

**COMMONWEALTH OF MASSACHUSETTS
ENERGY FACILITIES SITING BOARD**

Petition of Colonial Gas Company d/b/a
National Grid for Approval to Replace 16.6 Miles of
its Existing 200 psig Natural Gas Distribution Main
in Yarmouth, Dennis, Harwich, and Brewster
Pursuant to G.L. c. 164, § 69J

)
)
)
)
)
)
)

EFSB 16-01

FINAL DECISION

Leonard Evers
Presiding Officer

November 18, 2016

On the Decision:

Mary Menino
Benjamin Pignatelli
John Young

APPEARANCES: Bess B. Gorman, Esq.
Cynthia L. DeCambre, Esq.
National Grid USA Service Company, Inc.
40 Sylvan Road
Waltham, MA 02451

-and-

David S. Rosenzweig, Esq.
Michael J. Koehler, Esq.
Keegan Werlin LLP
265 Franklin Street
Boston, MA 02110
FOR: Colonial Gas Company d/b/a
National Grid
Petitioner

TABLE OF CONTENTS

| | | |
|------|---|----|
| I. | INTRODUCTION | 1 |
| A. | Summary of the Project..... | 1 |
| B. | Procedural History..... | 3 |
| C. | Jurisdiction and Scope of Review under G.L. c. 164, § 69J | 4 |
| II. | NEED FOR THE PROJECT | 5 |
| A. | Standard of Review | 5 |
| B. | Description of the Existing System..... | 6 |
| C. | Capacity Deficiency | 8 |
| D. | Analysis and Findings on Need..... | 10 |
| III. | ALTERNATIVE APPROACHES TO MEETING THE IDENTIFIED NEED..... | 11 |
| A. | Standard of Review | 11 |
| B. | Identification of Alternative Approaches for Analysis | 11 |
| 1. | Mid-Cape Main Replacement Project (Project) | 11 |
| 2. | No-Build Alternative | 13 |
| 3. | Install a New LNG Facility | 13 |
| 4. | In-Kind Replacement Alternative..... | 14 |
| 5. | Replace Existing Yarmouth-Dennis Mains with One 20-inch Main..... | 15 |
| 6. | Expanded Energy Efficiency Programs..... | 15 |
| 7. | Alternative Heating and Cooling Technologies | 16 |
| C. | Analysis and Findings on Alternative Approaches | 18 |
| IV. | ROUTE SELECTION | 20 |
| A. | Standard of Review | 20 |
| B. | The Company's Route Selection Process..... | 21 |
| 1. | Potential Route Alternatives | 24 |
| C. | Analysis and Findings on Route Selection..... | 28 |
| V. | MINIMIZATION OF ENVIRONMENTAL IMPACTS..... | 29 |
| A. | Standard of Review | 29 |
| B. | Description of Construction Methods | 30 |
| 1. | Laydown/Staging..... | 30 |
| 2. | Trench Excavation and Pipe Installation | 30 |

| | | |
|------|--|----|
| 3. | Dewatering..... | 31 |
| 4. | Welding and Nondestructive Testing of the Welds..... | 32 |
| 5. | Corrosion Protection..... | 32 |
| 6. | Backfill and Compaction..... | 32 |
| 7. | Final Pavement Restoration..... | 33 |
| 8. | Bridge Crossing..... | 33 |
| C. | Description and Analysis of Environmental Impacts..... | 33 |
| 1. | Land Use and Historic Resources..... | 34 |
| 2. | Visual Impacts..... | 36 |
| 3. | Wetlands and Water Resources..... | 37 |
| 4. | Traffic..... | 39 |
| 5. | Noise..... | 41 |
| 6. | Air Quality Impacts..... | 43 |
| 7. | Hazardous and Solid Waste..... | 45 |
| 8. | Safety..... | 46 |
| D. | Conclusions on Environmental Impacts..... | 47 |
| VI. | CONSISTENCY WITH POLICIES OF THE COMMONWEALTH..... | 47 |
| A. | Consistency Standard of Review..... | 47 |
| B. | Analysis and Conclusions on Consistency..... | 48 |
| 1. | Health Policies..... | 48 |
| 2. | Environmental Protection Policies..... | 48 |
| 3. | Environmental Justice Policy..... | 50 |
| 4. | Resource Use and Development Policies..... | 51 |
| C. | Summary..... | 51 |
| VII. | DECISION..... | 52 |

ABBREVIATIONS

| | |
|-----------------------------|---|
| Algonquin | Algonquin Gas Transmission |
| <u>Berkshire Gas (2006)</u> | <u>The Berkshire Gas Company, 15 DOMSB 208, EFSB 05-1 (2006)</u> |
| CMR | Code of Massachusetts Regulations |
| <u>Colonial Gas (2006)</u> | <u>Colonial Gas Company d/b/a KeySpan Energy Delivery New England, 15 DOMSB 269, EFSB 05-2 (2006)</u> |
| Company | Colonial Gas Company d/b/a National Grid |
| d/b/a | doing business as |
| dBA | A-weighted decibels |
| Department | Massachusetts Department of Public Utilities |
| DOMSB | Decisions and Orders of Massachusetts Energy Facilities Siting Board |
| DOMSC | Decisions and Orders of Massachusetts Energy Facilities Siting Council |
| ECP | Environmental Construction Plan |
| EE | energy efficiency |
| EEA | Massachusetts Executive Office of Energy and Environmental Affairs |
| EENF | Expanded Environmental Notification Form |
| EFSB | Energy Facilities Siting Board |
| EIR | Environmental Impact Report |
| ENF | Environmental Notification Form |
| GHG | greenhouse gas |
| G.L. | Massachusetts General Laws |
| <u>Hampden County</u> | <u>New England Power Company d/b/a National Grid, 18 DOMSB 323, EFSB 10-1/ D.P.U. 10-107/ 10-108 (2012)</u> |

| | |
|------------------------------|--|
| <u>IRP</u> | <u>New England Power Company d/b/a National Grid, 20 DOMSB 1, EFSB 12-1/ D.P.U. 12-46/ 12-47 (2014)</u> |
| MassDEP | Massachusetts Department of Environmental Protection |
| MassDOT | Massachusetts Department of Transportation |
| MCP | Massachusetts Contingency Plan |
| MEPA | Massachusetts Environmental Policy Act |
| MHC | Massachusetts Historical Commission |
| MMBtu | million British thermal units |
| mscfh | Thousand cubic feet per hour |
| NHESP | Natural Heritage and Endangered Species Program |
| NPDES | National Pollutant Discharge Elimination System |
| <u>NSTAR/Stoughton</u> | <u>Boston Edison Company d/b/a NSTAR Electric, 14 DOMSB 233, EFSB 04-1/ D.P.U. 04-5/04-6 (2005)</u> |
| PHSMA | Pipeline Hazardous Materials Safety Administration |
| Project | Mid-Cape Main Replacement Project (excluding the Eastern Segment of the Sagamore Line Reinforcement Project) |
| psig | pounds per square inch, gauge |
| <u>Salem Cables</u> | <u>New England Power Company d/b/a National Grid, 20 DOMSB 129, EFSB 13-2/ D.P.U. 13-151/13-152 (2014)</u> |
| Siting Board | Massachusetts Energy Facilities Siting Board |
| SLRP | Sagamore Line Reinforcement Project |
| SPCC | Spill Prevention Control and Countermeasures [plan] |
| Street Restoration Standards | D.T.E. 98-22, att., §§ 1.0-12.0 (August 26, 1999) |

| | |
|-------|---|
| SWPPP | Stormwater Pollution Prevention Plan |
| TMP | Traffic Management Plan |
| ULSD | ultra-low-sulfur diesel fuel |
| USEPA | United States Environmental Protection Agency |
| WPA | Massachusetts Wetlands Protection Act |

Pursuant to G.L. c. 164, § 69J, the Massachusetts Energy Facilities Siting Board (“Siting Board”) hereby APPROVES, subject to the conditions set forth below, the Petition of Colonial Gas Company d/b/a National Grid (“Colonial” or “Company”) to construct, operate at 200 pounds per square inch gauge (“psig”), and maintain approximately 16.6 miles of replacement natural gas distribution pipeline main in the Cape Cod towns of Yarmouth, Dennis, Harwich, and Brewster.

I. INTRODUCTION

A. Summary of the Project

The Project, known as the Mid-Cape Main Replacement Project (“Project”), would replace the Company’s existing distribution main in the towns of Yarmouth, Dennis, Harwich, and Brewster (“Existing Main”). The Project consists of approximately 16.4 miles of 12-inch-diameter coated steel pipe and a 1,000-foot-long section of 20-inch-diameter coated steel pipe exiting the Company’s regulator station at its liquefied natural gas (“LNG”) facility in South Yarmouth, for a total of 16.6 miles (the “Proposed Main”) (Exh. NG-1, at 1-2, 3-3). The Project would carry gas from the Company’s regulator station in South Yarmouth to a series of lower-pressure regulator stations on the 60-psig distribution system serving the Lower Cape, including customers in the towns of Dennis, Harwich, Chatham, Brewster, Orleans, and Eastham (id. at 1-3, 2-3, 2-6).¹

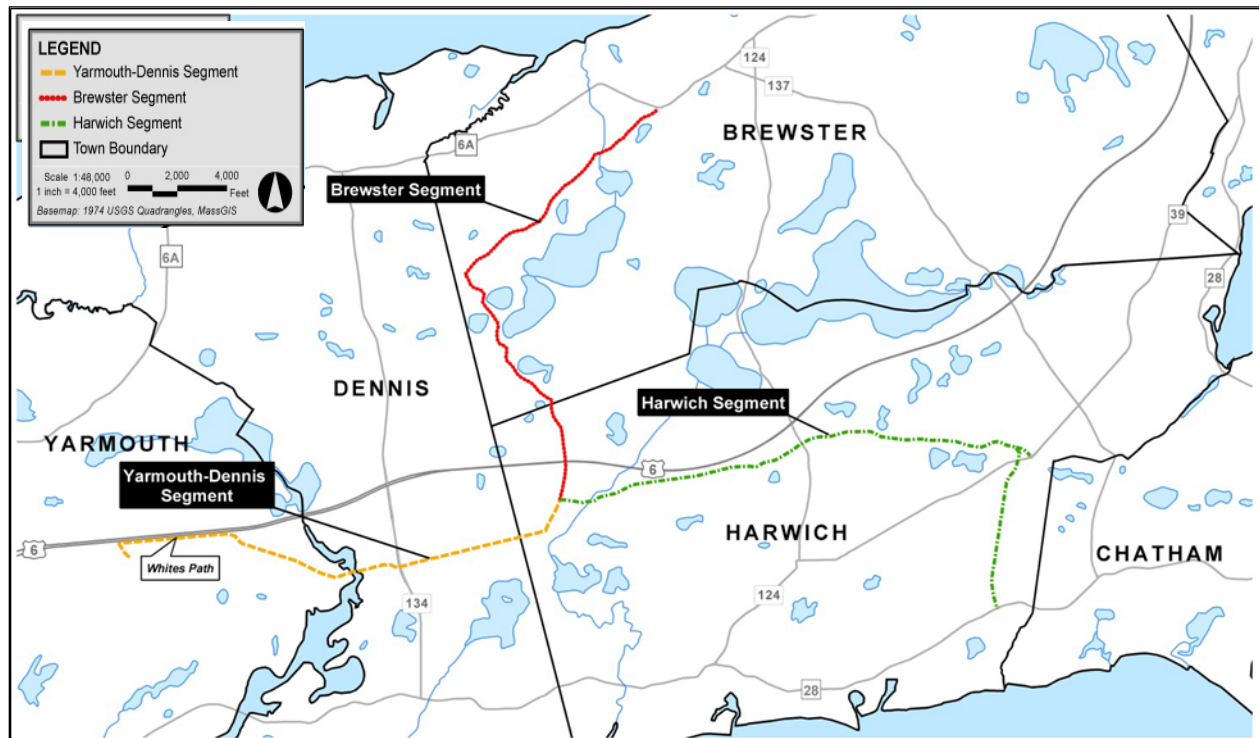
Colonial would locate the Proposed Main in parallel to the Existing Main under the pavement and/or within ten feet of the edge of the pavement (id. at 3-3). The Company proposes to test and certify the Proposed Main for a maximum allowable operating pressure (“MAOP”) of 270 psig, but plans to operate the Proposed Main at 200 psig (id. at 1-2). The Project would also include up to four remotely controlled isolation valves along the Proposed Main (Exh. NG-5, at 1-10, 1-11). The Company proposes to repurpose approximately 8,345 linear feet

¹ Additionally, Colonial expects to serve two larger (commercial/industrial) customers in the Project area with service directly connected to the 200-psig system because these customers require delivery at pressures higher than provided by the 60-psig distribution system (Exh. EFSB-N-25).

of the Existing Main in Yarmouth and Dennis for local gas distribution operating at 60 psig, and to abandon in place the remainder of the Existing Main (Exhs. NG-1, at 5-2; EFSB-C-25).

Figure 1, below, shows an overview of the proposed Project.

Figure 1. Proposed Project Overview



(Exh. NG-3 at fig. 1-4).

The Company described the Project as having three segments (a “Yarmouth-Dennis Segment,” a “Harwich Segment,” and a “Brewster Segment”), and indicated that the three segments would likely be installed concurrently (Exh. NG-1, at 1-2). The lengths of each segment, and the diameters of the pipe to be replaced, are presented below in Table 1.

Table 1. Project Construction Segments

| Segment | Length (miles) | Details |
|---------------------|-----------------------|--|
| Yarmouth-Dennis | 4.9 | Replace 10-inch main with 20-inch main and 12-inch main |
| Harwich | ~6.5 | <ul style="list-style-type: none"> • Replace 4.9 miles of 8-inch main with 12-inch main • Replace ~1.6 miles of 6-inch and 8-inch main with 12-inch main |
| Brewster | 5.2 | Replace 10-inch main with 12-inch main |
| Total length | 16.6 | New 12-inch and 20-inch main |

(Exh. NG-1, at 5-1 to 5-2).

The Company estimated the cost of the Project at approximately \$71 million, with an expected accuracy of ± 25 percent (Exh. NG-1, at 1-4).² The Company's projected completion date is spring 2019 (Exh. NG-1, at 1-3). However, if construction could be performed during the summer season, when in-street construction moratoria are typically imposed by each of the affected towns, the Project potentially could be completed in late summer or fall of 2018 (Exh. NG-1, at 1-3).

B. Procedural History

On January 26, 2016, Colonial filed with the Siting Board its Petition for approval to construct the Project ("Petition") pursuant to G.L. c. 164, § 69J. The Petition was docketed as EFSB 16-01. The Siting Board conducted public comment hearings on the Petition in South Yarmouth on March 3, 2016, and in Harwich on March 7, 2016. No one sought to intervene or become a limited participant in the proceeding.

The Siting Board staff issued two sets of information requests to the Company, and conducted an evidentiary hearing on June 14, 2016. The Company presented seven witnesses for cross-examination: (1) Deborah A. Blanch, Senior Environmental Engineer at National Grid;

² The estimated cost of the Project includes: \$6.1 million for material; \$27 million for construction labor, equipment and rentals; \$5.4 million for engineering, permitting, and indirect costs; \$12 million for cost escalation; \$6.8 million for allowance of funds used during construction; and \$14 million for contingency and risk (Exh. NG-1, at 3-13).

(2) Christopher J. Connolly, Director of Gas Process and Business Requirements at National Grid; (3) Thomas P. Mulkeen, Manager/Principal Engineer, Operations & Construction, at National Grid; (4) Theodore Poe, Jr., Manager of Gas Load Forecasting and Analysis at National Grid; (5) Timothy R. Roughan, Director of Energy and Environmental Policy at National Grid; (6) Bradley L. Wheeler, Senior Project Manager at National Grid; and (7) Holly A. Carlson, Senior Scientist and Regulatory Specialist at Epsilon Associates, the Company's environmental consultant.

The Company responded to two record requests and submitted a brief on July 11, 2016. Approximately 190 exhibits were entered into evidence.

Siting Board staff prepared a Tentative Decision and distributed it to Siting Board members and the party for review and comment on November 4, 2016. The party was given until November 14, 2016 to file written comments on the Tentative Decision. The Siting Board held a public meeting to consider the Tentative Decision on November 17, 2016, at which the party was invited to present oral comments to the Siting Board. Comments were presented by the Company. After deliberation, the Board directed staff to draft a Final Decision approving the Petition, subject to the conditions set forth below.

C. Jurisdiction and Scope of Review under G.L. c. 164, § 69J

G.L. c. 164, § 69J provides that the Siting Board should approve a petition to construct if the Siting Board determines that the petition meets certain requirements, including that the plans for the construction of the applicant's facilities are consistent with the policies stated in G.L. c. 164, § 69H to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. Pursuant to G.L. c. 164, § 69J, a project applicant must obtain Siting Board approval for the construction of proposed energy facilities before a construction permit may be issued by another state agency.

G.L. c. 164, § 69G, provides that a "facility" includes "a new pipeline for the transmission of gas having a normal operating pressure in excess of 100 psig which is greater than one mile in length except restructuring, rebuilding, or relaying of existing pipelines of the same capacity." The Project is a facility with respect to Section 69G because: (1) it would have a normal operating pressure of approximately 200 psig (equivalent to the normal operating

pressure of the Existing Main when first installed); (2) it exceeds one mile in length; and (3) with its larger diameter than the Existing Main, its capacity to transport gas would be greater than the pipeline it would replace. Therefore, the Project is subject to Siting Board review under Section 69J.

The Siting Board requires that an applicant demonstrate that its proposal meets the following requirements: (1) that additional energy resources are needed (see Section II, below); (2) that, on balance, the proposed project is superior to alternative approaches in terms of reliability, cost, and environmental impact, and in its ability to address the identified need (see Section III, below); (3) that the applicant has considered a reasonable range of practical facility siting alternatives and that the proposed route is, on balance, superior to alternatives routes in terms of reliability, cost, and environmental impact (see Section IV, below); (4) that environmental impacts of the project are minimized (see Section V, below); and (5) that plans for construction of the proposed facilities are consistent with the current health, environmental protection and resource use and development policies of the Commonwealth (see Section VI, below).

II. NEED FOR THE PROJECT

A. Standard of Review

In accordance with G.L. c. 164, § 69J, the Siting Board is charged with the responsibility for implementing energy policies in its statute to provide a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. In carrying out this statutory mandate with respect to proposals to construct natural gas pipelines, the Siting Board evaluates whether there is a need for additional natural gas facilities in the Commonwealth to meet reliability, economic efficiency, or environmental objectives.

See Colonial Gas Company, 15 DOMSB 269, at 280-281 (2006) (“Colonial Gas (2006)”); The Berkshire Gas Company, 15 DOMSB 208, at 216-217 (2006) (“Berkshire Gas (2006)”).

In evaluating the need for new energy facilities to meet reliability objectives, the Siting Board may evaluate the ability of its existing system to accommodate changes in aggregate

demand or supply,³ to serve major new loads, or to maintain reliable service in certain contingencies. The Siting Board previously has approved proposals to construct gas facilities to accommodate load growth within a utility's service territory and to transport natural gas to generating facilities. See Colonial Gas (2006) at 288-290; Berkshire Gas (2006) at 222; Massachusetts Municipal Wholesale Electric Company, 12 DOMSB 18, at 28, 29, 122 (2001). In such cases, the proponent must demonstrate that additional energy resources are necessary to meet reliability objectives by establishing that its existing system is inadequate to serve the anticipated load with acceptable reliability. See Berkshire Gas (2006) at 216-217.

B. Description of the Existing System

The Existing Main consists of 16.6 miles of coated steel pipe of various diameters up to ten inches, providing natural gas to the Lower Cape as part of a larger radial feed system to supply the Company's 60-psig local distribution system (Exh. NG-1, at 1-1 to 1-4). The oldest portions of the Existing Main date to the mid-1960s and 1970s, while other portions were installed in the mid-1990s (Exh. EFSB-N-1). Colonial stated that due to the relatively small and varying diameter of the Existing Main, it is not possible to inspect the condition of the pipe with an instrumented internal pipe inspection device known as a "smart pig" (Exh. NG-1, at 2-8; Tr. at 60, 86).

From South Yarmouth to Depot Street in West Harwich, the Existing Main runs parallel to a 12-inch high pressure gas main approved by the Siting Board in 2006 as a 200-psig section of the Sagamore Line Replacement Project ("SLRP") and identified in that proceeding as the "Middle Segment." Colonial Gas (2006) at 277-278. In the same proceeding, the Siting Board approved a segment of 12-inch diameter pipeline at the east end of the Existing Main, which was identified as the "Eastern Segment."⁴ Id. The Company indicated that 60-psig distribution lines

³ With respect to changes in demand or supply, the Siting Board has found that new capacity is needed where projected future capacity available to the system is found to be inadequate to satisfy projected load. ANP Blackstone Energy Company, 8 DOMSB 1, at 27 (1999); Cabot Power Corporation, 7 DOMSB 233, at 249 (1998); New England Electric System, 2 DOMSB 1, at 9 (1977).

⁴ The easternmost end of the proposed Project in Harwich will connect to the Eastern Segment of the SLRP at the intersection of Queen Anne Road and Orleans Road in

parallel much of the Existing Main; these parallel distribution lines provide service to a number of residential, commercial and industrial customers (Exh. NG-1, at 2-4).

Colonial indicated that there are several sources that can supply the Existing Main with gas. The primary source is the 270-psig Sagamore Line that runs to South Yarmouth from the Company's Sagamore and Sandwich take stations at the end of the G Lateral of the Spectra/Algonquin interstate transmission line (Exhs. NG-1, at 2-2; EFSB-G-5). Gas also is available from the Company's South Yarmouth Liquefied Natural Gas ("LNG") Facility, which is supplied by truck from off-Cape LNG sources (Exh. NG-1, at 2-3). Finally, the Company has connection facilities at the east end of its system, in Chatham and Eastham, at which it can inject gas from LNG delivery trucks, using portable LNG vaporizers (*id.*). The Existing Main delivers gas to the Company's 60-psig local distribution system through five pressure regulators and also through individual regulators to a number of individual customers located along the route of the Existing Main (*id.* at 2-4; Exh. NG-3, at fig. 2-1, fig. 2-2; Exh. NG-4, at 3-9).

Until 2014, Colonial operated the Existing Main at pressures of up to 200 psig (Exh. NG-1, at 2-4). While responding to a gas odor complaint in 2014, the Company discovered that the Existing Main was serving individual customers through pressure regulators rated for upstream pressures of only up to 125 psig (*id.* at 2-5).⁵ Reviewing system conditions, the Company also found: (1) nine locations on the Existing Main where welds did not meet present-day welding codes (on sections installed in 1963, 1964, 1967, and 1996) (Exh. EFSB-5(1)); (2) three discrepancies where field conditions differed from Company records (Exh. NG-1, at 2-5); and (3) that it was unable to locate all of the records to substantiate

Harwich (Exh. NG-1, at 1-1, n.2). The Eastern Segment of the SLRP has not yet been built (Tr. at 42). The Eastern Segment is approximately 1.5 miles in length and was included in the Company's Expanded Environmental Notification Form ("EENF") for the proposed Project, as submitted to the Massachusetts Environmental Policy Act ("MEPA") Office on November 16, 2015 (Exh. NG-1, at 1-1, n.2). The Company excluded the Eastern Segment from the Petition because it was previously approved by the Siting Board. See Colonial Gas (2006) at 393.

⁵ Colonial suggested that the original service installations were adequate for operating pressures used at the time of installation, but that the system pressure was later increased beyond the rating of the regulators (Exh. EFSB-N-2).

continued operation of the assets at 200 psig (Exh. EFSB-PA-1). In mid-2014, the Company reduced the maximum operating pressure of the Existing Main to 125 psig as a result of the concerns raised by the review of its system (Exh. NG-1, at 2-5). Following notification to the Department of Public Utilities (“Department”) of these conditions, the Department issued a Notice of Potential Violation and fined the Company \$1.25 million on July 23, 2015.

See D.P.U. 15-PL-04.

Following the pressure reduction on the Existing Main, and the resulting reduction in effective capacity of the pipeline, the Company required greater use of the portable LNG stations in Chatham and Eastham to provide the volume of gas required on a peak demand winter day (Exh. NG-1, at 2-5 to 2-7). The Company indicated that these satellite stations are not automated and that the manual operations there can be adversely affected by winter weather (Exh. EFSB-G-10). With reduced system capacity at the reduced operating pressure of 125 psig, the Company put in place a moratorium on new or expanded gas service connections in the area served by the Existing Main, along with some restrictions on connections in Yarmouth and Barnstable (Exh. NG-1, at 1-1, n.1, 2-6). The Company determined that construction of the Project would enable the Company to lift the sales moratorium restrictions on new services and growth once the distribution main can again operate at 200 psig, thus strengthening downstream pressure and providing for adequate supplies (id. at 1-2).

C. Capacity Deficiency

Colonial stated that the primary need for the Project is the condition of the existing system and its effect on the Company’s ability to provide safe and reliable service to existing and future customers on the Cape Cod gas distribution network during periods of peak demand (i.e., design weather conditions) (Exh. NG-1, at 1-5). As described above, the reduction of system pressure from 200 psig to 125 psig on the Existing Main created an increased reliance on portable LNG units to meet peak demand, a moratorium on new and expanded gas services from Dennis to Eastham, as well as service limitations in Yarmouth and Barnstable (id. at 1-1, n.1, 1-5).⁶

⁶ The Company reported that gas was injected at the Chatham LNG vaporization site on two days in the winter of 2014-2015 and one day in the winter of 2015-16; no injections

Colonial provided a copy of the Company's Department-approved 2013 and filed 2015 Long-Range Resource and Requirements Plans ("LRRP") (see Exhs. EFSB-G-6(1); EFSB-G-6(2)). The LRRP provides projections of normal year sendout, design year sendout, and design peak day sendout (Exh. EFSB-G-6). The LRRP shows that Cape Cod sendout on peak winter days increased from the winter of 2012/2013 to the winter of 2014/2015, and exceeded the design day 2013 LRRP forecasts for those years (id.). As shown in the 2015 LRRP, the Company expects its Cape Cod design day sendout to increase from 2014/2015 to 2019/2020 at an average rate of 2.3 percent per year if the moratorium is withdrawn, or 1.3 percent with the moratorium continuing (Exh. EFSB-N-26). According to the Company, these growth estimates are based on economic projections obtained from Moody's Corporation and on an assumption that the Company's energy efficiency programs will continue in operation (Exh. EFSB-G-6(2); Tr. at 112). The Company indicated that its projected demand growth adds to its existing need for the Project (Exh. NG-1, at 2-7 and 2-8). In addition to the projected future growth in demand, the Company anticipates that there is also pent-up demand stemming from deferral of an estimated 800 new customers and oil-to-gas conversions each year of the current moratorium (id. at 1-5 to 1-6, 2-6; Exhs. EFSB-N-17; EFSB-N-18; EFSB-N-18(1)(Rev.)).

Colonial stated that completion of the Project, combined with completion of the Eastern Segment of the SLRP, would allow the Company to restore system pressure at South Yarmouth to 200 psig (Exh. NG-1, at 1-5).⁷ The additional gas would provide an adequate supply to

occurred at Eastham site during the same winter seasons (Exh. EFSB-G-15). The Company reported that during the winter of 2013-2014, when the Existing Main operated at 200 psig, no gas was injected at either Chatham or Eastham (Exhs. EFSB-G-15; EFSB-G-18).

⁷ The Company clarified that in order for the Project to operate at its design pressure and capacity, the Company must also complete all three segments of the SLRP, which received EFSB approval in May 2006 (Exh. EFSB-G-22; Tr. at 81). As of June 14, 2016, the Company stated that two phases of the western segment of the SLRP were under construction and were expected to be completed by the end of 2016 (Tr. at 79). However, the Company reported that neither the 200 psig Eastern Segment nor the third phase of the 270 psig Western Segment of the SLRP was under construction as of June 14, 2016 (Tr. at 80). According to the Company, it is working with the towns of

resume new customer connections on the Lower Cape and thus allow the Company to lift restrictions on new and expanded connections, including fuel conversions (*id.* at 1-6). The Company also stated that restoration of upstream pressure would strengthen pressure at the eastern ends of the system, reducing or even eliminating the Company's reliance on portable LNG vaporization units in Chatham and Eastham (Exh. EFSB-N-13).⁸ The Company stated that because the Proposed Main would be a uniform 12 inches in diameter, the Company would be able to perform in-line inspection of the pipe using smart pig technology (Exh. EFSB-G-12). Furthermore, the Company stated that upon completion of the Project, it would have "traceable, verifiable, and complete records for the replacement main" (Exh. NG-1, at 1-6).

D. Analysis and Findings on Need

The record shows that the Company is limited in the use of the Existing Main by a number of conditions on that line. The record shows that the Company has established a moratorium on new connections and heating conversions from oil to gas due to the reduced pressure at which it is operating the Existing Main. The record shows that, even with the moratorium in place, gas demand from existing customers is likely to increase slowly, and that any increase may cause increased reliance on trucked-in LNG deliveries to temporary facilities in Eastham and Chatham. Without the moratorium, the Existing Main would be unable to serve both existing customers and new/expanded customer requirements on the Lower Cape. In short, when operating as required at no more than 125 psig, the Existing Main is inadequate to meet demand for natural gas on the Lower Cape. The Company has established that its existing system is inadequate to serve existing customers and growth with acceptable reliability. Therefore, the Siting Board finds that there is a need for additional gas supply in the Project area.

Sandwich and Barnstable to secure permission to build the third phase and projected that the in-service date for the third phase is one to two years away (Tr. at 81).

⁸ The Company stated that it does not anticipate needing to maintain portable LNG vaporization equipment at Chatham and Eastham upon completion of the Project and the Western Segment of the SLRP (Exhs. EFSB-G-13; EFSB-G-17). However, in other parts of the record, the Company predicts only that the Project will reduce reliance on the portable LNG operations at Chatham and Eastham (Exh. NG-1, at 1-6, 2-7; Company Brief at 13).

III. ALTERNATIVE APPROACHES TO MEETING THE IDENTIFIED NEED

A. Standard of Review

G.L. c. 164, § 69J requires a project proponent to present alternatives to the proposed facility, which may include: (1) other methods of transmitting or storing energy; (2) other sources of natural gas; or (3) a reduction of requirements through load management.⁹

In implementing its statutory mandate, the Siting Board requires a petitioner to show that, on balance, its project is superior to such alternative approaches in terms of cost, environmental impact, and ability to meet the identified need. In addition, the Siting Board requires a petitioner to consider reliability of supply as part of its showing that its project is superior to alternative project approaches. Berkshire Gas (2006) at 225.

B. Identification of Alternative Approaches for Analysis

The Company evaluated potential Project alternatives by first assessing whether the alternatives would meet identified system needs both in the near term (i.e., by 2017/18) and over the ten-year planning horizon (Exh. NG-1, at 3-1). The Company then analyzed potential Project alternatives by weighing issues regarding reliability, environmental impacts, and cost (id.).

The six potential alternatives to the Project that the Company identified and analyzed included: (1) a “No-Build” alternative; (2) installation of a new LNG facility in or near Harwich; (3) replacement of the Existing Main with new pipe segments of the same diameters (“In-Kind Replacement”); (4) construction of a single 20-inch 270-psig main to replace both the Existing Main and the recently constructed Middle Segment of the SLRP; (5) reliance on increasing energy efficiency; and (6) customer adoption of alternative heating and cooling techniques (id.).

1. Mid-Cape Main Replacement Project (Project)

As described above, the Project would replace the Existing Main with new 12-inch diameter pipe that would supply Colonial’s 60-psig distribution system on the Lower Cape via

⁹ G.L. c. 164, § 69J also requires an applicant to present “other site locations.” This requirement is discussed in Section IV.A, below.

five existing regulator stations (Exhs. NG-1, at 3-2; NG-3, at fig.1-6).¹⁰ The Company stated that use of a uniform 12-inch diameter pipe for the remainder of the Project would enable more efficient future in-line inspections, thus helping to maintain system integrity (Exh. NG-1, at 3-3). In-line inspection devices (smart pigs) may be used to inspect a newly constructed or existing pipeline for wall thickness and diameter, and to inspect individual pipeline features (welds, fittings, sleeves, etc.) for potential problems such as manufacturing defects, certain types of cracks, dents, gouges and third-party damage to the pipe (Exh. EFSB-N-7).

As proposed, the 16.6-mile replacement main would be designed and tested for operation at 270 psig, but would be operated at or below 200 psig for the foreseeable future (Exh. NG-1, at 3-3). The Company stated that testing the replacement main for 270 psig would allow future operation at the higher pressure without interruption of service for additional pressure testing (id.). The Company committed to seek Siting Board approval prior to any future increase in the main's operating pressure above 200 psig (id.).

Except for an approximately 800-foot portion of the route in East Harwich along Queen Anne Road between Depot Road and Route 39, the Project would follow the same route as the Existing Main (Exh. NG-1, at 3-3). The Company proposes to install the majority of the replacement main within three feet of the existing main, although there are some locations where replacement pipe would be installed on the opposite side of the street (id. at 3-3 to 3-4).

With respect to reliability, the Company stated that the Project would allow the Company to return the pipeline system to the normal operating pressure of 200 psig, enable the Company to lift the moratorium on new services, and improve system reliability in times of peak demand (id. at 3-9). The Company indicated that the capacity of its 200-psig system downstream of South Yarmouth would increase from 3,834 thousand standard cubic feet per hour ("mscfh") (if operated again at 200 psig) to 5,402 mscfh after Project completion (Exh. EFSB-G-9). Colonial stated it has consulted with public works officials, local water departments, and other local officials to ensure that the Project will not adversely affect existing underground infrastructure or any other projects (Exh. NG-1, at 3-2 to 3-4). Assuming that environmental

¹⁰ A sixth regulator station would be served by the Eastern Segment of the SLRP (see Exh. NG-3, at fig. 2-1, fig. 2-2).

reviews, licensing, and permitting can be completed by early 2017, the Company estimated the entire Project could be completed in 2019 – or earlier if local towns allow construction during the summer (id. at 1-3). The Company indicated that the estimated Project cost is approximately \$71 million, ± 25 percent (id. at 3-13).¹¹

2. No-Build Alternative

Colonial first considered the “No-Build” alternative. Under this alternative, the Company would not replace the existing Mid-Cape 200-psig distribution main, but instead would continue to rely upon the existing 200-psig main operating at the reduced pressure of less than 125 psig (Exh. NG-1, at 3-2). The Company asserted that operation of the existing system below 125 psig meets all Federal and State safety codes but would not allow the Company to lift the moratorium on new and expanded gas service or reduce reliance on its satellite LNG facilities (id.). The Company concluded that the No-Build alternative would therefore fail to meet identified need and was not evaluated further (id.).

3. Install a New LNG Facility

The Company described an alternative of meeting the identified need by construction of a new LNG facility in or near Harwich (Exh. NG-1, at 3-4). According to the Company, a new LNG facility large enough to meet hourly output requirements through 2025 and to allow discontinuation of the Chatham and Eastham portable units would require a maximum hourly vaporization output of 550 million British thermal units (“MMBtu”) and a storage capacity of 410,000 MMBtu (id.). Siting an LNG facility of this size would require a ten- to twelve-acre site toward the eastern end of the Mid-Cape system (id.). The Company stated that siting, permitting and constructing such a facility could take five to ten years (id.). Therefore, the Company concluded that this alternative would not satisfy the identified need in a timely fashion (id. at 3-4 to 3-5).

¹¹ The Eastern Segment of the SLRP (previously approved in EFSB 05-02) would be constructed coincident with the Project, but is not included in the Project (Exh. NG-1, at 3-13). The Company indicated that the combined cost of the Project with the Eastern Segment of the SLRP would be approximately \$78.2 million (id.).

The Company noted that operation of a new LNG facility would allow the Company to lift the moratorium on new and expanded gas services (id. at 3-4). However, this alternative would heighten the system's reliance on trucked LNG and would add complexity to the operation of the pipeline system, resulting in less overall reliability than the Project (id. at 3-10). The Company stated the cost of the new LNG facility alternative is \$218.5 million \pm 50 percent (id. at 3-14).

4. In-Kind Replacement Alternative

The In-Kind Replacement alternative would follow the same route as the Primary Route of the Project, but would involve replacing the existing 10-, 8-, and 6-inch mains with new gas mains of the same diameter, rather than the uniform 12-inch diameter gas main proposed for the Project (Exh. NG-1, at 3-5). The Company stated that, although the In-Kind Replacement alternative would restore system operations to 200 psig, it has significant operational shortcomings (id.). First, the Company noted that replacing the existing pipeline in-kind would not satisfy present-day pipeline construction practices, which typically employ consistent diameters along new mains (id.). Second, the Company asserted that 49 C.F.R. 192.150, which requires gas transmission lines to have the capability for in-line inspection, may in the future require distribution lines like the Proposed Main to be piggable (id.). As such, the Company's policies and standards require the replacement main to be designed and constructed with the capability for in-line inspections (i.e., "piggable") (id.).

With respect to reliability, the Company stated the in-kind replacement alternative would restore the Mid-Cape 200-psig system to its original operating condition, but would prolong the reliance on portable LNG during peak periods of demand (compared to the Project); also, this alternative would not allow the Company to perform in-line inspections in a reasonable manner and to meet the anticipated pending regulations of the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration requiring piggable pipelines (id. at 3-11). The Company estimated that the cost of the In-Kind Replacement alternative is approximately \$67.8 million \pm 25 percent (id. at 3-14).¹²

¹² The Eastern Segment of the SLRP (previously approved in EFSB 05-2) would be constructed coincident with the In-Kind Replacement, but is not included in this

5. Replace Existing Yarmouth-Dennis Mains with One 20-inch Main

This alternative is a variant of the proposed Project, with work in the Harwich and Brewster Segments remaining unchanged. However, within the Yarmouth-Dennis Segment, the existing 12-inch 200 psig main (now operating at reduced pressure of 125 psig) installed as part of the SLRP “Middle Segment” and the existing 10-inch 200 psig main (also operating at reduced pressure) would be replaced with a single 20-inch 200 psig main (Exh. NG-1, at 3-6). Further, the existing 12-inch main would be lowered to a pressure of 60 psig and would be reused as part of the 60-psig distribution main; the existing ten-inch main would be retired in place (id.).

The Company stated this alternative would provide additional capacity within the 200-psig distribution system on Cape Cod, potentially deferring the need for future upgrades; however, it would reduce reliability by relying on a single main instead of having two parallel mains available for use along approximately five miles of the route (id. at 3-6 to 3-7). The Company stated that since utility bays in the existing Highbank Road Bridge over the Bass River are not large enough to accommodate a 20-inch main, this alternative would necessitate a trenchless crossing of the Bass River, likely via a horizontal directional drill, which would increase construction complexity, duration, and cost by approximately \$3 to \$4 million (id. at 3-7). The Company estimated the total cost of the 20-inch main alternative at \$86 million ± 25 percent, not including the directional drill (id. at 3-14 and 3-15).

6. Expanded Energy Efficiency Programs

The Company evaluated increased energy efficiency (“EE”) as a potential alternative to the Project. The Company stated that it offers a broad array of energy efficiency programs to its Cape Cod customers (Exh. NG-1, at 3-7). Consistent with the requirements of the Green Communities Act, the Company stated its programs are designed to achieve cost-effective

alternative. Therefore, the \$7.2 million cost of the Eastern Segment is not included (Exh. NG-1, at 3-13).

energy savings for its Massachusetts customers (id.). See St. 2008, c. 169. In its most recent Three-Year Plan filing with the Department of Public Utilities (“Department”), the Company proposes programs designed to achieve energy savings equivalent to 1.284 percent of gas sales in the 2016-2018 time period (id. at 3-7 to 3-8).

The Company noted that limitations caused by the reduction in operating pressure on the Mid-Cape System are most binding during periods of high demand (i.e., cold winter days) (Exh. NG-1, at 3-7). While the Company’s energy efficiency programs are designed to produce benefits in excess of costs when viewed under the required Total Resource Cost cost-effectiveness test, there are no specific targets for reductions in design-day or near-design-day gas usage (id. at 3-7 to 3-8). The Company contended that it is therefore difficult to assess the extent to which energy efficiency programs could address the distribution system issues that led the Company to impose the moratorium (Company Brief at 24).

The Company concluded that energy efficiency measures alone would not address the operational needs on the distribution system and allow the Company to reliably meet the needs of its existing customers and lift its moratorium on new gas services (id. at 3-7). The Company stated that since this alternative did not meet the identified need, it did not perform a more detailed evaluation (id. at 3-8).

7. Alternative Heating and Cooling Technologies

The Company stated that following the imposition of the moratorium, the Department convened a working group to develop a coordinated strategy to provide alternatives to natural gas to meet Cape Cod customer needs during an anticipated five- to seven-year moratorium on new natural gas services (Exh. NG-1, at 3-8). The working group (“Cape Assistance Group”) consisted of the Massachusetts Department of Energy Resources (“DOER”), the Massachusetts Clean Energy Council (“MassCEC”), the Cape Light Compact (“CLC”), and National Grid (id.). In a presentation to the Cape Cod Commission in March 2015, the Cape Assistance Group reviewed numerous heating and cooling technologies and analyzed their relative costs and greenhouse gas emissions (Exh. NG-3, att. B).

The analysis of technologies included those for a new home and those for a retrofit of an existing home (id.). The heating technologies analyzed by the Cape Assistance Group included

various combinations of natural gas, electric resistance heating, fuel oil, propane, air-source and ground-source heat pumps, biomass pellet boilers, solar photovoltaic, and solar hot water systems (Exh. NG-1, at 3-8).

The Company stated that, among the combinations evaluated, only the air source heat pump, the air source heat pump combined with solar photovoltaic, and the ground source heat pump combined with solar photovoltaic were modeled as having lower lifetime costs than natural gas (id. at 3-9). However, the Company stated that when retrofitting an existing home without air conditioning, natural gas is the least expensive available technology and has lower carbon emissions than propane, electric resistance heating, and fuel oil, either alone or in combination with solar hot water, but that natural gas has higher carbon emissions than the various renewable technologies, as well as fuel oil when combined with photovoltaic (id.).

The Cape Assistance Group presented its analysis and information about existing incentives that promote deployment of renewable heating technologies to developers and municipal officials at a March 2015 meeting; however, the Company stated that despite efforts of the Cape Assistance Group to develop a coordinated strategy to provide alternatives to natural gas, the anticipated demand for additional natural gas service, and the need for reliable natural gas services on the Cape is still increasing (id.). The Company stated this alternative would do nothing to address the asset condition of the existing natural gas distribution infrastructure, and thus would not allow the Company to lift its moratorium on increased use by existing customers and new natural gas service connections in the affected communities on Cape Cod (Exhs. EFSB-PA-16; EFSB-PA-17).

The Company acknowledged that, conceptually, the various technologies and services relating to energy efficiency (Alternative 5) and energy source switching for heating and cooling (Alternative 6) could be combined into a single package (Exh. EFSB-PA-18; Company Brief at 28, n. 29). The Company stated, however, that these technologies and services do not address the fundamental issue driving the need for the Project, which is that the existing natural gas distribution system on Cape Cod does not currently operate as designed, thus preventing the Company from providing safe, reliable and cost-effective natural gas service to new customers seeking such service and to existing gas customers seeking to expand their use of natural gas (Exh. EFSB-PA-18; Company Brief at 28, n.29). The Company pointed out that, in practice, any

alternative that does not reinforce the gas distribution system would prolong the existing moratorium on expanded or new natural gas services indefinitely (Exh. EFSB-PA-18; Company Brief at 28, n.29). For the reasons stated above, the Company concluded that these demand side alternatives, whether separated as two alternatives or combined as one, do not to meet the identified need (Exh. EFSB-PA-18; Company Brief at 28, n.29).

C. Analysis and Findings on Alternative Approaches

As described above in Section III.B, the Company identified a number of potential alternative approaches to meeting the identified need. The record shows that the No-Build, Energy Efficiency, and Alternative Heating and Cooling Technologies alternatives would not allow the Company to bring pressure on the Mid-Cape distribution system back up to 200 psig, end the moratorium, and discontinue the Chatham and Eastham satellite LNG facilities. Accordingly, the Siting Board concludes that none of these three alternatives would meet the identified need. The Siting Board notes that energy efficiency and alternative heating and cooling technologies are important resources for reducing greenhouse gas emissions and may also serve to reduce or postpone the need for infrastructure such as pipelines in certain applications. However, the record shows that the demand for natural gas on Cape Cod already exceeds the current system capacity to serve that demand and that ongoing energy efficiency programs and alternative heating and cooling technologies do not resolve this deficit at present or in the near future.¹³ The Project, two other pipeline alternatives, and the LNG alternative could each provide adequate gas service, and thus would meet the identified need. These four alternatives are considered further, below.

The record shows that the Project, the In-Kind Replacement alternative, and the Yarmouth-Dennis 20-Inch Main Replacement could each be constructed in a relatively short time frame, and each would allow the Company to bring pressure back up to 200 psig, end the moratorium for additional gas service, and diminish or discontinue the use of satellite LNG facilities in Chatham and Eastham. The LNG alternative would take longer to permit and

¹³ The Company did not analyze an alternative that combined both energy efficiency and alternative technologies so that such a demand side alternative could be fully evaluated.

construct than the pipeline alternatives, and would be subject to the risk that weather conditions could preclude delivery of fuel. Among the three pipeline alternatives, the In-Kind Replacement Alternative has reliability disadvantages in that it would not be piggable and would have lower capacity than the Project. The 20-Inch Main Replacement Alternative has a reliability disadvantage of being less flexible in the event repairs are needed, compared to having two 12-inch lines available on the Yarmouth-Dennis segment. Accordingly, the Siting Board finds that the Project is preferable to the alternatives with respect to reliability.

With respect to environmental impacts, the three pipeline alternatives all involve installation along the same roadways, varying only with respect to pipeline diameter, so these three alternatives would have generally similar environmental impacts. Construction and operation of a new LNG facility would require considerable acreage to be transformed into an industrial facility with permanent visual effects and noise impacts on the local community; an LNG plant would also increase traffic with repeated truck trips required to fill the storage tank. With regard to environmental impacts, the Siting Board finds that the pipeline alternatives would have comparable impact, and that each of the pipeline alternatives is preferable to the LNG alternative.

The record provides estimated construction costs for the four project alternatives that meet the identified need (the three pipeline alternatives and the LNG alternative). The estimates, each described above, are summarized below in Table 2. The Siting Board finds that cost of the In-Kind Replacement Alternative is approximately \$2.8 million less expensive than the Project; the 20-Inch Main Alternative is \$11 to \$12 million more expensive than the Project. The LNG Alternative is, by far, much more costly than any of the other pipeline alternatives.

Table 2. Cost of Project Alternatives

| Option | Cost | Cost Accuracy |
|---|--------------------|----------------------|
| Mid-Cape Main Replacement Project (plus cost of Eastern Segment of the SLRP) | \$78.2 million | ±25 percent |
| New LNG Facility | \$218.5 million | ±50 percent |
| In-Kind Replacement Alternative (including the SLRP Eastern Segment) | \$75 million | ±25 percent |
| Replace Yarmouth-Dennis Mains with One 20-inch Main; Install 12 inches for the Rest | \$89 to 90 million | ±25 percent |

(Exh. NG-1, at 3-13 to 3-15).

Although the Siting Board found that the In-Kind Replacement and the 20-Inch Main Alternatives are comparable to the Project with respect to environmental impacts, they do not offer the reliability attributes of the Project with respect to in-line inspection capability and redundant pipes and do not offer significant cost savings. The LNG facility's reliability, cost, and environmental impacts do not compare favorably with the Project or the other alternatives. Based on the above, the Siting Board finds that the Project is, on balance, superior to the identified alternative approaches in terms of cost, environmental impact, and ability to meet the identified need by providing a reliable energy supply for the Commonwealth. The Siting Board directs the Company to submit to the Siting Board an updated and certified cost estimate for the Project prior to the commencement of construction.

IV. ROUTE SELECTION

A. Standard of Review

Section 69J requires the Siting Board to review alternatives to planned projects, including "other site locations." In implementing this statutory mandate, the Siting Board requires a petitioner to demonstrate that it has considered a reasonable range of practical siting alternatives. Colonial Gas (2006) at 306; New England Power Company d/b/a National Grid, 20 DOMSB 129, at 172 (2014) ("Salem Cables"). To do so, an applicant must satisfy a two-pronged test: (1) the applicant must first establish that it developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner that ensures that it has not overlooked or eliminated any routes that, on balance, are clearly superior to the proposed route; and (2) the applicant must establish that it identified at least two noticed sites or routes with some measure

of geographic diversity. Colonial Gas (2006) at 307; Salem Cables at 173. However, given that the designation of a noticed alternative route: (a) is not required by statute; (b) necessitates that a project proponent expend significant funds in both developing and supporting a noticed alternative route; and (c) has the potential to raise concern unnecessarily among potential abutters and others in the affected communities, the Siting Board has indicated that a noticed alternative route may not be warranted in all cases. New England Power Company d/b/a National Grid, 20 DOMSB 1, at 55 (2014) (“IRP”).

B. The Company’s Route Selection Process

The Company began its route selection process based on the assumption that the proposed Project route (“Primary Route”), which parallels the Existing Main, would be the superior alignment for the Project (Exh. NG-1, at 4-4).^{14,15} The Company indicated that a key reason for this approach is the need to tie the Proposed Main to the existing network of regulator stations and downstream 60-psig distribution lines (id. at 1-3, 4-4). Thus, if an alternative route were selected for the Project, this existing distribution network would need to be rebuilt and/or reinforced to maintain existing service (id. at 4-1). To confirm its assumption that the Primary Route is superior, the Company performed a high-level analysis of other potential routes for the pipeline replacement (id.).

The Company’s route selection methodology involved the following steps: (1) identify a study area for route selection; (2) assess potential routes that would connect to the Project end-points as well as the existing network of regulator stations; (3) analyze each alternative route

¹⁴ One 800-foot section of the Primary Route does not parallel the Existing Main. Along Queen Anne Road between its intersections with Depot Road and Orleans Road in Harwich, Colonial would install pipe in a new alignment in order to avoid traffic impacts at a rotary and to avoid bends exceeding 45 degrees, thereby improving the Company’s ability to internally inspect the Proposed Main (Exh. NG-1, at 4-4).

¹⁵ The Company did not provide public notice of any proposal to construct the Project on any route other than the Primary Route. Colonial stated that that a Noticed Alternative Route is: (1) not required by statute; (2) would require a significant expenditure of funds; and (3) would potentially cause unnecessary concern among potential abutters (Exh. NG-1, at 4-16).

based on length, environmental impact, constructability, permitting considerations, and cost; and (4) perform a comparative analysis based on these factors, given the nature of the Project as a replacement project (Exh. NG-1, at 4-1).

The Company identified four potential routing alternatives to the Primary Route, based on a combination of the environmental and community factors and constructability factors. The route alternatives include: (1) Route 6; (2) Old Colony Rail Trail; (3) Line 118-119 Right-of-Way; and (4) Rail Trail & Line 118-119 Right-of-Way Combination (id. at 4-3).

The Company evaluated the following environmental and community factors in comparing the route alternatives:

- Water body crossings where impacts are possible or special crossing techniques would be needed;
- Wetland resource areas as defined in the Massachusetts Wetlands Protection Act (“WPA”) regulations (310 C.M.R. §§10.00 et seq.) where impacts would be likely;
- Vernal pools within 300 feet of a potential route;
- Sensitive receptors (e.g., schools, hospitals, police stations, fire stations, nursing homes) that may be affected by temporary construction impacts such as traffic disruption, noise, and/or dust;
- Rare and endangered species habitat mapped by the Massachusetts Natural Heritage and Endangered Species Program (“NHESP”), specifically where a route may involve work more than ten feet from pavement;
- Tree clearing requirements;
- Whether a particular Project route crosses Article 97-protected land, thus requiring Article 97 approval;
- Whether a route would likely require an archaeological survey based on lack of previous ground disturbance; and
- Recreation/conservation lands crossed.

(Exh. NG-1, at 4-2).¹⁶

The Company stated that route length, traffic management during construction, and special crossings were constructability factors that it considered in its evaluation of route alternatives (Exh. NG-1, at 4-2).

The Company's summary of its route alternatives analysis is provided in Table 3, below.

¹⁶ The Company stated that Areas of Critical Environmental Concern ("ACECs") and Outstanding Resource Waters ("ORWs") were also initially evaluated within the study area, but none of the potential Project routes would affect either ACECs or ORWs, so they were excluded from the comparative analysis (Exh. NG-1, at 4-2).

Table 3. Comparison of Geographic Routing Variations

| Project Element | Primary Route | Route 6 Alt. | Old Colony Rail Tr. | Line 118-119 ROW | Rail Trail & 118-119 ROW |
|--|----------------------|---------------------|----------------------------|-------------------------|-------------------------------------|
| Length (miles) | 16.6 | 19.6 | 17.9 | 18.4 | 19.9 |
| Waterbody Crossings | 0 | 0 | 10 | 3 | 13 |
| Additional Wetlands Impacted | 0 | 0 | 3 | 3 | 6 |
| Vernal Pools within 300' (certified plus potential) | 6+2 | 4+1 | 7+7 | 5+9 | 6+14 |
| Identified Sensitive Receptors | 0 | 2 | 1 | 0 | 1 |
| Traffic | medium | high | low | low | low |
| NHESP Habitat crossed | no | no | yes | yes | yes |
| Tree clearing required | no | no | likely | possible | likely |
| Article 97 land | no | yes | yes | yes | yes |
| Project Element | Primary Route | Route 6 Alt. | Old Colony Rail Tr. | Line 118-119 ROW | Rail Trail & 118-119 ROW |
| Archaeological survey required | no | no | likely | yes | Yes |
| Recreational & conservation land crossed (linear feet) | < 1000 | <1000 | 31,421 | 11,788 | 42,300 |
| Cost (\$ million) | 71 | 86 | 81 | 84 | 86 |

Note: Gray shading shows the route or routes judged by the Company as best in each category. (Exh. NG-1, at 4-13 to 4-14).

1. Potential Route Alternatives

a. Primary Route

The Yarmouth-Dennis Segment of the Primary Route (4.9 miles) begins at the Company's property in South Yarmouth at 127 Whites Path with approximately 1,000 feet of 20-inch main extending to the existing 12-inch Sagamore Line located in Whites Path, then continues eastward at a diameter of 12 inches (Exh. NG-1, at 5-1). The route follows Whites Path to the east before turning southeast onto North Main Street, which it follows for approximately 500 feet before continuing onto Great Western Road for approximately one mile (Exh. NG-1, at 5-3). The route then turns northeast onto Highbank Road, crossing over the

Bass River Bridge and into the Town of Dennis, turns briefly southeast onto Upper County Road, and then northeast on Great Western Road and passes into Harwich (id.). The route then turns toward the north onto Depot Street to the intersection with Main Street in North Harwich (id. at 5-1 to 5-2).¹⁷

The Harwich Segment of the Primary Route (6.5 miles) starts at the end of the Yarmouth-Dennis Segment in North Harwich, extends east on Main Street, then turns slightly northeast along Queen Anne Road for just over 4.5 miles to Orleans Road (Route 39) in Harwich (Exh. NG-1, at 5-2). The Harwich Segment would also extend south along Depot Road from the intersection with Queen Anne Road in East Harwich to Main Street (Route 28) in South Harwich (id.).

The Brewster Segment of the Primary Route (5.2 miles) would extend northward from the end of the Yarmouth-Dennis Segment on Depot Street for approximately a mile, crossing into Brewster where the road becomes Slough Road and extends north for another approximately 1.5 miles (Exh. NG-1, at 5-2, 5-4). Here the segment turns northeast onto Satucket Road for 1.8 miles then continues onto Stony Brook Road for another 0.7 miles before ending at Brier Lane in Brewster (id.).

b. Route 6 Alternative

The Route 6 alternative provides an alternative east-west path for the Project while still utilizing most of the Brewster Segment. The majority of the line would be routed along Route 6 – a busy state road that serves as the primary east-west roadway on Cape Cod (Exh. NG-1, at 4-5). The Company stated that several spur lines would be needed to bring this route to the five regulator stations associated with the existing 200-psig distribution system (id.). Including the spurs, this alternative is approximately 19.6 miles long, or about three miles longer than the Primary Route (id. at 4-6).

The Company stated that given the high volume of vehicles and the reduced road width, construction of the Route 6 alternative could endanger installation crews due to high traffic

¹⁷ The existing 4.7 miles of parallel 12-inch coated steel main along the Yarmouth-Dennis segment installed as the Middle Segment of the SLRP would not be affected and would continue to operate, with a reinstated pressure of 200 psig (Exh. NG-1, at 5-2).

velocity and would inevitably lead to significant traffic impacts (id. at 4-6 to 4-7). According to the Company, the Massachusetts Department of Transportation (“MassDOT”) would be unlikely to allow the Project as a longitudinal installation within Route 6 (id. at 4-7). Colonial estimated that the Route 6 Alternative would cost \$86 million, or about \$15 million more than the Primary Route (id. at 4-6 to 4-7).

c. Old Colony Rail Trail Alternative

The Old Colony Rail Trail alternative would follow former railroad routes instead of most of the Yarmouth-Dennis and Harwich segments of the Primary Route, but would include most of the Brewster Segment of the Primary Route (Exh. NG-1, at 4-8). This alternative route would utilize parts of the Cape Cod Rail Trail and the Old Colony Rail Trail, which meet in Harwich (id.). The rail trails are used for biking, running, in-line skating, and walking, according to the Company (id. at 4-9). The Company stated that several spur lines would be needed to bring this variation to the five regulator stations serving the 60-psig system (id.). The length of this alternative is approximately 17.9 miles or about 1.3 miles longer than the Primary Route (id.).

According to the Company, this route would present several challenges to the Project schedule (Exh. NG-1, at 4-9). First, much of the Cape Cod Rail Trail and Old Colony Rail Trail is Article 97-protected land (id.). According to the Commonwealth’s Article 97 Land Disposition Policy, the Executive Office of Energy and Environmental Affairs (“EEA”) “shall not support an Article 97 land disposition unless EEA and its agencies determine that exceptional circumstances exist” (id. at 4-9 to 4-10). Colonial indicated its expectation that pursuit of Article 97 land disposition would take a considerable amount of time, during which the existing moratorium on additional gas services would continue, and also require environmental mitigation which might be costly (id. at 4-10). Although engineering of this alternative route has not been performed, the route includes ten likely crossings of water bodies, particularly if the replacement main could not be constructed entirely beneath the recreational path (id. at 4-9). This alternative route would disrupt recreational use of the rail trail during construction and future maintenance, would require tree clearing where the trail is too narrow for construction, possibly trigger the need for easements for construction, likely necessitate archaeological surveys, and construction

could possibly encounter contaminated soil that would necessitate special handling and disposal procedures (id. at 4-10). Colonial estimated the cost of the Old Colony Rail Trail alternative to be \$81 million, or about \$10 million more than the Primary Route (id. at 4-9).

d. Line 118-119 Right-of-Way Alternative

The Line 118-119 Eversource right-of-way alternative would replace the Brewster Segment of the Primary Route, providing an alternative north-south path for the Project while retaining the Yarmouth-Dennis and Harwich segments of the Project (Exh. NG-1, at 4-10). Additional spurs would be included in order to connect this alternative to the five regulator stations feeding the 60-psig distribution system (id. at 4-11). The length of this alternative is approximately 18.4 miles, or about 1.8 miles longer than the Primary Route (id.).

The Company indicated that it did not determine whether Eversource would authorize the use of a portion of its right-of-way for the project or if the Eversource easement for overhead transmission rights would allow for the installation of an underground gas line (Exh. NG-1, at 4-11). The Company stated that because this route would not be installed within existing roadway layout beneath pavement or within ten feet of pavement, surveys for rare and endangered species and for archaeological resources could be required to ensure that the Project creates no significant impact (id. at 4-12). The Company noted that this process would add time and cost to the Project (id.). Colonial estimated that the cost of the Line 118-119 right-of-way alternative would be \$84 million, or about \$13 million more than the Primary Route (id. at 4-11).

e. Rail Trail/Line 118-119 Right-of-Way Combination Alternative

The Company also evaluated a combination of the Old Colony Rail Trail and the Line 118-119 Eversource right-of-way alternative that would provide an alternative route almost entirely distinct from the Primary Route. According to the Company, combining these two routing variations would not eliminate the shortcomings of either variation on its own such as use of Article 97-protected land, tree clearing, and archaeological surveys (Exh. NG-1, at 4-12). Construction would also significantly disrupt recreational activities along the rail trail (id.).

This route combination would be approximately 19.9 miles long, or 3.3 miles longer than the Primary Route (Exh. NG-1, at 4-12). Colonial estimated the cost at approximately

\$86 million, or \$15 million more than the Primary Route (id.). In addition, the Company stated that the combination route would require a trenchless crossing beneath Route 6 and 13 other likely trenchless crossings of water bodies (id. at 4-13). In total, these 14 potential trenchless crossings would add approximately \$28-\$42 million to this cost estimate which would result in this alternative costing \$43 to \$55 million more than the Primary Route (id.).

C. Analysis and Findings on Route Selection

In past decisions, the Siting Board has found various criteria to be appropriate for identifying and evaluating route options for transmission lines and related facilities, including criteria addressing natural resources, land use, community impact, cost and reliability. Berkshire Gas (2006) at 238; IRP at 54; Hampden County at 369. The record indicates that the Company developed numerous screening criteria, which it used to evaluate the routing options. These criteria included natural and community resource impacts as well as cost, and are commensurate with the types of criteria that the Siting Board previously has found to be acceptable.

The Siting Board notes that the Company did not provide a noticed alternative route. The Company maintained that a noticed alternative route is: (1) not required by statute; (2) would require a significant expenditure of funds; and (3) would potentially cause unnecessary concern among potential abutters. While the Siting Board has required past applicants to provide a noticed alternative route for their proposals, this practice is not mandated by Section 69J, and more recently, the Siting Board has acknowledged the possibility that a noticed alternative route may not be warranted in all cases. See IRP at 55. In this proceeding, where the proposed gas facilities would parallel and replace existing facilities for nearly the full length of the Primary Route, the Siting Board finds that the Company's decision to evaluate alternative routes, but not officially notice one, to be reasonable. However, the Siting Board notes that this finding is based on the particular circumstances presented in this proceeding and that future proponents of jurisdictional facilities requiring Siting Board approval should continue to follow the established practice of providing a noticed alternative route with their petitions, as appropriate.

The Company evaluated alternative routes to the Primary Route to ensure that it did not overlook a clearly superior route compared to the selected route. As part of this evaluation the Company examined possible routing options with diverse geographic considerations, including

utilizing three different types of existing right-of-ways: a state road; an overhead electric utility transmission line; and a rail trail. The Company performed an adequate comparative analysis of these alternatives, using its identified criteria. The Company also combined the different alternatives to determine whether a combination of the alternatives might result in a feasible alternative route with fewer impacts. Upon completion of this analysis, the Company found that none of the alternatives would result in a shorter or less costly project, or have fewer overall community and environmental impacts than the Primary Route. Based on this record, the Siting Board finds the Company's analysis to be both substantial and reasonable, with no public comments to the contrary.

The Siting Board finds that the Company has: (1) developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner that ensures that it has not overlooked or eliminated any routes that are clearly superior to the Project; and (2) identified a range of practical pipeline line routes with some measure of geographic diversity. Therefore, the Siting Board finds that the Company has demonstrated that it examined a reasonable range of practical siting alternatives.

V. MINIMIZATION OF ENVIRONMENTAL IMPACTS

A. Standard of Review

In implementing its statutory mandate under G.L. c. 164, §§ 69H, 69J, the Siting Board requires a petitioner to show that its proposed facility minimizes costs and environmental impacts while ensuring a reliable energy supply. IRP at 55-56; Hampden County at 370. To evaluate the proposed facility, the Siting Board first determines whether the petitioner has provided sufficient information regarding environmental impacts and potential mitigation measures to enable the Siting Board to make such a determination. The Siting Board then determines: (1) whether environmental impacts would be minimized; and (2) whether an appropriate balance would be achieved among conflicting environmental impacts as well as among environmental impacts, cost and reliability. See Berkshire Gas (2006) at 244; Colonial Gas (2006) at 334-335.

B. Description of Construction Methods

The primary construction method is open-cut trench excavation using the “stove pipe” method in which a relatively short section of roadway is excavated and sections of pipe are lowered into the opening, one length of pipe at a time (Exh. NG-1, at 5-31, 5-33, 5-34).¹⁸ The Company indicated that typical construction hours would extend from 7:00 a.m. to 5:00 p.m., on weekdays only (id. at 1-3). The Company stated that some work, however, may need to be scheduled at night or on the weekends, which it would coordinate with each town (id.). Following installation, pressure testing of the Proposed Main would require work through the night, which would be coordinated with the towns (id. at 5-31).

1. Laydown/Staging

The Company stated that its installation contractor would identify laydown/staging areas necessary to complete construction, so the specific locations have not yet been identified (Exh. NG-4, at 2-20). Nevertheless, the Company committed that laydown/staging areas would not be located within 100 feet of any wetland resource areas (id.).

2. Trench Excavation and Pipe Installation

Colonial stated that the trench would be excavated using a backhoe or excavator, and a trench box and/or shoring will be installed where needed (Exh. NG-1, at 5-32). The trench for the pipe would be approximately three feet wide by five feet deep (id. at 1-7). Where in-line welding would be performed or where the proposed replacement main will pass under existing utilities, the excavated area will be larger, typically ten feet long by six feet wide and up to eight feet deep to accommodate a shoring box (id.). The Company stated that the typical equipment used during construction would include mobile cranes, pavement saws, asphalt pavers, pneumatic hammers, mounted impact hammers (hoe rams), backhoes, and dump trucks

¹⁸ This technique normally involves installing the replacement main in two approximately 40-foot (also known as “double random”) lengths at a time. Work required to join the two 40-foot sections (welding, radiography, and coating) will predominantly be performed at-grade, after which a side-boom tractor or backhoe will lower the pipe into a limited length of open trench (Exh. NG-1, at 5-31, n.4).

(id. at 5-44). The pipe would be installed at a rate of approximately 200 feet per day with no more than 200 feet of trench open at any particular location (id. at 1-7).

Colonial stated that to minimize hauling by truck and expedite backfilling, excavated material will be stockpiled next to the trench on the pavement or shoulder, or will be temporarily stockpiled in a dump truck (Exh. NG-1, at 5-32). At locations where stockpiling is unacceptable due to pavement width or local environmental conditions, the material will be loaded onto trucks for transport to a prepared storage location, which will be coordinated with local authorities (id.). Once excavated, trenches will be sheeted and shored as required by soil conditions, U.S. Occupational Safety and Health Administration safety rules, and local and state regulations (id.). The Company stated that suitable bedding materials (typically, six inches of sand) will be placed in the trench (id.).

The Company stated that both an Environmental Construction Plan (“ECP”) and Traffic Management Plan (“TMP”) would be developed prior to construction, with input from local agencies and municipalities (Exh. NG-4, at 7-1). The Company stated it will hire an environmental inspector to monitor compliance with the ECP during construction (id.).

3. Dewatering

The Company indicated that standard erosion control practices would be employed to minimize erosion during trenching operations and construction activities in general, and areas where groundwater may be encountered would be identified as part of the preconstruction environmental investigation of soils (Exh. NG-1, at 5-35). The Company stated that dewatering of the pipe trench would be necessary in areas where groundwater is encountered, where soils are saturated, or at times when the trench is affected by storm water (id.). If dewatering is necessary, the Company stated the discharge will follow the dewatering procedures outlined in its Stormwater Pollution Prevention Plan (“SWPPP”) and ECP (Exh. EFSB-EI-4). The Company stated that it would use secondary containment for pumps to avoid contamination of wetlands and waterbodies (Exh. NG-1, at 5-36). Discharges more than 100 feet from a wetland or stream bank would be directed into a well-vegetated area and discharges less than 100 feet from a wetland or stream bank would be directed to a filter bag (id.).

4. Welding and Nondestructive Testing of the Welds

The Company stated that all welding will follow Company procedures, which accord with all applicable state and federal codes (USDOT Title 49, Part 192) as well as industry standards (Exh. NG-1, at 5-32). In particular, all welds will be tested nondestructively with radiographic (*i.e.*, x-ray) inspection (*id.* at 5-31 to 5-32). The Company stated that x-ray images would be reviewed by a trained technician to confirm the acceptability of the weld in accordance with API Standard 1104, and that if any unacceptable flaws are detected, that portion of the weld would be ground out and repaired (*id.*).

The Company stated that, typically, lengths of pipe would be set out adjacent to the trench and two sections would be welded together before the welded sections are placed into the trench (*id.* at 5-32 to 5-33). The Company indicated that it would use relatively small-scale construction equipment, such as a backhoe with a side boom to place the pipe in the trench, rather than large side-boom tractors (*id.* at 5-33).

5. Corrosion Protection

The Company stated that the coated steel replacement main would be protected from corrosion in three ways: (1) the replacement main would be shipped to the Project site with a protective butyl rubber exterior coating; (2) a similar coating (tape or shrink sleeves) would be applied to all field welds during construction; and (3) a cathodic protection system would be installed (Exh. NG-1, at 5-33).

6. Backfill and Compaction

The Company stated that backfill and compaction operations would be carried out in strict compliance with procedures established by the Department (*i.e.*, Standards To Be Employed by Public Utility Operators When Restoring any of the Streets, Lanes and Highways in Municipalities (“Street Restoration Standards,” D.T.E. 98-22, 1999) (Exh. NG-1, at 5-33). The Company stated that four to six inches of sand padding would be placed around the circumference of the installed pipe, and then suitable backfill placed above the pipe and compacted (*id.*). Installers will place a broad plastic marking/warning tape above the pipe to help ensure that future excavation does not inadvertently damage the pipe (*id.*). The Company

further stated that, generally, three feet of cover would be placed above the pipe (id.). Where the pipe must be shallower (i.e., with less than two feet of cover), concrete shielding or steel plates would be placed above the pipe for protection (id.).

7. Final Pavement Restoration

Where the trench location requires cutting of pavement, the Company stated pavement restoration would be carried out in compliance with Section 9.0 of the Department's Street Restoration Standards (Exh. NG-1, at 5-33). All pavement excavations would be repaired with same-day permanent patches unless otherwise allowed by the town (id.). The Company indicated that, in general, the length of new excavation completed each day would equal the length of replacement main installed, backfilled, and compacted (id. at 5-33 to 5-34). As noted above, the Company expects to install approximately 200 feet of pipe per day, per crew (id.).

The Company stated that road shoulders would be graded to their pre-existing contours, with slight mounding to allow for settlement (Exh. NG-1, at 5-34). Any disturbed vegetated areas will be loamed and seeded to match pre-existing vegetation, and any lawn-edge that has been affected by replacement main installation, including equipment passage, will be hand-dressed, seeded, and mulched (id.).

8. Bridge Crossing

At the Highbank Road crossing of the Bass River, the Company indicated that an existing utility chase is available to carry the new pipeline (Exh. NG-1, at 5-34). The pipe would be welded, inspected, and coated, and then attached to and supported by the bridge with pipe hangers or pipe rollers (id.). The Company stated this technique was successfully used for the same crossing as part of the Middle Segment of the SLRP Middle Segment (id.).

C. Description and Analysis of Environmental Impacts

The Company stated that since the Project would be installed beneath and adjacent to pavement of existing roadways, environmental impacts from the Project will be limited to minor short-term construction effects (Exh. NG-1, at 3-11; Company Brief at 46).). Project impacts to

land use and historic resources, visual impacts, wetlands and water resources, traffic, noise, air quality, hazardous and solid waste, and safety are described below.

1. Land Use and Historic Resources

a. Description

The Company stated that land use along the Primary Route is a mix of residential, commercial/industrial, and recreational uses (Exh. NG-1, at 5-14 to 5-16). According to the Company, no previously undisturbed areas would be affected by the Project (*id.* at 5-22). The Company stated that since the Primary Route is within existing roadway layouts, either beneath the pavement or within ten feet of the pavement, that no trees need to be cleared, and that construction would not affect identified historic and archaeological resources (*id.* at 5-14, 5-22). The proposed Yarmouth-Dennis Segment travels through a commercial and industrial area and through some established residential areas before crossing the Bass River and entering the South Dennis Historic District (*id.* at 5-14). The Primary Route in Harwich is largely residential, passing both the Cape Cod Bible Church and the North Harwich Cemetery; it also crosses Herring Brook, which is a perennial stream (*id.* at 5-15). The Brewster Segment begins in a residential area before passing beneath Route 6; it then enters hilly terrain and follows a winding road between several ponds (*id.*). Upon entering Stony Brook Road, the easternmost portion of the Brewster Segment passes through a more established residential area that contains some historic buildings, including the Stony Brook Grist Mill and Museum (*id.* at 5-16).¹⁹ The Company stated that the Project would have no effect on existing land uses, that the post-installation road grading will match the existing road grading, and that no permanent mitigation measures are necessary (*id.*; Exh. EFSB-C-23; *see* Company Brief at 56).

On March 7, 2016, Doug Erickson, chairman of the Stony Brook Millsites Committee, and Dana Condit, chairman of the Alewife Committee, provided comments describing high visitation of the Stony Brook Grist Mill site from April through August and supporting Project construction provided local construction is completed between September 1st and March 15th

¹⁹ The Stony Brook Grist Mill and Museum is a National Register Property preserving a 19th century mill and consisting of 85 acres of land featuring historic mill sites, a mill pond, and raceways for the mill (Exh. NG-1, at 5-16).

(Letter to Presiding Officer from Stony Brook Mill, dated March 7, 2016). Mr. Erickson and Mr. Condit also requested that the level of the road be restored, following construction, to its present level, due to drainage considerations in this environmentally sensitive area (*id.*).²⁰

b. Analysis and Findings

The record shows that the Project is completely located under previously disturbed paved surfaces or within ten feet of paved surfaces and that there would be no permanent land use or archaeological impacts. During construction, the Company's proposed measures to limit erosion and sedimentation, noise, traffic, and air impacts, discussed below, would mitigate impacts to the mixed-use land-uses that abut the Project.

The Company has not yet established a staging and laydown area, stating that the Contractor will subsequently identify staging/laydown areas necessary to complete construction. Because the activities at the staging and laydown area have the potential for significant land use impacts, the Siting Board directs the Company to provide to the Siting Board a staging and laydown plan prior to the commencement of construction.

The record shows that the Stony Brook Grist Mill Site in Brewster is particularly sensitive to construction impacts on historic resources, water resources, and public enjoyment, and that citizens responsible for the management of this site requested that no construction occur between the middle of March and the beginning of September. The record shows that the requested seasonal limit could be accommodated without interfering with the feasibility or schedule of constructing the Project. Therefore, the Company is required to avoid construction in the area of the Stony Brook Grist Mill during the period of March 15th through September 1st of any year during construction of the Project.

Given implementation of the mitigation measures proposed by the Company and the conditions described above, the Siting Board finds that land use and historic resource impacts of the Project would be minimized.

²⁰ Mr. Erickson and Mr. Condit state that the herring run is an annual natural occurrence and tourist attraction that is impacted by runoff and siltation from manmade structures in the area (Letter to Presiding Officer from Stony Brook Mill, dated March 7, 2016).

2. Visual Impacts

a. Description

The Company has proposed four buried isolation valves that would each be controlled by two upright above-ground control box enclosures (Exhs. NG-5, at 1-10; EFSB-V-1(S)). The boxes and associated protection bollards would be colored gray, while an associated vent pipe would be colored green (Exhs. EFSB-V-2(S); EFSB-V-6(1)(S)). The Company stated that the control box enclosures would look similar to those used to house equipment to manage traffic control signals and traffic lights, provided photo renditions of the proposed control box enclosures near the intersection of Main Street and Depot Street in North Harwich, noted that people are accustomed to seeing such equipment, and therefore asserted that the enclosures would not cause a significant visual impact (Exhs. EFSB-V-1(S); EFSB-V-5(1)(S); EFSB-V-6(1)(S)). The enclosures would each consist of a steel box approximately 50 inches tall by 36 inches wide by 17 inches thick with 6 inches of concrete footing visible above grade, located at the edge of the road (Exhs. NG-5, at fig. 1-9; EFSB-V-1(S)). At the Bass River crossing on Highbank Road, between Yarmouth and Dennis, the pipeline would be installed under the bridge in existing space parallel to the existing Sagamore Line Replacement, and would be visible from boats passing under the bridge (Exhs. NG-1, at 5-34; EFSB-V-4(1)).

b. Analysis and Findings

The record shows that the Proposed Main would be placed underground, and that there would be minimal tree trimming required for installation, so that there would be nearly no visual impact from the Project. Above-ground facilities would be limited to several upright above-ground control box enclosures at the side of the road, plus pipe visible from underneath a bridge. The record shows that these above-ground facilities would have minimal visual impact and that the control box enclosures would look like typical signal control enclosures and would have a neutral color. On this basis, the Siting Board finds that the visual impacts of the Project would be minimized.

3. Wetlands and Water Resources

a. Description

The Company stated that it will prepare an SWPPP and an ECP that will address minimizing and mitigating waterway and wetland impacts from construction and weather events during construction (Exh. NG-1, at 5-10, 5-30). The Company stated that the Project will involve construction within the buffer zones of various wetland resource areas that are located along the Primary Route, and will also involve crossings over several small streams, which typically flow through culverts beneath the roads, as well as a crossing of the Bass River in a utility bay on the Highbank Road Bridge (id. at 5-6). Specifically, the Project passes through or adjacent to several Zone II Wellhead Protection Areas and a Potential Public Water Supply Area (id. at 5-46).²¹

The Company stated that the regulations that implement the Massachusetts WPA include a list of specific “minor activities” that, when performed outside of wetland resource areas but within the 100-foot buffer zone, and in compliance with 310 C.M.R. §10.02(2)(b)(1), are not subject to regulation (310 C.M.R. § 10.02(2)(b)2(a through q)) (Exh. NG-1, at 5-6). The Company noted that “[i]nstallation of underground utilities (e.g., electric, gas, water) within existing paved or unpaved roadways and private roadways/driveways, provided that all work is conducted within the roadway or driveway and that all trenches are closed at the completion of each workday” may be exempted as a minor activity, per 310 C.M.R. § 10.02(2)(b)2(i) (id.). The Company contends that the Project would be a minor activity exempted from regulation as specified in the Massachusetts WPA Regulations (id.).

Colonial committed that, at construction locations within 100 feet of wetland resource areas, controls would be installed at the edge of pavement to confine construction to the existing

²¹ A Zone II Wellhead Protection Area is identified by the Massachusetts Department of Environmental Protection (“MassDEP”) as that area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield, with no recharge from precipitation) (Exh. NG-1, at 5-46). Potential Public Water Supply Areas are areas identified by the Cape Cod Commission as potential future well sites and their associated recharge areas that have been identified by towns, water districts, or private water companies (id.).

roadway layout (id.). The Company stated that all exposed trenches would be closed at the end of each workday (id.).

Additionally, the Company stated that the Proposed Main will be tested hydrostatically in phases as Project segments are completed, so that the tested segments can be put into service when ready (Exh. NG-1, at 5-36). The hydrostatic testing of the Proposed Main will utilize approximately 572,960 gallons of water, with the water likely obtained from municipal sources (id. at 5-37). Upon completion of the hydrostatic testing, the test water will be pumped into storage tanks (Exh. EFSB-C-3). The Company's intent is to coordinate with the Cape Cod Commission and local municipalities regarding the possibility of discharging test water to approved locations adjacent to the Project area (id.). The Company stated that such discharge would be performed in a manner consistent with applicable statutory and regulatory requirements and with the best management practices prepared specifically for this Project and documented in the Project's ECP (id.). If unable to discharge hydrostatic test water in accordance with these criteria, the Company would haul the water offsite to a wastewater treatment facility for disposal (id.).

b. Analysis and Findings

The record shows that the Project would be constructed under pavement or within ten feet of paved surfaces. At the Bass River crossing, the Proposed Main would run parallel to the existing SLRP in a spare utility bay on the underside of the bridge, and the Company has identified and is pursuing all necessary state and local permits and approvals for this crossing. The Company has proposed dewatering procedures, storm water control, and mitigation of construction impacts in the ECP, the SWPP, and by use of best management practices during construction. The record shows that the Project would not have any permanent impacts on water resources. Further, the Company has proposed suitable discharge sites and/or treatment facilities with regard to water used to hydrostatically test the completed pipeline, in consultation with local authorities. Accordingly, the Siting Board finds that the Project's impacts to wetlands and water resources would be minimized.

4. Traffic

a. Description

Traffic along the Primary Route varies, with the highest traffic counts along Whites Path, North Main Street, Highbank Road, and Great Western Road (along the Yarmouth-Dennis Segment) (Exh. NG-1, at 5-17). All existing roadways have two travel lanes, with shoulders in commercial areas tending to be wider than those in residential areas (*id.*). The Company stated that it anticipates temporary traffic impacts associated with construction in the vicinity of commercial and industrial abutters (Exh. EFSB-EI-6). Towns on Cape Cod generally enforce a summer construction moratorium, and the Company is working with officials from all four affected towns for permission to work through the summer (Exh. EFSB-T-1). The Company stated that it would use traffic management measures such as police details to maintain traffic flow, in coordination with town officials (Exh. NG-1, at 5-17).

Colonial stated that it would work with the towns to develop the TMP prior to starting construction (Exh. EFSB-T-3; Company Brief at 63). The Company would address the following items in the TMP:

- Width and lane locations of the work zone to minimize impacts to vehicular traffic;
- Work schedule and duration of lane closures, road closures, or detours (where applicable);
- Traffic-control devices such as barricades, reflective barriers, advance warning signs, traffic regulation signs, traffic-control drums, flashers, detour signs, and other protective devices placed as shown on plans and as approved by the applicable municipalities;
- Locations where temporary provisions may be made to maintain access to homes and businesses;
- Routing and protection of pedestrian and bicycle traffic;
- Maintenance of school bus service;
- Communication with adjacent businesses so critical product deliveries are not interrupted by construction;

- Determination of the impact to roadway level of service due to short-term lane closure(s), if necessary;
- Notification to municipal officials, local businesses, and the public of the timing and duration of closed curbside parking spaces and travel way restrictions;
- Coordination with police and fire departments; and
- Management of impact to egress by emergency vehicles.

(Exh. NG-1, at 5-18).

In addition, the Company will consult with each of the towns to accommodate planned community events (Exh. EFSB-T-7). The TMP will be submitted for review and approval by appropriate municipal authorities prior to construction (Exhs. NG-1, at 5-18; NG-5, at 3-8).²²

The Company described conditions in particular locations as well. The Company intends to avoid construction at the Stony Brook Grist Mill in Brewster during peak tourist months and during the herring run season (Exhs. EFSB-T-6; EFSB-C-16). The Company proposed to route 800 feet of main along Queen Anne Road in East Harwich, between the intersection with Deport Road and Orleans Road (where there the Existing Main is absent), to minimize traffic impacts at the rotary (Exh. NG-1, at 4-4). The Company stated that the Town of Harwich has commenced drainage improvement work along a portion of the route that will be completed before construction of the Project (Exh. EFSB-C-29; Tr. at 2). The Town of Yarmouth informed the Company that a planned MassDOT-funded bike path extension was slated to commence in Spring 2017, and that the Town of Yarmouth may place restrictions on the Company's construction in order to accommodate the bike path project construction (Exh. EFSB-C-29; Tr. at 9). The Company stated that it will notify and perform customer/community outreach to residents, business owners, and local officials well in advance of any construction activities (Exhs. EFSB-T-2; EFSB-EI-6). The Company stated it will have a procedure in place to receive, investigate, and respond to TMP suggestions or complaints with the goal of an initial response within 24 hours (Exhs. EFSB-T-4; EFSB-T-5).

²²

The Company stated the TMP will be reviewed and approved by each of the municipalities along the route. Draft TMPs for ten major intersections and a generic TMP for the remainder of the route will be submitted to the Cape Cod Commission and MassDOT for their review and approval (Exh. EFSB-T-3).

b. Analysis and Findings

The record shows that during construction the Project would have impacts on traffic in all four towns, and that the Company is working with the towns to minimize impacts by scheduling work appropriately and, as practicable, around other events and periods of higher tourist activity, including at the Stony Brook Grist Mill. There is one known major construction project expected along the Project route at approximately the same time period – the MassDOT-funded bike path in Yarmouth. The Company has indicated that it is working to coordinate project schedules with Yarmouth to minimize disruptions. The Company will develop a TMP to address traffic management during construction. The record shows that the Company would coordinate with the towns to accommodate any other construction projects and community events. With the implementation of the TMP and schedule-related conditions, the Siting Board finds that traffic impacts from construction and operation of the Project would be minimized.

5. Noise

a. Description

The Company stated that there would be construction-related noise impacts during its anticipated hours of construction, from 7:00 a.m. to 5:00 p.m. Monday through Friday (Exh. NG-1, at 5-43). In addition, the Company stated that in specific instances at some locations, or at the request of the DPW of any municipality, the Project may seek municipal approval to work at night, or on weekends (id.; Tr. 1, at 62-63). The Company stated that work outside of normal hours would be minimized and performed only on an as-needed basis, such as when crossing a busy road, and will be coordinated with each town (Exh. NG-1, at 5-43; Company Brief at 49). The Company also stated that, when needed, nighttime work/extended construction hours would be coordinated through each town (id. at 1-3).

The Company indicated that noise would be produced during various construction phases including trench excavation, welding, backfill and compaction, and final pavement restoration (Exh. NG-1, at 5-43). The Company stated that proposed construction equipment will be similar to that used during typical public works projects (id.). Table 4, below, presents the Company's estimates of noise from different types of construction equipment it would use, expressed as

A-weighted decibels (“dBA”) at a distance of 50 feet from the construction equipment. For reference, a 10-dBA noise increase is perceived as a doubling in loudness to the average person, while a noise increase less than three dBA is typically regarded as imperceptible (Exh. EFSB-NO-6; see Salem Cables at 205).

Table 4. Reference Sound Levels of Construction Equipment at 50 feet

| Equipment | Max. Sound Level (dBA) at 50 feet ⁽¹⁾ |
|---|--|
| Mobile Crane (<i>manhole installation</i>) | 85 |
| Pavement Saw (<i>trench excavation</i>) | 90 |
| Asphalt Paver (<i>street restoration</i>) | 85 |
| Pneumatic Hammer (<i>trench excavation</i>) | 85 |
| Mounted Impact Hammer (Hoe Ram) (<i>trench excavation if ledge</i>) | 90 |
| Backhoe (<i>trench excavation</i>) | 80 |
| Dump Truck (<i>trench excavation</i>) | 84 |

(1) Typical maximum sound levels provided by the Company.(Exh. NG-1, at 5-44).

While intermittent increases in noise levels are expected during construction activities, the Company is committed to minimizing these impacts (Exh. NG-1, at 5-45). The Company maintains that construction-related noise levels would comply with applicable sections of MassDEP’s Air Quality Regulations at 310 C.M.R. §7.10, particularly subsections (1) and (2), which pertain to the use of sound-emitting equipment in a manner as to reduce unnecessary noise (*id.*). The Company stated it will make every reasonable effort to minimize noise impacts from construction (*id.*; Company Brief at 51). Colonial stated that the towns of Yarmouth, Dennis, Harwich, and Brewster have no bylaws applicable to construction-related noise (Exh. NG-1, at 5-45). Noise mitigation measures expected to be incorporated into the ECP include:

- Minimizing the amount of work conducted outside of typical construction hours;
- Ensuring that appropriate mufflers are installed and maintained on construction equipment;
- Turning off construction equipment when not in use and minimizing idling times;
- Ensuring appropriate maintenance and lubrication of construction equipment to provide the quietest performance;

- Requiring muffling enclosures on continuously-operating equipment such as air compressors and welding generators; and
- Mitigating the impact of noisy equipment on sensitive locations by using shielding or buffering distance to the extent practical.

(Exh. NG-1, at 5-45).

b. Analysis and Findings

The record shows that during construction the Project would have noise impacts at and around construction sites. The record shows that typical construction hours would be from 7:00 a.m. to 5:00 p.m., Monday through Friday. The Company has stated that it will work with the towns to determine acceptable hours of construction and will implement noise mitigation measures listed in the ECP to reduce noise impacts to the greatest extent possible. The Siting Board directs the Company to conduct typical construction from 7:00 a.m. to 5:00 p.m. on weekdays and to conduct no work on weekends and holidays. Should there be construction work that the Company determines is necessary outside these hours or days, the Company shall seek written permission from the relevant municipal authority prior to the commencement of such work, and provide the Siting Board with a copy of such permission. If the Company and municipal officials are not able to agree on such requested extended construction hours or days, the Company may file a written request for prior authorization from the Siting Board, provided that it also notifies the relevant municipal authorities in writing of such request.

With the implementation of the noise mitigation measures and schedule-related conditions stated above, the Siting Board finds that noise impacts from construction and operation of the Project would be minimized.

6. Air Quality Impacts

a. Description

Potential Project ambient air impacts identified by the Company are limited to temporary and minor impacts from construction vehicle emissions and generation of fugitive dust (Exh. NG-1, at 5-38). The Company stated that it will require contractors to use ultra-low sulfur diesel (“ULSD”) fuel for diesel-powered vehicles, and that it will comply with the requirements

of the MassDEP Diesel Retrofit Program (id. at 5-39). In addition, the Company committed to comply with state law (G.L. c. 90, § 16A) and MassDEP regulations (310 C.M.R. § 7.11(1)(b)) by generally limiting vehicle idling to no more than five minutes (Exh. NG-1, at 1-7). The ECP shall require all construction to be performed in accordance with applicable sections of the MassDEP Air Pollution Control Regulations at 310 C.M.R. §§ 7.02, 7.09 (id. at 5-38). Specific air quality mitigation measures expected to be incorporated into the ECP include:

- Use of appropriately designed wheel wash facilities as necessary to prevent off-site migration of soils;
- Mechanical street sweeping of construction areas and surrounding streets and sidewalks as necessary;
- Removal of construction waste in covered or enclosed trailers;
- Wetting of exposed soils and stockpiles to prevent dust generation;
- Minimizing stockpiling of materials on site;
- Turning off construction equipment when not in use and minimizing idling times;
- Minimizing the storage of construction waste on site; and
- Minimizing the duration that soils are left exposed

(Exh. NG-1, at 5-38 to 5-39).

b. Analysis and Findings

The record shows that the Company would control dust by controlling soil migration from the construction site and wetting exposed soils as needed. The record also shows that the Company would limit vehicle idling and use ULSD fuel to reduce air emissions, and ensure that all diesel-powered non-road construction equipment with engine power ratings of 50 horsepower and above to be used for 30 or more days over the course of Project construction have USEPA-verified (or equivalent) emission control devices, such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine. With the proposed measures to minimize dust and air emissions from construction equipment, the Siting Board finds that potential air impacts from the Project would be minimized.

7. Hazardous and Solid Waste

a. Description

Colonial stated that if hazardous materials are identified during Project construction, notification pursuant to the Massachusetts Contingency Plan (“MCP,” 310 C.M.R. § 40) may be necessary and a Licensed Site Professional retained (Exh. NG-5, at 4-12).

In response to comments from the Cape Cod Commission, the Company stated it does not anticipate using, handling, or generating any hazardous materials, though refueling and equipment servicing operations within wellhead protection areas may pose a threat to drinking water quality (*id.* at 4-16). Procedures for refueling construction equipment will be defined during consultations with the Cape Cod Commission to ensure proper safety and spill prevention (*id.*).

The Company stated that since the Project will involve open trenching of paved road, there would be asphalt and concrete waste generated during construction; asphalt and concrete will be handled separately from soil to allow for recycling at an asphalt batching plant and/or recycling facility (Exh. NG-4, at 4). The Company further stated that waste materials generated along the route during installation of the replacement main would be promptly removed and properly disposed of at a suitable facility, and that there may be contaminated soil or other regulated materials encountered along the route (*id.*). The Company stated that, if applicable, contaminated soils will be managed pursuant to the Utility-related Abatement Measure provisions of the MCP, and that the Company will contract with a Licensed Site Professional as necessitated by conditions encountered during Project construction, consistent with the requirements of the MCP at 310 C.M.R. § 40.0460 *et seq.* (Exhs. NG-1, at 5-16; NG-4 at 4).

b. Analysis and Findings

The record shows that the Company would minimize the amount of waste material it creates in the construction process, would dispose of hazardous materials at an appropriate facility, and would follow MassDEP procedures if it encountered existing contamination when excavating for the Proposed Main. Accordingly, the Siting Board finds that hazardous and solid waste impacts from construction and operation of the Project would be minimized.

8. Safety

a. Description

The Company became aware in early 2014 that a number of service lines were connected to the 200-psig main without the proper pressure reduction equipment (Exh. NG-1, at 2-5). The Company then initiated an inspection to review its system and the construction of the 200-psig pipeline. The Company's inspection identified the following deficiencies: nine welds were discovered on the main that did not meet code; three records were found to have information that did not match field conditions; and records needed for establishing MAOP, the pipeline's maximum allowable operating pressure, were missing (id.). As a result of the above, the Company lowered the pressure from 200-psig to 125-psig, which led to the moratorium on new gas services because of lack of capacity (id.). The system also had some older segments in the system and segments that were of different diameters, so that in-line inspections would be more difficult (id. at 1-5, 2-6; Company Brief at 2-3).

The Company filed its Petition to address these safety concerns and to restore adequate capacity needed for future growth. As part of the remediation of safety concerns, the Company stated that new services and service replacements connected to systems operating at pressures greater than 125-psig will require the installation of two independent pressure regulators to regulate and/or monitor pressures, and a "slam shut" over-protection device (Exh. EFSB-S-5). The Company stated that all welding on the Proposed Main will be performed in accordance with all applicable state and federal codes, as well as industry standards (Exh. EFSB-S-4). All welds will be tested, and if unacceptable flaws are detected, that portion of the weld will be ground out and repaired (id.). Finally, the Company has generated a new policy titled "Requirements for Establishing and Retaining Project Files for All Piping 125 psig and Greater," so that the Company will have records to verify the MAOP of the Proposed Main (Exh. EFSB-S-6).

b. Analysis and Findings

The record shows that the Company has committed to following all relevant state and federal safety laws and regulations during construction and operation of the Project, and to have ongoing in-line inspections of the Proposed Main. The Company stated that it plans to remedy

the issues that led to the moratorium by complying with, and even exceeding, applicable safety requirements. Based on the Company's proposed measures to address existing safety-related concerns on its 200 psig Mid-Cape system, and the Company's commitment to operate the Proposed Main in strict compliance with all applicable safety requirements, the Siting Board finds that the identified safety impacts of the Project would be appropriately addressed.

D. Conclusions on Environmental Impacts

The Project is located so as to use existing regulator stations and is proposed to be constructed completely under pavement or within the right of way. The Company has completed or is in the process of completing necessary planning to ensure construction-related impacts are minimized and mitigated. The Company has presented detailed information describing a wide variety of potential impacts of the Project, including impacts to land use and historic resources, visual impacts, impacts to wetlands and water resources, traffic impacts, noise, air quality impacts, hazardous and solid waste, and safety.

Based on review of the record, the Siting Board finds that the Company provided sufficient information regarding environmental impacts and potential mitigation measures to allow the Siting Board to determine whether environmental impacts would be minimized. Based on the information presented above, the Siting Board finds that with the implementation of the specified mitigation and conditions, and compliance with all local, state and federal requirements, the temporary and permanent environmental impacts of the Project would be minimized. The Siting Board finds that the Project would achieve an appropriate balance among conflicting environmental impacts, as well as among environmental impacts, reliability, and cost.

VI. CONSISTENCY WITH POLICIES OF THE COMMONWEALTH

A. Consistency Standard of Review

G.L. c. 164, § 69J requires the Siting Board to determine whether plans for construction of the applicant's new facilities are consistent with current health, environmental protection, and resource use and development policies as adopted by the Commonwealth.

B. Analysis and Conclusions on Consistency

1. Health Policies

In Section V.C.6.b, above, the Siting Board requires the Company to use only retrofitted off-road construction equipment to limit emissions of particulate matter during Project construction. This condition is consistent with MassDEP's Diesel Retrofit Program designed to address health concerns related to diesel emissions. In Section V.C.7.b, above, the Siting Board finds that the Project's hazardous materials impacts have been minimized. Accordingly, subject to the Company's specified mitigation and the Siting Board's conditions set forth in below, the Siting Board finds that the Company's plans for construction of the Project are consistent with current health policies of the Commonwealth.

2. Environmental Protection Policies

a. Global Warming Solutions Act

The Global Warming Solutions Act ("GWSA"), enacted in August 2008, is a comprehensive statutory framework to address climate change in Massachusetts. St. 2008, c. 298. The GWSA mandates that the Commonwealth reduce its GHG emissions by 10 to 25 percent below 1990 levels by 2020, and by at least 80 percent below 1990 levels by 2050. G. L. c.21N, §3(b). The GWSA authorizes the establishment of legally binding limits on GHG emissions in the Commonwealth, and designates the Secretary of Energy and Environmental Affairs ("Secretary") and MassDEP as the entities primarily responsible for implementing the GWSA. G.L. c. 21N, §§ 2-5. In particular, Section 3(d) of the GWSA requires MassDEP to promulgate regulations setting declining annual aggregate GHG emissions limits for sources or categories of sources that emit GHGs, to achieve the 2020 limit. G.L. c. 21N, § 3(d).

Pursuant to the GWSA, the Secretary issued the Massachusetts Clean Energy and Climate Plan for 2020 on December 29, 2010 (the "2020 CECP") and an update dated December 31, 2015 (the "2020 CECP Update") (together, the "Climate Plan"). In a determination accompanying the 2020 CECP, the Secretary set the 2020 state-wide GHG emissions limit at 25 percent below 1990 levels (Exh. NG-1, at 6-3).

On May 17, 2016, the Massachusetts Supreme Judicial Court issued a decision finding that MassDEP had not yet issued the GHG-reduction regulations required by GWSA Section

3(d), and it required MassDEP to do so. See Kain v. Department of Environmental Protection, 474 Mass. 278 (2016) (“Kain”). Subsequently, on September 16, 2016, Governor Charles D. Baker issued Executive Order 569, titled “Establishing an Integrated Climate Change Strategy for the Commonwealth” (“Executive Order 569”). Executive Order 569 includes the directive that MassDEP issue regulations pursuant to Section 3(d) no later than August 11, 2017, “to ensure that the Commonwealth meets the 2020 statewide emissions limit mandated by the GWSA” (Executive Order 569, at 3).

The Project is subject to review under the May 5, 2010 MEPA GHG Policy (Exh. NG-8, at 3). The GHG Policy is one element of a comprehensive effort to meet the Commonwealth's obligations under the GWSA. Consistent with MEPA's overall purpose to evaluate alternatives that avoid, minimize and mitigate environmental impacts to the maximum extent practicable (301 CMR 11.01), the Policy requires that GHG impacts of projects have been carefully considered and that all feasible means and measures to reduce those impacts are adopted (id. at 7). The Policy requires that all projects that are subject to preparation of an Environmental Impact Report (“EIR”) quantify GHG emissions, evaluate measures that could reduce GHG emissions and quantify potential reductions of mitigation measures (id.).

The Company has proposed that the pipeline would be designed to avoid and minimize natural gas leakage of the distribution system. The pipeline would have 100 percent welded connections, with no mechanical connections that would allow the potential for leaks. All of the welds will be visually detected and non-destructively tested. The line would be hydrostatically tested to establish the MAOP and ensure its integrity. External coatings systems on the pipe and a galvanic anode cathodic protection system will provide protection from corrosion (id. at 7-8).

As part of its MEPA review, the Company compared fugitive emission rates for the existing and proposed pipeline. The EIR indicates that there would be no significant difference between the existing system and the proposed system with respect to GHG emissions (id.). The proposed pipe and fittings, material properties, manufacturing process, coating process, and cathodic protection system would be consistent with the existing system. USEPA emission factors are employed to estimate fugitive emissions from the project; calculated emissions would be the same for the Existing Main and the Proposed Main because the design will remain the same for all relevant parameters (id.).

The Company contends that the Project would actually reduce GHG emissions by helping to end the existing moratorium on new gas service connections and oil-to-gas conversions. The Company estimated that the additional 4,000 new services that would be installed in the next five years, absent the moratorium, equates to approximately 16,000 tons of CO₂ per year that would be avoided annually with the Project.

In view of the record evidence above, the Siting Board finds that the Project is consistent with the GWSA.

b. Environmental Justice Policy

The Company's Petition noted that the Project is consistent with the Commonwealth's Environmental Justice ("EJ") Policy, as promulgated by the predecessor to the Executive Office of Energy and Environmental Affairs ("EEA") and as recently updated by Executive Order #552 signed on November 25, 2014 (Exh. NG-1, at 6-2). The Company stated that it is pursuing an inclusive community outreach plan to facilitate the meaningful opportunity to participate by all and because the Project does not exceed any environmental impacts thresholds that would necessitate enhanced analysis under the EJ Policy. Based on an analysis of linguistic data for the affected Project locations, the Hearing Officer did not require Notice to be provided in any languages other than English.

c. Other State and Local Environmental Policies

Pursuant to MEPA and Section 11.08 of the MEPA regulations (301 C.M.R. § 11.00), the Company has completed a Single EIR that includes commitments to avoid, minimize, and mitigate environmental impacts. The Single EIR includes a description of the project and updated plans. The Single EIR provides a description and analysis of applicable statutory and regulatory standards and requirements, and a description of how the project will meet those standards. It includes a list of required State Agency Permits as well as local and federal permitting. The Secretary of EEA found on April 15, 2016 that the Single EIR adequately and properly complies with MEPA and its implementing regulations. The Secretary noted that any outstanding issues can be addressed during State, federal, and local permitting and review.

As noted In Section V.C, above, the Siting Board reviewed how the Project would meet various state environmental protection requirements. The Siting Board also: (1) considered the Project's environmental impacts, including those related to land use, historical resources, noise, and visual impacts; and (2) concluded that subject to the specified mitigation and conditions, the Project's environmental impacts have been minimized. Subject to the specified mitigation and conditions set forth in this Decision, the Siting Board finds that the Company's plans for construction of the Project are consistent with the current environmental policies of the Commonwealth.

3. Resource Use and Development Policies

In 2007, pursuant to the Commonwealth's Smart Growth/Smart Energy policy, EEA established the Sustainable Development Principles, including: (1) supporting the revitalization of city centers and neighborhoods by promoting development that is compact, conserves land, protects historic resources and integrates uses; (2) encouraging reuse of existing sites, structures and infrastructure; and (3) protecting environmentally sensitive lands, natural resources, critical habitats, wetlands and water resources and cultural and historic landscapes. In Section IV, the Siting Board reviewed the process by which the Company evaluated routing alternatives for the Project. The Project has been designed and conditioned to avoid or minimize impacts to natural and cultural resources, and the Primary Route would be located the Project in already-disturbed areas. Subject to the specific mitigation and the conditions set forth in this Decision, the Siting Board finds that the Company's plans for construction of the Project are consistent with the current resource use and development policies of the Commonwealth.

C. Summary

Based on the analysis above, and subject to the specific mitigation and the conditions set forth in this Decision, the Siting Board finds that plans for the Project are consistent with current health, environmental protection, and resource use and development policies as adopted by the Commonwealth.

VII. DECISION

The Siting Board's enabling statute directs the Siting Board to implement the energy policies contained in G.L. c. 164, §§ 69H to 69Q, to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, § 69H. Thus, an applicant must obtain Siting Board approval under G.L. c. 164, § 69J, prior to construction of a proposed energy facility.

In Section II, above, the Siting Board finds that there is a need for additional gas supply in the Project area.

In Section III, above, the Siting Board finds that the Project, on balance, is superior to the alternative project approaches in terms of cost and environmental impact and with respect to the ability to meet the identified need by providing a reliable energy supply for the Commonwealth.

In Section IV, above, the Siting Board finds that the Company has developed and applied a reasonable set of criteria for identifying and evaluating alternatives to the Project in a manner that ensures that the Company has not overlooked or eliminated any routes that, on balance, are clearly superior to the Project. The Siting Board also finds that the Company has identified a range of practical pipeline routes with some measure of geographic diversity. Consequently, the Siting Board finds that Colonial has demonstrated that it examined a reasonable range of practical siting alternatives.

In Section V, above, the Siting Board reviewed environmental impacts of the Project and finds that with the implementation of the specified mitigation and conditions, and compliance with all applicable local, state and federal requirements, the environmental impacts of the Project along the Primary Route would be minimized. The Siting Board finds that the Project would achieve an appropriate balance among conflicting environmental concerns as well as among environmental impacts, reliability, and cost.

In Section VI, above, the Siting Board finds that with the implementation of specified mitigation and conditions, the Project is consistent with the health, environmental protection, and resource use and development policies of the Commonwealth.

Accordingly, the Siting Board APPROVES the Company's Petition to construct the Project using the Primary Route, as described herein, subject to the following Conditions A through I.

The Siting Board APPROVES the Company's Petition subject to the following conditions:

- A. The Siting Board directs the Company to provide the Siting Board with a staging and laydown plan for review by the Siting Board prior to the commencement of construction.
- B. The Siting Board directs the Company to avoid construction activities the Stony Brook Grist Mill site and the herring run each year of construction from March 15th to September 1st.
- C. The Siting Board directs the Company, in consultation with the towns of Yarmouth, Dennis, Harwich, and Brewster, to develop a community outreach plan for construction of the Project for each town. The outreach plan(s) should, at a minimum, set forth procedures for providing prior notification to affected residents of: (1) the scheduled start, duration, and hours of construction; (2) any construction the Company intends to conduct that, due to unusual circumstances, must take place outside the hours detailed in Condition D, below; (3) the availability of web-based Project information; and (4) complaint and response procedures, including the Company's contact information.
- D. The Siting Board directs the Company to conduct typical construction from 7:00 a.m. to 5:00 p.m. on weekdays and to conduct no work on weekends and holidays. Should there be construction work that the Company determines is necessary outside these hours or days, the Company shall seek written permission from the relevant municipal authority prior to the commencement of such work, and provide the Siting Board with a copy of such permission. If the Company and municipal officials are not able to agree on such requested extended construction hours or days, the Company may file a written request for prior authorization from the Siting Board, provided that it also notifies the relevant municipal authorities in writing of such request.
- E. The Siting Board directs the Company to provide its Environmental Construction Plan and Traffic Management Plan to the Siting Board for review prior to the commencement of construction.

- F. The Company's hydrostatic testing procedure for the Proposed Main would allow for 270 psig operation in the future without need of interruption of service for additional pressure testing. However, the Company's intention is to operate the Proposed Main at 200 psig for the foreseeable future. The Company is directed to seek and obtain the Siting Board's written approval prior to any future increase in the Project's operating pressure above 200 psig. This condition is in addition to compliance with any applicable regulatory requirements of the Department for such an increase in operating pressure.
- G. The Siting Board directs the Company to submit to the Siting Board an updated and certified cost estimate for the Project prior to the commencement of construction. Additionally, the Siting Board directs Colonial to file semi-annual compliance reports with the Siting Board starting within 60 days of the commencement of construction, that include projected and actual construction costs and explanations for any discrepancies between projected and actual costs and completion dates.
- H. The Project shall be designed, installed, operated and maintained in accordance with all federal, state, and local laws and regulations.
- I. The Siting Board directs the Company, within 90 days of Project completion, to submit a report to the Siting Board documenting compliance with all conditions contained in this Order, noting any outstanding conditions yet to be satisfied and the expected date and status of such resolution.

Because issues addressed in this Decision relative to this facility are subject to change over time, construction of the Project must be commenced within three years of the date of the decision.


In addition, the Siting Board notes that the findings in this decision are based upon the record in this case. A project proponent has an absolute obligation to construct and operate its facility in conformance with all aspects of its proposal as presented to the Siting Board. Therefore, the Siting Board requires Colonial Gas Company, or its successors in interest, to notify the Siting Board of any changes, other than minor variations to the proposal, so that the Siting Board may decide whether to inquire further into a particular issue. Colonial Gas Company or its successors in interest are obligated to provide the Siting Board with sufficient information on changes to the Project to enable the Siting Board to make these determinations.



Leonard Evers
Presiding Officer

Dated this November 18, 2016

APPROVED by the Energy Facilities Siting Board at its meeting on November 17, 2016, by the members present and voting. Voting for the Tentative Decision as amended: Ned Bartlett, Undersecretary of the Executive Office of Energy and Environmental Affairs, Chairman; Angela O'Connor, Chairman of the Department of Public Utilities; Jolette Westbrook, Commissioner of the Department of Public Utilities; Judith Judson, Commissioner of the Department of Energy Resources; Gary Moran, Deputy Commissioner and designee for the Commissioner of the Department of Environmental Protection; Jonathan Cosco, Senior Deputy General Counsel and Designee for the Secretary of the Executive Office of Housing and Economic Development; Glenn Harkness, Public Member; Mark C. Kalpin, Public Member; and Joseph C. Bonfiglio, Public Member.



Ned Bartlett, Chairman
Energy Facilities Siting Board

Dated this November 18, 2016

Appeal as to matters of law from any final decision, order or ruling of the Siting Board may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the order of the Siting Board be modified or set aside in whole or in part. Such petition for appeal shall be filed with the Siting Board within twenty days after the date of service of the decision, order or ruling of the Siting Board, or within such further time as the Siting Board may allow upon request filed prior to the expiration of the twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the clerk of said court. Massachusetts General Laws, Chapter 164, Sec. 69P; Chapter 25, Sec. 5.