

Mobility. Environment. Community. Economy. Technology



I-710 Corridor Project EIR/EIS

metro.net

Air Quality, Health Risk & Greenhouse Gas Technical Studies Key Findings

presented to the
Technical Advisory Committee
January 18, 2012



Metro



GATEWAY CITIES
CONNECTIONS AND COMMUNITIES



The Port of
LONG BEACH



Technical Studies Briefing Agenda

- Project Purpose & Need
- Project Alternatives
- Air Quality Background
- Key Analyses
- Project Findings & Mitigation Strategies
- Analysis Linkage with Community Impact Assessment (CIA) and DEIR/DEIS

Project Purpose and Need

1. Improve air quality and public health
2. Improve traffic safety
3. Provide a modern design for the I-710
4. Address projected traffic volume increase
5. Address projected growth in population, employment and economic activity related to goods movement

Project Alternatives Review

No Build Improvements

- Planned and Committed Projects in 2008 RTIP
- Enhanced Goods Movement by Rail
- Clean Trucks Program
- Expanded Night Gate Ops at Ports
- I-710 Pavement Rehabilitation
- Traffic Signal coordination

TSM/TDM and ITS

- Ramp Metering
- Improved Arterial Signage
- Peak Period Parking Restrictions
- Increased Transit Service
- Upgraded Traffic Signals (ITS)

Arterial System Improvements

- Signal Timing Improvements
- Local Arterial Intersection Improvements at 42 Locations

I-710 Widening

- Widen the I-710 up to 10 Lanes
- Modernize Geometric Design of all of the Local I-710 Interchanges

Freight Corridor

- Separate Four-Lane Freight Corridor

Alternative 1

No Build Improvements



Alternative 5A

I-710 Widening

Modernize I-710 Geometrics

Arterial System Improvements

TSM/TDM & ITS

No Build Improvements

Alternative 6A

Freight Corridor



I-710 Widening

Modernize I-710 Geometrics

Arterial System Improvements

TSM/TDM & ITS


No Build Improvements

Alternative 6B

Zero Emissions



Automated Guidance




Freight Corridor



I-710 Widening

Modernize I-710 Geometrics

Arterial System Improvements

TSM/TDM & ITS

No Build Improvements

Alternative 6C


Tolling Feature



Zero Emissions



Automated Guidance




Freight Corridor



I-710 Widening

Modernize I-710 Geometrics

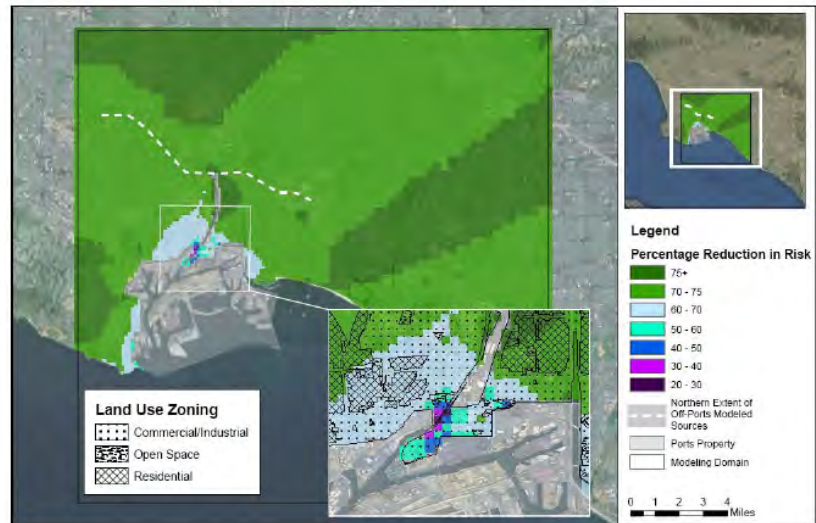
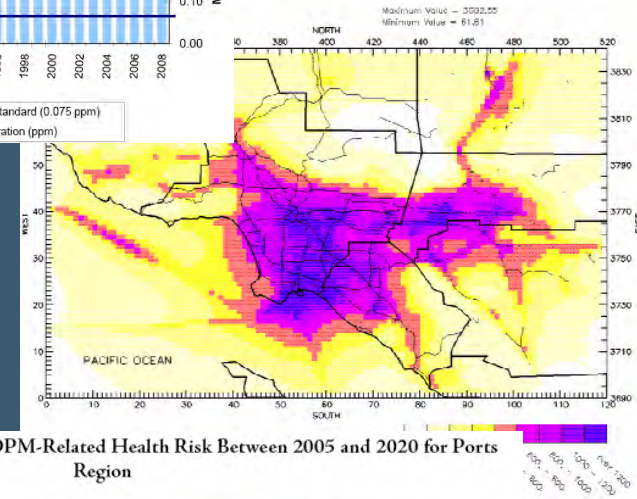
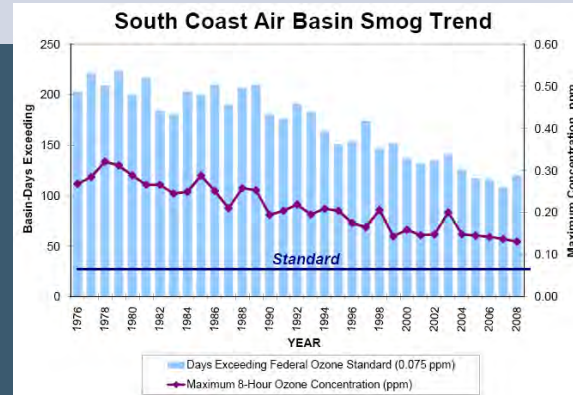
Arterial System Improvements

TSM/TDM & ITS

No Build Improvements

Air Quality and Health Risk Background

- SCAQMD Air Quality Management Plan
 - Air quality will improve as Plan is implemented
 - New standards will require new plans
- SCAQMD MATES III
 - Highest risk areas in port areas, goods movement corridors
- San Pedro Bay Ports' Clean Air Action Plan (CAAP)
 - Goal: 85% reduction in risk by 2020 (forecast: 74% reduction)



Brief Review of AQ/HRA Analyses

Typical EIR/EIS

- ✓ Carbon Monoxide (CO) quantitative assessment and local “hotspot” dispersion modeling of CO concentrations for conformity analysis
- ✓ PM2.5/PM10 (particulate matter/dust) *qualitative* assessment for conformity analysis
- ✓ Diesel Exhaust qualitative assessment (identify sensitive receptors)
- ✓ Mobile Source Air Toxics (MSAT) qualitative assessment
- ✓ Construction impacts (identify standard emission/dust control measures)

I-710 EIR/EIS

- ✓ Greenhouse Gases quantitative assessment
- ✓ Construction emissions quantification (total project)
- ✓ Full dispersion modeling of ambient concentrations of criteria pollutants near the I-710
- ✓ Full dispersion modeling health risk assessment for six Priority MSATs near the I-710
- ✓ Qualitative Ultrafine Particulate incremental impact analysis
- ✓ Qualitative PM2.5 Mortality incremental impact analysis

I-710 Air Quality Study Areas

I-710 AIR QUALITY STUDY AREAS

1 South Coast Air Basin Study Area

2 I-710 Area of Interest

3 Near Roadway Study Area

Key Analyses

Air Quality and Health Risk: Putting It All Together

Project Alternative Incremental Impact Changes for all Analyses



Emissions

NO_x

CO

PM_{2.5}

PM₁₀

VOCs

SO_x

Air Toxics

Pollutant Concentrations

NO₂

CO

PM_{2.5}

PM₁₀

Health Risk

Cancer Risk

Hazard Indices

(Acute, Chronic)

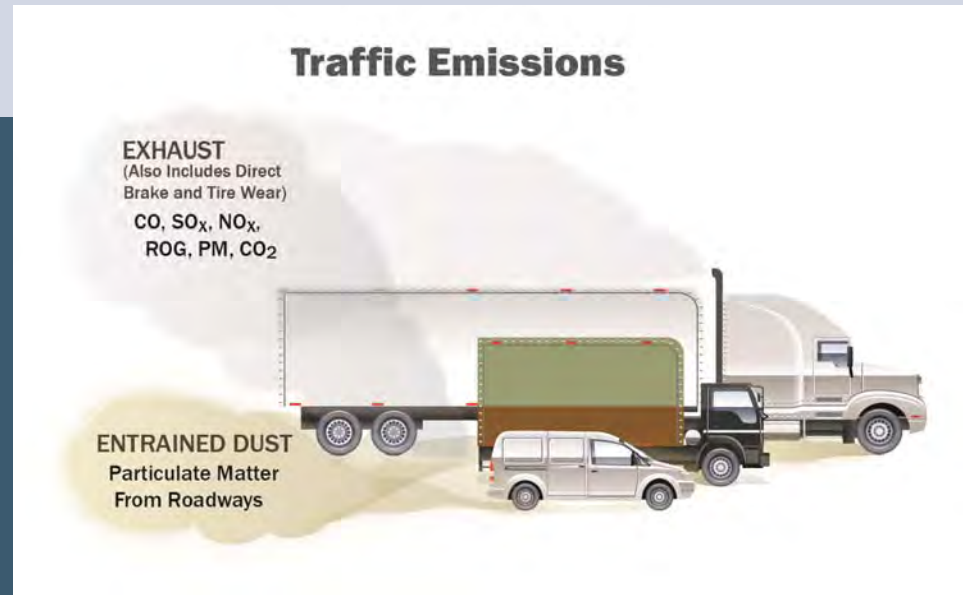
- qualitative in italics

Traffic Emissions

- Exhaust emissions:
 - CARB models, accounts for recent regulations
 - Includes tire, brake wear

- Entrained road dust:

- Used EPA model (January 2011): dust in air increases with vehicle miles travelled (VMT)
- Recent SCAQMD/CARB proposed method
 - Based on EPA model, but revised local inputs (silt loading, etc.)
 - PM_{10} and $PM_{2.5}$ lower, particularly $PM_{2.5}$
 - Future year PM constant unless roadway is lengthened
- Implication: entrained (and total) PM_{10} and $PM_{2.5}$ impacts overestimated



I-710 Area of Interest Key Findings

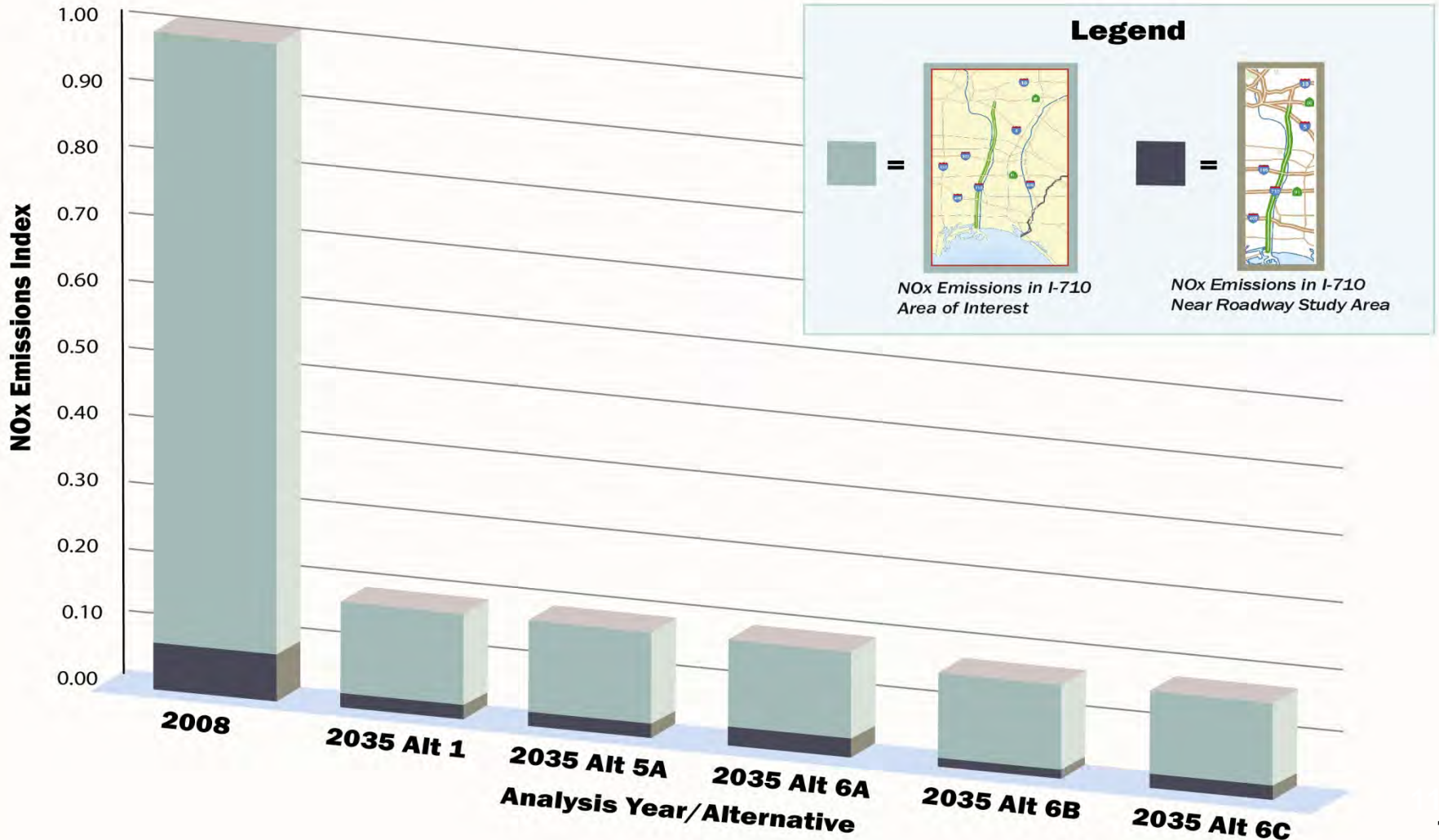
- AQ/HR emissions ↓ in 2035 (all alternatives) compared to 2008
 - Emissions (and related impacts) ↓ compared to 2008^{*,**}
 - Regulations/programs reduce emissions faster than trips increase
- AQ/HR emissions generally ↓ for the Build Alternatives compared to the 2035 No-Build Alternative (particularly away from the I-710)
 - Emissions (and related impacts) lower in Build Alternatives except for PM₁₀^{**} and PM_{2.5}^{**} in some locations (exhaust PM emissions ↓)
 - Benefits in 2035 Build Alternatives due to less traffic on local roads and increased mobility
- Impacts vary among locations along the I-710

* *Exceptions: SO₂ and total PM₁₀ (increased vehicle miles travelled)*

** *Entrained road dust increases inconsistent with new SCAQMD method*

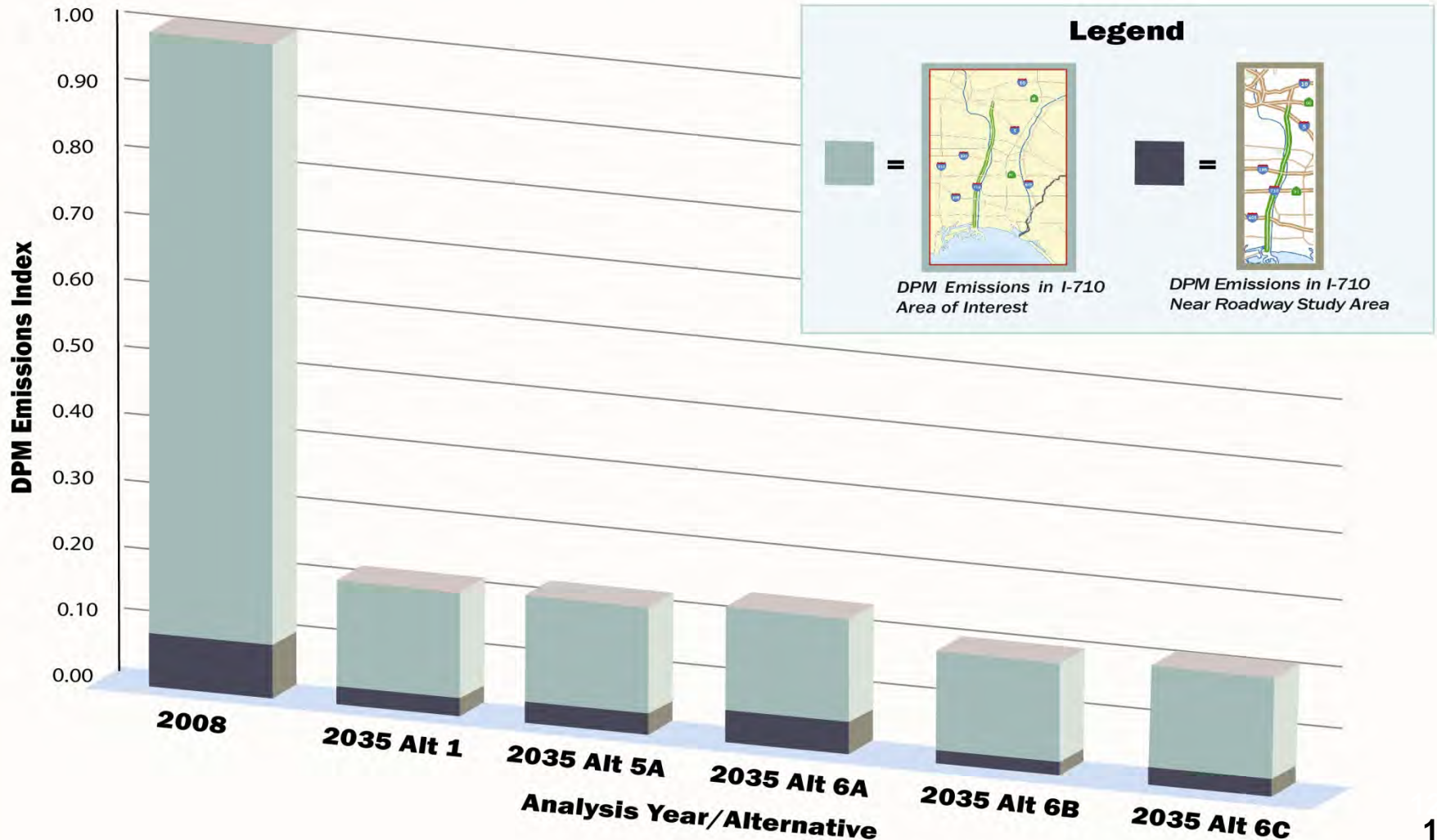
NO_x Emissions Changes

Relative Comparison of Project Alternatives to 2008 Baseline NO_x Emissions



Diesel Particulate Matter (DPM) Changes

Relative Comparison of Project Alternatives to 2008 Baseline DPM Emissions



Near-Roadway (I-710 AERMOD) Key Findings*

- Compared to 2008: health risks, PM₁₀, PM_{2.5} and NO₂ ↓
in residential areas**
- Compared to 2035 No-Build (Alt 1):
 - Cancer risk:
 - Alts 6B & 6C: less than Alt 1
 - Alts 5A & 6A: greater than Alt 1
 - Some near-freeway (<300m) concentration impacts**
 - Alternatives 6B and 6C generally have lowest impacts
 - Potential impacts at the north end of the I-710 Freeway
 - Greater truck activity in 2035 and in Build Alternatives
 - Trucks conservatively assumed no longer zero emissions after exiting the freight corridor

* I-710 freeway sources only; assumes weekday emissions for 365 days/year

** Some impacts ↑ near freeway because of entrained PM₁₀ dust increases (which are inconsistent with the proposed SCAQMD method)

Other Results and Key Findings*

- Ultrafine Particulates (UFP)
 - Exhaust $PM_{2.5}$ used in analysis
 - 2035 emissions less than 2008 (Basin, Study Area, I-710)
 - Only Alternative 6A has impacts at some modeling grid receptors (all less than 100m from I-710)
- Premature Mortality**
 - Total $PM_{2.5}$ used in analysis
 - 2035 emissions less than 2008 except for Alt 6A near I-710
 - Potential impacts** at some modeling grid receptors less than 300m from I-710; decreases at other grid receptors

* Assumes weekday emissions for 365 days/year

** Impacts essentially the same as ultrafines if proposed SCAQMD method used for entrained road dust

Construction Key Findings

- Construction impacts (worst-case schedule)
 - Single-segment peak-day emissions
 - Greatest peak-day emissions during mainline widening/shifting
 - All emissions, except NO_x, lower than SCAQMD significance thresholds
 - Simultaneous construction on all segments analyzed but improbable
- Analysis assumptions
 - Rule 403 compliance, watering schedule
 - Not included: recently adopted Metro Green Construction Policy
- Phasing and scheduling could further reduce peak emissions

Traffic Greenhouse Gas Key Findings

- Greenhouse gases ↑ from 2008 baseline
 - ~ 22M tonnes CO₂e/year
 - Does not account for recent regulations
- Greenhouse gases ↓ In Freight Corridor Build Alternatives Compared to 2035 No-Build

| Scenario | CO ₂ e (tons/year) |
|------------------|----------------------------------|
| Alt 5A vs. Alt 1 | 670 |
| Alt 6A vs. Alt 1 | -120,000 |
| Alt 6B vs. Alt 1 | -600,000 |
| Alt 6C vs. Alt 1 | -490,000 |

Potential Construction Mitigation Measures

- Analysis of Construction Impacts
 - Analysis does not account for Metro's Green Construction Policy
 - Assumes “default” Rule 403 watering (50% control)
- Potential Construction Mitigation Measures
 - Additional watering, if feasible and effective
 - Phasing and scheduling could potentially reduce peak emissions

Linkage to CIA and DEIR/DEIS

- Community Impact Assessment Report
 - Air quality and health risk results will be used in certain CIA analyses
- DEIR/DEIS impact assessment
 - AQ/HRA Technical Reports will be used in preparation of the DEIR/DEIS
- DEIR/DEIS significance determinations
 - Made by Caltrans (Lead Agency)
 - Caltrans will use SCAQMD Significance Thresholds as part of its CEQA significance determinations
 - Mitigations

Next Steps

- Review technical studies key findings with I-710 Committees
- Incorporate technical studies into DEIR/DEIS
- Draft EIR/EIS available for public and agency review and comment in Early 2012
- Formal public review and comment opportunities during circulation period