

# TRAFFIC REPORT

State Project No. 63-703  
Relocation of I-91 NB Interchange 29 and  
Widening of I-91 NB and State Route 5/15 NB to I-84 EB  
Hartford and East Hartford, Connecticut

Submitted to: Connecticut Department of Transportation



Date: January 8, 2016



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## I. Introduction

Interchange 29 is a partial interchange that provides a connection between I-91 northbound and Connecticut State Route 5/15 northbound, as well as between State Route 5/15 southbound and I-91 southbound. Immediately northeast of the interchange, Route 5/15 crosses the Connecticut River on a large bridge structure named the Charter Oak Bridge (Bridge No. 06000A - Route 5/15 NB over I-91, Reserve Road and Rail Line). This section of State Route 5/15 provides the freeway-to-freeway connection between I-91 south of the interchange and I-84 to the east. It is a major route for traffic between southern Connecticut and the New York City metropolitan area and eastern Massachusetts and the Boston metropolitan area. Figure 1 depicts the existing interchange location while Figure 2 depicts the Study Area for this traffic report.

The proposed project seeks to relocate the current single-lane right-side I-91 northbound off-ramp to State Route 5/15 northbound. The new ramp will be located on the left-side approximately 1,700 feet south of the existing ramp and will be constructed as a two-lane major left diverge from the existing mainline of I-91 northbound. In order to facilitate the movement of traffic in the vicinity of the major diverge, an existing fourth-lane of I-91 northbound will be extended approximately 4,600 feet north from its current lane drop at Interchange 27 – Brainard Road/Airport Road to the new ramp. This widening will necessitate the reconstruction of the off-ramps at Interchanges 27 and 28. In addition, in order to provide for the two-lane ramp from I-91 northbound to State Route 5/15 northbound, the Charter Oak Bridge will be restriped to provide four-lanes of travel across the existing bridge structure. One lane will then be dropped at the State Route 2/Main Street (Route 5) – East Hartford exit (Interchange 90) and the remaining three lanes will be continued north to a right-side lane drop just north of the exit at Interchange 91 - Silver Lane. This will necessitate ramp reconstruction on State Route 5/15 northbound at Interchange 90 - State Route 2/Main Street (Route 5) – East Hartford and the off-ramp at Interchange 91 – Silver Lane. Figure 3 depicts the proposed improvements/changes within the project limits.

## II. Purpose and Need

The project will address safety concerns associated with traffic congestion and operational failures at the existing Interchange 29 off-ramp on I-91 northbound. Currently the single-lane ramp has a steep vertical grade (+5%) and near capacity traffic volumes (1,790 vehicles in the evening peak hour) that include a significant percentage of heavy vehicles (approximately 11%). In addition, once ramp traffic reaches the top of the vertical grade, traffic must weave across traffic on State Route 5/15 northbound destined for an exit to State Route 2/Main Street (Interchange 90) on the east end of the bridge in East Hartford. Combined, these factors cause a significant delay in traffic on I-91 northbound, higher than expected crash rates and the queuing of traffic onto the mainline of the highway.

The existing traffic queues extend onto I-91 northbound mainline, taking up the right lane of the three-lane facility. The length of the queue varies, but has been observed to extend approximately 1.4 miles south to the vicinity of the Wethersfield/Hartford town line and the I-91 Bridge over Wethersfield Cove. From visual observations it appears that these queues are not only occurring during normal peak hours of traffic (weekdays 7:00 to 9:00 AM and 4:00 to 6:00 PM) but outside those hours as well. The safety issues are compounded by drivers that routinely cut into the right-lane queue from the center lane, which impedes traffic flow in that and the left lane, further increasing congestion on I-91 in this area.

### III. Alternatives Evaluated

The Department developed and reviewed eight (8) alternatives, plus several variations of those alternatives, for correcting the operational and safety issues relating to I-91 northbound off-ramp at Interchange 29 including a no-build alternative. Four (4) of the alternatives were advanced for closer study. These included options for widening the existing ramp (Alternatives 6C and 6D); replacing the existing ramp with a connection to State Route 5/15 NB further to the south at I-91 Interchange 27 (Alternative 4) and constructing a two-lane major left-diverge ramp to the south of the existing ramp (Alternative 8).

Widening the existing ramp to add a second lane (Alternatives 6C and 6D) was eliminated because of difficult weave issues on the Route 5/15 NB between the widened ramp and the Interchange 90 ramps to State Route 2/Main Street immediately east of the Charter Oak Bridge. Replacing the existing ramp with a connection at Interchange 27 (Alternative 4) was eliminated due to the cost of widening multiple bridges on Route 5/15 NB to accommodate the additional traffic and to correct existing horizontal and vertical deficiencies on that section of highway. The cost of that alternative has been estimated at \$380 million.

The geometric and congestion issues associated with the Interchange 29 off-ramp will therefore require the removal and relocation of the existing ramp in the form of a major diverge. The preferred design for this project is Alternative 8B, which includes a major two-lane left-diverge to State Route 5/15 NB just south of Bridge No. 05922 (I-91 over State Route 5/15) and widening of I-91 NB for approximately 4,300 feet to provide four lanes from the existing lane-drop at Interchange 27 – Brainard Road/Airport Road to the new Interchange 29 – State Route 5/15 northbound ramp. The widening is anticipated to relieve congestion and address safety concerns due to motorists entering the ramp diverge from the center lane of I-91 NB. The widening will require modifications to bridges on I-91 northbound including Bridge No. 00813 (I-91 over Route 15), Bridge No. 03613 (I-91 over a drainage crossing), Bridge No. 01466 (I-91 over the SB entrance ramp to I-91 SB and Route 15 SB), and Bridge No. 00480 (I-91 over Airport Road). The proposed diverge requires the realignment of Route 15 northbound and widening of the southern approach to the Charter Oak Bridge (Bridge No. 06000A, Route 15 NB over I-91, Reserve Road and Rail Line).

### IV. Accident Analysis

CTDOT collects and analyzes crash information on all state roadways and compiles the data into a list entitled *Suggested List of Surveillance Study Sites (SLOSSS)*<sup>1</sup>. The objective of the list is to identify locations which have the “greatest promise” of crash reduction to give a “broad measure of overall needs of highway safety improvements”. The current list, dated 2011 – 2013, identifies a number of locations within the project area that require attention and safety improvements (see attached). These include I-91 northbound from the Interchange 27 Off-Ramp to Brainard Road (Mile Post 35.59) to the State Route 5/15 underpass (Mile Post 37.50). Sections of State Route 5/15 Northbound from the I-91 Northbound On-Ramp to I-84 Eastbound also appear on the list. Both of these areas correspond to the construction limits of the proposed project. A copy of the 2011 – 2013 SLOSSS appear in Figure 10.

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<sup>1</sup> “Pursuant to Title 23 United States Code Section 409, this data is not admissible and not discoverable in any federal or state court proceeding, and cannot be considered for any other purpose in any action for damages arising from an occurrence at a location addressed in this report.”

Crash data was also compiled from CTDOT's Traffic Accident Viewing System (TAVS) for the three-year period from 2011 to 2013. The data was obtained for I-91 Northbound, and State Route 5/15 Northbound within the limits of the project. A total of 751 crashes were reported on I-91 Northbound between the Interchange 26 on-ramp and the Interchange 29A off-ramp. Of that, 559 of these were rear-end type crashes; 100 were sideswipe-same direction type crashes and 76 were fixed-object type crashes. The remaining 16 crashes were turning-same direction (4), moving object (6), overturn (4), backing (1) or unknown (1) type crashes. These crashes resulted in 1 fatality and 178 injuries.

Route 15 northbound had a total of 201 crashes occur between Interchange 85 – Silas Deane Highway (Route 99) and I-84 Eastbound in East Hartford. The most common types of crashes for the Route 15 Northbound segment are fixed objects (98), rear-ends (50) and sideswipes (43). The remaining ten (10) crashes were moving object (5), miscellaneous non-crash (3), sideswipe – opposite direction (1) and head-on (1). The four (4) most common contributing factors to crashes on this section of State Route 5/15 are driver lost control (73), following too closely (45), speed to fast for conditions (30) and improper lane change (23). Sixty-one (61) injuries and 3 fatalities were reported on this segment of State Route 5/15 northbound. One fatality occurred on the segment between Interchange 87 Off-ramp – Brainard Road to Interchange 89 Off-ramp – I-91 Northbound. Another fatality occurred on the segment between Interchange 89 On-ramp – I-91 Northbound to Interchange 90 Off-ramp – Route 2/Main St. The third fatality occurred along the Interchange 91 Off-ramp – Silver Lane to Interstate 84 Eastbound segment.

## V. Highway Capacity Analyses

Traffic volumes for the project were developed by the CTDOT – Bureau of Policy & Planning, Office of Policy & Strategic Planning. Included were volumes for the morning peak hour of traffic, evening peak hour of traffic and average daily traffic (ADT) under the 2015 No-Build (existing) traffic condition; the 2039 No-Build traffic condition; and the 2039 Build traffic conditions. These volumes are depicted in Figures 3 (2015 No-Build), 4 (2039 No-Build) and 5 (2039 Build).

Analysis of the volumes were conducted using methodology outlined in the *2010 Highway Capacity Manual* developed by the Transportation Research Board (TRB) and replicated in computer software entitled *Highway Capacity Software 2010 (HCS 2010)*, Release 6.65. These analyses provide an operating condition, or Level-of-Service (LOS), using a grading scale similar to that used in most schools with LOS A being the highest LOS (a generally free-flow traffic condition) while LOS F is the lowest (a fully saturated traffic flow condition). In Connecticut, LOS D is commonly considered to be an “acceptable” LOS while LOS C or better is considered to be “desirable”. LOS E is considered to be “undesirable”. Analyses were conducted for each freeway segment, ramp junction and weave area along the corridor within the project limits. The criteria for each LOS is based on density of traffic in terms of passenger cars per mile per lane (pc/mi/ln).

Table 1 below identifies the LOS criteria for freeway segments while Table 2 identifies criteria for ramp merges and diverges. Table 3 provides the parameters for LOS within weave segments on freeways.

Table 1 LOS Criteria for Freeway Segments*		
LOS	Density (pc/mi/ln)	Comments
A	≤ 11	Free-flow speed operations with unimpeded maneuvers
B	> 11-18	Reasonably free-flow speed operations with slightly restricted maneuvers
C	> 18-26	Speeds near free-flow speeds with noticeably restricted maneuvers
D	> 26-35	Speeds begin to decline with seriously limited ability to maneuver
E	> 35-45	Operation at capacity with little room to maneuver
F	>45	Demand exceeds capacity with breakdown or unstable flow

Table 2 LOS Criteria for Ramp Merge/Diverge*		
LOS	Density (pc/mi/ln)	Comments
A	≤ 10	Unrestricted operations
B	> 10-20	Merging & diverging maneuvers noticeable
C	> 20-28	Influence area speeds begin to decline
D	> 28-35	Influence area turbulence becomes intrusive
E	> 35	Turbulence felt by virtually all drivers
F	Demand exceeds capacity	Ramp & freeway queues form

Table 3 LOS Criteria for Weaving Segments*		
LOS	Density (pc/mi/ln)	
	Freeway Weaves	Multilane or CD Weaves
A	0-10	0-12
B	> 10-20	> 12-24
C	> 20-28	> 24-32
D	> 28-35	> 32-36
E	> 35	> 36
F	Demand exceeds capacity	Demand exceeds capacity

\* 2010 Highway Capacity Manual

## 2015 No-Build (Existing) Analyses

The results of the analyses for I-91 under the 2015 No-Build (or existing) traffic condition are consistent with the peak hour directional flow of traffic with high congestion northbound in the AM peak hour (toward downtown Hartford). The results for I-91 Northbound during the AM peak hour indicate that I-91 Northbound from the Interchange 27 Off-Ramp – Brainard Road to Interchange 28 Off-Ramp – State Route 5/15 Southbound operates at LOS F and I-91 Northbound from Interchange 28 Off-Ramp – State Route 5/15 Southbound to Interchange 29 Off-Ramp – State Route 5/15 Northbound operates at LOS E. All three (3) of the ramps analyzed on I-91 northbound, I-91 Northbound Interchange 27 Off-Ramp to Brainard Road, the I-91 Northbound Interchange 28 Off-Ramp to State Route 5/15 Southbound and the I-91 Northbound Interchange 29 Off-Ramp to State Route 5/15 Northbound, operated at LOS F during the morning peak hour of traffic. During the PM peak hour, all of the I-91 northbound segments and ramps were found to operate at LOS D or better, except for the ramp from I-91 Northbound at Interchange 29 to State Route 5/15 Northbound which operates at LOS F.

The results for State Route 5/15 Northbound during the AM peak indicates that all nine (9) freeway segments analyzed operates at LOS D or better which is considered to be acceptable. The PM peak hour results indicate that only one (1) of the nine (9) freeway segments operate at an unacceptable LOS (LOS E) while the remaining eight (8) operate at acceptable LOS (LOS D or better). The segments that operates at LOS E during the PM peak hour is between the Interchange 90 Off-Ramp – State Route 2/Main Street and

Interchange 90 On-Ramp – Main Street. Of the 3 ramps analyzed during the AM peak hour, the ramp from State Route 5/15 Northbound Interchange 86 Off-Ramp to I-91 Southbound operates at LOS E. The other ramps operate at acceptable LOS (D or better). During the PM peak hour only the State Route 5/15 Northbound Interchange 87 On-Ramp from Brainard Road operates unsatisfactory with a LOS of F. The other ramps operate at acceptable LOS (D or better).

There were also three (3) weave segments analyzed on State Route 5/15 Northbound. During both the AM and PM peak hour two (2) weave segments, Brainard Road On-Ramp to I-91 Northbound Off-Ramp and I-91 Northbound On-Ramp to State Route 2/Main Street Off-Ramp, operate at LOS F while the other (between Main Street On-Ramp to Silver Lane Off-Ramp) operates at a LOS B during the AM peak hour and LOS C during the PM peak hour.

The results for I-84 are also consistent with directional flow volumes, high congestion eastbound (away from Hartford) in the PM peak hour. The results for eastbound indicate that the segment from Int. 57 - State Route 15 Northbound On-Ramp to Int. 58 - Roberts Street On-Ramp operates at a LOS B during the AM peak and at a LOS E during the PM peak. A summary of the results is included in Table 4 while Figure 6 depicts the analysis results for the 2015 No-Build (Existing) traffic conditions within the project limits.

### **2039 No-Build Traffic Analyses**

The results for the I-91 2039 No-Build analyses show continued deterioration of the operation of highways within the project area as traffic volumes grow in the future. The analyses results continue to be consistent with the directional flow volumes with high congestion northbound in the AM peak hour (toward Hartford). The results for I-91 Northbound during the AM peak hour indicate that two (2) of the five (5) segments, Interchange 27 Off-Ramp – Brainard Road to Interchange 28 Off-Ramp – State Route 5/15 Southbound and Interchange 28 Off-Ramp – State Route 5/15 Southbound to Interchange 29 Off-Ramp – State Route 5/15 Northbound, are anticipated to operate at LOS F and two (2), Interchange 26 On-Ramp – Old Wethersfield to Interchange 27 Off-Ramp – Brainard Road and Interchange 29 Off-Ramp – State Route 5/15 Northbound to Interchange 29 On-Ramp – State Route 5/15 Northbound, are anticipated to operate at LOS E. The 5<sup>th</sup> segment, Interchange 29 On-Ramp – State Route 5/15 Northbound to Interchange 29a Off-Ramp – Whitehead Highway, is anticipated to operate at LOS D. During the 2039 No-Build PM peak hour all of the freeway segments are anticipated to operate at LOS D or better.

All three (3) of the I-91 ramps analyzed, I-91 Northbound Interchange 27 Off-Ramp to Brainard Road, I-91 Northbound Interchange 28 Off-Ramp to State Route 5/15 Southbound and I-91 Northbound Interchange 29 Off-Ramp to State Route 5/15 Northbound are anticipated to operate at LOS F during the AM peak hour. One of the ramps, the ramp from Interstate 91 Northbound at Interchange 29 to State Route 5/15 Northbound is anticipated to operate at LOS F during the PM peak hour while the other 2 are anticipated to operate at LOS D or better.

The results for State Route 5/15 Northbound during the 2039 No-Build AM peak indicated that, of the six (6) freeway segments analyzed, two (2) operate at unacceptable LOS (LOS E or worse). These 2 segments are Interchange 85 – Silas Deane Highway On-Ramp to Interchange 86 Off-Ramp – I-91 Southbound and Interchange 86 Off-Ramp – I-91

Southbound to Interchange 87 Off-Ramp - Brainard Road. The remaining freeway segments are anticipated to operate at LOS D or better.

During the 2039 No-Build PM peak hour, the results indicate that three (3) of the six (6) freeway segments are anticipated to operate at an unacceptable LOS (LOS E or F) while the remaining operate at acceptable LOS (LOS D or better). The 3 segments that operate at LOS of E or F during the PM peak hour are Interchange 89 Off-Ramp – I-91 Northbound to Interchange 89 On-Ramp – I-91 Northbound (LOS E), Interchange 90 Off-Ramp – State Route 2/Main Street to Interchange 90 On-Ramp – Main Street (LOS F) and Interchange 90 On-Ramp – Main Street to Interchange 91 Off-Ramp – Silver Lane to I-84 Eastbound (LOS F).

All three (3) ramps analyzed during the 2039 No-Build AM peak hour and two (2) of the ramps during the PM peak hours are anticipated to operate at unacceptable LOS (LOS E or F). During the PM peak hour only the State Route 5/15 Northbound Int. 87 Off-Ramp to Brainard Road is anticipated to operate at acceptable LOS (D or better).

Of the three (3) weave segments analyzed on State Route 5/15 Northbound, two (2) of them, Brainard Road On-Ramp to Interstate 91 Northbound Off-Ramp and I-91 Northbound On-Ramp to State Route 2/Main Street Off-Ramp, are anticipated to operate at LOS F during both the AM and PM peak hours while the other (Main Street On-Ramp to Silver Lane Off-Ramp) is anticipated to operate at a LOS B during the AM peak hour and LOS F during the PM peak hour.

The results for I-84 eastbound indicate that the segment from Interchange 57 - Route 15 Northbound On-Ramp to Interchange 58 - Roberts Street On-Ramp operates at a LOS C during the AM peak and at a LOS F during the PM peak. Table 5 summarizes the results of the 2039 No-Build traffic analyses. Figure 8 depicts the analysis results.

### **2039 Build Traffic Analyses**

The results for the I-91 Design Year 2039 Build analyses show significant improvement in operating conditions in the vicinity of the relocated I-91 Northbound Off-Ramp at Interchange 29 – State Route 5/15 NB. During the AM peak hour of traffic the freeway segments from Interchange 27 Off-Ramp – Brainard Road to Interchange 28 Off-Ramp – State Route 5/15 Southbound and the segment from Interchange 28 Off-Ramp – State Route 5/15 Southbound to Interchange 29 Off-Ramp – State Route 5/15 Northbound improve from LOS F to LOS E. During the PM peak hour all of the freeway segments on I-91 Northbound operate at acceptable LOS (LOS D or better).

Of the 3 ramps analyzed on I-91 Northbound during the 2039 Build AM peak hour, the I-91 Northbound Int. 28 Off-Ramp to State Route 5/15 Southbound improves from LOS F to LOS D and the I-91 Northbound Interchange 29 Off-Ramp to State Route 5/15 Northbound improves from LOS F to LOS B. During the PM peak hour, all of the ramps operate at desirable LOS (LOS C or better).

The results for State Route 5/15 Northbound during the 2039 No-Build AM peak indicated that with the proposed improvements the operations improves to acceptable LOS (LOS D or better) from Interchange 89 Off-Ramp – I-91 Northbound to Interchange 89 On-Ramp – I-91 Northbound. Interchange 90 Off-Ramp – State Route 2/Main Street to Interchange 90 On-Ramp – Main Street and Interchange 91 Off-Ramp – Silver Lane to I-84 Eastbound.



The weave conditions on State Route 5/15 Northbound between Interchange 89 On-Ramp – I-91 Northbound and Interchange 90 Off-Ramp – State Route 2/Main Street improves to LOS B during the AM peak hour. The weave between Interchange 90 On-Ramp – Main Street and the Interchange 91 Off-Ramp – Silver Lane improves to an acceptable LOS (LOS D or better). Other freeway segments, ramps and weaves on I-91, Route 5/15 and I-84 remain unchanged from the 2039 No-Build traffic conditions. A summary of the analysis results are included in Table 5 and are depicted in Figure 9.

## **VI. Conclusion**

As can be seen by the analyses developed and the discussion above, the proposed project is anticipated to significantly improve highway operations in the vicinity of Interchange 29. The freeway segments in the vicinity of the interchange will improve from LOS F to LOS E while the off-ramp at Interchange 29 improves from LOS F to LOS B. This improvement should eliminate queuing on I-91 Northbound and thus eliminate the high occurrence of accidents in that area, thus improving safety as well. Operational improvements are also seen on Route 5/15 Northbound in the vicinity of the project with improvements to freeway segments, ramps and weave areas.

Table 4 - 2015 No-Build Analyses Summary

Road	From	To	Analysis Type	Link #	AM Peak			PM Peak		
					# Lanes	Density	LOS	# Lanes	Density	LOS
I-91 NB	Int. 26 On-Ramp - Old Wethersfield	Int. 27 Off-Ramp - Brainard Rd.	Freeway	1	4	33.1	D	4	21.8	C
I-91 NB		I-91 NB Int. 27 Off-Ramp to Brainard Rd.	Ramp	1	1	37.8	F	1	23.2	C
I-91 NB	Int. 27 Off-Ramp - Brainard Rd.	Int. 28 Off-Ramp - Rte. 5/15 SB	Freeway	2	3	46.1	F	3	26.6	D
I-91 NB		I-91 NB Int. 28 Off-Ramp to Rte. 5/15 SB	Ramp	2	1	40.6	F	1	30.0	D
I-91 NB	Int. 28 Off-Ramp - Rte. 5/15 SB	Int. 29 Off-Ramp - Rte. 5/15 NB	Freeway	3	3	43.5	E	3	25.5	C
I-91 NB		I-91 NB Int. 29 Off-Ramp to Rte. 5/15 NB	Ramp	3	1	39.4	F	1	33.1	F
I-91 NB	Int. 29 Off-Ramp - Rte. 5/15 NB	Int. 29 On-Ramp - Rte. 5/15 NB	Freeway	4	3	30.9	D	3	16.4	B
I-91 NB	Int. 29 On-Ramp - Rte. 5/15 NB	Int. 29A Off-Ramp - Whitehead Hwy	Freeway	5	5	24.5	C	5	14.1	B
Rte. 15 NB	Int. 85 - Silas Deane Hwy On-Ramp	Int. 86 Off-Ramp I-91 SB	Freeway	12	2	32.0	D	2	26.1	D
Rte. 15 NB		Route 5/15 NB Int. 86 Off-Ramp to I-91 SB	Ramp	10	1	36.1	E	1	31.6	D
Rte. 15 NB	Int. 86 Off-Ramp I-91 SB	Int. 87 Off-Ramp - Brainard Rd.	Freeway	13	2	29.5	D	2	24.1	C
Rte. 15 NB		Route 5/15 NB Int. 87 Off-Ramp to Brainard Rd.	Ramp	11	1	33.2	D	1	28.7	D
Rte. 15 NB	Int. 87 Off-Ramp - Brainard Rd.	Int. 87 On-Ramp - Brainard Rd.	Freeway	14	2	26.3	D	2	22.5	C
Rte. 15 NB		Route 5/15 NB Int. 87 On-Ramp to Brainard Rd.	Ramp	12	2	34.1	D	2	37.7	F
Rte. 15 NB	Brainard Rd On-Ramp	I-91 NB Off-Ramp	Weave	1	3	N/A	F	3	N/A	F
Rte. 15 NB	Int. 89 Off-Ramp - I-91 NB	Int. 89 On-Ramp - I-91 NB	Freeway	16	2	13.6	B	2	28.7	D
Rte. 15 NB	I-91 NB On-Ramp	Route 2/Main Street Off-Ramp	Weave	2	3	N/A	F	3	N/A	F
Rte. 15 NB	Int. 90 Off-Ramp - Rte. 2/Main St.	Int. 90 On-Ramp - Main St.	Freeway	18	2	18.3	C	2	38.4	E
Rte. 15 NB	Main St On-Ramp	Silver Lane Off-Ramp	Weave	4	3	13.8	B	3	26.2	C
Rte. 15 NB	Int. 91 Off-Ramp - Silver Lane	I-84 EB	Freeway	20	2	18.3	C	2	42.7	E
I-84 EB	Int. 57 Rte. 15 NB On-Ramp	Int. 58 Roberts St. On-Ramp	Freeway	21	5	15.6	B	5	42.9	E

**Table 5 - 2039 No-Build Analyses Summary**

Road	From	To	Analysis Type	Link #	AM Peak			PM Peak		
					# Lanes	Density	LOS	# Lanes	Density	LOS
I-91 NB	Int. 26 On-Ramp - Old Wethersfield	Int. 27 Off-Ramp - Brainard Rd.	Freeway	1	4	42.1	E	4	25.6	C
I-91 NB		I-91 NB Int. 27 Off-Ramp to Brainard Rd.	Ramp	1	1	47.5	F	1	26.4	C
I-91 NB	Int. 27 Off-Ramp - Brainard Rd.	Int. 28 Off-Ramp - Rte. 5/15 SB	Freeway	2	3	65.8	F	3	32.0	D
I-91 NB		I-91 NB Int. 28 Off-Ramp to Rte. 5/15 SB	Ramp	2	1	49.2	F	1	33.0	D
I-91 NB	Int. 28 Off-Ramp - Rte. 5/15 SB	Int. 29 Off-Ramp - Route 5/15 NB	Freeway	3	3	60.5	F	3	30.4	D
I-91 NB		I-91 NB Int. 29 Off-Ramp to Rte. 5/15 NB	Ramp	3	1	46.9	F	1	36.8	F
I-91 NB	Int. 29 Off-Ramp - Rte. 5/15 NB	Int. 29 On-Ramp - Rte. 5/15 NB	Freeway	4	3	37.7	E	3	18.2	C
I-91 NB	Int. 29 On-Ramp - Rte. 5/15 NB	Int. 29A Off-Ramp - Whitehead Hwy	Freeway	5	5	28.8	D	5	15.7	B
Rte. 15 NB	Int. 85 - Silas Deane Hwy On-Ramp	Int. 86 Off-Ramp I-91 SB	Freeway	12	2	43.3	E	2	33.2	D
Rte. 15 NB		Route 5/15 NB Int. 86 Off-Ramp to I-91 SB	Ramp	10	1	42.2	F	1	36.9	E
Rte. 15 NB	Int. 86 Off-Ramp I-91 SB	Int. 87 Off-Ramp - Brainard Rd.	Freeway	13	2	38.6	E	2	30.0	D
Rte. 15 NB		Route 5/15 NB Int. 87 Off-Ramp to Brainard Rd.	Ramp	11	1	38.9	E	1	33.6	D
Rte. 15 NB	Int. 87 Off-Ramp - Brainard Rd.	Int. 87 On-Ramp - Brainard Rd.	Freeway	14	2	33.4	D	2	27.6	D
Rte. 15 NB		Route 5/15 NB Int. 87 On-Ramp to Brainard Rd.	Ramp	12	2	39.9	F	2	43.7	F
Rte. 15 NB	Brainard Rd On-Ramp	I-91 NB Off-Ramp	Weave	1	3	N/A	F	3	N/A	F
Rte. 15 NB	Int. 89 Off-Ramp - I-91 NB	Int. 89 On-Ramp - I-91 NB	Freeway	16	2	16.4	B	2	36.9	E
Rte. 15 NB	I-91 NB On-Ramp	Route 2/Main Street Off-Ramp	Weave	2	3	N/A	F	3	N/A	F
Rte. 15 NB	Int. 90 Off-Ramp - Rte. 2/Main St.	Int. 90 On-Ramp - Main St.	Freeway	18	2	22.1	C	2	54.6	F
Rte. 15 NB	Main St On-Ramp	Silver Lane Off-Ramp	Weave	4	3	16.7	B	3	N/A	F
Rte. 15 NB	Int. 91 Off-Ramp - Silver Lane	I-84 EB	Freeway	20	2	22.1	C	2	63.9	F
I-84 EB	Int. 57 Rte. 15 NB On-Ramp	Int. 58 Roberts St. On-Ramp	Freeway	21	5	18.4	C	5	64.6	F

Table 6 - 2039 Build Analyses Summary

Road	From	To	Analysis Type	Link #	AM Peak			PM Peak		
					# Lanes	Density	LOS	# Lanes	Density	LOS
I-91 NB	Int. 26 On-Ramp - Old Wethersfield	Int. 27 Off-Ramp - Brainard Rd.	Freeway	1	4	42.1	E	4	25.6	C
I-91 NB		I-91 NB Int. 27 Off-Ramp to Brainard Rd.	Ramp	1	1	30.6	D	1	20.5	C
I-91 NB	Int. 27 Off-Ramp - Brainard Rd.	Int. 28 Off-Ramp - Rte. 5/15 SB	Freeway	2	4	33.8	D	4	21.8	C
I-91 NB		I-91 NB Int. 28 Off-Ramp to Rte. 5/15 SB	Ramp	2	1	33.4	D	1	24.8	C
I-91 NB	Int. 28 Off-Ramp - Rte. 5/15 SB	Int. 29 Off-Ramp - Rte. 5/15 NB	Freeway	3	4	38.5	E	4	23.6	C
I-91 NB		I-91 NB Int. 29 Off-Ramp to Rte. 5/15 NB	Ramp	3	2	11.7	B	2	8.2	A
I-91 NB	Int. 29 Off-Ramp - Rte. 5/15 NB	Int. 29 On-Ramp - Rte. 5/15 NB	Freeway	4	3	37.7	E	3	18.2	C
I-91 NB	Int. 29 On-Ramp - Rte. 5/15 NB	Int. 29A Off-Ramp - Whitehead Hwy	Freeway	5	5	28.8	D	5	15.7	B
Rte. 15 NB	Int. 85 - Silas Deane Hwy On-Ramp	Int. 86 Off-Ramp I-91 SB	Freeway	12	2	43.3	E	2	33.2	D
Rte. 15 NB		Route 5/15 NB Int. 86 Off-Ramp to I-91 SB	Ramp	10	1	42.2	F	1	36.9	E
Rte. 15 NB	Int. 86 Off-Ramp I-91 SB	Int. 87 Off-Ramp - Brainard Rd.	Freeway	13	2	38.6	E	2	30.0	D
Rte. 15 NB		Route 5/15 NB Int. 87 Off-Ramp to Brainard Rd.	Ramp	11	1	38.9	E	1	33.6	D
Rte. 15 NB	Int. 87 Off-Ramp - Brainard Rd.	Int. 87 On-Ramp - Brainard Rd.	Freeway	14	2	33.4	D	2	27.6	D
Rte. 15 NB		Route 5/15 NB Int. 87 On-Ramp to Brainard Rd.	Ramp	12	2	39.9	F	2	43.7	F
Rte. 15 NB	Brainard Rd On-Ramp	I-91 NB Off-Ramp	Weave	1	3	N/A	F	3	N/A	F
Rte. 15 NB	Int. 89 Off-Ramp - I-91 NB	I-91 NB On-Ramp	Freeway	16	2	16.4	B	2	18.6	C
Rte. 15 NB	I-91 NB On-Ramp	Route 2/Main Street Off-Ramp	Weave	2	4	18.2	B	4	N/A	F
Rte. 15 NB	Int. 90 Off-Ramp - Rte. 2/Main St.	Int. 90 On-Ramp - Main St.	Freeway	18	3	14.5	B	3	25.9	C
Rte. 15 NB	Main St On-Ramp	Silver Lane Off-Ramp	Weave	4	4	12.3	B	4	22.9	C
Rte. 15 NB	Int. 91 Off-Ramp - Silver Lane	I-84 EB	Freeway	20	2	22.1	C	2	63.9	F
I-84 EB	Int. 57 Rte. 15 NB On-Ramp	Int. 58 Roberts St. On-Ramp	Freeway	21	5	18.4	C	5	64.6	F

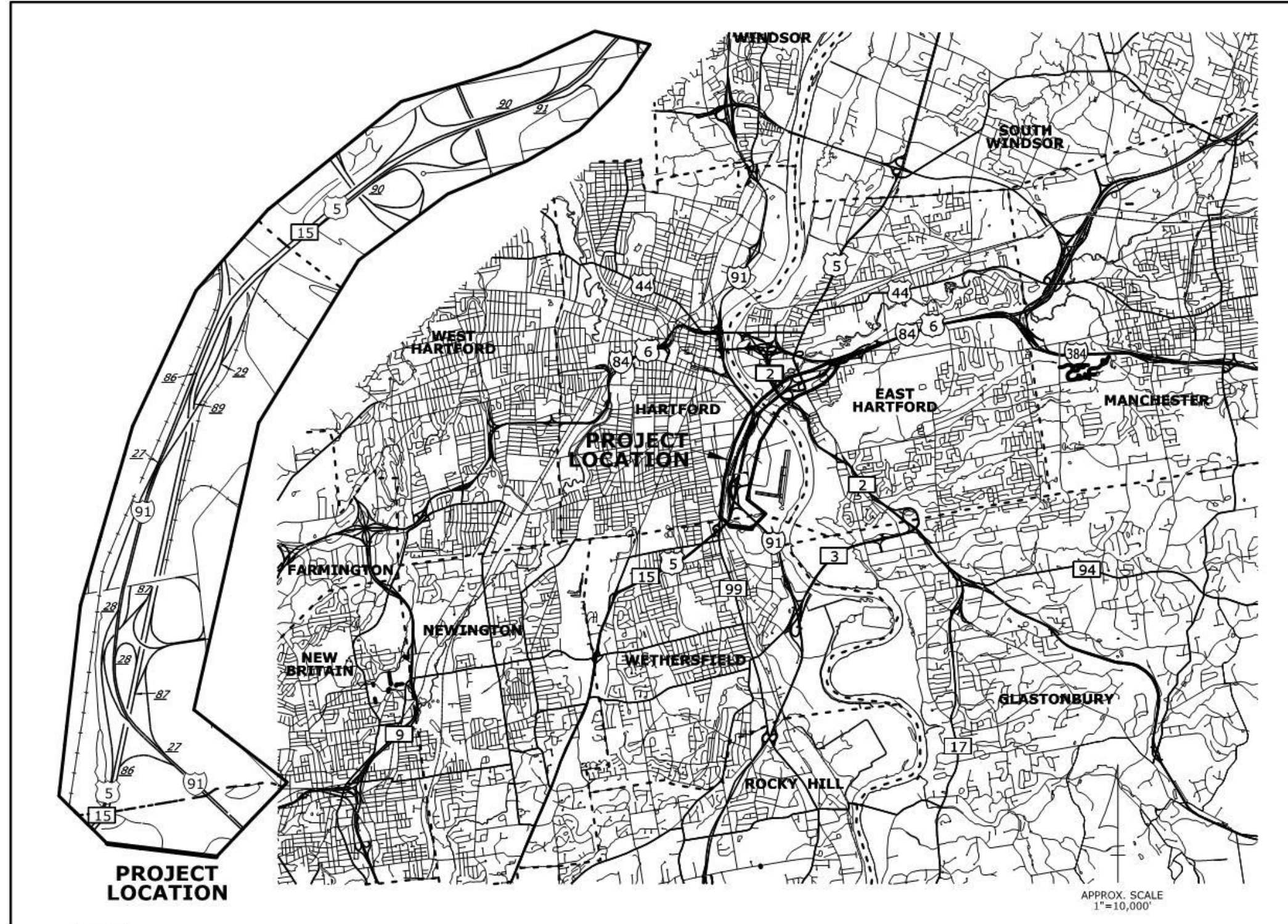


Figure 1: Existing Interchange Location  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT



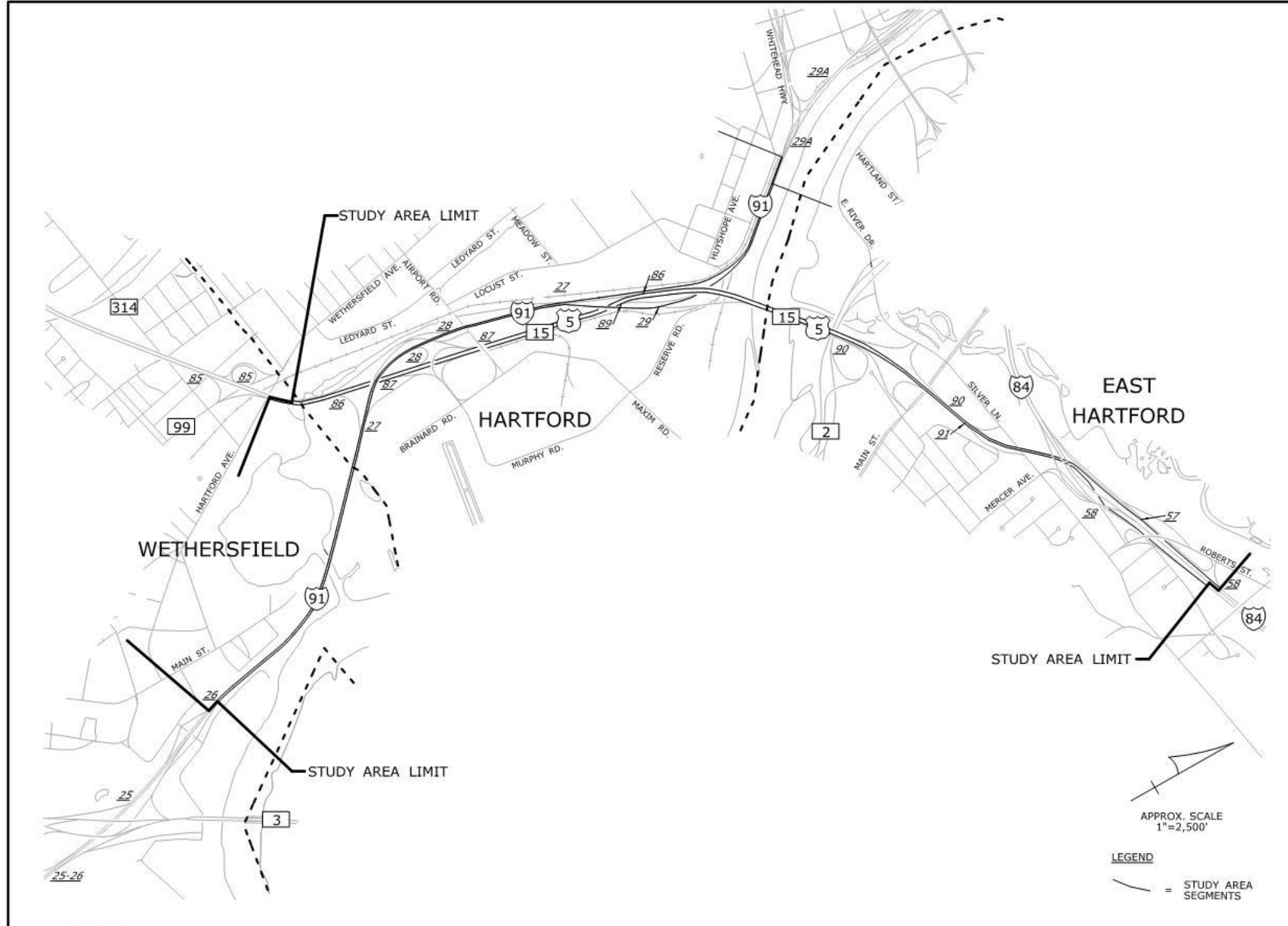


Figure 2: Study Area  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT



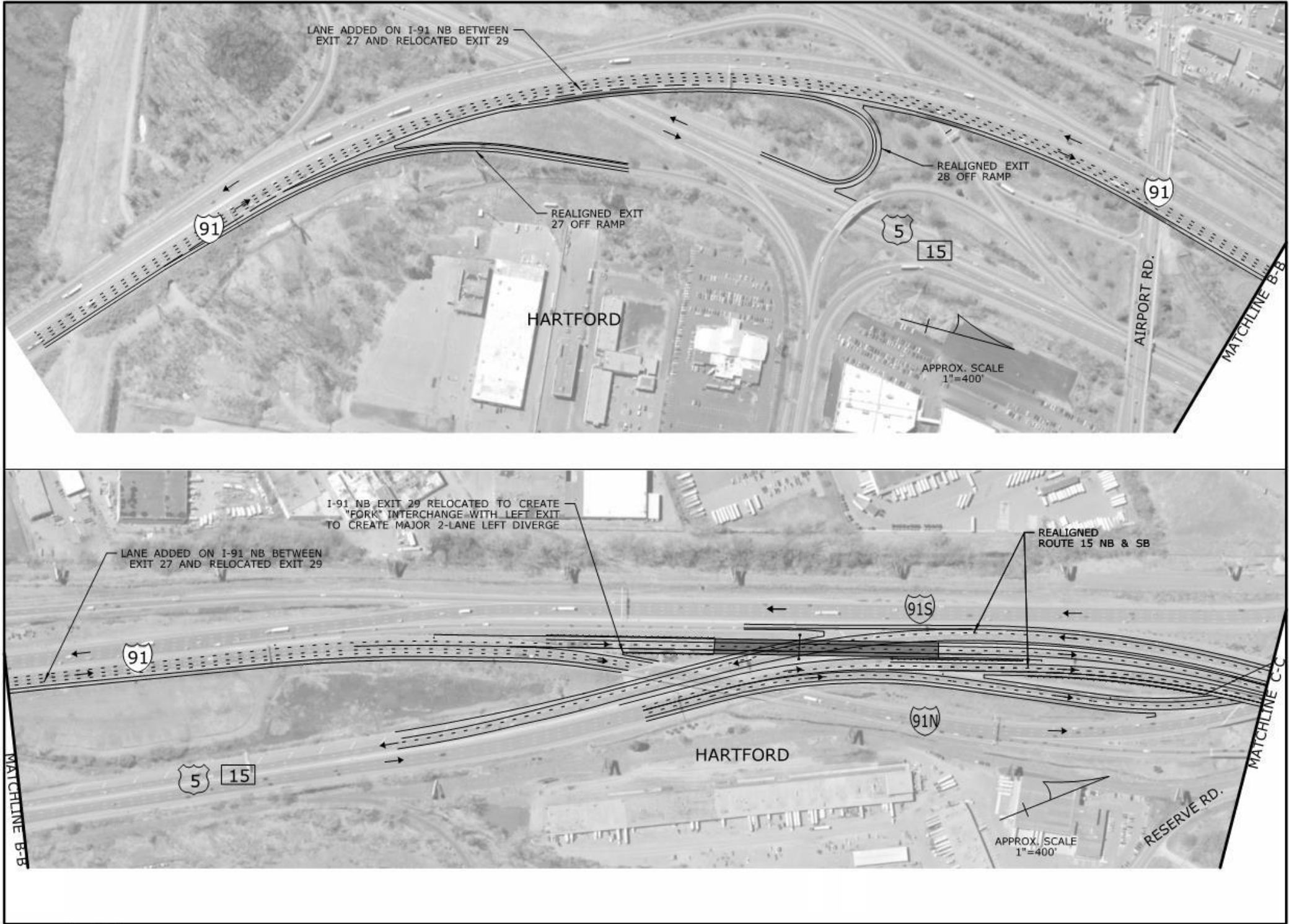


Figure 3A: Proposed Interchange Location  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT



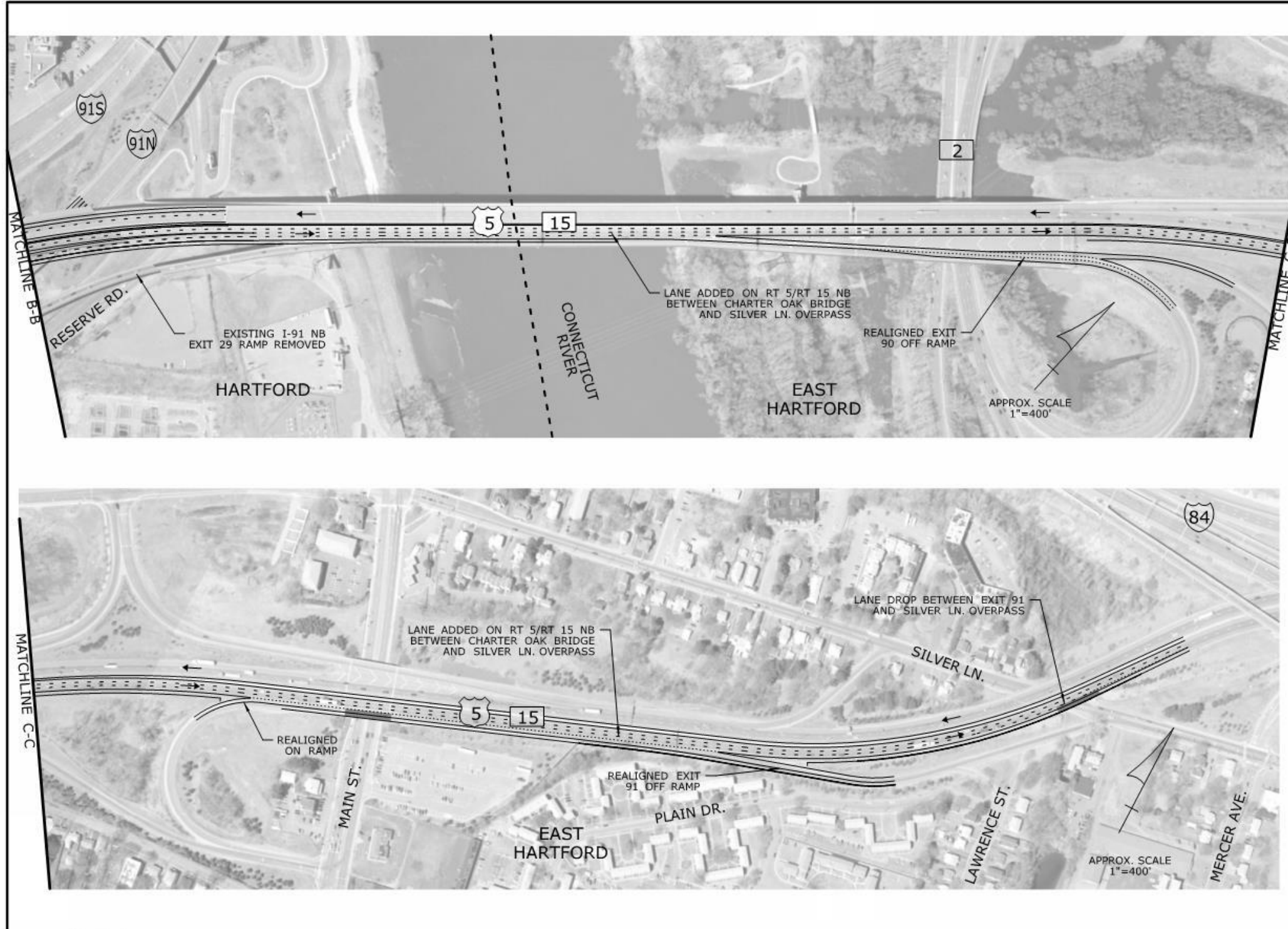


Figure 3B: Proposed Interchange Location  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT





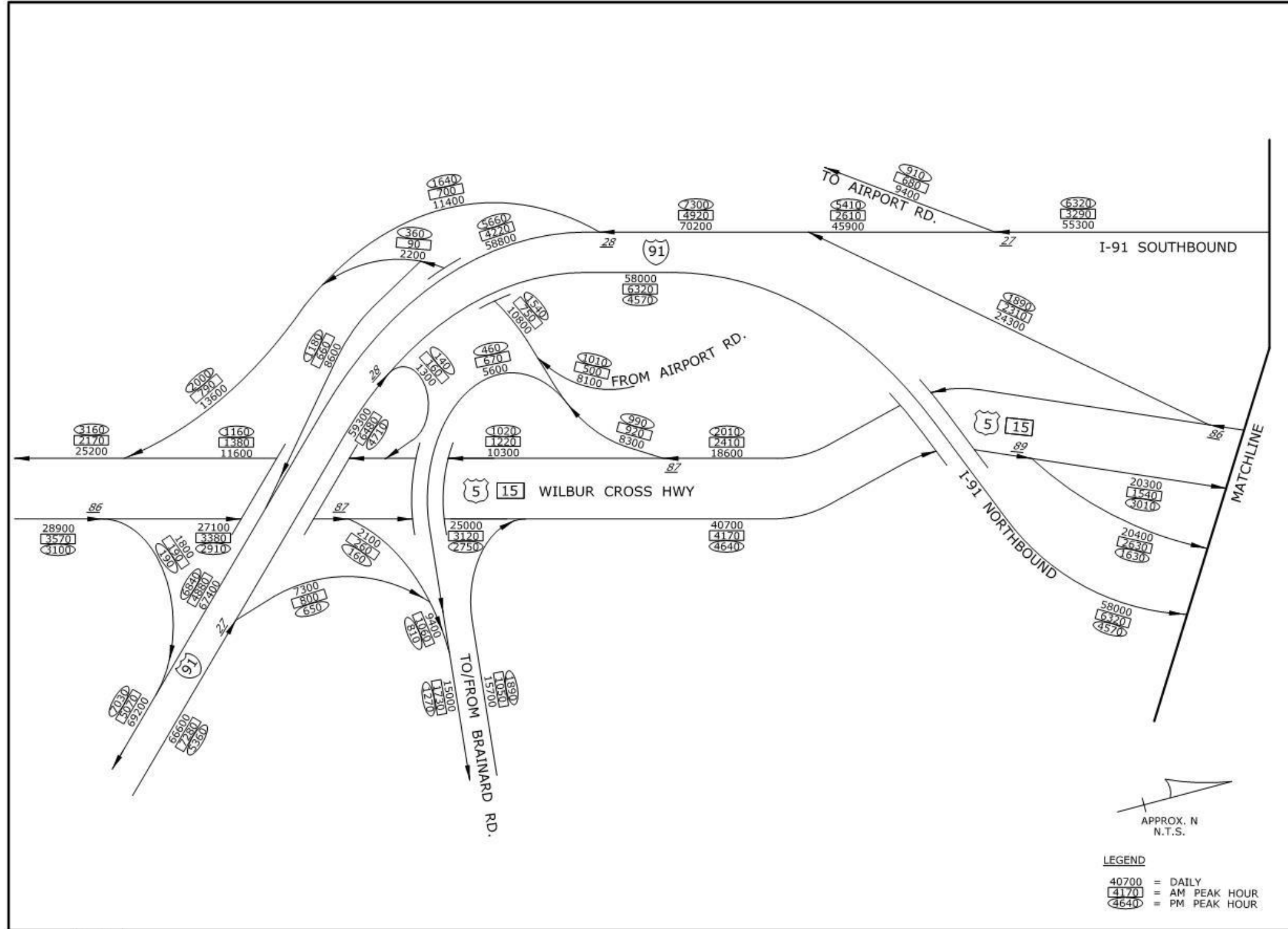


Figure 4A: 2015 No-Build (Existing) Volumes  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT



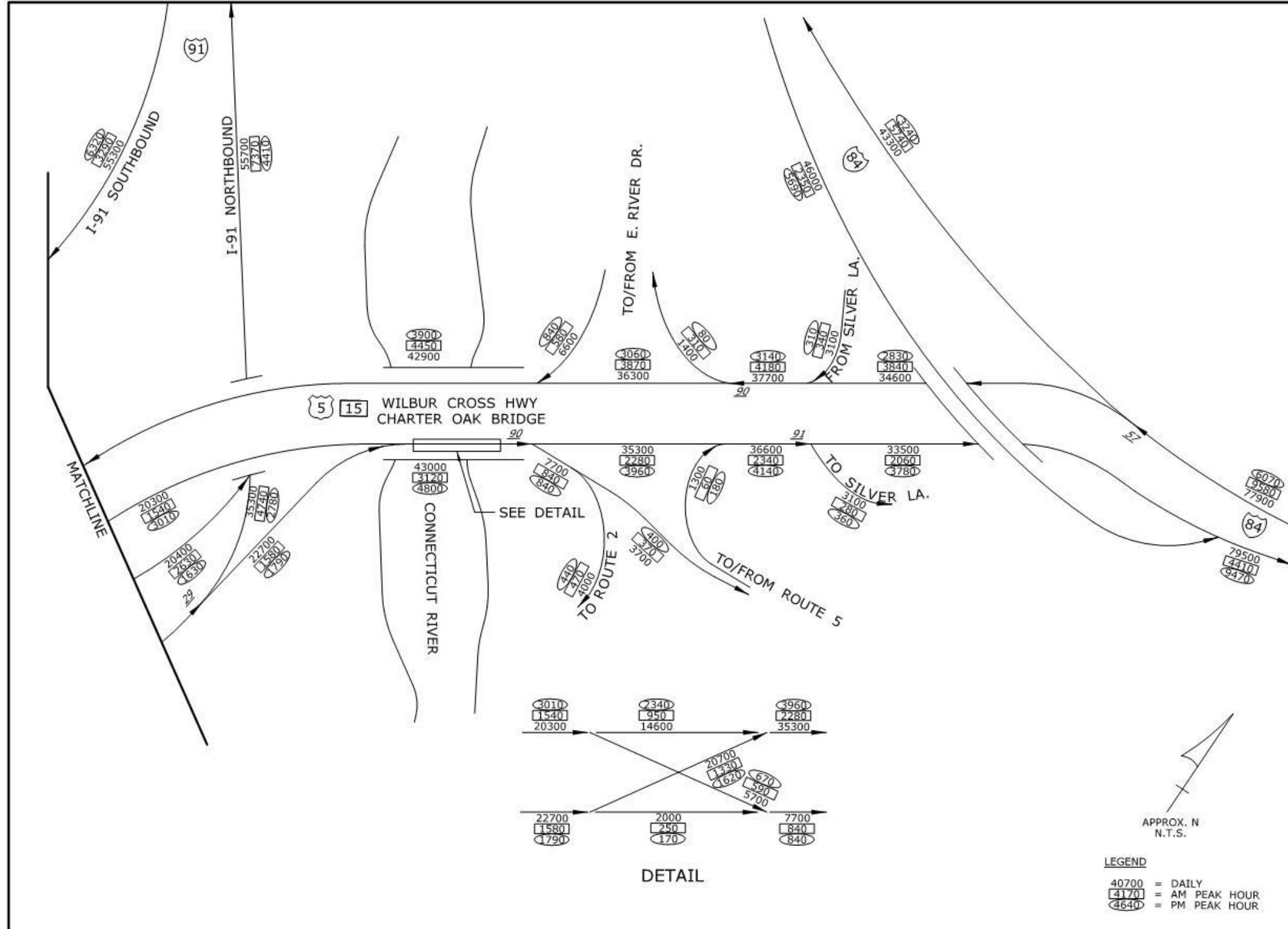


Figure 4B: 2015 No-Build (Existing) Volumes  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT



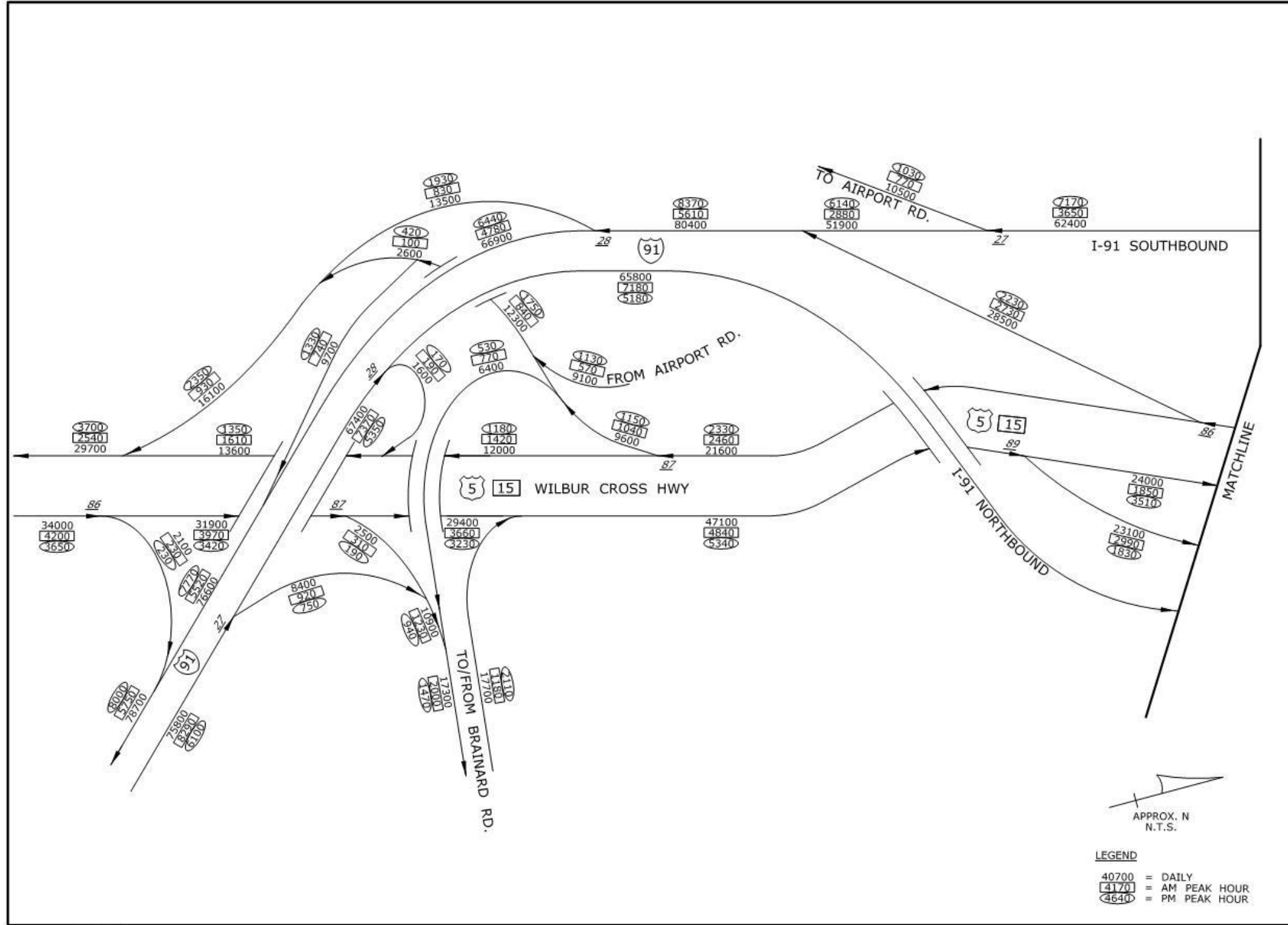


Figure 5A: 2039 No-Build Volumes  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT



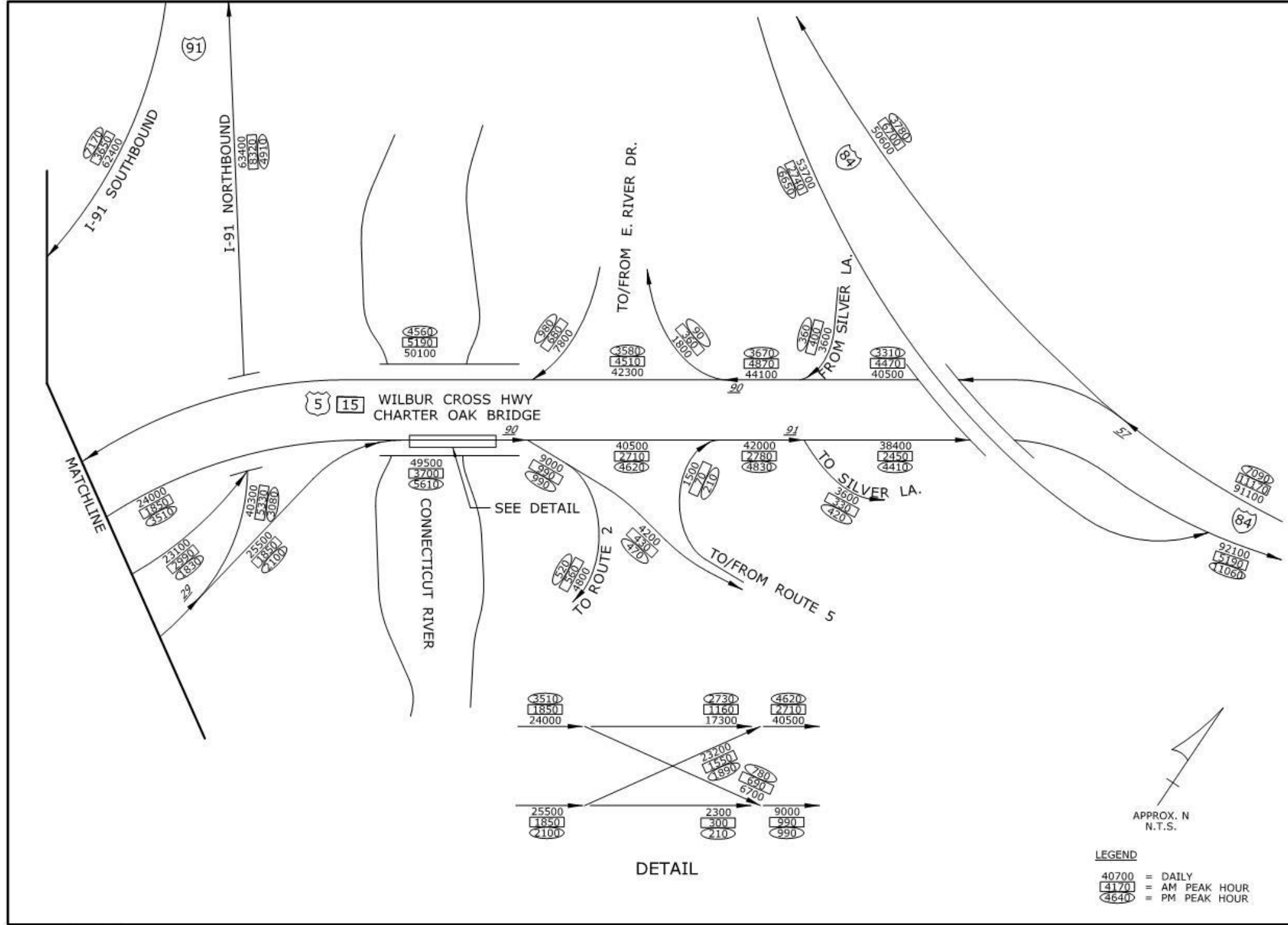
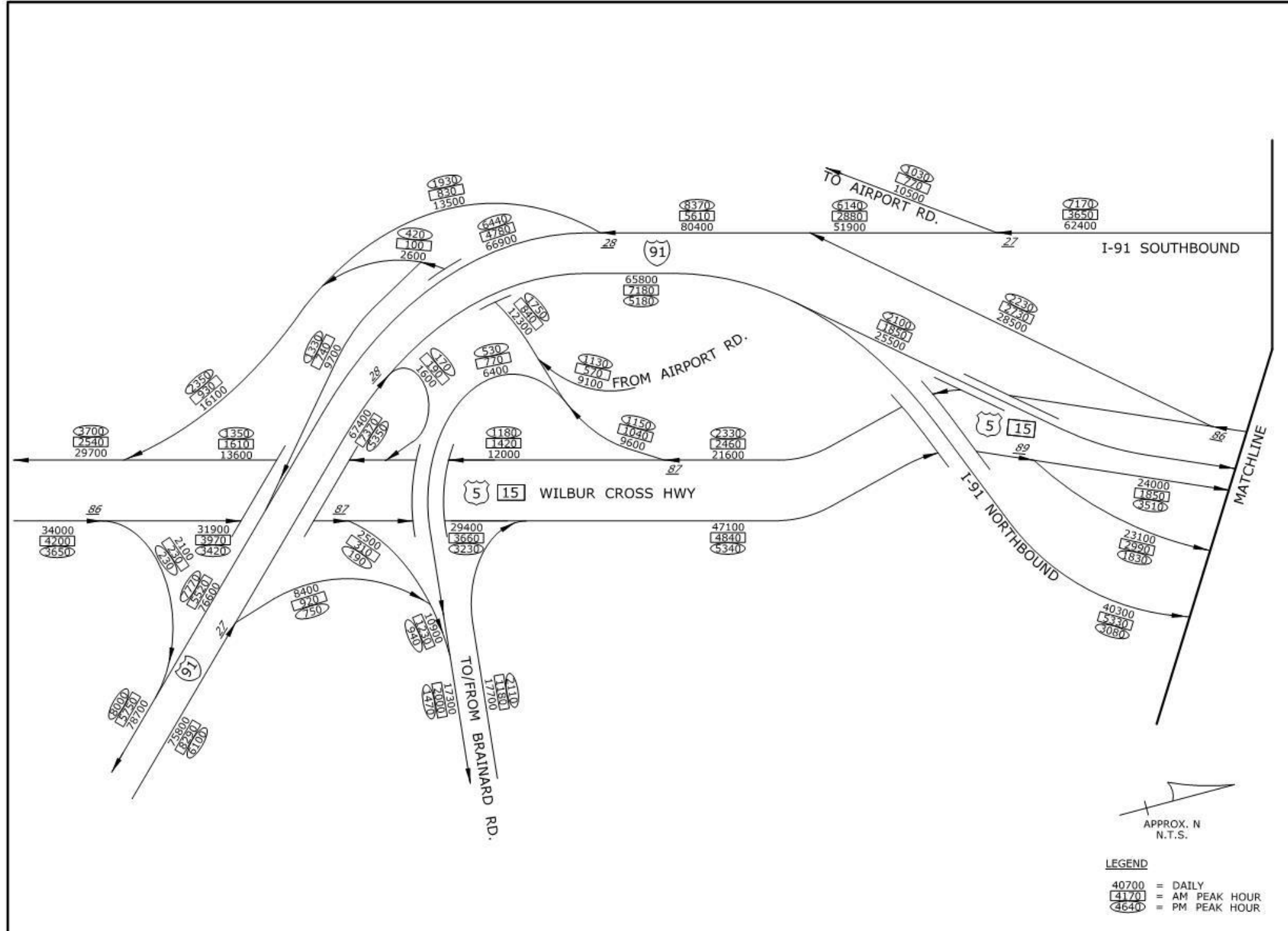


Figure 5B: 2039 No-Build Volumes  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT





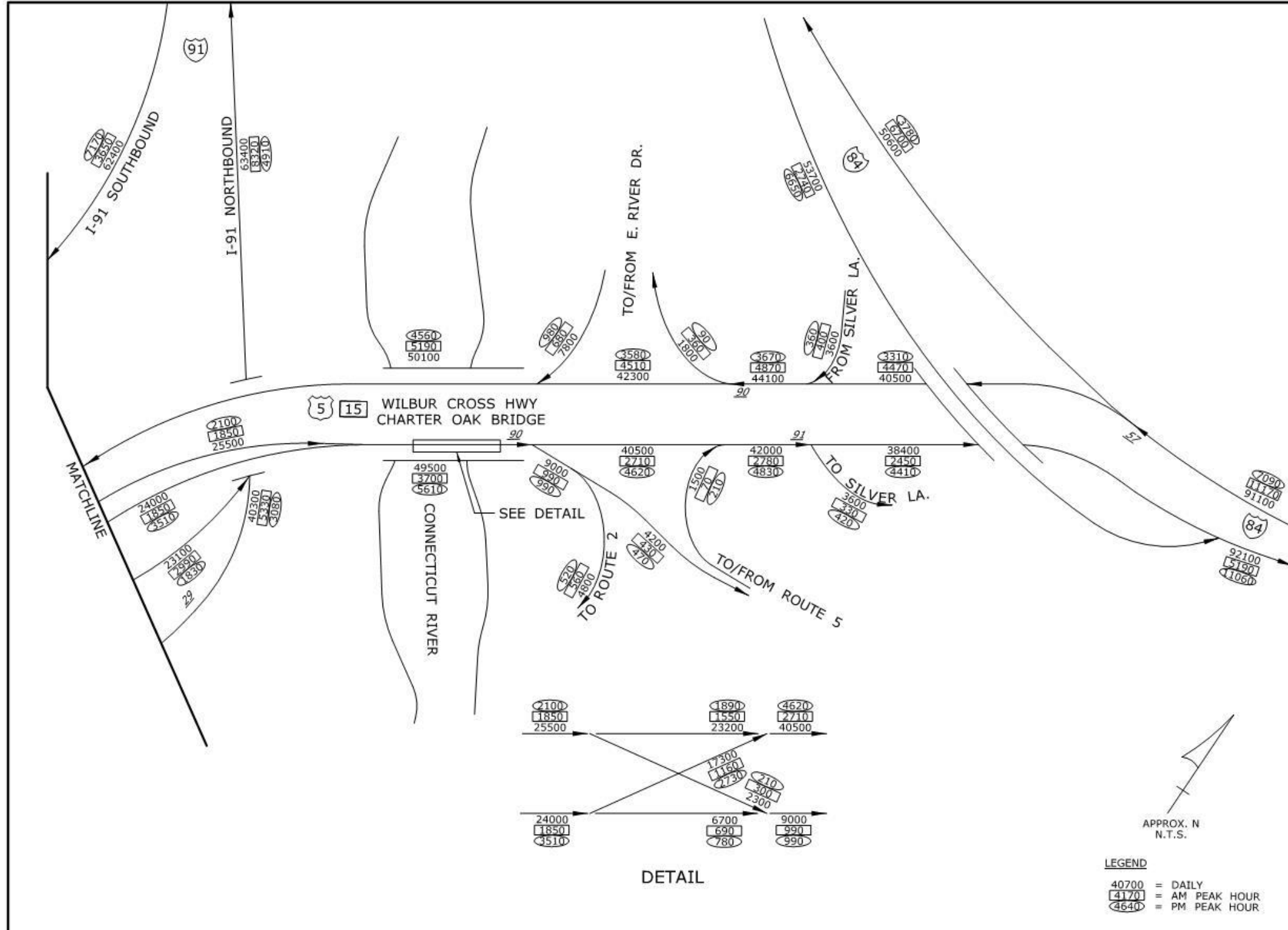


Figure 6B: 2039 Build Volumes  
SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
Hartford and East Hartford, CT



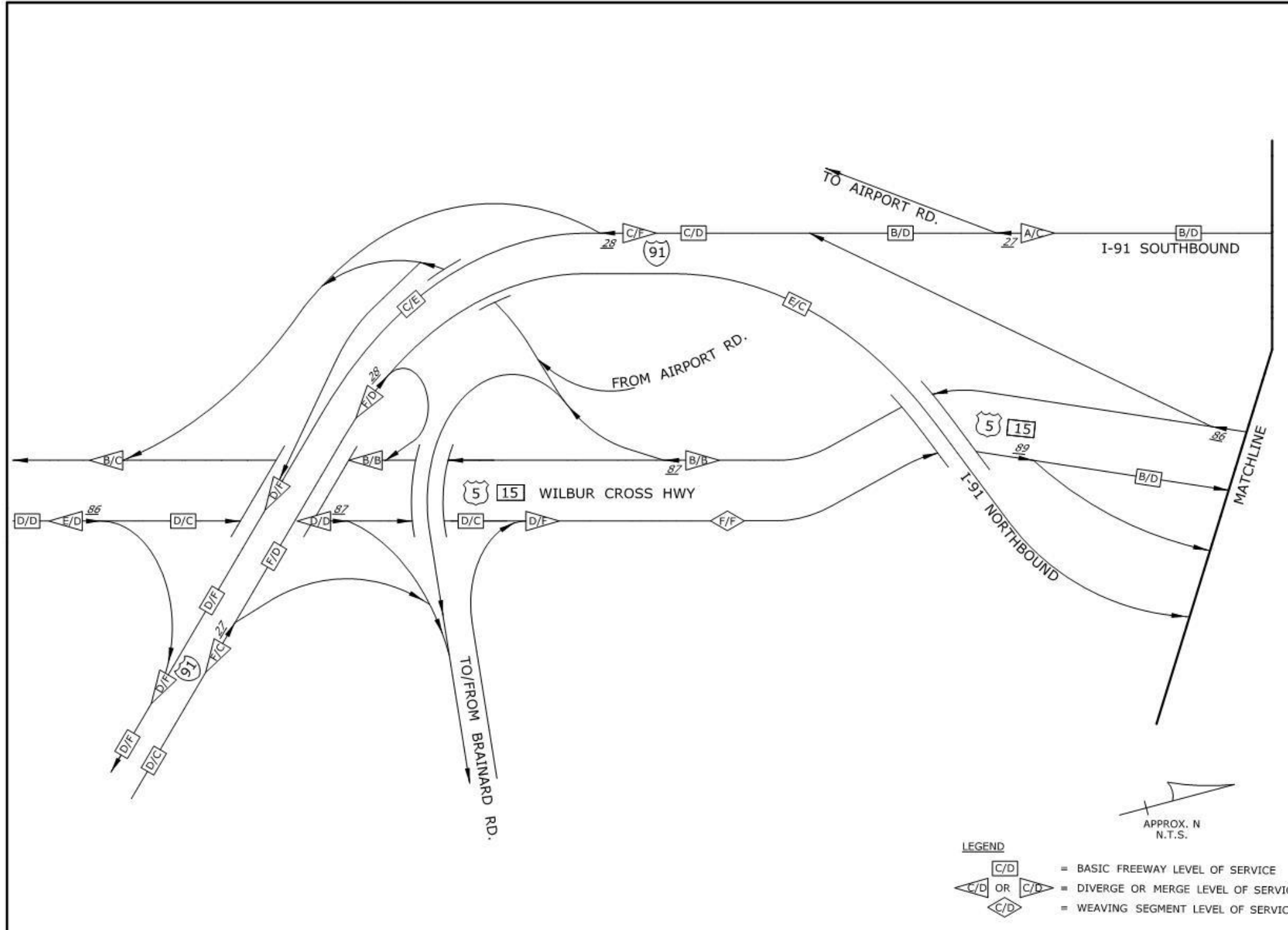


Figure 7A: 2015 No-Build (Existing) Peak Hour Levels of Service  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT



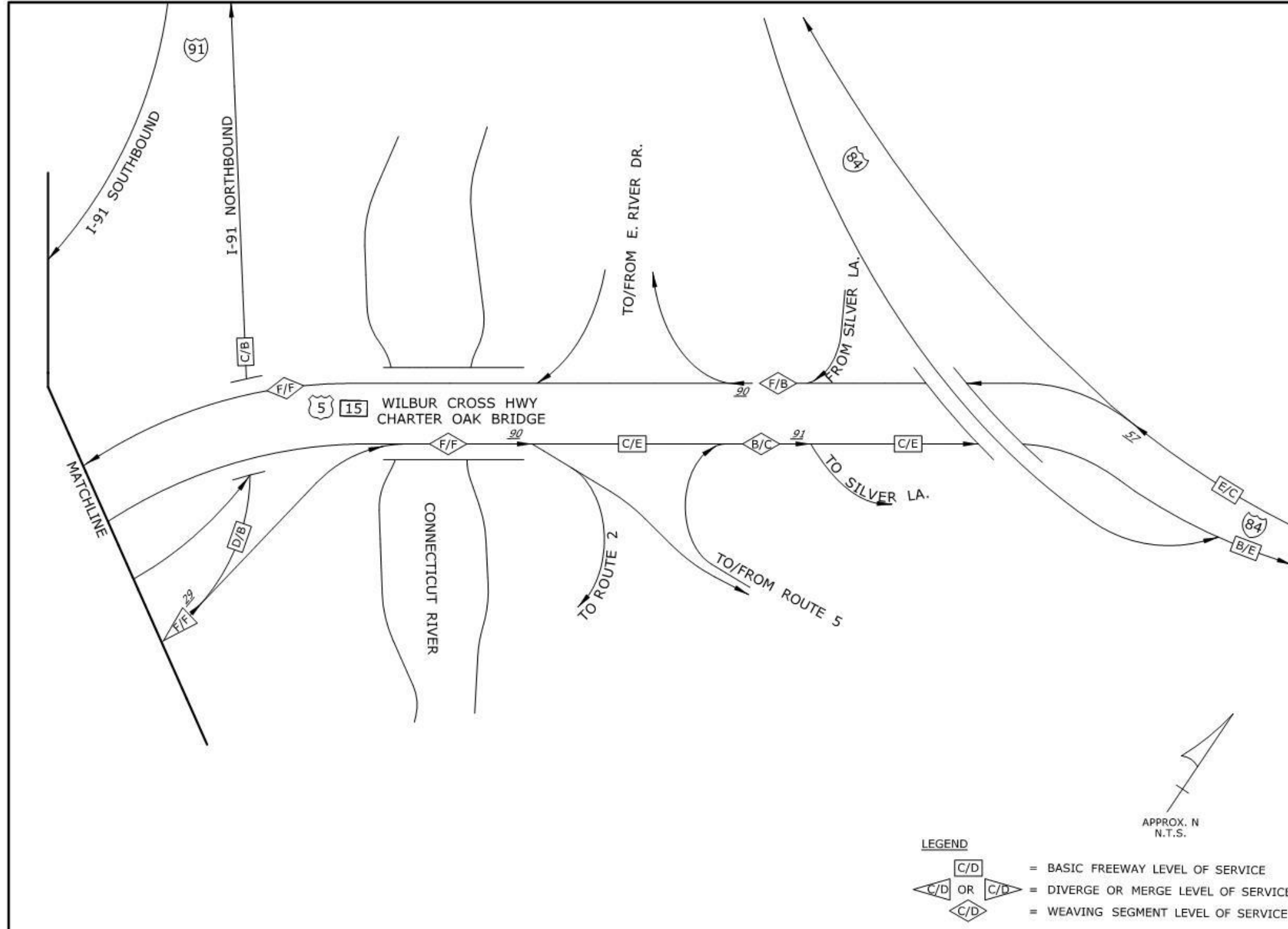


Figure 7B: 2015 No-Build (Existing) Peak Hour Levels of Service  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT





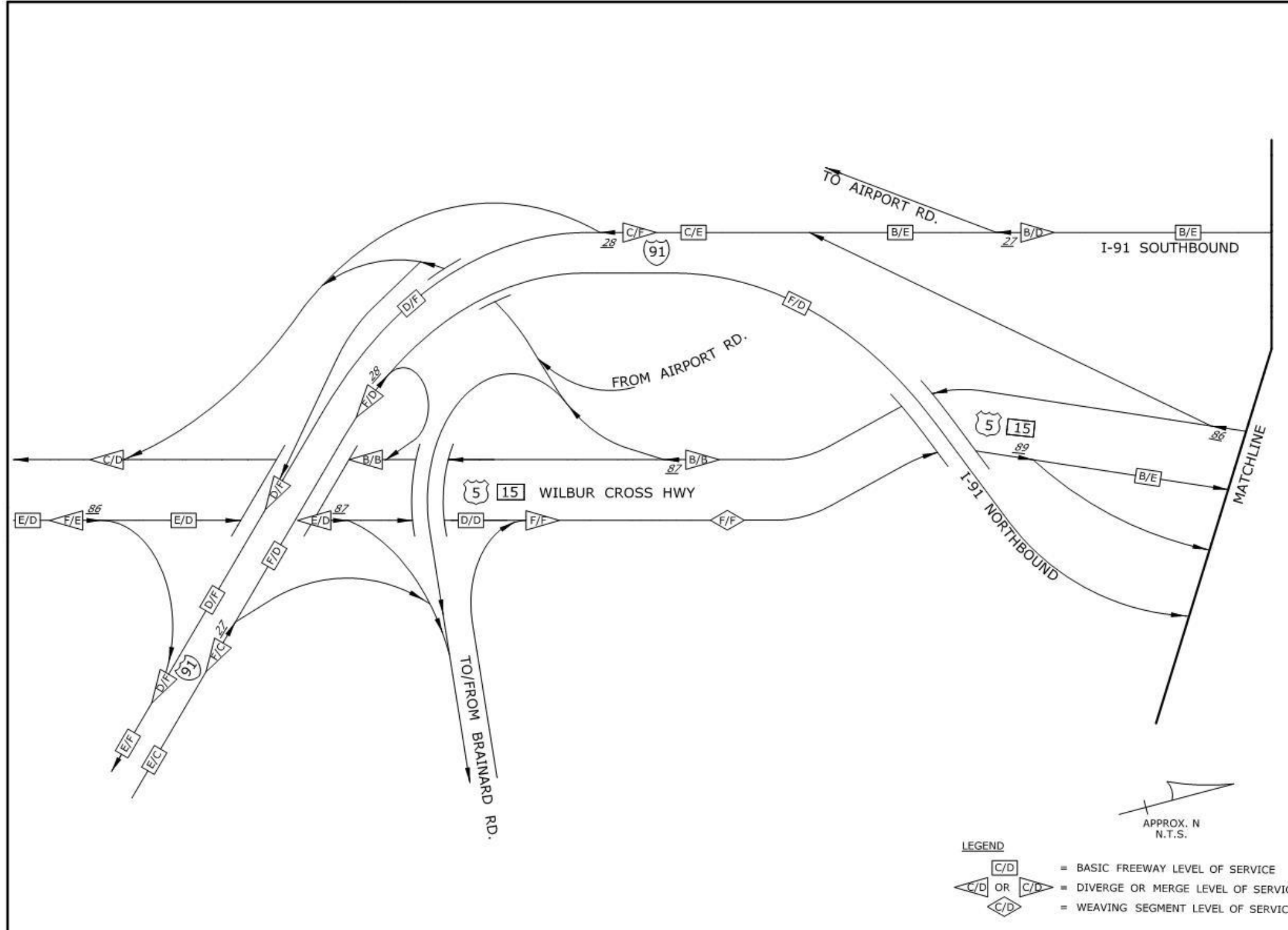


Figure 8A: 2039 No-Build Peak Hour Levels of Service  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT



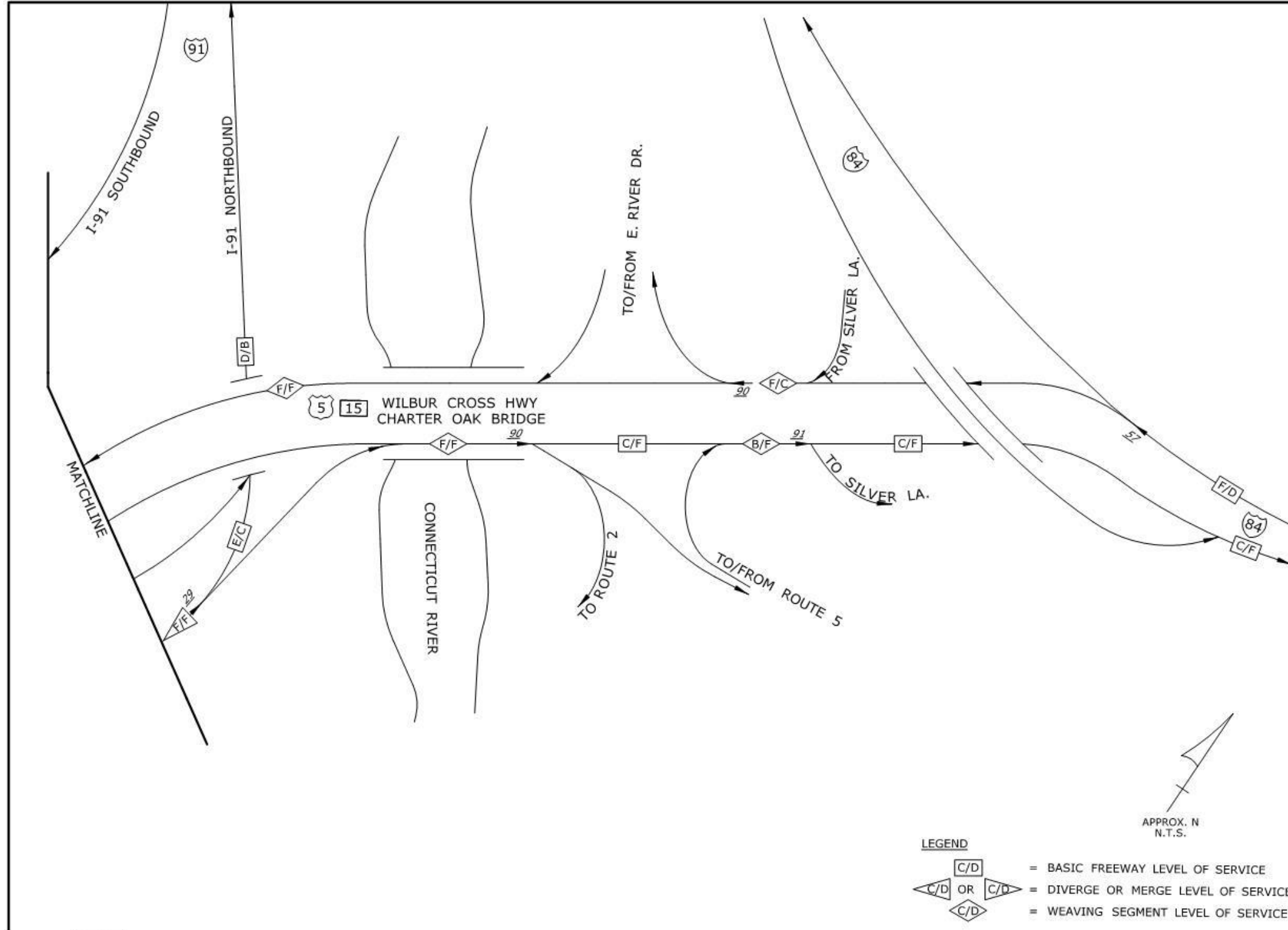


Figure 8B: 2039 No-Build Peak Hour Levels of Service  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT



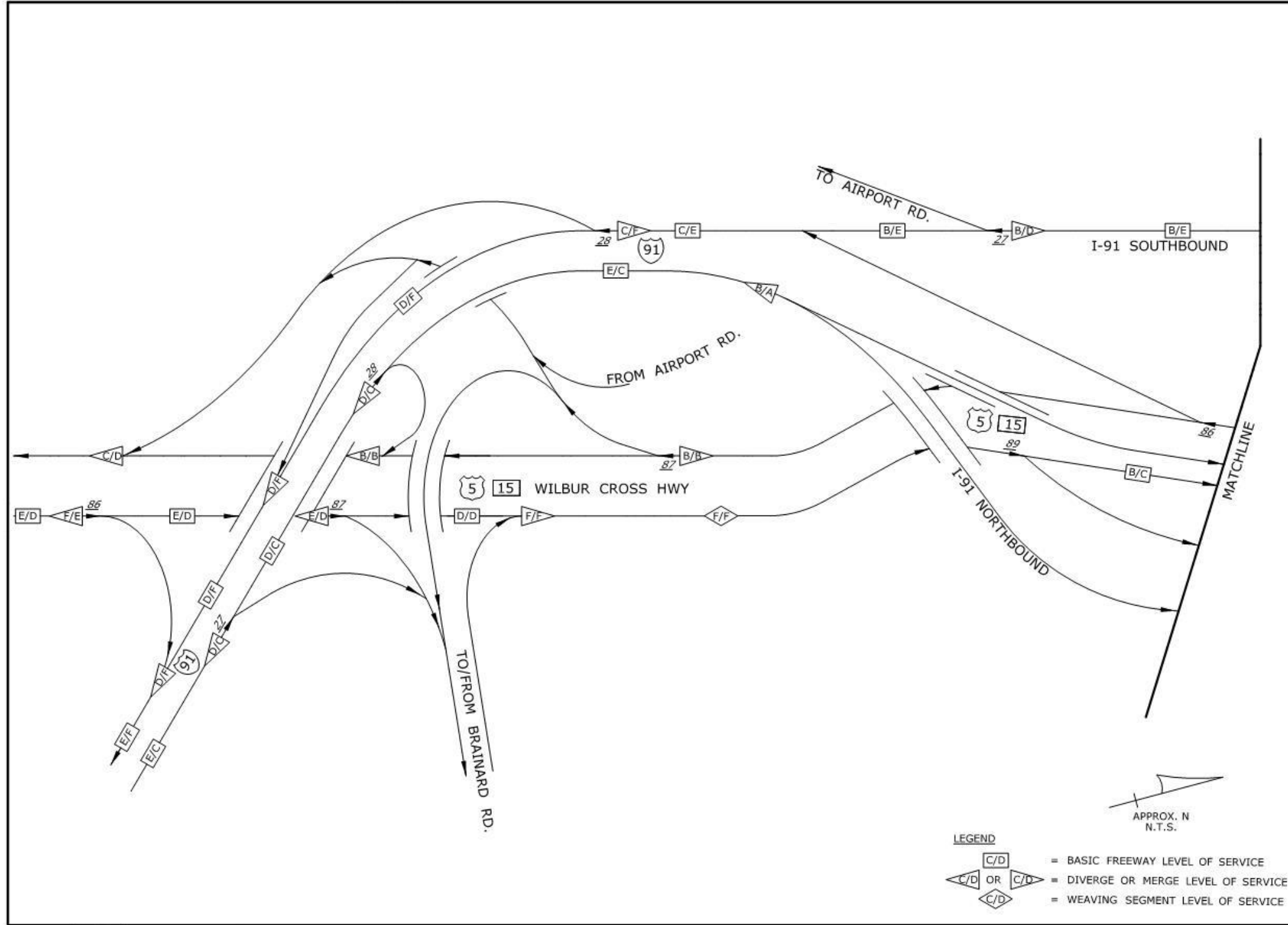


Figure 9A: 2039 Build Peak Hour Levels of Service  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT



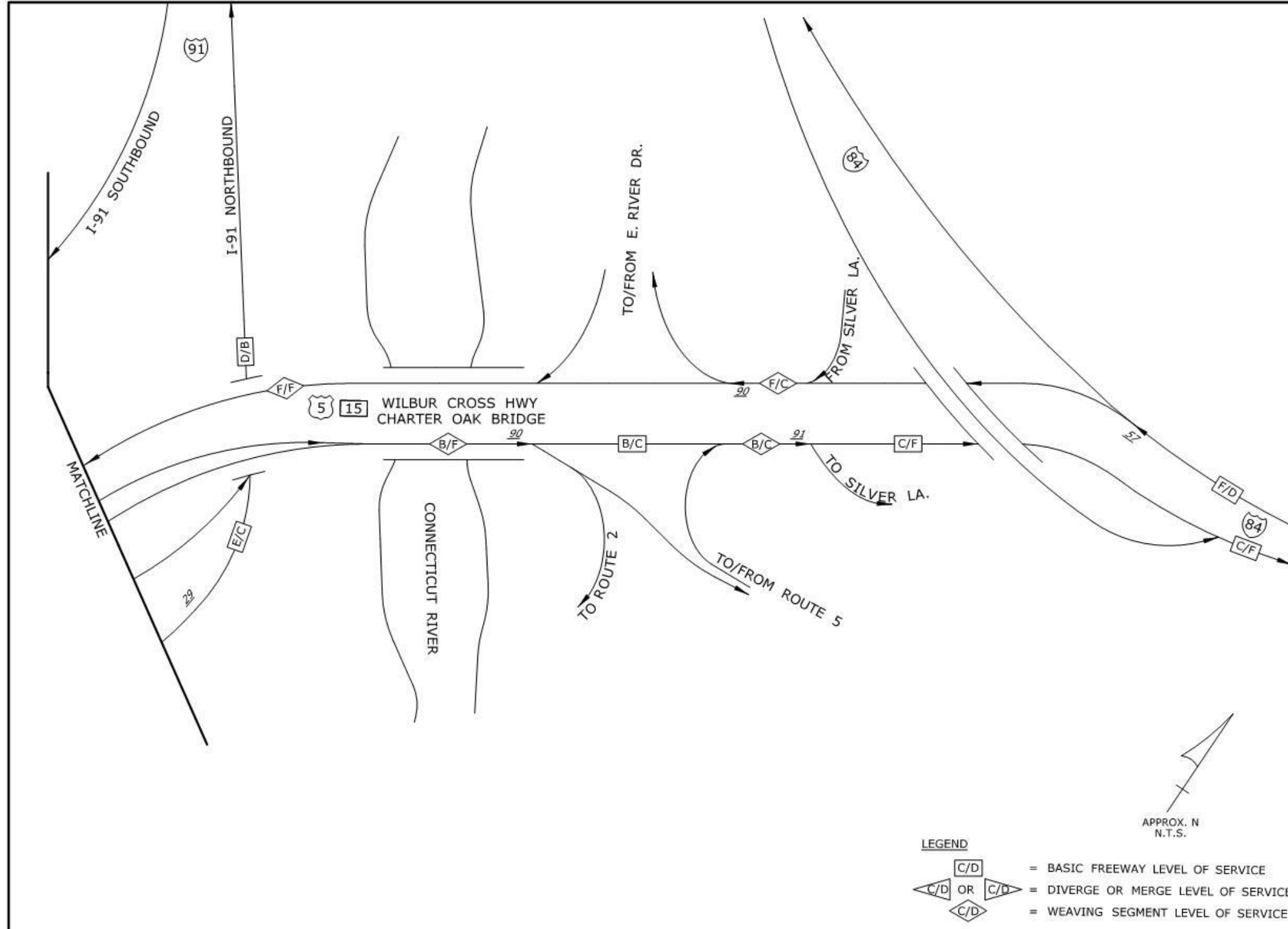


Figure 9B: 2039 Build Peak Hour Levels of Service  
 SPN 63-703: I-91 NB Int. 29 and I-91 NB/Rt 15 NB/ I-84 EB Widening  
 Hartford and East Hartford, CT



**FIGURE 10**

**2011 – 2013 SLOSS**



**2011-2013**

**SUGGESTED LIST OF SURVEILLANCE STUDY SITES  
(SLOSSS)**

SORTED ON ROUTE AND MILEAGE

Produced By  
Connecticut Department of Transportation  
Bureau of Policy and Planning  
Office of Coordination, Modeling and Crash Data

**CONNECTICUT DEPARTMENT OF TRANSPORTATION**  
**Bureau of Policy and Planning**  
**Office of Coordination, Modeling and Crash Data**  
**Office of Roadway Information Systems**

**PROCEDURE USED TO DEVELOP THE 2011-2013 SUGGESTED LIST OF  
SURVEILLANCE STUDY SITES**

The objective in developing a list of Suggested Surveillance Study Sites is to define those locations which have the greatest promise of accident reduction and thus to give a broad measure of overall needs of highway safety improvements.

The data necessary for the identification of Suggested Surveillance Study Sites is provided by the Office of Coordination, Modeling and Crash Data and the Office of Roadway Information Systems and consists of: 1) accident frequency and location, 2) location identification - rural, urban, roadway type, intersection type and whether signalized or not, and 3) the Average Daily Traffic at these locations.

Suggested Surveillance locations are determined for various classes of locations; 1) Spots, a) an intersection with another highway, which for intersections with town roads includes all approaches, or b) a segment between intersections not greater than 0.1 of a mile in length or 2) Sections of a segment of highway between intersections greater than 0.1 of a mile, or on expressways, interchange areas and between interchange areas.

Accidents are recorded as to their location by route number and cumulative mileage, to the nearest hundredth of a mile, which allows for the grouping of accidents by individual locations or segments. The accident data used is for the three year period January 1, 2011 through December 31, 2013, thus providing statistically valid data.

The method used in developing the list of Suggested Surveillance Study Sites is the Rate-Number Quality Control Method.

Following is a brief explanation of the various steps used in applying this method:

Input information required:

- 1) Average accident rates and frequencies by roadway categories
  - a) Accidents per million vehicles passing a spot
  - b) Accidents per million vehicle miles
- 2) Section length
- 3) Time period
- 4) Average Annual Daily Traffic (ADT)
- 5) Number of accidents
- 6) Level of statistical significance

**Step 1 - Determination of Average Accident Rates for Various Roadway Categories**

Accident rates and average numbers of accidents vary with the nature of the highway and its surrounding culture. Each section or location is assigned a roadway category designation defined by roadway type - for example, urban or rural, number of lanes, surrounding culture (land use), etc. These designations are needed so that average accident rates can be developed for roads and streets of like characteristics. For example, it would be unrealistic to compare urban streets, which generally have high accident rates and low severity, to rural highways with low rates and high severity. Therefore, accident rates on highways of one category must be compared with the mean accident rates for that category to determine abnormal accident experience.

The major breakdowns used are as follows:

- Urban - 1-3 lane
- Urban - 4 or more lane undivided
- Urban - 4 or more lane divided
- Urban - Freeway
- Rural - 1-3 lane
- Rural - 4 or more lane undivided
- Rural - 4 or more lane divided
- Rural - Freeway

When the category breakdowns are determined, average accident rates per million vehicle miles, and per million vehicles are computed for each category using one of the equations below:

$$r_{mvm} = \frac{1,000,000 \sum_{n=1}^N C_n}{365T \sum_{n=1}^N (ADT_n * M_n)}$$

$$r_{mv} = \frac{1,000,000 \sum_{n=1}^N C_n}{365T \sum_{n=1}^N ADT_n}$$

Where:

- M =Section length
- $r_{mvm}$  =Average accident rate (per million vehicle miles)
- T =Time period expressed in years
- ADT =Average annual daily traffic for the section
- $r_{mv}$  =Average accident rate (per million vehicles)
- C =Number of accidents
- N =Total number of locations



Traffic volume (ADT) at signalized intersections of Town Roads and commercial driveways includes 2500 or 35% of the State highway volume, whichever is the greater, as the ADT for the intersecting street. Number of accidents (Ca) also includes those cross street intersection approach accidents that are ordinarily designated as intersection accidents. For these reasons, accident rates are computed separately for intersections and short sections.

**Step 2 - Determination of Criteria**

The minimum criteria used for testing highway locations by the rate-number-quality control method is the critical accident rate. It is a function of time period, section length, traffic volume, and the system average accident rate for the category of highway being tested for accident experience abnormality.

Highway locations experiencing accident rates in excess of the critical accident rate are defined as Suggested Surveillance Study Sites. The expression for the critical accident rate,  $X_p$ , is as follows:

$$x_p = x_c + 2.576 \sqrt{\frac{x_c}{m}} - \frac{1}{2m}$$

Where:  $x_p$  = critical accident rate  
 $x_c$  = average accident rate for the category of highway being tested

(For sections  $X_c$  is expressed in accidents per million vehicle miles)

(For spots and short sections  $X_c$  is expressed in accidents per million vehicles)

$m$  = average vehicle exposure for the study period at the location

(For sections  $m$  is expressed in million vehicle miles)

(For intersections and short sections  $m$  is expressed in million vehicles)

**Step 3 - Identification**

All locations which have 15 or more accidents and where their actual accident rate is greater than their critical accident rate, are eligible for inclusion on the list and are ranked in order by the descending value of the ratio of the actual rate to the critical rate.

**HEADING DESCRIPTIONS FOR THE SUGGESTED LIST OF SURVEILLANCE STUDY SITES  
(SLOSSS)**

The SLOSSS contains traffic accident rates for two types of locations: SPOTS which are either intersections with another highway or a segment between intersections less than 0.1 of a mile in length; and, SECTIONS which are either segments between intersections greater than 0.1 mile in length or interchange areas and between interchange areas on expressways.

Route	- ROUTE NUMBER
From Mile	- BEGINNING MILEAGE POINT
To Mile	- ENDING MILEAGE POINT
Town	- TOWN OF LOCATION
Landmark	- LOCATION DESCRIPTION
Signal	- TRAFFIC SIGNAL INDICATOR (Yes - SIGNAL PRESENT; No - NO SIGNAL PRESENT)
Rural	- INDICATES WHETHER THE LOCATION IS IN A RURAL OR URBAN AREA (Yes - RURAL; No - URBAN)
Road Type	- ROADWAY TYPE
	1, 2, 3 - NORMAL HIGHWAY WITH 1, 2 OR 3 LANES
	4 - 4 LANE UNDIVIDED, UNLIMITED ACCESS
	5 - 4 LANE DIVIDED, UNLIMITED ACCESS
	6 - SERVICE ROAD
	7 - TRAFFIC CIRCLE
	9-16 - EXPRESSWAY
	20 - TRANSITION
	22 - MISCELLANEOUS
Int Type	- INTERSECTION TYPE
	0 - BETWEEN INTERSECTIONS
	1 - INTERSECTIONS WITH STATE ROADS
	2 - INTERSECTIONS WITH TOWN ROADS
	3 - BETWEEN INTERCHANGES OF AN EXPRESSWAY
	4 - INTERCHANGE AREAS OF AN EXPRESSWAY
	5 - SIGNALIZED PRIVATE DRIVE (SHOPPING CENTER, BUSINESS, INDUSTRY, ETC.)
# Acc	- NUMBER OF ACCIDENTS

**HEADING DESCRIPTIONS FOR THE SUGGESTED LIST OF SURVEILLANCE STUDY SITES  
(SLOSSS)**

-2-

(RA) Act Acc Rate	- ACTUAL ACCIDENT RATE FOR THAT LOCATION. EXPRESSED IN ACCIDENTS PER MILLION VEHICLE MILES OF TRAVEL FOR "SECTIONS"; AND, IN ACCIDENTS PER MILLION VEHICLES FOR "SPOTS".
(RC) Improb Acc Rate	- THE CRITICAL ACCIDENT RATE FOR THAT LOCATION. DETERMINED BY THE RATE-NUMBER QUALITY CONTROL METHOD AND EXPRESSED IN ACCIDENTS PER MILLION VEHICLE MILES OF TRAVEL FOR "SECTIONS"; AND, IN ACCIDENTS PER MILLION VEHICLES FOR "SPOTS".
RA/RC	- THE RATIO OF THE ACTUAL ACCIDENT RATE (RA) TO THE CRITICAL ACCIDENT RATE (RC)
Seq #	- SEQUENCE NUMBER OF LOCATION
Comments	- SEE BOTTOM OF PAGE

2011 - 2013 SUGGESTED LIST OF SURVEILLANCE STUDY SITES (SLOSS)

K=2.576 N=15 Sorted by Route and Milepoint

Route	From Mile	To Mile	Town	Landmark	Signal	Rural	Road Type	Int Type	# Acc	(RA) Act Acc Rate	(RC) Improb Acc Rate	RA/RC	Seq #	Comments
015	73.85	73.99	Newington	DR TO 3333 BERLIN TPKE;ENT TO MONROE MUFFLER;; EXIT FR MONROE	No	No	5	0	26	4.434	2.471	1.79	71	
015	74.14	74.25	Newington	DR TO BOBS FURNITURE STORE;; ENT TO ARBY'S RESTAURANT;	No	No	12	0	15	3.201	2.050	1.56	925	
015	74.26	74.26	Newington	NB-DEMING ST;SB-RTE 173(RICHARD ST);MEDIAN CROSSOVER;	Yes	No	12	0	34	0.874	0.345	1.60	885	
015	74.30	74.41	Newington	MOBIL GAS STA(CL);DR TO MCBRIDE PLAZA;DR TO MORTENSEN ICE CREAM REST;DR TO CONNECTICUT BEVERAGE MART;; DR TO WAL-MART;	No	No	12	0	25	5.364	2.051	2.61	296	
015	74.63	74.87	Newington	EXIT FR BERTUCCI'S RESTAURANT;; ENT TO BERTUCCI'S RESTAURANT;	No	No	5	0	26	2.753	2.243	1.23	1330	
015	74.88	74.88	Newington	NB-GRISWOLDVILLE AVE;SB-RTE 176 (MAIN ST);MEDIAN CROSSOVER;	Yes	No	5	1	18	1.269	0.800	1.59	902	
015	76.16	76.26	Newington	WENDY'S RESTAURANT(CL);	No	No	12	22	22	4.597	2.040	2.25	421	
015	76.27	76.27	Newington	MCDONALD'S RESTAURANT(CL);	No	No	12	1	33	0.839	0.544	1.54	944	
015	76.34	76.34	Newington	SB-RTE 287(EAST ROBBINS AVE);	Yes	No	12	1	39	0.991	0.544	1.82	693	
015	76.91	76.91	Wethersfield	SB ACC FR RTE 173(151);SB ACC FR RTE 175(WELLS RD);	No	No	5	1	41	1.200	0.489	2.46	341	
015	77.53	77.71	Wethersfield	SUNOCO GAS STA(CL);CARMEN ANTHONY FISH HOUSE(CL);DR TO DUNKIN' DONUTS;	No	No	12	0	29	3.584	1.813	1.98	578	
015	77.78	77.83	Wethersfield		No	No	11	0	18	0.441	0.184	2.40	360	
015	79.11	79.43	Wethersfield		No	No	11	0	21	1.704	1.665	1.02	1649	
015	81.50	81.81	East Hartford	NB-RGN OP I-91/NB/BR/CONN RYRTE 2;	No	No	5	0	72	2.734	1.890	1.45	1058	
015	81.90	81.94	East Hartford	HARTFORD EAST HARTFORD TL;	No	No	5	0	17	0.236	0.205	1.15	1439	
015	82.54	82.64	East Hartford	END OP US-5/MAIN ST;	No	No	5	0	18	2.474	2.362	1.05	1602	
015	83.24	83.52	East Hartford	UP I-84 PRIORITY LANE(HOV LANES); UP I-84 PRIORITY LANE(HOV LANES);	No	No	11	0	17	7.990	2.491	3.21	174	
017	0.21	0.21	New Haven	EXIT FR NB-91(016A);RTE 80(EB);(FOXON BLVD);RTE 17 TURNS LT 90 DEG;	Yes	No	2	1	24	1.062	1.019	1.04	1613	
017	0.24	0.24	New Haven	NB-CON FR RTE 80(WB);SB-CON TO SB RTE 17;	No	No	2	1	15	0.664	0.425	1.56	926	
017	15.29	15.29	Durham	DR TO DURHAM VILLAGE SHOPPING CTR;SUNOCO GAS STA(CL);DR TO DUNKIN' DONUTS;	No	No	2	0	15	5.848	3.690	1.58	908	
017	16.39	16.54	Durham	DR TO DURHAM COMMONS;; DR TO DURHAM COMMONS;	No	No	2	0	17	7.107	3.752	1.89	633	
017	22.14	22.14	Middletown	RTE 9(CHESTER BOWLES HWY);	No	No	2	1	239	9.462	0.414	22.84	2	
017	22.97	22.97	Middletown	RTE 9(CHESTER BOWLES HWY);RTE 17 TURNS LT 90 DEG;BGN CHANNELIZATION;	Yes	No	2	1	76	3.009	0.998	3.02	198	
017	32.64	32.80	Glastonbury	MOBIL GAS STA(CL);ROCKVILLE BANK (CL); ST LUKES CHURCH(CL);	No	No	2	0	18	6.874	3.672	1.87	655	



2011 - 2013 SUGGESTED LIST OF SURVEILLANCE STUDY SITES (SLOSS)

K=2.576 N=15 Sorted by Route and Milepoint

Route	From Mile	To Mile	Town	Landmark	Signal	Rural	Road Type	Int Type	# Acc	(RA) Act Rate	(RC) Improb Acc Rate	RA/RC	Seq #	Comments
091	7.56	7.56	North Haven	NB EXIT TO US 5 & RTE 22(024);	No	No	13	4	56	0.623	0.230	2.71	276	
091	8.47	8.56	North Haven	NB EXIT TO EAST MAIN ST #1(144);NB EXIT TO EAST MAIN ST #1(X016); 144-SB ACC FR	No	No	13	3	21	0.741	0.234	1.65	343	
091	18.71	18.80	Meriden	EAST MAIN ST #1(145);SB ACC FR EAST MAIN ST #1; 145;	No	No	12	4	46	0.529	0.231	2.28	406	
091	19.71	19.76	Meriden	UP RTE 15(WILBUR CROSS PKWY);SB EXIT TO SB RTE 15(1TR 811);SB EXI TO SB RTE 15(X017); 811;	No	No	11	4	27	0.446	0.249	1.78	728	
091	19.83	19.85	Meriden	NB ACC FR NB RTE 15(1TR 812);NB ACC FR NB RTE 15(WLBR CROSS HWY); 812;	No	No	13	4	43	0.421	0.225	1.87	660	
091	19.99	20.36	Meriden	NB EXIT TO EB RTE 66(1TR 814);NB EXIT TO EB RTE 66(X018); 814;UP EB 1-691(HENRY D ALTOBELLO HWY);SB EXIT TO WB 1-691(1TR 854);SB EXIT TO WB 1-691(X018); 854;	No	No	13	4	101	2.742	2.396	1.14	1445	
091	20.41	20.52	Meriden	NB ACC FR EB 1-691(1TR 816);NB ACC FR EB 1-691(H D ALTBLO HWY); 816;	No	No	13	4	81	5.466	2.708	2.02	546	
091	23.40	23.51	Middletown	SB EXIT TO MIDDLE ST(130);SB EXIT TO MIDDLE ST(130)NB ACC FR COUNTRY CLUB RD(131);	No	No	13	4	44	2.986	2.710	1.10	1503	
091	25.95	26.06	Cromwell	SB EXIT TO RTE 92(043);SB EXIT TO RTE 92(BERLIN RD); 043;	No	No	13	3	26	1.644	1.558	1.06	1590	
091	26.08	26.14	Cromwell	SB END DECEL LANE;	No	No	13	4	29	0.220	0.214	1.03	1646	
091	27.66	27.75	Cromwell	CROMWELL - ROCKY HILL TO SB;SB BGN DECEL LANE;	No	No	13	3	16	0.133	0.133	1.00	1691	
091	27.87	27.99	Rocky Hill	SB EXIT TO SSR 41(047);SB EXIT TO SSR 41(WEST ST)(X023); 047;	No	No	13	3	31	1.495	1.485	1.01	1683	
091	29.57	29.64	Rocky Hill	SB EXIT TO RTE 99(049);SB EXIT TO RTE 99(SILAS DEAN HWY); 049;	No	No	15	4	53	0.342	0.208	1.64	854	
091	31.66	31.66	Rocky Hill	NB EXIT TO RTE 99(050);NB EXIT TO RTE 99(SILAS DEAN HWY); 050;	Yes	No	14	4	49	0.316	0.232	1.36	1147	
091	31.72	31.74	Rocky Hill	SB BGN DECEL LANE;	No	No	14	4	36	0.225	0.207	1.09	1528	
091	32.75	31.80	Rocky Hill	NB EXIT TO BRAINARD RD(147);	No	No	14	3	46	1.801	1.435	1.25	1283	
091	33.25	33.43	Wethersfield	BGN OP I-91 TR 827;END OP I-91 TR 827;;	No	No	13	3	51	1.854	1.418	1.31	1223	
091	35.53	35.53	Hartford	END OP RTE 15(WILBUR CROSS HWY);OP DRAINAGE;;	No	No	12	4	34	0.266	0.215	1.23	1316	
091	35.77	35.86	Hartford	END OP SR 530(AIRPORT RD);	No	No	12	3	30	0.241	0.132	1.82	691	
091	35.96	36.04	Hartford		No	No	12	3	25	0.202	0.132	1.53	954	
091	36.12	36.31	Hartford		No	No	12	3	42	1.698	1.442	1.18	1394	
091	36.32	36.40	Hartford		No	No	13	3	102	0.825	0.132	6.24	19	



2011 - 2013 SUGGESTED LIST OF SURVEILLANCE STUDY SITES (SLOSS)

K=2.576 N=15 Sorted by Route and Milepoint

Route	From Mile	To Mile	Town	Landmark	Signal	Rural	Road Type	Int Type	# Acc	(RA) Act Acc Rate	(RC) Improb Acc Rate	RA/RC	Seq #	Comments
091	36.44	36.52	Hartford		No	No	13	3	50	0.404	0.132	3.06	158	
091	36.53	36.55	Hartford	SB EXIT TO SR 530(AIRPORT RD)(166);SB	Yes	No	13	4	39	0.335	0.247	1.31	1219	
091	36.59	36.67	Hartford	EXIT TO SR 530(AIRPORT RD)(X027); 166;	No	No	12	4	109	0.881	0.217	4.07	82	
091	36.71	36.79	Hartford	NB-BGN OP RTE 15(WILBUR CROSS HWY);	No	No	12	3	166	1.342	0.162	10.16	4	
091	36.82	36.86	Hartford	NB EXIT TO NB US 5 & RTE 15(1R 830);	No	No	12	4	51	0.531	0.227	2.34	383	
091	36.91	36.97	Hartford	NB-BGN OP MDC SEWER PIPE;;	No	No	12	3	15	0.150	0.138	1.08	1538	
091	37.01	37.05	Hartford	NB-UP US 5 & SB RTE 15;	No	No	12	4	37	0.315	0.219	1.44	1066	
091	37.36	37.50	Hartford	SB-JCT EB SR 598(WHITE HEAD HWY);NB-	No	No	11	3	34	1.930	1.528	1.26	1270	
091	37.68	37.82	Hartford	BGN COLL-DIST RDWY(X032); 601; NB-BGN	No	No	13	4	66	4.356	2.714	1.59	895	
091	37.96	38.01	Hartford	COLL-DIST RDWY(X032); 601; NB-BGN	No	No	12	26	26	0.267	0.227	1.18	1392	
091	38.45	38.45	Hartford	SB EXIT TO WB SR 598(1R 835);SB EXIT TO	No	No	12	4	32	0.375	0.232	1.61	880	
091	38.81	38.83	Hartford	TR 803&WB SR 598;	No	No	11	4	39	0.234	0.206	1.13	1460	
091	38.84	38.93	Hartford	SB EXIT TO WB RTE 2(1R 839);SB EXIT TO	No	No	11	3	37	0.222	0.124	1.78	727	
091	38.96	39.04	Hartford	EB I-84(1R 840);SB EXIT TO WB RTE 2(VET	No	No	10	3	31	0.186	0.124	1.49	995	
091	39.25	39.57	Hartford	FREGN WR HY); 839;	No	No	15	3	135	2.503	1.290	1.94	600	
091	39.60	39.71	Hartford	SB EXIT TO WB RTE 2(1R 841); 182;	Yes	No	12	4	93	5.263	2.454	2.14	486	
091	39.85	39.89	Hartford	EXIT TO MARKET ST(1R 841); 182;	No	No	14	3	25	0.170	0.128	1.33	1189	
091	39.95	40.02	Hartford	SB EXIT TO WB RTE 2(1R 841); 182;	No	No	14	4	57	2.978	2.607	1.14	1449	
091	40.05	40.07	Hartford	UP JENNINGS RD(PVT); 165;	Yes	No	14	4	42	0.285	0.234	1.22	1342	
091	40.14	40.20	Hartford	SB-END 98 I-91 HOV LANE(701);SB-END	Yes	No	14	4	50	0.319	0.231	1.38	1124	
091	41.30	41.50	Windsor	HIGH OCCUPANCY VEH LANE;	No	No	14	3	52	1.603	1.383	1.16	1425	
091	41.63	41.64	Windsor	SB EXIT TO JENNINGS RD(164)(PVT);SB	No	No	14	4	31	0.239	0.215	1.11	1489	
091	42.52	42.72	Windsor	EXIT TO JENNINGS RD(PVT)(X033); 164;	No	No	15	3	51	1.624	1.390	1.17	1408	
091	46.45	46.56	Windsor	NB ACC FR JENNINGS RD(163)(PVT);NB	No	No	15	4	52	3.004	2.645	1.14	1457	
091	47.81	47.83	Windsor	ACC FR JENNINGS RD(PVT); 163;	No	No	15	4	23	0.226	0.225	1.01	1682	
				HARTFORD - WINDSOR TL;;										
				NB EXIT TO EB I-291(1R 860);NB EXIT TO										
				RTE 218(1R 860); 202;										
				SB EX TO RTE75 DAY HL RD(173)X38A,B;										
				NB EXIT TO WB RTE 20(1R 842);NB EXIT										
				TO WB RTE 20(BRDLY FLD CON); 842;										

