

NEW YORK STATE

March 8, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	
LONG ISLAND LIGHTING COMPANY	)	Docket No. 50-322-OL-3
	)	(Emergency Planning Proceeding)
(Shoreham Nuclear Power Station,	)	
Unit 1)	)	

REBUTTAL TESTIMONY OF DR. DAVID T. HARTGEN

AND FOSTER J. BEACH, III

ON BEHALF OF THE STATE OF NEW YORK PERTAINING TO

EMERGENCY PLANNING CONTENTION 65, EVACUATION TIME ESTIMATES

Q. Please state your names and addresses for the record.

A. My name is David T. Hartgen. I am the Director of the Statistics and Analysis Section for the New York State Department of Transportation, Albany, N.Y.

8403130091 840308  
PDR ADOCK 05000322  
PDR

My name is Foster J. Beach, III. I am the Supervisor of Regional Planning & Development, Region 10 (Nassau-Suffolk) - New York State Department of Transportation.

Q. Please provide your qualifications.

A. Our qualifications and relevant experience were submitted in our direct testimony, which is bound into the transcript following page 3695. Our duties have not changed since that time.

Q. On page 3 of the supplemental testimony of Mathew C. Cordaro, John A. Weismantle, Edward B. Lieberman and Dennis S. Miletì, which is bound into the transcript following page 3857, in response to question 4, Messrs. Cordaro, Weismantle, Lieberman and Miletì state:

"In general, the State's testimony expresses only general, unquantified concerns about the evacuation time estimates. In many cases, the State witnesses' concerns are presented in broad concepts of transportation planning and traffic engineering, including such concepts as 'capacities or levels of service', 'side friction' and 'calibration/validation'. They have further clouded the issues in this proceeding by applying these concepts to the broad field of transportation planning rather than the specific situation in question -- an evacuation of the Shoreham EPZ".

With respect to this statement, have you applied the concepts of "capacities or levels of service", as they relate to directional flow,

to "the specific situation in question -- an evacuation of the Shoreham EPZ?"

- A. Yes, we believe that the level of service D service volumes of roadway sections within the EPZ are in fact considerably lower than those estimated by KLD. Appendix A of this rebuttal testimony, which is attached hereto, shows the level of service D service volumes of sections of State highways within the EPZ. These levels of service D service volumes have been calculated by using the State's photolog films and data on the characteristics of routes maintained by the State. Appendix D of this rebuttal testimony consists of a map which shows these routes (level D values are shown in red pencil). Because Appendix D is quite large and is mounted on a board, we are not attaching it to this rebuttal testimony. We will submit Appendix D to the Board when this rebuttal testimony is introduced into the record. However, Appendix D will be made available to the Board and all parties prior to its introduction into the record. Interested persons should contact counsel for New York State to make viewing arrangements.

As is apparent from Appendix A of this rebuttal testimony, the State's estimates of level of service D volumes are generally lower than KLD's. Accordingly, the capacity of the network may depend not upon intersection capacity, as KLD implies, but rather upon the capacity of the streets themselves. This is especially likely since many of the intersections in the network are characterized by turn bays, which inflate the capacity of the intersection but have no effect on the capacity of the streets between the intersections.

Appendix E of this rebuttal testimony consists of a photolog film of Rt. 25A from Rt. 25 westbound past the Shoreham plant to the town of Port Jefferson, filmed in 1982. It demonstrates the above points.

Because Appendix E is a 20-minute film which requires special viewing equipment, we are not attaching it to this rebuttal testimony. We will submit Appendix E to the Board and show it to the Board and all parties when this rebuttal testimony is introduced into the record. However, Appendix E and the necessary viewing equipment will be made available to the Board and all parties prior to the film's introduction into the record. Interested persons should contact counsel for New York State to make viewing arrangements.

Q. What is the reason for the differences between the State's estimates of capacity and KLD's?

A. We are not sure, since we do not have KLD's calculations. However, our review suggests that the difference is due primarily to a factor of 2/3 which the State has applied to the level of service D service volumes to account for directional flow. This correction is necessary because the Highway Capacity Manual Procedures calculate the 2-way capacity on service volumes for 2-lane rural roads. Unless it can be assumed that all traffic will be moving in one direction, this correction must be made. Traffic will be 2-way because of reverse movement of school buses, emergency vehicles, and mobilization traffic.

As an example, consider Link 11-36 (Rt. 25A Eastbound, from N. Rocky Pt. Landing Rd. to Ridge Rd.), shown on the photolog film (Appendix E of this rebuttal testimony). The 2-way level of service D service volume is 1500 ( $2000 \times .75$ ). The State has made an additional directional correction by applying a factor of .67 to the estimate of level of service D service volume ( $1500 \times .67 = 1000$ ). Additional smaller factors for percent trucks, lane width and lateral clearance reduce the estimate further to 950. It appears that the consultant has estimated the level of service service volume similarly ( $1,500 = 2,000 \times .75$ ) in accordance with the procedures of the Highway Capacity Manual, but has then applied an across-the-board factor of .85 to this estimate to reach his estimate of 1,275. No specific adjustment appears to have been made for directional flow, or for other items in the Highway Capacity Manual.

LILCO's own testimony (T. p. 3859) recognizes that the use of direction adjustments is "a standard procedure used in association with the Highway Capacity Manual." Yet (on T. p. 3860) LILCO asserts that "there should be no such adjustment. It is made quite clear in the text of the HCM that such an adjustment should not be made." These statements are inconsistent with each other. For 2 lane rural roads, the HCM procedure calculates 2-way capacity estimates; that is the total 2-way level of service volume that the road can accommodate. If 2-way flow is permitted (as will be in an evacuation) then not all of the capacity will be available to one direction and, therefore, one-way capacity will be less than total capacity. The State's procedure of

applying a 2/3 factor follows good practice, is conservative, and makes sense, particularly in evacuation scenarios.

Q. With respect to the statement of Messrs. Cordaro, Weismantle, Lieberman and Miletí (p. 3 of their supplemental testimony) referred to above, have you applied the concepts of "capacities or levels of service", as they relate to side friction, to "the specific situation in question -- an evacuation of the Shoreham EPZ?"

A. Yes, we believe that the effects of side friction will reduce the capacities of roadway sections within the EPZ. Appendix B of this rebuttal testimony, which is attached hereto, is a nonexhaustive list of State routes inside the EPZ characterized by moderate to heavy side friction, i.e., considerable roadside development between major intersections. These routes are colored yellow on the map in Appendix D of this rebuttal testimony. In addition, the photolog film of Rt. 25A (Appendix E of this rebuttal testimony) shows the same roadside development. We believe that the effect of vehicles entering from driveways and businesses is significant and should be accounted for.

The State disagrees with KLD's contention that the effect of side friction is greatest at levels of service A-D and will have marginal effect at level of service E. In the event of an evacuation, side friction is likely to be represented by vehicles attempting to nose their way into traffic from numerous side streets, not accounted for by KLD. This behavior will, as KLD notes, have the effect of changing the order in which vehicles leave the EPZ. However, it will also greatly

lengthen the tail of the evacuation time distribution, if as the consultant suggests vehicles simply wait longer to use the networks.

Q. On p. 14 of your direct testimony, you stated that the LILCO network appeared to be inherently not detailed enough to answer questions about multiple routes of evacuees. With respect to the statement of Messrs. Cordero, Weismantle, Lieberman and Miletì (p. 3 of their supplemental testimony) referred to above, have you related the coarseness of the DYNEV network, to "the specific situation in question -- an evacuation of the Shoreham EPZ?"

A. Yes, we believe that the network is too coarse because it does not include numerous roads which the State feels are likely to be used by evacuees in the evacuation period. We maintain our belief despite the statement of Mr. Lieberman on pages 20 and 21 of the supplemental testimony referred to above that "the configuration of the evacuation network for the Shoreham EPZ has been defined with great care" and that the "280 links include all expressways, primary, and secondary roads as well as many tertiary roads," and that "the delineation of the evacuation network was undertaken as the result of many field surveys, a detailed study of large scale maps and a careful review of the early Suffolk County Plan."

Appendix C of this rebuttal testimony, which is attached hereto, contains examples of sections of highway which are not in the network, but which the State believes would be used by residents as vehicle escape routes in an emergency. These routes are colored green in

Appendix D of this rebuttal testimony. These highways are both inside and outside the EPZ, and both east and west of the Shoreham site. A detailed review of the road structure in the area in and around Shoreham leads the State to the conclusion that its original concerns about the density of the network are substantiated, and that the network is not dense enough to allow for alternative routes or for full assessment of evacuation behavior. Therefore, it is likely that the effects of travel on these routes are not modeled correctly in KLD's computer runs.

In addition, a review of one key evacuation route (Route 25A) shows that the network does not show nodes at 2 signalized intersections (Rt. 25A and Randall Rd., Rt. 25A and Broadway) and that the complex arrangements in the area of the intersections of Rt. 347 with Rt. 25A, Rt. 25A with Rt. 112, and Rt. 112 with Rt. 347 have all been reduced to a single node. The photolog film (Appendix E of this rebuttal testimony) shows clearly the existence of these signalized and complex intersections. In the State's view, simplifications of this sort raise great concerns about the representativeness of the entire network.

Q. Would you summarize your conclusions?

First, KLD has not used readily available film and computer-based information concerning the characteristics, capacity, and traffic on the highway system in the EPZ.

Second, KLD appears to have assumed that the capacity of intersections controls the capacity of the system, and apparently has not accounted for directional flow, or the effects of side friction, particularly roadside businesses.

Third, these assumptions appear to have led KLD to overestimate capacity on most of the sections of highway in the EPZ. These over-estimates have likely led KLD to substantially under-estimate the travel time necessary to traverse each section of highway and to leave the EPZ.

Fourth, the network used by KLD appears to be too coarsely coded to allow for accurate analysis of evacuation behavior.

In summary, we believe that estimates of capacity of highway sections should be redone and that the DYNEV model and its supporting tools be re-run with these revised estimates.

APPENDIX A  
EXAMPLES OF ROADWAY CAPACITY  
CALCULATIONS, EPZ SECTIONS

Roadway Section	Zone	Links	CAPACITY (VPH)			
			Nominal	Congestion	DOT	% Diff.*
Route 25A, Eastbound From No. Rocky Point Landing Rd. to Ridge Rd.	F,G	(11, 36)	1500	1275	950	- 25.5
Route 25A, Westbound From No. Country Rd. to Wading River - Manorville Rd.	D	(54, 53)	1500	1275	960	- 24.7
Route 25A, Westbound From Radio Ave. to Miller Place Rd.	F,G	( 9, 8)	1110	935	830	- 11.2
Route 25A, Westbound From Miller Place Rd. to Echo Ave.	F,K	( 8, 7)	750	640	830	+ 29.7
Route 25A, Westbound From Echo Ave. to Patchogue-Mt. Sinai Road	K	( 7, 30)	3000	2550	830	- 67.5
Route 25A, Westbound From Patchogue-Mt. Sinai Rd. to Crystal Brook Hollow Rd.	K	(30, 6)	1500	1275	830	- 34.9
Route 25A, Westbound from Crystal Brook Hollow Rd. to Route 112	Q,K	( 6, 12)	1200	1020	2390**	+ 134.3
Route 25A, Westbound From Wading River - Manorville Rd. to William Floyd Pkwy.	C	(53, 37)	1500	1275	950	- 25.5
Route 112, Southbound From Grove Street to Patchogue-Mt. Sinai Rd.	K	(82, 17)	900	765	750	- 2.0
Route 112, Southbound From Patchogue-Mt. Sinai Rd. to Middle Country Rd. (Rt. 25)	K	(17, 21)	500	425	750	+ 76.4

\* DOT vs. "Congestion" Capacity

\*\* Route 347 Between Crystal Brook Hollow Ri. & Route 112

APPENDIX A  
EXAMPLES OF ROADWAY CAPACITY  
CALCULATIONS, EPZ SECTIONS

Roadway Section	Zone	Links	CAPACITY (VPH)			
			Nominal	Congestion	DOT	% Diff.
Route 112, Southbound From Middle Country Rd. to Milton St.	R	(21, 68)	2000	1700	800	- 52.9
Route 112, Southbound From Milton St. to Granny Rd.	R	(68, 47)	2000	1700	710	- 58.2
Route 25, Westbound From Old Country Rd. to Edwards Ave.	P,O	(75, 73)	1500	1275	950	- 25.5
Route 25, Westbound From Rt. 25A to Line Rd.	D,I	(58, 93)	1500	1275	950	- 25.5
Route 25, Westbound From Wading River - Manorville Rd. to Old Saddle Rd.	C,H	(56, 86)	1500	1275	950	- 25.5
Route 25, Eastbound From Wading River - Manorville Rd. to Line Rd.	D,I	(56, 93)	1500	1275	950	- 25.5
Route 25, Eastbound From Line Rd. to Fresh Pond Ave.	D,J,I	(93, 58) (58, 95)	800 1200	680 1020	950	- 6.9
Route 25, Eastbound From Fresh Pond Ave. to Edwards Ave.	J,I	(95, 73)	1500	1275	950	- 25.5
L.I. Expressway, Westbound From Rt. 25 to Edwards Ave.	O	(75, 74)	3600	3060	4090	+ 33.7
L.I. Expressway, Westbound From Edwards Ave. to Mill Rd.	I,O H,N M,L	(74, 94) (94, 98) (98, 96) (96, 71) (71, 88) (88, 122) (122, 44) (44, 48) (48, 33) (33, 32) (32, 79) (79, 62)	5400	4590	4090	- 10.9

APPENDIX A  
EXAMPLES OF ROADWAY CAPACITY  
CALCULATIONS, EPZ SECTIONS

<u>Roadway Section</u>	<u>Zone</u>	<u>Links</u>	<u>CAPACITY (VPH)</u>			
			<u>Nominal</u>	<u>Congestion</u>	<u>DOT</u>	<u>% Diff.</u>
L.I. Expressway, Eastbound at William Floyd Pkwy.	M,N	(119, 50)	5400	4590	4090	- 10.9
L.I. Expressway, Eastbound From Edwards Ave. to Rt. 25	O	( 74, 75)	5400	4590	4090	- 10.9
L.I. Expressway Eastbound from Wm. Floyd Pkwy. to Edwards Ave.	N,O	( 50, 88) ( 88, 114) (114, 116) (116, 98) ( 98, 94) ( 94, 74)	5400	4590	4090	- 10.9

APPENDIX B  
EXAMPLES OF STATE ROUTES INSIDE EPZ WITH MODERATE TO  
HEAVY SIDE FRICTION \*

State Routes

Route 25

- WB From William Floyd Parkway to Smith Road (99, 40)
- WB From Wading River Rd. to County Road 21 (81, 24)
- WB From Bartlett Rd. to Rt. 112 JCT (23, 21, inclusive)

Route 25A

- WB From William Floyd Parkway to North Country Rd. (9, 37)
- WB From Coram-Mt. Sinai to Rt. 347 JCT

Route 112

- NB From Granny Rd. to Rt. 25 JCT
- NB From Unnamed Residential Street to Rt. 347 JCT (82, 12)
- SB From N. Country Rd. to Rt. 347 JCT (79, 12)

OTHERS (NOT ON STATE SYSTEM)

Canal Rd.

(Both Directions) From Rt. 112 JCT to County Road 83 (12, 13)

MT. Sinai - Coram Rd.

SB From Canal Rd. to Middle Country Rd. (14, 22 inclusive)

Whiskey Rd.

(Both Directions) From Ridge Rd. to William Floyd Parkway (38, 39)

Mill Rd.

From Rt. 112 to Granny Rd. (21, 69)

\*EPZ Node Numbers Shown in Parentheses

# Appendix C

## EXAMPLES OF ROADS THAT ARE NOT IN THE EVACUATION NETWORK

<u>Road</u>	<u>Limits</u>	<u>Pavement</u>	<u>Lanes</u>	<u>Min. Lane Width</u>	<u>Shoulder Width</u>	<u>Comments</u>
A. INSIDE EPZ (WEST OF SNPS)						
1. Randall Road	Rt. 25A-Whiskey Road	Asphalt	2	12'	0-8'	Winding & hilly; several driveways
2. Randall Road	Whiskey Rd.-Rt. 25	Asphalt	2	12'	0-8'	Several driveways adjacent to N/B lane
3. Raynor Road	Whiskey Rd.-Rt. 25	Asphalt	2	16'	0	Winding & hilly just south of Whiskey Rd. several driveways
4. Woodlots Road	Whiskey Rd.-Rt. 25	Asphalt	2	10'	0	Winding & hilly; sharp curves; several driveways
5. Hollow Road	Whiskey Rd.-Rt. 25	None	2	10'	0	Dirt road
6. Wading River Rd. <sup>3</sup>	Whiskey Rd.-Ridge Rd.	None	2	10'	0	Dirt road
7. Currans Road	Whiskey Rd.-Rt. 25	None	2	10'	0	Dirt road
8. Swezy Lane <sup>1</sup>	Coram-Swezytown Rd.-Rt. 25	Asphalt	2	12'	0	Winding; several driveways.
9. Coram-Swezytown Road <sup>2</sup>	Whiskey Rd.-Mt. Sinai-Coram Rd.	Asphalt	2	12'	0	Winding.
10. Pine Road continues as Pennaquid Rd. & Wedgewood Dr.	Mt. Sinai-Coram Rd.-Old Town Rd.	Asphalt	2	12'	0	Sharp curves
11. Crystal Brook Hollow Rd.	Oakwood Rd.-Canal Rd.	Asphalt	2	10'	0-8'	Winding north of Rt. 25A
12. Shenandoah Blvd.	Crystal Brook Hollow Rd. - Canal Rd.	Asphalt	2	12'	8'	Several driveways

<sup>1</sup>From street sign; AKA Swezey Lane from Hagstrom Map, '83 Edition

<sup>2</sup>From street sign; AKA Swezeytown Road from Hagstrom Map

<sup>3</sup>From Hagstrom Map

Road	Limit	Pavement	Lane	Min. Lane Width	Shoulder Width	Comments
13. Route 347	Route 25A-Rt. 112	Asphalt	4	12'	10'	Minimum 10' grass median with left turn storage lane
14. Shore Rd.	Old Post Rd.- Crystal Brook Hollow Rd.	Asphalt	2	12'	0	Winding; several drive- ways
15. Oakwood Rd. cont. as Belle Terre	Crystal Brook Hollow Rd. - Thompson St.	Asphalt	2	12'	0	Winding; several drive- ways
16. New St. <sup>4</sup>	Shore Rd.-North Country Rd.	Asphalt	2	10'	0	Hilly; sharp curves; poor sight distance
17. Mt. Sinai- Coram Rd.	North Country Rd.-Rt. 25A	Asphalt	2	12'	0	Poor sight distance.
18. Pipe Stave Hollow Rd.	North Country Rd.-Rt. 25A	Asphalt	2	12'	2-8'	Hilly
19. North Country Rd.	Echo Ave.-Rt.25A	Asphalt	2	12'	2'	
20. Broadway	Locust Drive-Rt. 25A	Asphalt	2	12'	0-8'	Several driveways
21. Smith Road	Medford Rd. - Rt. 25	Asphalt	2		0	
22. Ashton Rd.	E. Bartlett Rd.- Granny Rd.	Asphalt	2	10'	0	Sharp curves; poor sight distance.
23. E. Bartlett Rd.	Ashton Rd.-Rt.25	Asphalt	2	10'	0	Sharp curves
24. Bartlett Rd.	Ashton Rd.-Yap.- Middle Isl. Rd.	Asphalt	2	10'	0	Sharp curves; poor sight distance
25. W. Bartlett Rd.	Granny Rd.-E. Bartlett Rd.	Asphalt	2	10'	0	Sharp curves; poor sight distance
26. Mill Road	Granny Rd.-Bell- port Ave.	Asphalt	2	12'	2'	Sharp curves; poor sight distance
27. Bellport Ave. con- tinues as Station Rd.	Mill Rd.-Rt.27	Asphalt	2	12'	0	Passes out of EPZ between Mill Rd. & LIE
28. Coram Rd. <sup>5</sup>	Bellport Ave.- Patchogue-Yap. Rd.	Asphalt	2	12'	2'	Sharp curves

<u>Road</u>	<u>Limit</u>	<u>Pavement</u>	<u>Lanes</u>	<u>Min. Lane Width</u>	<u>Shoulder Width</u>	<u>Comments</u>
B. INSIDE EPZ (SOUTH AND EAST OF SNPS)						
29. Sound Ave.	Doctor's Path- Edwards Ave.	Asphalt	2	12'	0-4'	
30. Twomey Ave.	Sound Ave.- Manor Rd.	Asphalt	2	12'	0	
31. Riley Ave.	Edwards Ave.- Twomey Ave.	Asphalt	2	12'	0	
32. Osborn Ave.	Sound Ave.- Rt. 25	Asphalt	2	16'	0	Sharp curve between Horton Ave. and Rt. 25 Passes out of EPZ between CR 58 and NYS Rt. 55.
33. Horton Ave.	Sound Ave.- Osborn Ave.	Asphalt	2	12'	0	
34. Reeves Ave.	Osborn Ave.- Doctor's Path	Asphalt	2	10'	0	
35. Roanoke Ave.	Sound Ave.-Rt. 25	Asphalt	2	12' north 0 of CR 58 16' south 8' of CR 58.	0	Several driveways south of CR 58
36. Middle Rd.	Rt. 25/CR 58- Horton Ave.	Asphalt	2	12'	0	Intersection sight distance poor @ Horton Ave. intersection
37. Youngs Ave.	Twomey Ave.- Osborn Ave.	Asphalt	2	16'	0	Winding; sharp curves
38. Forge Rd.	Rt. 25-South River Rd.	Asphalt	2	10'	0	Winding; sharp curves
39. S. River Road	CR 9/Rt. 24- Forge Rd.	Asphalt	2	12'	0	Winding; sharp curves
40. River Rd.	Connecticut Ave.- Edwards Ave.	Asphalt	2	12'	0	Winding; sharp curves
41. Swan Pond Rd. <sup>6</sup>	Wading River- Manorville Rd.- Connecticut Ave.	Asphalt	2	16'	0	

<sup>6</sup> From street sign; AKA Grumman Blvd. from Hagstrom Map

<u>Road</u>	<u>Limit</u>	<u>Pavement</u>	<u>Lanes</u>	<u>Min. Lane Width</u>	<u>Shoulder Width</u>	<u>Comments</u>
42. Port Jeff- erson-West- hampton Rd.	LIE Exit 70-E. Moriches-River- head Rd.	Asphalt	4	12'	10'	4' flush median
43. Chapman Blvd. continues as Rail- road Ave.	Port-Jefferson Westhampton Rd.- Rt. 27	Asphalt	2	12'	0	
44. Halsey Manor R. continues as Conn- ecticut Ave.	River Rd.-Port Jefferson-West- hampton Rd.	Asphalt	2	12'	0	Some sharp curves
45. Jerusalem Hollow Rd.	Rt. 27-Wading River Rd.	Asphalt	2	12'	0	
46. Jerusalem Hollow Rd.	Wading River Rd. Chapman Blvd.	None	2	12'	0	Dirt road.
47. Moriches <sup>7</sup> Yap. Rd.	Manorville Rd. Rt. 27	Asphalt	2	12'	0	
48. Middle Island- Moriches Rd.	LIE-Manorville Rd. <sup>8</sup>	Asphalt	2	12'	0	Winding and hilly
C. OUTSIDE EPZ						
49. Sunrise Hwy	Wading River Rd. Riverhead Rd.	Concrete	4	12'	10'	Limited access
50. Moriches- Riverhead Rd.	Rt. 27A-Rt. 24	Asphalt	4	12'	10'	Controlled access
51. Horse Block Rd.	Rt. 27-Nicolls Rd.	Asphalt	2	12'	10'	
52. Long Island Expressway	Exit 66-Exit 62	Concrete	6	12'	10'	Limited access
53. Granny Rd.	Horse Block Rd.- Rt. 112	Asphalt	2	12'	2-10'	Several driveways
54. Rt. 347	Nicolls Rd.-Rt. 25A	Asphalt	4	12'	10'	Controlled access

<sup>7</sup>From street sign; AKA Moriches-Middle Island Rd., AKA Yaphank-Middle Island Rd. from Hagstrom Map.

<sup>8</sup>From street sign; AKA North St. from Hagstrom Map

<u>Road</u>	<u>Limits</u>	<u>Pavement</u>	<u>Lanes</u>	<u>Min. Lane Width</u>	<u>Shoulder Width</u>	<u>Comments</u>
55. Nicolls Rd.	Rt. 25A-Rt. 27	Asphalt	4	12'	10'	20' grass median; left turn storage lanes
56. Patchogue-Mt. Sinai Rd.	Mooney Pond Rd. Granny Rd.	Asphalt	4	12'	10'	10' flush median; left turn storage lanes.
57. North Ocean Ave.	Granny Rd.-Rt. 27	Asphalt	4	12'	10'	10' flush median; left turn storage lanes.
58. Medford Ave. continues as Medford Rd.	Rt. 27-Horse Block Rd.	Asphalt	2	12'	2-10'	Several driveways
59. Boyle Rd.	Rt. 25-Old Town Rd.	Asphalt	2	12'	2-10'	Several driveways south of Hawkins Rd.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD  
Before Administrative Judges  
James A. Laurenson, Chairman  
Dr. Jerry R. Kline  
Mr. Frederick J. Shon

In the Matter of )  
)

LONG ISLAND LIGHTING COMPANY )  
)

(Shoreham Nuclear Power Station, )  
Unit 1) )  
)  
)  
)

Docket No. 50-322-OL-3  
(Emergency Planning Proceeding)

March 9, 1984

CERTIFICATE OF SERVICE

I hereby certify that one copy of the MOTION OF GOVERNOR MARIO  
CUOMO, REPRESENTING THE STATE OF NEW YORK, FOR LEAVE TO FILE  
REBUTTAL TESTIMONY ON CONTENTION 65, EVACUATION TIME ESTIMATES

AND

REBUTTAL TESTIMONY OF DR. DAVID T. HARTGEN AND FOSTER J. BEACH III  
ON BEHALF OF THE STATE OF NEW YORK PERTAINING TO EMERGENCY PLANNING  
CONTENTION 65, EVACUATION TIME ESTIMATES has been served to each  
of the following this 9th day of March 1984 by U. S. Mail, first  
class, except as otherwise noted:

James A. Laurenson, Chairman\*\*  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Ralph Shapiro, Esq.  
Cammer and Shapiro  
9 East 40th Street  
New York, New York 10016

Dr. Jerry R. Kline\*\*  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Howard L. Blau, Esq.  
217 Newbridge Road  
Hicksville, New York 11801

Mr. Frederick J. Shon\*\*  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

W. Taylor Reveley III, Esq.\*\*  
Hunton & Williams  
P. O. Box 1535  
707 East Main Street  
Richmond, Virginia 23212

Mr. Jay Dunkleberger  
New York State Energy Office  
Agency Building 2  
Empire State Plaza  
Albany, New York 12223

James B. Dougherty, Esq.  
3045 Porter Street, N. W.  
Washington, D. C. 20008

Mr. Brian McCaffrey  
Long Island Lighting Company  
Shoreham Nuclear Power Station  
P. O. Box 618  
North Country Road  
Wading River, New York 11792

Martin Bradley Ashare, Esq.  
Suffolk County Attorney  
H. Lee Dennison Building  
Veterans Memorial Highway  
Hauppauge, New York 11788

Atomic Safety and Licensing  
Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Docketing and Service Section  
Office of the Secretary  
U.S. Nuclear Regulatory Commission  
1717 H Street, N.W.  
Washington, D. C. 20555

Bernard M. Bordenick, Esq. \*\*  
David A. Repka, Esq.  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Stuart Diamond  
Environment/Energy Writer  
NEWSDAY  
Long Island, New York 11747

Stephen B. Latham, Esq.  
Twomey, Latham & Shea  
P. O. Box 398  
33 West Second Street  
Riverhead, New York 11901

Marc W. Goldsmith  
Energy Research Group, Inc.  
400-1 Totten Pond Road  
Waltham, Massachusetts 02154

MHB Technical Associates  
1723 Hamilton Avenue, Suite K  
San Jose, California 95125

Honorable Peter F. Cohalan  
Suffolk County Executive  
H. Lee Dennison Building  
Veterans Memorial Highway  
Hauppauge, New York 11788

Ezra I. Bialik, Esq.  
Assistant Attorney General  
Environmental Protection Bureau  
New York State Department of Law  
2 World Trade Center  
New York, New York 10047

Atomic Safety and Licensing  
Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Stewart M. Glass, Esq. \*\*  
Regional Counsel  
Federal Emergency Management  
Agency  
26 Federal Plaza, Room 1349  
New York, New York 10278

Nora Brede  
Executive Director  
Shoreham Opponents Coalition  
195 East East Main Street  
Smithtown, New York 11787

Eleanor L. Frucci, Esq. \*\*  
Atomic Safety and Licensing  
Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Herbert H. Brown, Esq. \*\*  
Lawrence Coe Lanpher, Esq.  
Karla J. Letsche, Esq.  
1900 M Street, N. W., Suite 800  
Washington, D. C. 20036

Spence Perry, Esq.  
Associate General Counsel  
Federal Emergency Management Agency  
Washington, D. C. 20472



RICHARD J. ZAHNLEUTER  
Assistant to the Special Counsel  
to the Governor of the State  
of New York  
Executive Chamber  
State Capitol  
Albany, New York 12224

\*By Hand  
\*\*By Federal Express on March 8, 1984  
\*\*\*By Telecopier  
\*\*\*\*By U.S. Express Mail

Albany, New York  
March 9, 1984