NOISE STUDY REPORT

RELOCATION OF I-91 NB INTERCHANGE AND WIDENING OF I-91 AND ROUTE 15 NB TO I-84 EB
IN THE CITY OF HARTFORD AND THE TOWN OF EAST HARTFORD, CONNECTICUT
STATE PROJECT NO. 63-703

PREPARED BY THE
CONNECTICUT DEPARTMENT OF TRANSPORTATION

BY

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INTRODUCTION AND PROJECT DESCRIPTION

Existing Conditions: Three of the four connections for the Interstate 91 (I-91) and the Interstate 84 (I-84) interchange are located proximate to the physical crossing of the interstates in downtown Hartford. Interchange 29, which is located approximately 1.6 miles to the south of I-84, provides the I-91 North to I-84 East connection, via Route 15.

There is significant traffic delays on I-91 North due to the vertical geometry of the road, single lane configuration of the I-91 Exit 29 off-ramp, traffic volumes at or near capacity, and heavy traffic weave on the Charter Oak Bridge. As a result, there is an above average crash frequency on I-91. Traffic routinely backs up from Exit 29 onto the northbound I-91 mainline, taking up the right-most lane of the three-lane facility. The lengths of the back-ups vary, but have been observed extending approximately 1.4 miles to the vicinity of the Wethersfield Cove. The condition is made far worse by the tendency of drivers to cut into the right lane queue from the center lane, drastically reducing the capacity of that center lane.

PURPOSE AND NEED

The purpose of this project is to address safety concerns associated with capacity and operational failures at Interchange 29 on I-91 North, which connects to Route 15 North and I-84 East.

PROPOSED IMPROVEMENTS:

The following improvements are proposed (south to north): Northbound I-91 will be widened for approximately 4,300 feet to extend the four lane travel lane section from Interchange 27 to Interchange 29 to relieve congestion, address significant safety concerns and provide an efficient I-91 to I-84 connection. This widening will occur on the easterly side of I-91 and will require modifications to the following four bridges: Bridge No. 813, I-91 over Route 15; Bridge No. 3613, I-91 over a drainage crossing (8x12 box culvert); Bridge No. 1466, I-91 over SB entrance ramp to SB I-91 and SB Route 15; and Bridge No. 480, I-91 over Airport Road. Due to subsurface soil conditions, it is anticipated that the use of light weight fill will be required in fill areas approaching Bridge No. 480 and the Charter Oak Bridge.

The I-91 exit ramp at Interchange 29 will be relocated and replaced. To address the adverse vertical grade and limited capacity of the existing ramp, it is proposed to remove the ramp and provide a major diverge on I-91 North just south of Bridge No. 815 (I-91 over Route 15). I-91 will be widened to accommodate the diverge which will consist of three lanes to the right maintaining I-91 traffic over Bridge No. 815 (existing condition) and two lanes to the left via a new bridge over southbound Route 15.

The two left lanes of the I-91 diverge would horizontally displace the two existing northbound lanes on Route 15. The Route 15 northbound lanes would be realigned to the east and would be merged with the two lanes from I-91 to form a four lane section prior to the Charter Oak Bridge. To accommodate this four travel lane section, widening of Bridge No. 6117 (Route 15 over I-91, Reserve Road and a rail line) will be required. The two lane entrance ramp from Route 15 to I-91 will also require realignment.

To avoid widening of Bridge No. 6000A (northbound barrel of the Charter Oak Bridge), the existing cross-section of 10-foot left shoulder, three 12-foot travel lanes and a 10-foot right shoulder would be modified to a 4-foot shoulder (left), four 11-foot travel lanes and a 10-foot

shoulder (right) for approximately 850 feet. The cross-section would transition to 10foot shoulders (left & right) and 12-foot travel lanes on the remaining section of Charter Oak Bridge.

Northbound Route 15 from the Charter Oak Bridge to the Silver Lane underpass will be widened. The four travel lane section on northbound Route 15 formed by the two entering lanes from I-91 merging with the two travel lanes on Route 15 is extended over Charter Oak Bridge until Interchange 90 where there is a lane drop to Route 2 and Route 5. The remaining three travel lanes will need to be reduced to two prior to the Route 15 merge with I-84. Due to the proximity of the four lane merge and the lane drop at Interchange 90, it was determined that Route 15 would be widened to three travel lanes from east of the Charter Oak Bridge to the Silver Lane underpass, and providing a lane drop prior to its merge with I-84 East.

This widening addresses capacity concerns on Route 15 and allows a more desirable distance from Interchange 29 on I-91 to merge from three travel lanes to two prior to its merge with I-84 East. This improvement will require widening Bridge No. 6043A (Route 15 over Route 5) and Bridge No. 5796 (Route 15 over Silver Lane).

The project is considered a Type I Project; therefore, a noise analysis was completed in accordance with 23 CFR Part 772 – *Procedures for Abatement of Highway Traffic and Construction Noise*, and the Connecticut Department of Transportation Highway (Department) *Traffic Noise Abatement Policy for Projects Funded by the Federal Highway Administration* (FHWA).

EXISTING LAND USES

East Hartford

Existing land (Figure 1) uses on the East Hartford side of the project area consist of predominantly residential neighborhoods to the north of Route 15 bounded by Silver Lane and multistory, multifamily residential apartments to the south of Route 15. A residential neighborhood is located at the interchange with Route 15 and Route 2. This neighborhood is bounded by the off ramp to Route 2 eastbound and westbound and the off ramp to Main Street. A school and park are located immediately adjacent to the Charter Oak Bridge. These locations are bounded by the Connecticut River to the west, Route 2 to the east and the Charter Oak Bridge to the south.

Existing traffic noise barrier walls were provided in 1988 for the multi-residential apartment area and residences located in East Hartford along Route 15 northbound and residences located along Route 15 southbound (Figure 2). The traffic noise barrier walls were originally constructed of abortive plastic panels. This plastic barrier system deteriorated over the years to the point of having to replace the system with a newer concrete post and panel system. The existing system is constructed of absorptive panels supported by ground mounted H-columns and attached to the structures and safety barriers. The barrier wall panels mounted on the bridge structure over Silver Lane are of lightweight transparent panels.

Under project 63-703, the noise barrier walls along Route 15 northbound will be impacted from the widening of Route 15 northbound. This two barrier system will be replaced to maintain the noise reduction provided to the apartment complex and residences located along Silver Lane and along Route 15 northbound. Along Route 15 northbound, one noise barrier wall currently starts along the commuter lot located to the west of the apartment complex and terminates along Route

15 northbound off ramp to Silver Lane. The second segment of this system begins at the gore area of Route 15 northbound Silver Lane off ramp and terminates along Route 15 northbound past the Silver Lane overpass. The existing Route 15 southbound noise barrier wall which runs from approximately 230 feet east of the Silver Lane on ramp to just past the Bridge over Silver Lane will not be impacted.

The proposed noise barrier wall system is shown by dashed white lines, the existing noise barrier walls are shown as white solid lines (Figure 2). The two barrier system (Noise Barrier #1 and Noise Barrier #2) located along Route 15 northbound will be replaced as shown in Figure 2. The proposed noise barrier wall (Noise Barrier #4) located along Route 15 southbound will start at the beginning of the Silver Lane onramp to Route 15 southbound and terminate before the Main Street overpass.

Hartford

Existing land (Figure 3) uses on the Hartford side of the project area consist of a mix of commercial and light industrial multi-level buildings to the west of the project along Interstate 91. Additionally, there are large box transportation businesses including various freight transits. To the southeast of the Charter Oak Bridge is an active boat launch. The main noise source for the boat launch is mainly Interstate 91 and would receive minimal benefit from any noise abatement located on the Charter Oak Bridge.

ANALYSIS METHODOLOGY

MODEL USED AND ASSUMPTIONS

The Federal Highway Administration (FHWA) noise prediction model (Traffic Noise Model 2.5 (TNM 2.5)) was used to derive existing and future noise levels. The Department provided the concurrent hourly volume for the local road network. The posted speed limits for the roadway networks and concurrent traffic counts were used for the existing and future build scenarios for the roadway networks. The traffic data for the noise modeling for the existing and future build conditions is summarized in Table 1. Twelve-foot traffic lane widths were used for the existing analysis of Route 15 and I-91 roadways.

FIELD MEASUREMENTS

Ambient noise field measurements were taken at ten different locations along the local roadway network (Figure 1), in accordance with the FHWA publication "Measurement of Highway-related Noise." Noise measurements were taken on November 4, 2015 and November 18, 2015. Field measurements included the counted number of vehicles, type of vehicle, meteorological conditions, unusual noise, and any present obstructions between the measurement location and traffic. Table 1 summarizes the information for the ambient noise field measurements.

TABLE 1 HOURLY TRAFFIC AT NOISE READING LOCATIONS BASED ON CONCURRENT TRAFFIC COUNTS

Site	Time Period	Autos*	Medium Trucks*	Heavy Trucks*	Buses*	Motorcycles*	Measured Leq (in dB(A))
Receptor 1	No AM Noise Readings Taken						
	4:36 PM – 4:51 PM	3272 15 NB 2780 15 SB	56 15 NB 60 15 SB	104 15 NB 104 15 SB	12 15 NB 4 15 SB	0 15 NB 8 15 SB	62.2
Receptor 2	7:20 AM – 7:35 AM	1624 15 NB 2160 15 SB 296 On-ramp	96 15 NB 76 15 SB 8 On-ramp	152 15 NB 148 15 SB 4 On-ramp	0 15 NB 24 15 SB 8 On-ramp	0 15 NB 0 15 SB 0 On-ramp	67.5
	4:27 PM – 4:42 PM	3380 15 NB 2344 15 SB 260 On-ramp	20 15 NB 72 15 SB 12 On-ramp	72 15 NB 148 15 SB 4 On-ramp	8 15 NB 8 15 SB 0 On-ramp	4 15 NB 4 15 SB 0 On-ramp	67.1
Receptor 3	No AM Noise Readings Taken						
	4:44 PM – 4:59 PM	496 Silver Ln WB 924 Silver Lane EB	8 Silver Ln WB 24 Silver Lane EB	0 Silver Ln WB 4 Silver Lane EB	12 Silver Ln WB 12 Silver Lane EB	0 Silver Ln WB 0 Silver Lane EB	74.2
Receptor 4	7:56 AM – 8:11 AM	2076 RTE 15 NB 3522 RTE 15 SB	70 RTE 15 NB 118 RTE 15 SB	135 RTE 15 NB 230 RTE 15 SB	4 RTE 15 NB 8 RTE 15 SB	0 RTE 15 NB 0 RTE 15 SB	59.1
	5:31 PM – 5:46 PM	2938 RTE 15 NB 3802 RTE 15 SB	40 RTE 15 NB 54 RTE 15 SB	80 RTE 15 NB 104 RTE 15 SB	12 RTE 15 NB 8 RTE 15 SB	0 RTE 15 NB 0 RTE 15 SB	56.7
Receptor 5	9:21 AM – 9:36 AM	2129 RTE 15 NB 3804 RTE 15 SB	72 RTE 15 NB 128 RTE 15 SB	139 RTE 15 NB 248 RTE 15 SB	4 RTE 15 NB 4 RTE 15 SB	0 RTE 15 NB 4 RTE 15 SB	59.3
	5:10 PM – 5:25 PM	3974 RTE 15 NB 3014	56 RTE 15 NB 43	110 RTE 15 NB 83	4 RTE 15 NB 4	0 RTE 15 NB 0	58.7

TABLE 1 HOURLY TRAFFIC AT NOISE READING LOCATIONS BASED ON CONCURRENT TRAFFIC COUNTS							
Site	**Time Period**	**Autos***	**Medium Trucks***	**Heavy Trucks***	**Buses***	**Motorcycles***	**Measured Leq (in dB(A))**
		RTE 15 SB	RTE 15 SB	RTE 15 SB	RTE 15 SB	RTE 15 SB	
Receptor 6	No AM Noise Readings Taken						
	4:06 PM – 4:21 PM	1140 Main Str. 504 15 NB Off-Ramp	32 Main Str. 0 15 NB Off-Ramp	12 Main Str. 0 15 NB Off-Ramp	12 Main Str. 0 15 NB Off-Ramp	12 Main Str. 8 15 NB Off-Ramp	58.5
Receptor 7	6:51 AM – 7:06 AM	1932 15 NB 2952 15 SB 440 Rt. 2 On-Ramp 416 15 NB Off-Ramp	128 15 NB 156 15 SB 12 Rt. 2 On-Ramp 16 15 NB Off-Ramp	232 15 NB 192 15 SB 4 Rt. 2 On-Ramp 36 15 NB Off-Ramp	0 15 NB 0 15 SB 4 Rt. 2 On-Ramp 4 15 NB Off-Ramp	0 15 NB 0 15 SB 0 Rt. 2 On-Ramp 0 15 NB Off-Ramp	63.2
	4:01 PM – 4:16 PM	3160 15 NB 3404 15 SB 492 Rt. 2 On-Ramp 588 15 NB Off-Ramp	48 15 NB 76 15 SB 8 Rt. 2 On-Ramp 12 15 NB Off-Ramp	152 15 NB 112 15 SB 8 Rt. 2 On-Ramp 40 15 NB Off-Ramp	0 15 NB 0 15 SB 8 Rt. 2 On-Ramp 4 15 NB Off-Ramp	0 15 NB 0 15 SB 0 Rt. 2 On-Ramp 0 15 NB Off-Ramp	61.6
Receptor 8	8:02 AM – 8:17 AM	2320 15 NB 3632 15 SB 1956 Rt. 2 Ramp	104 15 NB 136 15 SB 24 Rt. 2 Ramp	2320 15 NB 3632 15 SB 1956 Rt. 2 Ramp	180 15 NB 128 15 SB 32 Rt. 2 Ramp	0 15 NB 4 15 SB 0 Rt. 2 Ramp	65.3
	No PM Noise Readings Taken						
Receptor 9	No AM Noise Readings Taken						
	3:35 PM – 3:50 PM	3852 RTE 15 NB 3188 RTE 15 SB	68 RTE 15 NB 80 RTE 15 SB	102 RTE 15 NB 170 RTE 15 SB	4 RTE 15 NB 20 RTE 15 SB	4 RTE 15 NB 4 RTE 15 SB	63.6

TABLE 1 HOURLY TRAFFIC AT NOISE READING LOCATIONS BASED ON CONCURRENT TRAFFIC COUNTS							
Site	**Time Period**	**Autos***	**Medium Trucks***	**Heavy Trucks***	**Buses***	**Motorcycles***	**Measured Leq (in dB(A))**
Receptor 10	8:54 AM – 9:09 AM	2320 15 NB 3632 15 SB 448 Sliver Lane Off Ramp	104 15 NB 136 15 SB 20 Sliver Lane Off Ramp	2320 15 NB 3632 15 SB 12 Sliver Lane Off Ramp	180 15 NB 128 15 SB 12 Sliver Lane Off Ramp	0 15 NB 4 15 SB 0 Sliver Lane Off Ramp	63.6
	No PM Noise Readings Taken						
SOURCE: CTDOT.* Combined traffic count for directional movements NOTES: dB(A) – A-weighted decibels.							

MODEL VALIDATION

Using the ambient noise field measurements listed in Table 2, the TNM2.5 model was validated for accuracy, per the requirements in 23 CFR §772.11(d)(2). The sites where the noise field measurements were taken were included into the noise model for the existing condition to determine the modeled noise at that location. Table 2 compares the measured Leq versus modeled Leq for the ten sites. Based on FHWA's guidance, if the measured Leq and modeled Leq are within 3 dB(A), the model is valid. Therefore, based on the data in Table 2, the uses of the noise model developed for this project is considered valid for predicting sound levels for the existing and build alternatives (Table 3).

Locations not meeting the ± 3 decibels for validation where most likely influenced by variables that cannot be accounted for in the TNM 2.5. These variables may include aircraft flyovers, emergency vehicle sirens, noise and vibrations emanating from bridge structures, atmospherics, etc.

TABLE 2 FHWA TNM MODEL VALIDATION

Site	Time Period	Measured Leq	Modeled Leq	Difference
Receiver 1 -	8 4:36 PM to 4:51 PM	62.2	62.6	0.4
Receiver 2 -	7:20 AM to 7:35 AM	67.1	68.8	1.7
Receiver 3 –	4:44 PM to 4:59 PM	74.2	71.6	-2.6
Receiver 4 –	5:31 PM to 5:46 PM	56.7	60.4	3.7
Receiver 5 –	9:21 AM to 9:36 AM	59.3	59.1	-0.2
Receiver 6 –	4:06 PM to 4:21 PM	58.5	61.8	3.3
Receiver 7 –	6:51 AM to 7:06 AM	63.2	64.1	0.9
Receiver 8 –	8:02 AM to 8:17 AM	65.3	62.7	-2.6
Receiver 9 –	3:35 PM to 3:50 PM	63.6	62.5	-1.1
Receiver 10 –	8:54 AM to 9:09 AM	63.6	60.4	-3.2

NOTES:
Modeled Leq based on traffic counts from Table 1.
Difference = Measured Leq minus Modeled Leq.

TRAFFIC NOISE IMPACTS

The FHWA has developed noise abatement criteria (NAC) and procedures in 23 CFR Part 772, as shown in Table 3, and CTDOT Noise Policy that states that traffic noise impacts occur when either:

1) The predicted traffic noise levels approach or exceed the FHWA NAC for the applicable activity category shown in Table 4; or,
2) The predicted traffic noise levels substantially exceed the existing noise levels by ≥15 dB(A).

TABLE 3 23 CFR 772 (TABLE 1) NOISE ABATEMENT CRITERIA (NAC)

Activity Category	L_{eq} (h)\1,2\	L_{10} (h) \1,2\	Evaluation Location	Description of Activity Category
A	57	60	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\3\	67	70	Exterior	Residential.
C\3\	67	70	Exterior	Active sport 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, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	55	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\3\	72	75	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.

SOURCE: CTDOT Noise Policy, 2011.

\1\ Either Leq(h) or L10(h) (but not both) may be used on a project.
\2\ The Leq(h) and L10(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.
\3\ Includes undeveloped lands permitted for this activity category.

The modeling results for the existing condition and design year build scenarios can be found in Table 4. Based on the Department's current Noise Abatement Policy, the Department considers a predicted noise level within 1 dB(A) as "approaching" the NAC. A predicted increase of 15 dB(A) or more is also considered by the Department to substantially exceed the existing noise level. No substantial increase impacts would result from the proposed action. Highway traffic noise levels for the build condition will vary from 62 to 74 decibels (Table 4). Under the future build conditions, five locations would approach, equal or exceed the FHWA NAC of 67 dB(A) Leq(H).

FEASIBLE AND REASONABLE CONSIDERATION OF ABATEMENT

When considering abatement, the Department's Noise Policy states that noise abatement measures must be both feasible and reasonable. The feasibility and reasonableness of a noise barrier is determined by the following factors for Feasibility and Reasonableness.

Feasibility

The combinations of acoustical and engineering factors considered in the evaluation of a noise abatement measure are the following:

1. A noise abatement measure provides a noise reduction of 5dB(A) or greater for a minimum of two-thirds impacted Receivers.
2. Engineering feasibility of the noise abatement measure(s) shall consider adverse impacts created by or upon property access, drainage, topography, utilities, safety, and maintenance requirements.

Reasonableness

The combination of social, economic, and environmental factors are considered in the evaluation of a noise abatement measure. Reasonableness implies that good judgment and common sense has been applied in arriving at a decision. The following criteria are applied to determine if a noise abatement measure is reasonable:

1. An impacted Receiver that would receive a noise reduction of five dB(A) will be considered a benefitted Receiver.
2. That a traffic noise barrier will provide at least a seven decibel reduction in the noise climate for two-thirds of the benefitted Receivers.
3. That the cost of the traffic noise barrier system meets the cost/residence index of $55,000 per benefitted Receiver.

ABATEMENT EVALUATION

Noise barrier walls were analyzed for the residential neighborhoods in East Hartford within the project corridor (Figure 1). Noise abatement measures are considered reasonable and feasible as one neighborhood (Location 2) approaches or exceeds the NAC of 67 dB(A) Leq(h) or substantially exceed the existing noise levels by ≥15 dB(A). Hartford has no residential neighborhoods within the project as the locations are mostly commercial areas; therefore, no abatement is proposed.

East Hartford

Replacement of existing traffic noise barrier walls:

Noise Barrier Wall #1

For the Apartment complex neighborhood (Receiver #'s 4 and 5) , the noise barrier wall (Noise Barrier Wall #1 shown in Figure 2) that is in existence today will be reconstructed. The traffic noise barrier wall (#1) will begin at the point along the commuter lot located to the west of the apartment complex and terminate along the off ramp to Silver Lane (±Station 240+24 to ±Station 252+50) and retain the existing heights.

Cost

$1,440,000, this cost does not include demolition costs

Noise Barrier Wall #2

This system (Noise Barrier Wall #2, shown in Figure 2) will be replaced along Route 15 NB at the gore area of the Silver Lane off ramp to just past the bridge carrying Route 15 NB over Silver Lane (±Station 251+50 and terminate at ±Station 262+86) and have a height of fifteen feet above the baseline profile.

Cost

$900,000, this cost does not include demolition costs

Noise Barrier Wall #3

For this neighborhood north of Route 15 (Receiver #3), the noise barrier wall (Figure 2) that is in existence today will not be impacted under this project and will remain in place as constructed.

Not Impacted.

Noise Barrier Wall #4

Cost

$820,784

For this neighborhood, a noise barrier wall (Figure 2) will begin along the on ramp to Route 15 SB and terminate at Station ±237+50). The height of the barrier will be between fifteen and eleven feet. The noise barrier wall criteria are as follows:

Heights

- 15 feet will begin at ±Station 252+00 and end at ±Station 248+60
- 13 feet from ±Station 248+60 to ±Station 247+50
- 12 feet from ±Station 247+50 to ±Station 245+50
- 11 feet from ±Station 245+50 to ±Station 242+00

Length

This noise barrier wall is ±1,120 feet in length.

- Number of receivers: 42
- Number of impacted receivers: 14
- Number of receivers getting five decibel reduction: 14
- Number of receivers getting seven or greater decibel reduction: 14
- Cost per Benefited receiver $58,627

In determining the feasibility/cost effectiveness for providing traffic noise abatement, the following criteria are applied:

1. The neighborhood in question approaches (within one decibel) or exceeds the FHWA NAC of 67 dBA Leq(h).
2. Exceeds the existing noise levels by 15 decibels.
3. That a traffic noise barrier will provide at least a seven decibel reduction in the noise climate of the neighborhood for two-thirds of the benefitted Receivers.
4. That the cost of the traffic noise barrier system meets the cost/residence index of $55,000 per residence.

As shown in Table 4, Receptor 2 would receive a benefit from a traffic noise barrier system located along Route 15 southbound. In comparing the future build traffic noise levels from Route 15 and the future build conditions with the barrier system, noise levels will have a 0 dBA to 8 dBA reduction in traffic noise.

Based on the studies, the State intends to install new highway traffic noise abatement measures in the form of a traffic noise barrier wall at the neighborhood along the on ramp from Silver Lane, along Route 15 SB and terminate at Sta.±242+00. The preliminary indications of the likely abatement measures are based upon preliminary design for a barrier cost of $820,784 that will

reduce the noise level by 8 dB(A) for fourteen residences. The Cost/residence index is exceeded by $3,627 per benefited receiver. However, the Department feels this exceedance is minimal and will continue with the likelihood of providing the traffic noise abatement measure. If it subsequently determined during final design that these conditions have substantially changed, the abatement measures might not be provided. A final decision regarding installation of the abatement measure(s) will be made upon completion of the project's final design and the public involvement processes.

Summary

Table 4 Noise Levels with and without traffic noise abatement shows the traffic noise levels from the lane addition would be comparatively equal for all receivers. The data shown in Table 4 indicates that receptors 1 and 2 would experience impacts from future build conditions and noise abatement is feasible. Traffic noise levels for the project build conditions would be greater than the levels from traffic along the existing roadway network as shown in Table 4.

Receptor 8 would experience an impact under the 2039 Build AM conditions. However, the receptor is depressed below the Charter Oak Bridge and a reasonable amount of reduction would not be achievable for this or any other location that is in the same situation; therefore, no abatement measures are to be considered likely for this location.

The existing noise barrier walls (#1and #2) being replaced in East Hartford along route 15 northbound are being impacted by Project 63-703 through this area. The noise barrier locations were constructed under the Type II State Retrofit Program. The noise barrier walls will be reconstructed along the locations along Route 15 northbound and along the off ramp to Silver Lane (noise barrier wall #1). Noise barrier wall #2, will be reconstructed along Route 15 northbound and terminate at the original terminus along Route 15.

PUBLIC INVOLVEMENT

Public involvement will be initiated for the proposed Noise Barrier Wall #4. Public opinion will be considered to make the determination of the reasonableness for the noise barrier wall. The noise barrier wall will be constructed if two-thirds of the returned ballots are in favor of the noise abatement measures. Two solicitations will be made, one initial solicitation to the fourteen addresses that would benefit from the prospered noise abatement system and a second solicitation for the benefitted addresses not responding to the first solicitation.

CONSTRUCTION NOISE

Construction noise will be limited and temporary. Large pieces of construction equipment will be in operation at close proximity to the structures abutting the proposed project but the operations will be of short duration. Construction specifications require the contractor to comply with the following as per Form 816, Section 1.10; Environmental Compliance:

"1.10.05 – Noise Pollution: The contractor shall take measures to control noise intensity caused by his construction operations and equipment, including but not limited to equipment used for drilling, pile driving, blasting, and excavation or hauling.

All methods and devices employed to minimize noise shall be subject to continuing approval of the Engineer. The maximum allowable level of noise at the nearest residence or occupied building shall be 90 decibels on the "A" weighted scale (dB(A)). Any operation that exceeds this standard will cease until a different construction methodology is developed to allow work to proceed within the 90-dB(A) limit."

INFORMATION FOR LOCAL OFFICIALS

The Department has no authority over local land use planning and development. The Department can only encourage local officials and developers to consider highway traffic noise in the planning, zoning and development of property near existing and proposed highway corridors. The lack of consideration of highway traffic noise in land use planning at the local level has added to the highway traffic noise problem which will continue to grow as development continues adjacent to major highways long after these highways were proposed and/or constructed.

In order to help local officials and developers consider highway traffic noise in the vicinity of this proposed Type I project, the Department will work with the local elected officials to develop an understanding of noise compatible land principles and assist in incorporating these principles into their local zoning codes, plans and applicable ordinances as per the requirements of 23 CFR §772.17. This noise analysis will be made available during the public involvement process for the proposed project.


Receptor 3
Receptor 2
Receptor 10
Receptor 1
Receptor 5
Receptor 4
Receptor 6
Receptor 7
Receptor 8
Receptor 9
Joyce St
Silver Ln
502
E River Drive Extension
Veterans of Foreign Wars Hwy
15
Wilbur Cross Hwy
Jaidee Dr
Smith Dr
Lawrence St
Brown St
Willys St
Charter Oak Overpass
517
Main St
Cheltion Pl
Smart St
Lilac St
5

FIGURE 1 RECEPTOR LOCATIONS

FIGURE2 EXISTING AND PROPOSED NOISE BARRIER WALLS LOCATIONS

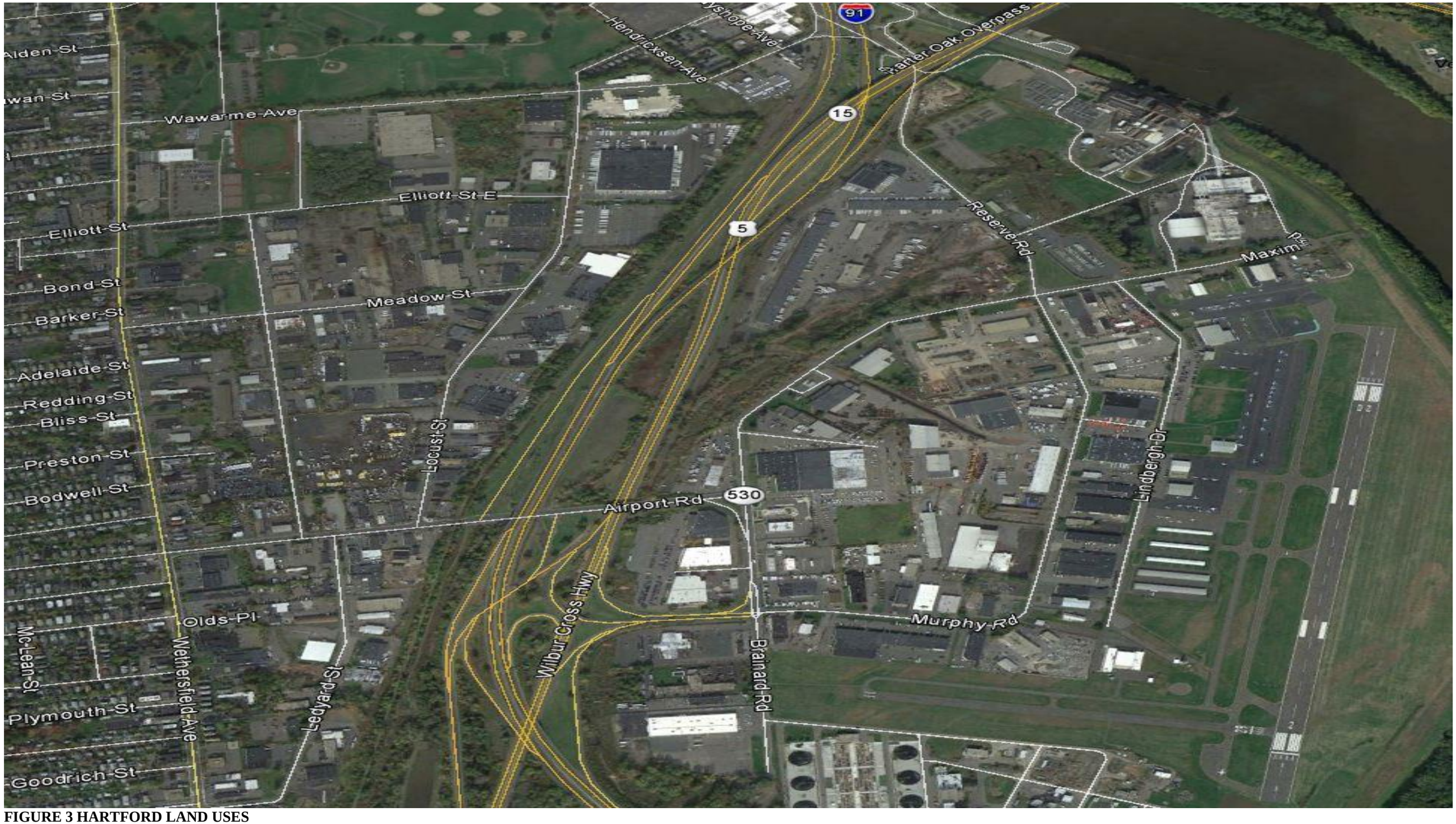

FIGURE 3 HARTFORD LAND USES

Receptor Number	*Land Use Activity Category*	*Number of Receivers*	*Average Distance to Nearest Lane Of the Roadway Network (feet)*	*Noise Abatement Criteria*	*Future Noise Levels Build by Project Build Date*[1]					
					Existing No Build	*Future No-Build*	*Build 2019 AM*	*Build 2019 PM*	*Build 2039 AM*	*Build 2039 PM*
Receptor 1	B	13-MF	337	67	64/64	64/60	64/60	63/59	65/62	65/62
Receptor 2	B	3-SF, 11-MF	224	67	69/69	67/58	67/58	65/57	70/60	70/60
Receptor 3[2]	B	2-SF, 1-MF	70	67	69/69	72/67	72/67	69/65	74/71	74/71
Receptor 4[2]	B	80-MF	362	67	61/61	67/60	63/59	62/58	67/59	67/59
Receptor 5[2]	B	64-MF	131	67	60/60	59/59	66/59	65/59	70/61	70/61
Receptor 6	B	6-SF, 1-MF	369	67	64/64	63/63	63/63	62/62	65/65	65/65
Receptor 7	B	3-SF, 5-MF	631	67	60/60	64/64	63/63	63/63	65/65	65/65
Receptor 8	C	P	500	67	63/63	62/62	64/64	63/63	66/61	66/61
Receptor 9	C	P	345	67	60/60	63/63	63/63	62/62	65/65	65/65
Receptor 10[2]	B	3-SF, 4-MF	271	67	62/62	63/63	67/59	66/58	64/64	64/64

SF – Single Family Residence, B-Business, MF –Multiple Family Residence, P –Park or Trail | [1]nn/nn: nn without abatement/nn with abatement | [2]Existing Noise Barrier Walls

TABLE 4 NOISE LEVELS WITH AND WITHOUT TRAFFIC NOISE ABATEMENT