

APPENDIX B

TABLES

Table 1
Route Length for Alternatives (miles)

Segment	Preferred Alternative	Parkway Alternative	69 kV Alternative
1 to 2	5.13*	6.1*	6.1*
2 to 3	3.35*	1.0*	8.0*
3 to 4	3.69**	3.9*	
4 to 5	1.79	2.1	
Total	13.96	13.1	14.1

Notes:

1. Preferred Alternative: Route length calculated from electronic coverage of the Plan Drawings (Lynch, Giuliano & Associates dated: 04-23-04).
2. Preferred Alternative Segments 3 to 4 and 4 to 5: Route length is referenced from Supplemental Direct Testimony of Frank Sobonya, Team Lead Engineer, Atlantic City Electric Company Docket No. EE02080521

* Denotes full or partial segments within the NJ Pinelands Commission Jurisdictional boundaries.

** Denotes full or partial segments with Federal Land or NJ Pinelands Commission Jurisdictional boundaries.

Table 2

New Right-of-Way Required

Segment	Preferred Alternative			Parkway Alternative			69 kV Alternative		
	Width (ft)	Length of New ROW Required (miles)	New ROW (Acres)	Width (ft)	Length of New ROW Required (miles)	New ROW (Acres)	Width (ft)	Length of New ROW Required (miles)	New ROW (Acres)
1 to 2	60	0	0*	60	0	0*	60	0	0*
2 to 3	25 to 100	3.35	24.7*	50	1.0	3.03	50 and 60	0	0*
3 to 4	60	3.69	26.85**	60	3.9	28.2*			
4 to 5	60	1.79	13.0	50 and 60	0.3	2.1			
Total	--	8.83	64.55 ₁	--	5.2	36.05	--	0	0

Notes:

1. Right of Way acreage is approximate. Acreage calculated from the Photo Overlay Drawings (Lynch, Giuliano & Associates dated 03-29-04).

Total Right of Way required excludes road crossings and existing easements.

* Denotes full or partial segment within NJ Pinelands Commission Jurisdictional boundaries.

** Denotes full or partial segment within Federal Land or NJ Pinelands Commission Jurisdictional boundaries.

Table 3
Number of Stream Crossings for Alternatives

Segment	Preferred Alternative	Parkway Alternative	69 kV Alternative
	Streams Crossed		
1 to 2	1	1	1
2 to 3	1	2	3
3 to 4	3	3	
4 to 5			
Total Streams Crossed	5	6	4

Notes:

ENSR Delineated streams shown on the electronic coverage of the Plan Drawings (Lynch, Giuliano & Associates dated 04-08-04).

Parkway Alternative: Segment runs from nodes 2 to 3' and 3' to 4.

69 kV Alternative: Segment runs from nodes 2 to 5

Table 4
Wetlands Crossing the Centerline for Alternative Routes (miles)

Segment	Preferred Alternative	Parkway Alternative	69 kV Alternative
1 to 2	0.9*	0.8*	0.8*
2 to 3	0.01*	0*	0.3 *
3 to 4	0.5**	0.2 *	
4 to 5	0.1	0.1	
Total Wetlands Crossed (mi.)	1.5	1.1	1.1

Notes:

Wetland length measured along centerline of aerial transmission line within right-of-way.

Preferred Alternative segments 1 to 2, 4 to 5 and portions of 3 to 4, wetland boundary referenced from ENSR's delineation as shown on Plan Drawings (Lynch, Giuliano & Associates dated 04-08-04).

Parkway Alternative segment 2 to 3 and portions of segment 3 to 4, wetland boundary referenced from New Jersey State Wetlands Maps available at: <http://www.state.nj.us/dep/gis/>.

Parkway Alternative: Segment runs from nodes 2 to 3' and 3' to 4.

69 kV Alternative: Segment runs from nodes 2 to 5

* Denotes full or partial segment within the NJ State Pinelands Commission Jurisdiction boundaries.

** Denotes full or partial segment within Federal Lands or NJ State Pinelands Commission Jurisdiction boundaries.

TABLE 5

Permanent Wetland Impacts: Poles in Wetlands and Wetland Forest Clearing for Four Alternatives

Segment	Preferred Alternative				Parkway Alternative				69 kV Alternative				
	No. of Poles in Wetlands	Pole Impact within Wetland Area (Acres)	Wetland Forest Clearing (Acres)	Permanent Wetland Impact Within Pinelands Jurisdiction	No. of Poles in Wetlands	Pole Impact within Wetland Area (Acres)	Wetland Forest Clearing (Acres)	Permanent Wetland Impact Within Pinelands Jurisdiction	No. of Poles in Wetlands ²	No. of Existing Poles in Wetlands	Pole Impact within Wetland Area (Acres)	Wetland Forest Clearing (Acres)	Permanent Wetland Impact within Pinelands Jurisdiction (Acres)
1 to 2	21	0.002 (85.67 sq. ft.)	0	0.0005 (23.58 sq. ft.)	11	0.003 (116.23 sq. ft.)	0	0.001 (51.83 sq. ft.)	11	28	0.003 (116.23 sq. ft.)	0	0.001 (51.83 sq. ft.)
2 to 3	0	0	0	0	0	0	0	0	0	0	0	0	
3 to 4	12	0.002 (84.84 sq. ft.)	3.321	0.0006 (28.28 sq. ft.)	0	0	0	0					
4 to 5	4	0.001 (28.28 sq. ft.)	0.905	0	2	0	1.0 (43,900 sq. ft.)	1.0 (43,900 sq. ft.)					
Total	37	0.005 (198.79 sq. ft.)	4.226	0.001 (51.86 sq. ft.)	13	0.003 (116.23 sq. ft.)	1.0 (43,900 sq. ft.)	1.001 (43,951.83 sq. ft.)	11	28	0.003 (116.23 sq. ft.)	0	0.001 (51.83 sq. ft.)

Notes:

1. Segment runs from node to node
 2. New poles located within wetlands areas
 3. Area of impact dependent on pole support structure
- Segment runs from node 2 – 5 along 69 kV Alternative

Table 6
Vegetative Clearing (acres)

Segment	Preferred Alternative	Parkway Alternative	69 kV Alternative
1 to 2 ^a	0*	0*	0*
2 to 3 ₁ ^a	15.5*	1.21*	0*
3 to 4 ₁	13.4*	28.2*	
ROW Exchange Parcel	13.3	0	
4 to 5	0.4	0.86	
Total Clearing	42.6₂	30.27	0

Notes:

1. 60' ROW clearing necessary for portions of segment 2-3 and segment 3-4.
2. Clearing acreage is approximate. Acreage calculated from the Photo Overlay Drawings (Lynch, Giuliano & Associates dated 03-29-04).

Total vegetative clearing excludes road crossings and existing easements.

*Denotes full or partial segments within NJ Pinelands Commission Jurisdictional boundaries.

a = Only routine maintenance vegetative clearing will be required in segment 1-2 and a portion of segment 2-3.

Table 7a

Listing of Threatened and Endangered Wildlife

Scientific Name	Common Name	County Location	Federal Status	State Status
<i>Accipiter cooperii</i>	Cooper's Hawk	Atlantic/Burlington/Ocean		T/T
<i>Ambystoma tigrinum t.</i>	Eastern Tiger Salamander	Atlantic/Burlington/Ocean		E
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	Atlantic/Burlington/Ocean		T/S
<i>Bartramia longicauda</i>	Upland Sandpiper	Atlantic/Burlington/Ocean		E
<i>Buteo Lineatus</i>	Red-Shouldered Hawk	Atlantic/Burlington/Ocean		E/T
<i>Calidris canutus</i>	Red Knot	Atlantic/Ocean		T
<i>Charadrius melodus</i>	Piping Plover	Atlantic/Ocean	LT	E
<i>Circus cyaneus</i>	Northern Harrier	Atlantic/Burlington/Ocean		E/U
<i>Cistothorus platensis</i>	Sedge Wren	Atlantic/Burlington/Ocean		E
<i>Clemmys insculpta</i>	Wood Turtle	Atlantic/Burlington/Ocean		T
<i>Clemmys muhlenbergii</i>	Bog Turtle	Atlantic/Burlington/Ocean	LT	E
<i>Crotalus horridus h.</i>	Timber Rattlesnake	Atlantic/Burlington/Ocean		E
<i>Elaphe guttata g.</i>	Corn Snake	Atlantic/Burlington/Ocean		E
<i>Falco peregrinus</i>	Peregrine Falcon	Atlantic/Burlington/Ocean		E
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Atlantic/Burlington/Ocean	LT	E
<i>Hyla andersonii</i>	Pine Barrens Treefrog	Atlantic/Burlington/Ocean		E
<i>Hyla chrysoscelis</i>	Cope's Gray Treefrog	Atlantic/Ocean		E
<i>Laterallus jamaicensis</i>	Black Rail	Atlantic/Ocean		T/T
<i>Melanerpes erythrocephalus</i>	Red-Headed Woodpecker	Atlantic/Burlington/Ocean		T/T
<i>Nyctanassa violacea</i>	Yellow-Crowned Night-Heron	Atlantic/Ocean		T/T
<i>Nycticorax nycticorax</i>	Black-Crowned Night-Heron	Atlantic/Ocean		T/S
<i>Pandion haliaetus</i>	Osprey	Atlantic/Burlington/Ocean		T/T
<i>Pituophis melanoleucus m.</i>	Northern Pine Snake	Atlantic/Burlington/Ocean		T
<i>Podilymbus podiceps</i>	Pied-Billed Grebe	Atlantic/Burlington/Ocean		E/S
<i>Pooecetes gramineus</i>	Vesper Sparrow	Atlantic/Burlington/Ocean		E
<i>Pseudotriton montanus m.</i>	Eastern Mud Salamander	Atlantic/Burlington		T
<i>Rynchops niger</i>	Black Skimmer	Atlantic/Ocean		E
<i>Sterna antillarum</i>	Least Tern	Atlantic/Burlington/Ocean		E
<i>Strix varia</i>	Barred Owl	Atlantic/Burlington/Ocean		T/T
<i>Callophrys irus</i>	Frosted Elfin	Atlantic/Ocean		T
<i>Alasmidonta undulata</i>	Triangle Floater	Burlington		T
<i>Atrytone arogos a.</i>	Arogos Skipper	Burlington/Ocean		E
<i>Boloria selene myrina</i>	Silver-Bordered Fritillary	Burlington/Ocean		T
<i>Lampsilis cariosa</i>	Yellow Lampmussel	Burlington		T
<i>Lampsilis radiata</i>	Eastern Lampmussel	Burlington		T
<i>Leptodea ochracea</i>	Tidewater Mucket	Burlington		T
<i>Ligumia nasuta</i>	Eastern Pondmussel	Burlington		T
<i>Nicrophorus americanus</i>	American Burying Beetle	Burlington/Ocean	LE	E
<i>Pontia protodice</i>	Checkered White	Burlington/Ocean		T
<i>Acipenser brevirostrum</i>	Shortnose Sturgeon	Burlington	LE	E
<i>Botaurus lentiginosus</i>	American Bittern	Burlington/Ocean		E/S
<i>Dolichonyx oryzivorus</i>	Bobolink	Burlington		T/T
<i>Passerculus sandwichensis</i>	Savanna Sparrow	Burlington		T/T
<i>Sterna dougallii d.</i>	Roseate Tern	Ocean	LE	E
<i>Cicindela dorsalis d.</i>	Northeastern Beach Tiger Beetle	Ocean	LT	E

Table 7b
Listing of Threatened, Endangered, and Pinelands Commission Plants

Scientific Name	Common Name	County Location	Federal Status	State Status	Habitat	Flowering Period	Fruiting Period	Source
<i>Aeschynomene virginica</i>	Sensitive-joint vetch	A	LE	E	Fresh to brackish shores	August to October	August to October	NHP/PC
<i>Aeschynomene rubra</i>	Red Milkweed	Pinelands area						PC
<i>Amaranthus pumilus</i>	Seabeach amaranth	A/O	LT	E	Overwash flats accreting ends of islands, and lower foredunes	July to late Fall	July to it death but reaches peak in September	NHP
<i>Aristida lanosa</i>	Woolly three-awn grass	B		E				NHP
<i>Asimina triloba</i>	Pawpaw	B		E	Deciduous forests, on slopes of ravines, along streams, and floodplains. Soils are deep, rich, damp, sandy, or clayey	April to May	August to October	NHP
<i>Aster concolor</i>	Silvery aster	Pinelands area						PC
<i>Aster radula</i>	Low rough aster	O		E	Wet woods or swamps	July to September		NHP
<i>Breweria pickeringii</i>	Pickering's morning glory	Pinelands area						PC
<i>Cacalia atriplicifolia</i>	Pale indian plantain	B/O		E	Wooded slopes, rocky stream margins, open woods	June to October		NHP
<i>Calamagrostis pickeringii</i>	Pickering's reed grass	B		E	Acid peats or sands, gravels, and shores	Late June to early September		NHP
<i>Calamovilfa brevipilis</i>	Pine Barren's reedgrass	Pinelands area						PC
<i>Calystegia sepium ssp.</i>	Occluded bindweed	B		E	Thickets and shores, coastal	Mid-May to September		NHP
<i>Cardamine longii</i>	Long's bittercress	B/O		E	Woods in moist alluvial soil	June to September		NHP
<i>Carex cumulata</i>	Clustered sedge	A		E	Dry or moist acid soils	June to September		NHP
<i>Carex Barrattii</i>	Barratt's sedge	Pinelands area						PC
<i>Chrysopsis falcata</i>	Sickle-leaved golden aster	Pinelands area						PC
<i>Chenopodium rubrum</i>	Red goosefoot	A		E	Salt marshes or saline soils	August to October	June to August	NHP
<i>Cirsium virginianum</i>	Virginia thistle	A/B/O		E	Wet pineland, sphagnum or peaty bogs, swales and clearings on coastal plain.	Mid-August to October		NHP
<i>Cleistes</i>	Spreading	B		E	Damp pine barrens and	Late June to July		PC

Scientific Name	Common Name	County Location	Federal Status	State Status	Habitat	Flowering Period	Fruiting Period	Source
<i>divaricata</i>	pogonia				peaty thickets			
<i>Clitoria mariana</i>	Butterfly-pea	A/O		E	Upland rocky woods with acid soils, sandstone glades, ravines, ridges and stream openings	May to September		NHP
<i>Coelorachis rugosa</i>	Wrinkled jointgrass	A		E	Flatwoods, cypress swamp edges, pond maragins, marshes	August to September	Fall	NHP
<i>Corema conradii</i>	Broom crowberry	A/B/O		E	Sandy pine barrens and sandhills	Mid-March to mid-April	Late June to late July	PC
<i>Coreopsis rosea</i>	Rose-colored tickseed	Pinelands area						PC
<i>Crotonopsis elliptica</i>	Rushfoil	Pinelands area						PC
<i>Cuscuta cephalanthus</i>	Button-bush dodder	B		E	Low grounds, on varius shrubs and coarse herbs	August and September		NHP
<i>Cyperus lancastris</i>	Lancaster flat sedge	B		E	Sandy or loamy woods, thickets, meadows , clearings	August to October		NHP
<i>Cyperus polystachyos</i>	Coast flat sedge	A		E	Damp sands, peats, shores and clearings.	Late July to October		NHP
<i>Cyperus retrofractus</i>	Rough flat sedge	A		E	Dry sandy soil	August to October		NHP
<i>Cyperus tenuifolius</i>	Low-spike sedge	B		E	Damp soil	July to October		NHP
<i>Desmodium Pauciflorum</i>	Few-flower tick-trefoil	B/O		E	Rich, moist woods, ravines, bases of bluffs	June to September		NHP
<i>Desmodium sessilifolium</i>	Sessile-leaf tick-trefoil	A/B		E	Dry, open, sandy or sterile ground of woods and shaded areas	July to August	September	NHP
<i>Desmodium strictum</i>	Stiff tick trefoil	Pinelands area						PC
<i>Draba reptans</i>	Carolina whitlow-grass	B		E	Rocky open ground, glades, pastures, roadsides, railroads.	February to May		NHP
<i>Eleocharis equisetoides</i>	Knotted spike-rush	A		E	Shallow water	Early August to September	Early August to Septemebr	PC
<i>eleocharis melanocarpa</i>	Black-fruit Spike-rush	B		E	Sandy or peaty shores and pine barrens	Late June to October		NHP
<i>Eleocharis tortilis</i>	Tristed spike-rush	B/O		E	Springy swamps, wet woods and thickets of the coastal plain	June to September		NHP
<i>Eriophorum tenellum</i>	Rough cotton-grass	A/B/O		E	Peaty soil	Late June to September		NHP
<i>Eupatorium capillifolium</i>	Dog-fennel thoroughwort	B		E	Borders of woods, clearings, fields, and roadsides	Mid-Sept to November		NHP
<i>Eupatorium resinosum</i>	Pine barron boneset	A/B/O		E	Wet, low ground of open bogs, swamps, streamsides	Early July to October		NHP/PC
<i>Fraxinus profunda</i>	Pumkin ash	O		E	fresh water swamps, often along blackwater rivers in the Coastal Plain			NHP
<i>Galactia volubilis</i>	Downy milk-pea	O		E	Dry thickets and borders of woods	July, August		NHP

Scientific Name	Common Name	County Location	Federal Status	State Status	Habitat	Flowering Period	Fruiting Period	Source
<i>Melanthium virginicum</i>	Virginia bunchflower	B/O		E	Meadow, swales, savannahs, and thickets	Mid-June, July		NHP
<i>Micranthemum micranthemoides</i>	Nuttall's mudwort	B		E	Fresh tidal mud	August to October		NHP
<i>Muhlenbergia capillaris</i>	Long-awn smoke grass	A		E	Sandy or rocky woods and clearins	September, October		PC
<i>Muhlenbergia torreyana</i>	Torrey's muhly	Pinelands area				September, October		NHP
<i>Myriophyllum tenellum</i>	Slender water-milfoil	A/O		E	Shallow margins of ponds and pools in sand, granitic gravel, mud, and peat	July to October		NHP
<i>Myriophyllum verticillatum</i>	Whorled water-milfoil	O		E	Shallow waters,	June to September		NHP
<i>Nartheccium americanum</i>	Bog (yellow) asphodel	A/B/O	C	E	Boggy Pinebarrens and savannahs	Late June to late July	July to September	PC
<i>Nelumbo lutea</i>	American lotus	B		E	Ponds, quiet streams, and estuaries	July to September		NHP
<i>Nuphar microphyllum</i>	Small yellow pond-lily	B		E	Pond margins and dead waters	June to October		NHP
<i>Nymphoides cordata</i>	Floating Heart	Pinelands area						PC
<i>Oenothera humifusa</i>	Sea-beach evening-primrose	A/O		E	Sandy beaches and dune- hollows	June to September		NHP
<i>Onosmodium virginianum</i>	Virginia false-gromwell	A/B/O		E	Pinelands, dry sandy woods, and open sands	May to July		NHP
<i>Panicum aciculare</i>	Bristling panic grass	B		E	Dry sands	June to October		NHP
<i>Panicum hemitomon</i>	Narrow Panic Grass	Pinelands area						PC
<i>Panicum hirstii</i>	Hirst's panic grass	A	C	E	Wet shores	Late June to August	Late June to August	PC
<i>Penstemon laevigatus</i>	Smooth beardtongue	B		E	Meadows, bottoms, rich woods, calcareous bluffs	May , June		NHP
<i>Phlox pilosa</i>	Downy phlox	B		E	Dry open woods, sandhills, openings, prairies	May to Early July		NHP
<i>Phoradendron flavescens</i>	American mistletoe	Pinelands area						PC
<i>Plantago pusilla</i>	Dwarf plantain	O		E	Sandy fields and openings	April to June		NHP
<i>Platanthera integra</i>	Yellow fringeless orchid	A/B		E				NHP
<i>Polemonium reptans</i>	Greek-valerian	B		E	Rich woods and bottoms,	Mid-April to June		NHP
<i>Polygala mariana</i>	Maryland milkwort	Pinelands area						PC
<i>Polygonum glaucum</i>	Sea-beach knotweed	A/O		E	Sandy seabeaches, saline pond-shores and dune-hollows	July to November		NHP
<i>Preanthes autumnalis</i>	Slender rattlesnake	Pinelands area						PC

Scientific Name	Common Name	County Location	Federal Status	State Status	Habitat	Flowering Period	Fruiting Period	Source
<i>Gentiana autumnalis</i>	Pine Barrems Gentian	Pinelands area						PC
<i>Glaux maritima</i>	Sea-milkwort	A/O		E	Saline or brackish shores, marshes and sands	June, July		NHP
<i>Gnaphalium helleri</i>	Small everlasting	A/O		E	Dry clearings, borders of woods and fields	August and November		NHP
<i>Habenaria ciliaris</i>	Yellow-fringed orchid	Pinelands area						PC
<i>Habenaria cristata</i>	Crested Yellow Orchid	Pinelands area						PC
<i>Habenaria integra</i>	Southern yellow orchid	Pinelands area						PC
<i>Helonias bullata</i>	Swamp-pink	A/B/O	LT	E	Swamps and Bogs	Bloom Early May to July	Fruit June to July	NHP
<i>Hieracium kalmii</i>	Canada hawkweed	A		E				NHP
<i>Hottonia inflata</i>	Featherfoil	O		E	Pools and ditches	April to June	Autumn and winter	NHP
<i>Hypericum adpressum</i>	Barton's St. John's-wort	A/B		E	Damps sands, peats, and sand margins	Late July to Early September		NHP
<i>Jeffersonia diphylla</i>	Twinleaf	O		E	Woods	April, May		NHP
<i>Juncus caeseriensis</i>	New Jersey rush	A/B/O		E	Sandy, wet soil of isolated pineland bogs, cedar swamps, springy woods			NHP/PC
<i>Juncus torreyi</i>	Torrey's rush	A/O		E	Low often sandy soils	July to October		NHP
<i>Kuhnia eupatorioides</i>	False boneset	A/B		E	Open woods, thickets, clearings rocky slopes	Late July to October		NHP
<i>Lemna perpusilla</i>	Minute duckweed	A		E				NHP
<i>Limosella subulata</i>	Awl-leaf mudwort	B/O		E	Brackish sand or mud	Late June to October		NHP
<i>Linum intercursum</i>	Sandplain flax	A/B/O		E	Agrillaceous, siliceous or peaty shores	July, August		NHP
<i>Liparis loeselii</i>	Lily-leaved twayblade	Pinelands area						PC
<i>Liparis</i>	Loesel's twayblade	Pinelands area						PC
<i>Liparis</i>	Southern twayblade	Pinelands area						PC
<i>Lobelia boykinii</i>	Boykin's lobelia	A		E	Wet Pinelands	May to late July	Early August to Septemebr	PC
<i>Lobelia canbyi</i>	Canby's lobelia	Pinelands area						PC
<i>Ludwigia hirtella</i>	Hairy ludwigia	Pinelands area						PC
<i>Ludwigia linearis</i>	Linear-leaved ludwigia	Pinelands area						PC
<i>Luzula acuminata</i>	Hairy wood-rush	O		E	Woods , clearings, and bluffs	April, May		NHP
<i>Lygodium palmatum</i>	Climbing fern	Pinelands area						PC

Scientific Name	Common Name	County Location	Federal Status	State Status	Habitat	Flowering Period	Fruiting Period	Source
	root							
<i>Prunus angustifolia</i>	Chicksaw plum	A/O		E	Dry thickets and borders of woods	Late March, April	June , July	NHP
<i>Ptelea trifoliata</i>	Wafer-ash	B		E	Alluvial thickets, rocky slopes, and gravels	Late May to early July		NHP
<i>Ranunculus cymbalaria</i>	Seaside buttercup	A/O		E	Saline or brackish shores rarely in fresh habitats	May to October		NHP
<i>Rhexia aristosa</i>	Awned meadow-beauty	A		E	Wet pine barrens	July to Early September		NHP/PC
<i>Rhododendron Aum</i>	Dwarf Azalea	O		E	Pine barrens and sandy open woods	April to early June		NHP
<i>Rhynchospora cephalantha</i>	Capitate beakrush	Pinelands area						PC
<i>Rhynchospora globularis</i>	Coarse grass-like beaked-rush	O		E	Low grounds, on various shrubs and coarse herbs		July to early September	NHP
<i>Rhynchospora inundata</i>	Slender beaked rush	Pinelands area						PC
<i>Rhynchospora knieskernii</i>	Knieskern's beaked rush	A/B/O	LT	E	Wet soil of pineland bogs over iron deposits	Late July to September	Late July to September	NHP
<i>Rhynchospora microcephala</i>	Small-head beaked rush	A/B/O		E				NHP
<i>Sagittaria australis</i>	Southern arrowhead	B		E				NHP
<i>Sagittaria teres</i>	Slender arrowhead	A		E	Submersed in shallow water, or on sandy, wet shores, of ponds and swamps			NHP
<i>Schizaea pusilla</i>	Curly grass fern	Pinelands area						PC
<i>Schoenoplectus torreyi</i>	Torrey's bulrush	B		E				NHP
<i>Schwalbea americana</i>	Chaffseed	A/B/O	LE	E	Moist to Dry, sandy ground of pine-oak woods and shaded edges, marshes	Early May to June	August	NHP/PC
<i>Scirpus longii</i>	Long's woolgrass	A/B/O		E	Fresh water of swamps, marshes, and meadows	Late May to August, but plants usually only vegetative	Late May to August	NHP/PC
<i>Scirpus maritimus</i>	Saltmarsh bulrush	O		E	Saline to brackish marshes and brackish to fresh tidal shores		Mid-July to October	NHP
<i>Scleria minor</i>	Slender nut rush	Pinelands area						PC
<i>Scleria reticularis</i>	Reticulated nut rush	Pinelands area						PC
<i>Sclerolepis uniflora</i>	Sclerolepis	Pinelands area						PC
<i>Solidago stricta</i>	Wand-like goldenrod	Pinelands area						PC
<i>Spiranthes laciniata</i>	Lace-lip ladies' tresses	A/B/O		E	Bogs, marshes, shallow ponds	July to September		NHP
<i>Spiranthes</i>	Little ladies	Pinelands						PC

Scientific Name	Common Name	County Location	Federal Status	State Status	Habitat	Flowering Period	Fruiting Period	Source
<i>tuberosa</i>	tresses	area						
<i>Stylisma pickeringii</i> var	Pickering's morning-glory	A/B/O		E				NHP
<i>Tofieldia racemosa</i>	False asphodel	B		E	Wet, sand, clay ot Peat	Late June to late July	August	Pinelands
<i>Tridens flavus</i> var <i>chapmanii</i>	Chapman's redbtop	O		E	Dry fields, roadsides, openings and borders of woods	August to October		NHP
<i>Triglochin maritima</i>	Seaside arrow-grass	O		E	Saline, brackish or fresh marshes and shores	May to August		NHP
<i>Utricularia biflora</i>	Two-flower bladderwort	B/O		E	Shallow pools	July to October		NHP
<i>Utricularia minor</i>	Lessor bladderwort	O		E	Shallow pools, wet meadows, bogs and shores	May to August		NHP
<i>Utricularia olivacea</i>	Dwarf white bladderwort	A		E				NHP
<i>Utricularia resupinata</i>	Reversed bladderwort	A		E	Pond, lake, river shores and margins, Pools in Pine barrens	July to September		NHP
<i>Uvularia puberula</i> var <i>nitida</i>	Pine barron bellwort	B/O		E	Moist soil of swamp edges in pinelands	Early May to June		NHP
<i>Valerianella radiata</i>	Beaked cornsalad	B		E	Damp to dry woods, meadows, fields, and roadsides	April, May		NHP
<i>Verbena simplex</i>	Narrow-leaf vervain	A/B/O		E	Dry, Open, sandy or rocky, no-acid ground of thin woods, fields, roadsides	Early June to late July, some September		NHP
<i>Vulpia ellioatea</i>	Squirrel-tail six weeks grass	A		E	Sandy ground	May, June		NHP
<i>Xyris caroliniana</i>	Sand yellow-eyed-grass	A/B		E	Wet peaty or sany soil,	July to September		NHP
<i>Xyris caroliniana</i>	Fringed yellow-eyed-grass	A/B/O		E	Pinelands, swamps, and pond margins, bogs	Mid July to September	Mid August to late September	NHP
<i>Zigadenus leimanthoides</i>	Death-camus	O		E	Sandy pinelands and bogs of the costal plain	June to August		

Notes:

B = Burlington County

A = Atlantic County

O = Ocean County

Table 8
Land Use for Alternatives

Segment	Preferred Alternative	Parkway Alternative	69 kV Alternative
1 to 2	Undeveloped/Forest Residential Utility & associated structures (Oyster Creek Power Plant, Sands Point Substation)*	Undeveloped/Forest Residential Utility & associated structures (Oyster Creek Power Plant, Sands Point Substation)*	Undeveloped/Forest Residential Utility & associated structures (Oyster Creek Power Plant, Sands Point Substation)*
2 to 3	Undeveloped/Forest, Residential Highway*	Highway Undeveloped/Forest*	Residential Undeveloped/Forest 2 Quarries Utility & associated structures (Cedar Substation)*
3 to 4	Undeveloped/Forest, Federal Land (National Wildlife Refuge) Highway	Highway Undeveloped/Forest*	
4 to 5	Business/Commercial, Undeveloped/Forest Highway, Utility & associated structures (Cedar Substation)	Business/Commercial Quarry Utility & associated structures (Cedar Substation)	

Notes:

Land use was determined through review of aerial photographs and field verification. Primary land use for each segment is listed first.

Parkway Alternative: Segment runs from nodes 2 to 3' and 3' to 4

69 kV Alternative: Segment runs from nodes 2 to 5

**Table 9
Aesthetics for Alternatives**

Segment	Preferred Alternative			Parkway Alternative			69 kV Alternative				
	No. of poles	Height above grade (ft)	Impact Description	No. of poles	Height above grade (ft)	Impact Description	No. of Proposed Poles	Height above grade (ft) Proposed Poles	No. of Existing Poles	Height above grade (ft) Existing Poles	Impact Description
1-2	138*	55 to 65	Poles originate from the existing Oyster Creek Substation, partially screened by trees along ROW through undeveloped areas. Poles visible to GSP traffic at aerial road crossing. Poles partially screened by trees as ROW skirts residential areas near node 2. The existing line will be strung on 55 foot poles.	80*	77 to 82	Poles originate from the existing Oyster Creek Substation, partially screened by trees along ROW through undeveloped areas. Poles visible to GSP traffic at aerial road crossing. Poles partially screened by trees as ROW skirts residential areas near node 2. The existing line will be strung on new taller poles, but the total number of poles on this segment will be reduced by 78 (49%).	80*	77 to 82	158*	52 – 74.5	Poles originate from the existing Oyster Creek Substation, partially screened by trees along ROW through undeveloped areas. Poles visible to GSP traffic at aerial road crossing. Poles partially screened by trees as ROW skirts residential areas near node 2. The existing line will be strung on new taller poles, but the total number of poles on this segment will be reduced by 78 (49%).
2-3	92*	55 to 80	Weathered steel will be located directly adjacent to the roadway. Poles will be visible from roadway traffic but will replace existing distribution line poles on a one to one basis.	26*	77 to 82	Weathered steel or possibly laminated wood poles will be located directly adjacent to the roadway (Straight Rd.). Poles will be visible from roadway traffic but will replace (and reduce the number of) existing distribution line poles thereby mitigating potential visual impacts.	214*	77 to 100	217*	52 – 74.5	Weathered steel or possibly laminated wood poles are partially screened by trees in existing ROW located in undeveloped areas. Poles are visible to traffic along roadways in residential areas and at aerial crossings of roads and the Garden State Parkway. Poles lead into the Cedar Substation via an existing ROW in an industrial area. Pole replacement will be on a one to one basis for existing poles, however the new poles will be double circuit weathered steel or possibly laminates wood and 10 to 15 feet taller than the existing wooden poles.
3-4	97**	55 to 80	Weathered steel will be partially screened by trees along the GSP ROW. An aerial crossing of the line over the GSP will cross highway traffic at right angles and only be briefly visible by highway traffic.	45*	86 to 100	Weathered steel or possibly laminated wood poles will be visible to traffic along the GSP ROW, as few trees will provide screening. A diagonal aerial crossing of the line over the GSP will be briefly visible by highway traffic					
4-5	43	55 to 80	Weathered steel poles will be partially screened from highway travelers by trees on the GSP ROW. In addition existing development along Route 72 will help minimize visual impacts of the poles. The poles lead into the Cedar Substation via an existing ROW in an industrial area.	57	86	Weathered steel or possibly laminated wood poles will be located directly adjacent to the roadway, visible from roadway traffic in this already commercial area. Weathered steel or possibly laminated wood poles lead into the Cedar Substation via an existing ROW in an industrial area. The existing line will be strung on new taller poles, but the total number of poles on this segment will be reduced by 3 (17%).					

Notes:

* Denotes full or partial segments within NJ Pinelands Commission Jurisdictional boundaries.

** Denotes full or partial segments within Federal Land and NJ Pinelands Commission Jurisdictional boundaries.

Table 10
Pole Details for Alternatives

Segment	Preferred Alternative			Parkway Alternative			69 kV Alternative ₂		
	No. of poles	Height above grade (ft)	Pole Type	No. of poles	Height above grade (ft)	Pole Type	No. of poles	Height above grade (ft)	Pole Type
1 to 2	138	55 to 65	B ²	80*	77 to 82	B ²	80*	75 to 85	B ²
2 to 3	92	55 to 80	H ¹	26*	77 to 82	H ¹	214	75 to 85	H ¹ Portions Not Determined
3 to 4	97**	55 to 80	B ¹	45	86 to 100	B ¹			
4 to 5	43	55 to 80	H ¹	57	86	H ¹			
Total	370	--	--	208	--	--	294	--	--

Notes:

* Denotes full or partial segments within NJ Pinelands Commission Jurisdictional boundaries

** Denotes full or partial segments within Federal Land

H¹ – Steel Pole, Horizontal Post Construction (Double Circuit 69kV/230kV)

B¹ – Steel Pole, Braced Post Construction (Tangent, Double Circuit – 69 kV/230 kV)

B² – Steel Pole, Braced Post Construction (Tangent, Single Circuit – 230 kV)

D¹ – Steel Pole, Delta Post Construction (Tangent, Single Circuit – 230 kV)

Each segment may possibly have laminated wood poles

Table 11: Roads Crossed

Preferred Alternative

Segment	Road Name	Usage	Comments
1 to 2	Garden State Parkway	Limited access toll road	High speed 4-lane divided highway
	Wells Mills (County Road 532)	Local Access	--
	Morey Road	Residential area access	--
	Drift Road	Local off road travel	Undedicated
	Drift Road	Local off road travel	Undedicated
	Drift Road	Local off road travel	Undedicated
	Drift Road	Local off road travel	Undedicated
	Pan Coast Road	Residential area access	Unpaved
2 to 3	Wells Mill Road	Local off road travel	Unpaved
	Pan Coast Road	Local Connector	Unpaved/Shared ROW
	Pine-Oak Boulevard	Residential area access	--
	Pine Oak Boulevard	Residential area access	--
	West Bay Ave. (aka Straight Road)	Regional distribution highway	Shared ROW
	Cloverdale Road	Local off road travel	Unpaved
	Catherine Street	Local access	Unpaved
	Cloverdale Road	Local off road travel	Unpaved
	Nautilus Lane	Local access	--
	Harpoon Drive	Local Connector	Shared ROW
	Mutineer Avenue	Residential area access	--
	Four-Mile Avenue	Residential area access	--
	Lighthouse Drive	Local Connector	Shared ROW
3 to 4	Garden State Parkway	Limited access toll road	High speed 4-lane divided highway
	Beachview Avenue	Local access	Dead ends at crossing
	Old Manahawkin Cedar Bridge Road	Vacated	--
	Little Worth Mill Road	Vacated	--
	State Highway Route 72	Regional access	--
4 to 5	Washington Avenue	Local access	--
	East Road	Local access	--
	Westerly Master	Local access	--
	Eastern Connector	Local access	--
	State Highway Route 72	Regional Access	--
	State Route 9	Ramp	--
	State Route 9	Regional Access	--
	State Route 9 Ramp	Ramp	--

Notes:

Road Crossings as shown on the electronic coverage of the Plan Drawings (Lynch, Giuliano & Associates dated 04-08-04).