



THE I-84 HARTFORD PROJECT

I-84 Hartford Project Air Quality and Noise Analysis Overview Open Planning Studio

April 28, 2015



U.S. Department
of Transportation
**Federal Highway
Administration**



Air Quality



Why Does Air Quality Matter?

- **Human Health**
- **Environment**
 - **Visual Impacts**
- **Quality of Life**



NAAQS & Attainment Status

National Ambient Air Quality Standards (NAAQS)

- Protect public health
- Criteria Pollutants

Monitoring

- Attainment
- Nonattainment

Nonattainment Designation for Hartford Area

- Ozone
- CO maintenance (maintenance period ends in 2015)



Criteria Pollutants

- Carbon monoxide (CO)
- Particulate matter (PM₁₀ and PM_{2.5})
- Ozone (O₃)
 - Precursors
 - Nitrogen Oxides (NO_x)
 - Volatile Organic Compound (VOC)
- Nitrogen Dioxide (NO₂)
- Sulfur Dioxide (SO₂)
- Lead (Pb)



Existing Air Quality at Hartford Monitoring Stations

Air quality monitoring Stations within Hartford over the past 3 years show

- **Ambient air concentration levels well below the NAAQS for all criteria pollutants with one exception – Ozone (three year average) is slightly above the NAAQS**



Why does NA Matter?

- **Federal Funds**
- **Building capacity**
- **Must prove we won't make the situation worse (or cross the threshold)**



Analysis Requirement

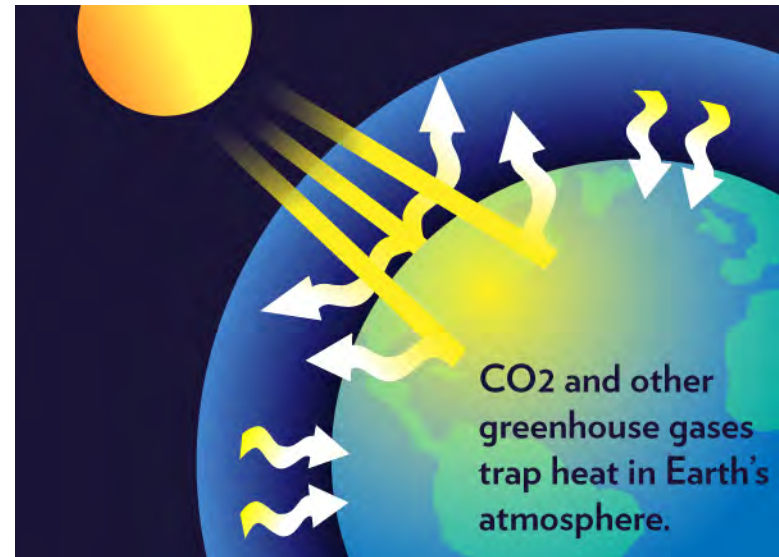
Criteria Pollutants

- Screening
- Localized Analysis (Microscale)
- Large Scale Analysis (Mesoscale)

Air Toxics

Greenhouse Gas

Construction



Project Potential Emission Sources

- **Mobile Sources**
 - Highway vehicle
 - Non-road vehicle (equipment and trucks)
 - Locomotive
- **Stationary Sources**
 - Tunnel exhaust vent, if applicable



Noise



Noise Assessment Guidelines

- **Federal Highway Administration (FHWA)**
 - **23 CFR 772 “Procedures for Abatement of Highway Traffic and Construction Noise”**
- **Connecticut Department of Transportation**
 - **“Highway Traffic Noise Abatement Policy For Projects Funded By The Federal Highway Administration” [July 2011]**
- **Federal Transit Administration (FTA)**
 - **“Transit Noise and Vibration Impact Assessment” [May 2006]**
- **Department of Housing and Urban Development (HUD)**
 - **“The Noise Guidebook” [1971]**



Traffic Noise Impact Criteria – Connecticut

Applicable to Type I projects

Predicted future noise level approaches, equals, or exceeds the NAC, such as:

- 66 dBA exterior for Category B & C land uses
- 51 dBA interior for Category D land use
- 71 dBA exterior for Category E land use

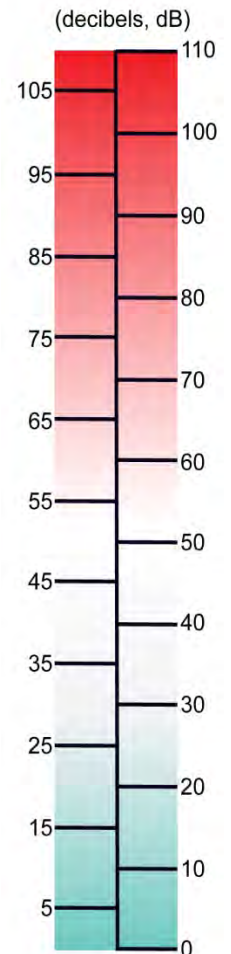
Predicted future noise level substantially exceeds the existing noise level:

- 15 dBA

Category B & C (residences, parks, churches)

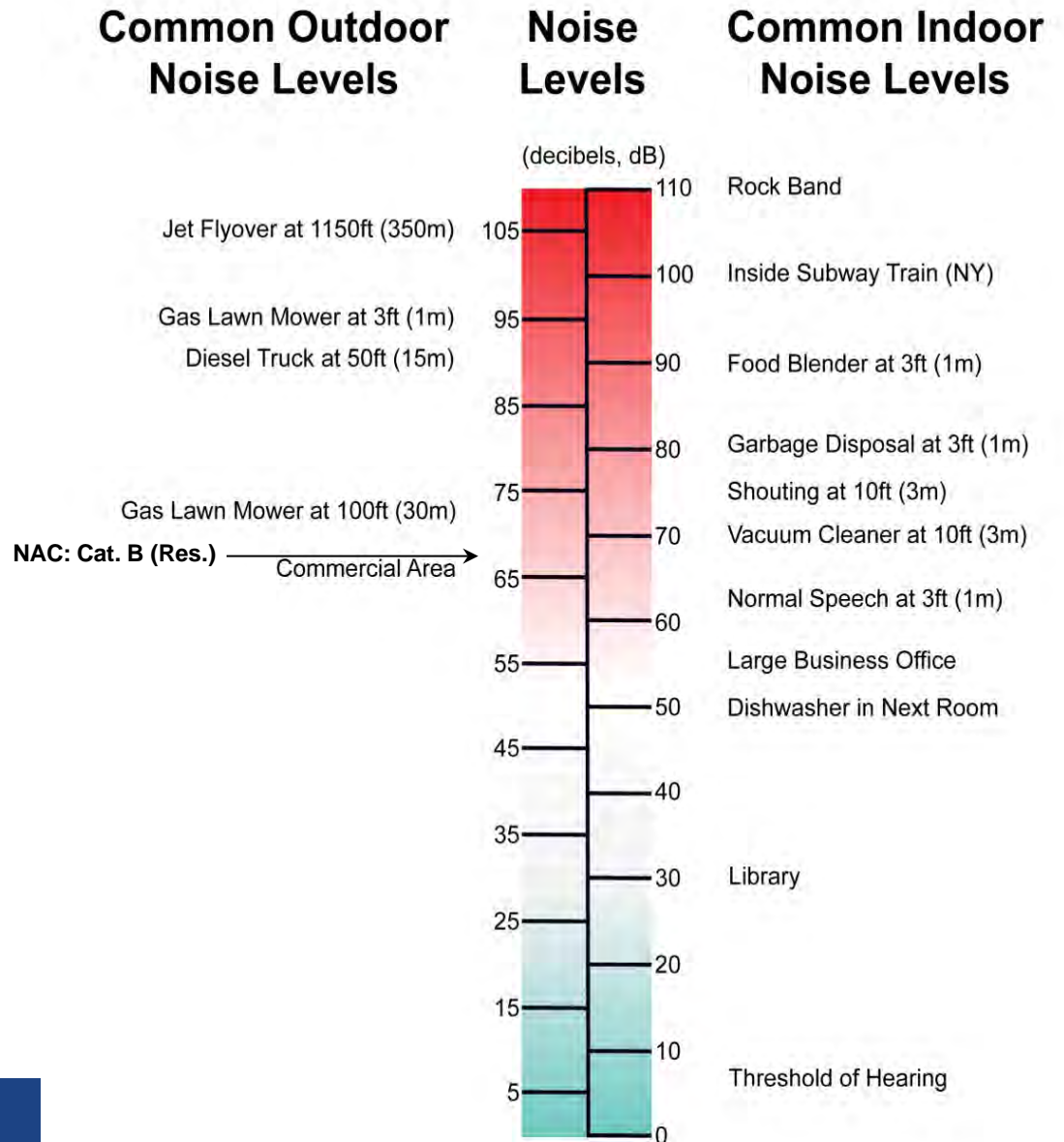
- typical land uses that would be given particular attention

Noise Levels

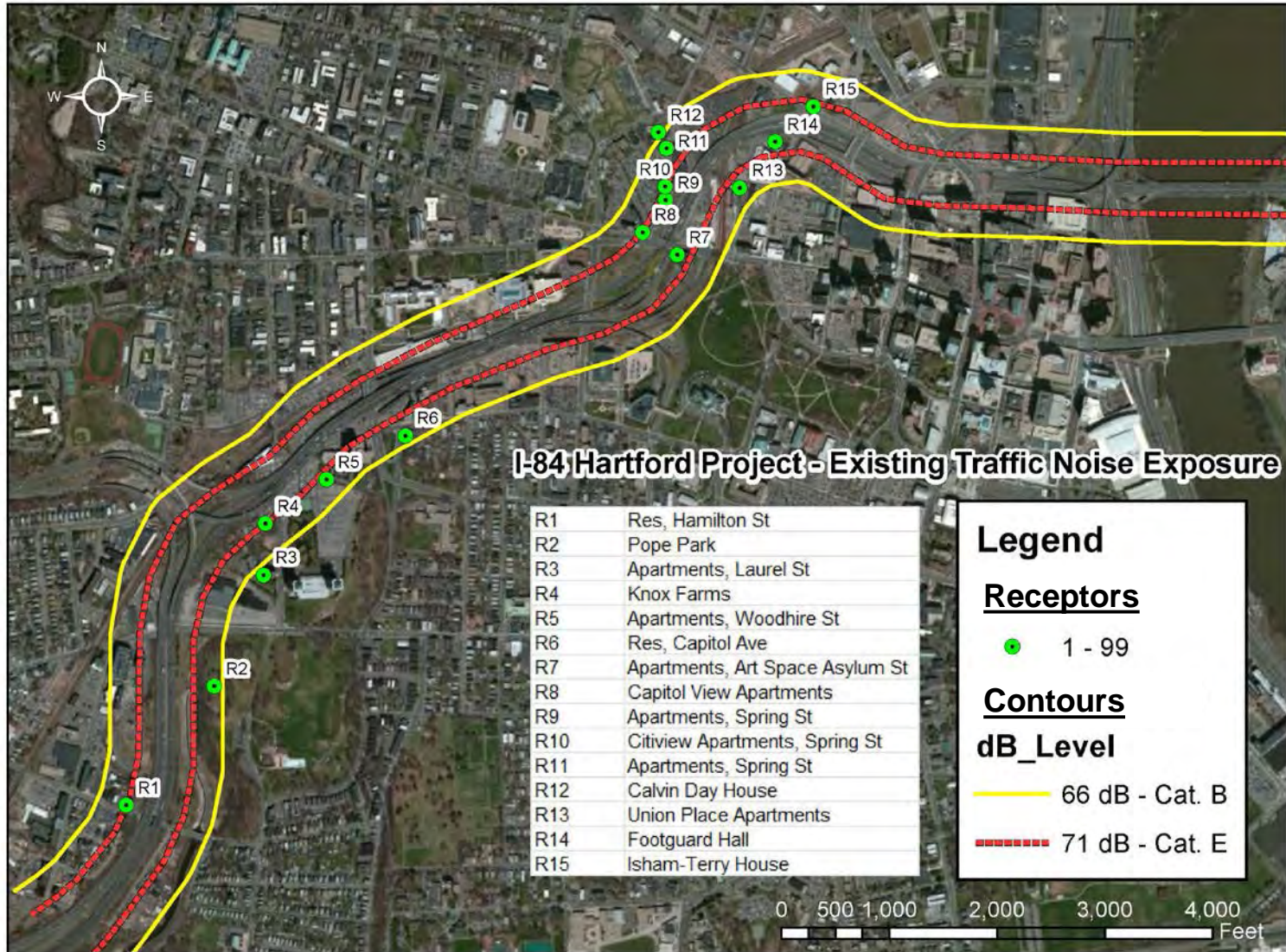


Common Source Levels

- **3 dB: barely perceptible**
- **5 dB: clearly perceptible**
- **10 dB: twice as loud as 5dB**



Existing Noise Exposure



Noise Modeling

- **Required for a Type I project**
- **Traffic noise model**
 - **FHWA Traffic Noise Model (TNM)**
 - **A state-of-the-art analytical computer program used for predicting noise impacts in the vicinity of highways**
- **Noise modeling:**
 - **Prediction of existing noise levels**
 - **Prediction of future noise levels**
 - **Model can also be used to develop abatement measures if required**

Barrier Abatement Criteria

Feasible

- Can the barrier be constructed?
- Engineering feasibility issues
- Number of dwelling units benefited?
 - 5 dBA minimal reduction is considered benefited



Reasonable

- Substantial reduction possible?
 - 7 dBA minimum at 2/3 of benefited receptors
- Total cost of barrier?
 - CTDOT allows for up to \$55,000 per *benefited* residence



Opinions of benefited property owners and residents

Construction Noise Criteria

- **FHWA**
- **CTDOT**
- **FTA**
- **City of Hartford**





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Thank You!

We deeply appreciate your time and your commitment to helping us reach the best possible solution for the State, the region, and the City.

- Your I-84 Hartford Project Team

www.I84Hartford.com

