to provide updates for the project.

Ms. Adams noted the additional materials provided in the Subcommittee's packet and stated that the Subcommittee has already seen the majority of the material because it was submitted at the April 14, 2011 public hearing. She distributed copies of an Email received from Susan Broderick, the Administrative Assistant to the Brewster Town Administrator with a letter attached from the Town Administrator, Charles Sumner, addressed to Paul Niedzwiecki, Executive Director of the Commission. Ms. Adams read the letter aloud into the record, which expressed concerns about the lack of participation by the Town of Brewster in the decision making process for the project. Ms. Adams noted that as project manager, she has not yet been directed to begin drafting a decision. She stated that she had received a similar request from Susan Leven, the Town Planner for the Town of Brewster, who asked for a copy of the draft decision, and stated that she emailed Ms. Leven back and stated that perhaps she was looking for a Staff Report. Ms. Adams reviewed the meetings and hearings that have taken place to date. Based on Mr. Sumner's letter, she said, it appears that people still have some concerns with the marsh, but said that she feels that at the March 23, 2011 meeting the Subcommittee was able hear the issues and the Commission staff reports and PowerPoint presentations covered many of them. She stated that perhaps the Subcommittee could limit today's discussion to issues that only concern the Town of Orleans and leave some of the other issues until a later date so that more information can be provided to the Subcommittee on issues affecting the marsh and the Town of Brewster.

Mr. Putnam asked if the Town of Brewster or Mr. Sumner has filed information with the Commission previously.

Ms. Adams stated that there have been letters that have come in from the Town that have been submitted to the Subcommittee, as well as comments made by Elizabeth Taylor as the Brewster representative.

Mr. Putnam expressed concern for the lack of positive cooperation between the Town of Orleans and the Town of Brewster and stated that the marsh has been talked about as if it was a single entity and it should be discussed as though it is a part of Brewster as well. He stated that cooperation between the two Towns is very important and that Brewster should express their concerns to the Commission.

Ms. Adams noted that the staff reports have accounted for the assimilative capacity of the marsh, at least in terms of nitrogen, and have accounted for the programmed build-out in those terms. She stated that Commission staff has been aware that the resources do not respect that political boundary. She suggested that staff could meet with the Town about their concerns. Commission Water Resources staff comments deal with regionalization and recommend a regional solution.

Mr. Putnam suggested that Brewster be involved in the planning for this project.

Ms. Adams noted that George Meservey, Director of Planning and Community Development for the Town of Orleans, was present and could perhaps speak to the issue, but she stated that one part of the components of an Adaptive Management Plan is to have a milestone where Orleans has another look to determine whether Brewster may come into the proposed wastewater treatment facility given Brewster's level of wastewater planning.

The subcommittee discussed including Brewster in the planning of the project.

Mr. Roy asked about the deadline for this project.

Mr. Putnam said that there is a deadline for the Commission to make a decision on the project, but that it could be extended.

Ms. Taylor stated that the Town of Brewster wants to be at the table and be involved in the decision making process. She stated that she has not seen any recognition in the reports of what percentage of the marsh belongs to Brewster and they should be involved in this. Ms. Taylor said that this has been expressed before but not as pointedly.

Mr. Putnam agreed.

Ms. Adams noted that Mr. Sumner's letter specifically seeks a meeting and stated that she would be willing to arrange such a meeting.

Ms. Adams suggested that the Subcommittee discuss some of those issues that do not relate to Brewster and then have Commission staff get some more information from the Town and set up that meeting to discuss any outstanding issues.

Mr. Tom Cambareri, the Water Resources Program Manager for the Commission, stated that staff was aware of the concerns from Brewster, including from Ms. Pat Hughes from the Water Quality Committee, who testified at a hearing in Orleans and asked about monitoring and assimilative capacity. He also noted the 2/28/11 letter from Brewster Board of Selectmen Chair Ed Louis to the Orleans Board of Selectmen. Mr. Cambareri said Mr. Louis suggested that if the

cluster systems were made permanent there would be less water going to the Tri-Town facility. Mr. Cambareri stated that monitoring would be a condition of any DRI decision. In response to the concerns about assimilative capacity, he stated that the Commission engaged SMAST to do an assimilative allocation from their model and that was presented at the March 23, 2011 Subcommittee meeting, and again at the April 14, 2011 public hearing. Mr. Cambareri noted this information was not contained in the April 8, 2011 staff report, so perhaps Brewster does not have all the information that the Subcommittee has. In relation to the cluster systems, Mr. Cambareri stated that the staff's recommendation was to expedite the cluster systems within the CWMP plan of implementation, and that was something the Town of Orleans had agreed with. He said that the Commission could sit down with the Town of Brewster and address any other concerns they may have.

Mr. Virgilio stated that he feels that most questions at this point in time have been repeated and answered more than once, so in order to have a meeting, the Town of Brewster should be specific and ask questions that are different than those that have already been answered because he does not want to review the same information again. He said that a lot of work has been done on this project and he does not want to spend time going over the same information.

Mr. Putnam stated that the essential construct of the Commission is based on regionalization, which means that all of the parties involved in a particular issue should be included. He said that Brewster has all the information and what is not clear to him is precisely what they want to hook the decision on, so he would like to see from Brewster exactly what they would like to discuss and would like to see the two Towns meet on this.

Ms. Taylor said that the Town of Brewster is looking for acknowledgement that the marsh is mostly in Brewster and that the Town of Orleans is proposing to use it. She stated that it does not have to be done before the Commission process is over, but it should be stipulated in the decision that there will have to be some sort of agreement between the towns. She said that developing a CWMP is a long process and nothing is proposed to go into the marsh for a few years so there is plenty of time for discussion.

Ms. Taylor asked Mr. Cambareri if multiplying the amount of effluent in the marsh would change the direction of the water.

Mr. Cambareri said that it is a complicated answer, but the plume does have a direction, and some of it discharges to the creek and some of it travels under the marsh and eventually to Cape Cod Bay. He said mounding is a factor, and when you increase the discharge to groundwater, the mound will get bigger and the flow from the Tri-Town facility would widen. He said it depends on the hydraulic boundary condition, and the creek is the low point in the system from the Orleans side. Based on this, he suggested the mound of the plume would not be expected to travel into Brewster on that side. On the other side, he said, the increased flow would discharge into Little Namskaket creek.

Ms. Taylor suggested that the reports clarify that the shellfish beds were in trouble way before the Tri-Town septage plant was built and/or operational, and that it is not a nitrogen issue, it is a bacteria issue that is caused by sea birds, and other animals living in and around the marsh.

Ms. Adams stated that information from the US Division of Marine Fisheries about the shellfish beds was presented at a previous hearing and was provided to the Subcommittee.

Mr. Roy stated that it was also provided in testimony from another gentleman at a hearing.

Mr. Putnam said that the creek had been altered about 75 years ago during the mosquito control phase and straightened out to a degree and asked Mr. Cambareri whether that affects the subsurface flow of material going in.

Mr. Cambareri stated that he does not think so.

Mr. Putnam asked Ms. Adams how she would propose the two Boards of Selectmen meet.

Ms. Adams stated that for other projects, Commission staff met with the Board of Selectmen or Town Planners and provided a presentation of those issues addressed by staff reports.

Mr. Virgilio asked if there was ever a meeting between the Towns of Brewster and Orleans.

Mr. Meservey stated that Orleans, Brewster and Eastham have met at least three times to discuss the Tri-Town facility since the three Towns have an interest in it and to deal with the nitrogen loading issues. He said that the draft of Orleans' CWMP has been around since April of 2008 and it was sent to the two Towns. He said he understands that as more details are provided the towns learn what their concerns are, but primarily, to date the discussions have been about the Tri-Town facility and how the agreement that is in place now to run the plant might need to be changed to allow a sewer plant to go in. He said that a meeting with Brewster is something that could be done outside of the DRI process and the Orleans Selectmen would be open to that.

Mr. David Dunford, Selectmen for the Town of Orleans, affirmed that the Board would be willing to meeting with the Town of Brewster, and he stated that what they are really talking about is the fate of the Tri-Town facility.

Mr. Putnam stated that the input level from the Tri-Town site would be altered dramatically and Brewster owns 75-80% of it.

Ms. Adams noted that the Brewster and Eastham Town Clerks have been sent Commission hearing notices.

Mr. Putnam suggested that Ms. Adams be requested by the Subcommittee to meet with the planners for both the Town of Orleans and Brewster to determine the best way of getting the two Boards of Selectmen to sit down and discuss what they perceive as the issues and come back to the Subcommittee with a list of the issues that exist between the two Towns. Mr. Putnam stated that the Subcommittee is concerned because the facility is being used to augment what is coming out of Orleans, and they are concerned with what can happen to Namskaket marsh as a result of the effluent being pushed into it from the Tri-Town facility and there should be agreement from Brewster that this is acceptable.

Mr. Cambareri stated that the 4/28/11 letter from Mr. Sumner was addressed to the Executive Director and the last statement was that the Town of Brewster would like to meet with the Town of Orleans, the Commission, and DEP to resolve these issues before the Commission renders a decision, and perhaps this should be addressed by the Commission's Executive Director.

Ms. Adams said staff can provide the Subcommittee with feedback on what came out of the meeting with the Town of Orleans and Brewster officials.

Mr. Putnam stated that he does not see how the DEP is going to add anything to the discussion between the two Boards of Selectmen. He said that the DEP will determine whether what is done to Namskaket marsh is acceptable from an environmental basis, but they would not resolve the requirement of the two towns to agree as to the common issues.

Ms. Taylor said that the Department of Natural Resources for the Town of Brewster has been involved in this, so perhaps Chris Miller should be invited to participate in the discussion, whether as an adjunct to the Selectmen who are not natural resources specialists. She stated that there is a lot to think about plenty of time to have these discussions without holding up the process.

Ms. Adams stated that Commission staff could reach out to the Boards of Selectmen and the Town Administrator who wrote the letter and ask them who, from Brewster, should be involved in the meeting.

Mr. Putnam stated that both Brewster and Orleans representatives should be at the meeting.

Mr. Roy suggested the meeting take place sooner rather than later because if it is decided that nothing can go into the marsh, it needs to be known before any decisions are made.

Ms. Taylor suggested that it could be conditioned in the decision that these conversations must take place.

Mr. Putnam stated that they should address Brewster's concerns before they discuss anything further.

The Subcommittee voted to continue the Subcommittee meeting to May 24, 2011 following the public hearing to be held at 4:00 PM on May 24, 2011 at the Cape Cod Commission office.

Mr. Roy asked about a previous statement made by Mr. Cambareri relating to one of the points in the letter received by the Commission. He asked whether it stated that the cluster systems should be permanent.

Mr. Cambareri said that the letter suggested that the cluster systems would reduce the flow at the Tri-Town facility.

Mr. Roy asked if the cluster systems do not reduce the nitrogen load to Pleasant Bay, whether they can be considered permanent.

Mr. Cambareri stated that it would be part of the Adaptive Management Plan, that they would evaluate the cost effectiveness of the cluster systems. Therefore, he said, he does not believe the Town of Orleans would agree to make them permanent at this point.

Ms. Taylor asked if the National Academy of Science reviews the process and it somehow affects the project, whether the Staff Report would be modified or whether it would fit into the adaptive management plan.

Mr. Cambareri suggested that could be stipulated for in the decision.

Ms. Adams said that the Adaptive Management Plan could include information from any number of sources and that could be put into the decision as well. Credible sources should be used to help address any problems that might occur.

Staff and the subcommittee discussed the process for incorporating an adaptive management plan into a DRI.

May 24, 2011 Subcommittee Hearing

Mr. Roger Putnam opened the hearing at 4:00 PM and invited Andrea Adams, Senior Regulatory Planner for the Commission, to provide updates for the project.

Ms. Adams noted that the subcommittee has been given a packet of information for their review which consists of everything that has come in since their last public meeting on March 28, 2011 as well as a draft set of minutes from the April 14th public hearing and the April 28th subcommittee meeting. The meeting took place between the Town of Orleans and the Town of Brewster on May 12, 2011, as directed by the subcommittee at the last meeting, and was attended by Commission staff, members of the Board of Selectmen for the Towns, and Brian Dudley of the DEP. Based on that meeting, the Town of Orleans drafted a written proposal which Ms. Adams read into the record and gave to the subcommittee for review. The proposal included several conditions of approval for the Commission to consider and served to ensure cooperation between the Towns with regard plan. She also noted that the subcommittee had in their packets, a letter dated May 18, 2011 from Peter Norton, the Chair of the Brewster Board of Selectmen to Mr. Niedzwiecki, thanking him for arranging the meeting with the Town of Orleans and making a request to move forward with the process. Ms. Adams also read this letter into the record and noted that she had received a correction to the letter from Susan Levin, the Town Planner for Brewster, which made note of the incorrect use of the phrase TRC. Ms. Adams stated that Commission staff is available to provide additional feedback on the discussions that took place at the meeting. She noted that the subcommittee came to a consensus opinion at the March 23rd meeting and the April 14th hearing that the Regional Policy Plan issue areas of Open Space, Heritage Preservation, Transportation and Coastal Resources either did not apply to the proposed project or that the impacts from the construction of the sewer lines, pump stations, and cluster systems could be addressed through conditions.

Mr. George Meservey provided an update on behalf of the Town of Orleans. He stated that the Town has received letters from three residents, which were also sent to the subcommittee, stating that there is insufficient data serving as a basis for the CWMP, and that an upcoming study will fundamentally change the wastewater plan. Mr. Meservey responded to these contentions, citing the CWMP. Mr. Meservey noted for Pleasant Bay, the final MEP technical report was issued in May, 2006. For the waters on the Cape Cod Bay side, Namskaket Creek, Little Namskaket, and Rock Harbor, the final MEP report for each of those was issued in December, 2008. For the Nauset system, which is the fifth system in Orleans, the Town relied on an assessment by the MEP technical team. Mr. Meservey proceeded to summarize the letter that was distributed to the subcommittee and submitted for the record. He stated that the final MEP reports for Namskaket and Little Namskaket indicate that the assimilative capacity is greater than the present day or future loads and therefore there are no TMDLs anticipated for either of those creeks. For Rock Harbor, he said, the DEP is in the process of a reevaluation of Cedar Pond, which is a headwater, freshwater, or saltwater pond, and the study may indicate that the pond is nitrogen limited whereas previous reports stated that it was a freshwater pond and phosphorus friendly. If the change is true, he noted, it would increase the need for septic nitrogen control. He stated that in the plan, when all six phases are done, virtually the whole watershed leading into Cedar Pond will be sewered. Mr. Meservey said that Pleasant Bay is the

biggest system to deal with, as is demonstrated in the MEP. The TMDL has been issued for this system, he said, and it's been established that there is a threshold nitrogen concentration that is independent of the current breach. The DEP has advised the Town through numerous discussions that the MEP report is a valid technical basis for the wastewater planning on that system. Concerning the new inlet itself, Mr. Meservey stated that the Town knows of no technical analysis that indicates that the breach will remain in place for 50-100 years, but if there is an expert that has found that analysis, he said the Town would be happy to look at it. He said that the Town relied on an assessment by the MEP technical team that set a 55% nitrogen load reduction target for that area. The Town had their consultant conduct a sensitivity analysis that showed that the cost of the CWMP would vary about 10% if the nitrogen reduction were 40%-70% on the high and low end with the adaptive management plan and the many phases of it, he said the Town believes there is ample time to make necessary corrections or adjust to the report when it comes out. Mr. Meservey stated that there was an article approved at the annual town meeting that would fund an evaluation of the STEP (Septic Tank Effluent Pump) collection system as an option to save money on the plan. The proposed plan currently has a hybrid system that is a combination of traditional gravity and alternative collection systems where appropriate. He assured the subcommittee that whatever means are selected to collect wastewater will not fundamentally change the plans.

Mr. Cambareri stated that many of the concerns that have been identified have been addressed through the adaptive management plan and through suggested conditions provided by staff.

Mr. Putnam then invited members of the public to speak.

Mr. Ed Daly spoke first as a resident of Orleans. He read a letter that he wrote which he submitted for the record which summarized his reasons for feeling that the DRI cannot now be properly assessed based on the system described in the current draft CWMP. He used Pleasant Bay as an example, stating that the TMDL was based on water quality, eelgrass and benthic community data collected for the years between 2000 and 2005, but that it now meets the DEP nitrogen specifications at their principal sentinel station and an April 2007 breach has been driving nitrogen levels even lower and stated that coastal scientists say the breach will remain open for 50-100 years. He went on to discuss the other areas addressed by the CWMP and stated his reasons for believing that the CWMP is based on guesses and assumptions without any public comment or scientific review by the residents of Orleans. He stated that there are no final MEP reports or TMDLs for 50% of the watersheds and an obsolete TMDL and incorrect system concept for the other 50% and that they must be provided for the residents of Orleans for review.

Mr. David Farquhar also read a letter which he submitted for the record. He spoke about the cost of the CWMP and the planned Technical Review & Cost Analysis. He discussed the impact of the CWMP on the taxpayers and the more realistic cost of the plan is around \$250 million rather than the estimated \$150 million. He talked about the Town's demography and economy and its inability to handle a 165% increase in taxes and fees and the potential decrease in population as a result of this increase. Mr. Farquhar asked the subcommittee not to approve the CWMP until the results of the Technical Review & Cost Analysis are released.

Mrs. Vicki Reis addressed statements made by Mr. Meservey. Mrs. Reis stated that the residents were told through the press and at the meeting in 2008 that it was not the final plan and that the final plan would be voted on at a future date and it never came. Since that time, she noted that the population has significantly decreased and the Town is down to one precinct. She submitted a newspaper article for the record which discusses the vote. She asked that a

petition requesting that decentralized and alternative options be examined by the Town which has been submitted to the Board of Selectmen. She also submitted a letter addressed to the County Commissioners from the Town of Orleans in support of a study of the NAS review which demonstrates the need for information before the plan proceeds, as well as information from the Town website showing Namskaket restricted wetlands and shows that Namskaket Creek is an ACEC and noted that over a million gallons per day would be dumped into this area. She also submitted a portion of the draft CWMP where it states that in the suitability of treatment facility sites they had 5 bullets explaining the criteria to look for in choosing a site and she demonstrated how the chosen sites do not meet those criteria, and she included maps showing the proximity to nearby homes in the areas and stated that there are homes within 100 feet to the sites. Mrs. Reis stated that Secretary Sullivan assured the Town's residents that any outstanding questions would be answered during local permitting and thus far no questions have been answered. She submitted several other items for the record and asked that the process be halted until concrete data is provided.

Mr. Nello Trevisan also submitted a letter for the record which he read to the subcommittee. He spoke of the inadequacy of the estimated costs because of the stages involved in the CWMP and what that will do to taxpayers and the resulting population decrease. He then discussed the environmental impacts and the uncertainty surrounding where the plumes will transport the discharge and submitted email correspondence between himself and Dr. Weiskel of USGS. Finally he discussed the risk to future Conservation Trust donations. He summarized by stating that the Town should not be experimenting with a \$150 million proposal.

Mr. Alan McClennen then read a letter that he wrote into the record and provided a copy for the subcommittee. He commended the subcommittee for their thoroughness in reviewing the CWMP and stated that he has followed the process from the beginning. He expressed his hope that the subcommittee will determine that the Orleans CWMP meets all the requirements for an acceptable DRI and stated his belief that the plan is consistent with the Cape Cod Commission's criteria for approval.

Mr. Putnam asked if there were any Federal, State or local officials who wished to speak. There were none.

Mr. Putnam asked for final comments from the Town and Commission staff.

Mr. Meservey then assured the Subcommittee that if the plan is to move forward, the Town of Orleans would work with the Town of Brewster in every way possible.

Mr. Cambareri made a final comment about the fact that the restoration of waters according to TMDLs is a requirement and the Town is trying to address this and follow the Federal Clean Water Act. He noted that the areas which are addressed in the CWMP have been listed by the State as impaired waters.

Mr. Putnam stated that the Subcommittee should be making their judgment based on the DRI itself and not the engineering aspects of the project.

Mr. Roy moved to continue the hearing and the record to May 27, 2011 at 10:00 AM, for closure at that time by a Commission Hearing Officer. Ms. Taylor seconded the motion, and it came to a unanimous vote.

Ms. Taylor moved to hold a Subcommittee meeting to June 9, 2011 at 1:00 PM. Mr. Virgilio seconded the motion and it came to a unanimous vote.

May 24, 2011 Subcommittee Meeting

The Subcommittee meeting scheduled for after the public hearing on May 24, 2011 was not held.

May 27, 2011 Hearing Officer

Ms. Adams acted as a Hearing Officer on May 27, 2011 10:00 AM at the Cape Cod Commission office and closed a pro-forma hearing and the record on the Orleans CWMP. No presentations, testimony or substantive action was taken on the project.

June 9, 2011 Subcommittee Meeting

Ms. Adams reviewed the findings for approval which she noted were reviewed in the February 22, 2011 Staff Report

Mr. Putnam asked Ms. Adams what the difference is between a DCPC and an ACEC from the subcommittee's point of view because one of the marshes is an ACEC.

Ms. Adams stated that the Cape Cod Commission acknowledges Areas of Critical Environmental Concern because they are designated at the State level, but in terms of the specific criteria for approval of DRIs, consistency with an ACEC and/or its implementing regulations, is not a criteria for approval.

Ms. Adams noted a February 11, 2011 letter from George Meservey, the Orleans Town Planner, which stated that the project involves a municipal use which is allowed by right in all zoning districts, the treatment plant site is in a General Business District, the proposed facilities are permitted by the zoning bylaw, the project adheres to the zoning bylaw dimensional requirements, and the project is subject to Site Plan and Architectural Review Committees. She also noted alternate testimony in the record which states that a Town vote on the final CWMP and associated costs is required. Ms. Adams stated that the subcommittee will need to deliberate on whether the Orleans CWMP is consistent with the municipal development bylaws, and should take into consideration letters in the record from Mr. Carney on March 1, 2011, and Ms. Reis and Mr. Dunford sent on May 26, 2011. She noted that the subcommittee will also need to deliberate on the consistency of the project with the Local Comprehensive Plan (LCP), and drew the subcommittee's attention to the February 11, 2011 letter from George Meservey which makes note of Action Item CF27, which called for the Town to develop a wastewater management plan for the entire town, approval of the Single/Final EIR by MEPA which fulfilled this Action Item, and that the CWMP includes an action plan and implementation mechanisms. She stated that they should also consider the alternate testimony related to the Town vote on the final CWMP, its costs, and the impacts on the Town.

For Open Space, which Ms. Adams noted was largely addressed in the February 22nd and March 16th Staff Reports, MPS OS1.3 exempts municipal projects for municipal purposes from the provision of open space, and that the CWMP is just that. Again she noted the alternate testimony in the record that the subcommittee should consider which included a March 1st letter from Mr. Pluciennik, a March 21st letter from Mr. Trevisan, and a May 24th letter from Ms. Carney dealing with Box Turtles and Open Space, and the possible impacts to the George Hoffe Conservation Area. Ms. Adams stated that the subcommittee will need to deliberate on whether the project is consistent with MPS OS1.3. Ms. Adams then addressed Plant and Wildlife Habitat and directed the subcommittee's attention to the February 22nd, March 16th and April 8th Staff

Reports. She stated that the Tri-Town site is mapped as a Significant Natural Resources Area as it is Eastern Box Turtle habitat and review by Natural Heritage and Endangered Species Program (NHESP) is required. She noted that the plant layout was revised based on NHESP input to reduce clearing and grading and that NHESP has not made a final determination and will likely do so after the Commission review. If NHESP determines the upgrade of the Tri-Town plant results in a "take" of Eastern Box Turtle Habitat, they will require a Conservation Management Permit which will detail the mitigation measures. She again referred to the alternate testimony regarding the impacts to Box Turtles and George Hoffe Conservation Area. She stated that the subcommittee will need to deliberate on whether the project can be conditioned to be consistent with MPS WPH1.2, WPH1.3, WPH1.4, and WPH1.5.

For Wetlands, Ms. Adams noted the February 22nd, March 16th, and April 8th staff reports. She stated that wetlands or wetland buffers might be encountered during construction in areas not at the Tri-Town plant site. MPS WET1.3 allows for installation of utilities where there is no feasible alternative. Ms. Adams noted the March 31, 2011 letter from George Meservey where he stated that despite the fact that the Town is not required to provide open space, the Town will undertake wetland restoration efforts in those instances where the sewer lines may intrude on wetland buffers or wetlands and a Notice of Intent will be filed at the local level with the Conservation Commission.

Ms. Taylor asked if the Town of Orleans and the Town of Brewster Conservation Commissions will be notified.

Ms. Adams stated that she is referring to the Town of Orleans because the sewer lines and physical disturbance will be in Orleans. She said that the subcommittee will need to deliberate on whether the proposed project can be conditioned to be consistent with MPS WET1.1, WET1.2 and WET1.3.

For Coastal Resources, Ms. Adams noted the February 22nd, March 16th, and April 8th Staff Reports as they relate to direct disturbance from construction of sewer lines and infrastructure. She referred to the March 31, 2011 letter from George Meservey in which he stated that where work for the CWMP will occur within coastal Resources as identified by the RPP, the Town has identified measures to comply with Coastal Resources MPS which are laid out in Section 12 of the CWMP and identified in the Staff Reports. Ms. Adams stated that the subcommittee should also consider alternate testimony from Ms. Carney and Ms. Reis. She said that the subcommittee should deliberate on whether the proposed project can be conditioned to be consistent with Coastal Resources MPS that apply to construction impacts (MPS CR2.2, CR2.3, CR2.4, CR2.6, and CR3.1), as well as MPS CR2.8 as a new non-water dependent infrastructure that may be in Land Subject to Coastal Storm Flowage (LSCSF) but is public infrastructure and provides an overriding public benefit.

Archaeological Resources, Ms. Adams noted, was largely dealt with in the February 22nd and March 16th Staff Reports. She stated that MHC has reviewed the Tri-Town plant site and determined that significant archeological resources are unlikely to exist there and that an archaeological survey will be conducted to determine the presence of resources at the cluster plant sites. The Town is committed to conducting this survey during the preliminary design phase, she stated, and the scope of the work is described on pages 11-46 of the Single/FEIR. Ms. Adams noted a May 26, 2011 letter from Mary Hartley which stated that the Tri-Town site does have archaeological significance. The subcommittee should deliberate on whether the proposed project can be conditioned to be consistent with MPS HPCC1.3, she said. Ms. Adams noted that the February 22nd and March 16th Staff Reports also dealt with Historic Preservation

and that the CWMP states that any aboveground structures within the Old Kings Highway Historic District (OKHHD) would be designed consistent with the District Standards and MHC and OKHHD would review the structures. She also noted alternate testimony from Ms. Carney on March 1, 2011 asking when the Town will seek a Certificate of Demolition/Appropriateness from OKHHD. She stated that the subcommittee would need to deliberate on whether the proposed project can be conditioned to be consistent with MPS HPCC1.1 and HPCC2.4.

Ms. Adams stated that the February 22nd, March 16th and April 8th Staff Reports dealt with Transportation and the impacts to private roads from construction. Ms. Adams stated that at the March 23, 2011 meeting the subcommittee asked the Town whether the roads impacted by sewer line construction would be restored and the Town responded in a letter dated March 29, 2011 that they would. She also noted a March 8, 2011 memo from Wright-Pierce in the record which stated that vehicle trips are expected to be less than 25 in peak hour even after Tri-Town site is redeveloped into a wastewater treatment plant, that stopping sight distances at Overland Way are adequate, and that Commission staff verified Level of Service "A" at Overland Way under current and proposed conditioned, including all combinations of 25 turning movements. Alternate testimony from Mr. Amman on May 26, 2011 stated that use of STEP systems will result in different construction methods that will lessen or eliminate impacts to roads. Ms. Adams stated that the subcommittee will need to deliberate on whether the proposed project is consistent with MPS TR1.2, TR1.3, TR1.8 and TR3.1 in the area of Transportation.

Mr. Tom Cambareri provided a PowerPoint presentation and reviewed the applicable Minimum Performance Standards related to Water Resources and how they apply to the project. He covered twelve issue areas that he stated the subcommittee would need to deliberate on.

Mr. Roger Putnam asked if Namskaket Marsh will continue to be monitored for the movement of nitrogen loading.

Mr. Cambareri answered affirmatively and stated that he would go over that in more detail later in the presentation.

Mr. Cambareri then discussed the Storm Water standards and stated that each standard under this section applies to the project except for WR7.7, Structured Infiltration Devices in Economic Centers and WR7.11, Shut-off Valve in Wellhead Protection Areas.

Ms. Adams asked if this would apply to the Tri-Town Plant.

Mr. Cambareri answered affirmatively.

Mr. Cambareri then reviewed additional issues that have come up during public hearings, within the Staff Reports, and identified in the CWMP, beginning with the MEP science. He stated that the method is reviewed by DEP and EPA and the science program is a partnership with USGS, DEP, the Commission and private engineers using standard industry models. He stated that the findings are accepted by DEP and EPA for the establishment of TMDLs, and TMDLs and MEP Reports are recognized by the Regional Policy Plan under WR3.1. The CWMP, he said, confirms that the confirmatory MEP modeling will be part of the Preliminary Design.

Ms. Elizabeth Taylor asked Mr. Cambareri to clarify as to the meaning of confirmatory modeling.

Mr. Cambareri stated that the MEP has a service where they look at proposed nitrogen removal scheme within the watershed to run the models and confirm that the amount of nitrogen taken out results in a water quality parameter that meets the total maximum daily load in the embayment. There will be incremental periods where water quality will be monitored after each phase, providing a basis for the adaptive management plan, Mr. Cambareri said. He then went on to discuss Nauset Marsh, and stated that the CWMP uses a place holder of 55% septic nitrogen removal, and the average amount of nitrogen removal for the 28 completed MEP watershed reports is 51%. He said that MEP staff has acknowledged the place holder value.

Ms. Taylor asked if MEP agrees with the placeholder value or acknowledges it.

Mr. Cambareri stated that they agree with it.

Mr. Cambareri stated that the TMDL for Pleasant Bay water quality was established before the 2007 breach, which has improved water quality in Pleasant Bay. He noted that the water quality in head waters is still degraded and the CWMP focuses on cluster systems for several headwater locations and centralized sewers for Meetinghouse pond. Mr. Cambareri stated that the Wastewater Treatment Facility is not located in the Area of Critical Environmental Concern but is located adjacent to the boundary of it and noted that compliance with the ACEC is not a criterion for approval. In regards to the Namskaket nitrogen assimilative capacity, there is 67% excess nitrogen assimilative capacity presently, he said, and there will be 63% excess nitrogen capacity when the Wastewater Treatment Facility is built at its design flow. Under practical build out of 26% growth there will be 59% assimilative capacity, he said, and the existing freshwater inflow is 456 MGD. With the Wastewater Treatment Facility, the flow will be 496 MGD, an increase of 9% freshwater flow, and the existing salinity flowing from Hurleys Bog may be reduced by 25% from 2.4 to 1.8 ppt at low tide. The upper range of salinity is 30 ppt. Mr. Cambareri stated that groundwater monitoring will be required as a condition of the DRI and the DEP Groundwater Discharge Permit, and the process will provide for public input. Mr. Cambareri addressed the coliform issue and stated that Namskaket Marsh was first closed to shell fishing in 1987 when Cape-wide sampling programs began. He noted that the Tri-Town Plant began discharging in February 1990 and that coliform bacteria does not survive passage in groundwater systems. There are other sources of coliform in surface waters, he said.

In regards to regional opportunities, Mr. Cambareri noted that Brewster and Orleans met to discuss assimilative capacity and monitoring. The DRI would incorporate suggestions from Brewster about monitoring in the Namskaket Marsh. He stated that the Town of Brewster and the Town of Eastham generally support the CWMP so long as they are able to participate in the process. Mr. Cambareri noted that the Town has voted to undertake alternative analyses comparing technology and a decentralized approach and that the Town can accommodate changes in the Plan. Mr. Cambareri ended his presentation by going over the key points related to adaptive management.

Ms. Adams then presented two more slides in which she reviewed some of the potential benefits and detriments of the project, noting materials in the record. She stated that the subcommittee should deliberate on whether the probable benefit from the Orleans CWMP is greater than the probable detriment.

Based on the fact that there are no Districts of Critical Planning concern in Orleans, Ms. Taylor moved that the criterion of DRI approval is not applicable to the project. Mr. Roy seconded the motion and it came to a unanimous vote.

Based on the February 11, 2011 written testimony of George Meservey, Orleans Planning Director, Mr. Putnam moved that the proposed Orleans CWMP is consistent with Orleans local development bylaws. Mr. Virgilio seconded the motion and it came to a unanimous vote.

Mr. Roy moved that based on the February 11, 2011 written testimony of George Meservey, that the proposed Orleans CWMP is consistent with Orleans Local Comprehensive Plan. Ms. Taylor seconded the motion and it came to a unanimous vote.

Mr. Virgilio moved that based on the materials submitted to date, that the proposed project is a municipal project for municipal purposes, and as such, is exempt from Regional Policy Plan Minimum Performance Standard OS1.3 requiring the provision of open space. Ms. Taylor seconded the motion and it came to a unanimous vote.

Mr. Roy moved that based on the materials submitted to date, that the proposed project can be made consistent with the Regional Policy Plan Minimum Performance Standards WPH1.2, WPH1.3, WPH1.4 and WPH1.5 related to Plant and Wildlife Habitat through conditions. Mr. Virgilio seconded the motion and it came to a unanimous vote.

Ms. Taylor moved that based on the materials submitted to date, that the proposed plan can be made consistent with the Regional Policy Plan Minimum Performance Standards WET1.1, WET1.2 and WET1.3 related to Wetlands through conditions. Mr. Roy seconded the motion and it came to a unanimous vote.

Based on the materials submitted to date, Mr. Virgilio moved that the proposed project can be made consistent with the RPP Minimum Performance Standards related to Coastal Resources as they relate to project construction impacts, CR2.4, CR2.2, CR2.6 and CR3.1 through conditions. Ms. Taylor seconded the motion and it came to a unanimous vote.

Mr. Roy moved that based on the materials submitted to date, the proposed project is considered non-water dependent public infrastructure that may be in Land Subject to Coastal Storm Flowage, but is allowed per RPP MPS CR2.8 as there is an overriding public benefit and as the project is public infrastructure. Mr. Virgilio seconded the motion and it came to a unanimous vote.

Mr. Roy moved that based on the materials submitted to date, the proposed project can be made consistent with the RPP Minimum Performance Standards related to Archaeological and Historic Resources, HPCC1.3 through conditions. Ms. Taylor seconded the motion.

Mr. Virgilio asked for clarification as to how this will affect cluster plants sites.

Ms. Adams and the subcommittee discuss how the decision could be conditioned to require that there be archaeological surveying on potential sites.

The motion made by Mr. Roy on MPS HPCC1.3 passed unanimously.

Ms. Taylor moved that based on the materials submitted to date, the proposed project can be made consistent with the RPP MPSs related to Historic Resources as they relate to above-ground structures, HPCC1.1 and HPCC2.4 through conditions. Mr. Virgilio seconded the motion and it came to a unanimous vote.

Based on the materials submitted to date, Ms. Taylor moved that the proposed project is consistent with the RPP MPSs related to Transportation resources including TR1.2, TR1.3, TR1.8 and TR3.1. Mr. Virgilio seconded the motion and it passed unanimously.

Mr. Putnam moved that the DRI approval be conditioned upon the Town's willingness to restore roads impacted by sewer line construction to their original state.

The subcommittee's concerns about the roads were addressed by Mr. Meservey.

The motion made by Mr. Putnam was modified to include "public or private roads" and "original state or better."

Ms. Taylor seconded the amended motion and it came to a unanimous vote.

Ms. Taylor moved that based on the materials submitted to date, the proposed project is consistent with the RPP MPS WPH1.1 related to Plant and Wildlife Habitat for the Tri-Town Plant site. Mr. Virgilio seconded the motion and it passed unanimously.

The subcommittee meeting was continued to Wednesday, June 15, 2011 beginning at 5:00 PM at Brewster Town Hall.

June 15, 2011 Subcommittee Meeting

Ms. Andrea Adams provided an update on the project. She noted materials distributed to the Subcommittee at this meeting and said the Subcommittee should go over the Water Resources issue area, and determine whether or not the Subcommittee had enough information to make findings.

Mr. Cambareri, using copies of his PowerPoint presentation, described how the Orleans CWMP related to the applicable RPP Minimum Performance Standards (MPS). In the area of General Aquifer Protection, he noted the applicable MPS were WR1.1, WR1.2, and WR1.5. He noted that MPS WR1.3 and WR1.4 did not apply to the CWMP. In the area of Drinking Water Protection, he noted the applicable MPS were WR2.1 and that the rest of the MPS in this section did not apply to the project. In the area of Marine Water Protection/Restoration, Mr. Cambareri said all the MPS would apply to the CWMP except for MPS WR3.5. In the area of Fresh Water Protection/Restoration, Mr. Cambareri said that MPS WR4.1 and MPS WR4.3 applied to the Orleans CWMP, but not MPS WR4.2. In the Water Resources issue area dealing with Water Quality Improvement, he said that MPS WR5.1 and MPS WR5.2 applied, but not the rest of these MPS. In the area of Public and Private Wastewater Facilities, Mr. Cambareri said that MPS WR6.2, MPS WR6.3 and MPS WR6.4 applied to the project, as well as WR6.8 and WR6.9. He said that MPS WR6.1 as well as WR6.5, WR6.6 and WR6.7 did not. In the area of Stormwater Management, Mr. Cambareri said that all of the MPS in this section except for MPS WR7.7 and WR7.11 would apply to the Tri-Town Treatment Plant site redevelopment.

Mr. Cambareri then discussed potential findings for Water Resources. He noted that in Section WR1, MPS WR1.1 sets 5-parts per million (PPM) as a standard for nitrogen loading. He noted the wastewater treatment plant described in the CWMP would be designed to achieve 3 ppm. He noted this had been discussed in the January 11th and February 22nd staff reports. He said the Subcommittee should deliberate on whether or not the proposed Orleans CWMP is consistent with MPS WR1.1.

Ms. Taylor moved that based on the materials submitted to date, the proposed project can be made consistent with Regional Policy Plan (RPP) Minimum Performance Standard (MPS) WR1.1. Mr. Roy seconded the motion and it was approved unanimously.

Mr. Cambareri said the next MPS was MPS WR1.2 relative to identification of drinking water wells within a 400 foot radius of the facility. He noted this had been discussed in the January 11th and February 22nd staff reports. He said the CWMP included a screening analysis that evaluated a number of criteria, and that Mr. Meservey had indicated that there were no private wells adjacent to the facility within 400 foot and noted most of these areas were served by municipal water. He said the Subcommittee should deliberate on whether or not the proposed Orleans CWMP is consistent with MPS WR1.2.

Ms. Taylor moved that based on the materials submitted to date, the proposed project can be made consistent with RPP MPS WR1.2. Mr. Virgilio seconded the motion and it was approved unanimously.

Mr. Cambareri said that with respect to MPS WR1.5, this had also been dealt with in the 1/11/11 and 2/22/11 staff reports. He noted turf and landscape management plans would probably be drafted once design plans for the wastewater treatment plant were finalized, but suggested the project could be conditioned to require the submission of a turf and landscape management. He said the Subcommittee should deliberate on whether or not the proposed Orleans CWMP is consistent with MPS WR1.5.

Mr. Virgilio moved that based on the materials submitted to date, the proposed project can be made consistent with MPS WR1.5. Ms. Taylor seconded the motion, and it was approved unanimously.

Mr. Cambareri said Water Resources section WR2 dealt with Drinking Water and noted MPS WR2.1 sets a 5ppm limit on nitrogen loading. He noted this had also been dealt with in the 1/11/11 and 2/22/11 staff reports. Mr. Cambareri said the facility is not located in a Wellhead Protection Area and that the Subcommittee should deliberate on whether or not the proposed Orleans CWMP is consistent with MPS WR2.1.

Ms. Taylor moved that based on the materials submitted to date, the proposed project can be made consistent with RPP MPS WR2.1. Mr. Virgilio seconded the motion, and it was approved unanimously.

Mr. Cambareri noted the design plans for the facility could be conditioned to address all the applicable stormwater management MPS. He directed the Subcommittee's attention to the staff reports and noted the Subcommittee should deliberate on whether or not the project is consistent with section WR7, including MPS WR7.1 to WR7.10.

Ms. Taylor moved that based on the materials submitted to date the proposed project can be made consistent with RPP MPS WR7.1 to MPS WR7.10. Mr. Virgilio seconded the motion, and it was approved unanimously.

For Fresh Surface Waters, Mr. Cambareri noted MPS WR4.1 and MPS WR4.3 dealt with limits on subsurface disposal relative to fresh water ponds, and the use of wastewater treatment. He said the CWMP identifies fresh water recharge areas to ponds, and includes a continued assessment. He noted the sewer would serve some residences in watersheds to fresh water

ponds. He said the Subcommittee should deliberate on whether or not the proposed Orleans CWMP is consistent with MPS WR4.1.

Ms. Taylor moved that based on the materials submitted to date the proposed project can be made consistent with RPP MPS WR4.1 and MPS WR4.3. Mr. Roy seconded the motion, and it was approved unanimously.

Mr. Cambareri said the next issue area dealt with Water Quality Improvement Areas. He noted the applicable MPS were WR5.1 and MPS WR5.2. He said the CWMP, which includes the centralized treatment facility and the proposed cluster treatment systems, would improve coastal water quality. He said the Subcommittee should deliberate on whether or not the proposed Orleans CWMP is consistent with MPS WR5.1 and WR5.2.

Mr. Virgilio moved that based on the materials submitted to date the proposed project can be made consistent with RPP MPS WR5.1 and MPS WR5.2. Ms. Taylor seconded the motion, and it was approved unanimously.

Mr. Cambareri discussed the MPS in the Coastal Water Quality section of the RPP. He noted the applicable MPS. On MPS WR3.1, Mr. Cambareri said that this was discussed in more detail in the 1/11/11 and 2/22/11 staff reports and slides. He noted the Subcommittee had also received testimony from the Town and the Town's consultants, as well as March 11, 2011 and March 23, 2011 letters. He noted the CWMP references the MEP reports and that the Subcommittee had been given a presentation by a representative of the USGS. He noted the CWMP dealt with major coastal embayments in Orleans, including Rock Harbor, Pleasant Bay, and Nauset Marsh, some of which are listed as impaired waters by the state, and said the Clean Water Act requires restoration of water quality in these embayments. He noted the MEP project had determined critical loads for these embayments, and that both the EPA and MADEP have established Total Maximum Daily Loads (TMDLs) for these embayments. He said the RPP recognizes the TMDLs and MEP Technical Reports. He noted there was a reasonable placeholder critical load for Nauset Marsh and the TMDL for Namskaket Marsh systems indicate it has excess capacity. He noted the alternate testimony received by the Subcommittee, including letters from Mr. Amman, Mr. Eagles and Mr. Daley. He said the Subcommittee should deliberate on whether or not the MEP science is appropriate to use as the basis of the project based on several factors which he listed, and on whether or not the MEP science is appropriate to use as the basis of the project's consistency with RPP MPS 3.1.

Mr. Virgilio asked Mr. Cambareri to clarify the relationship between a private contractor and the DEP.

Mr. Cambareri said the DEP is contracted with the School of Marine Science (SMASST), which is sub-contracted with a firm called Applied Coastal Sciences and explained their relationship to the subcommittee.

Ms. Taylor asked if things would change if updated science were used for the MEP or the Nauset Marsh placeholder value.

Mr. Cambareri replied that this motion was particular to the alternate testimony on the science related to MPS WR3.1.

Ms. Adams noted the Subcommittee had heard alternate testimony about this issue. She said the Subcommittee needed to decide which testimony was most persuasive to the Subcommittee.

She said if the MEP findings change, the question is, is it appropriate as a basis for MPS WR3.1. She also noted the Adaptive Management Plan.

Ms. Taylor asked whether the Adaptive Management concept was therefore applicable throughout.

Mr. Cambareri replied in the affirmative and said that the draft decision would have some specifics of the Adaptive Management Plan for the Subcommittee to evaluate.

Mr. Putnam expressed the same concern about Adaptive Management.

Ms. Adams said the conditions would describe the components of an Adaptive Management Plan. She said conditions are the manner in which the Commission tells an Applicant what to do.

Mr. Putnam asked about whether or not another Town vote was needed on the engineering aspects. Mr. Putnam noted the Subcommittee was looking at the components of a wastewater treatment plan in general, but that the choice of the final technology to meet the requirements would be up to the Town of Orleans.

Ms. Adams said there was testimony in the record that there was a warrant Article to look at STEP systems. She suggested the testimony from Mr. Meservey that the Town would look at using STEP systems, and if so, the Adaptive Management Plan would account for this.

Mr. Cambareri agreed with Ms. Adams.

Ms. Adams suggested the conditions would set the requirements for nitrogen loading, which was really the key driver. She also noted that all DRI applicants have the opportunity to seek a modification of the DRI decision. She said the question before the Subcommittee is whether or not the MEP science is appropriate to use as the basis of project consistency with RPP MPS 3.1.

Ms. Taylor moved that based on the materials submitted to date the MEP science is appropriate to use as a basis for the project for consistency with RPP MPS 3.1. Mr. Roy seconded the motion.

Mr. Putnam said he was satisfied that the presentations showed the consistency with current science standards and Mr. Virgilio and Mr. Roy agreed with Mr. Putnam.

Ms. Taylor asked about the other reviews, and testimony that the underlying models had not been released for public comment. She questioned if the motion would leave flexibility if the MEP science and model changed.

Mr. Cambareri said the Adaptive Management Plan (AMP) would account for this, including confirmatory modeling.

Mr. Putnam called for a vote on the motion, which passed unanimously.

On Nauset Marsh, Mr. Cambareri said the Subcommittee had received alternate testimony from Mr. Amman, Mr. Eagles and Mr. Daley that the Nauset Marsh study is not complete. He said the Subcommittee needed to deliberate on whether the project can be conditioned to accept the CWMP Nauset Marsh placeholder value of 55% for nitrogen removal, and that the average

nitrogen removal amount in the 28 completed Technical Reports is 51%. Mr. Cambareri also said that MEP staff has agreed that the placeholder value of 55% is appropriate, and that the MEP report for Nauset Marsh is due out summer 2011. He noted the CWMP sewer area could also be modified to account for this via the AMP.

Mr. Roy moved that based on the materials submitted to date the proposed project can be conditioned to accept the CMWP Nauset Marsh placeholder value for consistency with RPP MPS 3.1. Mr. Virgilio seconded the motion, and it passed unanimously.

On the issue of Pleasant Bay, Mr. Cambareri said the Subcommittee had heard testimony from Mr. Amman, Mr. Daley, Mr. Eagles and others that the water quality in Pleasant Bay is improving due to a breach in 2007 and does not warrant sewerage in Orleans. Mr. Cambareri said that the Subcommittee needed to deliberate on whether the project and its objectives can be conditioned to account for the water quality uncertainty subject to the breach. He noted in this respect that the TMDL for Pleasant Bay was established pre-2007 breach, that the breach has improved water quality, but that it is still degraded in the headwaters of Pleasant Bay. He also noted the CWMP cluster systems are proposed for several headwaters locations and centralized sewerage around Meetinghouse Pond. He noted that the general Pleasant Bay area sewerage will occur in Phase 5 and is not scheduled for implementation until 2025. Based on this, Mr. Cambareri said monitoring would allow water quality information to be collected and input into the AMP. He noted that confirmatory modeling would also be required as a condition of DRI approval.

Mr. Putnam stated that around 20 years of monitoring would happen between 2011 and 2025.

Ms. Adams noted that MPS WR3.1 is the nitrogen loading standard. She said the breach does exist but the water quality that was there pre-breach is more conservative.

Mr. Roy said the conditions would allow the Town to look at the data, including the breach, whether it's there or not.

Mr. Putnam said he thought the breach might close in the next few years.

Mr. Cambareri said the DEP was of the position that the more conservative pre-breach water quality conditions should be looked to as the baseline.

Mr. Roy said the proposed motion acknowledges this, and allows adjustments based on new data.

Mr. Roy moved that based on the materials submitted to date the proposed project can be conditioned to account for water quality uncertainty subject to the Pleasant Bay breach for consistency with MPS WR3.1. Ms. Taylor seconded the motion, and it passed unanimously.

Mr. Cambareri addressed the Coastal Water Quality MPS. He said that the Subcommittee needed to deliberate on whether the project can be conditioned to be consistent with MPS WR3.1, WR3.2, WR3.3, WR3.4 and WR3.6.

Mr. Virgilio moved that based on the materials submitted to date the proposed project can be conditioned to be consistent with MPS WR3.1, WR3.2, WR3.3, WR3.4 and WR3.6. Ms. Taylor seconded the motion and it passed unanimously.

For Private and Public Wastewater Treatment Systems, Mr. Cambareri noted several issues had come up in the course of the review, including the Pleasant Bay ACEC. Mr. Cambareri noted the Tri-Town plant site is not located in the ACEC, although it and the proposed upgraded wastewater treatment plant at the Tri-Town site is adjacent to the ACEC boundary, but that consistency with an ACEC is not a criterion for DRI approval.

Ms. Adams said that the draft written decision would include a finding acknowledging the ACEC.

Mr. Cambareri addressed the issue of the assimilative capacity of Namskaket Marsh. He noted the alternate testimony in the record from the Town of Brewster and others that the assimilative capacity of the Marsh will be used up, and that there is no mechanism to allocate this capacity. Mr. Cambareri said that the Subcommittee needs to deliberate on whether there is assimilative capacity to accommodate nitrogen from the proposed project based on staff reports and other testimony that showed that there is a 67% excess capacity in the Marsh presently, that there will be 63% excess capacity when the wastewater treatment plant is built at its design flow, that under the practical build out of 26% growth, there will be 59% assimilative capacity and that regional input to monitoring and reporting will be required as part of the AMP.

Mr. Putnam asked if the agreement between Brewster and Orleans is recognized in this case or whether it needed to be included in the conditions of the decision.

Mr. Cambareri said there was no intermunicipal agreement per se but the Town of Orleans made a proposal to the Town of Brewster, and Brewster acknowledged the CWMP could go forward based on the outlines of the proposal being included in the decision relative to monitoring.

Ms. Adams noted the Orleans proposal to Brewster on 5/12/11 and a subsequent letter.

Ms. Taylor said it was hard to deliberate on the findings without having had the benefit of reviewing the outlines of the monitoring program.

Ms. Adams acknowledged this, but said the question for the Subcommittee was is there sufficient assimilative capacity in the Namskaket Marsh system to accommodate nitrogen from the project for consistency with MPS 3.4.

Ms. Taylor said the concept of assimilative capacity appears to entail that the load will be spread generally uniformly over a general area, when there may be breakouts at specific sites which could have different effects on the Marsh. She asked whether this would be included in the conditions.

Mr. Cambareri said the monitoring would include surface and groundwater monitoring as well as ecological monitoring.

Ms. Taylor said the entire Marsh could assimilate the nitrogen, but it may show up in specific parts of the Marsh, where assimilative capacity would be different.

Mr. Cambareri noted the assimilative capacity of the Marsh was really that of the creek that the Marsh discharges into. He said that flowing surface water has the capacity to accept that nitrogen.

Mr. Len Skidmore, Brewster Wastewater Committee, said the three sub-bullets on the slide being referred to by Mr. Cambareri are in conflict. He said the three points should be consistent.

Mr. Cambareri said the intent of the three sub-bullets was the same. He said these numbers came from the MEP technical team.

Mr. Putnam asked if the Commission could emphasize the need for a formal Memo of Understanding on this point.

Ms. Adams said the Subcommittee could do so through a finding in the decision and encourage the Towns to enter into a formal agreement.

Mr. Putnam said his concern was relative to jurisdiction over Namskaket Marsh.

Mr. Cambareri said this issue was potentially addressed in the idea of regional solutions.

Mr. Roy moved that based on the materials submitted to date, there is assimilative capacity in the Namskaket Marsh system to accommodate nitrogen from the project for consistency with MPS 3.4. Ms. Taylor seconded the motion, and it passed unanimously.

Mr. Cambareri discussed the issue area of fresh water assimilative capacity of the Namskaket Marsh and noted testimony that the additional fresh water flows to the Marsh from the proposed WWTP were significant, and would upset the ecology in the Marsh. Mr. Cambareri said the Subcommittee needed to deliberate on this and noted the existing fresh water inflow to the Marsh was 4.56 million gallons per day (MGD). He said with the proposed WWTP, the freshwater flow would be 4.96 MGD, an increase of less than 9% of the freshwater flow. He said the existing salinity from Hurley's Bog may be reduced by 25% from 2.4 to 1.8 parts per thousand at low tide. He said the upper range of salinity is approximately 30 parts per thousand. He also noted the tidal prism is 147 MGD compared to 0.64 MGD for the WWTP. He said the freshwater flow is relatively small to these factors in the Marsh system.

Ms. Taylor said the freshwater flow is not going to be spread out and it may have breakouts or change the Marsh habitat. She said perhaps it may not be significant for hydrologic balance.

Mr. Cambareri acknowledged Ms. Taylor's concerns, but suggested that the issue is one of hydrological balance in terms of volume and salinity.

Ms. Taylor said it would help to tie the motion to hydrologic balance.

Mr. Putnam noted that if there was a breakout, that would be an indication that the AMP needed to be updated.

Mr. Putnam asked that the proposed draft motion be reworked to more closely mirror the issue in MPS WR6.3.

Mr. Cambareri addressed the issue of coliform contamination and closure of shellfish beds. He noted the alternative testimony and stated that the subcommittee would need to deliberate on whether the coliform bacteria problem at Namskaket would be exacerbated by the WWTF based on the materials submitted to date.

Ms. Taylor moved that based on the materials submitted to date, that the Coliform bacteria problem at Namskaket will not be exacerbated by the WWTF for consistency with RPP MPS 6.3. Mr. Roy seconded the motion and it came to a unanimous vote.

Mr. Virgilio moved that based on the materials submitted to date that the Wastewater Treatment Facility can maintain the hydrologic balance for the added freshwater flow from the proposed facility for consistency with RPP MPS WR6.3. Ms. Taylor seconded the motion and it was approved unanimously.

Mr. Cambareri went on to discuss groundwater monitoring and noted that it will be required as a condition of the DRI and the DEP GDP. The process, he said, will provide for public input of the GWDP and specifics will be developed as part of the Adaptive Management Plan scope of work. He noted that the same applies for the TMDL compliance and ecological monitoring.

Ms. Taylor asked whether development density units and a growth neutral policy would be referenced in the conditions of the decision.

Mr. Cambareri replied that it is part of the plan and will be recognized in the findings.

Mr. Meserve confirmed Mr. Cambareri's statement.

Mr. Virgilio moved that based on the materials submitted to date, that the proposed project can be made consistent with the RPP MPS under Section WR6, including MPS WR6.2, 6.3, 6.4, and 6.8. Mr. Roy seconded the motion and it was approved unanimously.

Mr. Cambareri noted that Brewster and Orleans met to discuss assimilative capacity and monitoring and that the DRI would incorporate suggestions from Brewster about monitoring in the Namskaket marsh. He stated that the Town of Brewster and the Town of Eastham generally support the CWMP with the option to participate. He also noted that alternative testimony stating that the CWMP process will preclude regional shared solutions. He said the subcommittee should deliberate on whether the project accommodates and allows for regional shared solutions.

The subcommittee expressed their concerns related to addressing the fact that Namskaket is a shared resource and directed staff to include findings that reflect those concerns and encourage cooperation between the towns.

Mr. Virgilio moved that based on the materials submitted to date, the proposed project accommodates and allows for regional shared solutions. Mr. Roy seconded the motion and it came to a unanimous vote.

Mr. Cambareri noted the alternative testimony in the record which states that the CWMP does not include alternative technology solutions or provide for a rigorous side by side analysis. He said that the subcommittee will need to deliberate on whether the CWMP includes alternative technology solutions and can be conditioned to allow for changes based on the CWMP including centralized and decentralized technologies, the Town's vote to undertake Alternative Analysis comparing technology and decentralized approach and the fact that changes in the plan can be accommodated under conditions.

Mr. Roy moved that based on the materials submitted to date, the proposed project includes alternative technology solutions and can be conditioned to allow for changes in the plan's implementation. Mr. Virgilio seconded the motion and it was approved unanimously.

Mr. Cambareri then addressed the adaptive management component of the plan and stated that the subcommittee will need to deliberate on whether the CWMP allows for changes in the course of its implementation based on a prescribed adaptive management plan that will track and provide for changes by including requirements for implementation of the plan and milestones, documentation of capital expenditure, compliance with the groundwater discharge permit, reporting on Estuary water quality monitoring, a summary of habitat assessments that may be completed by the town, Mass DEP and others, non-structural alternative progress, and potential evaluations and changes as needed. He also noted the alternative testimony in the record.

Mr. Roy moved that based on the materials submitted to date, the proposed project can be made consistent with the RPP MPS through the Adaptive Management Plan that allows for changes in the course of its implementation. Ms. Taylor seconded the motion and it came to a unanimous vote.

Ms. Adams noted that the last finding for approval of a DRI is that the probable benefits of the project outweigh the probable detriments and she stated that this was discussed in the staff reports. She noted that the CWMP is the creation of new public infrastructure and there is a long term benefit of that which is acknowledged in the Coastal Resources section of the RPP, and she noted alternative testimony in the record which states that it is uncertain whether the detriments will outweigh the benefits of this project.

Mr. Virgilio stated that based on the testimony received to date, he feels that the probable benefits do outweigh the probable detriments and Mr. Roy agreed.

Mr. Virgilio stated that the improvement in the nitrogen level in the embayments and Namskaket Marsh, Little Namskaket, Namskaket Creek and Rock Harbor is a benefit. He said the project will limit sewage from cesspits and septic systems to groundwater, and there will be betterments to aquaculture and shellfish in the Town Cove, Ayres Pond and Meetinghouse Pond, which are also benefits of the project.

Ms. Taylor asked whether one of the first things will be to implement alternative systems in the ponds.

Mr. Cambareri stated that it is scheduled for Phase 2, but they are discussing the possibility of moving it up to Phase 1.

Ms. Taylor stated that cleaning up those ponds would be a benefit of the project.

Mr. Virgilio stated that he would like to see some language in the decision which ensures that the sewage to groundwater from cesspits and septic systems is limited by the plan, as stated by Mr. Putnam.

Mr. Cambareri stated that it is a local requirement.

Mr. Virgilio moved that based on the materials submitted to date, that the probable benefits of the proposed development are greater than the probable detriments as the project is public

infrastructure, there will be improvement in various water bodies as a result of the project, including an improvement in nitrogen levels, it will limit sewage to groundwater, and there will be betterments to aquaculture and shellfish in places such as Town Cove, Ayres Pond, and Meetinghouse Pond. Mr. Roy seconded the motion and it was approved unanimously.

Mr. Virgilio moved to direct Commission staff to draft a written decision with conditions for review and approval for the Orleans CWMP. Mr. Roy seconded the motion and it was approved unanimously.

Ms. Taylor moved to continue the subcommittee meeting to July 7, 2011 at 4:30 PM at the Assembly of Delegates Chamber at the 1st District Courthouse in Barnstable. Mr. Virgilio seconded the motion and it came to a unanimous vote.

July 7, 2011 Subcommittee Meeting

Ms. Taylor moved to approve the draft minutes of June 15, 2011. Mr. Roy seconded the motion and it came to a unanimous vote.

Mr. Putnam invited Mr. George Meservey to present his request to the subcommittee.

Mr. Meservey stated that the Town of Orleans Board of Selectmen would like some time to review the draft decision, noting that the implications are long term in nature and significant to the Town, they felt that it was important to understand the terms and conditions of the decision and request a 60-day extension of the regulatory timeframe for a decision.

Ms. Wielgus noted that Section 13 of the Commission Act allows the Commission to grant the extension of the decision period, and by delegation of Chair, Mr. Putnam has the authority to sign on behalf of the Commission to sign the extension agreement, which would extend the decision period until September 22, 2011. She noted that it has already been signed by John Kelley on behalf of the Town and has been notarized. She presented the Agreement to Mr. Putnam for discussion.

Ms. Taylor moved to sign the extension agreement and extend the decision period to September 22, 2011. Mr. Roy seconded the motion.

Mr. Putnam asked Mr. Meservey whether the decision by the Town to study other possible forms of sewage collection impinges on the decision being made today.

Mr. Meservey replied that it did not. He stated that it was a separate study authorized by the Town Meeting to look at an alternative collection system, and should that study result in substantial changes to the CWMP, the Town would come back with a request to modify the decision and he believes it has been stated in a Water Resources Condition of the draft decision. He said this extension is for the purpose of the Board of Selectmen understanding the language of the decision.

Ms. Taylor's motion was approved unanimously and the extension agreement was signed by Mr. Putnam, Subcommittee Chair. The meeting adjourned at 4:46 PM.

September 27, 2011 Subcommittee Meeting

Mr. Putnam opened the subcommittee meeting at 2:05 PM. He noted it was being recorded, and as a meeting, was not designed for testimony.

Mr. Virgilio moved to approve the draft 6/9/11 subcommittee minutes as presented. Ms. Taylor seconded the motion, and it was unanimously approved.

Mr. Roy moved to approve the draft 7/1/11 subcommittee minutes as presented. Mr. Virgilio seconded the motion, and it was unanimously approved.

The subcommittee, together with Commission staff, reviewed a 9/16/11 draft decision document for the Orleans CWMP. Various spelling and other text corrections were made.

Mr. Putnam asked Commission staff to focus on the changes in the 9/16/11 draft that had been made from a 7/1/11 draft written decision.

Mr. Cambareri and Attorney Patty Daley, the Commission's Deputy Director, went over the 9/16/11 draft decision document, noting changes that had been made since the 7/1/11 draft. Ms. Daley noted that some of the changes were adding language to findings or conditions, or moving unchanged blocks of text from one area of the draft decision to another.

Ms. Adams noted the General Findings and Conclusions deal with the criteria for DRI approvals.

Mr. Cambareri and Attorney Daley went over the draft Water Resources conditions in detail.

Ms. Taylor questioned why the Town of Brewster had not been formally included on the Technical Review Committee (TRC) mentioned in several of the Water Resources conditions. She expressed concern that the Town of Orleans was using the Town of Brewster's marsh, without consulting the Town.

Mr. Cambareri said the decision had been drafted to respond to concerns raised at the public hearings, including those in a letter by Ms. Hughes. He noted a meeting had been held with Orleans and Brewster representatives, and Commission staff, in May 2011. He said the findings noted the marsh had absorptive capacity to accommodate the project. He noted conditions WRC14-WRC16 in particular with respect to including Brewster's concerns.

Ms. Taylor moved that a representative from the Town of Brewster be included on the TRC. Mr. Roy seconded the motion.

Mr. Roy suggested that Eastham, although it did not share part of the marsh, should also be included on the TRC.

Ms. Taylor amended her motion, and moved that a representative from both Brewster and Eastham be included on the TRC. Mr. Roy seconded the amended motion.

Mr. Cambareri noted condition WRC16 specifically included Brewster in the Groundwater Discharge Permit and biological monitoring components. He suggested there were some parts of the CWMP implementation that should remain with Orleans. He described the components of an AMP, noting that the Town of Orleans had 1-3 years to complete the final AMP and implement it. He suggested this would give time for Brewster to be involved.

Mr. Putnam acknowledged Mr. Meservey to comment.

Mr. Meservey said the Towns of Orleans, Brewster and Eastham had worked together for some time. He suggested the issue of discharge to the marsh was dealt with by condition WRC16. He said the Orleans Board of Selectmen had not yet taken a final position on the draft decision, but suggested the Town would be comfortable with Brewster having input on the biological monitoring components.

Attorney Daley noted condition WRC16 was not new; it was in the 7/1/11 draft decision.

Ms. Taylor said that based on Attorney Daley's comment, she was not certain why the Town of Brewster had sent the 8/16/11 letter to the Commission, requesting representation on the TRC.

Mr. Virgilio said he was a strong proponent of regional solutions, and Towns working together, particularly in the area of wastewater management, but he expressed strong reservations about another Town having the ability to prevent Orleans from moving forward with its CWMP. He noted that Orleans Town Meeting would have to make critical funding decisions in the future.

WRC10. Mr. Cambareri suggested condition WRC16 could be amended to read "*the Town of Orleans shall consult with and include the Town of Brewster as part of the Namskaket Creek Monitoring requirements for the Adaptive Management Plan and Ground Water Discharge Permit (GWDP) and provide draft and final GWDP applications to the Town of Brewster.*" (Emphasis added so suggested edit can be seen) He suggested adding the words "*and include*" might address Ms. Taylor's and Mr. Virgilio's concerns. He said the intent was to keep Brewster involved in the monitoring components of the TRC.

Ms. Taylor said a red-line comparison of the two documents, with the changes clearly shown, would be very helpful.

Mr. Putnam acknowledged Mr. Sims McGrath to comment.

Mr. McGrath acknowledged Brewster's desire to be involved, in that maintaining communication between the Towns was vital. He suggested that condition WRC16 be amended in such a way as to have Brewster and/or Eastham have a non-voting representative on the TRC. He said this would allow them to be involved, but that Orleans would retain the final vote, particularly with respect to matters of funding.

Attorney Daley said Commission staff could create a few options for the wording of condition WRC16 or others, to address the concerns being discussed.

Mr. Putnam asked Ms. Taylor and Mr. Roy if they would withdraw their motion and second to allow Commission staff to work on draft language.

Ms. Taylor and Mr. Roy withdrew the motion and second from consideration.

Commission staff reviewed the remainder of the draft decision, including Findings and Conditions in all the covered Regional Policy Plan issue areas mentioned.

Ms. Taylor asked if the 7-year timeframe on a DRI decision was sufficient for the Town to implement the CWMP.

Attorney Senatori said that seven years is the time in which a DRI Applicant has to pull local permits with respect to an approved DRI decision. She said if this is done, the DRI decision then runs with the land for the duration of the project, no matter how long. She noted the

Commission has provisions to allow up to a five year extension of DRI decision where permits have been obtained within the timeframe.

Attorney Daley noted that the draft decision sets certain milestones, including for involvement of Brewster in the WWTP by the year before the 7 year timeframe would end.

Mr. Putnam asked what the next steps would be.

Ms. Adams said it would be advisable to have another subcommittee meeting to review a revised draft decision.

Mr. Meservey said the Board of Selectmen was scheduled to review the draft decision in early October.

Ms. Taylor said the Brewster Board of Selectmen may also want to provide more comments.

Mr. Roy moved to hold another subcommittee meeting on October 7, 2011 beginning at 9:00 AM at the Commission's office for the purpose of reviewing the draft decision. Mr. Virgilio seconded the motion, and it was unanimously approved.

Mr. Virgilio moved to adjourn the meeting. Mr. Roy seconded the motion, and it was unanimously approved. Meeting adjourned at 4:40 PM.

October 7, 2011 Subcommittee Meeting

Mr. Putnam opened the meeting at 9:00 AM. He asked Attorney Senatori to introduce the draft written decision.

Attorney Senatori said that the version of the draft written decision before the Subcommittee showed changes to the draft decision since the Subcommittee's last meeting in July 2011. She said that Mr. Cambareri would also discuss the changes in the Water Resources sections in more detail.

Mr. Cambareri went over the changes, beginning on page #5. He noted typographical errors and corrections.

Ms. Taylor noted a change to WRF12 on page 10 of the draft written decision. She noted these were numbering corrections.

Mr. Cambareri noted many of the changes in the document were unintentional, in that the merging of July and current draft decision lost some of the numbering of findings or conditions. He noted that on page #17, WRF47 had not changed. He noted that discussions with Orleans' consultants, there had been a slight change in the percentage amounts in WRF38 on assimilative capacity. Mr. Cambareri continued to go over other typographical errors on page #21. He said on page #31, the findings noted the Adaptive Management reports would be in two-year increments. He noted Finding WR15 added language concerning a Town representative from Brewster on the Technical Review Committee as an ex-officio non-voting member as described in the Adaptive Management Plan Scope which is also included as an Exhibit to the DRI decision. He noted certain studies would be done in the Preliminary Design phase. Mr. Cambareri noted the draft decision showed how the Coastal Resources section had been condensed.

Attorney Senatori distributed to the Subcommittee a copy of a letter from the Association to Preserve Cape Cod (APCC) received by the Cape Cod Commission on October 6, 2011.

Mr. Virgilio asked if anyone was present from the APCC to address comments to the Subcommittee or the letter?

No one from the audience responded.

The Subcommittee took time to read the letter.

Mr. Putnam asked if the record was closed, and as such, could the Subcommittee consider the APCCs letter?

Attorney Senatori said the Subcommittee could consider it as part of the final hearing on the draft written decision.

Attorney Daley said the APCC had a new Executive Director, Ed DeWitt. She suggested this may have contributed to the letter's tardiness.

Ms. Taylor said APCC had commented on the project before.

Mr. Cambareri said the Commission's decision has not set any threshold on salinity, but rather has bracketed the knowledge about that issue and what the range of salinity could be. He said this would be part of the Adaptive Management Plan and the Massachusetts Department of Environmental Protection's Groundwater Discharge Permit for the project.

Mr. Virgilio asked if APCC had technical staff similar to the Commission?

Mr. Cambareri said APCC had a group of volunteers who helped do coastal monitoring.

Ms. Taylor said the Commission does not conduct coastal marsh monitoring, and APCC does do this type of work.

Mr. Cambareri said this is the first time he had seen APCCs information. He said the information from APCC is that could be part of the Technical Review Committee's discussions.

Mr. Virgilio asked if APCCs comments needed to be incorporated into the draft decision?

Mr. Putnam suggested this could be part of the discussions of the Technical Review Committee (TRC). He noted the TRC now would include a Brewster representative. He said the map of Pleasant Bay in the decision should be more current.

Mr. Cambareri said the map in the draft decision was chosen because it shows the sampling stations.

Mr. Putnam acknowledged this, but suggested the map should be updated.

Mr. Cambareri said the sampling stations have not changed. He said the intent of the graphic was to show the sampling stations, not Pleasant Bay.

Mr. Putnam asked Ms. Taylor if she felt the changes in the decision addressed Brewster's concerns?

Ms. Taylor said yes. She said it had been discussed by the Town, and including Brewster on the Technical Review Committee was a positive step.

Mr. Putnam asked Mr. Roy and Mr. Virgilio if they were satisfied with the draft decision?

Mr. Virgilio and Mr. Roy said yes.

Mr. Roy moved to approve the proposed Orleans Comprehensive Wastewater Management Plan as a Development of Regional Impact with conditions. Ms. Taylor seconded the motion. The motion was passed unanimously.

Attorney Senatori said the Subcommittee should make a motion on the proposed project. She said the next motions should be on the draft decision, and to forward the document for consideration to the full Commission.

Mr. Virgilio moved to approve the draft written DRI decision, as amended, for the Orleans Comprehensive Wastewater Management Plan, and to recommend its approval by the full Commission. Mr. Roy seconded the motion. The motion passed unanimously.

Attorney Senatori noted the proposed project and draft decision had been noticed for consideration by the full Commission at the October 13, 2011 Commission meeting.

Mr. Virgilio asked if the agenda for October 13, 2011 was long?

Attorney Senatori said there were several agenda items.

Mr. Putnam suggested the discussion of the Orleans CWMP might be lengthy. He also suggested that testimony could be subject to a time limit.

Mr. Meservey asked if the Town should be prepared to make a presentation?

Mr. Putnam suggested the presentation at the full Commission meeting would be largely on the draft decision, and would be primarily given by Commission staff, but that the Town should be prepared to answer questions and to possibly make a short presentation.

Ms. Taylor moved to adjourn. Mr. Virgilio seconded the motion, and it was unanimously approved. Adjourned at 9:25 AM.

FINDINGS

General

GF1. The Commission finds that the applicant is the Town of Orleans.

GF2. The project is the Comprehensive Wastewater Management Plan for the Town of Orleans, as described in the Single Final Environmental Impact Report (SFEIR) of December 2010. The project consists of one centralized wastewater treatment facility and five cluster treatment systems with sewer extensions to restore water quality to impaired coastal embayments.

GF3. The first substantive Development of Regional Impact public hearing on the CWMP was held on March 1, 2011 where the project was reviewed for consistency with the 2009 Regional Policy Plan (*revised May 2010, effective June 2010*).

GF4. The written testimony of Mr. George Meservey, Orleans' Director of Planning and Community Development in a February 11, 2011 letter states "*Action Item CF-27 (of the Orleans Local Comprehensive Plan) recommends the Town develop a wastewater management plan for the entire town.*" This letter also notes approval of the CWMP and Single/Final EIR by the MEPA office in January 2011 essentially completed item CF-27. The letter also notes that the CMWP includes recommended action related to plan implementation and development of an administrative structure related to oversight of operations (Action Items CF-28 and CF-34), and that the Town has begun these actions through the Board of Water and Sewer Commissioners. Based on this written testimony, the Commission finds the Orleans CWMP to be consistent with Orleans' Local Comprehensive Plan.

GF5. The February 11, 2011 letter from Mr. George Meservey, Orleans' Director of Planning and Community Development states that as a municipal use, the CWMP is allowed by right in all zoning districts. His letter also notes "[t]he proposed treatment facility site...is within the General Business District" and that "[t]he facilities proposed would be permitted by the Zoning Bylaw." Mr. Meservey's letter notes that facilities, including pump stations, will need to adhere to dimensional requirements in the Zoning Bylaw, and would be subject to both the Site Plan Review and Architectural Review Committees. Based on this written testimony, the Commission finds the Orleans CWMP to be consistent with Orleans' local zoning.

GF6. Based on the materials submitted for the record, the Commission finds that there are no Districts of Critical Planning Concern in Orleans and therefore it is consistent with this criterion.

GF7. The Commission finds that the proposed project is located within the Pleasant Bay and Cape Cod Bay Areas of Critical Environmental Concern (ACEC), but that the Plan takes steps to ensure that activities in or impacting on the areas are carried out so as to minimize adverse effects on marine and aquatic productivity, surface and groundwater quality, habitat values, storm damage prevention or flood control, historic and archaeological resources, scenic and recreational resources, and other natural resource values of the area in accordance with 301 CMR 12.2(1)(c) of the Executive Office of Environmental Affairs.

GF8. As described in the Final EIR, the benefits of the Comprehensive Wastewater Management Plan include: public infrastructure for the protection of public health; improvement of the water quality in the aquifer and restoration of marine water quality to meet federally adopted TMDLs for nutrients. The detriments are limited to construction activities and the length of time required to implement the plan. Based on the materials submitted for the record, the Commission finds that the probable benefit of the proposed development is greater than the probable detriment.

GF9. The Commission finds that the project will be implemented in accordance with the Final Comprehensive Wastewater Management Plan/Final Environmental Impact Report of December 2010, incorporated herein by reference. The Commission finds that any deviation from the CWMP/FEIR that affects TMDL compliance or otherwise changes or impacts the conditions of this decision will be reviewed as a modification of this decision in accordance with the Commission's Enabling Regulations in effect at that time.

Water Resources Findings

WRF1. The project affects the following water resources areas of the Regional Policy Plan:

- WR1 General Aquifer Protection
- WR2 Drinking Water Protection
- WR3 Fresh Water Protection / Restoration
- WR4 Marine Water Protection / Restoration
- WR5 Water Quality Improvement Area
- WR6 Public and Private Wastewater Facilities
- WR7 Storm Water

WRF2. Applicable water resources minimum performance standards are:

WR1.1, WR1.2, WR1.5
WR2.1
WR3.1, WR3.2, WR3.3, WR3.6
WR4.1, WR4.3
WR5.1, WR5.2
WR6.2, WR6.3, WR6.4, WR6.9
WR7.1, WR7.2, WR7.3, WR7.4, WR7.5, WR7.6, WR7.8, WR7.9, WR7.10

WRF3. The protection of drinking water is a major goal of the Regional Policy Plan (RPP Water Resources Goal WR2). The town of Orleans has been proactive in its efforts to protect its drinking water quality including: the adoption of a water resource protection district overlay and bylaw; acquired open space; performed required water quality sampling; constructed and operates a water treatment facility; and produces annual consumer confidence reports. Land use controls and regulations that have been adopted and implemented over the last 30 years have been effective in protecting the Orleans water supply. There are eight wells in Orleans. According to the 2009 Annual consumer confidence report the concentration of nitrate is very low ranging from Non-detect to 0.22 ppm. These concentrations are well below state and federal drinking water regulations and the Regional Policy Plan's MPS WR1.1 nitrogen loading standard of 5 ppm. Phase 5 sewerage for nitrogen removal for Pleasant Bay that is also in the Well # 7 recharge area may provide additional benefits to drinking water quality. The Commission finds that the project is consistent with WR 1.1 nitrogen loading standards.

WRF4. Protection and restoration of the ecological integrity of fresh water ponds is a goal of the Regional Policy Plan (WR4). There are 63 fresh water ponds in Orleans. Commission finds that the Town of Orleans has undertaken significant actions through the Orleans Marine and Fresh Water Quality Task Force, concurrent with the CWMP/FEIR including an assessment of the status and management needs of its fresh water ponds. Orleans has been an active participant in the Cape Cod Ponds and Lakes Stewardship (PALS) project which Commission Water Resources staff coordinates. Information about Orleans Ponds was initially presented in the Commission's Cape Cod Ponds and Lakes Atlas of 2004. More recently PALS data from 18 ponds were reviewed and a detailed assessment was conducted on 5 ponds in the Commission's "Review and Interpretation of Orleans Freshwater Ponds Volunteer Data" report of 2007. Information from these detailed studies shows that these ponds span a continuum of ecological conditions. Bakers Pond is relatively pristine, although it has some deep-water conditions that warrant additional monitoring. Crystal Lake is relatively impaired, but most of the impairment is deeper in the pond and only occasionally are the impairments seen at the surface. Pilgrim

Lake and Boland Pond are impaired with regular mixing of internal sediment regenerated phosphorus prompting algae growth and near eutrophic conditions. The information provided in the Orleans CWMP indicates that connecting properties to sewer around Bolands, Crystal and Pilgrim Lake would provide an ecological benefit, but that for Bakers, Ice House and Shoal Pond more study is warranted regarding sewerage of those areas and that further study was warranted. The CWMP indicates that the Town will continue to monitor the conditions of its fresh water ponds. Continued implementation of Stormwater Management Plans will also address phosphorous and bacterial sources from runoff. Commission staff will continue to work with the town through their participation in the PALS water quality snap-shot as it is offered by the School of Marine Science and Technology at the University of Massachusetts at Dartmouth. The Commission finds that the project is consistent with MPS WR4.1 limiting new subsurface systems from the 300 foot buffer area and MPS WR4.3 the appropriate use of wastewater treatment facilities.

WRF5. The restoration and protection of the ecological integrity of marine waters is a major goal of the Regional Policy Plan (RPP Water Resources Goal WR3). Section 303(d) of the Federal Clean Water Act requires each state to (1) identify waters for which effluent limitations normally required are not stringent enough to attain water quality standards and (2) to establish Total Maximum Daily Loads (TMDLs) for such waters for the pollutants of concern. The TMDL "allocation" establishes the maximum loadings (of pollutants of concern), from all contributing sources, that a water body may receive and still meet and maintain its water quality standards and designated uses, including compliance with numeric and narrative standards. The Coastal systems are attached to the Adaptive Management Plan Scope, Exhibit A, appended to this decision and incorporated by reference, and listed below were identified by the state as impaired waters due to nitrogen loading, primarily from septic systems in their watersheds and bacteria from surface water runoff. For the purposes of the RPP, these embayments and their watersheds are considered impaired and water quality improvement is the Town's goal. The Commission finds the project is consistent with MPS WR 3.1 critical nitrogen load, MPS 3.2 maintenance or improvement of nitrogen loading, and MPS 5.1 water quality improvement nitrogen loading standard.

The following surface waters have been identified as impaired in Massachusetts Year 2010 Integrated List of Waters: Proposed Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act

Rock Harbor, Orleans Nutrients Q4 - 20081 Q2 - 20091

Nauset Marsh, Orleans/Eastham Nutrients Q2 - 20093 Q4 - 20093

Little Pleasant Bay (96933) MA96-78 Waters north and east of imaginary lines drawn from the northeasterly edge of Orleans (near The Horseshoe), southeasterly to the northeastern tip of Sipson Island, then continuing to and around the northeastern border of Sipson Meadow, Orleans then south to the northern tip of Strong Island, Chatham then east to a point on the inner Cape Cod National Seashore (excluding the delineated segments; The River, Pochet Neck, and Paw Wah Pond). 3.3 sq mi -Nutrients [10/24/2007-CN244.0]

Namequoit River (9661850) MA96-71 Headwaters, outlet Areys Pond, Orleans to confluence with The River, Orleans. 0.06 sq mi -Nutrients [10/24/2007-CN244.0]

Paw Wah Pond (96241) MA96-72 Orleans 0.01 sq mi -Nutrients [10/24/2007-CN244.0]

Namskaket Creek (9661375) MA96-27 From outlet of unnamed pond north of Route 6A in Orleans to mouth at Cape Cod Bay, Brewster/Orleans. 0.02 sq mi -Pathogens [8/28/2009-CN252.0]

Little Namskaket Creek (9661400) MA96-26 Source to mouth at Cape Cod Bay, Orleans. 0.01 sq mi -Pathogens [8/28/2009-CN252.0]

Town Cove (96929) MA96-68 Entire cove to Nauset Harbor, including Rachael Cove and Woods Cove, Orleans/Eastham 0.80 sq mi -Pathogens [8/28/2009-CN252.0]
 Rock Harbor Creek (9661425) MA96-16 Outlet Cedar Pond, Orleans to mouth at Cape Cod Bay, Eastham/Orleans. 0.02 sq mi -Pathogens [8/28/2009-CN252.0]

WRF6. Orleans has been participating in the Massachusetts Estuary Project (MEP) including water quality sampling of its coastal waters and through participation in the Pleasant Bay Alliance and partnership with the National Park Service and Eastham. Where coastal systems are impaired, nitrogen loading critical thresholds are determined by the MEP. The MEP has provided Technical Reports for Pleasant Bay and the Orleans Northside Cape Cod Bay Embayments of Rock Harbor, Namskaket and Little Namskaket Creek. The Massachusetts Department of Environmental Protection (DEP) and federal Environmental Protection Agency (EPA) use the critical thresholds from the MEP to establish Total Maximum Daily Loads (TMDLs) according to the Federal Clean Water Act.

WRF7. The Commission finds that based upon the evidence submitted for the record, the MEP science is appropriate to use as the basis for the Comprehensive Wastewater Management Plan, and for determining consistency with MPS 3.1 for establishing critical nitrogen loads.

WRF8. The TMDL is the watershed management number from which the percent removal of wastewater nitrogen is calculated. The MEP results for the embayments surrounding Orleans indicate that removal of wastewater related watershed nitrogen loads should be 45 to 100 percent to achieve TMDL compliance. The relative percentage removal of nitrogen from septic systems is indicated in the Table 1 shown below. However, the Northside embayments including Namskaket and Little Namskaket Creek were found to have a much higher assimilative capacity of nitrogen due to their morphology and the tidal fluctuation of 9+ feet in Cape Cod Bay. Therefore nitrogen loads in those watersheds are well below a critical load and in fact there is excess capacity to assimilate additional loads to those waters as shown in Table 1.

TABLE 1 Percent septic nitrogen removal to restore water quality as determined by the Massachusetts Estuary Program

Pleasant Bay-TMDL % Removal		Northside Embayments –Draft MEP % Removal	
Meetinghouse Pond	100%	Rock Harbor	70%
Paw Wah Pond	75%	Nauset Marsh – Estimated % Removal	
Pochet Neck	65%	Nauset Marsh/Town Cove	55%
Lonnies Pond	50%	Excess Capacity over Existing Total Load-Draft MEP	
The River	50%	Namskaket Creek	261% Increase
Areys Pond	50%	Little Namskaket Creek	65 % Increase
Namequoit River	50%		
Little Pleasant Bay	45%		
Quanset Pond	50%		
Pleasant Bay	50%		

WRF9. The MEP Technical Report for Nauset Marsh has been delayed and is not available. Based on a preliminary MEP appraisal the Town has decided to move forward with a placeholder percent removal of 55%. Earlier water quality studies on Nauset Marsh/Town Cove indicate that Town Cove is a sink for nitrogen causing anoxic conditions in its deep portions (Teal, et al, 1983). A review of 28 completed MEP Technical Reports indicates that the average amount of septic wastewater to remove to achieve water quality restoration goals is 51%. The CWMP indicates that the MEP technical staff supports the removal percentage. Commission staff has testified that the MEP technical staff concurred with this appraisal.

WRF10. The Commission finds that the proposed project can be conditioned to accept the CWMP Nauset Marsh placeholder value for consistency with Regional Policy plan MPS WR 3.1 critical nitrogen loading standard, MPS 3.2 maintain or improvement of nitrogen loading and MPS 5.1 water quality improvement nitrogen loading standard. The Commission further finds that when the MEP Technical Report for Nauset Marsh becomes available it will be applied through the Adaptive Management Plan as outlined in condition WRC1.

WRF11. Efforts to comply with the TMDL by reducing nitrogen loading within the watershed areas are projected to result in: 1) restoration of natural distribution of eelgrass as a habitat for shell and finfish, 2) prevent algae blooms, 3) protect benthic communities from impairment or loss, and 4) maintain dissolved oxygen concentrations that are protective of estuarine environments. The TMDL requires monitoring of marine water quality at sentinel stations as shown in the Adaptive Management Plan scope; Exhibit A, appended to this Decision and incorporated by reference, to provide for a primary measure of success of the CWMP goal to restore water quality.

WRF12. The TMDL provides nitrogen water quality targets as thresholds (mg/l) for those embayments in comparison to present observed nitrogen concentrations, as shown in the Table 2 below excerpted from the TMDL for the Pleasant Bay System and Tables VIII-4 and 5 excerpted from the Technical Reports for Rock Harbor, Namskaket and Little Namskaket Creek embayment systems.

WRF13. The completed MEP Technical Report for Nauset Marsh will inform the Town and Commission on the actual amount of nitrogen removal that will be required to achieve TMDL compliance for the Nauset Estuary. The information is critical to regional discussions relative to potential sewerage in the Eastham side of the shared watershed and the extent of sewerage in the Orleans portion.

Table VIII-4. Comparison of model average total N concentrations from present loading and the threshold scenario, with percent change, for the Namskaket Creek system. Loads are based on atmospheric deposition and a scaled N benthic flux (scaled from present conditions). The threshold station is shown in bold print.

Sub-Embayment	monitoring station	present (mg/L)	threshold (mg/L)	% change
Namskaket – mouth	WMO-22	0.421	0.637	+61.4%
Namskaket – lower	WMO-23	0.488	0.937	+92.2%
Namskaket – upper	WMO-24	0.662	2.054	+210.1%

Table VIII-4. Comparison of model average total N concentrations from present loading and the threshold scenario, with percent change, for the Little Namskaket Creek system. Loads are based on atmospheric deposition and a scaled N benthic flux (scaled from present conditions). The threshold station is shown in bold print.

Sub-Embayment	monitoring station	present (mg/L)	threshold (mg/L)	% change
Little Namskaket – mouth	WMO-19	0.604	0.749	+24.2%
Little Namskaket – lower	WMO-20	0.778	1.026	+31.8%
Little Namskaket – upper	WMO-21	1.044	1.412	+35.2%

Table VIII-5. Comparison of model average total N concentrations from present loading and the threshold scenario, with percent change, for the Rock Harbor System. Loads are based on atmospheric deposition and a scaled N benthic flux (scaled from present conditions). The threshold station is shown in bold print.

Sub-Embayment	monitoring station	present (mg/L)	threshold (mg/L)	% change
Rock Harbor Mouth	WMO-15	0.447	0.398	-11.1%
Rock Harbor Basin	WMO-16	0.574	0.454	-20.9%
Rock Harbor Marsh	WMO-17	0.686	0.500	-27.1%
Rock Harbor Creek	WMO-18	0.829	0.615	-25.8%

Table 2. Observed present nitrogen concentrations and target threshold nitrogen concentrations derived for the Pleasant Bay System

Subembayments (Sentinel Stations are in bold)	Sub-embayment Observed Total Nitrogen Concentration ¹ (mg/L)	Sub-embayment Observed Bioactive Nitrogen Concentration (mg/L)	Target Threshold Bioactive Nitrogen Concentrations (mg/L)
Meetinghouse Pd (WMO-10)	0.72-0.98 ²	0.28-0.41 ²	0.21
The River-upper (WMO-9)	0.86	0.25	0.20
The River-lower (PBA-13)	0.56	0.18	0.17
Lonnies Pond (PBA-15)	0.78	0.28	0.21
Areys Pond (PBA-14)	0.73	0.30	0.25
Namequoit River (WMO-06)	0.73-0.83 ²	0.24-0.30 ²	0.21
The River-mid (WMO-08)	0.85	0.18	0.18
Pochet Neck (WMO-05)	0.72-0.84 ²	0.24-0.28 ²	0.21
Little Pleasant Bay (PBA-12)	0.57-0.77 ²	0.14-0.18 ²	0.16
Paw Wah Pond (PBA-11)	0.71	0.27	0.21
Quanset Pond (WMO-12)	0.56-0.60 ²	0.19-0.21 ²	0.21

WRF14. The information from Table 1 and the Nauset Marsh placeholder value was used by the Town of Orleans to develop a Phased Sewer Plan to attain the percent removals as required by the MEP studies and the TMDLs. The Orleans CWMP proposes a wastewater collection and treatment infrastructure to remove the component of nitrogen load emanating from the Orleans watersheds and a series of non-structural elements including: fertilizer control; stormwater management, water conservation program, flow and load reductions, enhancement of embayment flushing rates, and land use controls. The six phased sewer plan begins with the construction of wastewater treatment and discharge facilities and an initial trunk line sewer collection system to which subsequent collection phases will tie in as shown in Figure 1.

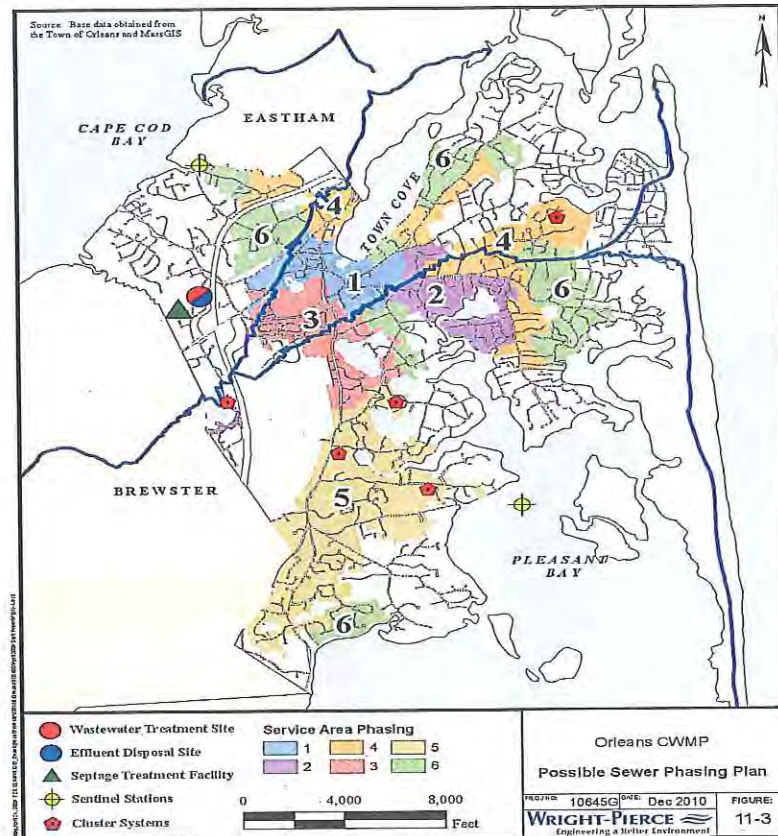


Figure 1 Orleans Sewer collection Phases

WRF15. Phase 1 of the plan (Figure 1) is planned to include the construction of the Wastewater Treatment Facility at the Tri-Town site and provide a sewer collection system primarily in the Nauset Marsh watershed. Phase 1 will collect approximately 130,000 gpd as an annual average basis, from 273 developed parcels. The collection area includes about 75% of the Village Center Zone and 75% of the portion of the Limited Business Zone that abuts Town Cove. It also includes some of the Limited Business Zone along Route 6A. Most of the Phase 1 collection area falls within the Nauset watershed, with the remainder in the Rock Harbor watershed. Sewering in Phase 1 will address 30% of the estimated nitrogen control need in the Nauset watershed and it will collect about two-thirds of the commercial district wastewater as shown on Figure 2. Phase 1 will address sanitary needs in 33 parcels (of the 198 town-wide), eliminate 2 tight tanks (of the 7 town-wide), and serve 18 parcels with a history of frequent septage pumping (of the 78 town-wide) of the town-wide aggregated needs also shown in Figure 2. Phase 1 does not

presently include areas already served by existing private cluster systems like those serving Skaket Corners.

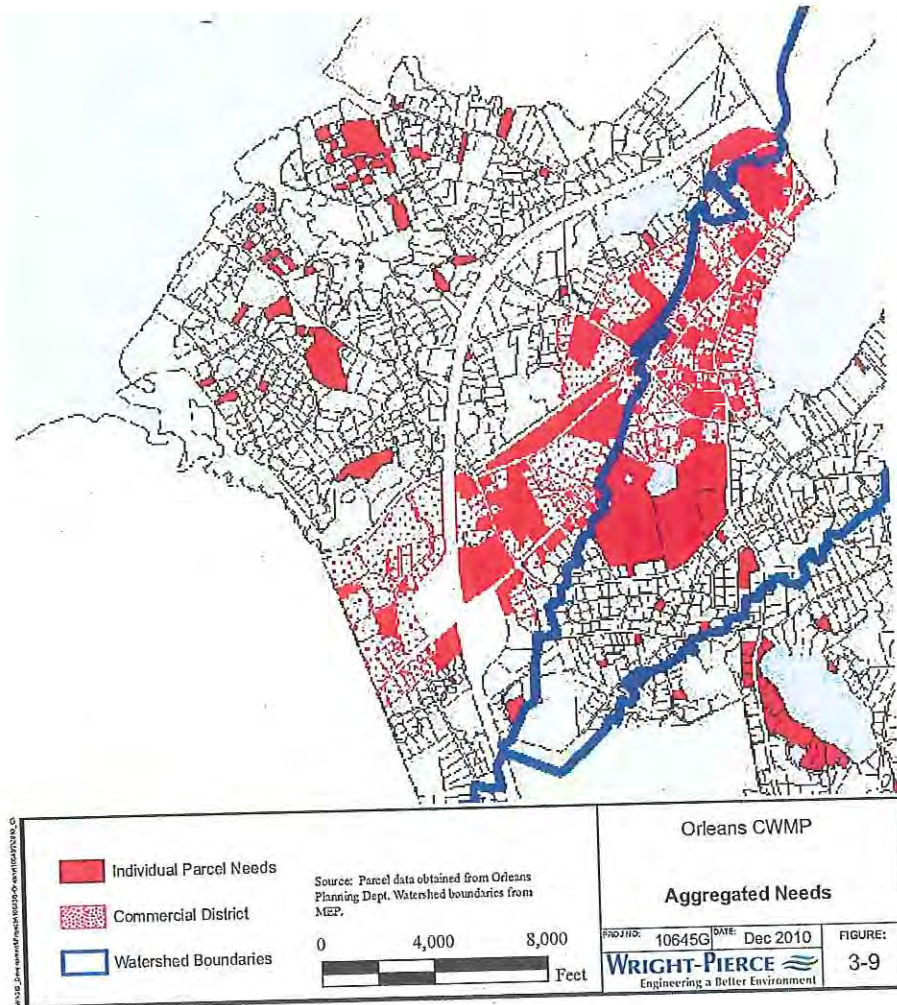


Figure 2 Aggregated Sewer Needs in the vicinity of the commercial Area

WRF16. The projected six phased sewer plan (Figure 1), as listed below is planned to be implemented over a 15 year period from the start of construction in 2015 to 2030 according to the updated schedule provided in the CWMP response to MEPA comments. Orleans has provided four years prior to construction to obtain funding to resolve outstanding issues within the Preliminary Engineering Design and subsequently obtain funds to begin construction.

- **Complete CWMP Early 2011**
- **Secure Preliminary Design Funds 2013 Spring**
- **Preliminary Design Resolutions and Engineering**
- **Secure Construction Funds 2015**
- **Phase 1 Construction 2015 to 2017**
- **Start-up of Phase 1 facilities mid 2017**

- Phase 2 2018-2020
- Phase 3 2021-2023
- Phase 4 2024-2026
- Phase 5 2027-2029
- Phase 6 2030-2032

WRF17. The attainment of percent nitrogen removals for TMDL compliance for the Orleans component of nitrogen removals will not occur until the end of Phase six in 2032 according to the Table 11-4 in the CWMP as shown below, unless non-structural and potential regional solutions allow earlier achievement.

**TABLE 11-4
NUTRIENT LOAD REDUCTION BY PHASE**

Phase	Percentage of Required ^(a) Nitrogen Removal			Ponds ^(b)
	Pleasant Bay	Nauset System	Rock Harbor	
1	<1	30	34	
2	24 ^(c)	32	34	Bakers [†] , Reubens
3	31 ^(c)	52	39	Crystal [†] , Boland's [†]
4	44 ^(c)	86	49	Ice House [†]
5	80	86	49	Pilgrim [†] , Shoal [†] , Uncle Seths, Twinings
6	100	100	100	Cedar [†] , Uncle Harveys

Notes: (a) "Required" is based on Pleasant Bay TMDLs, Rock Harbor MEP technical report and preliminary Nauset estimates.

(b) [†] Denotes the first and second priority ponds identified in Table 3-4.

(c) Cluster systems represent about 10 percentage points in Phases 2, 3 and 4.

WRF18. Attainment of the total amount of nitrogen removal to meet the TMDLs and critical nitrogen loads for Nauset Marsh and Pleasant Bay will require that the Towns of Eastham, Brewster and Chatham also remove their watershed share of the nitrogen load or that Orleans provide more than its share of removal.

WRF19. The TMDL for Pleasant Bay was completed in May 2007 based upon the MEP Technical Report that used water quality data from 2000 to 2005. Since that time a major break has occurred in the Pleasant Bay barrier beach system that has increased flushing leading to water quality improvements in the major Pleasant Bay system. A study by the Cadmus Group entitled, *Pleasant Bay Alliance Water Quality Monitoring Program: Statistical Analysis of Multi-Year Water Quality Data* (2010), evaluated water quality over the last decade in the Pleasant Bay system. The study found statistical trends for decreasing water quality in the general Bay area prior to the 2007 break, but after the break, general Bay water quality improved. Despite the water quality improvements found in the general Pleasant Bay system, there continues to be water quality problems in the coastal waters of the upper reaches of the Pleasant Bay system, as addressed in findings WR21. In Orleans these reaches include, Areys Pond, Meetinghouse Pond, Pah Wah Pond, Little Cove and Lonny's Pond.

WRF20. The Commission finds that the proposed project as conditioned through the Adaptive Management Plan will account for water quality uncertainty resulting from the Pleasant Bay

breach and is therefore consistent with Regional Policy Plan MPS WR 3.1 critical nitrogen loading standard, MPS 3.2 maintain or improvement of nitrogen loading and MPS 5.1 water quality improvement nitrogen loading standard.

WRF21. Appendix I of the CWMP provides information for four proposed cluster systems targeted to expedite nitrogen removal from the Pleasant Bay tributaries. The four Cluster systems are proposed to have treatment efficiencies of 5 to 8 ppm nitrogen, as shown on Table 2, below, excerpted from the CWMP Table I-3:

TABLE 2 Characteristics of Four Cluster systems in the Pleasant Bay Watershed

Characteristics	Little Cove	Lonnie's Pond	Areys Pond	Paw Wah Pond
Properties to be served	29	31	27	37
Design Flow	14000	14000	9900	21000
Average Flow	5900	5500	3400	9400
Target N PPM	5	5	8	5
N lbs Removed	379	439	187	611
% of TMDL N Removed	na	67	60	67
Within 10 yr Time of Travel	na	90%	100%	60%

The four Cluster collection systems were designed to capture at least 60% of the nitrogen load that needs to be removed according to the local Pleasant Bay sub watershed TMDLs, shown in Table 1. The Cluster systems are proposed to be designed at the end of Phase 1 and built in Phase 2. The combined present design and average day flows for the four cluster systems are 58,900 and 24,200 gpd respectively. The design phase for the Cluster systems will involve a more thorough review of this approach including MEP evaluation of water quality improvement and its cost-effectiveness. The Cluster system approach is a reasonable strategy to expedite nitrogen removal within the headwaters of significantly impaired coastal waters. The cluster plants could be retrofitted as pumping stations for potential future centralized sewer expansions for the greater Pleasant Bay watershed. The effort to obtain the local sites and sewer the nearby areas for expedited deployment of localized treatment would be beneficial to the long term Six Phase Plan, if fully implemented.

WRF22. The Commission Sub Committee requested that the Town expedite the design and implementation of the Cluster Plants for Pleasant Bay. The Town has indicated that they will include the evaluation in the Preliminary Design.

WRF23. The cluster system design evaluation will address expedited nitrogen removal of a substantial quantity (60% of the required amount to be removed) towards meeting the TMDLs, (Table 1). The Commission recommends that water quality improvement should be a priority criterion for comparison, and if found appropriate, the Town is encouraged to consider including cluster systems design and permitting components in Phase 1.

WRF24. A cluster system for Meetinghouse Pond is not proposed because the required TMDL removal is 100% as shown on Table 1 and Figure 1. Meetinghouse Pond Watershed is not scheduled for collection until Phase 2 during the years 2018-2020.

WRF25. A fifth cluster system is proposed to serve the upgradient parcels adjacent to Bakers Pond. The proposed cluster system is a Title 5 system with a leach field located down gradient of the pond to remove wastewater nutrients from the near shore upgradient area. The town has elected to include this action for proactive water quality protection even though the pond report of CWMP Appendix A indicates that significant investment in off-site sanitary management is not warranted for the Bakers Pond watershed.

WRF26. Cedar Pond is a significantly impaired surface water body in Orleans, but conclusions about its condition are deferred to a revised MEP report for Rock Harbor. The MEP report indicates that Cedar Pond is a somewhat brackish water body, and provides the benefit of natural attenuation of nitrogen in its watershed, which is typically associated with a fresh water pond. Since the draft MEP report was issued however, the surface water connection to Rock Harbor has been improved to restore the run of herring. This has changed the nature of Cedar Pond towards being more saline and potentially more sensitive to nitrogen. Less attenuation of watershed nitrogen to the Rock Harbor system would be accomplished by Cedar Pond as a result of the change to a nitrogen limited system. Therefore additional MEP assessment is underway to re-evaluate the amount of septic nitrogen that needs to be removed from the watershed.

WRF27. The CWMP screened 30 sites and evaluated 10 for their potential to accept effluent and by evaluating the potential downgradient water resource impacts. More in-depth analysis was conducted by the Town on site "241," the Tri-Town Septage Facility site and Nauset School playing fields. The Town selected the Tri-Town site as the location for the proposed wastewater treatment facility. The site of the proposed facility is in the Namskaket Creek watershed. The Town Planner provided testimony that there were no private wells within 400 feet of the proposed facility. Commission Water Resources staff reviewed the scope of work for the loading test at the Tri-Town site and observed the test in the field. Commission Water Resources staff also reviewed the scope of work for the groundwater modeling study and commented on the draft and final site assessment documents that are included in the CWMP as part of the S/FEIR Appendices. USGS hydrologists also reviewed the groundwater modeling of the proposed new discharge and found it acceptable. The Commission finds that the project is consistent with MPS WR 3.6 and MPS 5.2 which allows wastewater treatment facilities to be located in a Marine Water Recharge Areas and that the project is consistent with MPS WR1.2 the identification of private wells.

WRF28. The location of the Tri-Town Septage Treatment Facility is off Bay Ridge Lane, near Exit 12 of Route 6. The regional facility treats and discharges approximately 30,000 gallons per day of treated septage effluent, at a nitrogen concentration of approximately 30 ppm into the Monomoy Lens of the Cape Cod Aquifer. The facility is located in the Marine Water Recharge Area to the Namskaket Marsh system.

WRF29. Treated septage effluent from the discharge beds infiltrates into the ground, is assimilated into the water table and the dissolved substances of the treated effluent are carried with groundwater flow in a north to northwest direction towards the Namskaket Creek, Little Namskaket Creek, and Cape Cod Bay.

WRF30. The phenomena of groundwater flow and the plume of dissolved substances has been studied by the USGS since the Tri-Town Plant came on line in February 1990 resulting in a series of papers that were published in the 1990s. In general, the plume of dissolved substances flows to a depth in the aquifer and is impeded by a clay layer that dips to the north restricting

the flow of dissolved substance upward to the marsh. The hydrogeology north of the site has not been totally documented, but based upon the Tri-Town studies, the USGS project chief testified that it is reasonable to expect that less than 50% of the dissolved substances that will be entrained with groundwater flow from the proposed plant will emerge into Namskaket Marsh.

WRF31. Groundwater Modeling conducted by Wright-Pierce, the consultant for the Town of Orleans, indicates that, at design flows, 67% of the treated effluent may discharge into Namskaket Creek drainage area, 8% into Little Namskaket Marsh drainage area and 25% bypassing Namskaket Marsh to Cape Cod Bay. The Groundwater modeling of the Marsh takes a conservative approach with respect to the continuity of the clay layer and the permeability of the Marsh peat deposits that would impede the flow of dissolved substances. Therefore the results of the model present a worst case scenario in which the plume of dissolved substances readily discharges into the Namskaket Creek and the adjacent system to the northeast, the Little Namskaket Creek. Use of the percentages above for evaluating impacts is a conservative approach.

WRF32. Based on the conservative approach discussed above, approximately 67% of the treated effluent is estimated to flow into the Namskaket Marsh system. The Marsh system receives approximately 4.59 Million gallons per day (MGD) is natural groundwater discharge. The WWTF will add approximately 0.48 MGD resulting in a 9 percent increase of relatively fresh water. The salinity as measured in the creek at low tide proximate to Hurleys Bog is 2.4 parts per thousand with an average flow of 1 MGD. The conservative addition of treated flow could decrease the salinity during the low tide period from 2.4 to 1.7ppt. The salinity of the creek ranges from up to 30 ppt at high tide. The increased flow from the wastewater treatment facility will not significantly impact the hydrologic balance or salinity of the Marsh and the Commission finds that the project is consistent with MPS WR 6.3 hydrologic balance.

WRF33. The Namskaket Marsh was first sampled and closed for shellfishing due to bacteria in 1987, three years prior to the Tri-Town plant being on line in February 1990. Bacteria do not survive well in groundwater systems and the proposed wastewater treatment facility will have disinfection. Common sources of bacteria are due to stormwater runoff and local sources. It is unlikely that the Coliform bacteria problem will be exacerbated by the WWTF for the reasons stated above and because the treatment will include disinfection and the Commission finds that the project is consistent with MPS WR 6.3 Hydrologic Balance.

WRF34. The USGS Report Wetland Plants and Algae in a Coastal Marsh, WRI 98-4011, provided a survey of ecological habitat of the Namskaket Marsh and Hurleys bog. Requirements for groundwater monitoring of the WWTF should be expanded to evaluate ecological habitat and make use of the previous USGS study as a baseline.

WRF35. The CWMP presented an extensive site characterization of the Tri-Town Site. The area of infiltration includes 10 beds for a total of 140,000 ft². The site specific loading test indicates that at a composite loading rate of 7.7 gpd/ft², the average annual discharge of 640,000 gallons per day (gpd) of the Core Sewer Plan can easily be accommodated within the 1.78 million gallons per day (mgd) maximum month infiltration capacity. The CWMP indicates that under a potential expanded plan of sewerage the whole Town with a 1.14 mgd average annual flow (2.0 mgd maximum month), additional effluent disposal sites or water reuse options will be required. The detailed groundwater modeling analysis concluded that at a maximum month flow of 2.07 mgd (which is more than the aggregation of the Orleans' Core Plan, and the Eastham and Brewster contributions), the groundwater mounding, although appreciable, would still be greater than 20 feet below the ground surface and that the evaluation has shown no

likelihood of breakout, or flooding of nearby basements or septic systems. The modeling also indicates that an average flow of 0.740 mgd from the site would not contribute effluent nitrogen load to the adjacent Rock Harbor or Nauset Marsh watersheds.

WRF36. The Commission finds that the wastewater treatment facility design will be conditioned (WRC13) to provide a turf and landscape management plan and stormwater quality treatment and management plans for consistency with MPS WR1.5 for turf and landscape plans and MPS WR7.1 to 7.10 for stormwater management provisions.

WRF37. The Namskaket Creek Estuarine system lies within the boundaries of both the Town of Orleans and the Town of Brewster. Because the nitrogen assimilative capacity of this system is in excess of the current loadings, both towns have a shared interest in the protection and management of this assimilative capacity, and other natural and water resources of this system.

WRF38. According to the MEP Technical Report and Technical Memo, dated April 1, 2011, 35% of assimilative capacity of the Namskaket Creek watershed is presently taken up by development, of which 20 % is Brewster and 8% is Orleans and 7 % is Tri-Town septage plant. The proposed Wastewater Treatment Facility will use a net additional 4% of the capacity, leaving 61% of the assimilative capacity. Build-out in the watershed, assumed at 26% growth, is estimated to use an additional 7% of the assimilative capacity.

WRF39. The Commission finds that there is assimilative capacity in the Namskaket Marsh system to accommodate nitrogen from the project for consistency with MPS WR 3.1 critical nitrogen load, MPS 3.2 maintain or improvement of nitrogen loading and MPS 5.1 water quality improvement nitrogen loading standard.

WRF40. The CWMP evaluation of the transfer of wastewater flows from collection systems to the Tri-Town site demonstrates that the redistribution of water within the Town due to sewerage is unlikely to produce hydrological balance impacts and the Commission finds that the project is consistent with MPS WR 6.3 hydrologic balance.

WRF41. The recommended wastewater treatment design is a conventional Bardenpho design as described in Appendix D of the S/FEIR. This process design is capable of achieving Level 2 treatment levels that can achieve nitrogen effluent concentrations of 3 to 5 parts per million (ppm) and includes a provision for sludge and septage handling. The Commission finds that the project is consistent with MPS WR 6.8. The treatment facility design for the phased and expanded Town-wide system is also included in S/FEIR Appendix D.

WRF42. Wright-Pierce indicated that the proposed wastewater treatment system will attain an effluent nitrogen concentration of less than 5 ppm and the Commission finds that the project is consistent with MPS WR 2.1 for achieving less than 5 ppm effluent and MPS WR 6.2 for tertiary treatment.

WRF43. The Town has voted at the 2011 Annual Town Meeting to conduct an analysis of alternative collection systems.

WRF44. Barnstable County has appropriated funds to conduct a review of the MEP science and its use as the basis of attaining water quality goals and TMDLs of the Clean Water Act.

WRF45. The record includes testimony that there are options for modifying the state's water quality goal for Rock Harbor which may impact the area of required sewerage in that watershed.

WRF46. Orleans shares its surrounding coastal waters of Pleasant Bay with the neighboring towns of Brewster, Harwich, and Chatham, and shares Nauset Marsh/Town Cove and Rock Harbor with Eastham. Alternative Plans 1, 2 and 3 considered in the CWMP involve attaining net reductions of nitrogen to meet Orleans' share of nitrogen removal. The Town of Orleans has chosen to proceed with the preferred alternative that is based on Plan 2, which provides the fundamental wastewater infrastructure building block which will lead the town towards meeting its TMDL obligations and accommodate potential changes through adaptive management.

WRF47. The Commission supports a watershed based approach to wastewater planning to promote and hasten TMDL compliance. This means that towns in shared watersheds need to work together to establish how to apportion responsibility for nitrogen removal among those communities. Planning and construction of shared, regional wastewater collection, treatment and/or disposal facilities to meet TMDLs will reduce costs region-wide and will promote, and potentially hasten, TMDL compliance in shared watersheds. The Commission acknowledges the challenge of promoting regional facilities when the fifteen towns of Cape Cod are at different stages of wastewater planning, are facing different financial constraints, and may have different engineering consultants with divergent views on infrastructure options. In addition, many towns are awaiting reports from the Massachusetts Estuaries Project about TMDLs. However, one of the purposes of the Cape Cod Commission is to further the provision of adequate capital facilities. The Commission would like to see towns which contribute to nitrogen loading in a particular watershed to enter into Memorandums of Agreement with other contributing towns so that TMDLs are addressed watershed by watershed Cape-wide. In addition, the Commission would like to see a robust analysis of options, including potential economic benefits, for sharing infrastructure to address pollutant removal requirements in impaired waterbodies.

WRF48. The proposed area of sewerage in the Orleans CWMP will only meet the Orleans share of the TMDL requirements of the shared embayments. Attainment of the TMDLs for the shared embayments will require that Chatham, Harwich, Brewster and Eastham also provide nitrogen removal. The Orleans CWMP provides options for the future participation of Brewster and Eastham by identifying the potential shared use of the proposed wastewater treatment facility as a preference to more extensive sewerage in the Town of Orleans. The assessment indicated that regional solutions offer 6% to 9% capital cost savings and 18% to 25% O & M cost savings. For these reasons the Commission finds that the project accommodates and allows for regional solutions and is consistent with MPS WR 3.1 critical nitrogen load, MPS 3.2 maintain or improvement of nitrogen loading and MPS 5.1 water quality improvement nitrogen loading standard.

WRF49. Orleans completed a regional wastewater management study that evaluated regional solutions to achieving shared wastewater needs that was funded by Barnstable County through the Cape Cod Water Protection Collaborative entitled, Wastewater Regionalization Study: Orleans-Brewster-Eastham, December 2009. The findings of this study clearly indicate there are significant cost savings for a regional wastewater management approach between the Towns and that the benefit of sharing a suitable facility site is considerable. The study also presents a number of mechanisms for management and cost sharing.

WRF50. Shared management of wastewater infrastructure among Orleans, Eastham and Brewster has been ongoing through their participation in the Groundwater Protection District with its septic treatment plant at the Tri-Town site in Orleans.

WRF51. There are significant constraints to identifying suitable sites for wastewater facilities in Eastham. Eastham has indicated its general support for the Orleans CWMP and that wastewater collection in the Eastham side of the Nauset watershed for treatment at a regional shared wastewater facility would be a reasonable alternative to achieving the required nitrogen reduction for the Nauset Marsh system.

WRF52. The Town of Brewster has indicated its general support for the Orleans CWMP and stated that the Town “looks forward to an ongoing, collaborative relationship as we plan for the protection and preservation of our shared resources.”

WRF53. The Brewster Conservation Commission has requested to be copied on monitoring tests and other materials related to monitoring conditions for the proposed wastewater treatment facility.

WRF54. Ensuring that regional management of wastewater strategies will be implemented will require that a Memorandum of Agreement or some other legal agreement be developed between Orleans and Brewster and/or between Orleans and Eastham.

WRF55. Any regional wastewater management solutions will be informed by new information and potential future opportunities, such as release of the MEP Nauset Report, confirmatory modeling and town directives. Some of these items will occur as part of the Preliminary Design, but other actions will occur during the 20-year course of phased implementation. For regional solutions to remain viable, treatment capacity to accommodate them must be reserved at the proposed WWTF until a decision can be reasonably made. The first construction phase of the WWTF will be for 320,000 gpd (2015). The second construction phase for the facility is projected to begin in 2024 at the beginning of Phase 4 to expand capacity to 640,000 gpd.

WRF56. The Tri-Town site serves as a regional resource for septage disposal and the preference of the Commission is that it continues to serve as a regional wastewater facility asset.

WRF57. If the Town proposes to proceed with expanding the sewer service area to a majority of the Town (something which is not part of the plan proposed in the CWMP) while at the same time reserving capacity for regional solutions, then the Tri-town site will not be able to accommodate the combined future flows for infiltration and additional effluent disposal sites or expanded capacity will be required.

WRF58. The Commission finds that public drinking water laboratory results and Annual Statistical Reports, as they are filed with the DEP, provide valuable information for understanding the state of natural resources and drinking water supplies across the Cape, and supports the Commission’s understanding of the adequacy of capital facilities in the region.

WRF59. The CWMP proposes a system of adaptive management to gauge the overall success of meeting the water quality goals with flexibility to adjust each phase of the project based on new information that may be generated over the course of its implementation.

WRF60. The scope of an Adaptive Management Plan, Exhibit A of this decision, with monitoring conditions has been reviewed and agreed upon by the Town and Cape Cod Commission.

WRF61. The Commission finds that, based upon the materials submitted for the record and the conditions of this decision, the proposed project and its Adaptive Management Plan allow for

changes in the course of its implementation, including alternative technology. The Plan also accommodates and allows for regional solutions, which is consistent with the Regional Policy Plan Minimum Performance Standards.

Wildlife and Plant Habitat Findings

WPHF1. Based on the information in the record, the Commission finds the Tri-Town Septage facility site is mapped as a Sensitive Natural Resource Area on the Regional Policy Plan Open Space Map due to the presence of priority habitat for Eastern Box Turtle, a state-listed species of special concern. The site contains and abuts wetland resource areas.

WPHF2. Based on the April 14, 2009 LEC Environmental Consultants' Natural Resources Assessment, located in Appendix H in the CWMP, submitted to the Natural Heritage and Endangered Species Program (NHESP) during the MEPA review process, the Commission finds that the proposed project has adequately addressed the requirements of MPS WPH1.1, Natural Resources Inventory for the Tri-Town site.

WPHF3. Based on the information submitted for the record, the Commission finds the proposed treatment facility site at the Tri-Town plant location maximizes reuse of existing facilities and disturbed areas, minimizes additional fragmentation of the site, and avoids impacts to wetlands. In addition, the Town proposes to utilize existing disturbed rights-of-way for the majority of the sewer main installation, and avoid "over-land" routes. By utilizing previously disturbed areas the Commission finds the project minimizes impacts to undisturbed areas, consistent with MPS WPH1.2 and MPS WPH1.3.

WPHF4. Based on the information presented in the record, the Commission finds that potential future expansion of the treatment facility would require additional effluent disposal capacity, which might be accommodated on this site or other Town-owned sites. The S/FEIR states that the Town will seek additional regulatory review if or when expansion of the plant is contemplated.

WPHF5. Based on the information presented in the record, as of the date of this DRI decision, the NHESP had not yet made a determination as to whether the project will result in a "take" of Eastern Box turtle, or whether the project may be conditioned to avoid a take under the state MESA. If the project is determined to result in a take, the Town will be required to file with the NHESP for a Conservation and Management Permit which will detail mitigation measures required to address impacts to box turtles. Mitigation measures may include restoration of habitat, preservation of open space, or other measures. The Commission finds that the project may be conditioned to ensure compliance with the state MESA requirements, consistent with the requirements of MPS WPH1.4.

WPHF5. According to the LEC Natural Resources Assessment, the Tri-Town treatment plant site does not contain vernal pools, and thus the Commission finds that MPS WPH1.5 does not apply.

Wetlands Findings

WETF1. Based on the information presented in the record, the Commission finds the project may be conditioned to ensure that invasive species are managed during construction on the treatment plant site, consistent with MPS WPH1.6.

WETF2. Based on the information presented in the record, the Commission finds that installation of the wastewater treatment facility will not result in impacts to wetlands or their buffers, consistent with MPS WET1.1 and MPS WET1.2.

WETF3. Information submitted to date indicates that the sewer main installation will avoid impacts to most wetland resources. The RPP allows for wetland disturbance for utility installations where there are no other feasible alternatives. In these instances mitigation may be required. The Town has offered wetland restoration at offsite locations as possible mitigation for unavoidable wetland disturbance, which the Commission finds is consistent with MPS WET1.3.

Open Space Findings

OSF1. MPS OS1.3 exempts municipal projects for municipal purposes from provision of open space. Therefore, the Town is not required to provide open space for development associated with the CWMP.

Coastal Resources Findings

CRF1. The Coastal Resources section of the Regional Policy Plan minimizes potential impacts from development on coastal hazard mitigation and coastal water quality and habitat, the coastal section also encourages maritime industry, character and public access. The areas of coastal hazard mitigation include, development in a V-Zone (CR2.1), accommodating sea level rise (CR2.2), allowing for migration of coastal resources (CR2.3), damage prevention and flood minimization (CR2.4), protection of coastal beaches, coastal dunes and their buffers (CR2.5 and CR3.1), coastal banks (CR2.6), disaster reconstruction (CR2.7) and stormwater management (CR3.3 and CR3.4). The CWMP addresses these issues indicating they will be implemented through the local Conservation Commission and incorporated into the facility plan design. As such the Commission finds that the CWMP can be conditioned to be consistent with these appropriate minimum performance standards as per WRC13.

CRF2. In accordance with MPS CR3.10 (Eelgrass), development shall have no direct or indirect adverse impacts to eelgrass beds, unless there is no feasible alternative location or design for the project or the project accomplishes an overriding public benefit. Based on the materials submitted for the record, the Commission finds that effluent from the proposed Orleans wastewater treatment facility will enter the soil within open infiltration basins and mix with groundwater that eventually discharges toward Cape Cod Bay. Eelgrass beds located seaward of Namskaket Creek, Little Namskaket Creek, and Rock Harbor could potentially be affected by effluent discharged from the proposed Orleans wastewater treatment facility. Based on the information presented in the record, the Commission finds that it is appropriate to condition the project to monitor the potential impacts of effluent discharge to intertidal and sub-tidal habitats, including eelgrass beds, to detect and avoid any direct or indirect adverse impacts to this sensitive and critical resource consistent with the Adaptive Management Plan Scope of Exhibit A. The Commission further finds that the project provides an overriding public benefit of the reduction of nitrogen in sensitive embayments.

CRF3. MPS CR3.11 (Fish, Shellfish, Crustaceans) requires that any structures or construction activities associated with implementation of the CWMP shall be designed and constructed to minimize direct and indirect impacts to fish, shellfish, crustaceans and their habitat. As stated in CRF2, the Commission finds that effluent from the proposed Orleans wastewater treatment facility will flow via groundwater and discharge into Namskaket Marsh and Cape Cod Bay. Based on the information presented in the record, the Commission finds that it is appropriate to condition the project to monitor the potential impacts of effluent discharge to the intertidal and

subtidal habitats of the bay seaward of the treatment facility consistent with the Adaptive Management Plan scope, Exhibit A.

Heritage Preservation/Archeological Resources/Community Character Findings

HPCCF1. The Massachusetts Historical Commission (MHC) reviewed the proposed new facilities for treatment and disposal at the Tri-town site and determined that significant archaeological resources are unlikely to exist in the project area. In a letter dated December 20, 2010, MHC concurs that the preferred alternative layout for the Tri-town site will occur within areas previously disturbed by original facility construction and is unlikely to contain significant archaeological resources. Based on this testimony submitted for the record, the Commission finds the proposed development at the Tri-Town site is unlikely to result in disturbance of significant archeological resources, and as such, is consistent with MPS HPCC1.3 (Archeological Sites).

HPCCF2. The Commission finds that based on the information submitted in the record, including the Single/Final EIR/CWMP, the Applicant has agreed to conduct an archaeological survey during the preliminary design phase of the project at any proposed cluster treatment sites where there is archaeological sensitivity, consistent with RPP MPS HPCC 1.3 (Archeological Sites). Conducting such survey work will require a permit from the State Archaeologist/MHC. As such, the Commission finds the proposed project can be conditioned to be consistent with MPS HPCC1.3.

HPCCF3. The Commission finds that based on the information submitted in the record, including the Single/Final EIR/CWMP that the Applicant has proposed that any above-ground structures within the Old Kings Highway Historic District will be designed with architectural features consistent with the district standards. MHC has requested that the project proponent submit existing and proposed conditions plans to MHC for review as each phase of the project is developed. Review of any proposed structures by MHC and the Old Kings Highway Historic District Committee in Orleans will address issues raised in MPS HPCC 1.1 (Historic Structures) and MPS HPCC 2.4 (Consistency with Regional Context or Surrounding Distinctive Area).

Transportation Findings

TRF1. Based on a March 8, 2011 Memo from Heather Merriman and Michael Giggey of Wright-Pierce to George Meservey (part of a 3/11/11 letter), the Commission finds that current peak hour traffic for the Tri-Town plant does not exceed 25 peak hour trips, and that the expected trips at the proposed wastewater facility are anticipated to be lower.

TRF2. The Commission finds that a review of crash records is unnecessary relative to MPS TR1.2 (Crash Frequency at Key Locations) and identification of safety improvements per MPS TR1.3 (Identification of Safety Impacts) is unnecessary because the new facility is expected to generate less than 25 peak hour trips of all vehicle types. Based on this, the Commission finds the proposed project is consistent with MPS TR1.2 and TR1.3.

TRF3. Based on a 4/7/11 Memo from Commission staff, the Tri-Town facility's main driveway at Overland Way, Orleans, meets the stricter of the Massachusetts Department of Transportation and American Association of State Highway Transportation Officials guidelines for safe stopping sight distances, as required by MPS TR1.8 (Sight Distance Requirements). The Commission finds the stopping sight distances at Overland Way as measured by Commission staff to be as shown in the table on the next page, below:

Speed (mph)	Recommended SSD	Southbound Existing SSD	Northbound Existing SSD
20	115	400'+	140'

Source: A Policy on Geometric Design of Highways and Streets, AASHTO 2004

TRF4. Concerns relative to post construction roadway conditions for both public and private roadways were raised during the public hearings and meetings. This includes a concern raised by Commission Member Ernest Virgilio at the 3/23/11 Subcommittee meeting. The Town of Orleans, through Mr. Meservey, Director of Planning & Community Development provided a March 15, 2011 Email stating *"it is expected that the vast majority of the sewage collection system will be installed within street rights of way. Final design may indicate that it is necessary to acquire an easement for a so called cross-country installation in one or more locations. Should that prove to be the case, the law authorizes a Town to obtain easements rights by purchase or eminent domain."* The Town also provided a March 29, 2011 letter from Mr. Meservey that states *"when water mains are installed or replaced that require excavation on a private road, the street surface is restored to a condition equal to or better than the pre-existing condition. When sewers are installed on private roads, it is the intention of the Town to follow a similar pattern and restore the roads to an equal or better condition."* Based on this testimony, the Commission finds that it is appropriate to condition the project to require that that Town of Orleans repair roads affected by project construction impacts.

CONCLUSION

Based on the Findings above, the Commission hereby concludes:

1. The proposed project is consistent with Orleans local development by-laws.
2. The proposed project is consistent with Orleans Local Comprehensive Plan.
3. The proposed project does not fall within a District of Critical Planning Concern.
4. The proposed project falls within the Pleasant Bay and Cape Cod Bay Areas of Critical Environmental Concern (ACEC), but complies with State laws governing these areas.
5. The proposed project is consistent with all the Minimum Performance Standards of the 2009 Regional Policy Plan (as amended).
6. The probable benefits of the proposed project outweigh the probable detriments resulting from the development.

The Commission hereby approves with conditions the application of the Town of Orleans CWMP project as a DRI, provided the following conditions are met:

General Conditions

GC1. This DRI decision is valid for 7 years. The Town of Orleans may seek an extension of this DRI permit prior to the expiration of this DRI in accordance with the Commission's *Enabling Regulations*.

GC2. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this decision.

GC3. The Applicant shall obtain all necessary federal, state, and local permits for the proposed project.

GC4. No development work, as the term "development" is defined in the Cape Cod Commission Act, shall be undertaken until all appeal periods have elapsed or, if such an appeal has been filed, until all judicial proceedings have been completed.

GC5. The proposed project shall be constructed and implemented in accordance with the Final Comprehensive Wastewater Management Plan/Final Environmental Impact Report, December 2010, prepared by Wright-Pierce, consistent with the findings and conditions of this decision and contingent upon Town Meeting funding. Changes to the CWMP that would affect TMDL compliance or otherwise change or impact the findings and/or conditions of this decision, shall be reviewed and evaluated through a modification to the DRI decision pursuant to the Commission's *Enabling Regulations* in effect at the time of the request. The Applicant shall submit to the Commission any additional information deemed necessary to evaluate any modifications to the approved plan.

GC6. On or before April 13, 2018, the Applicant may return to the Commission to seek an extension of this decision by the Regulatory Committee of the Commission. If said extension is approved, said extension may allow the Applicant to return to the Commission one year prior to the expiration of the extension decision to seek either a renewal or further extension of the DRI approval as the Commission's *Enabling Regulations* in effect at the time of the request may allow.

GC7. Prior to issuance of a Preliminary Certificate of Compliance for any proposed construction recommended in the CWMP (also referred to as the "project" or as "development" as defined by the Cape Cod Commission Act) and as approved herein, the Applicant shall submit the preliminary design report for review by Commission staff to determine its consistency with this decision. If Commission staff determines that the preliminary design report is not consistent with the CWMP approved as part of this decision, the Commission shall require that the Applicant seek a modification to this decision in accordance with the Modification section of the Commission's *Enabling Regulations* in effect at the time the modification is sought.

GC8. The Applicant may seek a modification of this decision in accordance with the Modification section of the Commission's *Enabling Regulations* in effect at the time the modification is sought.

GC9. Prior to the commencement of the first phase of project construction, and prior to the issuance of any Building Permit for development, the Applicant shall obtain a Preliminary Certificate of Compliance from the Commission that states that all conditions in this decision that are required to be addressed prior to commencement of construction and/or pertaining to issuance of a Building Permit have been met, including providing written proof to the Commission that a copy of this decision has been provided to the general contractor(s) at least thirty (30) calendar days prior to commencement of construction.

GC10. Prior to the commencement of treatment facility operations, the Applicant shall obtain a Final Certificate of Compliance from the Commission that finds and states that all conditions pertaining to issuance of a Final Certificate of Compliance have been met.

GC11. The Applicant shall notify Commission staff in writing at least thirty (30) calendar days prior to its intent to seek a Preliminary and Final Certificate of Compliance. Such notification

shall include a list of key contact(s), along with their telephone numbers, mailing addresses, and email addresses, for questions that may arise during the Commission's compliance review. Commission staff shall complete an inspection under this condition, if needed, and inform the Applicant in writing of any deficiencies and corrections needed.

GC12. The Applicant shall construct and implement the project in accordance with the Adaptive Management Plan. A preliminary scope of the Adaptive Management Plan (*Exhibit A*) is attached to and incorporated into this decision by reference.

GC13. The Applicant agrees to allow Commission staff to enter onto the Tri-Town plant site or other Town property which is the subject of this decision, after reasonable notice to the Applicant, for the purpose of determining whether the conditions contained in this decision, including those linked to each Preliminary and Final Certificate of Compliance have been met.

GC14. The proposed facilities described in the Orleans CWMP may be constructed in Phases.

Water Resources Conditions

WRC1. In the Preliminary Design the Town shall incorporate the Nauset Marsh MEP Technical Threshold and TMDL into the recommended CWMP design and revise the amount of proposed sewerage as appropriate, indicating targets. If the TMDL targets change from the placeholder value in the CWMP the Town shall submit design revisions to the Commission staff for review and approval.

WRC2. In the Preliminary Design, the Town shall incorporate the revised Rock Harbor MEP Technical Threshold and TMDL into the recommended CWMP design and revise the area of proposed sewerage as appropriate, indicating targets. If the percent removal changes from the MEP threshold value the Town shall submit design revisions to the Commission staff for review and approval.

WRC3. Confirmatory modeling involves use of the MEP models for each estuary under various proposed sewerage scenarios. This information will provide projections of anticipated reductions of nitrogen in the water column of impacted estuaries from each proposed phase of sewerage, including the cluster system alternative. Another set of scenarios will evaluate and confirm the assimilative capacity of Namskaket Marsh and sentinel water quality thresholds. The Town shall develop a scope of MEP modeling scenarios for each embayment, either together or successively, for Commission staff review and approval.

WRC4. The Town shall incorporate the findings of the future MEP scenario evaluations as described in WRC3 into:

- The location and timing of sewer expansion areas to expedite nitrogen removal in the TMDL watersheds;
- Technical support for the Wastewater effluent disposal Ground Water Discharge Permit at the Tri-Town Site; and
- Reviewing the anticipated water quality improvements of the head waters of Pleasant Bay embayments due to Cluster systems and incorporating the evaluation into the design of the location, nature and extent of the local service areas to expedite nutrient removal.

WRC5. As laid out in the Orleans CWMP, provisions for regionalization remain open until the design for Phase 4 of the Plan. The Commission shall coordinate regional meetings for bringing the towns together to further discussions regarding regional wastewater solutions. The Town of

Orleans shall attend and participate in Commission hosted workshops in which the Commission will facilitate discussions among the towns of Orleans, Brewster and Eastham regarding achieving TMDL compliance in shared watersheds. The Commission shall provide technical assistance to address options for attaining compliance with nitrogen TMDLs for shared watersheds, including the sharing of capital infrastructure, operations and maintenance costs. As part of these workshops, the Commission shall further facilitate discussions on the topic of sharing the Orleans Wastewater facility by the Towns of Eastham and Brewster. The Town shall incorporate results of those discussions that are agreed upon by the Towns of Orleans, Brewster and Eastham and by the Commission into the design plans and include those results as part of its Adaptive Management Plan reporting.

WRC6. The Town shall report every 2 years on the status of regionalization discussions and agreements among the Towns of Orleans, Brewster and Eastham as part of its regular Adaptive Management Plan report. The status reports on this issue, shall document regionalization activities over the prior two years, identify such activities planned for the upcoming two years, identify issues that have arisen as impediments to effective regionalization, and identify actions that could be taken to overcome those impediments. Reporting on regional status shall continue until either 1) inter-municipal agreements are in effect among the Towns of Orleans, Eastham and Brewster, or 2) the Towns of Brewster and Eastham both notify the Town of Orleans in writing that they no longer wish to pursue regional wastewater management options.

WRC7. The Town shall incorporate discussions and decision-making related to regionalization with Brewster and Eastham in the preliminary design of all proposed wastewater facilities, in the final design of wastewater treatment and effluent disposal facilities in Phases 1 and 4 of the proposed project, and in the final design of any component of the wastewater collection system that facilitates connection of sewers in Eastham and Brewster.

WRC8. The Town shall keep opportunities open for the sharing of the proposed wastewater facilities, including disposal capacity at the Tri-Town site, with Brewster or Eastham prior to seeking an extension to this decision seven years from its effective date, as such extension is required by condition GC1. During the seven years following this decision, the Commission will seek written information from Brewster and Eastham necessary for Orleans to incorporate those town's wastewater flows in the Orleans project design in a reasonable time frame.

WRC9. Should Orleans propose any action that would reduce the remaining available assimilative capacity to less than 50% of the total assimilative capacity in the Namskaket Marsh System, then that proposed action shall be documented in writing by Orleans in the regular Adaptive Management Plan report, or earlier, for review and a determination of consistency with this Decision by Commission staff.

WRC10. The project schedule for the first Phase will be adjusted as issues become resolved through the Preliminary Design task list. Project schedule updates shall be submitted to the Commission as part of the regular Adaptive Management Plan reporting.

WRC11. The extent and prioritization of sewerage is shown as the 6 phases of the core plan of the CWMP. The geographic extent may be subject to change due to the Cluster systems to expedite nutrient removal in the upper Pleasant Bay headwaters, need to expand or condense areas serviced based on updated MEP information and confirmatory modeling and regional infrastructure sharing. The Town shall establish criteria that will be used to prioritize sewer expansions as part of the Preliminary Design. As stated in Finding WR24, CCC encourages prioritization for expedited TMDL compliance. Proposed changes to the geographical extent of

the sewer area shall be reported in the regular Adaptive Management Plan report for review and determination of consistency with this Decision by Cape Cod Commission staff.

WRC12. The Non-Structural components of the CWMP include: fertilizer control, storm water management, land use controls, natural attenuation, flushing enhancements and piloting urine diversion and composting toilets. Reporting of progress on these items will be part of the regular Adaptive Management Plan reporting.

WRC13. The Town shall provide final building, site and landscaping plans for the Wastewater Treatment Facility, consistent with finding WRF36, CRF1 and WETF1 detailing, coastal wetland resources, stormwater management, wetland buffers and turf management plan for Commission staff review for a determination of consistency with this Decision.

Adaptive Management Background

The CWMP contains an Adaptive Management Plan (AMP) and steps to assure TMDL compliance through monitoring and reporting. The AMP fits the Phased Sewer Approach very well. The AMP will allow a systematic and prescribed process to report on the town's activities and to incorporate new technical information and potential agreements among the towns in the shared watersheds. This information will aid the local and regional decision making process for the plan's later phases. The AMP will be informed by regular monitoring of water quality in the embayments and reductions of nitrogen load in the watersheds to evaluate TMDL compliance.

WRC14. The Town shall submit for Commission staff review and approval an Adaptive Management Plan that incorporates the scoping items for monitoring, evaluation and reporting as described in Exhibit A, attached to this decision and incorporated by reference, according to the timetable below. The AMP shall detail the resources necessary to implement the aspects of the Plan. The plan will be reviewed with Commission staff according to the following schedule:

- Initial meeting 6 months after securing funds for the Preliminary Design;
- Submit initial draft AMP one year after securing funds for the Preliminary Design;
- Submit Final Adaptive Management Plan for approval by Commission staff two years from securing funds for the Preliminary Design;
- Regular Adaptive Management Plan reports shall be submitted every two years after the beginning of Phase 1 construction, presently scheduled for 2015.

WRC15. Within 6 months of securing funds for the Preliminary Design, the Town shall convene a Technical Review Committee comprised of the Town, DEP and Commission staff, as described below in the Adaptive Management Plan scope of Exhibit A of this decision. The Town shall include a Town of Brewster representative on the Technical Review Committee as an ex-officio non-voting member, as described below in the Adaptive Management Plan scope, Groundwater Discharge Permit, in Exhibit A of this Decision.

WRC16. The Town of Orleans shall consult with the Town of Brewster as part of the Namskaket Creek Monitoring requirements for the Adaptive Management Plan and Ground Water Discharge Permit and provide draft and final GWDP applications to the Town of Brewster.

WRC17. Implementation Progress Reports described in the Adaptive Management Plan scope (Exhibit A of this decision) shall be part of the regular Adaptive Management Plan report that is submitted to Commission staff for review and comment.

WRC18. Project Evaluation Forms, which are submitted to DEP as part of the State Revolving Loan Application, once implementation begins, shall be copied to the Commission.

WRC19. Marine and Surface Water Monitoring Reports of the Adaptive Management Plan Scope, Exhibit A of this decision shall be filed with the Commission every 2 years after the completion of Phase 1. The Technical Review Committee comprised of Cape Cod Commission staff, DEP and the Town shall review the monitoring reports not less than every 5 years, from the commencement of the monitoring program for modifications or changes.

WRC20. Upon approval of the Development of Regional Impact, the Town of Orleans shall submit copies of Ground Water Discharge Permit monitoring reports for the Tri-Town facility to the Commission. Once the proposed wastewater treatment facility is completed, GWDP monitoring and compliance reports for the new facility shall be submitted to the Commission, as identified the Adaptive Management Plan scope attached to this decision as Exhibit A, These reports will be submitted to the Commission at the same time they are submitted to DEP.

WRC21. Consistent with WRF57, upon approval of the Development of Regional Impact, the Town of Orleans shall submit copies to the Cape Cod Commission of public drinking water laboratory results and Annual Statistical Reports, as they are filed with the DEP.

WRC22. The Town will continue to regularly evaluate the health of the ponds and progress in its in-pond and watershed protection efforts according to the recommendations in the CWMP. The Town shall report on improvements in fresh surface-water quality or new efforts as it may relate to the CWMP implementation under the Non-Structural Management actions in its regular Adaptive Management Plan report submitted to the Commission as indicated in the Adaptive Management Plan Scope, Exhibit A of this decision.

WRC23. The Town will continue to regularly evaluate, manage and improve stormwater collection and treatment, as indicated in the CWMP. The Town shall report on improvements of stormwater management and progress as it relates to the CWMP and Stormwater Phase II regulations under Non-Structural Management actions in its regular Adaptive Management Plan report submitted to the Commission as indicated in the Adaptive Management Plan Scope, Exhibit A of this decision.

WRC24. The town will continue to assess opportunities for Enhanced Natural Attenuation or tidal flushing to reduce watershed nitrogen loads as indicated in the CWMP. The Town shall regularly report on improvement of water quality and progress as it relates to the CWMP under Non-Structural Management actions in its regular Adaptive Management Plan report submitted to the Commission as indicated in the Adaptive Management Plan Scope, Exhibit A of this decision.

WRC25. Prior to implementation of Enhanced Natural Attenuation or tidal flushing which alters the implementation of the CWMP, the Town shall obtain a determination of consistency with this Decision from Commission staff to ensure compliance with TMDLs.

WRC26. The studies conducted in support of the groundwater discharge permit during the Preliminary Design shall include a scope for further characterizations of: 1) the subsurface conditions of Namskaket Marsh to address hydrogeologic uncertainty of the clay lens and 2) discrete freshwater breakout in the Namskaket Marsh proximal to the wastewater treatment facility. The hydrogeologic scope shall be submitted to Commission staff for review and approval.

WRC27. The draft Groundwater Discharge Permit application shall be submitted to the Commission for review and comment.

WRC28. The Town shall submit a request to the Commission for modification of this DRI Decision in accordance with its enabling regulations governing Developments of Regional Impact ("Enabling Regulations") if the result of the Analysis of Alternative Collection Systems results in the Town proposing significant changes to the project design.

WRC29. The Town shall submit a request to the Commission for modification to this DRI Decision in accordance with its Enabling Regulations if the results of the Barnstable County evaluation of the MEP science results in a Town proposal of significant changes to the project design.

WRC30. The Town shall submit a request to the Commission for modification to this DRI Decision in accordance with its Enabling Regulations if the state's water quality goals for Rock Harbor Creek are modified by DEP resulting in a Town proposal of significant changes to the project design.

WRC31. The Town of Orleans shall continue to participate in regional studies to evaluate the progress of improved water quality in Pleasant Bay resulting from the phased planned sewerage in the collective Pleasant Bay watershed. These studies would be used to inform decisions about the plan's phased implementation consistent with the Adaptive Management Plan

Wildlife and Plant Habitat Conditions

WPHC1. The Town shall continue to work with the Natural Heritage and Endangered Species program (NHESP) to design the project at the treatment plant site to avoid a "take" of state listed rare species. The site design shall incorporate existing disturbed areas on the Tri-Town site to the greatest extent feasible. If the NHESP determines that the project will result in a take of state listed species and requires preparation of a conservation and management permit, the Town shall submit the project plans and proposed mitigation plan to NHESP, with a copy to the Commission.

WPHC2. The Town shall utilize existing disturbed areas within road rights-of-way and utility easements to the greatest extent feasible for the sewer line installation. Where sewer lines are proposed within mapped rare species habitat, the town shall submit the proposal to the NHESP. If the NHESP determines that the project will result in a take of state listed species and requires preparation of a conservation and management permit, the Town shall submit the project plans and proposed mitigation plan to NHESP, with a copy to the Commission.

WPHC3. The Town shall seek additional Commission regulatory review if or when the Town seeks to expand the treatment plant, add additional effluent disposal beds, or make additional changes to the treatment plant site plan beyond that depicted as the Core Plan in the CWMP.

WPHC4. The Town shall submit a plan for managing the introduction of invasive species to construction sites consistent with Technical Bulletin 01-001 prior to construction of the treatment plant or sewer mains.

Wetlands Conditions

WETC1. The Town shall construct the treatment plant to avoid any physical alteration to wetlands or the 100 foot buffer to wetlands. Physical alteration of previously disturbed wetland buffer areas may be allowed where there is no feasible alternative and where the disturbance

will not result in greater physical alteration to the buffer area (e.g. a pervious area becomes impervious).

WETC2. The Town shall install the sewer lines and pumping facilities to avoid impacts to wetlands and the 100 foot buffer to wetlands. Physical alteration of wetlands and buffers may occur for utility line installation where there is no feasible alternative, the alteration is the minimum amount necessary, and the site is restored following construction. The Town shall provide restoration of wetlands elsewhere in Orleans as mitigation for unavoidable impacts to wetlands. The construction protocol and the proposed mitigation shall be provided to the Commission.

Coastal Resources Conditions

CRC1. To ensure compliance with MPS CR3.10 (Eelgrass) and CR3.11 (Fish, Shellfish, Crustaceans), the Town in concert with the Technical Review Committee of the Adaptive Management Plan shall prepare a biological monitoring plan. The monitoring plan should be designed to evaluate short- and long-term changes, if any, in water quality parameters, species and community composition, structure and distribution, etc. in intertidal and sub-tidal environments (e.g., salt marsh, intertidal flat, eelgrass and other sub-tidal benthic habitats, etc.) in the Namskaket/Little Namskaket Creek and Rock Harbor area. The monitoring plan shall include a monitoring and reporting schedule (approved by the Commission) that is designed to capture short- and long-term changes in coastal and marine conditions and ecosystems adjacent to the treatment facility. The results of environmental monitoring shall inform and be incorporated into the Adaptive Management Component of the CWMP. The biological monitoring plan shall be submitted prior to issuance by the Commission of a Preliminary Certificate of Compliance, and prior to commencement of construction.

CRC2. The project involves development within the Pleasant Bay and Cape Cod Bay ACEC. No new development shall be permitted on barrier beaches or coastal dunes within these ACECs to ensure compliance with CR2.5 of the RPP.

Heritage Preservation/Archeological Resources/Community Character Conditions

HPCC/C1. The Applicant shall conduct an archaeological survey during the preliminary design phase of the project, with a permit from the office of the State Archaeologist/Massachusetts Historical Commission (MHC), at any proposed cluster treatment sites where MHC staff identifies archaeological sensitivity.

HPCC/C2. Consistent with MPS HPCC1.3 (Archaeological Sites), if any archaeological sites are identified during survey work, the Applicant shall meet with MHC staff and Commission staff to demonstrate how the proposed development has been configured to maintain and/or enhance such resources. In addition, any archaeological sites determined eligible for listing on the National Register of Historic Places shall be preserved and protected from disturbance through a conservation restriction or similar means to be approved by Commission staff and MHC staff prior to issuance of a Preliminary Certificate of Compliance by the Commission, and prior to issuance of a local Building Permit, and prior to commencement of construction for that project phase.

HPCC/C3. Existing and proposed conditions plans shall be submitted to MHC for review as each phase of the project is developed. Any above ground structures proposed within the Old Kings Highway Historic District shall be designed consistent with district standards and shall require review and approval by the Orleans Old Kings Highway Historic District Committee and

by MHC staff prior to issuance by the Commission of a Certificate, prior to issuance of a local Building Permit, and prior to commencement of construction for that project phase.

Transportation Conditions

TRC1. To address concerns outlined in Finding TRF4 about post-construction roadway conditions, prior to issuance by the Commission of a Final Certificate of Compliance for each project phase of construction involving the disturbance of any private or public road Right of Way, the Applicant shall restore all disturbed roadways to an equal or better than original condition.

SEE NEXT PAGE FOR SIGNATURES

ISSUANCE OF DECISION

The Cape Cod Commission hereby approves with conditions the application of the Town of Orleans for the Development of Regional Impact as outlined in this decision pursuant to Sections 12 and 13 of the Act, c 716 of the Acts of 1989, as amended for the proposed Orleans Comprehensive Wastewater Management Plan.



Peter Graham
Commission Chair

10/13/11

Date

COMMONWEALTH OF MASSACHUSETTS

Barnstable, ss Oct 13, 2011

Before me, the undersigned notary public, personally appeared

Peter Graham in his/her capacity as Chairman of the Cape Cod Commission, whose name is signed on the preceding document, and such person acknowledged to me that he/she signed such document voluntarily for its stated purpose. The identity of such person was proved to me through satisfactory evidence of identification, which was photographic identification with signature issued by a federal or state governmental agency, oath or affirmation of a credible witness, or personal knowledge of the undersigned.



Notary Public

My Commission Expires: 9-28-18

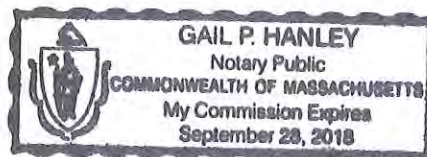


Exhibit A - Adaptive Management Plan Scope

The decisions for Adaptive Management of the plan's implementation shall be based upon the review and evaluation of the monitoring and implementation conditions outlined above. The Town shall establish a technical review committee comprised of representatives including, but not limited to, the Town, DEP and Cape Cod Commission. The TRC shall meet as required to review the plan's implementation status and monitoring components and provide input to the Town's decisions for next steps. Items to be considered as part of the Adaptive Management Plan include but are not limited to:

- Implementation of Plan
- Documentation of capital expenditures
- Compliance with the groundwater discharge permit
- Monitoring Required by DRI Decision
- Reporting on Estuary water quality monitoring
- Summary of habitat assessments that may be completed by the Town, MassDEP, regional organizations, or others
- Coordination with the Towns of Brewster and Eastham
- Potential evaluations and changes as needed
- MEP Scenario runs

The primary purpose of the AMP is to insure expedited TMDL compliance and cost-effective achievement of the Town's CWMP goal to restore impaired marine and fresh water quality and habitat. The CWMP will achieve this goal by providing wastewater infrastructure and opportunities for regional participation over the course of the next 25 years, supplemented by the non-structural plan. There are several monitoring and evaluation components of the AMP:

Implementation Progress Reports– measuring progress

Monitoring and reporting on the progress of the plan will ensure that the CWMP is implemented. Major milestones for the project as described in the CWMP and Water Resource Finding 16 are:

- **Complete CWMP Early 2011**
- **Secure Preliminary Design Funds 2013 Spring**
- **Preliminary Design Resolutions and Engineering**
- **Secure Construction Funds 2015**

- **Phase 1 Construction 2015 to 2017**
- **Start-up of Phase 1 facilities mid 2017**
- **Phase 2 2018-2020**
- **Phase 3 2021-2023**
- **Phase 4 2024-2026**
- **Phase 5 2027-2029**
- **Phase 6 2030-2032**

The following items shall be included for measuring progress on the plan's implementation including milestones where appropriate. Regular Adaptive Management Plan Progress Reports shall be submitted to the Commission every 2 years from the effective date of this Decision, and include the following:

- 1) Capital Expenditures to date
- 2) Amount of sewer area
- 3) Percent nitrogen removed from watersheds
- 4) Comparison to TMDL target amounts
- 5) Planned Capital Expenditures
- 6) Projected Expansion areas to be serviced in the next two years
- 7) Status of regional watershed management opportunities

The Project Evaluation Form submitted to DEP for SRF purposes shall be submitted concurrently to the Commission.

Groundwater Discharge Permit

Monitoring according to the GWDP is another component of review that will ensure the treatment facility is complying with its treatment goals and compliance with the Regional Plan and TMDLs of the receiving waters. Monitoring in the receiving waters downstream of the facility will ensure that the levels of nitrogen from the facility will be protective of the resources. The AMP will include the following tasks:

- Convene Technical Review Committee, including a Town of Brewster representative as an ex-officio non-voting member to participate for purposes of review and comment, to review Draft Groundwater Discharge Permit items including the following:
 - Evaluate past monitoring
 - Identify wells, parameters and frequency of monitoring
 - Identify stream monitoring locations for flow and quality
 - Identify marine water monitoring locations and frequency
- Scope and conduct a hydrogeologic characterization of the Namskaket Creek including extent of clay layer to the north and water quality and discharge of groundwater into the Namskaket Creek proximal to the proposed wastewater treatment facility.
- Revise the local groundwater model to incorporate the site specific characteristics and calibrate to measured flows.
- Scope and conduct an ecological habitat survey of the Marsh system to the wastewater treatment facility and creek.
- Provide for baseline measurements and phased-in monitoring in adjacent receiving watersheds based upon phased-in increases of discharge to the facility.
- Reporting to the Commission and Town of Brewster Biennially
 - WWTP - Flow Rate - measured daily & monthly with averages
 - WWTF - Water quality-influent/effluent monthly
 - Monitoring Wells - Annually
 - Groundwater quality - parameters such as ammonia and alkalinity should be added.
 - TOC and PCPPs should be monitored annually
 - Water Table Elevations to evaluate mounding
 - Stream flow - continuous stage recorder
 - water quality
 - Marine Water quality at Sentinel Stations - seasonally

Marine Water Quality and Habitat

Monitoring of marine waters in the targeted watersheds which presently exceed nitrogen-TMDLs will provide confirmation that the project's goals are ultimately met.

- Surface Water Quality– Seasonally with Report submitted at a frequency to be decided by the TRC but no less than every 5 years
 - Marine – Sentinel Stations
 - Others to be determined by the TRC (Streams, tributaries...)
- Habitat
 - Eelgrass – Mass DEP has on-going regional program for baseline
 - Benthic - to be decided by the TRC but no less than every 5 years
 - Marsh - Ecological habitat

Non Structural Management, (as appropriate for demonstrating achievement of related CWMP goals)

Fertilizer Management

Stormwater management

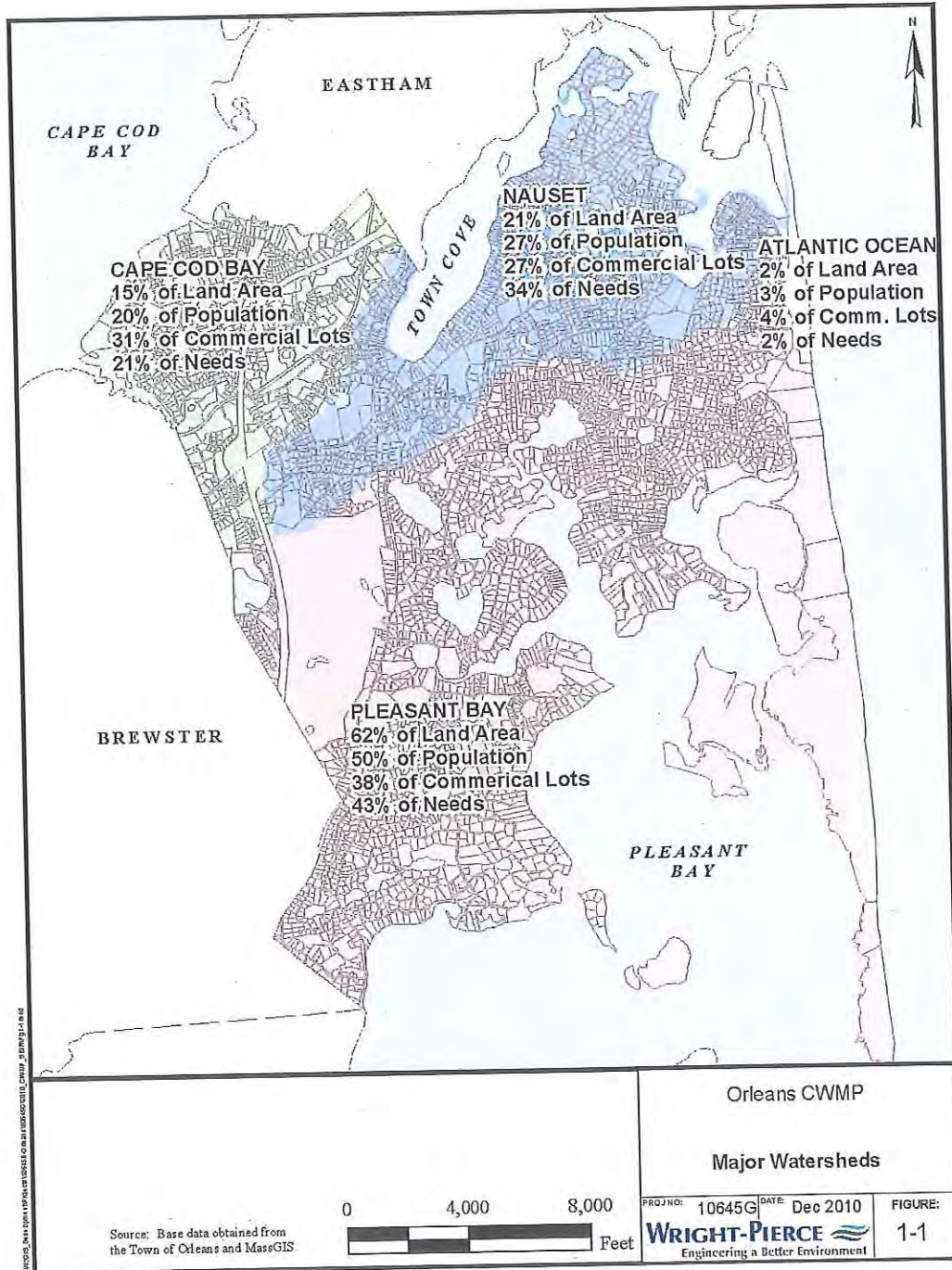
Land use controls

Freshwater ponds – sewerage in watersheds, in-pond restoration, monitoring

Enhance Natural Attenuation and/or Tidal Flushing

Alternative and Innovative Technology

Orleans Shared Coastal Watersheds



Coastal Water Quality Monitoring Stations (not including Nauset Marsh)

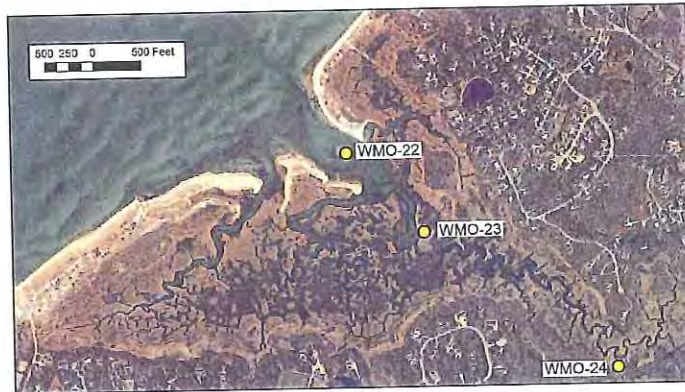


Figure VI-1. Estuarine water quality monitoring station locations in the Namskaket Creek estuary system. Station labels correspond to those provided in Table VI-1.

MASSACHUSETTS ESTUARIES PROJECT



Figure VI-1. Estuarine water quality monitoring station locations in the Rock Harbor estuary system. Station labels correspond to those provided in Table VI-1.



Figure VI-1. Estuarine water quality monitoring station locations in the Little Namskaket Creek estuary system. Station labels correspond to those provided in Table VI-1.



Figure VI-1. Estuarine water quality monitoring station locations in the Pleasant Bay estuary system. Station labels correspond to those provided in Table VI-1.