NOISE CONTOUR TECHNICAL MEMORANDUM

Florida Department of Transportation

District One

SR 70 Project Development and Environment (PD&E) Study

Limits of Project: From Lonesome Island Road to the Southern Leg of CR 721

Highlands County, Florida

Financial Management Number: 449851-1

ETDM Number: 14490

Date: JUNE 2025

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

SR 70

Project Development & Environment (PD&E) Study
from Lonesome Island Road
to the Southern Leg of CR 721

Noise Contour Technical Memorandum

Financial Project ID No. 449851-1-22-01
ETDM Project No. 14490
Highlands County, Florida

Prepared for:

Florida Department of Transportation
District One

Prepared by:
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June 2025

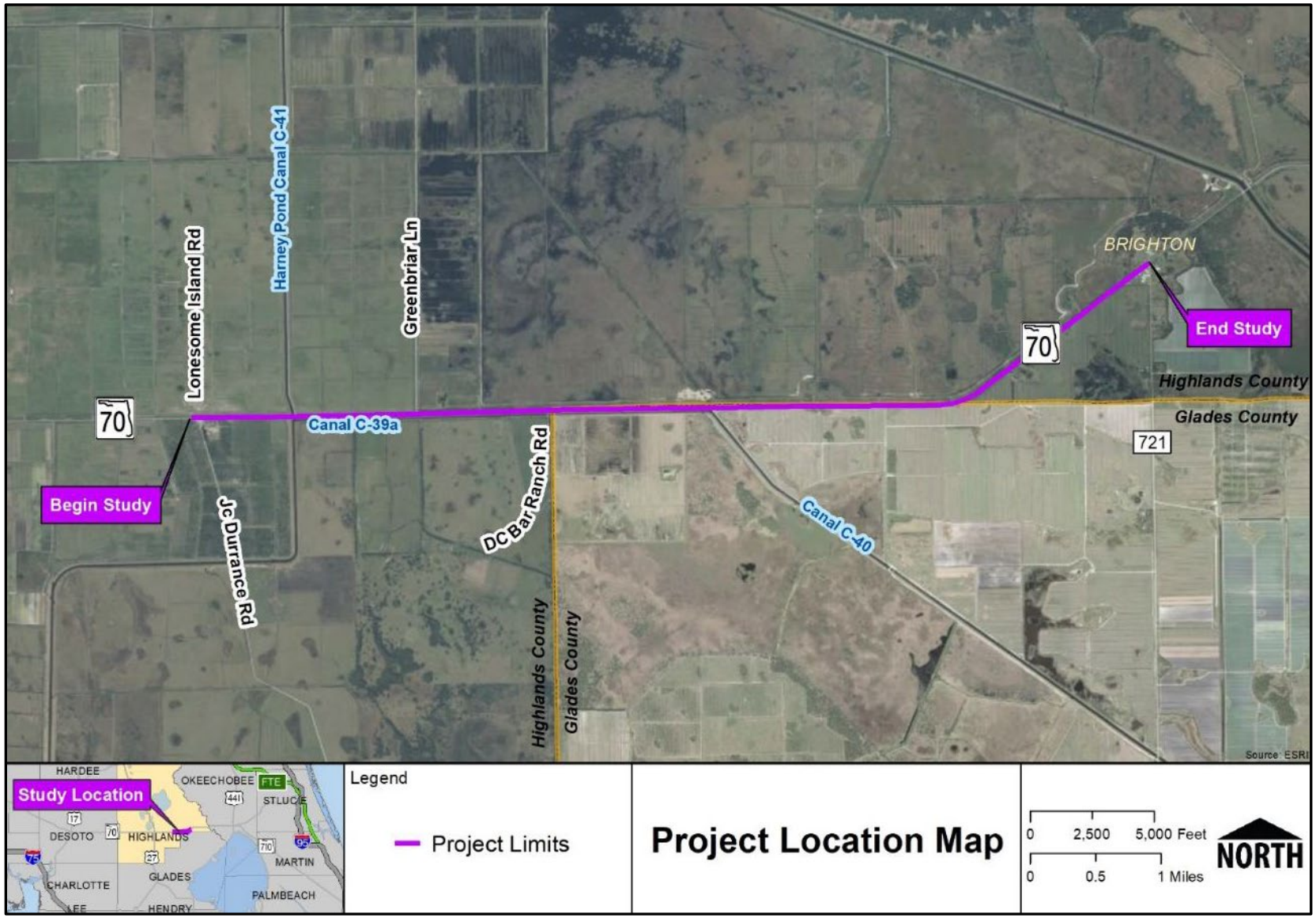
The purpose of this Noise Contour Technical Memorandum is to evaluate the noise level contours developed for the State Road (SR) 70 Project Development and Environmental (PD&E) Study from Lonesome Island Road to the Southern Leg of County Road (CR) 721 in Highlands County. The noise contours were developed using the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM), version 2.5. Use of the TNM is required when evaluating the potential for traffic noise impacts during the design year of roadway improvement projects for which the regulations, policies and guidelines within 23 Code of Federal Regulations (CFR) 772 and the Florida Department of Transportation (FDOT) PD&E Manual are applicable. There is one receptor along the PD&E Study limits, Brighton First Baptist Church; however, the existing roadway segment is being modified into a cul-de-sac, resulting in reduced traffic volumes and corresponding decreases in noise levels. Since this single noise sensitive site will not be impacted by the proposed roadway, a Noise Study Report is not required. This Memorandum will document the noise contours to support local agencies in land use planning along the corridor and the predicted noise level for Brighton First Baptist Church.

This roadway project proposes the widening of a two-lane facility to a four-lane, divided facility and/or the inclusion of operational improvements along 7.6 miles of SR 70 from Lonesome Island Road to the southern leg of CR 721. Travel lane widths will be widened from 10 feet to 12 feet as part of the project. Multimodal facilities will also be considered along the project segment, where appropriate.

SR 70 is part of Florida's Strategic Intermodal System (SIS) highway network and designated state hurricane evacuation route network. As part of the National Highway System, SR 70 is critical in the transportation network as it facilitates local and regional traffic and the movement of goods/freight. SR 70 is functionally classified as "Rural Principal Arterial – Other" within the project area, and the project segment of the roadway has an existing context classification of C2-Rural. The existing typical section consists of a two-lane undivided facility with 10-foot travel lanes. There are 8-foot shoulders, four (4) feet of which are paved; however, there are no designated bicycle lanes or sidewalks present on either side of the existing roadway. The posted speed limit along the project corridor is 60 miles per hour (mph).

The existing right-of-way (ROW) width along SR 70 project segment varies from 50 feet to 70 feet. A deep canal runs intermittently along the southern border of the project limits between the C-41 and C-40 Canals. Additional ROW is expected to accommodate the proposed improvements. A project location map is provided in **Figure 1**.

Figure 1 | Project Location Map



Traffic noise levels are low when traffic volumes are low (level of service [LOS] A or B) and when traffic is so congested that movement is slow (LOS D, E, or F). For the purpose of a highway traffic noise assessment, it is assumed that the maximum hourly traffic noise level occurs between these two conditions – when operating conditions are considered to be LOS C. As such, the traffic volume characteristics used in the analysis reflect either the forecast demand volumes, if the level met the LOS A or B criteria, or the LOS C volume, whichever is less. The traffic information used in the TNM noise model to predict existing (year 2022) highway traffic noise and future (year 2045) levels with and without the Build Alternative are summarized in **Table 1**. Detailed project-related traffic data as provided in **Appendix A**.

Table 1 Traffic Information

Roadway Segment	Scenario	Peak Direction Volume	Off-Peak Direction Volume	Demand or LOS C	Posted Speed (mph)
SR 70 West of CR 721	Existing (2022)	292	240	Demand	60
	No-Build (2045)	428	351	LOS (C)	60
	Build (2045)	653	534	Demand	60

FHWA has established noise levels at which noise abatement must be considered for various types of noise sensitive sites. These noise levels are referred to as the Noise Abatement Criteria (NAC). As shown in **Table 2**, the NAC vary by Activity Category. Noise Abatement measures are considered when predicted traffic noise levels for the design year (2045) Build alternative approach or exceed the NAC. Following FDOT procedure, an "approach" is defined as within 1 dB(A) of the FHWA criteria. For comparison purposes, typical noise levels associated with common indoor and outdoor activities are provided in **Figure 2**.

Abatement measures must also be considered when a substantial increase in traffic noise would occur as a direct result of the transportation project. Following FDOT procedure, a substantial increase is defined as 15 dB(A) or more above the existing levels. A substantial increase typically occurs in areas where traffic noise is a minor component of the existing noise environment but could become a major component after the project is constructed.

Abatement is evaluated for all noise sensitive sites predicted to approach, meet, or exceed the NAC or predicted to experience a substantial increase in traffic noise attributable to the project.

Table 2 Noise Abatement Criteria

[Hourly A-Weighted Sound Level – decibels (dB(A))]				
Activity Category	Activity $L_{eq(h)}$[1]		Evaluation Location	Description of activity Category
	FHWA	FDOT		
A	57	56	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 its intended purpose.
B[2]	67	66	Exterior	Residential
C[2]	67	66	Exterior	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	51	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[2]	72	71	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	--	--		Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	--		Undeveloped lands that are not permitted.

(Based on Table 1 of 23 CFR Part 772)

[1] The $L_{eq(h)}$ Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.

[2] Includes underdeveloped lands permitted for this activity category.

Figure 2 | Typical Noise Levels

Common Outdoor Activities	Noise Level dB(A)	Common Indoor Activities
	-110-	Rock Band
Jet Fly-over at 1000 ft		
	-100-	
Gas Lawn Mower at 3 ft		
	-90-	
Diesel Truck at 50 ft, at 50 mph		Food Blender at 1 m (3 ft)
	-80-	Garbage Disposal at 1 m (3 ft)
Noisy Urban Area (Daytime)		
Gas Lawn Mower at 100 ft	-70-	Vacuum Cleaner at 10 ft
Commercial Area		Normal Speech at 3 ft
Heavy Traffic at 300 ft	-60-	
		Large Business Office
Quiet Urban Daytime	-50-	Dishwasher Next Room
Quiet Urban Nighttime	-40-	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		
	-30-	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (Background)
	-20-	
		Broadcast/Recording Studio
	-10-	
Lowest Threshold of Human Hearing	-0-	Lowest Threshold of Human Hearing

Source: California Dept. of Transportation Technical Noise Supplement, Oct.1998, Page 18.

As properties near a highway are developed or redeveloped, providing a buffer between a highway and future noise sensitive development can minimize or eliminate noise impacts. This abatement measure can be implemented through local land use planning. The distances between the proposed highway and location where traffic noise levels approach the NAC for Activity Categories A, B, C and E are determined to facilitate future land use planning that is compatible with the traffic noise environment. For the proposed conceptual design, the distance between the nearest through lane and the location where traffic noise levels would approach a particular NAC is provided in **Table 3** and shown graphically in **Figure 3**. Within the project limits, the contours extend from 30 to 255 feet from the improved roadway's edge-of-pavement. The distances do not account for any reduction in noise levels that may be provided by berms, privacy walls or intervening structures. Distances also do not account for any increased roadway elevation or increased elevation of the noise sensitive site (e.g. second floor patio).

For any new development or redevelopment occurring in the future, local officials can use the noise contour information to establish buffer zones thereby minimizing or avoiding noise impacts at sensitive land uses.

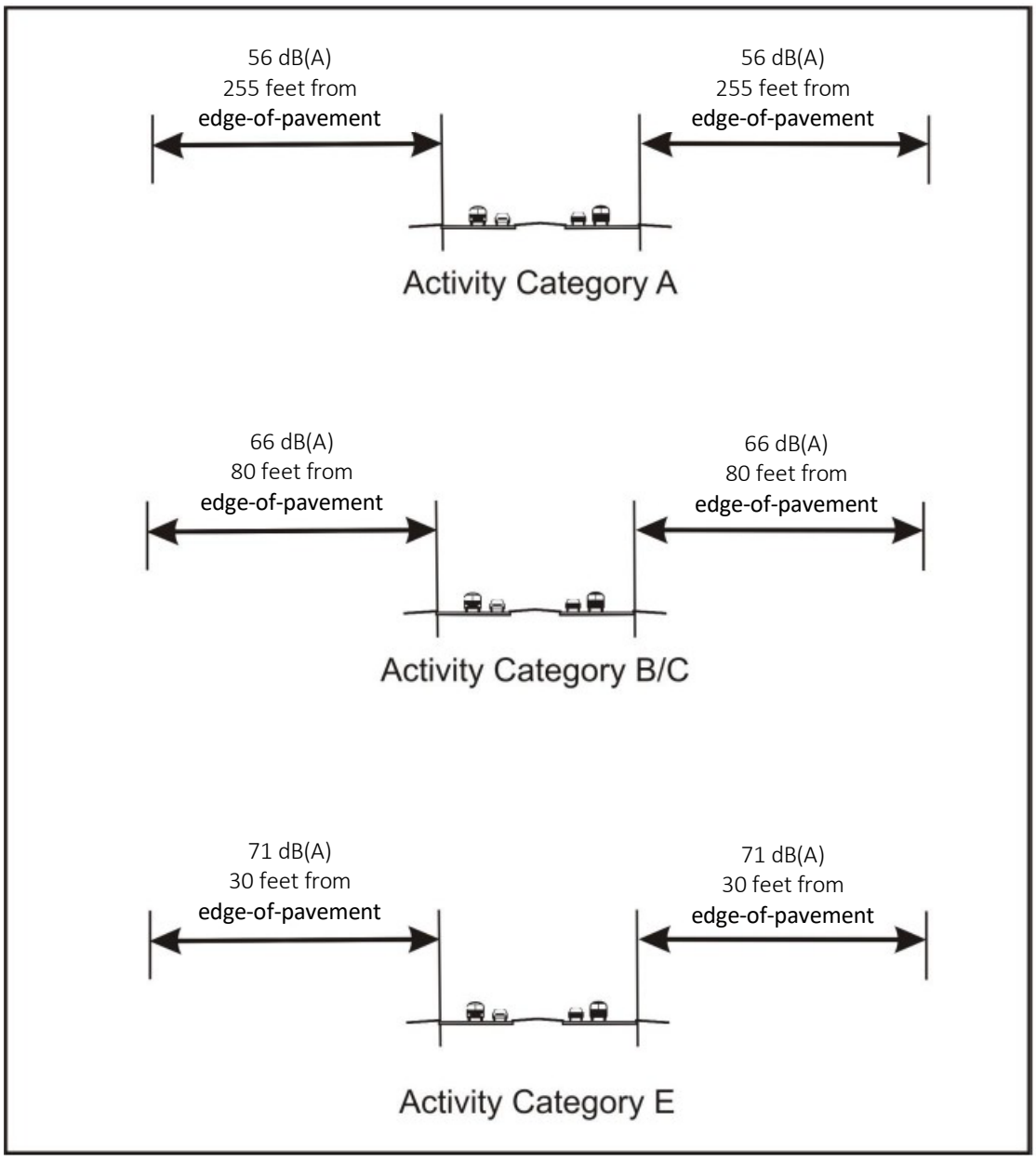
Table 3 Noise Abatement Criteria Contours

Activity Category[1]	Distance[2]
SR 70 from Lonesome Island Rd to the Southern Leg of CR 721	
A [56 dB(A)]	≈ 255 feet
B & C [66 dB(A)]	≈ 80 feet
E [71 dB(A)]	≈ 30 feet

[1] *Activity Categories are defined in 23 CFR 772.*

[2] *Distance is approximate and is referenced to the nearest through lane. Distance does not account for any reduction in noise levels that may be provided by berms, privacy walls or intervening structures. Distance does not account for any increase in noise levels that may be caused by a variation in the noise path, increase roadway elevation or increased elevation of the noise sensitive sites (i.e. second floor patio).*

Figure 3 | Typical Noise Levels



There is one noise sensitive site that is not within 500 ft of the proposed roadway but is within the limits of the existing roadway. The Brighton First Baptist Church is located near the existing SR 70 and CR 721 intersection about 60 feet south of the edge of pavement of SR 70. The location of the church is found in **Figure 4**. This church was evaluated as Activity Category C and abatement was considered if the predicted future traffic noise level with the improvements was 66 dB(A) or greater.

Figure 4 | Noice Receptor Location

The predicted noise levels for Brighton First Baptist Church are shown in **Table 4**. The results of the analysis indicate that the existing (year 2022) exterior traffic noise level is at 64.6 dB(A) for the single noise receptor. In the future (year 2045) for the No-Build Alternative, the exterior traffic noise level is predicted to be 66.2 dB(A). In the future with the Build Alternative, exterior traffic noise level is predicted to be 53.3 dB(A). For the Build Alternative, the original SR 70 will be converted into a cul-de-sac which will not have the same traffic volumes as the main line. Due to the unavailability of projected traffic volumes for this segment of the project, it is assumed that traffic volumes will be low, resulting in reduced noise levels. Considering that the No-build Alternative is only slightly above the 66 dB(A) NAC threshold, it is reasonable to conclude that the receptor will not be impacted. Accordingly, the construction of a noise barrier or other abatement measure is not warranted.

Table 4 Summary of the Traffic Noise Levels for Brighton First Baptist Church

Activity Category/NAC (dB(A))	Predicted Traffic Noise Levels (dB(A))			Difference from Existing (dB(A))	Approaches, Meets, or Exceeds the NAC?
	Existing (2022)	No-Build (2045)	Build (2045)		
C / 66	64.5	66.2	53.3	11.2	No

Appendix A Traffic Noise Data

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red".

TRAFFIC DATA FOR NOISE STUDIES

Project:	SR 70 from Lonesome Island Road to the Southern Leg of CR 721	Date:	11/4/2024
State Project Number(s):		Prepared By:	Consor Engineering, LLC
Financial Project ID:	449851-1-22-01		
Federal Aid Number(s):			
Segment Description:	SR 70 - West of CR 721		

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less.

Existing Facility		No-Build (Design Year)		Build (Design Year)	
Lanes:	2	Lanes:	2	Lanes:	4
Year:	2022	Year:	2045	Year:	2045
ADT: LOS (C)	8,200	ADT: LOS (C)	8,200	ADT: LOS (C)	45,800
Demand	5,600	Demand	9,800	Demand	12,500
Speed:	60 mph	Speed:	60 mph	Speed:	60 mph
	97 kmh		97 kmh		97 kmh
K=	9.5 %	K=	9.5 %	K=	9.5 %
D=	55.0 %	D=	55.0 %	D=	55.0 %
T=	32.0 % for 24 hrs.	T=	32.0 % for 24 hrs.	T=	32.0 % for 24 hrs.
T=	16.0 % Design hr	T=	16.0 % Design hr	T=	16.0 % Design hr
1.7	% Medium Trucks DHV	1.7	% Medium Trucks DHV	1.7	% Medium Trucks DHV
0.7	% Heavy Trucks DHV	0.7	% Heavy Trucks DHV	0.7	% Heavy Trucks DHV
0.0	% Buses DHV	0.0	% Buses DHV	0.0	% Buses DHV
0.0	% Motorcycles DHV	0.0	% Motorcycles DHV	0.0	% Motorcycles DHV

TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

Existing Facility Model:		**Demand**	**No-Build (Design Year) Model:**		**LOS (C)**	**Build (Design Year) Model:**		**Demand**
LOS (C)			LOS (C)			LOS (C)		
Peak:	Autos	418	Peak:	Autos	418	Peak:	Autos	2334
	Med Trucks	7		Med Trucks	7		Med Trucks	40
	Hvy Trucks	3		Hvy Trucks	3		Hvy Trucks	17
	Buses	0		Buses	0		Buses	1
	Motorcycles	0		Motorcycles	0		Motorcycles	1
Off-Peak:	Autos	342	Off-Peak:	Autos	342	Off-Peak:	Autos	1910
	Med Trucks	6		Med Trucks	6		Med Trucks	33
	Hvy Trucks	3		Hvy Trucks	3		Hvy Trucks	14
	Buses	0		Buses	0		Buses	0
	Motorcycles	0		Motorcycles	0		Motorcycles	1
Demand			Demand			Demand		
Peak:	Autos	285	Peak:	Autos	499	Peak:	Autos	637
	Med Trucks	5		Med Trucks	9		Med Trucks	11
	Hvy Trucks	2		Hvy Trucks	4		Hvy Trucks	5
	Buses	0		Buses	0		Buses	0
	Motorcycles	0		Motorcycles	0		Motorcycles	0
Off-Peak:	Autos	234	Off-Peak:	Autos	409	Off-Peak:	Autos	521
	Med Trucks	4		Med Trucks	7		Med Trucks	9
	Hvy Trucks	2		Hvy Trucks	3		Hvy Trucks	4
	Buses	0		Buses	0		Buses	0
	Motorcycles	0		Motorcycles	0		Motorcycles	0