Appendix D
Noise

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1.0 Introduction

This technical report presents the results of the noise monitoring and modeling impact analysis for the Route 92 Environmental Impact Statement (EIS). The proposed project would be a four-lane wide highway that would extend from Route 1 to the New Jersey Turnpike Interchange 8A. Noise monitoring and modeling was conducted based on procedures presented in:

- New Jersey Turnpike Authority (NJTA), Policy for Construction of Sound Barriers, October 24, 1991;
- Federal Highway Administration (FHWA), *Highway Traffic Noise Analysis and Abatement Policy and Guidance, June 1995*; and
- New Jersey Department of Transportation (NJDOT) *Highway Traffic Noise Policy Technical Appendix, December 2000*.

Noise monitoring and detailed modeling was only conducted for the New Jersey Turnpike Authority's (NJTA) preferred alignment. This analysis was built upon the noise monitoring and modeling results from the *Proposed Route 92 Draft Environmental Impact Statement, April 1994 (Draft EIS)*. The purpose of this noise impact analysis was to assess the potential for sensitive receivers to be adversely affected by NJTA's preferred alignment, and if necessary, to evaluate the benefits of noise barriers.

For comparison purposes, a screening-level noise modeling analysis was conducted for two Route 1 improvement alternatives. Both alternatives include widening Route 1 from four to six lanes; however, one alternative assumes no realignment changes to the existing interchanges while the other alternative reduces the number of signalized intersections and redesigns five of the interchanges.

The following Route 92 traffic scenarios were evaluated in a quantitative noise impact analysis:

- Existing Year or Baseline Year (2002),
- Horizon Year (2028) EPA Modified No-Build;
- Horizon Year (2028) Route 1 Six Lane Improvement with Signalization
- Horizon Year (2028) Route 1 Six Lane Improvement without Signalization, and
- Horizon Year (2028) No-Build and Build.

In addition, a qualitative screening-level analysis of three sub-alternatives to the four-lane Route 92 alternative was conducted to determine how their transportation and environmental impacts might be different from the proposed four-lane Route 92.

These sub-alternatives, which are fundamentally modified designs and implementations of the currently proposed Route 92 project, include:

- Two-lane design for proposed Route 92
- Phased construction of proposed Route 92 (two-lane highway initially; demand-based expansion to four lanes at a later date);
- Four-lane Route 92 without the Perrine Road interchange

The noise descriptors and applicable noise impact criteria are described in Section 2. Section 3 presents the procedures and results for the existing noise monitoring program conducted along the Route 92 corridor. Section 4 describes the noise modeling procedures and presentation of modeling results, and proposed mitigation measures. Conclusions are presented in Section 5. FHWA reference documents used for this noise modeling analysis are presented in Section 6. Following the text, the noise modeling spreadsheets summarizing the results of the noise modeling analysis are presented.

2.0 Noise Descriptors and Criteria for Assessment

Noise is measured in decibels (dB) and is a measurement of sound pressure level. The human ear perceives sound, which is mechanical energy, as pressure on the ear. The sound pressure level is the logarithmic ratio of that sound pressure to a reference pressure, and is expressed in decibels. Environmental sounds are measured with the A-weighted scale of the sound level meter. The A scale simulates the frequency response of the human ear, by giving more weight to the middle frequency sounds, and less to the low and high frequency sounds. A-weighted sound levels are designated as dBA. **Figure 1** shows the range of sound levels for common indoor and outdoor activities, in dBA.

The impact of increasing or decreasing noise levels is presented in **Table 1.** For example, it shows that a change of 3 dBA is barely perceptible and that a 10-dBA increase or decrease would be perceived by someone to be doubling or halving of the noise.

Table 1
Decibel Changes, Loudness, and Energy Loss

Sound Level Change (dBA)	Relative Loudness	Acoustical Energy Loss (%)
0	Reference	0
-3	Barely Perceptible Change	50
-5	Readily Perceptible Change	67
-10	Half as Loud	90
-20	1/4 as Loud	99
-30	1/8 as Loud	99.9

Source: FHWA, Highway Traffic Noise Analysis and Abatement Policy and Guidance, June 1995.

COMMON OUTDOOR NOISES	Sound Pressure (uPa)	Sound Pressure (dB)	COMMON INDOOR NOISES
Jet Fly Over at 300 feet	6,324,555	110	Rock Band at 15 feet
Gas Lawn Mower at 3 feet	2,000,000	100	Inside Subway Train (New York)
Diesel Truck at 50 m	632,456	90	Food Blender at 3 feet
Noisy Urban Daytime	200,000	80	Garbage Disposal at 3 feet Shouting at 3 feet
Gas Lawn Mower at 100 feet Commercial Area	63,246	70	Vacuum Cleaner at 10 feet Normal Speech at 3 feet
	20,000	60	Large Business Office
Quiet Urban Daytime	6,325	50	Dishwasher Next Room
Quiet Urban Nighttime Quiet Suburban Nighttime	2,000	40	Small Theatre, Large Conference Room Library
Quiet Rural Nighttime	632	30	Bedroom at Night Concert Hall (Background)
	200	20	Broadcast and Recording Studio
	63	10	Threshold of Hearing
	20	0	

Source: FHWA, Noise Fundamentals Training Document, "Highway Noise Fundamentals," September 1980.

Figure 1
Common Indoor and Outdoor Noises

The applicable regulatory noise standard proposed for this roadway project is the FHWA noise abatement criteria (NAC) (23 CFR Part 772). The FHWA noise abatement criteria, presented in **Table 2**, are based on specific land use categories. There are two optional noise descriptors: the one-hour L_{10} and the one-hour L_{eq}. The L_{10} is the sound level that is exceeded 10 percent of the time (the 90th percentile) for the period under consideration. The L_{eq} is defined as the equivalent steady-state sound level, which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same period (FHWA, *Federal-Aid Highway Program Manual, Volume 7, Chapter 7, Section 3, August 9, 1982*). The regulations specify using either one or the other, but not both to determine noise impacts. For this project, the one-hour L_{eq} noise level descriptor was used.

Table 2
FHWA Noise Abatement Criteria

Activity Category	L_{eq}(1hr) [1] (dBA)	Description of Activity Category
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve intended purpose.
B	67 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Note: [1] No single hourly average L_{eq} in a 24-hour day can exceed this value.
Source: *23 CFR Part 772.*

Land uses along the study area corridor are predominantly Activity Categories B and C. The FHWA noise standards indicate that noise mitigation must be considered when the Horizon-Year project levels approach or exceed the stated noise abatement criteria. In addition, the FHWA noise standards also require that noise mitigation must be considered when the Horizon-Year project levels "substantially" exceed existing noise levels. The NJTA noise policy only considers noise abatement measures for those residential dwellings (Activity Category B) subject to noise levels that exceed 67 dBA that are immediately adjacent to the Turnpike right-of-way. The NJTA noise policy does not address other Activity Categories or incremental noise impacts. The NJDOT policy defines "approach the noise abatement criteria" (23 CFR 772.5(g)) as 1 dBA below the NAC and defines "substantially" as a predicted incremental impact equal to or greater than 10 dBA over existing noise levels. For the purposes of this noise impact analysis, the criteria used to determine the need for noise mitigation are:

- FHWA NAC of 67 dBA and 72 dBA for Activity Categories B and C, and
- A predicted incremental noise level increase of 10 dBA or greater over existing noise levels.

3.0 Existing Noise Monitoring Program

The goals of the noise monitoring program were to capture representative samples of existing noise levels at sensitive receptor locations in the proposed Route 92 project area and to update the noise level data previously collected for the NJTA 1994 DEIS.

The data collection was conducted as outlined in the FHWA document *Measurement of Highway-Related Noise* (1996).

The following sections describe the measurement locations, noise monitoring procedures and equipment to be used for the field program and results of the noise monitoring program.

3.1 Noise Monitoring Location Selection

Three 15-minute data sets were collected at each of seven monitoring locations, as shown in **Figure 3-20** in Section 3 of the EIS (not in this appendix). **Table 3** lists these locations, and contains a brief rationale for the selection of each site. The locations are numbered starting from the east end of the corridor and heading west. This was accomplished by making successive "loops" through all the monitoring locations. Monitoring locations along the Route 92 corridor were selected near receivers that have land use categories that correspond to the most stringent FHWA noise criteria and that are located closest to the NJTA preferred alternative corridor. In addition, some of the monitoring locations are the same as those used in the 1994 DEIS. The purpose of selecting the same monitoring locations was to document any changes in ambient noise level conditions since 1986 and 1993.

Table 3
Monitoring Locations

Monitoring Location	Description	Selection Rationale
1	Route 32 commercial area between Exit 8A and Route 130	Represents commercial development area
2	West of Residence (84 Friendship Road)	Represents nearest residence near the proposed Route 92 and near a previous monitoring location
3	Residence east of Harmony Lane and north of Friendship Road	Represents residential area north of proposed Route 92
4	Residential area on Friendship Road (east of 273 Friendship Road)	Represents nearby residential area and current east/west Friendship Road traffic and was a previous monitoring location
5	End of Silvers Lane (Perrine Road residential subdivision)	Represents nearby residential area south of the proposed Route 92; previous monitoring location
6	Perrine Road residence	Represents a residence north of the proposed Route 92 and near the Perrine Road reroute
7	Boy Scout Council	Represents institutional area adjacent to Route 1; previous monitoring location

The land use category for each receptor was determined using aerial photographs and design plans and drawings. The monitoring locations are selected to represent residential and commercial areas along the proposed roadway corridor. These locations were selected so they can be evaluated in the noise impact analysis. Other

criteria used to select monitoring locations include: 1) placement of monitoring locations in area of frequent human use, 2) representation of residential and commercial areas along the corridor, and 3) collection of measurements near other existing noise sources.

3.2 Equipment

A Quest 1900 Type I Precision Sound Level Meter (SLM) was used to collect ambient noise level data. The sound level meter is factory calibrated. The Quest 1900 SLMs will collect 15-minute measurements at each monitoring location and was calibrated with a sound calibrator before the first reading of the day. At the end of each 15-minute monitoring period, the calibration was checked and end-calibration values were recorded on the field data sheets.

In addition to collecting noise data, the field crew noted general weather conditions: average temperature, wind speed and sky conditions at each monitoring location.

The sound level meter was equipped with a windscreen and placed on a tripod approximately five feet above ground, and not less than 10 feet away from any reflective surfaces at each monitoring location. In addition, the noise monitor was set up a minimum of 50 feet from the edge of the roadway.

A "random-incidence" microphone was used. This microphone is capable of capturing uniform weighted frequency and sound pressure levels for incoming sound from all directions simultaneously if aimed straight up (90° incidence to the sound field). The sound level meter was set for automatically timed integration mode at slow response.

3.3 Measurement Procedures

Field personnel conducted noise monitoring for three (3) time periods (i.e., 6:30 a.m. to 10:00 a.m., 10:00 a.m. to 1:30 p.m. and 3:00 p.m. to 7:00 p.m.) on October 24, 2002. The following data were gathered:

- Continuous energy equivalent A-weighted noise levels (L_{eq})
- Statistical noise levels (L_{90} and L_{10}).

The L_{90} noise level is the sound, in dBA, exceeded 90 percent of the time during the measurement period. The L_{90} is close to the lowest sound level observed during the measurement period. It is essentially the same as the residual sound level, which is the lowest sound level observed when there are no obvious nearby intermittent sources.

The L_{10} noise level is the sound, in dBA, exceeded 10 percent of the time during the measurement period. The L_{10} is close to the maximum sound level observed during the measurement period. The L_{10} is sometimes called the intrusive noise level because it is caused by occasional louder noises like passing motor vehicles.

Although the statistical noise levels (L_{90} and L_{10}) are required to compare with FHWA noise standards for this project, they were taken to provide a more complete picture of noise level distribution at each monitoring location.

Noise monitoring was conducted during fair weather conditions (i.e., dry weather and wind speeds less than 12 miles per hour). The crew, time, wind speed and direction, temperature and general weather conditions were noted at each site before each set of readings.

Dominant noise sources, and direction of dominant noise sources were documented. During noise monitoring if any unusual noise events should occur (e.g., lawn mower), monitoring was interrupted until the unusual noise event stops. Prolonged unusual noise events would require moving the monitoring location or sampling at different time period. These unusual noise events, and noise monitoring stop and start times were noted. For those monitoring locations beside existing roadways, during each 15-minute sample, traffic counts for five types of vehicle classifications (i.e., passenger vehicles, medium truck, heavy truck, bus and motorcycle) were collected at each monitoring location. All field notes, and noise level and traffic count data were recorded on data sheets.

3.4 Noise Monitoring Results

Noise monitoring was conducted during dry, cold and light wind conditions. The results of the noise monitoring program indicated that there was significant variation in ambient noise levels throughout the Route 92 corridor. The daytime L_{eq} noise levels along the corridor ranged from 48 dBA to 71 dBA. The peak L_{eq} noise levels did not exceed the 67 dBA NAC, except at Monitor Location 7 (Boy Scout Council). The lower noise levels were measured in areas away from major roadway arterials and the higher noise levels were measured in areas adjacent to major roadway arterials. This range of noise levels is typical for ambient conditions ranging from quiet residential to urban residential areas adjacent to major roadways. A summary of peak daytime L_{eq} noise levels used to represent existing conditions is presented in **Table 4**.

3.5 Existing and Future No-Build Conditions

Existing noise levels in the project study area were determined through the noise monitoring conducted in 2002 and noise-monitoring data used in the 1994 DEIS. Some of the 2002 noise monitoring locations were the same as those use in the 1994 DEIS. The 1994 DEIS used both noise monitoring data collected in 1993 and 1983 noise levels measured by NJDOT in 1982/1983. Since the 2002 noise monitoring results are similar to those used in the 1994 DEIS, they were used to represent existing conditions at locations where noise monitoring was not conducted in 2002, and to evaluate potential Horizon Year noise impacts.

Table 4
Noise Monitoring Results

Monitoring Location	Description	L_{eq} Noise Level (dBA)		
		Morning	Midday	Afternoon
1	Route 32 commercial area between Exit 8A and Route 130	65.9	65.1	62.1
2	West of Residence (84 Friendship Road)	63.2	56.5	60.7
3	Residential area east of Harmony Lane and north of Friendship Road	61.1	52.4	58.0
4	Residential area on Friendship Road (east of 273 Friendship Road)	60.5	58.4	59.4
5	End of Silvers Lane (Perrine Road residential subdivision)	--	47.8	49.7
6	Perrine Road residence	--	52.0	50.3
7	Boy Scout Council	71.0	--	69.2

Note: -- Noise level measurements were not taken at these times.

The Horizon Year (2028) No-Build alternatives were based on adjusting the existing noise levels by the logarithm of the ratio of 2028 transportation network traffic projections for each Horizon Year alternative to the existing traffic volume. The increase in traffic volume projected for each Horizon Year alternative, excluding the proposed Route 92 alternative, will increase noise levels by about 2 dBA. **Table 8** presents a summary of the Existing and Horizon Year No-Build noise conditions for comparison with predicted noise impacts for the Route 92 Preferred Alignment (See Section 4.3).

4.0 Noise Modeling Analysis

This section describes the noise modeling procedures used to evaluate the Horizon Year (2028) proposed Route 92 project potential traffic noise impacts. In addition, this section will also describe the noise modeling procedures for evaluating potential noise impacts for sensitive receivers that may be impacted by the widening US Route 1 to six lanes as part of the Route 1 six lane improvement alternatives (with and without signalization).

The results of the noise modeling and noise abatement measures evaluation, and the qualitative noise impact of the three Route 92 sub-alternatives are also included in this section.

4.1 STAMINA 2.0 Noise Modeling

4.1.1 Route 92 Preferred Alternative

The STAMINA 2.0/OPTIMA model was used to characterize noise conditions along the proposed Route 92 corridor because of the discovery by FHWA during the preparation of this EIS that the Traffic Noise Model (TNM) Version 2 has a bias to

over-predict highway traffic noise levels. As of October 10, 2002, the FHWA decided to delay the use of TNM because recent validation test results of the model indicated a general over-prediction in highway traffic noise levels when compared to field-measured data, which requires calibrating the model with field measurements to remove this over-prediction bias. Until the TNM software could be modified, FHWA recommended that State DOT and regional FHWA divisions decide whether projects should use STAMINA 2.0/OPTIMA or TNM (*J.M. Shrouds, Director, Office of Natural and Human Environment, Highway Traffic Noise – FHWA Traffic Noise Model Validation and Phase-In, October 10, 2002*). The New Jersey FHWA division recommended that STAMINA 2.0/OPTIMA be used for this project since the noise analysis was expected to be completed before the release of the corrected TNM (*Telephone Conversation between Marc Wallace, CDM and Jeanette Mar, FHWA New Jersey Division, October 25, 2002*). The Corp of Engineers also agreed that STAMINA 2.0/OPTIMA should be used for this EIS noise impact analysis based on the New Jersey FHWA division recommendation.

The STAMINA 2.0 highway noise model was used to characterize noise conditions along segments of the Route 92 corridor study area. Model input parameters include:

- length of road segments;
- receivers locations;
- grade adjustment;
- structure barrier effects;
- shielding factors;
- alpha factors (reflectiveness of surface);
- vehicle type;
- vehicles per hour; and
- vehicle speed.

The model calculates hourly L_{eq} noise levels for each receptor. Traffic data for the proposed Route 92 alternative, obtained from the traffic modeling analysis, were used in STAMINA 2.0. Each of these data requirements is described in detail in the following subsections.

Data Requirements

Vehicle Type

The program has the capability to handle up to eight vehicle types, but the program default is three acoustical source groups as defined in the *FHWA Highway Traffic Noise*

Prediction Model (1978). These default source groups are automobiles, medium trucks and heavy trucks, and their source heights are fixed at 0.0, 2.3 and 8.0 feet, respectively. The traffic engineer provided traffic data for these vehicle classifications for each roadway segment.

Vehicles per Hour
The STAMINA 2.0 model requires traffic flow in vehicles per hour. The traffic engineer provided peak hour traffic counts for each vehicle type for the Route 92 Alternative for 2028.

Vehicle Speed
The STAMINA 2.0 model accepts vehicle speeds between 30 and 65 mph, inclusive. The traffic projections for the Horizon Year included vehicle speeds for each roadway segment along proposed Route 92. Vehicle speeds ranged from less than 5 mph up to 53 mph. For those projected vehicle speeds less than 30 mph, the vehicle speeds were set to 30 mph.

Length of Road Segments
The STAMINA 2.0 model is capable of handling up to 30 roadways each with 14 segments. Route 92 and intersecting roadways were modeled as 73 roadways with over 300 roadway segments. Roadways were divided into these segments based on changes in roadway horizontal alignments, traffic data and traffic direction (northbound and southbound). Roadway coordinates were obtained from plans provide by the NJTA. Three separate model runs were setup to model the proposed Route 92 for the 2028 Horizon Year.

Grade Adjustment
Grade adjustments allow the model to adjust the noise emissions for heavy trucks going up or down steep grades. STAMINA 2.0 calculates roadway grades using the roadway coordinates that define each roadway segment. Increases in noise level emissions of +1 dB per percent grade increase caused by heavy trucks traversing steep grades are limited to roadway grades of 3 to 7 percent. It was determined, based on design plans, that the overall grade for Route 92 and associated interchanges was generally flat +/- 0 to 2 percent; therefore, no grade adjustments were used in STAMINA 2.0.

Receivers
The STAMINA 2.0 model allows up to 40 receivers to be used. Receivers representing sensitive land uses and receivers near each noise monitoring locations were modeled. Receptor locations represented residential and commercial areas within 200 feet of either side of the proposed Route 92. Twelve receivers were used to represent residences (Activity Category B) and 10 receivers were used to represent commercial development (Activity Category C) along the study area for a total of 22 receivers. Of these 22 receivers, 15 represent noise monitoring locations. **Table 5** presents a list of noise modeling receivers. **Figures 2 through 6** also show the location of each of the receivers along the Route 92 corridor.

Alpha Factor

The use of alpha factors allows the sound propagation rate between the source and the receiver to be changed depending on whether the surface is considered "hard" or "soft". Hard surfaces, such as parking lots, reflect sound. Soft surfaces, such as vegetated areas, absorb some sound energy. The majority of the ground surface between Route 92 and all receivers was characterized as being soft (i.e., vegetated cover). Therefore, the attenuation rate in the model was set to 4.5 dBA per doubling of distance from the roadway.

Shielding Factors

Shielding factors are used to represent additional noise attenuation between the roadway and the receptor, such as buildings, rows of houses, trees or other terrain features. The shielding factors considered in this analysis are presented **Table 6**. A shielding factor correction of 5 dBA was used in this STAMINA 2.0 modeling analysis for the residential receiver located on Silver Lane (R-9), where there is a row of trees.

4.1.2 Route 1 Improvement Alternative with Signalization

The widening of Route 1 from four lanes to six lanes would occur from Perrine Road north to George's Road for both Route 1 improvement alternatives. A travel lane would be added to both sides of Route 1. The Route 1 Improvement Alternative with Signalization would have no changes made to the 15 interchanges along this portion of Route 1, and the Route 1 Improvement Alternative without Signalization would eliminate signalization at 10 of the interchanges and would have five interchanges redesigned. These five interchanges would be:

- Route 1/Adams Lane/Cozzens Lane
- Route 1/Finnegan Lane
- Route 1/Beekman Road/Northumberland Road
- Route 1/New Road
- Route 1/Promenade Boulevard/Route 522

STAMINA 2.0 was used to estimate potential noise impacts for the five redesigned interchanges. The traffic engineer provided the necessary peak hour traffic volumes, vehicle speeds and interchange design information to be used in STAMINA 2.0. The

Table 5
Modeling Receivers

Model Receiver Id.	Monitoring Station Id.	Location Description
C-1	**1**	East of Commerce Dr./South of Rt. 32
C-2	--	West of CR-535/South of Rt. 32
C-3	--	West of CR-535/South of Rt. 32
C-4	--	East of Commerce Dr./South of Rt. 32
C-5	--	West of Herrod Blvd/North of Rt. 32
C-6	--	East of Herrod Blvd/North of Rt. 32
C-7	13	30 Friendship Road
R-13	**2**	West of 84 Friendship Rd.
R-1	12	39 Friendship Road
R-2	P25	84 Miller Road
R-3	9	80 Miller Road
R-4	**3**	194 Friendship Rd.
R-5	**4**	273 Friendship Rd.
R-6	--	287Friendship Road
R-7	--	307 Friendship Road
R-8	7	343 Friendship Road
R-9	**5**, 5	Silvers Lane Dead End
R-10	**6**	100 Perrine Rd.
R-11	**--**	South of Perrine Rd./West of Major Rd.
R-12	**7**, 3	Rt. 1 Boy Scout Council
R-14	--	177 Friendship Road
R-15	--	111 Perrine Road
R-16	--	60-74 Perrine Road
R-17	--	107 Friendship Road
C-9	P22	Tile Institute

Note: Bold values indicate 2002 monitoring locations.

Table 6
Shielding Factors

Types of Shields	Attenuation
Dense Woods	5 dBA for 30 meter depth of woods; Additional 5 dBA for additional 30 meter depth of woods; Maximum of 10 dBA.
Rows of Houses	3 dBA for 40 to 65 percent area; 5 dBA for 65 to 90 percent area; 1.5 dBA for each additional row; Maximum of 10 dBA.
Wall	20 dBA maximum
Earth Berm	23 dBA maximum

Source: Fundamentals and Abatement of Highway Traffic Noise, Report No. FHWA-881-8 EV-73-7976-1,USDOT, Federal Highway Administration, June 1973, Chapter 3.

purpose of this modeling analysis was to determine the distance of the 67-dBA-noise contour. Residential receivers identified near each interchange within the 67-dBA-noise contour were identified as potential impacted receivers.

4.2 FHWA Nomograph Modeling

The FHWA Nomograph Model is based on the FHWA *Highway Traffic Noise Prediction Model* (1978). The purpose of the nomograph modeling was to predict Horizon Year 2028 No-Build and Build noise levels for the Route 1 six lane improvements alternatives with and without signalization. Sixteen residential receivers were identified adjacent to the existing Route 1 alignment. The nomograph modeling was based on peak hour traffic modeling results for 2028 No-Build and the two Route 1 improvement alternatives. Distances from the center of Route 1 are entered into the model along with: 1) the speed of the vehicles for each vehicle category (automobile, medium truck, and heavy truck); 2) roadway grade; 3) shielding factors; 4) ground attenuation (soft or hard); and 5) barrier height, receptor height and barrier to receptor distance. For both Route 1 improvements alternatives a flat roadway grade (0 to 2 percent), no shielding factors, soft ground attenuation, and no barriers were entered into the model. **Table 7** presents the No-Build and Build traffic and vehicle speed data used in the nomograph model.

Table 7
Route 1 Improvement Alternatives
2028 Traffic and Vehicle Speed Data

Scenario	Auto	Truck		Vehicle Speed
		Medium	Heavy	
No-Build Southbound	3,085	60	70	26
No-Build Northbound	2,161	78	90	44
Build South Bound (Signalized)	4,240	81	94	32
Build Northbound (Signalized)	2,392	88	102	48
Build Southbound (Unsignalized)	5,105	97	112	19
Build Northbound (Unsignalized)	2,792	108	123	46

4.3 Modeling Results

4.3.1 Route 92 Existing and Future Modeling Alternatives

The noise modeling results are summarized in **Table 8**. This table presents a summary of the Existing, Horizon Year No-Build and Route 92 Preferred Alignment, and EPA Modified No-Build alternatives noise levels and compares them to the applicable FHWA noise abatement criteria (NAC). Under the Route 92 alternative, eight receivers would experience noise levels exceeding the applicable NAC. Two of the eight are commercial receivers at which the Activity Category C NAC of 72 dBA would be exceeded. Five of the eight receivers are residential receivers that would experience noise levels exceeding the applicable NAC of 67 dBA. One of the eight

Table 8
Summary of Noise Modeling Results (dBA)

Model Receiver Id.[1]	Monitoring Station Id.[2]	Location Description[3]	NAC	Peak Hour L_{eq} Noise Levels (dBA)[4]			
				Existing Year (2002)	EPA Modified No-Build (2028)	Horizon Year (2028) No-Action	Horizon Year (2028) Route 92
				Measured	Estimated	Estimated	Modeled
C-1	**1**	East of Commerce Dr. /South of Rt. 32	C	65.9	67.9	68.0	**72.5**
C-2	--	West of CR-535/South of Rt. 32	C	--	--	--	65.8
C-3	--	West of CR-535/South of Rt. 32	C	--	--	--	68.8
C-4	--	East of Commerce Dr. /South of Rt. 32	C	--	--	--	**73.7**
C-5	--	West of Herrod Blvd/North of Rt. 32	C	--	--	--	71.3
C-6	--	East of Herrod Blvd/North of Rt. 32	C	--	--	--	69.3
C-7	13	30 Friendship Road [ROW]	C	62.0	64.1	64.1	68.7
R-1	12	39 Friendship Road	B	**66.8**	**68.9**	**68.9**	59.3
R-13	**2**	West of 84 Friendship Rd.	B	63.2	65.3	65.3	**68.9**
R-2	P25	84 Miller Road	B	50.0	52.1	52.1	59.1
R-3	9	80 Miller Road	B	55.1	57.2	57.2	55.6
R-4	**3**	194 Friendship Rd.	B	61.1	63.2	63.2	61.7
R-5	**4**	273 Friendship Rd.	B	60.5	62.6	62.6	62.2
R-6	--	287 Friendship Road	B	--	--	--	**71.2**
R-7	--	307 Friendship Road	B	--	--	--	66.2
R-8	7	343 Friendship Road	B	65.2	**67.3**	**67.3**	59.3
R-9	**5**, 5	Silvers Ln. Dead End	B	49.7	51.8	51.8	55.3
R-10	**6**	100 Perrine Rd.	B	54.0	56.1	56.1	61.6
R-11	**--**	South of Perrine Rd./West of Major Rd.	B	--	--	--	59.5
R-12	**7**, 3	Rt. 1 Boy Scout Council [ROW]	B	**71.0**	**73.1**	**73.1**	**71.1**
R-14	**--**	177 Friendship Road	B	--	--	--	**68.6**
R-15	**--**	Perrine Road	B	--	--	--	66.5
R-16	**--**	Perrine Road	B	--	--	--	**68.8**
R-17	**--**	107 Friendship Road	B	--	--	--	**67.2**
C-9	P22	Tile Institute [ROW]	C	64.0	66.1	66.1	68.8
		No. of Receivers Impacted		2	3	3	8

[1]Receiver Id. represents both commercial (C) and residential (R) receivers based on the FHWA Noise Abatement Criteria description.
[2]Bold values indicate 2002 monitoring locations.
[3][ROW] indicates that the receiver would be located in the Route 92 right-of-way.
[4]Bold and shaded values indicate noise levels that exceed the 67 dBA and 72 dBA NAC.

receivers is an institutional receiver (R-12 in Table 8) at which the 67 dBA NAC would be exceeded. This receiver is inside the proposed Route 92 right-of-way (ROW). Properties located within the ROW would be purchased, and, therefore, are not considered to experience noise impacts under the Route 92 alternative.

The comparison of 2028 Route 92 Alternative projected traffic noise levels with existing and 2028 No-Build noise levels indicates that projected noise levels do not exceed the existing noise levels by 10 dBA or greater. The Route 92 alternative traffic noise levels would increase the 2028 No-Build and Existing noise levels by up to 7 to 9 dBA, respectively.

Under the EPA Modified No-Build alternative and the Horizon Year No-Action alternative, two residential receivers and one institutional receiver would be impacted by noise exceeding the applicable NAC in 2028. Under the Route 92 alternative, five residential receivers would be impacted in 2028. Under existing (2002) conditions, the applicable NAC is exceeded at one residential receiver and one institutional receiver.

Modeling spreadsheet outputs for the Route 92 alternative are included following Section 6.

4.3.2 Route 1 Signalized Intersection Alternative STAMINA Modeling Results

The STAMINA 2.0 modeling results for the five redesigned intersections indicated that for the Route 1/Adams Lane/Cozzens Lane interchange and the Route 1/Finnegan Lane interchange that the 67-dBA noise contour would extend approximately 300 feet from the center of the interchange on either side of Route 1. For the other redesigned interchanges (Route 1/Beekman Road/Northumberland Road, Route 1/New Road and Route1/Promenade Boulevard/Route 522) the 67-dBA-noise contour would extend approximately 200 feet from the center of each interchange on either side of Route 1. **Table 9** presents the number of potential residential receivers that would be within the 67-dBA-noise contour for each interchange based on aerial photography. Only one residential receiver would be impacted for three of these interchanges and none would be impacted at the other two interchanges. Since these are not new interchanges, but are only redesigned, the number of potential receivers that would be impacted compared to not redesigning these interchanges should be similar.

4.3.3 Route 1 Six Lane Improvement Alternatives

The nomograph modeling results indicated that during peak AM traffic conditions the No-Build Route 1 configuration the traffic volumes and speeds would generate noise level of 66 dBA or greater within approximately 150 feet from the center of Route 1 or approximately 150 feet from the edge of Route 1. The 16 residential receivers are within or close to 150 feet from the edge of Route 1. Therefore, these residences would most likely experience noise levels that would approach or exceed the 67 dBA NAC. The adding a lane of traffic to both sides of Route 1 would increase noise levels at 150 feet from the edge of Route 1 by approximately 2 dBA. This increase in noise level is considered barely perceptible. Both Route 1 improvement alternatives would generate a 67-dBA-noise level approximately 200 feet away. **Table 10** presents the modeling results for the Route 1 improvement alternatives.

Table 9
Route 1 (6 Lane) Improvements Alternatives
Horizon Year Modeling Results

Route 1 Redesigned Interchange	**Number of Residential Receivers within the 67-dBA Noise Contour**
Cozzens Lane/Adams Lane	0
Finnegan Lane	1
Beekman Road/Northumberland Road	1
New Road	1
Promenade Boulevard/Route 522	0

Table 10
Route 1 (6 Lane) Improvements Alternatives
Horizon Year Modeling Results

	One Hour L_{eq} Noise Levels (dBA)			
Scenario	**100 ft**	**150 ft**	**200 ft**	**300 ft**
2028 No-Build	69	66	65	62
2028 Build (Signalized)	71	68	67	64
2028 Build (Unsignalized)	71	68	67	64

4.3.4 Route 92 Sub-Alternatives

A qualitative noise impact analysis was conducted to assess the noise impacts of the three sub-alternatives compared to the four-lane Preferred Alternative based on peak hour traffic volumes provided by traffic engineer. The two-lane design alternative at full capacity would generate lower noise levels than the four-lane Preferred Alternative at each of the sensitive receptors because the edge of the roadway would be slightly further from the receptors and there would be an approximately 50-percent reduction in peak hour traffic volumes compared to the four-lane Preferred Alternative. It is anticipated that the reduction in peak hour noise levels would be "perceptible" to "substantial" (5-10 dBA according to FHWA guidance) for those sensitive receivers identified within the corridor area. By 2028, the traffic volumes for the two-lane alternative would be approximately 25 percent lower than proposed Route 92; therefore, peak hour noise levels would still be lower than the preferred alternative, but the difference in noise levels would be "perceptible" (about 5 dBA) and not "substantial" (about 10 dBA).

The four-lane Route 92 without Perrine Road interchange is expected to generate similar noise levels compared to the Preferred Alternative.

4.4 Route 92 Noise Abatement Measures

Although up to six Category B receivers would experience noise levels that equal or exceed the 67 dBA, only five were evaluated for noise abatement measures. The impacted residential receptors located outside the Route 92 ROW are R-6, R-13, R-14, R-16 and R-17. The Boy Scout Council (R-12) is located within the Route 92/Route 1 ROW; therefore, it would be taken by NJTA as part of the Route 92 project. For the commercial receivers (C-1 and C-4) that were predicted to have noise levels equal to or greater than 72 dBA, 23 CFR 722 states that NAC noise levels only apply to areas which have regular human use and do not apply to parking lots, industrial areas, and open spaces. Therefore, FHWA does not require evaluating noise abatement measures reducing exterior noise impacts for commercial land uses. In addition, barriers may not be suitable for commercial development, because they tend to block advertisement and visibility of the development from the street.

Noise abatement measures were evaluated based on procedures provided in FHWA, *Highway Traffic Noise Analysis and Abatement Policy and Guidance* (1995) and NJTA, *for Construction of Sound Barriers* (1991). These noise abatement measures included:

- Traffic management measures (e.g. traffic control devices and signing for prohibition of certain vehicles types, time-use restrictions for certain vehicle types, modified speed limits and exclusive land designations);
- Alteration of horizontal and vertical alignments;
- Acquisition of property rights (either in fee or lesser interest) for the construction of noise barriers;
- Construction of noise barriers (including landscaping for aesthetic purposes) whether within or outside the highway right-of-way;
- Noise insulation of public use or nonprofit institutional structures.

The NJTA traffic noise policy for construction of sound barriers establishes criteria for evaluating noise abatement barriers. These criteria include:

- Noise levels from the Turnpike must be projected to exceed an L_{eq} of 67 dBA at the exterior of the homes immediately adjacent to the Turnpike ROW;
- The Turnpike roadway itself must be at least twelve (12) feet closer to an existing home;
- A proposed barrier must be expected to cause a minimum reduction of four (4) dBA at the home(s);
- The cost of the proposed barrier must be less than $45,000 per dwelling unit to be protected;

- Construction of must be feasible from an engineering perspective in the opinion of the Turnpike Authority; and
- The height of the barrier shall not exceed twenty-six (26) feet, unless the Executive Director determines that extraordinary circumstances justify a higher barrier in a particular case.

The following subsections present the results of the noise abatement evaluation for the impacted receivers.

4.4.1 Traffic Management

In order to achieve a 5-dBA reduction, the speed limit would have to be reduced along designated portions of Route 92 by approximately 25 mph (typically there is about a 1 dBA reduction for every 5 mph reduction in speed). This measure was deemed infeasible, because it would adversely affect traffic flow along Route 92. Other approaches would require limiting truck traffic along Route 92 or restricting the hours truck traffic would be able to access Route 92. Both options are not feasible given that Route 92 would be a major throughway in this region and would be inconsistent with NJTA's goal of improving traffic flow in the Route 92 corridor.

4.4.2 Horizontal and Vertical Alignments

Adjusting the horizontal or vertical alignment of the Preferred Route 92 alignment is not considered a feasible option given that existing vertical alignment is relatively flat and that adjusting the horizontal alignment would require severely affect property owners adjacent to the corridor. In order to achieve a 5-dBA reduction, the road would have to moved approximately double the distance from where it is currently located from each affected receptor. For example, if a receptor were located 100 feet away from the edge of the proposed roadway, it would have to be adjusted another 100 feet away from its existing location.

4.4.3 Noise Insulation

There are no public institutions within the project study area outside the ROW, an investigation of sound insulation is not warranted.

4.4.4 Noise Barriers

Noise barriers are solid obstructions built between the highway and sensitive receivers along the highway. Effective noise barriers can reduce noise levels by 10 to 15 dBA. Barriers can be formed from earthen berms or from high vertical walls. Noise barriers do have limitations. These limitations include:

- To be effective, the barrier should extend four times as far in each direction as the distance from the receiver to the barrier.
- The barrier must be break the line of sight from the roadway to the receptor in order achieve a 5-dBA noise level reduction.

- Openings in noise walls for driveway connections or intersecting streets severely reduce the effectiveness of the barriers.

Noise barriers were evaluated for each of the impacted residential receivers (R-6, R-7, R13, R-14, R-16 and R-17). Initially, a barrier height of 10 feet was evaluated because it is the minimum height that was determine to achieve at least a 4-dBA noise level reduction for most of the receivers. A length of 600 feet erected at the ROW was evaluated to try and achieve the necessary 4-dBA-noise reduction at each receiver. However, a barrier of these dimensions did not meet the necessary 4-dBA-noise reduction for receivers R-16 and R-17, and therefore, a barrier height of 12 feet was evaluated. The additional 2-foot increase in barrier height did increase the noise reduction by an additional 1 dBA. However, both the 10-foot and 12-foot barrier heights would not meet the NJTA cost criteria of $45,000 per residential dwelling. Therefore, a sound barrier is not recommended for any of these locations. **Table 11** presents a summary of the barrier evaluation.

Table 11
Noise Barrier Evaluation

OPTIMA Modeling Results					Receptor Data	
Barrier Dimensions			Cost	Max. Insertion Loss	No. of Benefited	Cost/Receptor
height (ft)	length (ft)	area (ft2)	($)	(dB)	Receptors	($)
Receiver R-6 Sound Barrier						
10	600	6,000	120,000	7	1	120,000
Receiver R-13 Sound Barrier						
10	600	6,000	120,000	5	1	120,000
Receiver R-14 Sound Barrier						
10	600	6,000	120,000	5	1	120,000
Receiver R-16 Sound Barrier						
10	600	6,000	120,000	3	1	120,000
12	600	7,200	144,000	4	1	144,000
Receiver R-17 Sound Barrier						
10	600	6,000	120,000	3	1	120,000
12	600	7,200	144,000	4	1	144,000

Note: $20 per square foot of barrier was used as a cost estimation for evaluating cost effectiveness.

4.5 Construction Noise

Construction noise impacts were evaluated based on the steps specified in accordance with the FHWA Technical Advisory Memorandum *Analysis of Highway Construction Noise* (1984). Highway construction activities include both mobile and stationary equipment. Mobile equipment such as dozers, scrapers, graders, and haul trucks operate in cyclical manner in which a period of full power is followed by a period of reduced power. Stationary equipment falls into two categories: 1) equipment that operates at a fixed power, such as pumps, compressors and generators; and 2) impact equipment such as pile drivers, jack hammers and pavement breakers. The first group generates a constant background noise level where as the second group generators a much higher noise level, but over a very short time period (FHWA, *Special Report Highway Construction Noise: Measurement, Prediction and Mitigation*, 1987). **Table 12** presents typical maximum noise levels (L_{max}) measured at 50 feet from construction

equipment. Maximum noise levels range from 70 dBA for generators to 90 dBA for a mounted impact hammer at 50 feet away.

Table 12
Typical Construction Equipment Noise Levels

Equipment Category	L_{max} Level (dBA)
Backhoe	80
Chain Saw	85
Compactor	80
Compressors	80
Concrete Mix Truck	85
Concrete Pump	82
Concrete Saw	90
Crane (Mobile or Stationary)	85
Dozer	85
Front End Loader	80
Generator (25 kVA or less)	70
Generator (25 kVA or more)	82
Gradall	85
Grader	85
Jackhammer	85
Mounted Impact Hammer	90
Paver	85
Pneumatic Tools	85
Pumping Equipment	77
Scraper	85
Tractor	84
Vibrator (rollers)	80
All Other Equipment with Engines Larger than 5 HP	85

Source: Noise Control Engineering Journal, Construction Noise Control Program and Mitigation Strategy at the Central Artery Project, 2000 Sep-Oct.

Highway construction is completed in several different phases. These phases are:

- Mobilization
- Clearing and Grubbing
- Earthwork
- Foundations
- Base Preparation
- Paving and Cleanup

Each construction phase should generate short-term noise impacts for noise sensitive land uses adjacent to the proposed Route 92 construction activity. In general, construction noise impacts occur only during daytime working hours of 7:00 a.m. to 7:00 p.m., and should be highest during the clearing and earthwork phases of construction. The noisiest equipment would likely be earthmoving equipment, such as dozers, graders, scrapers and other heavy-duty diesel equipment. Noise levels

decrease by 6 dBA for every doubling of distance. It is anticipated that the daytime L_{max} noise levels would not exceed 80 dBA at 150 feet away and the daytime L_{eq} noise level would not exceed 75 dBA at 150 feet away.

The proposed Route 92 corridor is located in a mix of residential and commercial land uses; therefore, appropriate construction noise mitigation measures will be implemented. For those residential receivers located within the Route 92 right-of-way (ROW), the associated properties will either be purchased or relocated before significant construction begins. For those residential receivers located outside the Route 92 ROW, the following construction noise mitigation measures are recommended:

- Implement a Community Relations Program to inform the public of any potential noise impact and any measures that will be employed to reduce these impacts.
- Coordinate early with the roadway designers to reduce construction noise levels by sequencing construction activities appropriately and to locate noisier activities away from sensitive receivers.
- Ensure that all construction equipment will be equipped with exhaust mufflers, and will be maintained to minimize engine noise.
- Limit construction activities to Monday through Friday from 7 a.m. to 5 p.m.
- Use temporary barriers where it is feasible around any loud stationary equipment that could operate on a 24-hour basis near any sensitive populations.

5.0 Conclusions

The results of the noise monitoring and modeling analysis indicated that traffic noise impacts would occur for eight receivers for the Route 92 alternative. The projected exterior noise levels exceed the FHWA Noise Abatement Criteria for Activity Category B for 5 residences and Activity Category C for 2 commercial locations. The projected noise level increases at these impacted structures would be up to 9 dBA over existing conditions and to 7 dBA over Horizon Year No-Build conditions. The use of noise abatement measures for impacted residential structures are not feasible, as outlined in 23 CFR 772.13(c), and the use of noise barriers to protect the impacted residential structures outside the ROW are found to be ineffective and costly for the Route 92 project.

The comparison of the Route 1 improvement alternatives show that both alternatives would generate similar noise level conditions and that the increase in noise levels over the No-Build scenario would be approximately 2 dBA, which is considered to barely perceptible by humans.

Both two-lane Route 92 sub-alternatives would generated lower noise levels (5-10 dBA) that would be perceived by nearby sensitive receivers to be perceptible to substantial. The four-lane Route 92 without Perrine Road interchange is expected to generate similar noise levels compared to the Preferred Alternative.

6.0 References

FHWA, *Measurement of Highway-Related Noise, FHWA-PD-96-046 DOT-VNTSC-FHWA-96-5*, May 1996.

FHWA, *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, June 1995.

FHWA, *Analysis of Highway Construction Noise, T6160.2*, March 13, 1984.

FHWA, Federal-Aid Highway Program Manual, Volume 7, Chapter 7, Section 3, August 9, 1982.

FHWA, *Procedures for Abatement of Highway Traffic Noise and Construction Noise, 23 CFR 772*, July 8, 1982.

FHWA, *Noise Barrier Cost Reduction Procedure STAMINA 2.0/OPTIMA User's Manual, PB82-218744*, April 1982.

FHWA, *Noise Fundamentals Training Document Highway Noise Measurement*, September 1980.

FHWA, *FHWA-RD 77-108 FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108,* December 1978.

FHWA, *Fundamentals and Abatement of Highway Traffic Noise, Chapter 3, Report No. FHWA-881-8EV-73-7976-1*, June 1973.

New Jersey DOT, *Highway Traffic Noise Policy Technical Appendix*, December 2000.

NJTA, *Policy for Construction of Sound Barriers, October 24*, 1991.

Thalheimer, E., Noise Control Engineering Journal, *Construction Noise Control Program and Mitigation Strategy at the Central Artery Project*, pp. 157-165, 2000 Sep-Oct.

M. Wallace, *Telecommunication between Marc Wallace, CDM and Jeanette Mar, FHWA New Jersey Division*, October 25, 2002.

NOISE MONITORING DATA

New Jersey Turnpike Authority
Route 92 Environmental Impact Statement
Sound Level Monitoring
Thursday October 24, 2002

Monitoring Location	Start Time	End Time	Total Time	Leq	L10	L90	L max	L min	L50
Location 1 (Route 32 & Commerce Dr.)	7:13 AM	7:28 AM	15	65.9	68.2	58.1	87.2	55.2	63.9
	12:55 PM	1:10 PM	15	65.1	68.6	52.7	82.8	44.8	61.1
	3:10 PM	3:25 PM	15	62.1	65.4	53.2	72.5	45.0	60.3
Location 2 (West of 84 Friendship Rd.)	7:43 AM	7:58 AM	15	63.2	66.6	50.4	78.1	46.9	59.7
	12:23 PM	12:38 PM	15	56.5	60.3	38.9	78.4	35.0	45.0
	3:48 PM	4:03 PM	15	60.7	63.7	42.1	81.1	36.0	52.4

New Jersey Turnpike Authority
Route 92 Environmental Impact Statement
Sound Level Monitoring
Thursday October 24, 2002

Monitoring Location	Start Time	End Time	Total Time	Leq	L10	L90	L max	L min	L50
Location 3 (194 Friendship Rd.)	8:11 AM	8:26 AM	15	61.1	65.7	46.8	74.4	43.0	55.3
	12:00 PM	12:15 PM	15	52.4	54.3	35.0	72.3	32.8	40.5
	4:14 PM	4:29 PM	15	58.0	62.7	40.4	73.7	28.9	51.1
Location 4 (273 Friendship Rd.)	8:35 AM	8:50 AM	15	60.5	64.1	48.4	83.4	45.6	55.7
	11:30 AM	11:45 AM	15	58.4	62.2	40.1	77.2	36.0	48.4
	4:45 PM	5:00 PM	15	59.4	63.8	44.0	70.7	37.7	55.4

New Jersey Turnpike Authority
Route 92 Environmental Impact Statement
Sound Level Monitoring
Thursday October 24, 2002

Monitoring Location	Start Time	End Time	Total Time	Leq	L10	L90	L max	L min	L50
Location 5 (Silver Ln. dead end)	SKIPPED								
	10:08 AM	10:23 AM	15	47.8	53.1	35.9	64.0	33.1	39.4
	5:35 PM	5:50 PM	15	49.7	53.8	32.9	63.8	30.6	41.0
Location 6 (100 Perrine Rd.)	SKIPPED								
	10:22 AM	10:25 AM	2:45	54.0	58.2	42.5	65.1	39.3	50.1
	10:27 AM	10:40 AM	12:15	52.0	52.5	36.3	71.4	33.8	40.7
	6:03 PM	6:18 PM	15	50.3	53.8	36.9	66.6	32.7	43.0

New Jersey Turnpike Authority
Route 92 Environmental Impact Statement
Sound Level Monitoring
Thursday October 24, 2002

Monitoring Location	Start Time	End Time	Total Time	Leq	L10	L90	L max	L min	L50
Location 7 (Route 1, Boy Scout, NJ)	9:33 AM	9:48 AM	15	71.0	74.3	59.7	82.7	48.1	69.4
	SKIPPED								
	6:35 PM	6:50 PM	15	69.2	72.5	61.4	77.9	52.2	68.2

Round 1
Round 2
Round 3

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	𝍸 𝍸 𝍸

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	𝍸 𝍸 𝍸

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~	142
Automobile	~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ II	
Automobile		
Automobile		
Motorcycle	I	
Motorcycle		I
Motorcycle		
Motorcycle		
Light-Duty Trucks	III	
Light-Duty Trucks		3
Light-Duty Trucks		
Light-Duty Trucks		
Heavy-Duty Trucks	I	
Heavy-Duty Trucks		I
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Buses	I	
Buses		1
Buses		
Buses		

Date	10-24-02
Time	0811 - 0826
Roadway	Friendship Rd
Noise Monitoring Location	3
Average Travel Speed	45-50 MPH
Field Personnel	Danielle Saint Louis, Amol Dani Khe, HANK BOUCHER

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	~~IIII~~ ~~IIII~~ ~~IIII~~

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	1+2	662
Automobile		
Automobile		
Automobile		
Motorcycle	0	0
Motorcycle		
Motorcycle		
Motorcycle		
Light-Duty Trucks		26
Light-Duty Trucks		
Light-Duty Trucks		
Light-Duty Trucks		
Heavy-Duty Trucks		36
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Buses	1	1
Buses		
Buses		
Buses		

Date	10-24-02
Time	0933 - 0948
Roadway	ROUTE 1
Noise Monitoring Location	7
Average Travel Speed	≈ 50-60 MPH
Field Personnel	DANIELE SAINTLOUIS, AMOI DAXIKAR, HANK BOUCHER

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	////	4
Automobile		
Automobile		
Automobile		
Motorcycle		0
Motorcycle		
Motorcycle		
Motorcycle		
Light-Duty Trucks	///	3
Light-Duty Trucks		
Light-Duty Trucks		
Light-Duty Trucks		
Heavy-Duty Trucks		0
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Buses		0
Buses		
Buses		
Buses		

Date	10-24-02
Time	1022 - 1025 (2m45s) 1027-1040 (12m 15s)
Roadway	PERRINE RD
Noise Monitoring Location	6
Average Travel Speed	≈ 20-25 MPH
Field Personnel	Danielle Saint-Louis, Amol Daxikar, Hank Bouchen

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 I	41
Automobile		
Automobile		
Automobile		
Motorcycle		
Motorcycle		0
Motorcycle		
Motorcycle		
Light-Duty Trucks	III	
Light-Duty Trucks		3
Light-Duty Trucks		
Light-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		0
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Buses		
Buses		0
Buses		
Buses		

Date	10-24-02
Time	1130 - 1145
Roadway	Friendship Rd
Noise Monitoring Location	4
Average Travel Speed	≈ 40 MPH
Field Personnel	Danielle Smurlais, Amol Daxikar, Marc Boucher

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	
Automobile		30
Automobile		
Automobile		
Motorcycle		
Motorcycle		0
Motorcycle		
Motorcycle		
Light-Duty Trucks		
Light-Duty Trucks		0
Light-Duty Trucks		
Light-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		0
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Buses		
Buses		0
Buses		
Buses		

Date	10-24-02
Time	1200 – 1215
Roadway	Friendship Rd.
Noise Monitoring Location	3
Average Travel Speed	≈ 45 MPH
Field Personnel	Danielle Saint Louis, Amol Dayalan

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	~~IIII IIII IIII IIII IIII IIII IIII~~	35
Automobile		
Automobile		
Automobile		
Motorcycle		
Motorcycle		0
Motorcycle		
Motorcycle		
Light-Duty Trucks	II	
Light-Duty Trucks		2
Light-Duty Trucks		
Light-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		0
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Buses		
Buses		0
Buses		
Buses		

Date	10-24-02
Time	1222 - 1237
Roadway	FRIENDSHIP RD
Noise Monitoring Location	2
Average Travel Speed	45-50 mph
Field Personnel	Danielle Saint Louis, Amol Darikar

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	𝍸 𝍸 𝍸 𝍸 𝍸 + 7	257
Automobile		
Automobile		
Automobile		
Motorcycle		
Motorcycle		0
Motorcycle		
Motorcycle		
Light-Duty Trucks	𝍸 𝍸 𝍸	
Light-Duty Trucks		16
Light-Duty Trucks		
Light-Duty Trucks		
Heavy-Duty Trucks	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	
Heavy-Duty Trucks		40
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Buses		
Buses		0
Buses		
Buses		

Date	10-24-02
Time	1255 - 1310
Roadway	Route 32
Noise Monitoring Location	1
Average Travel Speed	50 mph
Field Personnel	Danielle Saint Louis, Amol Daxikar

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	𝍸 𝍸 𝍸

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ I	61
Automobile		
Automobile		
Automobile		
Motorcycle		
Motorcycle		0
Motorcycle		
Motorcycle		
Light-Duty Trucks	IIII	
Light-Duty Trucks		4
Light-Duty Trucks		
Light-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		0
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Buses		
Buses		0
Buses		
Buses		

Date	10-24-02
Time	1548-1603
Roadway	FRIENDSHIP RD
Noise Monitoring Location	2
Average Travel Speed	≈ 40-45 MPH
Field Personnel	Danielle Saint Louis, Amol Dave, Ivan

Plane @ 1 min in
10m 45s
13m 05s

directly overhead
— one in distance too

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ I	81
Automobile		
Automobile		
Automobile		
Motorcycle	I	1
Motorcycle		
Motorcycle		
Motorcycle		
Light-Duty Trucks	III	3
Light-Duty Trucks		
Light-Duty Trucks		
Light-Duty Trucks		
Heavy-Duty Trucks		0
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Buses	I	1
Buses		
Buses		
Buses		

Date: 10-24-02
Time: 1614 - 1629
Roadway: Friendship Rd
Noise Monitoring Location: 3
Average Travel Speed: ≈ 47MPH
Field Personnel: Danielle Saint Louis, Amol Oak Lee

plane indistance @ 6m 17s
overhead @ 9m 23s

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

| = 1

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile		
Automobile		124
Automobile		
Automobile		
Motorcycle		
Motorcycle		
Motorcycle		
Motorcycle		
Light-Duty Trucks		
Light-Duty Trucks		
Light-Duty Trucks		
Light-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Buses		
Buses		
Buses		
Buses		

Date	10-24-02
Time	4:15 1645-1700
Roadway	Friendship Rd
Noise Monitoring Location	4
Average Travel Speed	≈45 MPH
Field Personnel	Danielle Saint Louis, Amol Davikar

ROUTE 92 ENVIRONMENTAL IMPACT STATEMENT (EIS)
TRAFFIC COUNT DATA

VEHICLE TYPE	TRAFFIC COUNTS	TOTAL
Automobile	~~IIII~~ ~~IIII~~	10
Automobile		
Automobile		
Automobile		
Motorcycle		
Motorcycle		
Motorcycle		
Motorcycle		
Light-Duty Trucks		
Light-Duty Trucks		
Light-Duty Trucks		
Light-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Heavy-Duty Trucks		
Buses		
Buses		
Buses		
Buses		

Date	10-24-02
Time	6:03 1803-1818
Roadway	PERLINE RD
Noise Monitoring Location	6
Average Travel Speed	30 mph
Field Personnel	Amol DAMKAR

~ 6 planes
~ 4 trains

10/25/2002 FRI 13:33 FAX CAMP DRESSER AND MCKEE 016/019

NOISE MODELING DATA

Route 92 Preferred Alternative
STAMINA Modeling Results

Route 92 EIS
STAMINA 2.0 Roadway/Receiver/Traffic Data

Parameter Names	Modeling Coordinates (ft)				Descriptions	AM Peak Hr. Traffic and Speeds				
						Future Year (2028)				
	X	Y	H	Z_0		Spd	CARS	Total Trucks	MT	HT
Route 92 (From Rt 1 to Rt 130)										
Roadway Description										
Rt 92 (Rt 1 to Perrine Rd. On/Offramp)										
92E1	2020730	558706	0		Eastbound traffic	53	333	41	19	22
92E2	2021810	557257	0							
92E4	2023959	556100	0							
92W1	2021134	558006	0		Westbound traffic	43.8	2612	161	75	86
92W2	2021855	557299	0							
92W4	2023900	556210	0							
Rt 92 (Perrine Rd On/Offramp to Rt 130 WB Onramp)										
92E4	2023959	556100	0		Eastbound traffic	53	369	59	27	32
92E7	2033317	555154	0							
92E8	2041864	555759	0							
92E9	2042873	555567	0							
92E10	2044689	554404	0							
92E11	2045715	553625	0							
92W4	2023900	556210	0		Westbound traffic	27.4	3378	176	81	95
92W7	2033317	555217	0							
92W8	2041861	555823	0							
92W9	2042894	555629	0							
92W10	2044727	554456	0							
92W11	2046159	553356	0							
130S92W5	2046176	553348	0							
Rt 92E (Rt 92/Friendship Offramp to Rt 130SB/Rt92E Onramp)										
'CARS'	361	53								
'MT'	26	53								
'HT'	31	53								
'L'/										
'92E11'	2045715	553625	0	0	Eastbound traffic	53	361	57	26	31
'130S92E4'	2046640	552883	0	0						
Rt 130SB (Rt 92 W Overpass to Friendship Onramp)										
'CARS'	1536	30								
'MT'	74	30								
'HT'	85	30								
'L'/										
'130 SFR1'	2047037	551978	0	0		2.7	1536	159	74	85
'130N1FR6'	2046689	550780	0	0						
'L'/										
Rt 130 N to Friendship Onramp (Segment 1)										
'CARS'	51	47								
'MT'	0	47								
'HT'	1	47								
'L'/										
'130N1FR1'	2046825	550887	0	0		46.9	51	1	0	1
'130N1FR2'	2047016	551044	0	0						
'130N1FR3'	2047139	550881	0	0						
'130N1FR4'	2046988	550728	0	0						
'130N1FR5'	2046796	550761	0	0						
'130N1FR6'	2046689	550780	0	0						
'L'/										
Rt 130 N to Friendship Onramp (Segment 2)										

Route 92 EIS
STAMINA 2.0 Roadway/Receiver/Traffic Data

Parameter Names	Modeling Coordinates (ft)				Descriptions	AM Peak Hr. Traffic and Speeds				
						Future Year (2028)				
	X	Y	H	Z_0		Spd	CARS	Total Trucks	MT	HT
'CARS'	599	30								
'MT'	12	30								
'HT'	14	30								
'L'/										
'130N2FR1'	2046485	550923	0	0		19.2	599	26	12	14
'130N2FR2'	2046588	551349	0	0						
'FR1'	2046547	551516	0	0						
'L'/										
Friendship Road (Segment 1)										
'CARS'	527	30								
'MT'	5	30								
'HT'	6	30								
'L'/										
'FR1'	2046547	551516	0	0		16.5	527	11	5	6
'FR2'	2046212	552146	0	0						
'L'/										
Friendship Road (Segment 2)										
'CARS'	535	30								
'MT'	5	30								
'HT'	6	30								
'L'/										
'FR2'	2046212	552146	0	0		16.1	535	11	5	6
'FR3'	2046087	552855	0	0						
'L'/										
Friendship Road (Segment 3)										
'CARS'	541	30								
'MT'	6	30								
'HT'	6	30								
'L'/										
'FR3'	2046087	552855	0	0		16.1	541	12	6	6
'FR4'	2045756	553279	0	0						
'L'/										
Friendship Road (Segment 4)										
'CARS'	512	30								
'MT'	6	30								
'HT'	6	30								
'L'/										
'FR4'	2045756	553279	0	0		16.1	512	12	6	6
'FR5'	2045642	553354	0	0						
'L'/										
Friendship Rd. (Rt 130 SB Friendship Rd. Onramp)										
'CARS'	357	30								
'MT'	9	30								
'HT'	11	30								
'L'/										
'130SFR1'	2047023	551962	0	0		4.5	357	20	9	11
'FR1'	2046547	551516	0	0						
'L'/										
Rt 92 East to Friendship Rd. Onramp										
'CARS'	18	45	0	0						
'MT'	1	45	0	0						
'HT'	1	45	0	0						
'L'/										

Route 92 EIS
STAMINA 2.0 Roadway/Receiver/Traffic Data

Parameter Names	Modeling Coordinates (ft)				Descriptions	AM Peak Hr. Traffic and Speeds Future Year (2028)				
	X	Y	H	Z_0		Spd	CARS	Total Trucks	MT	HT
'92E11'	2045715	553625	0	0		45	18	2	1	1
'92EFR1'	2046231	553103	0	0						
'92EFR2'	2046245	552932	0	0						
'FR3'	2046087	552855	0	0						
'L'/										
Rt 92 W Perrine Road Onramp										
'CARS'	766	30								
'MT'	7	30								
'HT'	8	30								
'L'/										
'92W4'	2023900	556210	0	0		0.4	766	15	7	8
'92WPON1'	2023521	556528	0	0						
'L'/										
Perrine Road to Rt 92 E Onramp)										
'CARS'	36	45								
'MT'	8	45								
'HT'	10	45								
'L'/										
'92EPOF1'	2023119	556280	0	0		44.9	36	18	8	10
'92E4'	2023954	556079	0	0						
'L'/										
Perrine Road (South of Rt 92 to Rt 92 E Onramp)										
'CARS'	637	30								
'MT'	4	30								
'HT'	5	30								
'L'/										
'PE-1'	2020866	554668	0	0						
'PE-2'	2021065	555111	0	0		25.7	637	9	4	5
'92EPOF1'	2023119	556280	0	0						
'L'/										
Perrine Road Overpass										
'CARS'	609	35								
'MT'	11	35								
'HT'	12	35								
'L'/										
'92EPOF1'	2023119	556280	0	0		35.1	609	23	11	12
'PE-3'	2023148	556346	15	0						
'PE-4'	2023311	556446	15	0						
'92WPON1'	2023521	556528	0	0						
'L'/										
Perrine Road (North of Rt 92 W to Perrine Rd N Onramp)										
'CARS'	404	38								
'MT'	13	38								
'HT'	15	38								
'L'/										
'92WPON1'	2023521	556528	0	0		37.7	404	28	13	15
'PE-5'	2023875	556678	0	0						
'PE-6'	2024646	556402	0	0						
'PE-7'	2025265	556844	0	0						
'L'/										
Rt 92W Route 1 North Onramp										
'CARS'	835	30								

Route 92 EIS
STAMINA 2.0 Roadway/Receiver/Traffic Data

Parameter Names	Modeling Coordinates (ft)				Descriptions	AM Peak Hr. Traffic and Speeds Future Year (2028)				
	X	Y	H	Z_0		Spd	CARS	Total Trucks	MT	HT
'MT'	20	30								
'HT'	24	30								
'L'/										
'92WR1N1'	2020744	558695	0	0		14.2	835	44	20	24
'92WR1N2'	2020670	559114	0	0						
'92WR1N3'	2020791	559490	0	0						
'L'/										
Route 1 North/Route 92 East Onramp										
'CARS'	307	30								
'MT'	18	30								
'HT'	21	30								
'L'/										
'R192E1'	2020173	558822	0	0		22.4	307	39	18	21
'R192E2'	2020489	558799	0	0						
'R192E3'	2021136	557993	0	0						
'L'/										
Route 92 West/Route 1 South Onramp										
'CARS'	1776	30								
'MT'	54	30								
'HT'	63	30								
'L'/										
'92W1'	2020462	559123	0	0		5.5	1776	117	54	63
'92WR1S1'	2020381	559249	0	0						
'92WR1S2'	2020221	559549	0	0						
'92WR1S3'	2020257	559857	0	0						
'92WR1S4'	2020457	559946	0	0						
'92WR1S5'	2020692	559791	0	0						
'92WR1S6'	2020624	559476	0	0						
'L'/										
Route 1 South/Route 92 East Onramp										
'CARS'	26	30								
'MT'	1	30								
'HT'	1	30								
'L'/										
'R1S92E1'	2021039	559920	0	0		25	26	2	1	1
'R1S92E2'	2020467	559980	0	0						
'R1S92E3'	2020172	559787	0	0						
'R1S92E4'	2020174	559536	0	0						
'R1S92E5'	2020335	559209	0	0						
'92E1'	2020418	559076	0	0						
'L'/										
Route 1 North to Rt 92 E Onramp										
'CARS'	2755	48								
'MT'	93	48								
'HT'	107	48								
'L'/										
'R1N1'	2019923	558581	0	0		47.6	2755	200	93	107
'R192E1'	2020173	558822	0	0						
'L'/										
Route 1 North to Rt 92W/Rt 1N Onramp										
'CARS'	2448	39								
'MT'	75	39								
'HT'	86	39								

Route 92 EIS
STAMINA 2.0 Roadway/Receiver/Traffic Data

Parameter Names	Modeling Coordinates (ft)				Descriptions	AM Peak Hr. Traffic and Speeds				
						Future Year (2028)				
	X	Y	H	Z_0		Spd	CARS	Total Trucks	MT	HT
'L'/										
'R192E1'	2020173	558822	0	0		39.2	2448	161	75	86
'R1N2'	2020374	559071	15	0						
'R1N3'	2020470	559177	15	0						
'92WR1N3'	2020791	559490	0	0						
'L'/										
Route 1 North from Rt 92W/Rt 1N										
'CARS'	3284	30								
'MT'	95	30								
'HT'	110	30								
'L'/										
'92WR1N3'	2020791	559490	0	0		19.5	3284	205	95	110
'R1N4'	2021673	560472	0	0						
'L'/										
Route 1 South to Rt 92 E Onramp										
'CARS'	3166	30								
'MT'	57	30								
'HT'	67	30								
'L'/										
'R1S1'	2021629	560507	0	0		23.8	3166	124	57	67
'R1S92E1'	2020173	558822	0	0						
'L'/										
Route 1 South to Rt 92W/Rt 1S Onramp										
'CARS'	3140	30								
'MT'	56	30								
'HT'	66	30								
'L'/										
'R1S92E1'	2020173	558822	0	0		24.4	3140	122	56	66
'92WR1S6'	2020624	559476	0	0						
'L'/										
Route 1 South from Rt 92W/Rt 1S										
'CARS'	4916	30								
'MT'	111	30								
'HT'	128	30								
'L'/										
'92WR1S6'	2020624	559476	0	0		20.5	4916	239	111	128
'R1S2'	2020430	559232	15	0						
'R1S3'	2020331	559136	15	0						
'R1S4'	2019916	558710	0	0						

Model Receiver Id.	Monitoring Station Id.[1]	Location Description	NAC	Peak Hour Leq Noise Levels (dBA)			
				Existing Year (2002)	EPA Modified No-Build	Horizon Year (2028) No-Build	Horizon Year (2028) Route 92
				Measured	Estimated	Estimated	Modeled
C-1	**1**	East of Commerce Dr. /South of Rt. 32	C	65.9	67.9	68.0	**72.5**
C-2	--	West of CR-535/South of Rt. 32	C	--	--	--	65.8
C-3	--	West of CR-535/South of Rt. 32	C	--	--	--	68.8
C-4	--	East of Commerce Dr. /South of Rt. 32	C	--	--	--	**73.7**
C-5	--	West of Herrod Blvd/North of Rt. 32	C	--	--	--	71.3
C-6	--	East of Herrod Blvd/North of Rt. 32	C	--	--	--	69.3
C-7	13	30 Friendship Road [ROW]	C	62.0	64.1	64.1	68.7
R-1	12	39 Friendship Road	B	**66.8**	**68.9**	**68.9**	59.3
R-13	**2**	West of 84 Friendship Rd.	B	63.2	65.3	65.3	**68.9**
R-2	P25	84 Miller Road	B	50.0	52.1	52.1	59.1
R-3	9	80 Miller Road	B	55.1	57.2	57.2	55.6
R-4	**3**	194 Friendship Rd.	B	61.1	63.2	63.2	61.7
R-5	**4**	273 Friendship Rd.	B	60.5	62.6	62.6	62.2
R-6	--	287 Friendship Road	B	--	--	--	**71.2**
R-7	--	307 Friendship Road	B	--	--	--	66.2
R-8	7	343 Friendship Road	B	65.2	**67.3**	**67.3**	59.3
R-9	**5**, 5	Silvers Ln. Dead End	B	49.7	51.8	51.8	55.3
R-10	**6**	100 Perrine Rd.	B	54.0	56.1	56.1	61.6
R-11	--	South of Perrine Rd./West of Major Rd.	B	--	--	--	59.5
R-12	**7**, 3	Rt. 1 Boy Scout Council [ROW]	B	**71.0**	**73.1**	**73.1**	**71.1**
R-14	--	177 Friendship Road	B	--	--	--	**68.6**
R-15	--	Perrine Road	B	--	--	--	66.5
R-16	--	Perrine Road	B	--	--	--	**68.8**
R-17	--	107 Friendship Road	B	--	--	--	**67.2**
C-9	P22	Tile Institute [ROW]	C	64.0	66.1	66.1	68.8
		No. of Receivers Impacted		2	3	3	8

[1]Bold values are 2002 monitoring locations.

Receiver Id. represent both commercial (C) and residential (R) receivers based on the FHWA Noise Abatement Criteria description.

Red highlighted values indicate an exceedance of the 67 dBA or 72 dBA NAC.

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S T A M I N A   P R O G R A M
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TRAFFIC NOISE PREDICTION MODEL
STAMINA 2.0/BCR - FHWA VER. 3 (3/83)
TOWNE, RICHARDS & CHAUDIERE PC VER. 1 (11/84)
Seattle - King County Health Dept.


(INPUT UNITS- ENGLISH , OUTPUT UNITS- ENGLISH )


NJTPA Preferred Route 92 Alignment
PROGRAM INITIALIZATION PARAMETERS

   HEIGHT    CODE       DESCRIPTION
    .00       1    RECEIVER HEIGHT ADJUSTMENT
   1.00       2    A-WEIGHTED SOUND LEVEL ONLY
    .00       3    HEIGHT ADJUSTMENT FOR PASSENGER CARS (CARS)
   8.00       4    HEIGHT ADJUSTMENT FOR HEAVY TRUCKS   (HT)
   2.30       5    HEIGHT ADJUSTMENT FOR MEDIUM TRUCKS  (MT)

ROADWAY  1    RT92 RT1 TO PERRINE RD ON/OFFRAMP EASTBOUND

            VEHICLE TYPE  VEHICLES/HOUR    SPEED
               CARS          333.        53.
               HT            22.         53.
               MT            19.         53.
             -----------COORDINATES-----------
                X          Y          Z    GRADE
R92E1            2020730.   558706.     0.    0
R92E2            2021810.   557257.     0.    0
R92E3            2023959.   556100.     0.    0

ROADWAY  2    RT92 RT1 TO PERRINE RD ON/OFFRAMP WESTBOUND

            VEHICLE TYPE  VEHICLES/HOUR    SPEED
               CARS          2612.       44.
               HT            86.         44.
               MT            75.         44.
             -----------COORDINATES-----------
                X          Y          Z    GRADE
R92W1            2021134.   558006.     0.    0
R92W2            2021855.   557299.     0.    0
R92W3            2023900.   556210.     0.    0

ROADWAY  3    RT92 PERRINE RD ON/OFFRAMP TO RT130 EASTBOUND

            VEHICLE TYPE  VEHICLES/HOUR    SPEED
               CARS          369.        53.
               HT            32.         53.
               MT            27.         53.
             -----------COORDINATES-----------
                X          Y          Z    GRADE
R92E4            2023959.   556100.     0.    0
R92E5            2033317.   555154.     0.    0
R92E6            2041864.   555759.     0.    0
R92E7            2042873.   555567.     0.    0
R92E8            2044689.   554404.     0.    0
R92E9            2045715.   553625.     0.    0

ROADWAY  4    RT92 PERRINE RD ON/OFFRAMP TO RT130 WESTBOUND

            VEHICLE TYPE  VEHICLES/HOUR    SPEED
               CARS          3378.       30.
               HT            95.         30.
               MT            81.         30.
             -----------COORDINATES-----------
                X          Y          Z    GRADE
```

R92W4	2023900.	556210.	0.	0
R92W5	2033317.	555217.	0.	0
R92W6	2041861.	555823.	0.	0
R92W7	2042894.	555629.	0.	0
R92W8	2044727.	554456.	0.	0
R92W9	2046159.	553356.	0.	0
R92W10	2046176.	553348.	0.	0

ROADWAY 5 Rt 92 East to Friendship Rd. Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	18.	45.
HT	1.	45.
MT	1.	45.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92E11	2045715.	553625.	0.	0
92EFR1	2046231.	553103.	0.	0
92EFR2	2046245.	552932.	0.	0
FR3	2046087.	552855.	0.	0

ROADWAY 6 Rt 92 W Perrine Road Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	766.	30.
HT	8.	30.
MT	7.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92W4	2023900.	556210.	0.	0
92WPON1	2023521.	556528.	0.	0

ROADWAY 7 Perrine Road to Rt 92 E Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	36.	45.
HT	10.	45.
MT	8.	45.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92EPOF1	2023119.	556280.	0.	0
92E4	2023954.	556079.	0.	0

ROADWAY 8 Perrine Road South of Rt 92 to Rt 92 E Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	637.	30.
HT	5.	30.
MT	4.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
PE-1	2020866.	554668.	0.	0
PE-2	2021065.	555111.	0.	0
92EPOF1	2023119.	556280.	0.	0

ROADWAY 9 Perrine Road Overpass

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	609.	35.
HT	12.	35.
MT	11.	35.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92EPOF1	2023119.	556280.	0.	0
PE-3	2023148.	556346.	15.	0
PE-4	2023311.	556446.	15.	0
92WPON1	2023521.	556528.	0.	0

ROADWAY 10 Perrine Road North of Rt 92 W to Perrine Rd N Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	404.	38.
HT	15.	38.
MT	13.	38.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92WPON1	2023521.	556528.	0.	0
PE-5	2023875.	556678.	0.	0
PE-6	2024646.	556402.	0.	0
PE-7	2025265.	556844.	0.	0

ROADWAY 11 Rt 92W Route 1 North Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	835.	30.
HT	24.	30.
MT	20.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92WR1N1	2020744.	558695.	0.	0
92WR1N2	2020670.	559114.	0.	0
92WR1N3	2020791.	559490.	0.	0

ROADWAY 12 Route 1 North/Route 92 East Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	307.	30.
HT	21.	30.
MT	18.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R192E1	2020173.	558822.	0.	0
R192E2	2020489.	558799.	0.	0
R192E3	2021136.	557993.	0.	0

ROADWAY 13 Route 92 West/Route 1 South Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1776.	30.
HT	63.	30.
MT	54.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92W1	2020462.	559123.	0.	0
92WR1S1	2020381.	559249.	0.	0
92WR1S2	2020221.	559549.	0.	0
92WR1S3	2020257.	559857.	0.	0
92WR1S4	2020457.	559946.	0.	0
92WR1S5	2020692.	559791.	0.	0
92WR1S6	2020624.	559476.	0.	0

ROADWAY 14 Route 1 South/Route 92 East Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	26.	30.
HT	1.	30.
MT	1.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R1S92E1	2021039.	559920.	0.	0
R1S92E2	2020467.	559980.	0.	0
R1S92E3	2020172.	559787.	0.	0
R1S92E4	2020174.	559536.	0.	0
R1S92E5	2020335.	559209.	0.	0
92E1	2020418.	559076.	0.	0

ROADWAY 15 Route 1 North to Rt 92 E Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2755.	48.
HT	107.	48.
MT	93.	48.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R1N1	2019923.	558581.	0.	0
R192E1	2020173.	558822.	0.	0

ROADWAY 16 Route 1 North to Rt 92W/Rt 1N Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2448.	39.
HT	86.	39.
MT	75.	39.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R192E1	2020173.	558822.	0.	0
R1N2	2020374.	559071.	15.	0
R1N3	2020470.	559177.	15.	0
92WR1N3	2020791.	559490.	0.	0

ROADWAY 17 Route 1 North from Rt 92W/Rt 1N

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	3284.	30.
HT	110.	30.
MT	95.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92WR1N3	2020791.	559490.	0.	0
R1N4	2021673.	560472.	0.	0

ROADWAY 18 Route 1 South to Rt 92 E Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	3166.	30.
HT	67.	30.
MT	57.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R1S1	2021629.	560507.	0.	0
R1S92E1	2020173.	558822.	0.	0

ROADWAY 19 Route 1 South to Rt 92W/Rt 1S Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	3140.	30.
HT	66.	30.
MT	56.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R1S92E1	2020173.	558822.	0.	0
92WR1S6	2020624.	559476.	0.	0

ROADWAY 20 Route 1 South from Rt 92W/Rt 1S

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	4916.	30.
HT	128.	30.
MT	111.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92WR1S6	2020624.	559476.	0.	0
R1S2	2020430.	559232.	15.	0
R1S3	2020331.	559136.	15.	0
R1S4	2019916.	558710.	0.	0

ROADWAY 21 Rt 130SB (Rt 92 W Overpass to Friendship Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1536.	30.
HT	85.	30.
MT	74.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
130 SFR1	2047037.	551978.	0.	0
130N1FR6	2046689.	550780.	0.	0

ROADWAY 22 Rt 130 N to Friendship Onramp (Segment 1)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	51.	47.
HT	1.	47.
MT	0.	47.

	----------COORDINATES----------			
	X	Y	Z	GRADE
130N1FR1	2046825.	550887.	0.	0
130N1FR2	2047016.	551044.	0.	0
130N1FR3	2047139.	550881.	0.	0
130N1FR4	2046988.	550728.	0.	0
130N1FR5	2046796.	550761.	0.	0
130N1FR6	2046689.	550780.	0.	0

ROADWAY 23 Rt 130 N to Friendship Onramp (Segment 2)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	599.	30.
HT	14.	30.
MT	12.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
130N2FR1	2046485.	550923.	0.	0
130N2FR2	2046588.	551349.	0.	0
FR1	2046547.	551516.	0.	0

ROADWAY 24 Friendship Road (Segment 1)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	527.	30.
HT	6.	30.
MT	5.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
FR1	2046547.	551516.	0.	0
FR2	2046212.	552146.	0.	0

ROADWAY 25 Friendship Road (Segment 2)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	535.	30.
HT	6.	30.
MT	5.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
FR2	2046212.	552146.	0.	0
FR3	2046087.	552855.	0.	0

ROADWAY 26 Friendship Road (Segment 3)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	541.	30.
HT	6.	30.
MT	6.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
FR3	2046087.	552855.	0.	0
FR4	2045756.	553279.	0.	0

ROADWAY 27 Friendship Road (Segment 4)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	512.	30.
HT	6.	30.

	MT	6.	30.	
	----------COORDINATES----------			
	X	Y	Z	GRADE
FR4	2045756.	553279.	0.	0
FR5	2045642.	553354.	0.	0

ROADWAY 28 Friendship Rd. (Rt 130 SB Friendship Rd. Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	357.	30.
HT	11.	30.
MT	9.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
130SFR1	2047023.	551962.	0.	0
FR1	2046547.	551516.	0.	0

ROADWAY 29 Rt 92E (Rt 92/Friendship Offramp to Rt 130SB/Rt92E Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	361.	53.
HT	31.	53.
MT	26.	53.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92E11	2045715.	553625.	0.	0
130S92E4	2046640.	552883.	0.	0

RtUS-1, Perrine, Friendship,& Miller Rds,& Asbury & Dye Residences

	----------COORDINATES----------		
	X	Y	Z
C9	2021099.	559549.	5.
R12	2020851.	559776.	5.
R16	2024581.	556298.	5.
R15	2025048.	556356.	5.
R4	2038163.	556399.	5.
R14	2038988.	555764.	5.
R13	2043482.	555031.	5.
R17	2042376.	555463.	5.

ALPHA FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1 *	.0	.0	.0	.0	.0	.0	.0	.0
2 *	.0	.0	.0	.0	.0	.0	.0	.0
3 *	.0	.0	.0	.0	.0	.0	.0	.0
4 *	.0	.0	.0	.0	.0	.0	.0	.0
5 *	.0	.0	.0	.0	.0	.0	.0	.0
6 *	.0	.0	.0	.0	.0	.0	.0	.0
7 *	.0	.0	.0	.0	.0	.0	.0	.0
8 *	.0	.0	.0	.0	.0	.0	.0	.0
9 *	.0	.0	.0	.0	.0	.0	.0	.0
10 *	.0	.0	.0	.0	.0	.0	.0	.0
11 *	.0	.0	.0	.0	.0	.0	.0	.0
12 *	.0	.0	.0	.0	.0	.0	.0	.0
13 *	.0	.0	.0	.0	.0	.0	.0	.0
14 *	.0	.0	.0	.0	.0	.0	.0	.0
15 *	.0	.0	.0	.0	.0	.0	.0	.0
16 *	.0	.0	.0	.0	.0	.0	.0	.0
17 *	.0	.0	.0	.0	.0	.0	.0	.0
18 *	.0	.0	.0	.0	.0	.0	.0	.0
19 *	.0	.0	.0	.0	.0	.0	.0	.0
20 *	.0	.0	.0	.0	.0	.0	.0	.0
21 *	.0	.0	.0	.0	.0	.0	.0	.0
22 *	.0	.0	.0	.0	.0	.0	.0	.0
23 *	.0	.0	.0	.0	.0	.0	.0	.0
24 *	.0	.0	.0	.0	.0	.0	.0	.0
25 *	.0	.0	.0	.0	.0	.0	.0	.0
26 *	.0	.0	.0	.0	.0	.0	.0	.0
27 *	.0	.0	.0	.0	.0	.0	.0	.0
28 *	.0	.0	.0	.0	.0	.0	.0	.0
29 *	.0	.0	.0	.0	.0	.0	.0	.0

SHIELDING FACTORS - RECEIVER ACROSS,ROADWAY DOWN

```
 1 *  .5  .5  .5  .5  .5  .5  .5  .5
 2 *  .5  .5  .5  .5  .5  .5  .5  .5
 3 *  .5  .5  .5  .5  .5  .5  .5  .5
 4 *  .5  .5  .5  .5  .5  .5  .5  .5
 5 *  .5  .5  .5  .5  .5  .5  .5  .5
 6 *  .5  .5  .5  .5  .5  .5  .5  .5
 7 *  .5  .5  .5  .5  .5  .5  .5  .5
 8 *  .5  .5  .5  .5  .5  .5  .5  .5
 9 *  .5  .5  .5  .5  .5  .5  .5  .5
10 *  .5  .5  .5  .5  .5  .5  .5  .5
11 *  .5  .5  .5  .5  .5  .5  .5  .5
12 *  .5  .5  .5  .5  .5  .5  .5  .5
13 *  .5  .5  .5  .5  .5  .5  .5  .5
14 *  .5  .5  .5  .5  .5  .5  .5  .5
15 *  .5  .5  .5  .5  .5  .5  .5  .5
16 *  .5  .5  .5  .5  .5  .5  .5  .5
17 *  .5  .5  .5  .5  .5  .5  .5  .5
18 *  .5  .5  .5  .5  .5  .5  .5  .5
19 *  .5  .5  .5  .5  .5  .5  .5  .5
20 *  .5  .5  .5  .5  .5  .5  .5  .5
21 *  .5  .5  .5  .5  .5  .5  .5  .5
22 *  .5  .5  .5  .5  .5  .5  .5  .5
23 *  .5  .5  .5  .5  .5  .5  .5  .5
24 *  .5  .5  .5  .5  .5  .5  .5  .5
25 *  .5  .5  .5  .5  .5  .5  .5  .5
26 *  .5  .5  .5  .5  .5  .5  .5  .5
27 *  .5  .5  .5  .5  .5  .5  .5  .5
28 *  .5  .5  .5  .5  .5  .5  .5  .5
29 *  .5  .5  .5  .5  .5  .5  .5  .5


RECEIVER   LEQ(H)  L10
C9         68.8  71.3

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING  40.0 DBA

ROADWAY  SEGMENT

 1      1   2
      50.0 43.4
 2      1   2
      49.9 48.6
 3      1
      42.2
 4      1
      43.6
 11     1   2
      46.1 50.8
 12     1   2
      40.0 44.3
 13     1   2   3   4   5   6
      45.1 48.1 47.0 46.2 50.2 53.1
 15     1
      50.0
 16     1   2   3
      49.6 48.2 57.9
 17     1
      64.7
 18     1
      63.2
 19     1
      53.8
 20     1   2   3
      54.2 47.8 51.2


RECEIVER   LEQ(H)  L10
R12        71.1  73.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING  40.0 DBA

ROADWAY  SEGMENT

 1      1   2
      48.5 42.4
 2      1   2
      48.6 47.6
 3      1
      41.6
 4      1
      43.0
```

11 1 2
44.7 50.3
12 2
43.1
13 1 2 3 4 5 6
45.6 49.8 50.2 50.6 57.6 59.4
14 1
44.3
15 1
50.0
16 1 2 3
49.7 48.4 58.4
17 1
66.2
18 1
66.6
19 1
54.7
20 1 2 3
55.6 48.4 51.6

RECEIVER LEQ(H) L10
R16 68.8 71.9

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1 2
40.8 52.0
2 1 2
44.3 56.7
3 1
62.4
4 1
66.0
6 1
42.6
7 1
44.4
10 1 2 3
43.3 58.5 55.7

RECEIVER LEQ(H) L10
R15 66.5 69.3

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 2
48.7
2 1 2
43.0 53.6
3 1
60.9
4 1
63.7
7 1
40.6
10 2 3
49.2 55.4

RECEIVER LEQ(H) L10
R4 60.8 63.1

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3 1 2
40.9 56.6
4 1 2
42.1 58.2

RECEIVER LEQ(H) L10
R14 68.6 71.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3	2	3	4	
	63.8	40.4	40.0	
4	1	2	3	4
	40.9	66.7	41.7	41.2

RECEIVER	LEQ(H)	L10
R13	68.9	72.5

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3	2	3	4	5	
	48.3	50.5	66.0	47.1	
4	2	3	4	5	
	49.4	51.6	65.2	49.0	
29	1				
	41.5				

RECEIVER	LEQ(H)	L10
R17	67.2	70.6

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3	2	3	4	5	
	54.3	63.1	54.6	42.2	
4	2	3	4	5	
	55.3	62.7	55.6	44.3	

□SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3	2	3	4	5	
	48.3	50.5	66.0	47.1	
4	2	3	4	5	
	49.4	51.6	65.2	49.0	
29	1				
	41.5				

S T A M I N A P R O G R A M
****

TRAFFIC NOISE PREDICTION MODEL
STAMINA 2.0/BCR - FHWA VER. 3 (3/83)
TOWNE, RICHARDS & CHAUDIERE PC VER. 1 (11/84)
Seattle - King County Health Dept.

(INPUT UNITS- ENGLISH , OUTPUT UNITS- ENGLISH)

NJTPA Preferred Route 92 Alignment
PROGRAM INITIALIZATION PARAMETERS

HEIGHT	CODE	DESCRIPTION
.00	1	RECEIVER HEIGHT ADJUSTMENT
1.00	2	A-WEIGHTED SOUND LEVEL ONLY
.00	3	HEIGHT ADJUSTMENT FOR PASSENGER CARS (CARS)
8.00	4	HEIGHT ADJUSTMENT FOR HEAVY TRUCKS (HT)
2.30	5	HEIGHT ADJUSTMENT FOR MEDIUM TRUCKS (MT)

ROADWAY 1 Rt 92W (Rt 130SB/Rt92W Onramp to Rt 130N/Rt92WB Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1888.	52.
HT	40.	52.
MT	35.	52.

	COORDINATES			
	X	Y	Z	GRADE
130S92W5	2046176.	553348.	0.	0
130N92W5	2047381.	552359.	0.	0

ROADWAY 2 Rt 92 (Rt 130N/Rt 92 WB Ramp to Rt92W/Rt130N Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2530.	46.
HT	69.	46.
MT	60.	46.

	COORDINATES			
	X	Y	Z	GRADE
130N92W5	2047381.	552359.	0.	0
92W130N1	2047932.	552008.	0.	0

ROADWAY 3 Rt 92E (Rt 130N/Rt 92 EB Ramp to CR535/Rt92E Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1094.	53.
HT	114.	53.
MT	98.	53.

	COORDINATES			
	X	Y	Z	GRADE
130N92E4	2047962.	551915.	0.	0
535-92E1	2050046.	551322.	0.	0

ROADWAY 4 Rt 92E (Rt 130N/Rt 92 WB Ramp to CR535/Rt92W Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	3187.	32.
HT	81.	32.
MT	70.	32.

	COORDINATES			
	X	Y	Z	GRADE
92W130N1	2047932.	552008.	0.	0
535-92W3	2049741.	551468.	0.	0

ROADWAY 5 Rt 130 SB to Rt 92 W Onramp (Segment 1)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1908.	30.
HT	72.	30.
MT	62.	30.

	COORDINATES			
	X	Y	Z	GRADE
130S92W1	2047526.	554054.	0.	0
130S92W2	2047317.	553684.	0.	0
130S92W3	2046920.	553441.	0.	0

ROADWAY 6 Rt 130 SB to Rt 92 W Onramp (Segment 2)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1490.	30.
HT	55.	30.
MT	47.	30.

	COORDINATES			
	X	Y	Z	GRADE
130S92W3	2046920.	553441.	0.	0
130S92W4	2046481.	553257.	0.	0
130S92W5	2046176.	553348.	0.	0

ROADWAY 7 Rt 130 SB to Rt 92 East Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	419.	30.
HT	18.	30.
MT	15.	30.

	COORDINATES			
	X	Y	Z	GRADE
130 S92W	2046920.	553441.	0.	0
130S92E1	2046593.	552688.	0.	0
130S92E2	2046341.	552651.	0.	0
130S92E3	2046395.	552945.	0.	0
130S92E4	2046640.	552883.	0.	0

ROADWAY 8 Route 92 West (Rt 92 Offramp/130N Onramp) Segment 1

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	657.	30.
HT	12.	30.
MT	11.	30.

	COORDINATES			
	X	Y	Z	GRADE
92W130N1	2047932.	552008.	0.	0
92W130N2	2047734.	552221.	0.	0
92W130N3	2047731.	552629.	0.	0

ROADWAY 9 Route 92 West (Rt 92 Offramp/130N Onramp) Segment 2

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	803.	30.
HT	32.	30.
MT	28.	30.

	COORDINATES			
	X	Y	Z	GRADE
92W130N3	2047731.	552629.	0.	0
92W130N4	2047584.	552959.	0.	0
92W130N5	2047500.	553627.	0.	0

ROADWAY 10 Rt 130N to Rt 92 E (Rt130/Rt92 Onramp East)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	398.	30.
HT	82.	30.
MT	70.	30.

	COORDINATES			
	X	Y	Z	GRADE
130N92E1	2046931.	551278.	0.	0
130N92E2	2047119.	551579.	0.	0
130N92E3	2047757.	551948.	0.	0

130N92E4	2047962.	551915.	0.	0

ROADWAY 11 Rt 130N to Rt 92 W (Rt 130/Rt 92 Onramp West)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	237.	30.
HT	11.	30.
MT	9.	30.

	COORDINATES			
	X	Y	Z	GRADE
130N92W1	2047248.	552570.	0.	0
130N92W2	2047455.	552768.	0.	0
130N92W3	2047696.	552629.	0.	0
130N92W4	2047655.	552400.	0.	0
130N92W5	2047381.	552359.	0.	0

ROADWAY 12 Rt 92 E to Rt 130N (Rt92/Rt 130N Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	74.	30.
HT	16.	30.
MT	14.	30.

	COORDINATES			
	X	Y	Z	GRADE
92E130N1	2047328.	552291.	0.	0
92E130N2	2047510.	552007.	0.	0
92E130N3	2047408.	551838.	0.	0
92E130N4	2047198.	551864.	0.	0
92E130N5	2047141.	552116.	0.	0

ROADWAY 13 Rt 92 W to Rt 130 S (Rt 92/Rt 130S Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	879.	30.
HT	40.	30.
MT	34.	30.

	COORDINATES			
	X	Y	Z	GRADE
92130S1	2046895.	552747.	0.	0
92130S2	2046747.	553063.	0.	0
92130S3	2046963.	553278.	0.	0
92130S4	2047204.	553192.	0.	0
92130S5	2047251.	552879.	0.	0

ROADWAY 14 Rt 130 N (From Friendship Rd. Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2192.	38.
HT	253.	38.
MT	219.	38.

	COORDINATES			
	X	Y	Z	GRADE
130N1FR1	2046825.	550887.	0.	0
130N92E1	2046931.	551278.	0.	0

ROADWAY 15 Rt 130 Northbound (South of Rt 92)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1794.	46.
HT	172.	46.
MT	148.	46.

	COORDINATES			
	X	Y	Z	GRADE
130N92E1	2046931.	551278.	0.	0
130N1	2047195.	552390.	15.	0

ROADWAY 16 Rt 130 NB (Rt 92 Overpass)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1868.	45.

HT	177.	45.	
MT	153.	45.	

----------COORDINATES----------

	X	Y	Z	GRADE
130N1	2047195.	552390.	15.	0
130N2	2047216.	552483.	15.	0
130N92W1	2047248.	552570.	0.	0

ROADWAY 17 Rt 130 Northbound (North of Rt 92)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1631.	48.
HT	177.	48.
MT	153.	48.

----------COORDINATES----------

	X	Y	Z	GRADE
130N92W1	2047248.	552570.	0.	0
92W130N5	2047500.	553627.	0.	0

ROADWAY 18 Rt 130 Southbound (North of Rt 92)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1014.	50.
HT	57.	50.
MT	49.	50.

----------COORDINATES----------

	X	Y	Z	GRADE
130S1	2047544.	554049.	0.	0
130S2	2047174.	552520.	0.	0

ROADWAY 19 Rt 130 SB (Rt 92 Overpass/South of Rt 92)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1893.	47.
HT	96.	47.
MT	83.	47.

----------COORDINATES----------

	X	Y	Z	GRADE
130S2	2047174.	552520.	0.	0
130S3	2047151.	552426.	0.	0
130SFR1	2047037.	551978.	0.	0

ROADWAY 20 Rt 92 West (North Frontage from 535 Off Ramp to Herrod Blvd)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	133.	30.
HT	3.	30.
MT	3.	30.

----------COORDINATES----------

	X	Y	Z	GRADE
53592W2	2050539.	551314.	0.	0
92WFR1	2049139.	551662.	0.	0

ROADWAY 21 Rt 92 West (North Frontage Road from Herrod Blvd to Rt 130 N Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	146.	30.
HT	20.	30.
MT	18.	30.

----------COORDINATES----------

	X	Y	Z	GRADE
92WFR1	2049139.	551662.	0.	0
92WFR2	2047939.	551995.	0.	0
92W130N3	2047731.	552629.	0.	0

ROADWAY 22 Herrod Blvd (South of Rt 92

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	457.	30.
HT	37.	30.

MT	32.	30.	
----------COORDINATES----------			
X	Y	Z	GRADE
SHB-1	2048933.	551229.	0.	0
SHB-2	2049015.	551570.	0.	0

ROADWAY 23 Herrod Blvd (North of Rt 92)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	141.	30.
HT	22.	30.
MT	19.	30.

----------COORDINATES----------			
X	Y	Z	GRADE
NHB-1	2049051.	551690.	0.	0
NHB-2	2049167.	552072.	0.	0

ROADWAY 24 Rt 92 E South Frontage Road (Herrod Blvd to Rt92E/CR535 Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	235.	30.
HT	29.	30.
MT	25.	30.

----------COORDINATES----------			
X	Y	Z	GRADE
SHB-2	2049015.	551570.	0.	0
53592E2	2050615.	551139.	0.	0

ROADWAY 25 Rt 92E (Rt 130SB/Rt92E Onramp to Rt92E/Rt130N Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	696.	53.
HT	48.	53.
MT	42.	53.

----------COORDINATES----------			
X	Y	Z	GRADE
130N92E4	2046640.	552883.	0.	0
92E130N1	2047328.	552291.	0.	0

ROADWAY 26 Rt 92E (Rt92E/Rt130N Onramp to Herrod Blvd Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1094.	53.
HT	114.	53.
MT	98.	53.

----------COORDINATES----------			
X	Y	Z	GRADE
130N92E4	2047962.	551915.	0.	0
92E12	2048942.	551594.	0.	0

ROADWAY 27 Rt 92E (Herrod Blvd Onramp to Rt92E/CR-535 Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	871.	53.
HT	106.	53.
MT	92.	53.

----------COORDINATES----------			
X	Y	Z	GRADE
92E12	2048942.	551594.	0.	0
535-92E1	2050046.	551322.	0.	0

Route 130 and the NJTP 8A Interchange Area Receivers

----------COORDINATES----------			
X	Y	Z	
C1	2049875.	551204.	5.
C4	2049260.	551363.	5.
C5	2048808.	551987.	5.
C6	2049598.	551853.	5.
C7	2045184.	553582.	5.

R1 2045709. 553466. 5.

ALPHA FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1 *	.0	.0	.0	.0	.0	.0
2 *	.0	.0	.0	.0	.0	.0
3 *	.0	.0	.0	.0	.0	.0
4 *	.0	.0	.0	.0	.0	.0
5 *	.0	.0	.0	.0	.0	.0
6 *	.0	.0	.0	.0	.0	.0
7 *	.0	.0	.0	.0	.0	.0
8 *	.0	.0	.0	.0	.0	.0
9 *	.0	.0	.0	.0	.0	.0
10 *	.0	.0	.0	.0	.0	.0
11 *	.0	.0	.0	.0	.0	.0
12 *	.0	.0	.0	.0	.0	.0
13 *	.0	.0	.0	.0	.0	.0
14 *	.0	.0	.0	.0	.0	.0
15 *	.0	.0	.0	.0	.0	.0
16 *	.0	.0	.0	.0	.0	.0
17 *	.0	.0	.0	.0	.0	.0
18 *	.0	.0	.0	.0	.0	.0
19 *	.0	.0	.0	.0	.0	.0
20 *	.0	.0	.0	.0	.0	.0
21 *	.0	.0	.0	.0	.0	.0
22 *	.0	.0	.0	.0	.0	.0
23 *	.0	.0	.0	.0	.0	.0
24 *	.0	.0	.0	.0	.0	.0
25 *	.0	.0	.0	.0	.0	.0
26 *	.0	.0	.0	.0	.0	.0
27 *	.0	.0	.0	.0	.0	.0

SHIELDING FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1 *	.5	.5	.5	.5	.5	.5
2 *	.5	.5	.5	.5	.5	.5
3 *	.5	.5	.5	.5	.5	.5
4 *	.5	.5	.5	.5	.5	.5
5 *	.5	.5	.5	.5	.5	.5
6 *	.5	.5	.5	.5	.5	.5
7 *	.5	.5	.5	.5	.5	.5
8 *	.5	.5	.5	.5	.5	.5
9 *	.5	.5	.5	.5	.5	.5
10 *	.5	.5	.5	.5	.5	.5
11 *	.5	.5	.5	.5	.5	.5
12 *	.5	.5	.5	.5	.5	.5
13 *	.5	.5	.5	.5	.5	.5
14 *	.5	.5	.5	.5	.5	.5
15 *	.5	.5	.5	.5	.5	.5
16 *	.5	.5	.5	.5	.5	.5
17 *	.5	.5	.5	.5	.5	.5
18 *	.5	.5	.5	.5	.5	.5
19 *	.5	.5	.5	.5	.5	.5
20 *	.5	.5	.5	.5	.5	.5
21 *	.5	.5	.5	.5	.5	.5
22 *	.5	.5	.5	.5	.5	.5
23 *	.5	.5	.5	.5	.5	.5
24 *	.5	.5	.5	.5	.5	.5
25 *	.5	.5	.5	.5	.5	.5
26 *	.5	.5	.5	.5	.5	.5
27 *	.5	.5	.5	.5	.5	.5

RECEIVER	LEQ(H)	L10
C1	72.5	75.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1	1
	45.2
2	1
	45.5
3	1
	68.9
4	1
	58.6
10	2
	41.1

14 1
43.4
15 1
48.2
17 1
47.6
18 1
44.9
19 2
42.3
20 1
48.4
21 1
43.5
22 1
44.0
23 1
41.2
24 1
60.5
25 1
42.4
26 1
54.1
27 1
68.6

RECEIVER LEQ(H) L10
C4 73.7 76.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
47.3
2 1
48.4
3 1
69.6
4 1
63.6
10 2 3
44.0 40.4
14 1
45.6
15 1
50.6
17 1
49.7
18 1
46.9
19 2
44.8
20 1
47.6
21 1
50.0
22 1
54.1
23 1
47.4
24 1
59.9
25 1
44.7
26 1
60.2
27 1
69.6

RECEIVER LEQ(H) L10
C5 71.3 73.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
50.2

2 1
52.7
3 1
66.8
4 1
64.0
5 2
40.1
9 1 2
40.4 40.7
10 1 2 3
40.7 47.0 44.7
14 1
46.8
15 1
53.1
16 1 2
42.8 42.7
17 1
53.0
18 1
50.1
19 1 2
40.9 47.6
20 1
41.0
21 1 2
55.7 43.2
22 1
48.2
23 1
51.2
24 1
49.8
25 1
47.7
26 1
64.9
27 1
60.3

RECEIVER LEQ(H) L10
C6 69.3 71.9

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
46.8
2 1
47.5
3 1
65.2
4 1
61.3
10 2
42.6
14 1
44.0
15 1
49.5
17 1
49.6
18 1
46.9
19 2
43.9
20 1
47.5
21 1
47.2
22 1
45.9
23 1
47.7
24 1
53.8
25 1
44.1
26 1

56.9
27 1
63.7

RECEIVER LEQ(H) L10
C7 59.5 61.3

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
52.8
2 1
43.8
3 1
46.9
4 1
42.6
5 1 2
40.0 42.0
6 1 2
43.2 44.0
14 1
43.3
15 1
49.5
17 1
50.8
18 1
48.6
19 2
44.7
25 1
47.0
26 1
44.7
27 1
41.9

RECEIVER LEQ(H) L10
R1 62.6 64.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
57.3
2 1
45.9
3 1
48.4
4 1
44.1
5 1 2
42.5 45.1
6 1 2
47.3 49.7
7 1 3
43.1 40.6
9 2
40.4
10 2
41.2
13 1 2
42.2 42.0
14 1
44.7
15 1
51.5
16 1 2
42.0 42.1
17 1
53.4
18 1
51.2
19 1 2
40.7 46.9
25 1

49.9
26 1
46.3
27 1
43.2

STAMINA PROGRAM
****

TRAFFIC NOISE PREDICTION MODEL
STAMINA 2.0/BCR - FHWA VER. 3 (3/83)
TOWNE, RICHARDS & CHAUDIERE PC VER. 1 (11/84)
Seattle - King County Health Dept.

(INPUT UNITS- ENGLISH , OUTPUT UNITS- ENGLISH)

NJTPA Preferred Route 92 Alignment
PROGRAM INITIALIZATION PARAMETERS

HEIGHT	CODE	DESCRIPTION
.00	1	RECEIVER HEIGHT ADJUSTMENT
1.00	2	A-WEIGHTED SOUND LEVEL ONLY
.00	3	HEIGHT ADJUSTMENT FOR PASSENGER CARS (CARS)
8.00	4	HEIGHT ADJUSTMENT FOR HEAVY TRUCKS (HT)
2.30	5	HEIGHT ADJUSTMENT FOR MEDIUM TRUCKS (MT)

ROADWAY 1 Rt 92W (CR-535 OnRamp to Rt 92W)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1631.	32.
HT	81.	32.
MT	70.	32.

	COORDINATES			
	X	Y	Z	GRADE
8A92W3	2051557.	551031.	0.	0
535-92W3	2051304.	551181.	0.	0

ROADWAY 2 Rt 92W (Rt 92W Onramp/ Interchange 8A OffRamp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1938.	30.
HT	82.	30.
MT	70.	30.

	COORDINATES			
	X	Y	Z	GRADE
8AS-2	2052281.	551763.	0.	0
8A92W1	2052084.	551333.	0.	0
8A92W2	2051852.	551110.	15.	0
8A92W3	2051557.	551031.	15.	0

ROADWAY 3 Rt 92W (Rt 92W Onramp/ Interchange 8A OffRamp to CR535 Offramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1631.	52.
HT	59.	52.
MT	50.	52.

	COORDINATES			
	X	Y	Z	GRADE
8A92W3	2051557.	551031.	15.	0
53592W3	2051304.	551181.	0.	0

ROADWAY 4 Rt 92W (Rt 92W Onramp/ Interchange 8A OffRamp to CR535 Offramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1505.	30.
HT	17.	30.
MT	14.	30.

	COORDINATES			
	X	Y	Z	GRADE
92W8A1	2052648.	550703.	0.	0
92W8A2	2052306.	550996.	15.	0
5358AN8	2052341.	550992.	15.	0

ROADWAY 5 Rt 92 W (West of Interchange 8A)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	3712.	30.
HT	34.	30.
MT	29.	30.

	COORDINATES			
	X	Y	Z	GRADE
92W12	2052917.	550642.	0.	0
92W8A1	2052648.	550703.	0.	0

ROADWAY 6 Rt 92 West (Interchange 8A)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2207.	30.
HT	17.	30.
MT	15.	30.

	COORDINATES			
	X	Y	Z	GRADE
92W8A1	2052648.	550703.	0.	0
53592W1	2051304.	551181.	0.	0
53592W2	2050539.	551314.	0.	0

ROADWAY 7 Rt 92 West (CR535 Offramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1688.	30.
HT	26.	30.
MT	23.	30.

	COORDINATES			
	X	Y	Z	GRADE
53592W3	2049741.	551468.	15.	0
53592W2	2050539.	551314.	0.	0
53592W1	2051304.	551181.	0.	0

ROADWAY 8 Rt 92 West (CR535 Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2207.	30.
HT	17.	30.
MT	15.	30.

	COORDINATES			
	X	Y	Z	GRADE
535N92W1	2051944.	550925.	0.	0
535N92W2	2051410.	551174.	15.	0

ROADWAY 9 Rt 92E (Rt92E/CR-535 Onramp to Interchange 8A Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	0.	30.
HT	0.	30.
MT	0.	30.

	COORDINATES			
	X	Y	Z	GRADE
535-92E1	2050046.	551322.	0.	0
535-8AN1	2051452.	550986.	0.	0

ROADWAY 10 Rt92E/Interchange 8A Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	289.	30.
HT	89.	30.
MT	76.	30.

	COORDINATES			
	X	Y	Z	GRADE
535-8AN1	2051452.	550986.	0.	0
535-8AN2	2051914.	551097.	15.	0
535-8AN3	2052600.	551339.	15.	0
535-8AN4	2052854.	551169.	15.	0
535-8AN5	2052794.	550873.	15.	0

535-8AN6	2052455.	550848.	15.	0
535-8AN7	2052518.	550821.	15.	0
535-8AN8	2052341.	550992.	15.	0
535-8AN9	2052292.	551385.	0.	0

ROADWAY 11 Rt92E/CR535 Onramp to CR-535

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	818.	30.
HT	3.	30.
MT	3.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
53592E1	2050046.	551322.	0.	0
53592E2	2050615.	551139.	0.	0
53592E3	2051246.	550952.	0.	0
8AN-1	2051405.	550913.	0.	0

ROADWAY 12 Rt 92 E South Frontage Road (Interchange 8A Onramp to Interchange 8A/Rt92 E Onra

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	898.	30.
HT	89.	30.
MT	76.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
8AN-1	2051405.	550913.	0.	0
8A92E6	2052004.	550796.	0.	0

ROADWAY 13 Rt 92 E (Interchange 8A/Rt92 E Onramp to Rt 92E)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1548.	30.
HT	30.	30.
MT	25.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
8A92E6	2052004.	550796.	0.	0
92E13	2052884.	550543.	0.	0

ROADWAY 14 Interchange 8A (Onramp to 8A Toll)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	566.	30.
HT	107.	30.
MT	93.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
8AN-1	2051405.	550913.	0.	0
8AN-2	2051599.	550817.	0.	0
8AN-3	2051696.	550567.	0.	0
8AN-4	2051983.	550453.	0.	0
8AN-5	2052147.	550726.	15.	0
8AN-6	2052178.	550858.	15.	0
535-8AN8	2052341.	550992.	0.	0

ROADWAY 15 Interchange 8A Southbound

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2588.	30.
HT	92.	30.
MT	79.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
8AS-1	2052552.	552969.	0.	0
8AS-2	2052281.	551763.	0.	0

ROADWAY 16 Interchange 8A SB (8A Onramp to Rt92 East)

VEHICLE TYPE VEHICLES/HOUR SPEED

CARS	650.	30.	
HT	10.	30.	
MT	9.	30.	

	----------COORDINATES----------			
	X	Y	Z	GRADE
8AS-2	2052281.	551763.	0.	0
8A92E-1	2052144.	550864.	15.	0
8A92E-2	2052124.	550731.	15.	0
8A92E-3	2052021.	550493.	0.	0
8A92E-4	2051720.	550587.	0.	0
8A92E-5	2051823.	550806.	0.	0
8A92E-6	2052004.	550796.	0.	0

ROADWAY 17 Interchange 8A SB (8A Onramp to Rt92 West)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1938.	30.
HT	82.	30.
MT	70.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
8AS-2	2052281.	551763.	0.	0
8A92W1	2052084.	551333.	0.	0
8A92W2	2051852.	551110.	0.	0
8A92W3	2051557.	551031.	0.	0

ROADWAY 18 CR535 (South of Rt 92)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1892.	30.
HT	117.	30.
MT	100.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
535S-1	2051140.	550333.	0.	0
535S-2	2051292.	550916.	15.	0

ROADWAY 19 CR535 (Rt 92 Overpass)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1939.	30.
HT	72.	30.
MT	62.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
535S-2	2051292.	550916.	15.	0
535N-1	2051347.	551153.	15.	0

ROADWAY 20 CR535 (North of Rt 92)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1564.	30.
HT	70.	30.
MT	60.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
535N-1	2051347.	551153.	15.	0
535N-2	2051447.	551474.	0.	0

Route 130 and the NJTP 8A Interchange Area Receivers

	----------COORDINATES----------		
	X	Y	Z
C1	2049875.	551204.	5.
C2	2050767.	550961.	5.
C3	2051083.	550931.	5.
C4	2049260.	551363.	5.
C5	2048808.	551987.	5.
C6	2049598.	551853.	5.

ALPHA FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1 *	.0	.0	.0	.0	.0	.0
2 *	.0	.0	.0	.0	.0	.0
3 *	.0	.0	.0	.0	.0	.0
4 *	.0	.0	.0	.0	.0	.0
5 *	.0	.0	.0	.0	.0	.0
6 *	.0	.0	.0	.0	.0	.0
7 *	.0	.0	.0	.0	.0	.0
8 *	.0	.0	.0	.0	.0	.0
9 *	.0	.0	.0	.0	.0	.0
10 *	.0	.0	.0	.0	.0	.0
11 *	.0	.0	.0	.0	.0	.0
12 *	.0	.0	.0	.0	.0	.0
13 *	.0	.0	.0	.0	.0	.0
14 *	.0	.0	.0	.0	.0	.0
15 *	.0	.0	.0	.0	.0	.0
16 *	.0	.0	.0	.0	.0	.0
17 *	.0	.0	.0	.0	.0	.0
18 *	.0	.0	.0	.0	.0	.0
19 *	.0	.0	.0	.0	.0	.0
20 *	.0	.0	.0	.0	.0	.0

SHIELDING FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1 *	.5	.5	.5	.5	.5	.5
2 *	.5	.5	.5	.5	.5	.5
3 *	.5	.5	.5	.5	.5	.5
4 *	.5	.5	.5	.5	.5	.5
5 *	.5	.5	.5	.5	.5	.5
6 *	.5	.5	.5	.5	.5	.5
7 *	.5	.5	.5	.5	.5	.5
8 *	.5	.5	.5	.5	.5	.5
9 *	.5	.5	.5	.5	.5	.5
10 *	.5	.5	.5	.5	.5	.5
11 *	.5	.5	.5	.5	.5	.5
12 *	.5	.5	.5	.5	.5	.5
13 *	.5	.5	.5	.5	.5	.5
14 *	.5	.5	.5	.5	.5	.5
15 *	.5	.5	.5	.5	.5	.5
16 *	.5	.5	.5	.5	.5	.5
17 *	.5	.5	.5	.5	.5	.5
18 *	.5	.5	.5	.5	.5	.5
19 *	.5	.5	.5	.5	.5	.5
20 *	.5	.5	.5	.5	.5	.5

RECEIVER	LEQ(H)	L10
C1	61.0	64.2

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1	1		
	42.8		
2	1	2	3
	40.6	40.0	41.1
3	1		
	46.1		
6	1	2	
	43.4	47.4	
7	1	2	
	57.8	47.7	
8	1		
	40.5		
10	1	2	
	42.6	41.8	
11	1	2	
	49.6	41.1	
12	1		
	43.9		
14	1	2	3
	40.8	40.7	40.2
15	1		
	43.8		
17	1	2	3
	40.6	40.0	41.1
18	1		
	47.3		
19	1		
	41.8		

20 1
42.5

RECEIVER LEQ(H) L10
C2 65.3 67.7

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
50.5
2 1 2 3
44.7 45.2 47.4
3 1
53.8
6 1 2
49.7 56.1
7 1 2
51.2 56.3
8 1
47.1
10 1 2 5 7 8
49.2 46.4 40.8 40.4 43.0
11 1 2 3
48.5 55.9 40.5
12 1
50.6
13 1
43.7
14 1 2 3 4 5 6
48.4 47.3 45.8 44.4 40.3 41.7
15 1
46.6
16 1
40.1
17 1 2 3
44.7 45.1 47.4
18 1
56.0
19 1
50.6
20 1
49.5

RECEIVER LEQ(H) L10
C3 68.8 71.4

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
55.4
2 1 2 3
46.6 47.8 51.2
3 1
58.7
4 1
40.8
5 1
40.1
6 1 2
53.6 56.3
7 1 2
47.9 56.5
8 1
51.0
10 1 2 3 4 5 7 8
53.4 48.7 41.3 40.8 42.6 42.4 45.0
11 1 2 3
43.4 59.3 48.3
12 1
55.0
13 1
45.9
14 1 2 3 4 5 6
53.6 51.0 48.6 46.8 42.7 44.0
15 1
47.7

16 1 4 5
42.2 40.6 41.0
17 1 2 3
46.6 47.8 51.2
18 1
61.8
19 1
57.6
20 1
53.3

RECEIVER LEQ(H) L10
C4 55.7 58.2

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3 1
42.8
6 1 2
40.6 42.7
7 1 2
49.8 42.9
11 1
40.5
12 1
40.9
15 1
42.0
18 1
43.9

RECEIVER LEQ(H) L10
C5 52.9 54.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3 1
40.4
7 1
44.5
15 1
40.9
18 1
41.1

RECEIVER LEQ(H) L10
C6 56.9 59.5

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
40.5
3 1
43.8
6 1 2
41.5 44.0
7 1 2
51.7 44.3
10 1 2
40.5 40.4
11 1
41.5
12 1
41.6
15 1
43.4
18 1
44.2
20 1
40.4

RECEIVER LEQ(H) L10

C6 56.9 59.5

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 D

Route 92 Preferred Alternative OPTIMA Modeling Results

Table 1

SUMMARYOF NOISE BARRIER MODELING ANALYSIS

For Receptor R-6					Receptor Data	
Barrier Dimensions			Cost	Max. Insertion Loss	No.of Benefitted	Cost/Receptor
height (ft)	length (ft)	area (ft2)	($)	(dB)	Receptors	($)
10	600	6,000	120,000	7	1	120,000
12	600	7,200	144,000	7	1	144,000
16	600	9,600	192,000	8	1	192,000
18	600	10,800	216,000	8	1	216,000

Note: 1 The $20 per square-foot of barrier is used as a cost estimation for evaluating cost effectiveness.

Light shaded area indicates when a residential receiver benefits from a 4 dBA noise reduction.

Table 1

SUMMARYOF NOISE BARRIER MODELING ANALYSIS

For Receptor R-13					Receptor Data	
Barrier Dimensions			Cost	Max. Insertion Loss	No.of Benefitted	Cost/Receptor
height (ft)	length (ft)	area (ft2)	($)	(dB)	Receptors	($)
10	600	6,000	120,000	6	1	120,000
12	600	7,200	144,000	6	1	144,000
16	600	9,600	192,000	7	1	192,000
18	600	10,800	216,000	7	1	216,000

Note: 1 The $20 per square-foot of barrier is used as a cost estimation for evaluating cost effectiveness.

Light shaded area indicates when a residential receiver benefits from a 4 dBA noise reduction.

Table 1

SUMMARYOF NOISE BARRIER MODELING ANALYSIS

For Receptor R-14					Receptor Data	
Barrier Dimensions			Cost	Max. Insertion Loss	No.of Benefitted	Cost/Receptor
height (ft)	length (ft)	area (ft2)	($)	(dB)	Receptors	($)
10	600	6,000	120,000	5	1	120,000
12	600	7,200	144,000	6	1	144,000
16	600	9,600	192,000	7	1	192,000
18	600	10,800	216,000	8	1	216,000

For Receptor R-16					Receptor Data	
Barrier Dimensions			Cost	Max. Insertion Loss	No.of Benefitted	Cost/Receptor
height (ft)	length (ft)	area (ft2)	($)	(dB)	Receptors	($)
10	600	6,000	120,000	3	1	120,000
12	600	7,200	144,000	4	1	144,000
16	600	9,600	192,000	4	1	192,000
18	600	10,800	216,000	4	1	216,000

For Receptor R-17					Receptor Data	
Barrier Dimensions			Cost	Max. Insertion Loss	No.of Benefitted	Cost/Receptor
height (ft)	length (ft)	area (ft2)	($)	(dB)	Receptors	($)
10	600	6,000	120,000	3	1	120,000
12	600	7,200	144,000	4	1	144,000
16	600	9,600	192,000	4	1	192,000
18	600	10,800	216,000	4	1	216,000

Note: 1 The $20 per square-foot of barrier is used as a cost estimation for evaluating cost effectiveness.
NB: No Barrier
WB: With Barrier
Light shaded area indicates when a residential receiver benefits from a 4 dBA noise reduction.

NO BARRIER

STAMINA PROGRAM
****

TRAFFIC NOISE PREDICTION MODEL
STAMINA 2.0/BCR - FHWA VER. 3 (3/83)
TOWNE, RICHARDS & CHAUDIERE PC VER. 1 (11/84)
Seattle - King County Health Dept.

(INPUT UNITS- ENGLISH , OUTPUT UNITS- ENGLISH)

NJTPA Preferred Route 92 Alignment
PROGRAM INITIALIZATION PARAMETERS

HEIGHT	CODE	DESCRIPTION
.00	1	RECEIVER HEIGHT ADJUSTMENT
1.00	2	A-WEIGHTED SOUND LEVEL ONLY
.00	3	HEIGHT ADJUSTMENT FOR PASSENGER CARS (CARS)
8.00	4	HEIGHT ADJUSTMENT FOR HEAVY TRUCKS (HT)
2.30	5	HEIGHT ADJUSTMENT FOR MEDIUM TRUCKS (MT)

ROADWAY 1 RT92 RT1 TO PERRINE RD ON/OFFRAMP EASTBOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	333.	53.
HT	22.	53.
MT	19.	53.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R92E1	2020730.	558706.	0.	0
R92E2	2021810.	557257.	0.	0
R92E3	2023959.	556100.	0.	0

ROADWAY 2 RT92 RT1 TO PERRINE RD ON/OFFRAMP WESTBOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2612.	44.
HT	86.	44.
MT	75.	44.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R92W1	2021134.	558006.	0.	0
R92W2	2021855.	557299.	0.	0
R92W3	2023900.	556210.	0.	0

ROADWAY 3 RT92 PERRINE RD ON/OFFRAMP TO RT130 EASTBOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	369.	53.
HT	32.	53.
MT	27.	53.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R92E4	2023959.	556100.	0.	0
R92E5	2033317.	555154.	0.	0
R92E6	2041864.	555759.	0.	0
R92E7	2042873.	555567.	0.	0
R92E8	2044689.	554404.	0.	0
R92E9	2045715.	553625.	0.	0

ROADWAY 4 RT92 PERRINE RD ON/OFFRAMP TO RT130 WESTBOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	3378.	30.
HT	95.	30.
MT	81.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE

R92W4	2023900.	556210.	0.	0
R92W5	2033317.	555217.	0.	0
R92W6	2041861.	555823.	0.	0
R92W7	2042894.	555629.	0.	0
R92W8	2044727.	554456.	0.	0
R92W9	2046159.	553356.	0.	0
R92W10	2046176.	553348.	0.	0

ROADWAY 5 Rt 92 East to Friendship Rd. Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	18.	45.
HT	1.	45.
MT	1.	45.

----------COORDINATES----------				
	X	Y	Z	GRADE
92E11	2045715.	553625.	0.	0
92EFR1	2046231.	553103.	0.	0
92EFR2	2046245.	552932.	0.	0
FR3	2046087.	552855.	0.	0

ROADWAY 6 Rt 92 W Perrine Road Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	766.	30.
HT	8.	30.
MT	7.	30.

----------COORDINATES----------				
	X	Y	Z	GRADE
92W4	2023900.	556210.	0.	0
92WPON1	2023521.	556528.	0.	0

ROADWAY 7 Perrine Road to Rt 92 E Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	36.	45.
HT	10.	45.
MT	8.	45.

----------COORDINATES----------				
	X	Y	Z	GRADE
92EPOF1	2023119.	556280.	0.	0
92E4	2023954.	556079.	0.	0

ROADWAY 8 Perrine Road South of Rt 92 to Rt 92 E Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	637.	30.
HT	5.	30.
MT	4.	30.

----------COORDINATES----------				
	X	Y	Z	GRADE
PE-1	2020866.	554668.	0.	0
PE-2	2021065.	555111.	0.	0
92EPOF1	2023119.	556280.	0.	0

ROADWAY 9 Perrine Road Overpass

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	609.	35.
HT	12.	35.
MT	11.	35.

----------COORDINATES----------				
	X	Y	Z	GRADE
92EPOF1	2023119.	556280.	0.	0
PE-3	2023148.	556346.	15.	0
PE-4	2023311.	556446.	15.	0
92WPON1	2023521.	556528.	0.	0

ROADWAY 10 Perrine Road North of Rt 92 W to Perrine Rd N Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	404.	38.
HT	15.	38.
MT	13.	38.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92WPON1	2023521.	556528.	0.	0
PE-5	2023875.	556678.	0.	0
PE-6	2024646.	556402.	0.	0
PE-7	2025265.	556844.	0.	0

ROADWAY 11 Rt 92W Route 1 North Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	835.	30.
HT	24.	30.
MT	20.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92WR1N1	2020744.	558695.	0.	0
92WR1N2	2020670.	559114.	0.	0
92WR1N3	2020791.	559490.	0.	0

ROADWAY 12 Route 1 North/Route 92 East Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	307.	30.
HT	21.	30.
MT	18.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R192E1	2020173.	558822.	0.	0
R192E2	2020489.	558799.	0.	0
R192E3	2021136.	557993.	0.	0

ROADWAY 13 Route 92 West/Route 1 South Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1776.	30.
HT	63.	30.
MT	54.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92W1	2020462.	559123.	0.	0
92WR1S1	2020381.	559249.	0.	0
92WR1S2	2020221.	559549.	0.	0
92WR1S3	2020257.	559857.	0.	0
92WR1S4	2020457.	559946.	0.	0
92WR1S5	2020692.	559791.	0.	0
92WR1S6	2020624.	559476.	0.	0

ROADWAY 14 Route 1 South/Route 92 East Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	26.	30.
HT	1.	30.
MT	1.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R1S92E1	2021039.	559920.	0.	0
R1S92E2	2020467.	559980.	0.	0
R1S92E3	2020172.	559787.	0.	0
R1S92E4	2020174.	559536.	0.	0
R1S92E5	2020335.	559209.	0.	0
92E1	2020418.	559076.	0.	0

ROADWAY 15 Route 1 North to Rt 92 E Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2755.	48.
HT	107.	48.
MT	93.	48.

```
            ------------COORDINATES------------
                X          Y          Z    GRADE
R1N1            2019923.   558581.      0.     0
R192E1          2020173.   558822.      0.     0
```

ROADWAY 16 Route 1 North to Rt 92W/Rt 1N Onramp

```
            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          2448.        39.
               HT            86.          39.
               MT            75.          39.
            ------------COORDINATES------------
                X          Y          Z    GRADE
R192E1          2020173.   558822.      0.     0
R1N2            2020374.   559071.     15.     0
R1N3            2020470.   559177.     15.     0
92WR1N3         2020791.   559490.      0.     0
```

ROADWAY 17 Route 1 North from Rt 92W/Rt 1N

```
            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          3284.        30.
               HT            110.         30.
               MT            95.          30.
            ------------COORDINATES------------
                X          Y          Z    GRADE
92WR1N3         2020791.   559490.      0.     0
R1N4            2021673.   560472.      0.     0
```

ROADWAY 18 Route 1 South to Rt 92 E Onramp

```
            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          3166.        30.
               HT            67.          30.
               MT            57.          30.
            ------------COORDINATES------------
                X          Y          Z    GRADE
R1S1            2021629.   560507.      0.     0
R1S92E1         2020173.   558822.      0.     0
```

ROADWAY 19 Route 1 South to Rt 92W/Rt 1S Onramp

```
            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          3140.        30.
               HT            66.          30.
               MT            56.          30.
            ------------COORDINATES------------
                X          Y          Z    GRADE
R1S92E1         2020173.   558822.      0.     0
92WR1S6         2020624.   559476.      0.     0
```

ROADWAY 20 Route 1 South from Rt 92W/Rt 1S

```
            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          4916.        30.
               HT            128.         30.
               MT            111.         30.
            ------------COORDINATES------------
                X          Y          Z    GRADE
92WR1S6         2020624.   559476.      0.     0
R1S2            2020430.   559232.     15.     0
R1S3            2020331.   559136.     15.     0
R1S4            2019916.   558710.      0.     0
```

ROADWAY 21 Rt 130SB (Rt 92 W Overpass to Friendship Onramp)

```
            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          1536.        30.
               HT            85.          30.
               MT            74.          30.
```

	----------COORDINATES----------			
	X	Y	Z	GRADE
130 SFR1	2047037.	551978.	0.	0
130N1FR6	2046689.	550780.	0.	0

ROADWAY 22 Rt 130 N to Friendship Onramp (Segment 1)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	51.	47.
HT	1.	47.
MT	0.	47.

	----------COORDINATES----------			
	X	Y	Z	GRADE
130N1FR1	2046825.	550887.	0.	0
130N1FR2	2047016.	551044.	0.	0
130N1FR3	2047139.	550881.	0.	0
130N1FR4	2046988.	550728.	0.	0
130N1FR5	2046796.	550761.	0.	0
130N1FR6	2046689.	550780.	0.	0

ROADWAY 23 Rt 130 N to Friendship Onramp (Segment 2)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	599.	30.
HT	14.	30.
MT	12.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
130N2FR1	2046485.	550923.	0.	0
130N2FR2	2046588.	551349.	0.	0
FR1	2046547.	551516.	0.	0

ROADWAY 24 Friendship Road (Segment 1)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	527.	30.
HT	6.	30.
MT	5.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
FR1	2046547.	551516.	0.	0
FR2	2046212.	552146.	0.	0

ROADWAY 25 Friendship Road (Segment 2)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	535.	30.
HT	6.	30.
MT	5.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
FR2	2046212.	552146.	0.	0
FR3	2046087.	552855.	0.	0

ROADWAY 26 Friendship Road (Segment 3)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	541.	30.
HT	6.	30.
MT	6.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
FR3	2046087.	552855.	0.	0
FR4	2045756.	553279.	0.	0

ROADWAY 27 Friendship Road (Segment 4)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	512.	30.
HT	6.	30.

MT	6.	30.	
----------COORDINATES----------			
X	Y	Z	GRADE
FR4	2045756.	553279.	0. 0
FR5	2045642.	553354.	0. 0

ROADWAY 28 Friendship Rd. (Rt 130 SB Friendship Rd. Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	357.	30.
HT	11.	30.
MT	9.	30.

----------COORDINATES----------			
X	Y	Z	GRADE
130SFR1	2047023.	551962.	0. 0
FR1	2046547.	551516.	0. 0

ROADWAY 29 Rt 92E (Rt 92/Friendship Offramp to Rt 130SB/Rt92E Onramp)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	361.	53.
HT	31.	53.
MT	26.	53.

----------COORDINATES----------			
X	Y	Z	GRADE
92E11	2045715.	553625.	0. 0
130S92E4	2046640.	552883.	0. 0

RtUS-1, Perrine, Friendship,& Miller Rds,& Asbury & Dye Residences

----------COORDINATES----------			
X	Y	Z	
C9	2021099.	559549.	5.
R12	2020851.	559776.	5.
R16	2024581.	556298.	5.
R15	2025048.	556356.	5.
R4	2038163.	556399.	5.
R14	2038988.	555764.	5.
R13	2043482.	555031.	5.
R17	2042376.	555463.	5.

ALPHA FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1 *	.0	.0	.0	.0	.0	.0	.0	.0	
2 *	.0	.0	.0	.0	.0	.0	.0	.0	
3 *	.0	.0	.0	.0	.0	.0	.0	.0	
4 *	.0	.0	.0	.0	.0	.0	.0	.0	
5 *	.0	.0	.0	.0	.0	.0	.0	.0	
6 *	.0	.0	.0	.0	.0	.0	.0	.0	
7 *	.0	.0	.0	.0	.0	.0	.0	.0	
8 *	.0	.0	.0	.0	.0	.0	.0	.0	
9 *	.0	.0	.0	.0	.0	.0	.0	.0	
10 *	.0	.0	.0	.0	.0	.0	.0	.0	
11 *	.0	.0	.0	.0	.0	.0	.0	.0	
12 *	.0	.0	.0	.0	.0	.0	.0	.0	
13 *	.0	.0	.0	.0	.0	.0	.0	.0	
14 *	.0	.0	.0	.0	.0	.0	.0	.0	
15 *	.0	.0	.0	.0	.0	.0	.0	.0	
16 *	.0	.0	.0	.0	.0	.0	.0	.0	
17 *	.0	.0	.0	.0	.0	.0	.0	.0	
18 *	.0	.0	.0	.0	.0	.0	.0	.0	
19 *	.0	.0	.0	.0	.0	.0	.0	.0	
20 *	.0	.0	.0	.0	.0	.0	.0	.0	
21 *	.0	.0	.0	.0	.0	.0	.0	.0	
22 *	.0	.0	.0	.0	.0	.0	.0	.0	
23 *	.0	.0	.0	.0	.0	.0	.0	.0	
24 *	.0	.0	.0	.0	.0	.0	.0	.0	
25 *	.0	.0	.0	.0	.0	.0	.0	.0	
26 *	.0	.0	.0	.0	.0	.0	.0	.0	
27 *	.0	.0	.0	.0	.0	.0	.0	.0	
28 *	.0	.0	.0	.0	.0	.0	.0	.0	
29 *	.0	.0	.0	.0	.0	.0	.0	.0	

SHIELDING FACTORS - RECEIVER ACROSS,ROADWAY DOWN

```
1 * .5 .5 .5 .5 .5 .5 .5 .5
2 * .5 .5 .5 .5 .5 .5 .5 .5
3 * .5 .5 .5 .5 .5 .5 .5 .5
4 * .5 .5 .5 .5 .5 .5 .5 .5
5 * .5 .5 .5 .5 .5 .5 .5 .5
6 * .5 .5 .5 .5 .5 .5 .5 .5
7 * .5 .5 .5 .5 .5 .5 .5 .5
8 * .5 .5 .5 .5 .5 .5 .5 .5
9 * .5 .5 .5 .5 .5 .5 .5 .5
10 * .5 .5 .5 .5 .5 .5 .5 .5
11 * .5 .5 .5 .5 .5 .5 .5 .5
12 * .5 .5 .5 .5 .5 .5 .5 .5
13 * .5 .5 .5 .5 .5 .5 .5 .5
14 * .5 .5 .5 .5 .5 .5 .5 .5
15 * .5 .5 .5 .5 .5 .5 .5 .5
16 * .5 .5 .5 .5 .5 .5 .5 .5
17 * .5 .5 .5 .5 .5 .5 .5 .5
18 * .5 .5 .5 .5 .5 .5 .5 .5
19 * .5 .5 .5 .5 .5 .5 .5 .5
20 * .5 .5 .5 .5 .5 .5 .5 .5
21 * .5 .5 .5 .5 .5 .5 .5 .5
22 * .5 .5 .5 .5 .5 .5 .5 .5
23 * .5 .5 .5 .5 .5 .5 .5 .5
24 * .5 .5 .5 .5 .5 .5 .5 .5
25 * .5 .5 .5 .5 .5 .5 .5 .5
26 * .5 .5 .5 .5 .5 .5 .5 .5
27 * .5 .5 .5 .5 .5 .5 .5 .5
28 * .5 .5 .5 .5 .5 .5 .5 .5
29 * .5 .5 .5 .5 .5 .5 .5 .5


RECEIVER   LEQ(H)  L10
C9         68.8  71.3

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING  40.0 DBA

ROADWAY  SEGMENT

 1      1   2
      50.0 43.4
 2      1   2
      49.9 48.6
 3      1
      42.2
 4      1
      43.6
 11     1   2
      46.1 50.8
 12     1   2
      40.0 44.3
 13     1   2   3   4   5   6
      45.1 48.1 47.0 46.2 50.2 53.1
 15     1
      50.0
 16     1   2   3
      49.6 48.2 57.9
 17     1
      64.7
 18     1
      63.2
 19     1
      53.8
 20     1   2   3
      54.2 47.8 51.2


RECEIVER   LEQ(H)  L10
R12        71.1  73.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING  40.0 DBA

ROADWAY  SEGMENT

 1      1   2
      48.5 42.4
 2      1   2
      48.6 47.6
 3      1
      41.6
 4      1
      43.0
```

11 1 2
44.7 50.3
12 2
43.1
13 1 2 3 4 5 6
45.6 49.8 50.2 50.6 57.6 59.4
14 1
44.3
15 1
50.0
16 1 2 3
49.7 48.4 58.4
17 1
66.2
18 1
66.6
19 1
54.7
20 1 2 3
55.6 48.4 51.6

RECEIVER LEQ(H) L10
R16 68.8 71.9

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1 2
40.8 52.0
2 1 2
44.3 56.7
3 1
62.4
4 1
66.0
6 1
42.6
7 1
44.4
10 1 2 3
43.3 58.5 55.7

RECEIVER LEQ(H) L10
R15 66.5 69.3

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 2
48.7
2 1 2
43.0 53.6
3 1
60.9
4 1
63.7
7 1
40.6
10 2 3
49.2 55.4

RECEIVER LEQ(H) L10
R4 60.8 63.1

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3 1 2
40.9 56.6
4 1 2
42.1 58.2

RECEIVER LEQ(H) L10
R14 68.6 71.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3	2	3	4	
	63.8	40.4	40.0	
4	1	2	3	4
	40.9	66.7	41.7	41.2

RECEIVER	LEQ(H)	L10
R13	68.9	72.5

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3	2	3	4	5	
	48.3	50.5	66.0	47.1	
4	2	3	4	5	
	49.4	51.6	65.2	49.0	
29	1				
	41.5				

RECEIVER	LEQ(H)	L10
R17	67.2	70.6

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3	2	3	4	5	
	54.3	63.1	54.6	42.2	
4	2	3	4	5	
	55.3	62.7	55.6	44.3	

SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3	2	3	4	5	
	48.3	50.5	66.0	47.1	
4	2	3	4	5	
	49.4	51.6	65.2	49.0	
29	1				
	41.5				

BARRIER

STAMINA PROGRAM
****

TRAFFIC NOISE PREDICTION MODEL
STAMINA 2.0/BCR - FHWA VER. 3 (3/83)
TOWNE, RICHARDS & CHAUDIERE PC VER. 1 (11/84)
Seattle - King County Health Dept.

(INPUT UNITS- ENGLISH , OUTPUT UNITS- ENGLISH)

NJTPA Preferred Route 92 Alignment
PROGRAM INITIALIZATION PARAMETERS

HEIGHT	CODE	DESCRIPTION
.00	1	RECEIVER HEIGHT ADJUSTMENT
1.00	2	A-WEIGHTED SOUND LEVEL ONLY
.00	3	HEIGHT ADJUSTMENT FOR PASSENGER CARS (CARS)
8.00	4	HEIGHT ADJUSTMENT FOR HEAVY TRUCKS (HT)
2.30	5	HEIGHT ADJUSTMENT FOR MEDIUM TRUCKS (MT)

ROADWAY 1 RT92 RT1 TO PERRINE RD ON/OFFRAMP EASTBOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	333.	53.
HT	22.	53.
MT	19.	53.

	COORDINATES			
	X	Y	Z	GRADE
R92E1	2020730.	558706.	0.	0
R92E2	2021810.	557257.	0.	0
R92E3	2023959.	556100.	0.	0

ROADWAY 2 RT92 RT1 TO PERRINE RD ON/OFFRAMP WESTBOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2612.	44.
HT	86.	44.
MT	75.	44.

	COORDINATES			
	X	Y	Z	GRADE
R92W1	2021134.	558006.	0.	0
R92W2	2021855.	557299.	0.	0
R92W3	2023900.	556210.	0.	0

ROADWAY 3 RT92 PERRINE RD ON/OFFRAMP TO RT130 EASTBOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	369.	53.
HT	32.	53.
MT	27.	53.

	COORDINATES			
	X	Y	Z	GRADE
R92E4	2023959.	556100.	0.	0
R92E5	2033317.	555154.	0.	0
R92E6	2041864.	555759.	0.	0
R92E7	2042873.	555567.	0.	0
R92E8	2044689.	554404.	0.	0
R92E9	2045715.	553625.	0.	0

ROADWAY 4 RT92 PERRINE RD ON/OFFRAMP TO RT130 WESTBOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	3378.	30.
HT	95.	30.
MT	81.	30.

COORDINATES
X Y Z GRADE

R92W4	2023900.	556210.	0.	0
R92W5	2033317.	555217.	0.	0
R92W6	2041861.	555823.	0.	0
R92W7	2042894.	555629.	0.	0
R92W8	2044727.	554456.	0.	0
R92W9	2046159.	553356.	0.	0
R92W10	2046176.	553348.	0.	0

ROADWAY 5 Rt 92 East to Friendship Rd. Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	18.	45.
HT	1.	45.
MT	1.	45.

----------COORDINATES----------				
	X	Y	Z	GRADE
92E11	2045715.	553625.	0.	0
92EFR1	2046231.	553103.	0.	0
92EFR2	2046245.	552932.	0.	0
FR3	2046087.	552855.	0.	0

ROADWAY 6 Rt 92 W Perrine Road Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	766.	30.
HT	8.	30.
MT	7.	30.

----------COORDINATES----------				
	X	Y	Z	GRADE
92W4	2023900.	556210.	0.	0
92WPON1	2023521.	556528.	0.	0

ROADWAY 7 Perrine Road to Rt 92 E Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	36.	45.
HT	10.	45.
MT	8.	45.

----------COORDINATES----------				
	X	Y	Z	GRADE
92EPOF1	2023119.	556280.	0.	0
92E4	2023954.	556079.	0.	0

ROADWAY 8 Perrine Road South of Rt 92 to Rt 92 E Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	637.	30.
HT	5.	30.
MT	4.	30.

----------COORDINATES----------				
	X	Y	Z	GRADE
PE-1	2020866.	554668.	0.	0
PE-2	2021065.	555111.	0.	0
92EPOF1	2023119.	556280.	0.	0

ROADWAY 9 Perrine Road Overpass

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	609.	35.
HT	12.	35.
MT	11.	35.

----------COORDINATES----------				
	X	Y	Z	GRADE
92EPOF1	2023119.	556280.	0.	0
PE-3	2023148.	556346.	15.	0
PE-4	2023311.	556446.	15.	0
92WPON1	2023521.	556528.	0.	0

ROADWAY 10 Perrine Road North of Rt 92 W to Perrine Rd N Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	404.	38.
HT	15.	38.
MT	13.	38.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92WPON1	2023521.	556528.	0.	0
PE-5	2023875.	556678.	0.	0
PE-6	2024646.	556402.	0.	0
PE-7	2025265.	556844.	0.	0

ROADWAY 11 Rt 92W Route 1 North Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	835.	30.
HT	24.	30.
MT	20.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92WR1N1	2020744.	558695.	0.	0
92WR1N2	2020670.	559114.	0.	0
92WR1N3	2020791.	559490.	0.	0

ROADWAY 12 Route 1 North/Route 92 East Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	307.	30.
HT	21.	30.
MT	18.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R192E1	2020173.	558822.	0.	0
R192E2	2020489.	558799.	0.	0
R192E3	2021136.	557993.	0.	0

ROADWAY 13 Route 92 West/Route 1 South Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1776.	30.
HT	63.	30.
MT	54.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
92W1	2020462.	559123.	0.	0
92WR1S1	2020381.	559249.	0.	0
92WR1S2	2020221.	559549.	0.	0
92WR1S3	2020257.	559857.	0.	0
92WR1S4	2020457.	559946.	0.	0
92WR1S5	2020692.	559791.	0.	0
92WR1S6	2020624.	559476.	0.	0

ROADWAY 14 Route 1 South/Route 92 East Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	26.	30.
HT	1.	30.
MT	1.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
R1S92E1	2021039.	559920.	0.	0
R1S92E2	2020467.	559980.	0.	0
R1S92E3	2020172.	559787.	0.	0
R1S92E4	2020174.	559536.	0.	0
R1S92E5	2020335.	559209.	0.	0
92E1	2020418.	559076.	0.	0

ROADWAY 15 Route 1 North to Rt 92 E Onramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2755.	48.
HT	107.	48.
MT	93.	48.

```
              ------------COORDINATES-------------
                 X          Y          Z    GRADE
R1N1             2019923.    558581.        0.     0
R192E1            2020173.    558822.        0.     0
```

ROADWAY 16 Route 1 North to Rt 92W/Rt 1N Onramp

```
              VEHICLE TYPE   VEHICLES/HOUR    SPEED
                 CARS          2448.        39.
                 HT            86.        39.
                 MT            75.        39.
              ------------COORDINATES-------------
                 X          Y          Z    GRADE
R192E1            2020173.    558822.        0.     0
R1N2             2020374.    559071.       15.     0
R1N3             2020470.    559177.       15.     0
92WR1N3             2020791.    559490.        0.     0
```

ROADWAY 17 Route 1 North from Rt 92W/Rt 1N

```
              VEHICLE TYPE   VEHICLES/HOUR    SPEED
                 CARS          3284.        30.
                 HT            110.        30.
                 MT            95.        30.
              ------------COORDINATES-------------
                 X          Y          Z    GRADE
92WR1N3             2020791.    559490.        0.     0
R1N4             2021673.    560472.        0.     0
```

ROADWAY 18 Route 1 South to Rt 92 E Onramp

```
              VEHICLE TYPE   VEHICLES/HOUR    SPEED
                 CARS          3166.        30.
                 HT            67.        30.
                 MT            57.        30.
              ------------COORDINATES-------------
                 X          Y          Z    GRADE
R1S1             2021629.    560507.        0.     0
R1S92E1             2020173.    558822.        0.     0
```

ROADWAY 19 Route 1 South to Rt 92W/Rt 1S Onramp

```
              VEHICLE TYPE   VEHICLES/HOUR    SPEED
                 CARS          3140.        30.
                 HT            66.        30.
                 MT            56.        30.
              ------------COORDINATES-------------
                 X          Y          Z    GRADE
R1S92E1             2020173.    558822.        0.     0
92WR1S6             2020624.    559476.        0.     0
```

ROADWAY 20 Route 1 South from Rt 92W/Rt 1S

```
              VEHICLE TYPE   VEHICLES/HOUR    SPEED
                 CARS          4916.        30.
                 HT            128.        30.
                 MT            111.        30.
              ------------COORDINATES-------------
                 X          Y          Z    GRADE
92WR1S6             2020624.    559476.        0.     0
R1S2             2020430.    559232.       15.     0
R1S3             2020331.    559136.       15.     0
R1S4             2019916.    558710.        0.     0
```

ROADWAY 21 Rt 130SB (Rt 92 W Overpass to Friendship Onramp)

```
              VEHICLE TYPE   VEHICLES/HOUR    SPEED
                 CARS          1536.        30.
                 HT            85.        30.
                 MT            74.        30.
```

	----------COORDINATES----------			
	X	Y	Z	GRADE
30 SFR1	2047037.	551978.	0.	0
30N1FR6	2046689.	550780.	0.	0

ROADWAY 22 Rt 130 N to Friendship Onramp (Segment 1)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	51.	47.
HT	1.	47.
MT	0.	47.

	----------COORDINATES----------			
	X	Y	Z	GRADE
130N1FR1	2046825.	550887.	0.	0
130N1FR2	2047016.	551044.	0.	0
130N1FR3	2047139.	550881.	0.	0
130N1FR4	2046988.	550728.	0.	0
130N1FR5	2046796.	550761.	0.	0
130N1FR6	2046689.	550780.	0.	0

ROADWAY 23 Rt 130 N to Friendship Onramp (Segment 2)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	599.	30.
HT	14.	30.
MT	12.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
130N2FR1	2046485.	550923.	0.	0
130N2FR2	2046588.	551349.	0.	0
FR1	2046547.	551516.	0.	0

ROADWAY 24 Friendship Road (Segment 1)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	527.	30.
HT	6.	30.
MT	5.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
FR1	2046547.	551516.	0.	0
FR2	2046212.	552146.	0.	0

ROADWAY 25 Friendship Road (Segment 2)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	535.	30.
HT	6.	30.
MT	5.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
FR2	2046212.	552146.	0.	0
FR3	2046087.	552855.	0.	0

ROADWAY 26 Friendship Road (Segment 3)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	541.	30.
HT	6.	30.
MT	6.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
FR3	2046087.	552855.	0.	0
FR4	2045756.	553279.	0.	0

ROADWAY 27 Friendship Road (Segment 4)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	512.	30.
HT	6.	30.

```
                MT            6.       30.
              ------------COORDINATES-------------
                X          Y          Z    GRADE
FR4             2045756.    553279.        0.     0
FR5             2045642.    553354.        0.     0
```

ROADWAY 28 Friendship Rd. (Rt 130 SB Friendship Rd. Onramp)

```
             VEHICLE TYPE   VEHICLES/HOUR    SPEED
                CARS           357.       30.
                HT            11.       30.
                MT             9.       30.
              ------------COORDINATES-------------
                X          Y          Z    GRADE
130SFR1           2047023.    551962.        0.     0
FR1             2046547.    551516.        0.     0
```

ROADWAY 29 Rt 92E (Rt 92/Friendship Offramp to Rt 130SB/Rt92E Onramp)

```
             VEHICLE TYPE   VEHICLES/HOUR    SPEED
                CARS           361.       53.
                HT            31.       53.
                MT            26.       53.
              ------------COORDINATES-------------
                X          Y          Z    GRADE
92E11             2045715.    553625.        0.     0
130S92E4          2046640.    552883.        0.     0
```

BARRIER 1 TYPE(A) 107 Friendship Rd Barrier

```
        ---------COORDINATES----------
          X       Y       Z      Z0     DELZ       P
R17_1    2042240.  555685.     18.      0.      2.      2
R17_2    2042816.  555509.     18.      0.
```

BARRIER 2 TYPE(A) The Barrier for the Residence South and West of Friendship and Miller Roads, Res

```
        ---------COORDINATES----------
          X       Y       Z      Z0     DELZ       P
R14_1    2038699.  555661.     18.      0.      2.      2
R14_2    2039307.  555707.     18.      0.
```

BARRIER 3 TYPE(A) The Barrier for the Residence Between the Current and the Proposed Perrine Road

```
        ---------COORDINATES----------
          X       Y       Z      Z0     DELZ       P
R16_1    2024270.  556186.     18.      0.      2.      2
R16_2    2024882.  556186.     18.      0.
```

RtUS-1, Perrine, Friendship,& Miller Road Residences

```
              ------------COORDINATES-------------
                X          Y          Z
R14             2038988.    555764.        5.
R16             2024581.    556298.        5.
R17             2042376.    555463.        5.
```

ALPHA FACTORS - RECEIVER ACROSS,ROADWAY DOWN

```
 1 *  .0  .0  .0
 2 *  .0  .0  .0
 3 *  .0  .0  .0
 4 *  .0  .0  .0
 5 *  .0  .0  .0
 6 *  .0  .0  .0
 7 *  .0  .0  .0
 8 *  .0  .0  .0
 9 *  .0  .0  .0
10 *  .0  .0  .0
11 *  .0  .0  .0
12 *  .0  .0  .0
13 *  .0  .0  .0
```

14 * .0 .0 .0
15 * .0 .0 .0
16 * .0 .0 .0
17 * .0 .0 .0
18 * .0 .0 .0
19 * .0 .0 .0
20 * .0 .0 .0
21 * .0 .0 .0
22 * .0 .0 .0
23 * .0 .0 .0
24 * .0 .0 .0
25 * .0 .0 .0
26 * .0 .0 .0
27 * .0 .0 .0
28 * .0 .0 .0
29 * .0 .0 .0

SHIELDING FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1 * .5 .5 .5
2 * .5 .5 .5
3 * .5 .5 .5
4 * .5 .5 .5
5 * .5 .5 .5
6 * .5 .5 .5
7 * .5 .5 .5
8 * .5 .5 .5
9 * .5 .5 .5
10 * .5 .5 .5
11 * .5 .5 .5
12 * .5 .5 .5
13 * .5 .5 .5
14 * .5 .5 .5
15 * .5 .5 .5
16 * .5 .5 .5
17 * .5 .5 .5
18 * .5 .5 .5
19 * .5 .5 .5
20 * .5 .5 .5
21 * .5 .5 .5
22 * .5 .5 .5
23 * .5 .5 .5
24 * .5 .5 .5
25 * .5 .5 .5
26 * .5 .5 .5
27 * .5 .5 .5
28 * .5 .5 .5
29 * .5 .5 .5

RECEIVER LEQ(H) L10
R14 61.0 63.5

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3 2
56.1
4 1 2 3
40.9 59.0 40.9

RECEIVER LEQ(H) L10
R16 64.5 68.0

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1 2
40.8 52.0
2 1 2
44.3 56.7
3 1
53.8
4 1
58.5
6 1
42.6
7 1

44.4
10 1 2 3
43.3 58.5 55.7

RECEIVER LEQ(H) L10
R17 63.1 66.3

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3 2 3 4 5
54.3 56.6 53.8 42.2
4 2 3 4 5
55.3 56.2 54.2 44.3
□.0
2 1 2
44.3 56.7
3 1
53.8
4 1
58.5
6 1
42.6
7 1
44.4
10 1 2 3
43.3 58.5 55.7

RECEIVER LEQ(H) L10
R17 63.1 66.3

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

3 2 3 4 5
54.3 56.6 53.8 42.2
4 2 3

Route 1 Unsignalized Intersection STAMINA Modeling Results

Receivers Within 67 dBA Distance

Intersection Description	Distance where 67 Dba is Estimated	Estimated Number of Receivers (1)
Adams/Cozzens Roads and Route 1	Within 300 feet from intersection	0
Route 1 and New Road	Within 200 feet from intersection	1
Route 1 and Beekman Road	Within 200 feet from intersection	1
Route 1 and Finnegans Lane	Within 300 feet from intersection	1
Route 1 and Promenade	Within 200 feet from intersection	0

(1) A residential receiver was determined to be any polygon less than or equal to 3,500 square feet in area and at a significant distance (300 feet) from any large structure (22,500 square feet).

Receiver I.D.[1]	Modeled Peak Hour L_{eq} Noise Levels (dBA)		
	Horizon Year (2028) Route 92		
	Adams/Cozzens Roads and Route 1	Route 1 and New Road	Route 1 and Beekman Road [2]
R-1-200	68.2	67.5	66.1
R-2-200	69.1	68.1	65.5
R-3-200	72.4	68.7	65.4
R-4-200	68.2	67.6	66.1
R-1-300	65.3	64.7	63.5
R-2-300	66.1	67.8	63.0
R-3-300	66.1	65.8	63.0
R-4-300	65.3	65.1	63.4
R-1-350	Na	63.9	Na
R-2-350	Na	65.3	Na
R-3-350	Na	64.7	Na
R-4-350	Na	65.2	Na
R-1-400	63.1	67.1	72.5
R-2-400	64.2	63.1	72.3
R-3-400	63.6	64.1	72.1
R-4-400	63.8	74.5	71.8
R-1-420	Na	66.1	Na
R-2-420	Na	62.5	Na
R-3-420	Na	64.0	Na
R-4-420	Na	67.9	Na
R-1-450	Na	62.7	Na
R-2-450	Na	61.8	Na
R-3-450	Na	64.8	Na
R-4-450	Na	64.0	Na
R-1-480	Na	61.4	Na
R-2-480	Na	61.1	Na
R-3-480	Na	68.6	Na
R-4-480	Na	62.4	Na
R-1-500	Na	60.8	Na
R-2-500	Na	60.7	Na
R-3-500	Na	71.9	Na
R-4-500	Na	61.6	Na
R-1-550	Na	59.7	Na
R-2-550	Na	59.7	Na
R-3-550	Na	62.9	Na
R-4-550	Na	60.3	Na
R-1-600	59.5	58.7	57.4
R-2-600	60.6	58.8	57.6
R-3-600	59.6	60.5	57.1
R-4-600	60.1	59.2	57.3

[1]Intersections were modeled with Route 1 aligned north/south and each subject intersection east/west such that receiver locations were modeled as shown in the illustration below, for example R-3-400 indicates location R-3 modeled approximately 400 feet from the intersection.

[2]The receivers at a distance 400 feet from the intersection were on the ramps causing the predicted dBA to be high.

Na = Not applicable

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S T A M I N A   P R O G R A M
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TRAFFIC NOISE PREDICTION MODEL
STAMINA 2.0/BCR - FHWA VER. 3 (3/83)
TOWNE, RICHARDS & CHAUDIERE PC VER. 1 (11/84)
Seattle - King County Health Dept.


(INPUT UNITS- ENGLISH , OUTPUT UNITS- ENGLISH )


NJTPA ADAMS-COZZENS ROUTE 1 @ 300 FOOT RECEPTORS
PROGRAM INITIALIZATION PARAMETERS

   HEIGHT    CODE        DESCRIPTION
     .00      1    RECEIVER HEIGHT ADJUSTMENT
    1.00      2    A-WEIGHTED SOUND LEVEL ONLY
     .00      3    HEIGHT ADJUSTMENT FOR PASSENGER CARS (CARS)
    8.00      4    HEIGHT ADJUSTMENT FOR HEAVY TRUCKS   (HT)
    2.30      5    HEIGHT ADJUSTMENT FOR MEDIUM TRUCKS  (MT)

ROADWAY  1    RT1 NRTH TO RT608 ON/OFFRAMP EAST/WEST-BOUND

            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          662.        30.
               HT            3.        30.
               MT            1.        30.
             ------------COORDINATES-------------
                X          Y          Z    GRADE
R1N1                27.      -850.        0.     0
R1N608W1              250.       -10.        15.     0

ROADWAY  2    RT1 STH TO RT608 ON/OFFRAMP EAST/WEST-BOUND

            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          226.        30.
               HT            4.        30.
               MT            2.        30.
             ------------COORDINATES-------------
                X          Y          Z    GRADE
R1S2               -27.      -350.        0.     0
R1S608E1             -300.      -550.        0.     0
R1S608E2             -700.      -400.        0.     0
R1S608E3             -975.       -10.        0.     0

ROADWAY  3    RT608 EAST TO RT1 ON/OFFRAMP SOUTH-BOUND

            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          516.        30.
               HT            3.        30.
               MT            1.        30.
             ------------COORDINATES-------------
                X          Y          Z    GRADE
R1S608E3             -975.       -10.        0.     0
R1S608E2             -700.      -400.        0.     0
R1S608E1             -300.      -550.        0.     0
R1S3               -27.      -850.        0.     0

ROADWAY  4    RT608 WEST TO RT1 ON/OFFRAMP NORTH-BOUND

            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          375.        30.
               HT            6.        30.
               MT            4.        30.
             ------------COORDINATES-------------
                X          Y          Z    GRADE
608W1               950.        0.        0.     0
608ER1N1             700.      450.        0.     0
```

608ER1N2	100.	550.	0.	0
R1N2	27.	950.	0.	0

ROADWAY 5 RT608 EAST SEGMENT (East/West-bound)

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1713.	40.
HT	12.	33.
MT	11.	33.

	X	Y	Z	GRADE
608W1	950.	0.	0.	0
608W2	225.	0.	15.	0

ROADWAY 6 RT608 OVERPASS WEST-BOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1003.	30.
HT	8.	30.
MT	6.	30.

	X	Y	Z	GRADE
608W2	225.	0.	15.	0
608W3	-75.	50.	15.	0

ROADWAY 7 RT608 WEST SEGMENT WEST-BOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	516.	30.
HT	3.	30.
MT	1.	30.

	X	Y	Z	GRADE
608W3	-75.	50.	15.	0
608W4	-900.	50.	0.	0
608W5	-1020.	600.	0.	0

ROADWAY 8 RT608 WEST SEGMENT EAST-BOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	544.	30.
HT	3.	30.
MT	1.	30.

	X	Y	Z	GRADE
608E1	-1060.	600.	0.	0
608E2	-975.	0.	0.	0
608E3	-130.	0.	0.	0

ROADWAY 9 RT608 OVERPASS EAST-BOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	683.	30.
HT	3.	30.
MT	2.	30.

	X	Y	Z	GRADE
608E3	-130.	0.	15.	0
R1N608W1	-250.	-10.	15.	0

ROADWAY 10 RT1 SOUTH-BOUND Prior to exit ramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	5092.	30.
HT	120.	30.
MT	102.	30.

	X	Y	Z	GRADE
R1S1	-27.	950.	0.	0
R1S2	-27.	-350.	0.	0

ROADWAY 11 RT1 SOUTH-BOUND between on/off ramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	4865.	30.
HT	117.	30.
MT	100.	30.

	COORDINATES			
	X	Y	Z	GRADE
R1S2	-27.	-350.	0.	0
R1S3	-27.	-850.	0.	0

ROADWAY 12 RT1 NORTH-BOUND between on/off ramp

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	2457.	49.
HT	159.	49.
MT	135.	49.

	COORDINATES			
	X	Y	Z	GRADE
R1N1	27.	-850.	0.	0
R1N2	27.	950.	0.	0

Receptors Near Adams Lane

	COORDINATES		
	X	Y	Z
R1	-300.	300.	5.
R2	300.	300.	5.
R3	300.	-300.	5.
R4	-300.	-300.	5.

ALPHA FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1	*	.5	.5	.5	.5
2	*	.5	.5	.5	.5
3	*	.5	.5	.5	.5
4	*	.5	.5	.5	.5
5	*	.5	.5	.5	.5
6	*	.5	.5	.5	.5
7	*	.5	.5	.5	.5
8	*	.5	.5	.5	.5
9	*	.5	.5	.5	.5
10	*	.5	.5	.5	.5
11	*	.5	.5	.5	.5
12	*	.5	.5	.5	.5

SHIELDING FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1	*	.0	.0	.0	.0
2	*	.0	.0	.0	.0
3	*	.0	.0	.0	.0
4	*	.0	.0	.0	.0
5	*	.0	.0	.0	.0
6	*	.0	.0	.0	.0
7	*	.0	.0	.0	.0
8	*	.0	.0	.0	.0
9	*	.0	.0	.0	.0
10	*	.0	.0	.0	.0
11	*	.0	.0	.0	.0
12	*	.0	.0	.0	.0

RECEIVER	LEQ(H)	L10
R1	65.3	67.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

5 1
44.0
6 1
42.7

7 1
47.1
8 2
45.5
10 1
60.2
11 1
46.3
12 1
63.2

RECEIVER LEQ(H) L10
R2 66.1 68.7

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
41.6
4 1 2 3
40.3 48.7 40.6
5 1
52.8
6 1
45.2
10 1
58.9
11 1
46.1
12 1
64.6

RECEIVER LEQ(H) L10
R3 66.1 68.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
53.5
5 1
52.8
6 1
44.3
10 1
56.9
11 1
54.7
12 1
64.5

RECEIVER LEQ(H) L10
R4 65.3 67.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
43.1
2 1 2
45.9 44.6
3 2 3
46.1 42.3
5 1
44.0
6 1
41.6
7 1
44.2
8 2
45.5
10 1
58.3
11 1
56.1
12 1

63.2
□ 64.5

RECEIVER	LEQ(H)	L10
R4	65.3	67.8

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S T A M I N A   P R O G R A M
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TRAFFIC NOISE PREDICTION MODEL
STAMINA 2.0/BCR - FHWA VER. 3 (3/83)
TOWNE, RICHARDS & CHAUDIERE PC VER. 1 (11/84)
Seattle - King County Health Dept.


(INPUT UNITS- ENGLISH , OUTPUT UNITS- ENGLISH )


NJTPA NEW ROAD ROUTE 1 @ 200 FT RECEPTORS
PROGRAM INITIALIZATION PARAMETERS

  HE!GHT    CODE       DESCRIPTION
   .00       1   RECEIVER HEIGHT ADJUSTMENT
  1.00       2   A-WEIGHTED SOUND LEVEL ONLY
   .00       3   HEIGHT ADJUSTMENT FOR PASSENGER CARS (CARS)
  8.00       4   HEIGHT ADJUSTMENT FOR HEAVY TRUCKS   (HT)
  2.30       5   HEIGHT ADJUSTMENT FOR MEDIUM TRUCKS  (MT)


ROADWAY  1    RT1 NRTH TO NEW ROAD ON/OFFRAMP EAST/WEST-BOUND


            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS           520.        30.
               HT             16.         30.
               MT             14.         30.
             ------------COORDINATES-------------
                X          Y          Z    GRADE
NR1N1             27.      -900.       0.     0
NW2              650.      -360.       0.     0


ROADWAY  2    RT1 STH TO NEW ROAD ON/OFF RAMP EAST/WEST-BOUND


            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS           446.        30.
               HT             2.          30.
               MT             1.          30.
             ------------COORDINATES-------------
                X          Y          Z    GRADE
NR1S1            -27.       900.       0.     0
NW5             -725.        0.        0.     0


ROADWAY  3    NEW ROAD EAST TO RT1 ON/OFFRAMP SOUTH-BOUND


            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS           1115.       30.
               HT             9.          30.
               MT             7.          30.
             ------------COORDINATES-------------
                X          Y          Z    GRADE
BW5             -700.        0.        0.     0
NR1S2            -27.      -900.       0.     0


ROADWAY  4    NEW ROAD WEST TO RT1 ON/OFFRAMP NORTH-BOUND


            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS           494.        30.
               HT             5.          30.
               MT             4.          30.
             ------------COORDINATES-------------
                X          Y          Z    GRADE
NW2              650.      -360.       0.     0
NR1N2             27.       900.       0.     0


ROADWAY  5    NEW ROAD OVERPASS EAST/WEST-BOUND
```

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1242.	30.
HT	14.	30.
MT	12.	30.

	COORDINATES			
	X	Y	Z	GRADE
NW2	650.	-360.	0.	0
NW3	52.	-25.	15.	0
NW4	-63.	0.	15.	0
NW5	-725.	0.	0.	0

ROADWAY 6 RT1 SOUTH-BOUND BETWEEN ON/OFF RAMP

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	4219.	32.
HT	109.	32.
MT	92.	32.

	COORDINATES			
	X	Y	Z	GRADE
NR1S1	-27.	900.	0.	0
NR1S2	-27.	-900.	0.	0

ROADWAY 7 RT1 NORTH-BOUND BETWEEN ON/OFF RAMP

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1933.	50.
HT	111.	50.
MT	94.	50.

	COORDINATES			
	X	Y	Z	GRADE
NR1N1	27.	-900.	0.	0
NR1N2	27.	900.	0.	0

RECEPTORS NEAR NEW ROAD

	COORDINATES		
	X	Y	Z
R1	-200.	200.	5.
R2	200.	200.	5.
R3	200.	-200.	5.
R4	-200.	-200.	5.

ALPHA FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1 * .5 .5 .5 .5
2 * .5 .5 .5 .5
3 * .5 .5 .5 .5
4 * .5 .5 .5 .5
5 * .5 .5 .5 .5
6 * .5 .5 .5 .5
7 * .5 .5 .5 .5

SHIELDING FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1 * .0 .0 .0 .0
2 * .0 .0 .0 .0
3 * .0 .0 .0 .0
4 * .0 .0 .0 .0
5 * .0 .0 .0 .0
6 * .0 .0 .0 .0
7 * .0 .0 .0 .0

RECEIVER	LEQ(H)	L10
R1	67.5	70.3

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

2 1
45.7
3 1

44.7
4 1
43.0
5 1 2 3
45.1 45.1 53.4
6 1
63.7
7 1
64.7

RECEIVER LEQ(H) L10
R2 68.1 71.2

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
40.4
3 1
40.9
4 1
52.2
5 1 2 3
49.8 44.7 45.6
6 1
61.8
7 1
66.6

RECEIVER LEQ(H) L10
R3 68.7 71.8

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
46.6
3 1
44.2
4 1
46.3
5 1 2 3
60.7 45.5 45.6
6 1
61.8
7 1
66.6

RECEIVER LEQ(H) L10
R4 67.6 70.4

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
42.0
3 1
50.8
4 1
40.3
5 1 2 3
47.1 45.7 53.4
6 1
63.7
7 1
64.7
□ 1
46.3
5 1 2 3
60.7 45.5 45.6
6 1
61.8
7 1
66.6

RECEIVER	LEQ(H)	L10
R4	67.6	70.4

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
42.0
3 1
50.8
4 1

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S T A M I N A   P R O G R A M
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TRAFFIC NOISE PREDICTION MODEL
STAMINA 2.0/BCR - FHWA VER. 3 (3/83)
TOWNE, RICHARDS & CHAUDIERE PC VER. 1 (11/84)
Seattle - King County Health Dept.


(INPUT UNITS- ENGLISH , OUTPUT UNITS- ENGLISH )


NJTPA BEEKMAN-NORTHUMBERLAND ROUTE 1 @ 200 FT RECEPTORS
PROGRAM INITIALIZATION PARAMETERS

   HEIGHT    CODE       DESCRIPTION
     .00      1    RECEIVER HEIGHT ADJUSTMENT
    1.00      2    A-WEIGHTED SOUND LEVEL ONLY
     .00      3    HEIGHT ADJUSTMENT FOR PASSENGER CARS (CARS)
    8.00      4    HEIGHT ADJUSTMENT FOR HEAVY TRUCKS   (HT)
    2.30      5    HEIGHT ADJUSTMENT FOR MEDIUM TRUCKS  (MT)


ROADWAY  1    RT1 NRTH TO NORTHUMBERLAND ON/OFFRAMP EAST/WEST-BOUND


            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          664.        30.
               HT            5.        30.
               MT            3.        30.
             -----------COORDINATES------------
                X          Y         Z    GRADE
BR1N1             27.      -900.       0.     0
BW2              700.        0.       0.     0


ROADWAY  2    RT1 STH TO BEEKMAN ON/OFF RAMP EAST/WEST-BOUND


            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          921.        30.
               HT            3.        30.
               MT            1.        30.
             -----------COORDINATES------------
                X          Y         Z    GRADE
BR1S1            -27.       900.       0.     0
BW5             -700.        0.       0.     0


ROADWAY  3    BEEKMAN EAST TO RT1 ON/OFFRAMP SOUTH-BOUND


            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          679.        30.
               HT            4.        30.
               MT            2.        30.
             -----------COORDINATES------------
                X          Y         Z    GRADE
BW5             -700.        0.       0.     0
BR1S2            -27.      -900.       0.     0


ROADWAY  4    NORTHUMBERLAND WEST TO RT1 ON/OFFRAMP NORTH-BOUND


            VEHICLE TYPE   VEHICLES/HOUR    SPEED
               CARS          896.        30.
               HT            3.        30.
               MT            1.        30.
             -----------COORDINATES------------
                X          Y         Z    GRADE
BW2              700.        0.       0.     0
BR1N2             27.       900.       0.     0
```



```
ROADWAY  5    NORTHUMBERLAND EAST SEGMENT (EAST/WEST-BOUND)
```

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	878.	30.
HT	1.	30.
MT	1.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
BW1	1200.	1400.	0.	0
BW2	700.	0.	0.	0

ROADWAY 6 BEEKMAN OVERPASS EAST/WEST-BOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1711.	30.
HT	6.	30.
MT	5.	30.

	----------COORDINATES----------			
	X	Y	Z	GRADE
BW2	700.	0.	0.	0
BW3	63.	0.	15.	0
BW4	-63.	0.	15.	0
BW5	-700.	0.	0.	0

ROADWAY 7 BEEKMAN WEST SEGMENT WEST-BOUND

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1293.	32.
HT	3.	32.
MT	1.	32.

	----------COORDINATES----------			
	X	Y	Z	GRADE
BW6	-1150.	0.	0.	0
BW5	-700.	0.	0.	0

ROADWAY 8 RT1 SOUTH-BOUND BETWEEN ON/OFF RAMP

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	3985.	36.
HT	108.	36.
MT	92.	36.

	----------COORDINATES----------			
	X	Y	Z	GRADE
BR1S1	-27.	900.	0.	0
BR1S2	-27.	-900.	0.	0

ROADWAY 9 RT1 NORTH-BOUND BETWEEN ON/OFF RAMP

VEHICLE TYPE	VEHICLES/HOUR	SPEED
CARS	1645.	49.
HT	6.	49.
MT	5.	49.

	----------COORDINATES----------			
	X	Y	Z	GRADE
BR1N1	27.	-900.	0.	0
BR1N2	27.	900.	0.	0

RECEPTORS NEAR BEEKMAN

	----------COORDINATES----------		
	X	Y	Z
R1	-200.	200.	5.
R2	200.	200.	5.
R3	200.	-200.	5.
R4	-200.	-200.	5.

ALPHA FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1 * .5 .5 .5 .5
2 * .5 .5 .5 .5
3 * .5 .5 .5 .5
4 * .5 .5 .5 .5

5 * .5 .5 .5 .5
6 * .5 .5 .5 .5
7 * .5 .5 .5 .5
8 * .5 .5 .5 .5
9 * .5 .5 .5 .5

SHIELDING FACTORS - RECEIVER ACROSS,ROADWAY DOWN

1 * .0 .0 .0 .0
2 * .0 .0 .0 .0
3 * .0 .0 .0 .0
4 * .0 .0 .0 .0
5 * .0 .0 .0 .0
6 * .0 .0 .0 .0
7 * .0 .0 .0 .0
8 * .0 .0 .0 .0
9 * .0 .0 .0 .0

RECEIVER LEQ(H) L10
R1 66.1 69.0

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

2 1
48.8
3 1
42.0
4 1
42.1
6 1 2 3
45.3 45.3 53.1
8 1
64.6
9 1
59.0

RECEIVER LEQ(H) L10
R2 65.5 68.0

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
42.2
2 1
42.2
4 1
48.7
5 1
41.2
6 1 2 3
53.1 45.3 45.3
8 1
62.7
9 1
60.9

RECEIVER LEQ(H) L10
R3 65.4 68.0

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
48.4
3 1
41.5
4 1
42.5
6 1 2 3
53.1 45.3 45.3
8 1
62.7
9 1

60.9

RECEIVER	LEQ(H)	L10
R4	66.1	69.0

ROADWAY SEGMENT SOUND LEVEL CONTRIBUTIONS EXCEEDING 40.0 DBA

ROADWAY SEGMENT

1 1
41.8
2 1
42.6
3 1
48.1
6 1 2 3
45.3 45.3 53.1
8 1
64.6
9 1
59.0
□ 1
42.5
6 1