1:00 pm  I. Opening Comments and Introductions

1:05 pm  II. Agenda Overview

Susan DeSantis, Arellano Associates

1:10 pm  III. Oral Reports

A. I-710 HIA Introduction and Overview, Mobility and Air Quality Chapters

2:00 pm  IV. ROUNDTABLE DISCUSSION on Health Impact Assessment (HIA)

B. Mobility & Air Quality Recommendations

2:45 pm  V. Presentations

C. I-710 Construction Staging and Phasing Final Report Findings

3:15 pm  VI. Public Comments

3:25 pm  VII. Next Steps & Wrap Up

Susan DeSantis, Arellano Associates
Andrew Papson, ICF International

3:30 pm  VIII. ADJOURNMENT
The Gateway Cities
Air Quality Action Plan
This AQAP study is not part of the I-710 Corridor Project studies, but upon completion, it will be submitted to Caltrans for review and consideration for use in preparing the I-710 Corridor Project EIR/EIS.
Objectives

Estimate emissions for a reasonable foreseeable concept of construction staging and phasing of the I-710 corridor improvements (2018 – 2034)
Key Assumptions

- Criteria and MSAT air pollutants
- Alternative 6 – 4 freight corridor and 10 general purpose lanes were evaluated.
- Daily and monthly emissions at location of activity
- GHG (on-site and tailpipe only – not life cycle)
- Construction fleet changes every year
- Freight corridor is constructed first
Key Assumptions cont.

- Freight corridor built first – funding available as one project
  - Start north and south segment at same time
- Average of 20 working days per month
- Construction phases are sequential within segment
- Construction schedule follows late finish
- LACMTA “Green” Construction Policy not included in analysis
- No onsite concrete or asphalt batch plants
1. Use construction data from GCCOG Construction Staging/Phasing concept report for each segment
   a. Area disturbed, project length and/or area, project duration, soil hauling, acres disturbed per day,
   b. duration of each stage and phase within segment
   c. Type of construction activity (%roadways, %bridge)
2. Input construction data into the enhanced Roadway Construction Emissions Model
3. Output daily emissions on a month by month basis for each of seven construction phases
4. Develop monthly emissions for each segment
5. Sum daily and monthly emissions across all segments over entire project time frame (2018-2034)
6. Also report peak daily emissions for each segment (2018-2034)
Data sources

• On-road Activity (e.g., watering trucks)
  o CARB EMFAC2007 model – South Coast Air Basin

• Off-road Activity
  o Update with new CARB model (August 2011)
  o Equipment population post recession and growth
  o Updated average load factors by equipment type
Peak NO$_x$ Emissions (lbs/day)

Peak NO$_x$ Daily Emissions for Any One Segment
Peak PM$_{10}$ Emissions (lbs/day)

Most PM$_{10}$ generated from construction fugitive dust
Peak PM$_{2.5}$ Emissions (lbs/day)

Peak PM$_{2.5}$ Daily Emissions for Any One Segment

Most PM$_{2.5}$ generated from construction fugitive dust
• As shown in previous slides, PM$_{2.5}$ and PM$_{10}$ from diesel emissions (associated with construction equipment exhaust) do not exceed the AQMD thresholds of significance.

• Exceedances are generated primarily by fugitive dust from construction activities.
<table>
<thead>
<tr>
<th>Segment</th>
<th>Total Months of Construction (per Segment)</th>
<th>Total Months the Emissions Threshold is Exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>7</td>
<td>60</td>
<td>none</td>
</tr>
</tbody>
</table>

Note: Bold values indicate exceedances are due primarily from fugitive dust.
Conclusions

\( \text{NO}_x, \text{PM}_{10} \text{ and PM}_{2.5} \)

- Only segments 3-7 show exceedance of significance threshold, but only 10-20\% of the construction period
- Analysis is developed for each segment and changes at the local scale (geometry, interchanges) will not impact the emission findings

**Robust analysis is useful for air quality and health risk assessment modeling**

- Detailed info for specific times and locations
Recommendations

Emission reductions for PM$_{10}$ and PM$_{2.5}$ fugitive dust
- Smaller disturbance areas
- More frequent water (> 50% efficiency)
- Possible use of surfactants

Emission reductions for NO$_x$
- Detailed info for specific times and locations
- Newer equipment (lower emitting) 2019-2020 for segment 4 & 6
- Modify construction duration to manage emissions
Construction Phasing and Staging Emissions Report Findings:

**Comment:** Concrete may pile up at the work site; if the concrete is not covered, it could produce a significant amount of dust. Do projections of the PM 10 & 2.5 emissions include fugitive dust from construction debris?

**Response:** Studies have shown fugitive dust can be reduced by 50% when watered every four (4) hours and up to 74% when watered every two (2) hours. Surfactants such as calcium chloride that when applied to fine dirt bonds with the soil and prevents it from becoming airborne when blown by the wind.
Revisions:

• In light of the recession in 2007-2009, CARB updated the OFFROAD2007 model emission factors to reflect a reduced rate of construction fleet turnover than original projected in 2007. These changes generally resulted in slightly lower emissions than by the same vehicles in the original OFFROAD2007 model.
Comments & Revisions

Revisions:

  o Due to data limitations, CARB OFFROAD2011 outputs and data sets were updated for only certain types of equipment and pollutants and were only projected to 2029.
  o Since the update was limited to diesel fueled equipment, the OFFROAD2011 outputs exclude both CO and SOX, so these emission factors remained the same as in OFFROAD2007. Adjustments to these emission factors would have negligible impacts on emissions.
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Approach cont.

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Peak NO$_x$ Emissions (lbs/day)

Peak NO$_x$ Daily Emissions for Any One Segment

Pounds per Day

0 20 40 60 80 100 120 140 160

1/1/2018 1/1/2019 1/1/2020 1/1/2021 1/1/2022 1/1/2023 1/1/2024 1/1/2025 1/1/2026 1/1/2027 1/1/2028 1/1/2029 1/1/2030 1/1/2031 1/1/2032 1/1/2033 1/1/2034

NO$_x$

Threshold
Peak PM$_{10}$ Emissions (lbs/day)

Peak PM$_{10}$ Daily Emissions for Any One Segment

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Most PM$_{2.5}$ generated from construction fugitive dust
Preliminary Findings cont.

- As shown in previous slides, PM$_{2.5}$ and PM$_{10}$ from diesel emissions (associated with construction equipment exhaust) do not exceed the AQMD thresholds of significance.

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## Preliminary Findings cont.

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<th>Segment</th>
<th>Total Months of Construction (per Segment)</th>
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<tbody>
<tr>
<td></td>
<td>CO</td>
<td>ROG</td>
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<tr>
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Health Impact Assessment Update & HIA Review – DRAFT

Topic: Air Quality

October 12, 2011 Technical Roundtable
October 13, 2011 Advisory Roundtable

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Scientific evidence in the public health literature firmly establishes the relationship between traffic-related air pollution and numerous negative health impacts. Traffic-related air pollutants known to impact health include:

- Criteria air pollutants: ozone, particulate matter (PM, including PM10, PM2.5, and ultrafines), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide and lead;
- Mobile Source Air Toxics (MSATs): while there are hundreds of MSATs, the six most commonly studied are benzene, 1,3-Butadine, formaldehyde, acrolein, acetaldehyde and diesel particulate matter (DPM);
- Greenhouse gasses (GHGs) such as carbon dioxide.

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Air Quality Literature Review: Sources & Exposure

Sources

• It is well documented that traffic is a significant source of most of these air pollutants; proportion of each pollutant that comes from traffic is different and also varies with fuel/vehicle type
• Other sources include, for example, maritime vessels and point sources such as refineries and warehouses

Exposure

• Exposure is related to proximity to busy freeways and major arterials
• Research also suggests that low income and minority populations live in greater proximity to busy roadways and freeways, and thus are exposed to higher concentrations of air pollutants from vehicle emissions

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Health outcomes causally related to these pollutants include asthma and other respiratory diseases, cardiovascular disease, cancer, premature death, mortality, and preterm and low birth weight births.

Furthermore, epidemiologic studies have consistently demonstrated that children and adults living in proximity to busy roadways have poorer health outcomes.

Many studies supporting these findings have been conducted in Southern California and several have been specific to the I-710.
Existing Conditions Related to Air Quality

• Los Angeles air basin has the worst air quality in the nation
• Primary source of air pollution is traffic
• Air quality is the primary concern of the residents of the I-710 Corridor
Existing Conditions: Criteria Air Pollutants

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Ultrafines were not measured at air monitoring stations, but several studies have shown higher levels compared to regional background levels

Note that current monitoring stations are not as close to the freeway as will be required by new standards.
Existing Health

Disease rates for the study area and the county are similar; local rates have overlapping confidence intervals with County rates, so it is not clear if there are any true differences in these rates.

All existing health conditions listed here are multi-factorial in nature and air quality is only one of many components that influence disease levels; differences in health care and diagnosis are likely to influence reported rates.

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HIP analysis shows:

- Air quality will improve in 2035 due to cleaner fuels and more efficient technologies despite increases in traffic volumes in all I-710 Corridor Project Alternatives.

- Because of differences in the distribution of vehicles (i.e., whether they will use the I-710, other freeways, or the arterials) and differences in speeds (e.g., due to congestion), the alternatives impact different air pollutants by varying amounts.

We caution that our conclusions are based on preliminary data contained in an early version of the draft I-710 Corridor Project Draft AQ/HRA.
Pollutant Concentrations

- Ambient concentrations of CO decrease for all alternatives.
- Modeled CO concentrations are predicted to meet state and federal standards.
- Ambient NO\textsubscript{X} concentrations decrease for all alternatives.
- Modeled NO\textsubscript{2} concentrations are predicted to meet state and federal standards.
- Ambient concentrations of PM\textsubscript{2.5} (from exhaust) decrease, except for Alternative 6A.
- Further modeling of PM\textsubscript{2.5} is being conducted for the AQAP HRA. It is unclear whether 2035 PM\textsubscript{2.5} levels will be in violation of state or federal standards.
- Mobile Source Air Toxics levels decrease for all alternatives.

Source: I-710 Corridor Project Draft AQ/HRA
## Summary of Health Outcomes (2035)

### Air Quality

General air quality will improve under any of the alternatives, resulting in a high likelihood that health of children, adults, and seniors throughout the corridor will improve.

**Source:** HIP

---

### Table of Health Impact

<table>
<thead>
<tr>
<th>Health Impact/Alternative</th>
<th>Impacts of Alternatives</th>
<th>Health Outcome</th>
<th>Uncertainties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asthma</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 1</td>
<td>+</td>
<td>Magnitude not estimated</td>
<td>High</td>
</tr>
<tr>
<td>Alt 5A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mortality</strong></td>
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<tr>
<td>Alt 1</td>
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<tr>
<td>Alt 6A</td>
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</tr>
<tr>
<td>Alt 6B</td>
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<tr>
<td>Alt 6C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cancer Risk (from Mobile Source Air Toxics from the I-710 Corridor)</strong></td>
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<td>Minor</td>
<td>High</td>
</tr>
<tr>
<td>Alt 5A</td>
<td></td>
<td>Minor</td>
<td>Mod</td>
</tr>
<tr>
<td>Alt 6A</td>
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</tr>
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<td>Mod</td>
</tr>
<tr>
<td>Alt 6C</td>
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<td>Magnitude not estimated</td>
<td>High</td>
</tr>
<tr>
<td>Alt 5A</td>
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<td></td>
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</tr>
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<td></td>
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<td>Alt 6B</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Low birth weight and pre-term births</strong></td>
<td></td>
<td></td>
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<tr>
<td>Alt 1</td>
<td>+</td>
<td>Magnitude not estimated</td>
<td>Mod</td>
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</tbody>
</table>

**Explanations:**
- **Impact** refers to whether the alternative will improve (+), harm (-), or not impact health (*").
- **Magnitude** reflects a qualitative judgment of the size of the anticipated change in health effect (e.g., the increase in the number of cases of disease, injury, adverse events): Negligible, Minor, Moderate, Major.
- **Severity** reflects the nature of the effect on function and life-expectancy and its permanence: High = intense/severe; Mod = Moderate; Low = not intense or severe.
- **Strength of Causal Evidence** refers to the strength of the research/evidence showing causal relationship between air quality and the health outcome: ♦ = plausible but insufficient evidence; ♦♦ = likely but more evidence needed; ♦♦♦ = high degree of confidence in causal relationship. A causal effect means that the effect is likely to occur, irrespective of the magnitude and severity.
Health Impact Assessment Update & HIA Review – DRAFT

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Air Quality: Pathways to Health

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Existing Health

Disease rates for the study area and the county are similar; local rates have overlapping confidence intervals with County rates, so it is not clear if there are any true differences in these rates. All existing health conditions listed here are multi-factorial in nature and air quality is only one of many components that influence disease levels; differences in health care and diagnosis are likely to influence reported rates.

<table>
<thead>
<tr>
<th>Health Condition</th>
<th>Los Angeles County</th>
<th>All census tracts within the one mile I-710 study area (N=508,283)</th>
<th>1 mile upwind (west) (N=266,776)</th>
<th>1 mile downwind (east) (N=241,507)</th>
<th>150 meters upwind (west) (N=16,551)</th>
<th>150 meters downwind (east) (N=29,451)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma prevalence for Los Angeles County Adult (18+ years)</td>
<td>6.5%</td>
<td>6.0%+</td>
<td>5.9%</td>
<td>6.2%</td>
<td>5.9%</td>
<td>N.D.</td>
</tr>
<tr>
<td>Asthma prevalence for Los Angeles County children (0-17 years)</td>
<td>7.9%</td>
<td>2.7%</td>
<td>4.3%+</td>
<td>N.D.</td>
<td>N.D.</td>
<td>N.D.</td>
</tr>
<tr>
<td>Heart Disease (ever diagnosed) Adult (18+ years)</td>
<td>7.7%</td>
<td>6.2%</td>
<td>8.2%</td>
<td>3.9%</td>
<td>9.1%</td>
<td>N.D.</td>
</tr>
<tr>
<td>Low Birth Weight (crude rate per 1,000 births)</td>
<td>56.09</td>
<td>55.26</td>
<td>51.87</td>
<td>54.28</td>
<td>52.53</td>
<td>57.13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Condition</th>
<th>US</th>
<th>California</th>
<th>Los Angeles County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preterm births (as a percent of all births, 2008)</td>
<td>12.3% &quot;iv&quot;</td>
<td>10.5% &quot;iv&quot;</td>
<td>11.4% &quot;v&quot;</td>
</tr>
<tr>
<td>Cancer (2005-2009) rate per 100,000 population</td>
<td>N.D.</td>
<td>Crude rate: 407.28 Age adjusted rate: 431.33</td>
<td>Crude rate: 370.88 Age adjusted rate: 411.73</td>
</tr>
<tr>
<td>Mortality (all cause) (2010) rate per 100,000 population</td>
<td>N.D.</td>
<td>Crude rate: 620.6 Age adjusted rate: 666.4</td>
<td>Crude rate: 567.9 Age adjusted rate: 624.4</td>
</tr>
</tbody>
</table>

N.D. = no data/no data available
N = sample size
Crude rate = number of events in a given time period divided by the population at risk
iv Los Angeles County Department of Public Health, Office of Health Assessment and Epidemiology. "2005 Los Angeles County Health Survey". Data provided by the Los Angeles County Department of Public Health.
ix The estimate is statistically unstable (relative standard error > 23%) and therefore may not be appropriate to use for planning or policy purposes.

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HIP analysis shows:

- Air quality will improve in 2035 due to cleaner fuels and more efficient technologies despite increases in traffic volumes in all I-710 Corridor Project Alternatives.

- Because of differences in the distribution of vehicles (i.e., whether they will use the I-710, other freeways, or the arterials) and differences in speeds (e.g., due to congestion), the alternatives impact different air pollutants by varying amounts.

We caution that our conclusions are based on preliminary data contained in an early version of the draft I-710 Corridor Project Draft AQ/HRA.

Source: HIP/Draft I-710 Corridor Project Draft AQ/HRA
Pollutant Concentrations

- Ambient concentrations of CO decrease for all alternatives.
- Modeled CO concentrations are predicted to meet state and federal standards.
- Ambient NO\textsubscript{X} concentrations decrease for all alternatives.
- Modeled NO\textsubscript{2} concentrations are predicted to meet state and federal standards.
- Ambient concentrations of PM\textsubscript{2.5} (from exhaust) decrease, except for Alternative 6A.
- Further modeling of PM\textsubscript{2.5} is being conducted for the AQAP HRA. It is unclear whether 2035 PM\textsubscript{2.5} levels will be in violation of state or federal standards.
- Mobile Source Air Toxics levels decrease for all alternatives.

Source: I-710 Corridor Project Draft AQ/HRA

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Summary of Health Outcomes (2035)

Air Quality

General air quality will improve under any of the alternatives, resulting in a high likelihood that health of children, adults, and seniors throughout the corridor will improve.

Source: HIP

---

### Health Impact/Alternative

<table>
<thead>
<tr>
<th>Impact</th>
<th>Magnitude</th>
<th>Severity</th>
<th>Strength of Causal Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt 1</td>
<td>+</td>
<td>Magnitude not estimated</td>
<td>High</td>
</tr>
<tr>
<td>Alt 5A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Mortality

<table>
<thead>
<tr>
<th>Impact</th>
<th>Magnitude</th>
<th>Severity</th>
<th>Strength of Causal Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt 1</td>
<td>+</td>
<td>Estimates pending PM$_{2.5}$ modeling data</td>
<td>High</td>
</tr>
<tr>
<td>Alt 5A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Cancer Risk (from Mobile Source Air Toxins from the I-710 Corridor)

<table>
<thead>
<tr>
<th>Impact</th>
<th>Magnitude</th>
<th>Severity</th>
<th>Strength of Causal Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt 1</td>
<td>+</td>
<td>Minor</td>
<td>High</td>
</tr>
<tr>
<td>Alt 5A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Cardiovascular Disease

<table>
<thead>
<tr>
<th>Impact</th>
<th>Magnitude</th>
<th>Severity</th>
<th>Strength of Causal Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt 1</td>
<td>+</td>
<td>Magnitude not estimated</td>
<td>High</td>
</tr>
<tr>
<td>Alt 5A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Low birth weight and pre-term births

<table>
<thead>
<tr>
<th>Impact</th>
<th>Magnitude</th>
<th>Severity</th>
<th>Strength of Causal Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt 1</td>
<td>+</td>
<td>Magnitude not estimated</td>
<td>Mod</td>
</tr>
<tr>
<td>Alt 5A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt 6C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Explanations:
- *Impact* refers to whether the alternative will improve (+), harm (-), or not impact health (*").
- *Magnitude* reflects a qualitative judgment of the size of the anticipated change in health effect (e.g., the increase in the number of cases of disease, injury, adverse events): Negligible, Minor, Moderate, Major.
- *Severity* reflects the nature of the effect on function and life-expectancy and its permanence: High = intense/severe; Mod = Moderate; Low = not intense or severe.
- *Strength of Causal Evidence* refers to the strength of the research/evidence showing causal relationship between air quality and the health outcome: ♦ = plausible but insufficient evidence; ♦♦♦ = high degree of confidence in causal relationship. A causal effect means that the effect is likely to occur, irrespective of the magnitude and severity.

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Mobility: Components

- How quickly and easily one can get to where one needs to go
  - Faster and easier travel, which is a function of land use planning as well as speed of travel, leads to more free time and more access to necessary goods and services
- Mode choice (what means – e.g., car, walking, or bus - one uses to get to a destination)
  - A function of land use planning and density as well as transportation infrastructure. More mode choice can lead to more active transport (i.e., walking and biking), which leads to better health as a result of increased physical activity.
- Accessibility of routine destinations
  - Covered in Accessibility to Neighborhood Resources Chapter
Mobility Literature Review

• Active Transport – Walking & Biking
  o Lack of physical activity is associated with many diseases (incl. heart disease, diabetes, obesity, depression). Even small amounts of physical activity can have a large impact on health outcomes. (CDC)
  o Regular walking and biking have been shown to reduce mortality by 22% and 28% respectively (WHO 2011, Andersen 2000, Hamer 2008)
  o Traffic volume and speed have been shown to explain most of the variation in perceived safety for pedestrians (Landis 2000)

• Public Transit
  o Public transit users spend a median of 19 minutes daily walking to and from transit; 29% achieve recommended physical activity (Besser 2005)
  o A more dense mix of uses, served by public transit, can ensure access to essential needs and services while reducing VMT (EPA 2003)

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Driving

- Faster driving times can allow people to spend more time with their families, getting physical activity, or doing other things that are beneficial for health
- Improvements in automobile level of service have been associated with harmful health impacts related to traffic injury rates & physical activity for local residents
- One study showed that each additional hour spent in a car per day was associated with a 6% increase in the likelihood of obesity (Frank 2004)
Existing Conditions Related to Mobility

- Vehicle availability
- Community concern regarding mobility
- Walkability/Bikeability
- Health outcomes associated with mobility

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Vehicle Availability by Proximity to I-710

<table>
<thead>
<tr>
<th></th>
<th>150 Meters</th>
<th>1 Mile</th>
<th>LA County</th>
<th>California</th>
</tr>
</thead>
<tbody>
<tr>
<td>No vehicles</td>
<td>8.5%</td>
<td>10.6%</td>
<td>8.8%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Available</td>
<td>24.8%</td>
<td>26.3%</td>
<td>24.8%</td>
<td>19.9%</td>
</tr>
<tr>
<td>1 vehicle</td>
<td>35.4%</td>
<td>33.1%</td>
<td>35.5%</td>
<td>40.0%</td>
</tr>
<tr>
<td>2 vehicles</td>
<td>31.3%</td>
<td>29.9%</td>
<td>30.9%</td>
<td>36.5%</td>
</tr>
</tbody>
</table>

Source: 2005-2009 American Community Survey 5-Year Estimates

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“Alternative transportation has been an underdeveloped asset in the corridor, especially mass transportation, bicycle and pedestrian options.”

Recommends providing:

- a comprehensive bicycle and pedestrian network that provide connectivity throughout the area

- for bike lanes and sidewalks in all aspects of arterial improvements to the I-710, establishing an east-west connection across the freeway, and providing new bike and pedestrian trails along the Los Angeles River Corridor
Mobility Existing Conditions: Good Pedestrian Environments

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Mobility Existing Conditions: Health Outcomes

Chronic Disease Rates

<table>
<thead>
<tr>
<th>Condition</th>
<th>LA County</th>
<th>All Census Tracts in Study Area</th>
<th>1 mile upwind (west)</th>
<th>1 mile downwind (east)</th>
<th>150 meters upwind (west)</th>
<th>150 meters downwind (east)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity</td>
<td>22.2%</td>
<td>31.2%</td>
<td>29.1%</td>
<td>34.0%</td>
<td>26.3%</td>
<td>32.1%</td>
</tr>
<tr>
<td>Overweight</td>
<td>35.9%</td>
<td>38.7%</td>
<td>41.8%</td>
<td>34.6%</td>
<td>46.1%</td>
<td>33.4%</td>
</tr>
<tr>
<td>Ever Diagnosed with Heart Disease</td>
<td>7.7%</td>
<td>6.2%</td>
<td>8.2%*</td>
<td>3.9%*</td>
<td>9.1%*</td>
<td>N.D.</td>
</tr>
<tr>
<td>Ever Diagnosed with Hypertension</td>
<td>24.7%</td>
<td>21.2%</td>
<td>20.1%</td>
<td>22.5%</td>
<td>25.6%</td>
<td>22.2%*</td>
</tr>
<tr>
<td>Ever Diagnosed with High Cholesterol</td>
<td>29.1%</td>
<td>27.1%</td>
<td>29.3%</td>
<td>24.6%</td>
<td>36.5%</td>
<td>23.7%*</td>
</tr>
<tr>
<td>Ever Diagnosed with Diabetes</td>
<td>8.7%</td>
<td>12.4%</td>
<td>11.6%*</td>
<td>13.3%*</td>
<td>14.4%*</td>
<td>15.8%*</td>
</tr>
<tr>
<td>Ever Diagnosed with Depression</td>
<td>13.6%</td>
<td>9.1%*</td>
<td>7.6%*</td>
<td>10.8%*</td>
<td>7.6%*</td>
<td>9.2%*</td>
</tr>
</tbody>
</table>

* indicates the estimate is statistically unstable (relative standard error > 23%) and therefore may not be appropriate to use for planning or policy purposes.

Source: 2007 Los Angeles County Health Survey; Office of Health Assessment and Epidemiology, Los Angeles County Department of Public Health.

- Cardiovascular disease and depression rates in the study area are similar to those in the county
- Rates of diabetes and obesity are higher in the study area than in the county

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Impacts Related to Mobility

- Mode share
- Walkability/bikeability
- Public transit use
- Summary of health outcomes associated with mobility
Mobility Impacts: Mode Share

Mode Share & Assumptions in EIR/EIS

<table>
<thead>
<tr>
<th></th>
<th>2005-2009 Census Survey</th>
<th>2035 Study area Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150 meter buffer</td>
<td>1 mile buffer</td>
</tr>
<tr>
<td>Auto</td>
<td>87.6%</td>
<td>85.5%</td>
</tr>
<tr>
<td>Public Transportation</td>
<td>7.6%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Non-motorized trips</td>
<td>4.6%</td>
<td>5.3%</td>
</tr>
</tbody>
</table>

However, mode share likely to be dependent on:
- Traffic volumes & speeds
- Improvements to infrastructure (e.g., in Alternatives 5A & 6A/B/C) & public transit service
- Land use patterns & density
- Perceptions of safety
- Availability of alternative modes of transport
- Cost of transportation mode

Source: Census, I-710 Draft Technical Studies
Despite proposed infrastructure improvements (Alts 5A, 6A/B/C), research indicates that walking and biking rates are likely to decrease under all the alternatives being considered due to:

- increased traffic volumes on arterials (Alts 1, 5A, 6A/B/C)
- increased traffic speeds on arterials (Alts 5A, 6A/B/C) due to intersection changes

The magnitudes of these changes are not possible to predict quantitatively because many factors influence walking and biking behavior.

Source: HIP
Mobility Impacts: Public Transit Use

HIP findings: rates of public transit use likely to:

- Increase in Alternative 1 due to increased congestion
- Increase in Alternative 5A due to congestion and investment in public transit and infrastructure improvements
- Decrease in Alternative 6A/B/C due to increased speeds on freeway, despite investment in public transit and infrastructure improvements

The magnitudes of these changes are not possible to predict quantitatively because many factors influence public transit use.

Source: HIP

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Summary of Health Outcomes (2035)

Mobility

- Health outcomes due to changes in active transport primarily as well as social cohesion and stress

<table>
<thead>
<tr>
<th>Health Impact/Alternative</th>
<th>Impact</th>
<th>Magnitude</th>
<th>Severity</th>
<th>Strength of Causal Evidence</th>
<th>Uncertainties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Disease</td>
<td>~/-</td>
<td>Potentially significant, non-quantifiable</td>
<td>High</td>
<td>+ + + +</td>
<td>Project will have multiple impacts, some of which offset others.</td>
</tr>
<tr>
<td>Mental Illness</td>
<td>~/-</td>
<td>Potentially significant, non-quantifiable</td>
<td>Mod-High</td>
<td>+ + + +</td>
<td>Project will have multiple impacts, some of which offset others.</td>
</tr>
<tr>
<td>Injuries and Fatalities</td>
<td>~</td>
<td>Negligible</td>
<td>Mod-High</td>
<td>+ + + +</td>
<td>Data in the literature is not conclusive regarding the impact of response time on health outcomes; emergency response time changes roughly estimated</td>
</tr>
</tbody>
</table>

Explanations:
- *Impact* refers to whether the alternative will improve (+), harm (-), or not impact health (*).  
- *Magnitude* reflects a qualitative judgment of the size of the anticipated change in health effect (e.g., the increase in the number of cases of disease, injury, adverse events): Negligible, Minor, Moderate, Major.  
- *Severity* reflects the nature of the effect on function and life-expectancy and its permanence: High = intense/severe; Mod = Moderate; Low = not intense or severe.  
- *Strength of Causal Evidence* refers to the strength of the research/evidence showing causal relationship between mobility and the health outcome: ♦ = plausible but insufficient evidence; ♦♦ = likely but more evidence needed; ♦♦♦♦ = high degree of confidence in causal relationship. A causal effect means that the effect is likely to occur, irrespective of the magnitude and severity.
Technical and Advisory Roundtable Meetings

October 12 & 13, 2011
October
• I-710 HIA Draft Findings & Recommendations

• October 12/13 Roundtable Meetings

• October 24th SPECIAL ROUNDTABLE MEETING

I-710 HIA  September 26th & October 3rd
Introduction and Overview to HIA

Presentations & Discussion of HIA Chapters:

Mobility and Air Quality Chapters Summary

- Draft Preamble to Mobility Chapter
- Mobility
- Air Quality
- Other issues

Next Steps
HIA Goals

• Provide I-710 Corridor Project decision-makers and other stakeholders with positive and negative health effects, findings, and recommendations for alternatives being considered;

• Increase stakeholder participation and understanding of the I-710 Corridor Project;

• Identify community health concerns/issues within the Gateway Cities and their relationship to the I-710 Corridor Project;

• Provide a model for future transportation and infrastructure HIAs (including evidence and utility of doing an HIA);

• Add value to the I-710 related analyses while utilizing the I-710 Corridor Project EIR/EIS technical data in the HIA to the greatest extent possible to reduce redundancy.
September 26th Meeting:
HIA Report:
Draft Chapters on Mobility and Air Quality

October 3rd Meeting:
HIA Report:
Draft Chapters on Traffic Safety; Neighborhood Cohesion; Jobs and Economic Development

Previous Meetings:
May 12th, May 26th, July 11th, August 29th
Comment:
Need to see a closer nexus between the negative health impacts of the 710 expansion and the recommendations in the HIA.

Response:
Where available, additional data was added and research cited. In the absence of specific data, some of the recommendations in the HIA are of a general nature. Some health questions require additional study by public health experts.
Comment:
Concern over some of the language used to describe causal relationships, magnitude, and severity of health outcomes as described in summary tables.

Response:
Wording was edited to reflect the variation of possible health outcomes.
Comment:
Concern over data used in the traffic analysis because it is difficult to discern which accidents within the study area are attributable to I-710.

Response:
A TWG member suggested an additional data source that more clearly distinguishes collisions on the I-710 from others in the study area. Further research revealed additional relevant literature that is now included in the HIA.
Comment:
TWG Members pressed for the inclusion of projected job growth in the HIA.

Response:
Projections are at the regional level and their locations cannot be pinned down; however, Members are confident that some of those jobs are tied to port and rail access, which only exists within the Gateway Cities. Job growth projections have been added to the HIA.
Comment:
Questions over the “competing priorities” of the I-710 freeway and active transportation such as walking, biking, and public transit.

Response:
The 2012 RTP and the Gateway Cities SCS are better suited to address funding needs and priorities for the I-710 and these active transit modes. Funding for pedestrian walkways, bike and bus lanes associated I-710 Project should be consistent with RTP.
Some of the concerns and recommendations identified in the HIA go beyond the scope of the I-710 Project and the purview of Caltrans to address them.

Response:
*Issues beyond the scope of the Project will be identified within the HIA. Their inclusion is important as it provides a more complete picture of health concerns in the I-710 Corridor, helping to avoid fragmented decision making.*
Comment:
The HIA falls short of its goal to provide decision-makers with distinct guidance on the build alternatives being considered.

Response:
Some health questions have limited data available. Differences between alternatives are not significant enough to generate distinct health effects. These challenges have been summarized in preamble to the HIA report authored by the TWG.
Comment:
General concern that the recommendations set forth do not differentiate between settings. For example, traffic calming measures are not appropriate for arterial roads but should be used in residential areas.

Response:
The Project Team agrees and will revise the recommendations and target them to specific urban environments.
Comment:
Concern that health outcomes are not categorized consistently throughout the HIA.

Response:
Not all health outcomes have been equally researched. For those with little reliable data, the decision was made to eliminate them from the tables summarizing health outcomes across the building alternatives. They have been included in the report narrative and are reflected in other parts of the tables.
Comment:
Questions about which data set should serve as the baseline for measuring projected changes resulting from the 710 expansion.

Response:
There are two possible baselines for comparison: current conditions and conditions under the “No Build” Alternative. An underlying question is whether growth in the Region will be spurred by expansion of the 710, or if it will happen regardless. The HIA will consider both.
Roundtable Discussion Guidelines:

1. Review Mobility and Air Quality Recommendations.

2. Change or refine the recommendation as needed.

3. Please determine the proportional responsibility for implementation of this recommendation for the I-710 and other subregional, regional, state and federal entities.

4. Determine if roundtable members support, oppose or are neutral on the recommendation.