11th Annual New Partners for Smart Growth

Strategies for Balancing Housing & Near-Road Risk

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Smart Growth: Why it’s Important to Air Districts

- Numerous Benefits of Smart Growth to Air Quality:
  - A well located and designed TOD/infill project may generate 40% to 75% less VMT than the typical suburban development.
  - Less VMT = less air pollution (including GHG’s, ozone precursors and PM)
  - Assist in attainment of State and federal Ambient Air Quality Standards

- Critical to meet State GHG reduction goals
- Critical to break the cycle of un-sustainable development
How Do We Achieve Healthy TOD?  
Air District Perspective

- Provide technical support to local gov’t, developers
- Research epidemiological/EPA/ARB studies to set standards
- Identify a uniform methodology for analyzing potential adverse impacts
- Provide the necessary analytical tools for lead agencies
- Identify source specific mitigation strategies
- Support community-wide planning
- Collaborate with regional, local agencies on community-wide planning in PDA communities
• Health studies consistently show that living near highways has serious health consequences
  – Children living near a busy highway more likely to develop asthma and wheezing, suffer increased asthma attacks.
  – Exposure to traffic-related pollution, especially fine PM, significantly increases risk of heart attacks and premature death.
  – Pregnant women exposed to high levels of pollution from cars and trucks are more likely to experience problems with baby’s development, such as low birth weight.

• Pre-term and early childhood exposures to carcinogens are ten times more important than previously estimated
  • UC-Davis CHARGE Study demonstrates a connection between traffic pollution and autism.
  • Pre-natal effects- Early development lung function and pre-natal exposure to fine PM.
### Permitted Sources Near The Uptown

<table>
<thead>
<tr>
<th>Source</th>
<th>PM2.5 (ug/m³)</th>
<th>CEQA Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator 1</td>
<td>0.10</td>
<td>0.30</td>
</tr>
<tr>
<td>Cogen</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Generator 3</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>Generator 4</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>Generator 5</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>Generator 6</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Gas Station 1</td>
<td>1.5</td>
<td>10</td>
</tr>
<tr>
<td>Gas Station 2</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Autobody Shop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Heater</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Spray Booth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boiler</td>
<td></td>
<td>De minimus risk</td>
</tr>
<tr>
<td>Backup Generator 1</td>
<td></td>
<td>Cancer = 0.6 in a million</td>
</tr>
<tr>
<td>Cogen Plant</td>
<td>0.1 ug/m³</td>
<td></td>
</tr>
<tr>
<td>Backup Generator 2</td>
<td></td>
<td>Cancer = 8 in a million</td>
</tr>
<tr>
<td>Backup Generator 3</td>
<td></td>
<td>Cancer = 0.4 in a million</td>
</tr>
<tr>
<td>Backup Generator 4</td>
<td></td>
<td>Cancer = 0.4 in a million</td>
</tr>
<tr>
<td>Backup Generator 5</td>
<td></td>
<td>Cancer = 1.1 in a million</td>
</tr>
<tr>
<td>Backup Generator 6</td>
<td></td>
<td>Cancer = 2 in a million</td>
</tr>
</tbody>
</table>

**PM2.5 and Cancer Risk Summary**

- **PM2.5**:
  - Autobody Shop: 0.01 ug/m³
  - Air Heater: 0.01 ug/m³
  - Spray Booth: De minimus risk
  - Backup Generator 1: 0.01 ug/m³
  - Cogen Plant: 0.1 ug/m³
  - Backup Generator 2: Cancer = 8 in a million
  - Backup Generator 3: Cancer = 0.4 in a million
  - Backup Generator 4: Cancer = 0.4 in a million
  - Backup Generator 5: Cancer = 1.1 in a million
  - Backup Generator 6: Cancer = 2 in a million

- **Cancer Risk**:
  - Autobody Shop: De minimus risk
  - Gas Station 1: Cancer = 1.5 in a million
  - Gas Station 2: Cancer = 1.4 in a million
  - Backup Generator 1: Cancer = 0.6 in a million
  - Backup Generator 2: Cancer = 8 in a million
  - Backup Generator 3: Cancer = 0.4 in a million
  - Backup Generator 4: Cancer = 0.4 in a million
  - Backup Generator 5: Cancer = 1.1 in a million
  - Backup Generator 6: Cancer = 2 in a million
  - Gas Station 1: Cancer = 1.5
  - Gas Station 2: Cancer = 1.4
Risk Reduction Measures

• Provide Safe Distances
  – Roadways
  – Diesel Generators
  – Gas Stations

• Phase Development
  – Future effect of regulations

• Install Air Filtration Devices
  – HVAC systems
  – Retrofitting existing buildings

• Plant Trees
  – Lining roadways and residencies

• Site Design
  – Limiting ground floor residential
  – Building design and air intake
  – Planned residential separation between existing and new sources

Emission Reduction Measures

• Replace or Retrofit Diesel Generators
  – Electric Grid plug-in for construction
  – Best Available Control Technologies for new and old

• Electrify Loading Docks
  – Reducing excessive time trucks spent in idle

• Refrigeration Units
  – Install TRUs to reduce primary engine use

• Alternative Fuels
  – Hybrid electrical technologies
  – Propane and natural gas powered equipment and vehicles

• Limited Equipment Idling
  – Exceed current regulation maximum to two minutes
Health Risk Screening: Project Analysis

Plant No. G3539
Gas Station
Cancer: 3
Chronic: .003
PM2.5: N/A

Plant No. 19792
San Jose Water Co.
Cancer: 10
Chronic: 0.001
PM2.5: 0.01

Plant No. 311554
BUG
Cancer: 15
Chronic: .0026
PM2.5: 0.3

Project boundary

= Highways & Major roadways (>10,000 AADT)
= Permitted Stationary Sources
Mitigation Strategies

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- Gas Station
- Cancer: 3
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Impact area 750 ft. to 250 ft.
• Air filtration (MERV 13)
• Residences on 2nd floor (mixed use)

Impact area 750 ft. to 200 ft.
• Air filtration (MERV 16)
• Residences on 2nd floor (mixed use)

- Highways & Major roadways (>10,000 AADT)
- Permitted Stationary Sources

Project boundary
New housing less than 75 ft. from I-880
High traffic, truck volume
• 216,000 vehicles/day
• 23,000 trucks/day
@ 100’
• Risk = 111/million
• PM Conc = .619 mg/m3
Supporting Healthy Infill: Local Governments

- **City of San Francisco, Article 38 Ordinance**
  - Requires new development near freeways to assess and reduce exposure risks through building design and air filtration

- **City of Oakland, Standard Conditions of Approval**
  - Requires projects with significant risk impacts to conduct health risk assessment or implement air quality measures (redesign layout, air filtration)

- **City of San Jose, 2040 General Plan Policies**
  - Contains initiatives to reduce exposure, including air modeling requirements for residential projects near freeways, install air filtration in existing schools and residences, encourage tree planting

- **City of Richmond, General Plan Community Health and Wellness Element**
  - Element emphasizes link between health and community design; policies include developing Sensitive Use Location Guidelines and a Truck Route Study