



# Connecticut Department of Energy and Environmental Protection



# 2012 Air Monitoring Network Plan & Near-Road NO<sub>2</sub> Network Plan

June 14, 2012

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SIPRAC



Connecticut Department of Energy and Environmental Protection

# Purpose of Network Plan

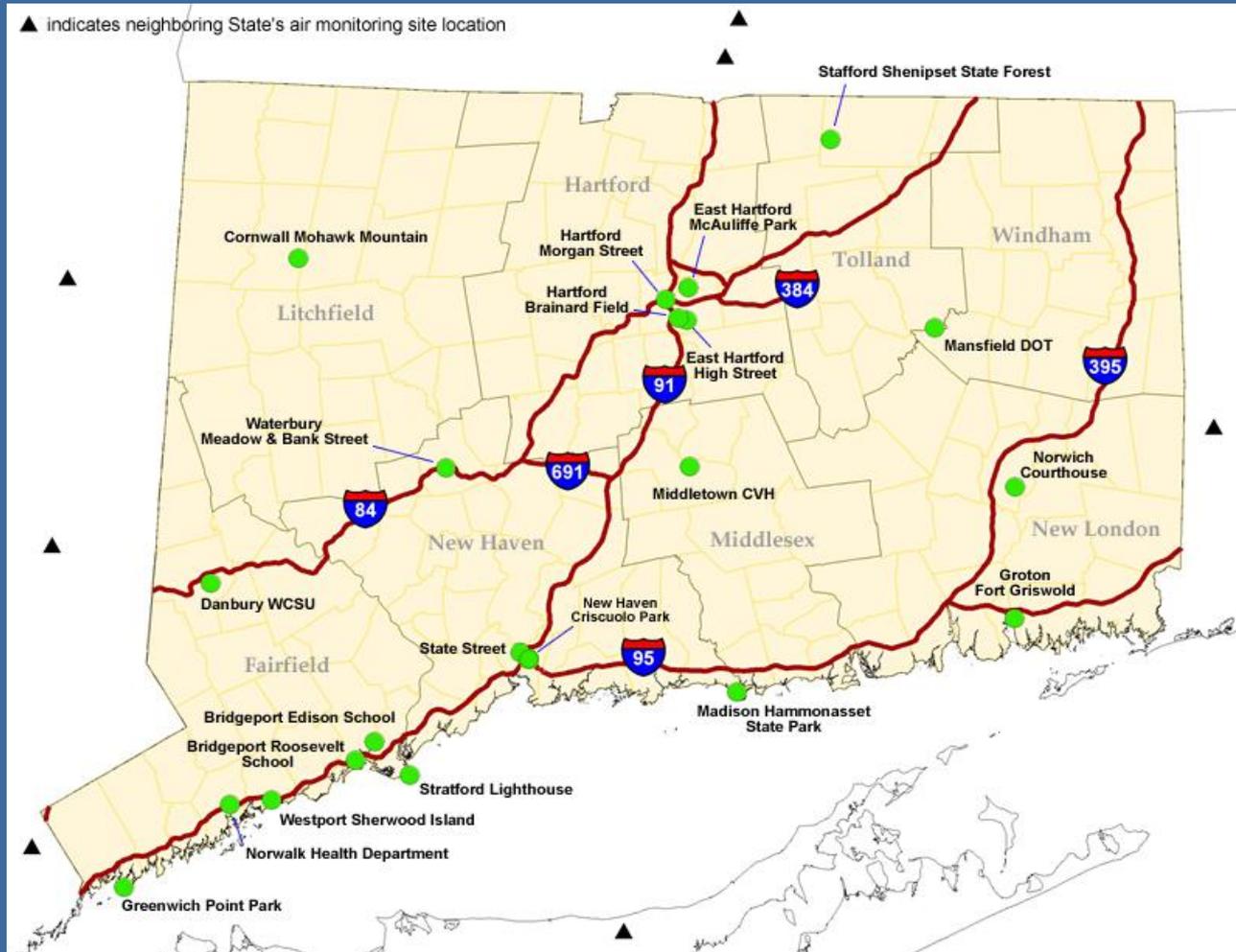
- Satisfy regulatory requirements – 40 CFR 58.10
- Provide current air monitoring network configuration
- Propose network changes
- Provide analysis/rationale to demonstrate compliance with new EPA monitoring initiatives

Plan is posted on DEEP website under: [Air/Air Monitoring/Network Design](#)

# Why a Separate NO<sub>2</sub> Near-Road Plan?

- January 2011 NO<sub>2</sub> NAAQS rule requires 3 near-road sites in CT by 1/2013
- EPA implemented “Build and Hold” plan, which funds 1 site to be installed by 1/1/2014
- EPA’s “Build and Hold” plan:
  - while consistent with government needs to do more with fewer resources
  - doesn’t fully meet requirements of the NAAQS rule
  - Separate plans allow EPA approval of the network plan without approval of the near-road plan
  - (EPA is now seeking rule change)

# DEEP Current Monitoring Network



# DEEP Proposed Network Changes

- Discontinue all sampling at:
  - Hartford Morgan Street
  - Norwalk Health Dept.
  - Norwich Court House
  - Hartford Brainard Airport
- Discontinue CO sampling at Westport Sherwood Island State Park
- Establish a Hartford “near-road” site to include NO/NO<sub>2</sub>/NO<sub>x</sub>, CO, continuous PM<sub>2.5</sub>, BC/UVC and dioxins
- Establish FRM PM<sub>2.5</sub> sampling at Groton Fort Griswold

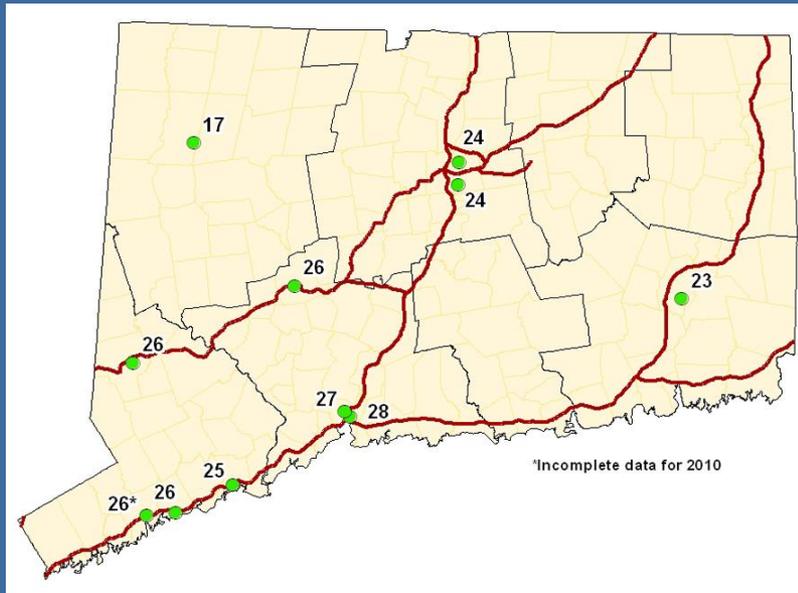
# Site Information Table

Town	Site	PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse EMC	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation	
Bridgeport	Edison School															X																	
Bridgeport	Roosevelt School	1/3		X		1/6											X											X					
Cornwall	Mohawk Mountain	1/3		X	X	1/3		X		X	X	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X	
Danbury	Western Connecticut State University	1/3		X											X											X	X	X		X			
East Hartford	High Street	1/3		X																						X	X						
East Hartford	McAuliffe Park	1/1		X		1/6								X	X	X	X	X				X	X			X	X	X	X			X	
Greenwich	Point Park														X											X	X	X		X			
Groton	Fort Griswold	P		X											X											P	P	X					
Hartford	Brainard Field																								X								
Hartford	Morgan Street Courthouse																X																
Hartford	NEAR ROAD			P										P			P	P							P	P	P	P					
Madison	Hammonasset State Park														X											X	X	X					
Mansfield	DOT																									X	X						
Middletown	Connecticut Valley Hospital														X											X	X	X		X	X		
New Haven	Criscuolo Park	1/1	1/6	X		X	1/3	1/6	X	X		X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X
New Haven	State Street	1/3																															
Norwalk	Health Department	X																															
Norwich	Norwich Courthouse	X																															
Stafford	Shenipsit State Forest														X											X	X	X					
Stratford	Stratford Lighthouse														X													X					
Waterbury	Meadow & Bank Street	1/3	1/6	X																						X	X	X		X			
Westport	Sherwood Island State Park	1/3													X	X	X	X				X				X	X	X	X			X	

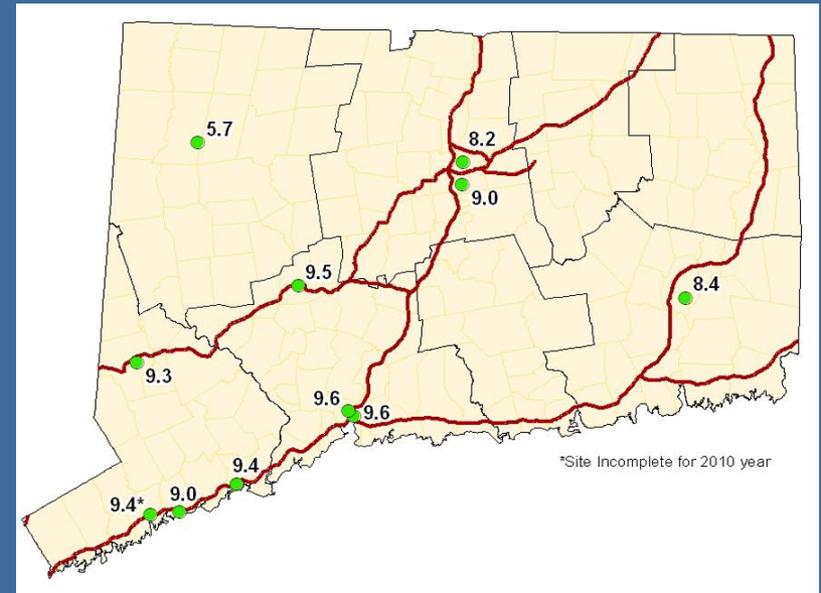
# Monitoring Network Descriptions

- Extent of Network
- Monitoring methods
- Sampling frequencies
- Discussion and analysis of changes

# PM<sub>2.5</sub> Design Values

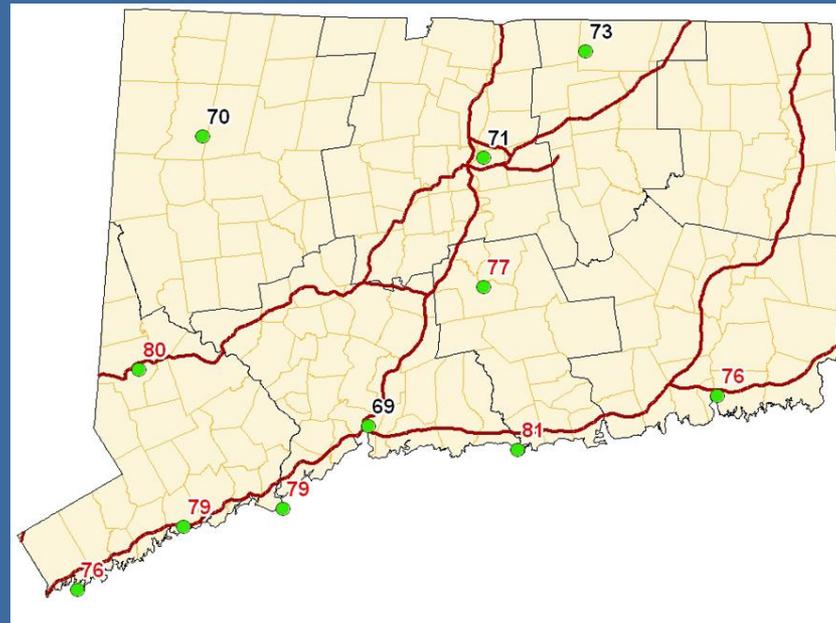


2011 Daily Design Values



2011 Annual Design Values

# Ozone Design Values



2011 8-Hour Design Values

# Data Acquisition/Communications

- Targeted for completion in 2012
  - Upgrading data acquisition software at sites
  - Virtualization of site data PCs
  - Automated PM data retrieval and processing
  - Enabling real-time air data access on the web

# Site Information Section

Town – Site: **Westport – Sherwood Island State Park**

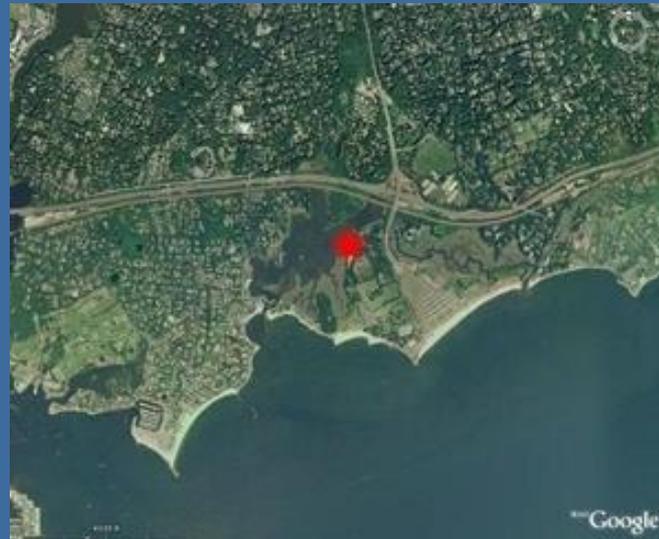
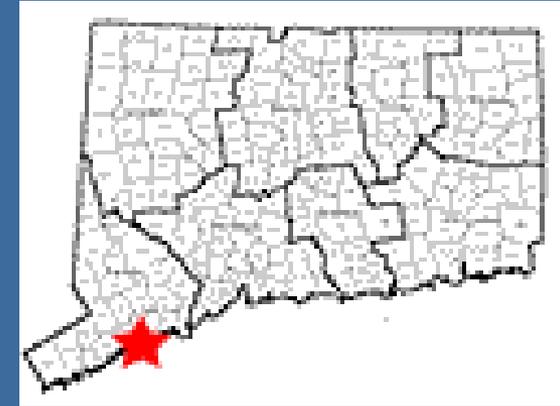
County: **Fairfield**      Latitude: **41.11822°**

Address: **Sherwood Island SP**      Longitude: **-73.33681°**

AQS Site ID: **09-001-9003**      Elevation: **4 m (13 ft)**

Spatial Scale: **Regional**      Year Established: **1996**

Statistical Area: **CSA (New York-Newark-Bridgeport)**



# Site Information Section (cont.)

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM10-1.1	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/3													X	X	X	X			X					X	X	X	X			X

**Site Description:** The Westport Sherwood Island State Park site is a regional-scale site located in southwestern Connecticut. This is a coastal site that is approximately 0.5 km to the south of I-95 on the Long Island Sound. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I.

**Monitoring Objectives:** The Westport Sherwood Island State Park monitoring site objectives include collecting PM<sub>2.5</sub> FRM measurements for compliance purposes. Everyday PM<sub>2.5</sub> sampling was discontinued as of January 1, 2011 with 1-in-3 day sampling being established. The 2006 regulations required everyday sampling to be conducted at all sites that were within 5% of the daily PM<sub>2.5</sub> NAAQS of 35 µg/m<sup>3</sup> for a minimum of three years. The current daily design value for this site based on 2007-2009 data is 29 µg/m<sup>3</sup>, well below the current NAAQS. Sampling through 2010 provides four continuous years of everyday PM<sub>2.5</sub> FRM sampling (2007-2010). Ozone is measured at the Westport site for compliance assessment and AQI and forecasting purposes and PAMS and NO<sub>x</sub> monitoring is conducted to obtain measurements of ozone precursors. Trace-CO measurements are being collected to complement the PAMS measurements.

**Planned changes for 2012-2013:** Proposed discontinuation of CO monitoring at this site.

# 2012 Near-Road Nitrogen Dioxide Network Plan



# Near-Road Plan Objective

- Propose site in CBSA with population > 1 M
  - Site should characterize peak short-term NO<sub>2</sub>
  - Site should represent population exposure

# Identification of Area Requiring Near-Road Monitoring

CBSA Code	Geographic Area	7/2009 Population Estimate
14860	Bridgeport-Stamford-Norwalk, CT	901,208
25540	Hartford-West Hartford-East Hartford, CT	1,195,998
35300	New Haven-Milford, CT	848,006
35980	Norwich-New London, CT	266,830
45860	Torrington, CT	188,728
48740	Willimantic, CT	117,518

# Steps for Selection of Candidate Near-Road Sites

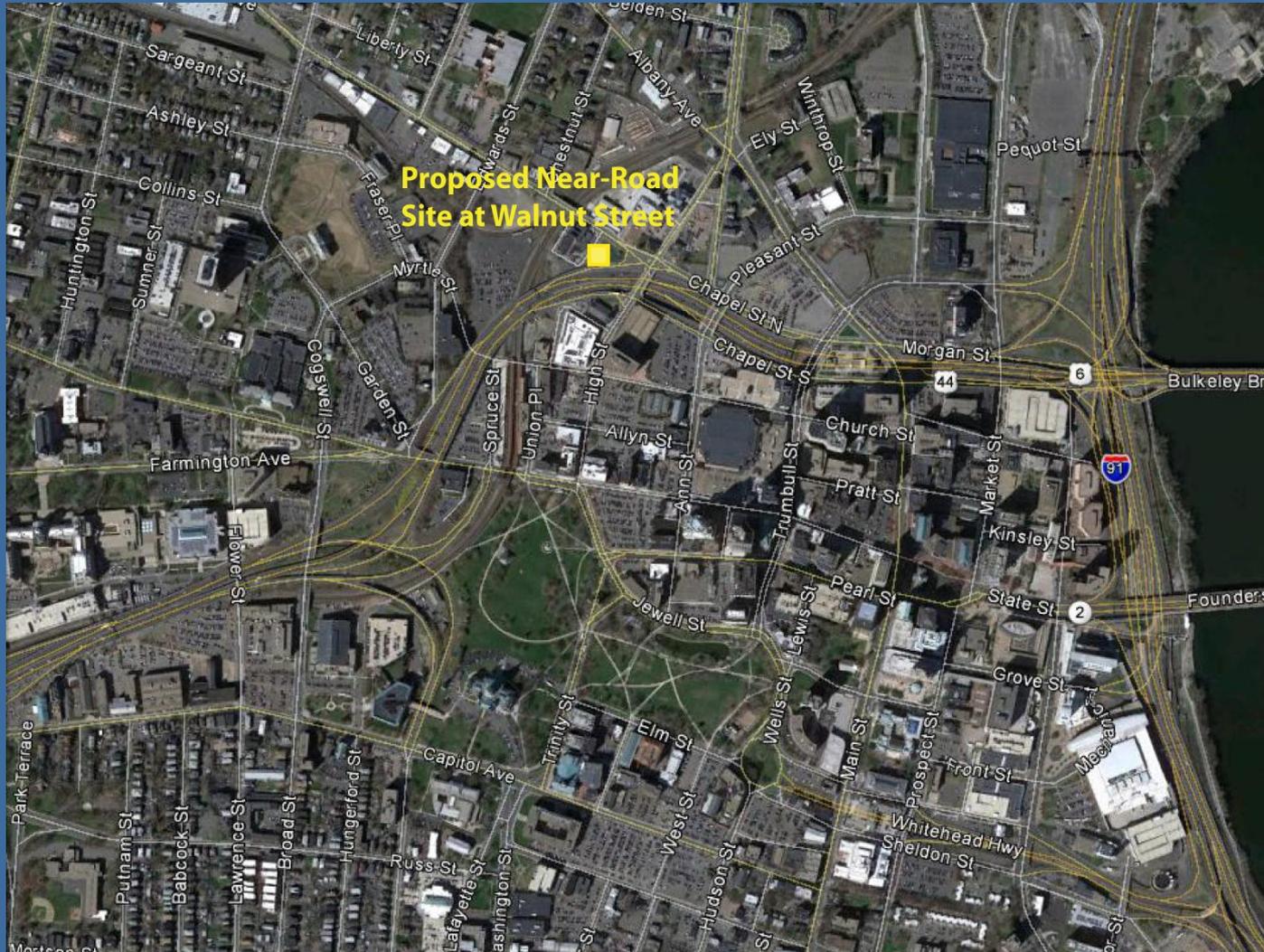
- Analyze traffic data (AADT, fleet mix, congestion patterns), rank road segments
- Assess physical characteristics (road design, structures, terrain, meteorology)
  - Siting criteria (all lanes within 20-50 meters of monitor, lanes at grade, open monitoring path)
- Assess safety conditions for DEEP personnel and highway users

# Candidate Site Comparison

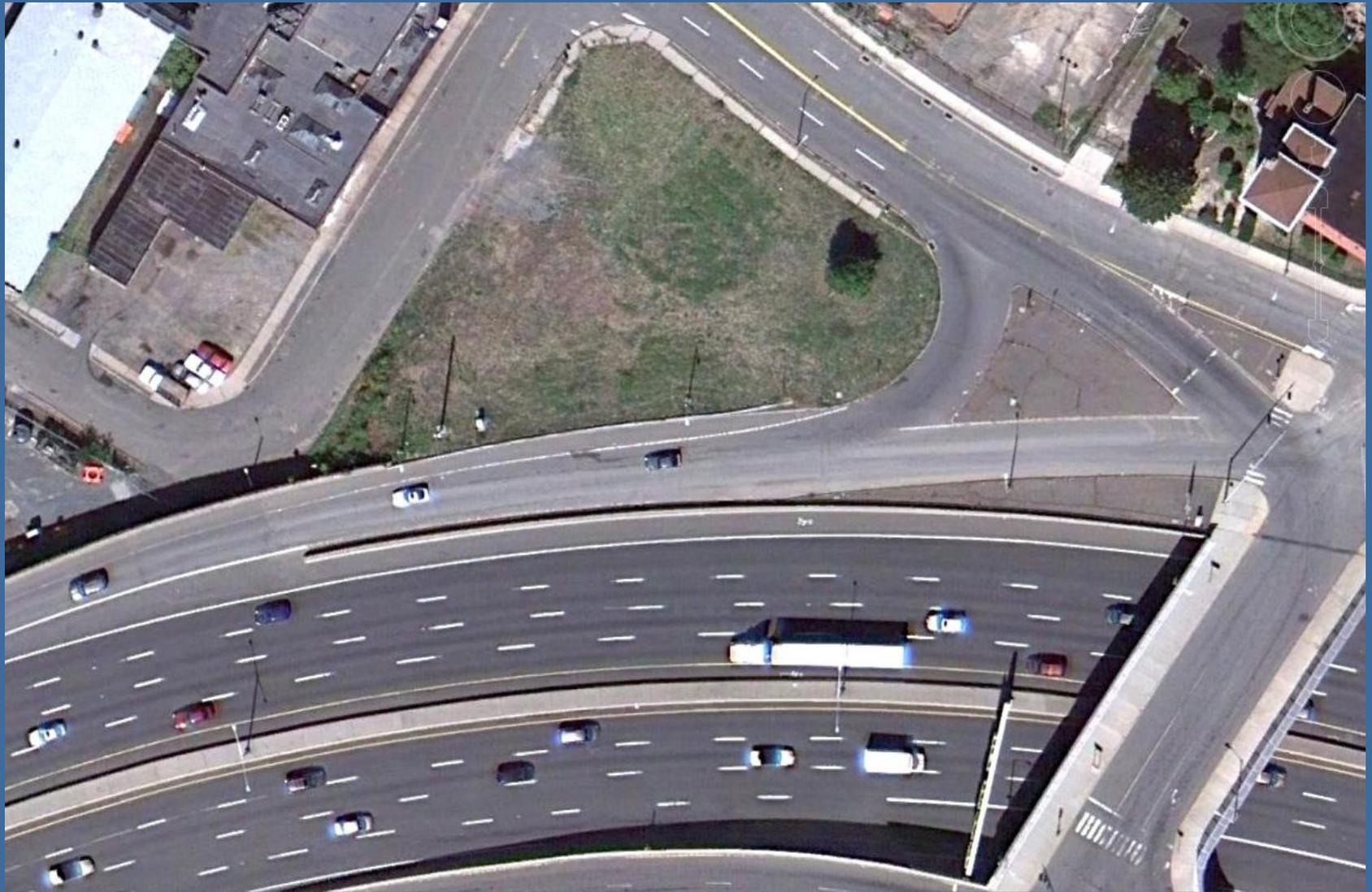
Town	Rank	Route	Begin Segment	End Segment	Seg Mi	Road Design	Road-side Struct	Terrain	Meteorology	Popul. Impact	Comments
Htfd	1	84	EB ACC FR SIGOURNEY ST	EB EXIT TO CAPITOL AVE	0.25	U	U	S	N/A	Y	Raised viaduct, buildings on north side
Htfd	2	84	EB ACC FR BROAD ST(186)	EB EXIT TO HIGH ST(188)	0.25	S/U	S	S	S	Y	Only east half closer to grade, good horizontal spacing
Htfd	3	84	EB EXIT TO HIGH ST(188)	EB EXIT TO TRUMBULL ST	0.19	S	S	S	S	Y	North side at grade with lanes, all w/in 50 m
Rocky Hill	4	91	NB ACC FR RTE 99	ROCKY HILL - WETHERSFIELD TL	0.07	U	S	U	N/A	N	Steep embankments and vegetation, highway wider than 50 m
Wethersfield	5	91	Rocky Hill - Wethersfield TL	SB EXIT FR SB RTE 3	1.1	S	U	U	N/A	N	Sound wall on west side, steep embankment and flood zone on east side
East Htfd	6	84	EB ACC FR SR 518(ROBERTS ST)	EB JCT EB I-384	1.28	U	S/U	S	N/A	Y	Highway wider than 50 m, sound walls, north side has high tension wires.
Rocky Hill	7	91	CROMWELL - ROCKY HILL TL NB	NB EXIT TO SSR 411(WEST ST)	1.18	U	U	S/U	N/A	N	Highway wider than 50 m, sound walls on north side
Htfd	8	84	EB EXIT TO TRUMBULL ST	EB EXIT TO NB I-91(TR 839)	0.06	U	N/A	N/A	N/A	Y	10-20 foot deep cut, tunnel on east part
Htfd	9	91	NB ACCESS FROM I-84 EB AND I-84 WB	NB EXIT TO JENNINGS RD/BGN NB HOV	0.83	U	S	U	N/A	N	Highway wider than 50 m, sloped embankments and/or flood zone area
Rocky Hill	10	91	NB ACC FR SSR 411(046)	NB EXIT TO RTE 99(050)	2.37	S/U	S/U	S/U	S	N	Short section at north end of segment has no sound wall, but possibly heavy vegetation

Key: S=satisfactory; U=unsatisfactory; Y=yes; N=no; N/A=not applicable

# Proposed Near-Road Site



# Proposed Near-Road Site



# Submit Comments By July 5, 2012 to

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DEEP/ Air Management  
79 Elm Street  
Hartford, CT 06106-5127  
[randall.semagin@ct.gov](mailto:randall.semagin@ct.gov)  
860-424-3255

[Link to Network Plans](#)



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