## A. PROPOSED ACTION

The Long Island Power Authority (LIPA) provides electric service to most of Long Island and a small portion of New York City. Included in the LIPA service area are the North and South Forks of Long Island (i.e., the East End) in Suffolk County. In order to meet current and future service needs (i.e., the projected growth in demand for electricity) as well as to ensure system reliability, LIPA periodically proposes improvements and upgrades to its transmission system. Based upon demand forecasts, LIPA has identified the need to increase transmission line capacity between the Village of Southampton and Bridgehampton hamlet by the summer of 2008. This Southampton to Bridgehampton Transmission Line and Expansion of Bridgehampton Substation Project (the Proposed Action) would add a new single circuit 69 kilovolt (kV) transmission line that would meet projected future growth and increased reliability for residents and businesses in the Village and Town of Southampton as well as for residents and businesses across the South Fork. To accommodate the new transmission line, the Proposed Action includes an upgrade and expansion of the Bridgehampton Substation on the same LIPA-owned parcel as the current substation. The existing distribution substation and new transmission substation would both operate.

This area of the South Fork is currently served by an existing, 80-year-old 69 kV capacity double circuit transmission line (utilizing steel towers approximately 65 feet above grade and 20 feet wide) that runs between the Southampton and Bridgehampton Substations. As part of LIPA's system upgrade, a new substation, Deerfield Substation, was installed mid-way on the line in 2006. The existing 69 kV double circuit line is not capable of transmitting sufficient power to serve the East End communities in the future. The proposed project would augment the existing double circuit transmission line by adding a new, additional 69 kV single circuit line. The new transmission line would run between the two substations (Southampton and Bridgehampton), increasing electric transmission capacity to the area. The Proposed Action also includes the installation of a new transmission line switching substation on the same parcel of property as the existing Bridgehampton distribution Substation.

The new transmission line could exit the Southampton Substation in two ways. The first is overhead to the Long Island Rail Road (LIRR) right-of-way, and the second is underground to North Sea Road. The overhead line exiting from the Southampton Substation would require that the existing wood mono poles (approximately 57 feet above grade and 19 inches in diameter at the base) be replaced with 61 foot (above grade) steel mono poles, approximately 30 inches in diameter at the base. The steel poles would be neutral gray in color. Due to LIRR safety requirements, poles along the LIRR right-of-way have to be taller than standard transmission poles. The remainder of the new transmission line design would utilize wood mono poles for any portion of the line that is above ground. The typical new pole would be approximately 48 feet tall (above grade) and 22 inches in diameter at its base (tapering to 12 inches in diameter at the top of the pole). The number of poles installed along the new route would depend on the length

of the route that would have overhead lines, as opposed to an underground configuration. According to the National Electric Safety Code (NESC), all poles on the South Fork must be designed to withstand 120 mile per hour (mph) winds. However, LIPA has recently adopted a more stringent transmission design criteria for poles of 130 mph winds (a Category 3 hurricane) and would thus construct new poles to withstand this wind speed. The second way of exiting the Southampton Substation is referred to as the Village underground option, and the transmission line would be underground as it reaches and follows North Sea Road.

Four alternative routes and various configurations have been considered to provide a new transmission line from the Southampton to Bridgehampton Substations. The first route (the Existing Line Alternative) would utilize the existing easements between the two substations where the existing 69 kV double circuit line is present. The second route (the Direct Route Alternative) would provide the most direct route and would traverse various existing roadways between the two substations. LIPA has proposed to bury about 50 percent of this route. The third route (the LIRR Route Alternative) would utilize the LIRR Montauk line right-of-way and then continue north along the Bridgehampton Sag Harbor Turnpike to the Bridgehampton Substation. The last route (the Montauk Highway Alternative) would also follow the LIRR right-of-way to County Road 39 (CR 39) to Montauk Highway to Bridgehampton Sag Harbor Turnpike then to the Bridgehampton Substation. Various combinations of overhead and underground lines have been evaluated for the Direct Route Alternative, Montauk Highway Alternative, and LIRR Route Alternative. The Existing Line Alternative assumes an all underground configuration, because an additional above ground line along that route is both infeasible and would not achieve LIPA's need to have a redundant line outside the location of its existing double circuit transmission line. For each of the four alternative routes, either the overhead option along the LIRR right-of-way or the Village underground option could be used from the Southampton Substation.

The focus of this Environmental Impact Statement (EIS) is the evaluation of all four alternative routes and configurations. Figures 1-1 and 1-2 depict each of the routes considered for the new line.

This Draft EIS (DEIS) has been prepared to identify and analyze the potential impacts of these alternatives pursuant to the requirements of the State Environmental Quality Review Act (SEQRA). The main body of the EIS evaluates and analyzes the Direct Route Alternative while the alternatives chapter evaluates and analyzes the remaining three alternatives. For each of the four alternatives, the reasonable worse case is analyzed in each of the technical sections in order to disclose all potential impacts to the decision makers. The assumption of the reasonable worse case in the EIS does not imply that decision makers would have to choose that configuration.

This Project Description chapter of the EIS contains a discussion of: the public purpose and need for the proposed project; alternative routes and configurations considered; agency actions, permits, and approvals; construction schedule; and public outreach efforts.

## B. PUBLIC NEED AND PURPOSE

### INTRODUCTION

The existing 69 kV double circuit transmission line from the Southampton Substation to the Bridgehampton Substation was originally constructed in the late 1920s to provide transmission supply to the Town of Southampton as well as residents in Sag Harbor and the Town of East Hampton. The line was reconductored (i.e., the wires were replaced) in 1987 as part of

11.27.07

Existing Line Alternative
Direct Route Alternative
LIRR Route Alternative
Montauk Highway Alternative

**Village Underground Option**

Existing Line Portion
Direct Route Portion
LIRR/Montauk Highway Portion
LIRR

Bridgehampton Substation

Deerfield Substation

Southampton Substation

LITTLE PECONIC BAY

ATLANTIC OCEAN

TOWN OF EAST HAMPTON

0 2,500 5,000 10,000 Feet

N

Long Island Power Authority
Southampton to BridgehamptonTransmission Line

**Alternative Routes**
**Figure 1-1**

11.6.07

- Existing Line Alternative
- Direct Route Alternative
- LIRR Route Alternative
- Montauk Highway Alternative

**Village Underground Option**

- Existing Line Portion
- Direct Route Portion
- LIRR/Montauk Highway Portion
- LIRR

Bridgehampton Substation

Deerfield Substation

Southampton Substation

LITTLE PECONIC BAY

LITTLE SEBONAC CREEK

BULLHEAD BAY

NEW NORTH HWY

ATLANTIC OCEAN

TOWN OF EAST HAMPTON

0 2,500 5,000 10,000 Feet

N

Long Island Power Authority
Southampton to BridgehamptonTransmission Line

**2006 Aerial**
**Figure 1-2**

upgrading the electric system on the East End. This system was not designed for the current demand, and although several steps have been taken to upgrade the overall transmission system on the East End, including the South Fork, this line does not have sufficient capacity to meet current and future needs. This 80-year-old 69 kV double circuit transmission line will become overstressed under certain circumstances, carrying an electric load beyond its design capacity, and there is no back-up transmission supply for the East End should something disable either this existing 69 kV double circuit line or the 69kV single circuit line between Jamesport and Southold on the North Fork. Thus, the proposed project would supply the South Fork and East End systems with redundancy in the event the existing lines are out of service due to maintenance, repairs, or emergency circumstances. Therefore, the proposed project is part of LIPA's overall long range expansion plans to meet the East End demands and to reduce dependence on local generation.

If the transmission lines are not operational by summer 2008, the current South Fork system would have to be operated at extremely high loads, which creates a greater risk of voltage collapse (power outages and blackouts) in that part of LIPA's eastern service area, and even increases the possibility that outages could cascade back into other Towns, including East Hampton, Southold, Shelter Island, Riverhead, and Brookhaven.

**UPGRADES**

The design of the entire South Fork transmission system, including the existing 69 kV double circuit transmission line from Southampton Substation to Bridgehampton Substation, has been the subject of several studies, and resulting improvements, by LIPA. Since 1999, various transmission and distribution system reinforcements have been made that enabled the South Fork system to accommodate the increase in demands over the past several years including the record demand of 236 MW experienced in August 2006. Major transmission and distribution improvements for the 2000 to 2007 time period are summarized in Table 1-1. As a result of continued area improvements, there has been reduced dependence on voltage load shedding schemes that have been developed in the past as a contingency to protect the system from collapse.

Over the past eight years, LIPA performed studies and updates to the transmission plans, modifying the options as load growth continued and new projects were completed. Going back to as early as 1999, LIPA determined that there would be a need for South Fork reinforcements in the 2008 to 2010 time frame. Options considered at that time included a new 138 kV line (initially operated at 69 kV) from Southampton eastward to either the Bridgehampton Substation or Buell Substation (located in the Town of East Hampton). Future conversion to 138 kV operation and installation of new 138/69 kV transformers were also considered. Updates to analyses were performed periodically to account for the changes to the East End system and the higher than expected load growth. In 2005, the analysis of the above mentioned various options resulted in the selection of the proposed project as currently configured for the 2008 time frame. This option determined that the design and construction should be at 69 kV. In the spring of 2007, planning for the proposed project commenced.

LIPA continues to evaluate the transmission expansion plans on the South Fork and the East End. This ongoing evaluation considers the changing long-term needs of the area over the next 20- to 30-year period.

**Table 1-1**
**Major East End LIPA Projects**

| Year | Project |
|---|---|
| 2000 | Installed Riverhead to Southampton 138 kV cable (operated at 69 kV) |
| | Added capacitor banks at Southampton and Bridgehampton Substations |
| 2001 | Improved reliability of Riverhead 138 kV bus |
| 2002 | Added Capacitor banks at Riverhead and Peconic Substations |
| | Added fifth feeder exit at Bridgehampton Substation |
| | Replaced 23 – 13 kV distribution banks with 69 – 13 kV transformers at Peconic Substation |
| 2003 | New Jamesport 69 kV substation and capacitor bank |
| | Began conversion of 23 kV North Fork transmission system to 69 kV with the removal of Mattituck 23 kV substation |
| | Added generation in Southold: Global Common GT |
| | Added 6th feeder exit at Bridgehampton Substation |
| | Replaced Orient Point distribution bank |
| 2004 | Completed North Fork 69 kV conversion with the second Riverhead to Jamesport 69 kV circuit |
| | Installed East Hampton D-VAR System |
| | Replaced distribution banks at Tuthill |
| | Riverhead Substation breaker additions |
| | Installed distribution transformer at East Hampton GT substation |
| 2005 | New Canal 138 kV substation and the conversion of Riverhead to Canal 138 kV cable to 138 kV operation |
| 2006 | New Deerfield 69 kV substation between Southampton and Bridgehampton Substations |
| | Addition of two 28 MVA 69/13 kV distribution banks at Canal |
| 2007 | Static Line Upgrade of 23 kV between Buell and Amagansett Substations |

**Source:** LIPA, 2007

## PROJECTED GROWTH IN ELECTRIC DEMAND

Peak demand for power on LIPA's service territory, including the South Fork, has been increasing steadily in recent years. Demand on the South Fork has increased over the last six years (between 2000 and 2006) by an average of 5.2 percent. KeySpan's Electric System Planning Group has forecasted demand to increase on the South Fork at an annual average of about 3.3 percent through 2025. This growth rate is almost double the 1.7 percent annual growth rate in electric demand projected for the remainder of LIPA's service territory. This growth in peak demand is greater than the existing electrical transmission system on the South Fork can sustain.

Development within the Town of Southampton is increasing at a rapid pace. Based on population projections made by the Long Island Regional Planning Board (LIRPB) in July 2004, the Town of Southampton population is expected to grow 35 percent during a 25-year period from 2000 to 2025 (an annual growth rate of 1.4 percent). The population of the Town in 2000, according to the US Census, was 55,216 and the forecasted population in 2025 is 74,347. Further, population within the Town of East Hampton is expected to increase by 31 percent over the same period (an annual growth rate of 1.2 percent). In contrast, Suffolk County as a whole is expected to grow 20 percent over the 25 year period from 2000 to 2025 (an annual growth rate

of 0.8 percent). The South Fork growth rate, based on the LIRPB population projections, is more than triple that expected for Suffolk County as a whole. A major portion of the new load growth on the LIPA system within the Town is expected to be from residential development.

## SYSTEM RELIABILITY

In addition to load growth, the reliability of the 80-year-old 69 kV transmission system is a major concern. The system experienced a total of 24 breaker trips between 2000 and 2007. Approximately 13 percent of the trips were caused by equipment and grounding problems, including insulator and static wire failures and 67 percent of the trips were unknown or nothing was found during line patrols. The South Fork transmission system will experience thermal overloads and voltage collapse, resulting in blackouts for various East End electric outages unless reinforcements are made to the system. Based on a planning study conducted by KeySpan Electric Service, LLC in November 2005, transmission systems reinforcements are forecasted to be required to supply sufficient electricity to the South Fork and to avoid thermal and voltage limitations under normal and contingency conditions beginning in 2008. This reinforcement would support the total forecasted East End load beyond 2025. By the summer of 2008 without the new transmission line, the South Fork transmission system could experience thermal overloads and voltage collapse. A loss of the existing double circuit infrastructure between the Southampton and Bridgehampton Substations (west and east, respectively, of the Deerfield Substation) would create severe transmission circuit overloads and voltage problems on the South Fork system. Specifically, the loss of this line west of Deerfield could cause the Jamesport to Peconic 69 kV circuit to reach 118 percent of its long term emergency (LTE) rating and 108 percent of its short term emergency rating. In addition, the Southold to Buell 69 kV cable would reach 116 percent of its LTE rating. A loss of the existing double circuit line would also cause service interruptions in the East End, including the Towns of East Hampton, Riverhead and Southold as well as areas outside of the East End, including the Town of Brookhaven.

Transmission supply interruptions, especially those of a sustained nature, impact public health and traffic safety. The problems associated with blackouts were evidenced by the power failure on August 14/15 2003. Public transportation systems failed, road traffic was stalled due to lack of traffic signals, essential public services were unavailable, emergency services were not able to meet demands, and communication systems often did not function. The blackout led to large public costs and loss of output in the private sector as well as environmental damage from non-function public services, such as sewage treatment plants.

The proposed project would minimize the risk of blackouts and brownouts and ensure system reliability by providing transmission capacity that is independent of the existing transmission system. This proposed project would also alleviate the potential for load shedding as well as reduce the reliance on local electric generation and the need for shunt capacitors, which could be needed to ensure system reliability if the project were not built. Moreover, the proposed project would enhance the delivery capability of the South Fork transmission system and act as a strong source to support the South Fork electrical load growth.

## CONCLUSIONS

To meet anticipated future load growth within the eastern portion of the Town of Southampton and the South Fork, and to address system reliability, LIPA has determined that a new 69 kV transmission supply would need to be established between the Southampton and Bridgehampton Substations. In addition to the new line, the Bridgehampton Substation would need to be

upgraded and expanded to accommodate the new 69 kV line. The proposed project would eliminate the potential for thermal overloads and the potential voltage collapse of the South Fork system caused by the limitations of the existing Southampton to Bridgehampton 69 kV double circuit line. Further, the proposed project would ensure sufficient electrical capacity for the expected continued load growth on the South Fork through the year 2025. Once completed, the new 69 kV line would be able to sustain the forecasted future load growth and would increase system reliability. In addition, the new transmission line would increase the reliability of electric supply on the East End. If the existing transmission lines were damaged, the new transmission line could still supply electricity. Without the addition and expansion discussed above, customers in the Towns of Southampton and East Hampton, and the East End as a whole, will likely be exposed to increasingly frequent service interruptions in the future and the expected load growth could not be sufficiently met. Further, without the proposed project, areas west, including the Town of Brookhaven, could also experience severe service interruptions.

## C. DESCRIPTION OF TRANSMISSION LINE AND BRIDGEHAMPTON SUBSTATION

### TRANSMISSION LINE

The proposed project would consist of either an overhead transmission line, underground cable, or a combination of the two approaches. The overhead line design would consist primarily of wood poles at a typical height of approximately 48 feet above grade and 22 inches in diameter at its base with a three conductor transmission circuit installed in a triangular fashion at the top of the pole. Below the transmission line, existing distribution wires (where they exist) would be transferred from existing shorter poles. Other facilities such as telephone, cable and fire alarm, if so attached to the existing shorter poles, would also be transferred to the new poles by the respective utility owner. Poles at road crossings and turns along the route would be wood and rise approximately 61 feet above grade and also be about 22 inches in diameter at the base. Poles installed along the LIRR right-of-way would be made of steel, whose height would be dictated by appropriate codes related to electrical safety clearances from train cars. These poles would generally be about 61 feet above grade and 30 inches in diameter at its base.

The underground system would consist of a manhole and duct system having three high density polyethylene conduits installed approximately 4 feet below grade in a triangular fashion along the route. Within each conduit, a 69 kV solid dielectric cable would be installed. Manholes would be spaced accordingly throughout the route tying conduit ends together providing a work location for splicing cable ends. At the end of each underground cable segment, an underground to overhead transition riser pole would be installed where transitions are necessary. These riser poles would be wood and approximately 61 feet above grade with the underground cable attached to three sides of the pole. The cables would be covered with protective covering, (i.e., steel U-guards).

The underground trench required for installation of the cable would be approximately 2 to 3 feet wide by 4 to 6 feet deep.

### SUBSTATION

The expanded substation, Bridgehampton 9RT, would be installed on the current Bridgehampton Substation parcel north of the existing substation, Bridgehampton 9R. The substation expansion

site plan is provided as Figure 1-3. This approximately 10-acre parcel is located on the west side of Bridgehampton Sag Harbor Turnpike, approximately 0.4 miles north of Scuttle Hole Road on the Suffolk County Tax parcel identified as District 900, Section 39, Block 27, Lot 1.

Construction of the new transmission substation would include the installation of a 4-legged, 69kV breaker and a half bus arrangement with provisions for a future fifth leg. Development of the new transmission substation would require clearing and grading on the proposed transmission substation site as well as construction of an access road to the proposed substation site. In addition, culverts to handle storm water run-off for the on-site streams would be installed. The new substation footprint would be approximately 204 feet by 730 feet (148,920 square feet or 3.4 acres) and would accommodate five 69kV line terminals for four existing LIPA lines from the East Hampton, Buell and Deerfield (2) Substations plus the new transmission line from the Southampton Substation.

The equipment that would be installed at the new transmission substation includes:

- Approximately 1,400 feet of three phase bus
- Approximately 5,500 feet of underground transmission cables
- 13 – 69 kV breakers
- 1 – 20 foot by 40 foot equipment enclosure
- 2 – 120 VDC battery enclosures
- Approximately 200,000 pounds of steel for equipment supports
- Approximately 350 cubic yards of concrete for equipment pads
- Perimeter fencing and station ground grid would be installed for the transmission substation

## D. ALTERNATIVE ROUTES AND DESIGNS

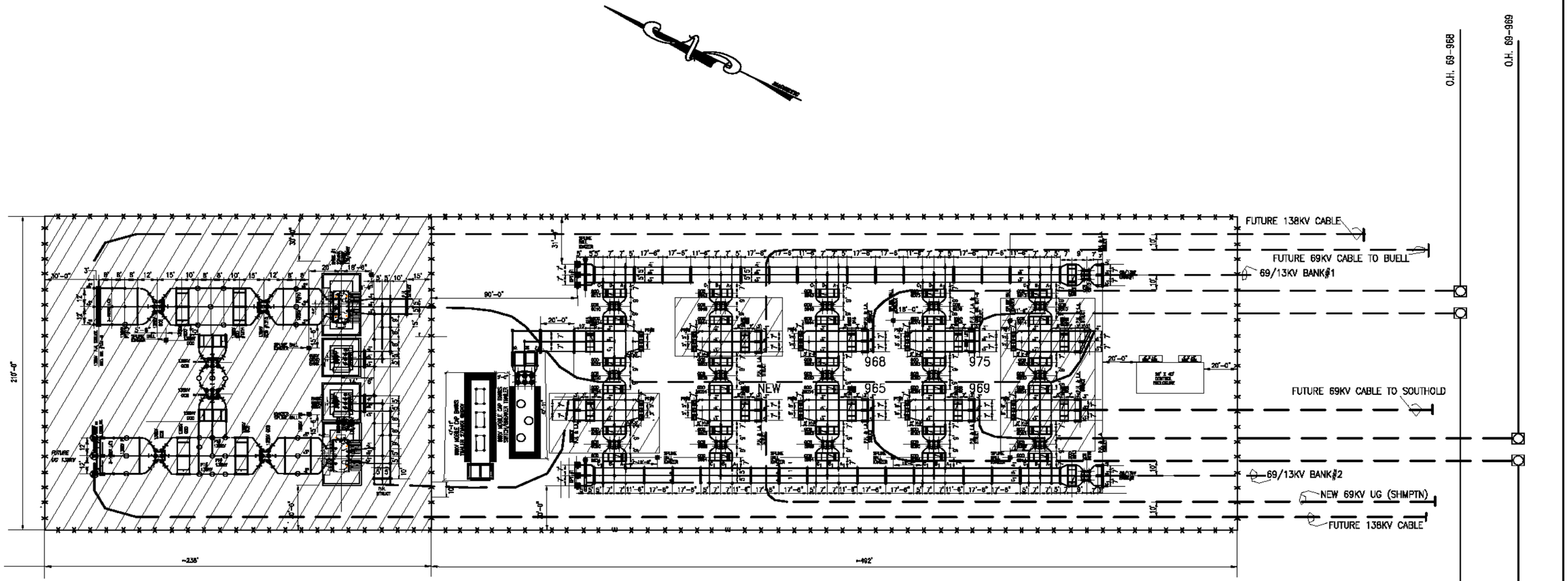
Regardless of the route and configuration selected (overhead, underground, or a combination of both), all existing transmission and distribution lines and poles would remain. However, along the selected route where an overhead configuration is selected, the distribution lines would be transferred and attached to the new mono poles, and the old poles would be removed and properly disposed.

All of the four alternative routes described below includes the Village underground option, which would place the proposed transmission line underground within the Village of Southampton. The Village underground option is described after the description of the four alternatives below.

In addition to the alternative routes and designs discussed below, this EIS also analyzes a No Action Alternative as well as a Demand Side Management Alternative. The No Action Alternative would analyze the 2008/2009 build conditions without the proposed project while the Demand Side Management Alternative would consider conservation methods to reduce demands on the East End to eliminate the need for the proposed project.

### EXISTING LINE ALTERNATIVE

The Existing Line Alternative would consider a new transmission line (approximately 8.3 miles) along the same route as the existing transmission line easements between the Southampton and




PRELIMINARY – CONCEPTUAL ISSUE 11/19/07

FUTURE EQUIPMENT

F-xxxxx

Long Island Power Authority
BRIDGEHAMPTON SUBSTATION
BRIDGEHAMPTON; NEW YORK

PLOT PLAN
69KV SUBSTATION
(FUTURE 138KV SUBSTATION)

KeySpan Engineering & Survey, Inc.

| NO. | DATE | M.O. | DESCRIPTION | DWN BY | CKD BY | REVIEWED | APP'D |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |

SCALE

VENDOR DWG. NO.

CAD/LAN EDG FILE NO.

DWG. NO.



**Proposed Bridgehampton Substation**
**Figure 1-3**

Bridgehampton Substations. This route would exit the Southampton Substation and follow Prospect Street for a short distance, and then turn north and northeast, following the existing double circuit transmission line. The existing 69 kV double circuit line that utilizes steel four-legged lattice towers would remain and the new transmission line would be installed adjacent to this line in the existing right-of-way. The existing lattice towers that run parallel to the LIRR right-of-way would also remain and new steel 61-foot mono poles, approximately 30 inches in diameter at the base would be constructed in this vicinity to accommodate the new transmission line and connect to the Southampton Substation. The remaining poles would be wood and about 48 feet above grade.

The configuration for this alternative would be an all underground transmission line due to the constraints in the width of the easements and reliability rules. For safety purposes, good engineering practices require a certain physical separation between the transmission lines. These separations cannot be achieved within the existing easements, and therefore limit the potential to construct the proposed project overhead along this route. There is not enough physical space along the existing easements to achieve the required wire clearances without creating aerial encroachments on the surrounding property. Even underground, all of the easements would have to be renegotiated because the existing easements are for overhead transmission lines only. In addition, all three transmission lines would be in the same corridor, and one incident could disable all three lines. Rules for reliability do not allow for this type of configuration and redundancy, which is an important component of the South Fork area needs, would not be provided.

The existing easements are for above ground transmission lines and therefore, each of the individual easements would have to be renegotiated to allow for underground installation. LIPA may not be able to complete the renegotiation process within the time frame needed to provide an operational additional transmission line by summer 2008. This alternative would include a Village underground option, which is described below.

## DIRECT ROUTE ALTERNATIVE

The Direct Route Alternative would follow existing roadways between the two substations for about 8.4 miles. Starting at the Southampton Substation, this route would follow the LIRR right-of-way to David Whites Lane to Seven Ponds Road to Lower Seven Ponds Road to Head of Pond Road to Scuttle Hole Road (Huntington Path) to Bridgehampton Sag Harbor Turnpike to the Bridgehampton Substation. Four configurations are associated with this alternative, including all overhead; all underground; overhead in residential areas and underground in agricultural areas; and overhead in agricultural areas and underground in residential areas. The poles to be installed along the LIRR right-of-way would all be overhead. There are currently 250 existing wood distribution mono poles along this specified route that are between 30 and 35 feet above grade and approximately 16 inches in diameter at the base. In an all overhead configuration, each of these wooden poles would be replaced with new wooden poles under the all overhead configuration. The typical replacement pole would be about 22 inches in diameter at the base and about 48 feet above grade. Taller wood poles, about 61 feet above grade and 22 inches in diameter at the base, would be utilized for riser poles (i.e., poles that are installed at the end of the underground segment, acting as a transition from underground to overhead lines) and installed at turns along the route and road crossings. The existing distribution lines that supply electricity to residences and businesses along the route would be transferred to the new transmission poles and remain at about the same height as current conditions, while the new

transmission lines would be accommodated in the approximately 10 feet above the distribution lines. In addition, the 22 existing wood poles (about 57 feet above grade and 19 inches in diameter at the base) that exit the Southampton Substation and traverse the LIRR right-of-way, would be replaced with steel mono poles about 61 feet above grade and 30 inches in diameter at the base.

For the all underground configuration, the existing wood distribution mono poles would be retained to accommodate existing distribution lines. For the hybrid (overhead and underground combination) configuration, the existing wood distribution mono poles would be replaced with the new wooden poles in the areas where the transmission lines are proposed overhead and the existing wood distribution mono poles would be retained in the areas where the transmission line would run underground. LIPA has proposed to place about 50 percent of the Direct Route Alternative underground. This alternative would include a Village underground option, which is described below.

### LIRR ROUTE ALTERNATIVE

This alternative would consider the installation of the proposed transmission line along the LIRR Montauk line right-of-way from the Southampton Substation to Bridgehampton Sag Harbor Turnpike and then north along this roadway to the Bridgehampton Substation. This alternative is about 8.2 miles in length. Similar to the Direct Route Alternative, this alternative would replace the existing 57 foot wood mono poles with 61 foot steel mono poles inside the Village. The remainder of the proposed line would likely utilize poles ranging from 61 to 75 feet (above grade) steel poles 30 to 34 inches in diameter with the exception of the poles to be installed along the Bridgehampton Sag Harbor Turnpike. These poles would be about 48 feet above grade. The increased pole height along the LIRR right-of-way (greater than 61 feet) feet would be required to span existing overpasses where there are clearance issues (i.e., Head of Pond Road and Butter Lane). Outside of the Village of Southampton, there are no existing distribution poles along the LIRR right-of-way, and therefore, all of the poles along this right-of-way would be new. Similar to the Existing Line Alternative, there is limited space along the LIRR right-of-way for installation of the new transmission line.

The configuration under consideration for this alternative is to construct the entire proposed line overhead along the LIRR right-of-way and hybrid overhead and underground along Bridgehampton Sag Harbor Turnpike. For the underground configuration along Bridgehampton Sag Harbor Turnpike, the existing wood distribution mono poles would be retained to accommodate existing distribution lines. For the overhead/underground configurations, the existing wood distribution mono poles would be replaced with the new wooden poles in the areas where the transmission lines are proposed overhead and the existing wood distribution mono poles would be retained in the areas where the transmission line would run underground. This alternative would include a Village underground option, which is described below.

### MONTAUK HIGHWAY ALTERNATIVE

The Montauk Highway Alternative, the longest route considered (approximately 9.5 miles), would exit the Southampton Substation, follow the LIRR right-of-way to CR 39 to Montauk Highway to Bridgehampton Sag Harbor Turnpike and then turn north along the roadway to the Bridgehampton Substation. The typical pole along this route would be approximately 48 feet above grade with the exception of the poles along the LIRR right-of-way, which would be 61 feet above grade. Similar to the Direct Route Alternative, taller poles (approximately 61 feet

above grade) would be required at turns along the route and road crossings as well as for riser poles. There is one area along Montauk Highway Alternative within Water Mill, approximately 2,000 feet long, that does not currently have existing distribution poles and therefore poles within this section would be new. The configuration of this line along the LIRR right-of-way and Montauk Highway would be all overhead. Along Bridgehampton Sag Harbor Turnpike, the transmission line would be a combination of overhead and underground. An all underground line along this route was not considered because of the length of the route and resultant cost. If an all underground configuration was chosen, a shorter, less expensive route would be selected. As with the other alternatives, in areas where the transmission lines were underground, the existing wood distribution mono poles would be retained to accommodate existing distribution lines. This alternative would include a Village underground option, which is described below.

### VILLAGE UNDERGROUND OPTION

Each of the four alternatives described above include the Village underground option. This option would place the proposed transmission line underground within the Village of Southampton from the Southampton Substation to North Sea Road to Wiltshire Street to the point where each alternative intersects the buried portion of the line, i.e., the line would follow Wiltshire Street to CR 39 to the LIRR tracks. Specifically, for the Existing Line Alternative, the Village underground option would stop at the intersection of Wiltshire and the existing transmission right-of-way, where the proposed line would then be overhead or underground. For the Direct Route Alternative, the Village underground option would stop at the intersection of CR 39 and David Whites Lane, where the line would then be overhead or underground. For both the LIRR Route and Montauk Highway Alternatives, the Village underground option would stop at the intersection of CR 39 and the LIRR right-of-way. See Figure 1-1 for a depiction of the Village underground option.

## E. COSTS

A wide cost differential exists between overhead lines and underground lines. These costs can be divided into three categories: (1) the capital cost for installation of the electric line, (2) cost to maintain the electric lines, and (3) cost to repair the electric lines. The capital cost difference between overhead and underground lines ranges between the underground lines being 3 to 10 times more expensive on a per mile basis at utilities across the country[1]. Based on LIPA's experience over the past few years throughout Long Island, an underground transmission line is about 4 to 5 times more expensive to install than an overhead line, see Table 1-2. The total cost for the project includes both the transmission line and the expansion of the substation, and the cost of the substation expansion does not vary with an overhead or underground transmission line. Therefore, the total project cost if the transmission were underground is about 3.5 times more expensive than if the transmission line were overhead, because of the substation expansion cost. For the Southampton to Bridgehampton transmission line, the cost differential between overhead and underground installation is expected to be about the same as the systemwide average.

[1] Johnson, Brad *Out of Sight, Out of Mind? A study on the costs and benefits of undergrounding overhead power line* (Washington, D.C.: Edison Electric Institute, January 2004).

**Table 1-2**
**Cost comparison for Overhead and Underground Transmission Lines**

| Capital Costs | Underground 4 to 5 times more expensive than overhead |
|---|---|
| Maintenance Costs | Overhead somewhat more expensive than underground |
| Repair Costs | Underground about 10 times more expensive than overhead |

Another factor that LIPA considers in evaluating capital costs is the life of the lines. Generally overhead lines have a minimum life of about 40 years compared to the expected minimum life of about 25 years for an underground line. A number of utilities have found that the time between needed repairs shortens dramatically at about 20 years for underground lines, and the repair costs increase with frequency of repairs[1]. However, this experience is with older, oil cooled transmission cables. The newer, solid dielectric cables have a shorter working history, but based on the limited experience, the newer cables are expected to have a life span equal to overhead lines. Whether this is borne out with more experience remains to be seen.

LIPA's primary experience with underground transmission lines is based only on the older, oil cooled cables. Those cables have mechanical equipment to pump the oil and other pieces of equipment that require more maintenance than the newer underground cables. New underground cables are typically inspected once a year. The maintenance involves cleaning out the manhole and inspecting the cable connections. This work requires two or three workers and an equipment truck. If any problems with connections are found, the problems are fixed. Overhead cables, are inspected yearly from the air with infrared photographic equipment. Yearly, they are also physically inspected and any damaged pieces of equipment repaired or replaced. In addition, tree maintenance and vegetation clearing is required for overhead transmission lines. The vegetation is cleared yearly, and trees are trimmed every 3 to 7 years, depending on terrain and growth. Overall, overhead cables are somewhat more expensive to maintain than new, non-oil-cooled underground cables.

The cost of repairs varies greatly depending on the cause of damage to the transmission line. Damage to an overhead line is usually easy to find because the line is exposed. Finding the damage in an underground line is usually much harder. The location between manholes has to be found first before the actual problem can be identified and repaired. The repair often requires trenching in the street, which adds to the cost. Based on a simple break in a transmission line and using the costs for individual work tasks with outside contractors, repair to an underground line is about 10 times more expensive than repair to an overhead line. Based on past experience[2], the failure rate of LIPA's overhead transmission lines is about 2.25 times greater (more often) than for underground lines.

In summary, underground lines are about 4 to 5 times more expensive to install and about 10 times more expensive to repair than overhead lines, which is partially offset by a higher failure rate and higher maintenance costs of overhead transmission lines. These increased costs that are borne by all LIPA rate payers, not just those in the vicinity of the underground lines.

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[1] *Ibid.*

[2] KeySpan *LIPA Transmission System Expansion Overhead vs Underground Analysis* (KeySpan Electric Service, LLC, Hickville, New York, May 2003).

## F. INVOLVED AND INTERESTED AGENCIES

- New York State Department of Environmental Conservation
- New York State Public Service Commission
- New York State Department of State
- New York State Office of Parks, Recreation and Historical Preservation
- New York State Department of Transportation
- New York State Department of Agriculture & Markets
- Suffolk County
- Suffolk County Department of Health
- Suffolk County Department of Planning
- Town of Southampton
- Town of Southampton Planning Board
- Village of Southampton
- Long Island Rail Road

## G. AGENCY ACTIONS, PERMITS, AND APPROVALS

A number of actions are needed prior to operation of the proposed line. These include:

*Long Island Power Authority:*

- Selection of route.

*New York State Department of Environmental Conservation (NYSDEC)*

- Review of plans for conformance with existing general permit for construction within freshwater wetlands and buffer areas;
- Notice of Intent for disturbance of more than one acre during expansion of the Bridgehampton Substation.

## H. CONSTRUCTION SCHEDULE

It is expected that construction of the transmission line component of the proposed project would commence in March 2008 and be fully operational in June 2008. The new transmission line would be connected to the existing Bridgehampton distribution station while the transmission substation is under construction. The construction of the substation expansion would commence in June 2008 and be fully operational in June 2009.

## I. PUBLIC OUTREACH

LIPA has conducted an extensive public and agency outreach and participation process in association with the Proposed Action. The purpose of the public and agency outreach process

was to encourage communication among all interested entities regarding the development of alternatives and configurations. Provided below as Table 1-3 is a summary of meeting and outreach efforts conducted to date. In addition, LIPA utilized local and regional newspapers and direct mailings to notify interested entities of any public meetings.

**Table 1-3**
**Public and Agency Outreach Efforts**

| Date | Outreach Audience | Purpose |
|---|---|---|
| March 9, 2006 | Town of Southampton | Discuss alternatives |
| June 8, 2006 | Town of Southampton | Discuss alternatives, site tour |
| August 11, 2006 | Town of Southampton | Discuss alternative configurations |
| February 12, 2007 | Watermill Citizens Advisory Committee (CAC) | Present project |
| February 26, 2007 | Bridgehampton CAC | Present project |
| March 5, 2007 | Town of Southampton | Discuss Bridgehampton Substation property |
| March 8, 2007 | Southampton CAC | Present project |
| March 19, 2007 | Village of Southampton | Present project |
| March 26, 2007 | Our Lady of Southampton School | Present project |
| April 2007 | Watermill CAC | Present Project |
| June 25, 2007 | Elected officials from the Town and Village of Southampton and Assemblyman Fred Thiel | Discuss project |
| August 21, 2007 (Public Meeting) | Elected officials and residents within 500 feet of each considered alternative | Present project |
| August 24, 2007 | Southampton Town Planning Board | Discuss lead agency designation and project |
| September 18, 2007 (Scoping Meeting) | Elected officials and residents | Present information to be incorporated into the EIS. |
| September 2007 | Southampton elected officials | Discuss project |
| October 29, 2007 | Watermill CAC | Discuss project |
| October 30, 2007 | Southampton Town and Village representatives | Discuss project |

In accordance with SEQRA, an optional public scoping meeting was held on September 18, 2007. As part of the scoping process, LIPA sought public input on the Draft Scope of Work for the EIS. Written and oral comments from interested individuals, organizations, agencies, and elected officials were received at the public scoping meeting and subsequent to the meeting until 5:00 PM on Tuesday, October 2, 2007. Comments were reviewed and where appropriate, incorporated into a Final Scope of Work, which was sent to all commenters and made available in local libraries and on LIPA's website. The Final Scope of Work, adopted by LIPA on October 25, 2007, was used to develop this EIS.

## J. THE SEQRA PROCESS

This EIS for the proposed project has been prepared pursuant to SEQRA and its implementing regulations. The environmental review provides a means for decision-makers to systematically consider environmental effects, both beneficial and adverse, along with other aspects of project planning and design to evaluate reasonable alternatives, and to identify and, when practicable, mitigate significant adverse environmental effects. The environmental review process is outlined below.

- Establishment of a Lead Agency. Under SEQRA, the "Lead Agency" is the public entity responsible for conducting an environmental review. Usually, the lead agency is also the entity primarily responsible for carrying out, funding, or approving the proposed project. The lead agency for the proposed project is LIPA. The Planning Board of the Town of Southampton contested this designation to the NYSDEC, which determined that LIPA is the appropriate entity to serve as Lead Agency.
- Determination of Significance. The Lead Agency's first charge was to determine whether the proposed project might have a significant impact on the environment. Appendix A contains a copy of the Determination of Significance. LIPA determined that the project might have a significant effect on the environment—requiring that an EIS be prepared—and issued a Positive Declaration on July 10, 2007.
- Scoping. Once LIPA issued a Positive Declaration, a "Scope of Work" was prepared for the EIS. "Scoping," or creating the "Scope of Work," is the process of focusing the environmental impact analyses on the key issues to be studied. A public scoping meeting was held as part of the process on September 18, 2007 with public comments accepted until October 2, 2007. The scope was refined subsequent to the meeting to reflect comments made, and to define methodological approaches to the technical analyses in more detail. The final Scope of Work was accepted by LIPA on October 25, 2007.
- DEIS. In accordance with the final Scope of Work, this EIS was prepared. LIPA, the Lead Agency, will review the DEIS for adequacy and completeness in relation to the adopted scope for the purpose of public review and issue a Notice of Completion. LIPA will then issue the DEIS for public review.
- Public Review. Publication of this DEIS and issuance of a Notice of Completion will signal the start of the formal public review period. Other agencies, elected officials, and the public may review and comment on the DEIS either in writing or at the public hearing. LIPA, the Lead Agency, will accept written comments for at least 30 days from the date of issuance of a Notice of Completion. All substantive comments received will become part of the SEQRA record and will be included in the Final EIS (FEIS).
- FEIS. After the close of the public comment period for the DEIS, a FEIS will be prepared. This document will include a summary restatement of each substantive comment made about the DEIS. A response to those comments and revisions, including further studies if necessary, will be set forth. On determining that the FEIS is complete, LIPA will issue a Notice of Completion and circulate the FEIS.
- Findings. To demonstrate that the responsible public decision-maker has taken a hard look at the environmental consequences of the proposed project, state and local agencies responsible for a discretionary action regarding a project must adopt a formal set of written findings,

reflecting their conclusions about the significant adverse environmental impacts of the proposed project, potential alternatives, and potential abatement measures. The Findings may not be adopted until 10 days after the Notice of Completion has been issued for the FEIS. Once Findings are adopted, the lead and involved agencies may take their actions (or take "no action").

Only after the FEIS has been considered and accepted by the LIPA, will the LIPA Board of Trustees reach a final determination regarding the Southampton to Bridgehampton Transmission Line and Expansion of the Bridgehampton Substation Project.

## K. ORGANIZATION OF THE EIS

Based on comments received during the scoping process, this EIS analyzes those environmental issues that were found to have the potential for significant adverse and beneficial environmental impacts, and also relevant issues that were of particular concern within the community. This EIS considers a full range of physical, environmental, and socioeconomic concerns pursuant to 6 NYCRR Part 617.

For each area of concern, the EIS analyzes conditions and identifies impacts that would occur in the future (i.e., in the year 2008/2009) when the project would be operational, were it to be approved and implemented. The transmission segment of the proposed project would be constructed in 2008 and the substation expansion would be completed in 2009. Thus, due to the short time frame between existing conditions (i.e., the year 2007) and the build year (2008/2009), future conditions without the proposed project were assumed to be the same as existing conditions, and are not described separately. It can be expected that there would be no material difference between the existing condition and the future without the proposed project. To identify potential impacts, existing conditions are compared to conditions in the future with the project. Abatement measures have been included in the project design to eliminate any potential significant adverse environmental impacts. Specifically, chapters 2 through 16 address potential impacts of the Direct Route Alternative with regard to: land use and community character; community facilities and open space; zoning and public policy; coastal zone management; visual resources; archaeological resources; historic resources; natural resources (including terrestrial and aquatic communities); hazardous materials; infrastructure; groundwater and surface water resources; traffic, air quality, and noise; electromagnetic fields; construction (including traffic, air quality, noise, and erosion); and environmental justice. Chapter 17 analyzes the other potential alternatives, including the No Action and Management Alternatives. Chapter 18 describes the various abatement measures incorporated into the proposed project design that eliminates potential significant adverse environmental impacts. Chapters 19 through 23 discuss other potential impacts/concerns (including cumulative impacts, unavoidable impacts, irreversible and irretrievable commitment of resources, growth-inducing aspects, and conservation of energy). ✴