

Transportation Research Board  
Annual Meeting, January 2009



Bruce Springsteen, Zakim Bridge Dedication, Oct02



# Sustainable Precedents for Construction Mitigation

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# Sustainable Mitigation

Based on lessons learned while managing the  
Central Artery/Tunnel Project in Boston









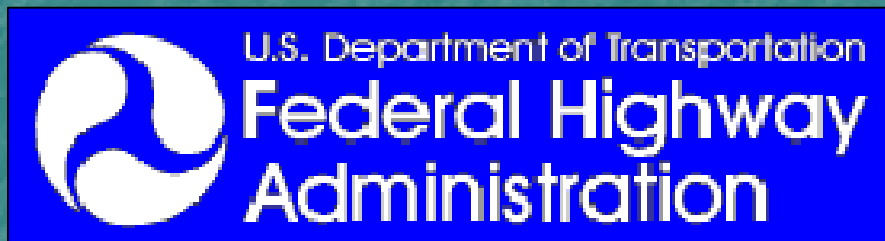
# Sustainable Mitigation

Contract Specifications from CA/T Project:

*Proactive Avoidance & Reactive Enforcement*

- Noise Control Spec. 721.560
- Dust Control Spec. 721.561
- Odor Control Spec. 721.562
- Water Quality Spec. 140.140
- Erosion Control Spec. 140.141
- Rodent Control Spec. 119.010

# Noise Control



Federal Highway Administration

Roadway Construction Noise  
Model (RCNM)

Highway Construction Noise  
Handbook (Released 2006)



Center for Environmental Excellence by AASHTO

One Stop Source of Environmental Information for Transportation Professionals



New York City Department of  
Environmental Protection

City-wide Construction Noise  
Rules (Effective 1 July 2007)

# Noise Control Measures

1. Enforceable Noise Control Plans
2. Modern equipment, well maintained
3. Quieter alternative equipment/methods
4. Additional exhaust mufflers
5. Operations and time restrictions
6. No pile driving and hoe ramming at night
7. Noise barriers, curtains, enclosures
8. Window soundproofing program
9. Quieter-type or prohibited backup alarms
10. Monitor community and equipment noise levels































# Air Quality & Dust Control



Federal Highway Administration

Diesel Retrofit Program



US Environmental Protection Agency

Diesel Retrofit Program



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# AQ & Dust Control Measures

1. PM2.5 oxidation catalytic converter retrofit
2. Alternative biodiesel fuels
3. Turn off engines not in use, or use staging areas
4. Wet dust suppression, with binding agents
5. Calcium chloride when freezing conditions exist
6. Vacuum-powered street sweepers
7. Wind screen fabric or barriers around site perimeter
8. Wheel-wash stations or crushed stone
9. Covering active stockpiles with plastic tarps
10. Hydro-seeding or soil stabilizers on stockpiles
11. Covering dump trucks during material transport
12. Monitor community air quality and dust levels







# CAT<sup>REGD</sup>

## TH83

**THIS MACHINE  
IS EQUIPPED WITH  
AN AIR POLLUTION  
CONTROL DEVICE**

### NOTICE

IMPROPER LIFTING OR  
CAN ALLOW LOAD TO  
CAUSE INJURY AND DEATH.  
1. BEFORE AND DURING LIFTING  
APPLY TO BALANCE TO BALANCE  
THE LATERAL AXES.  
2. USE PROPER LIFTING TECHNIQUE.  
3. USE THE BAR WITH THE  
SMALLEST LIFTING CAPACITY  
FOR THE LIFTING LOAD.  
4. NEVER LIFT WITH THE  
MACHINE AT AN ANGLE.



























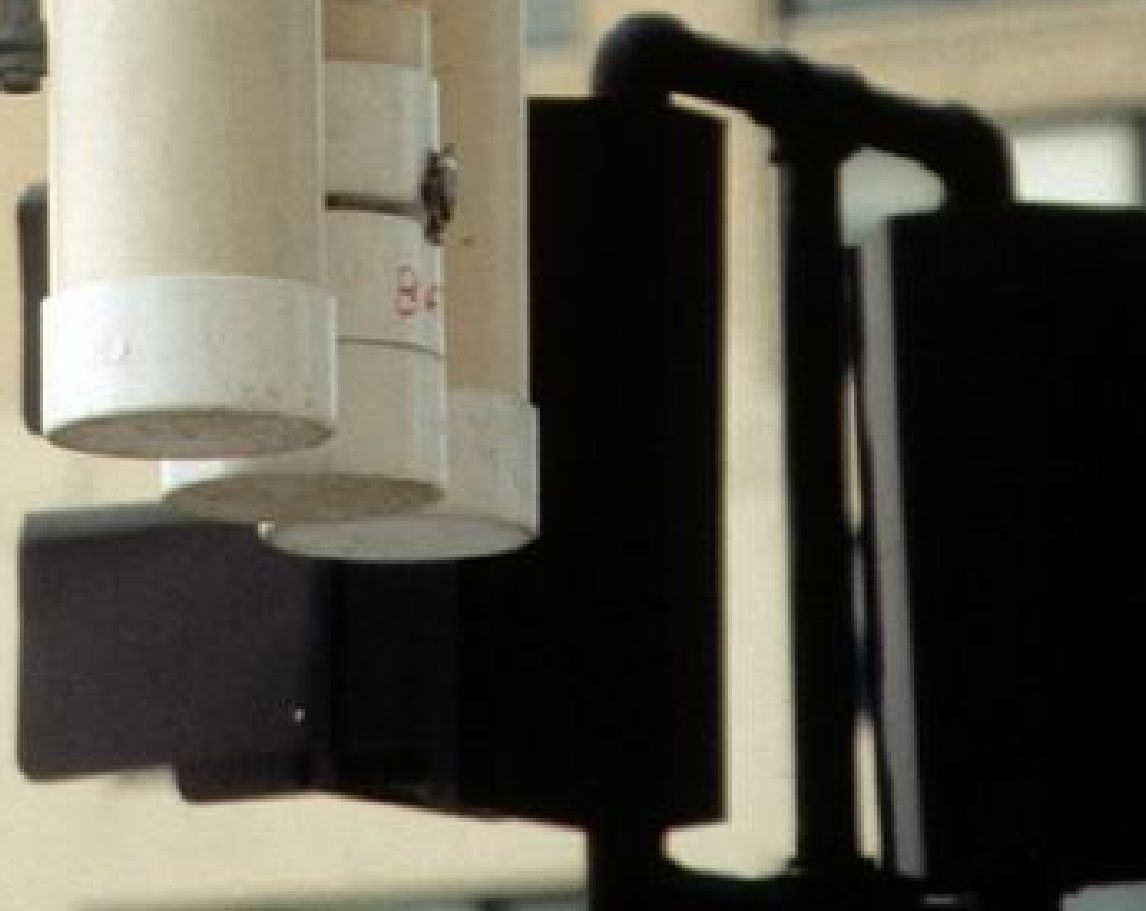
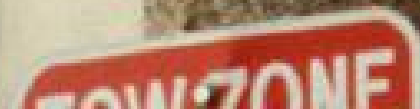














# Water Quality



US Environmental Protection Agency

First NPDES Permit for Construction  
National Pollution Discharge Elimination System Permit

Helped establish Tier 1 thru Tier 4 permits



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# Water Quality Measures

1. Wheel-wash stations with coagulants
2. Perimeter controls, silt fences, hay bales
3. Catch basins and sedimentation tanks
4. Dewatering sump pumps
5. Outfall plume containment
6. pH adjustment for cementatous water
7. CO<sub>2</sub> water injections
8. Artificial reefs, fish startle system, sun light
9. Discharge water monitoring for NPDES permit











































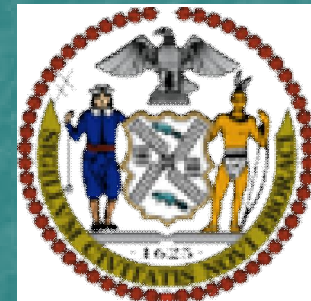
# Rodent Control



US Environmental Protection Agency  
Environmental Excellence Specs



City of Boston Inspectional Services



City of New York



China, Argentina, other nations



# Rodent Control Measures

1. Site sanitation requirements
2. Rodent-proof trash containers
3. Poison and sterilization baiting
4. Traps, traps, traps
5. Extermination by permit























# Sustainable Mitigation



So, like Bruce, some good ideas “sustain” the test of time.  
Construction mitigation can, and should, always be used.

See you *“Further on up the road”*. 📢