



Reducing GHG Emissions While Protecting Public Health

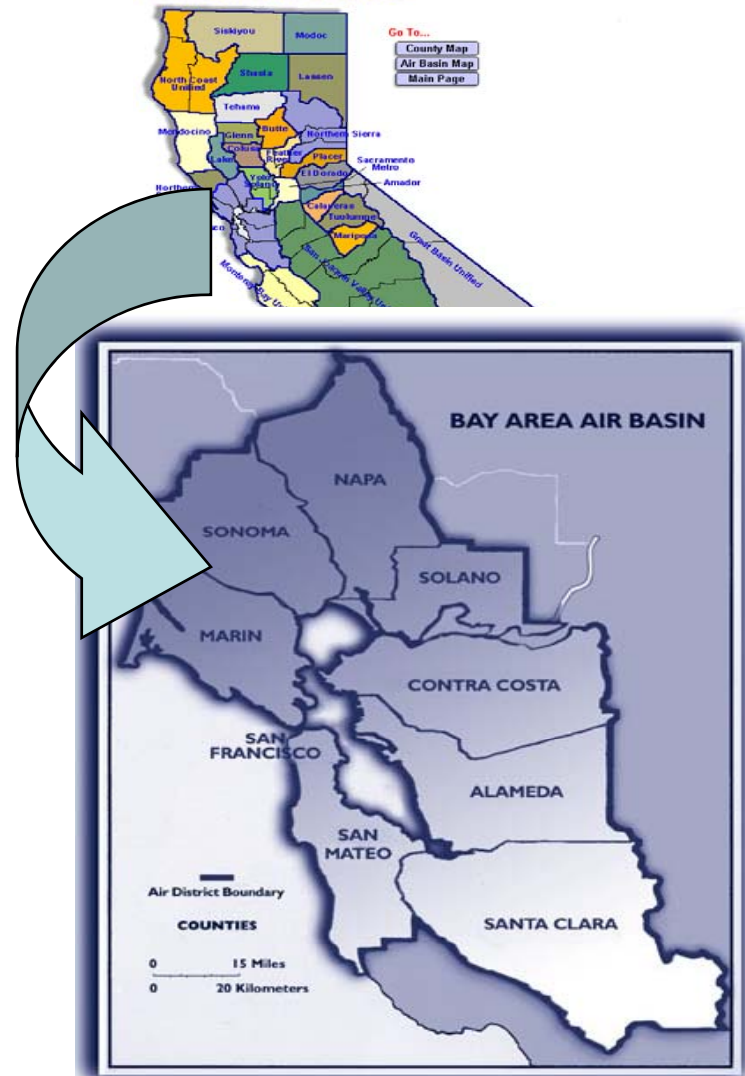
AWMA Conference
November 16, 2011

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BAAQMD

- Protect AQ in SF Bay Area
- 9 counties / 101 cities
- > 7 M people, > 5 M vehicles
- Regulate emissions from stationary sources
- Leader in climate protection

California Air Districts



Why does Climate Change Matter?

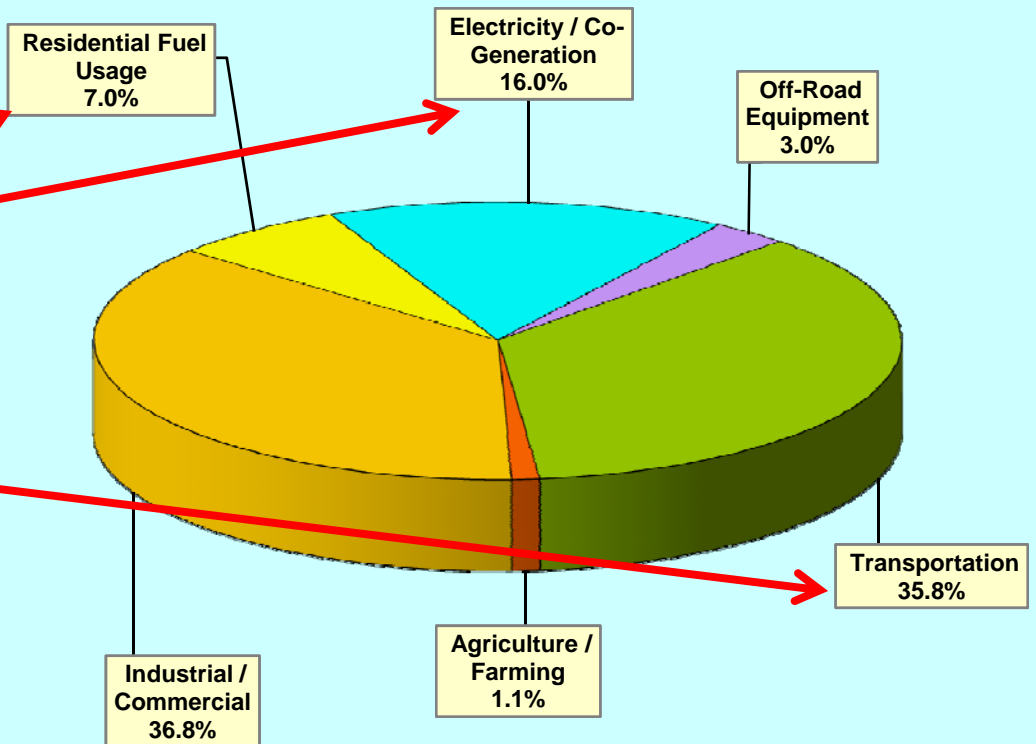
Hotter days threaten air quality, public health, and could reverse decades of progress

Land Use Decisions Matter

How infill development can reduce GHG emissions

- Potentially more efficient building energy use
- Smaller carbon footprint
- Less reliance on autos

2009 Bay Area GHG Emissions by Sector



How GHG Thresholds Discourage Greenfield Development

Example Infill:

- 500 mid-rise apartments
- 10k s.f. commercial
- Transit access, mixed use, retail
- 13 acres of land consumed

Residents: 1,250 Employees: 36 Service Pop: 1,286	<u>BAAQMD</u> <u>CEQA</u> <u>Methodology</u>
CO2e Emissions in Metric Tons	
Transportation	2,504
Electricity	729
Other (NG, water, waste)	1,137
Total Emissions	4,371
Metric Ton/Service Population	3.4

Example Greenfield:

- 500 single family homes
- 10k s.f. commercial
- No transit access, no other uses, no retail
- 166 acres of land consumed

Residents: 1,250 Employees: 36 Service Pop: 1,286	<u>BAAQMD</u> <u>CEQA</u> <u>Methodology</u>
CO2e Emissions in Metric Tons	
Transportation	5,762
Electricity	1,161
Other (NG, water, waste)	2,240
Total Emissions	9,163
Metric Ton/Service Population	7.1

Selected Toxics Thresholds

<p>Single Source or Receptor (1,000 foot radius for Receptor only)</p>	<ul style="list-style-type: none">• Increased cancer risk >10.0 in a million• Increased non-cancer risk > 1.0 Hazard Index• Ambient PM_{2.5} increase: > 0.3 µg/m³ annual average
<p>Cumulative Sources or Receptors (1,000 foot radius)</p>	<ul style="list-style-type: none">• Cancer: > 100 in a million (from all local sources)• Non-cancer, chronic: > 10.0 Hazard Index (from all local sources)• PM_{2.5}: > 0.8 µg/m³ annual average (from all local sources)

BAAQMD Analysis Goals

- Assist local jurisdictions identify where TAC sources are
- Address conflicts between GHG goals and TAC protection
- Reduce risk to sensitive receptors from TACs and PM_{2.5} exposure
- Promote more health-sensitive planning

BAAQMD Analysis Tools

Tools available include

- Google Earth Highway Analysis Tool
- Google Earth Stationary Source Tool
- Roadway Risk Screening Tables
- Distance Multipliers: Gas Stations, BUGs
- Others in development

Example: Pittsburg Bay Point BART Area Plan

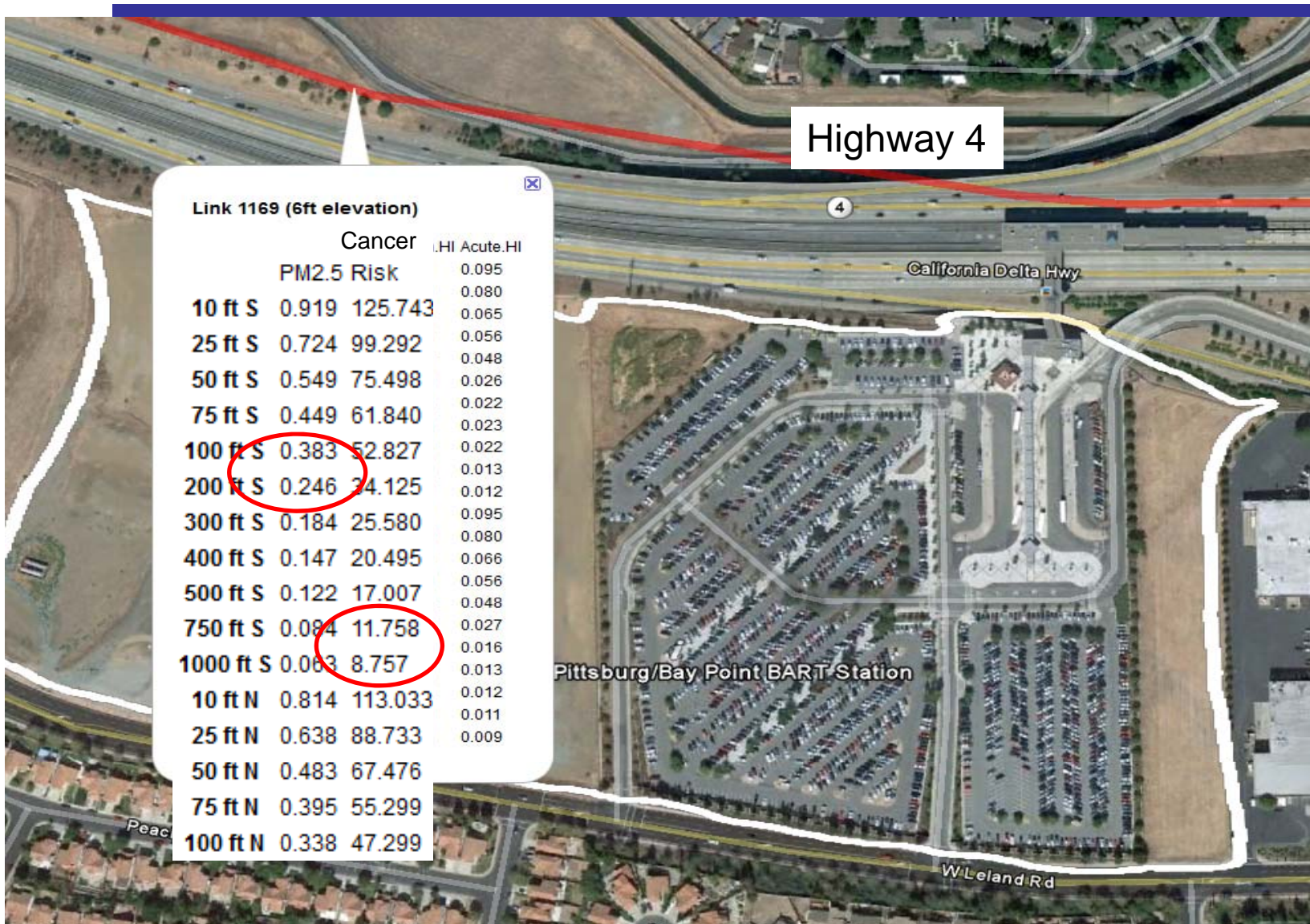


Site has potential: Near transit, infill development, some commercial land use nearby

Pittsburg Bay Point BART Area Plan: TAC Sources



Pittsburg Bay Point BART Area Plan: TAC Sources



Roadway Screening Tables: Bailey Road PM2.5 Emissions Example

PM_{2.5} CONCENTRATIONS (UG/M³)

NORTH-SOUTH DIRECTIONAL ROADWAY							
Annual Average Daily Traffic	Distance East or West of Surface Street - PM _{2.5} Concentration (ug/m ³)						
	10 feet	50 feet	100 feet	200 feet	500 feet	700 feet	1,000 feet
1,000	No analysis required						
5,000	No analysis required						
10,000	0.087	0.078	0.070	0.017	0.003	0.000	0.000
20,000	0.096	0.087	0.077	0.050	0.016	0.010	0.001
30,000	0.130	0.122	0.104	0.070	0.021	0.015	0.010
40,000	0.165	0.156	0.139	0.096	0.031	0.019	0.014
50,000	0.235	0.226	0.191	0.130	0.032	0.020	0.016
60,000	0.317	0.309	0.252	0.156	0.042	0.027	0.019
70,000	0.400	0.391	0.313	0.183	0.052	0.035	0.022
80,000	0.457	0.447	0.358	0.209	0.060	0.040	0.025
90,000	0.514	0.503	0.402	0.235	0.067	0.045	0.028
100,000	0.571	0.559	0.447	0.261	0.075	0.050	0.031

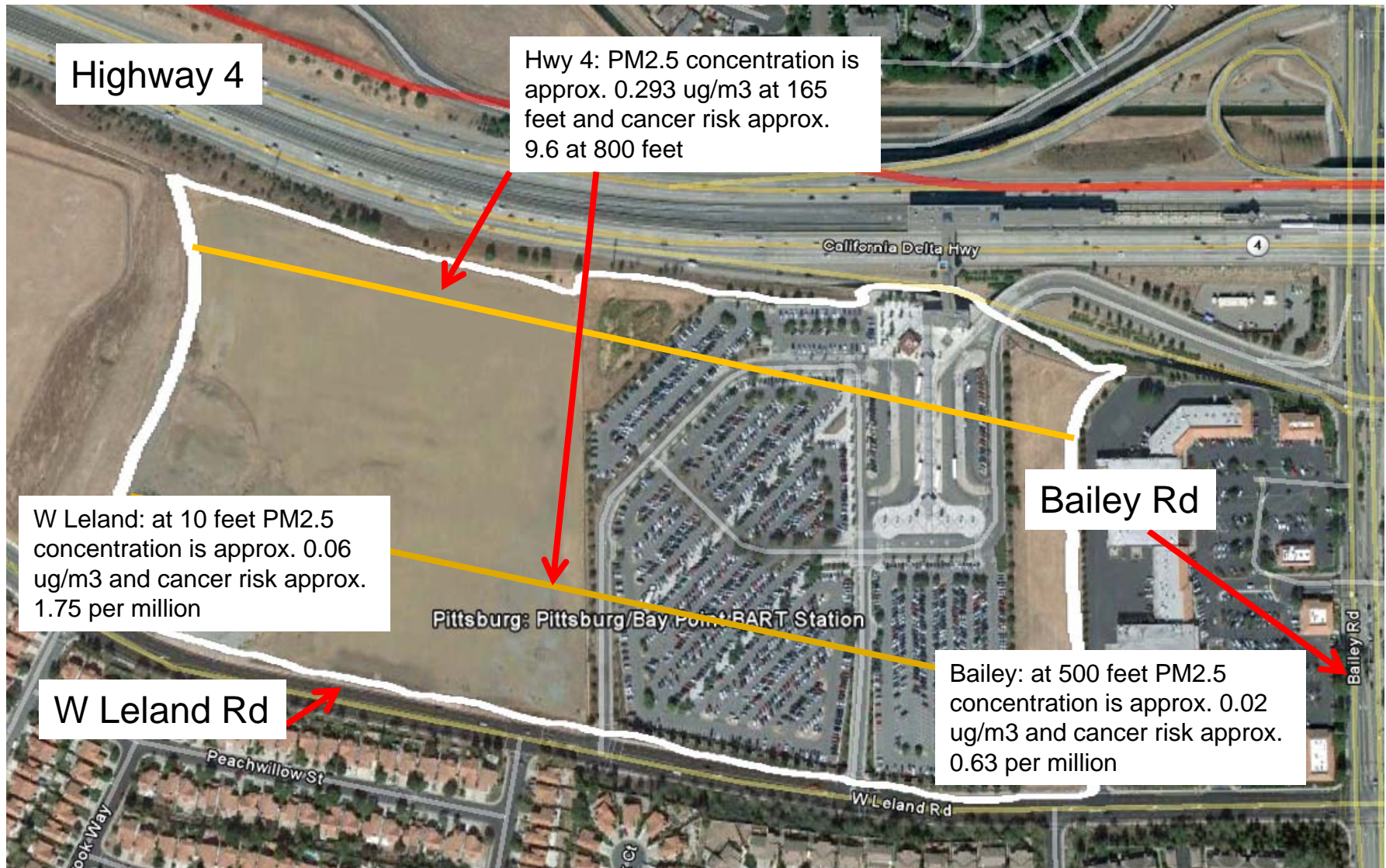


Bailey Road: 31,100 AADT

500 feet from roadway PM_{2.5} risk is >0.02

Very little risk and no action is needed

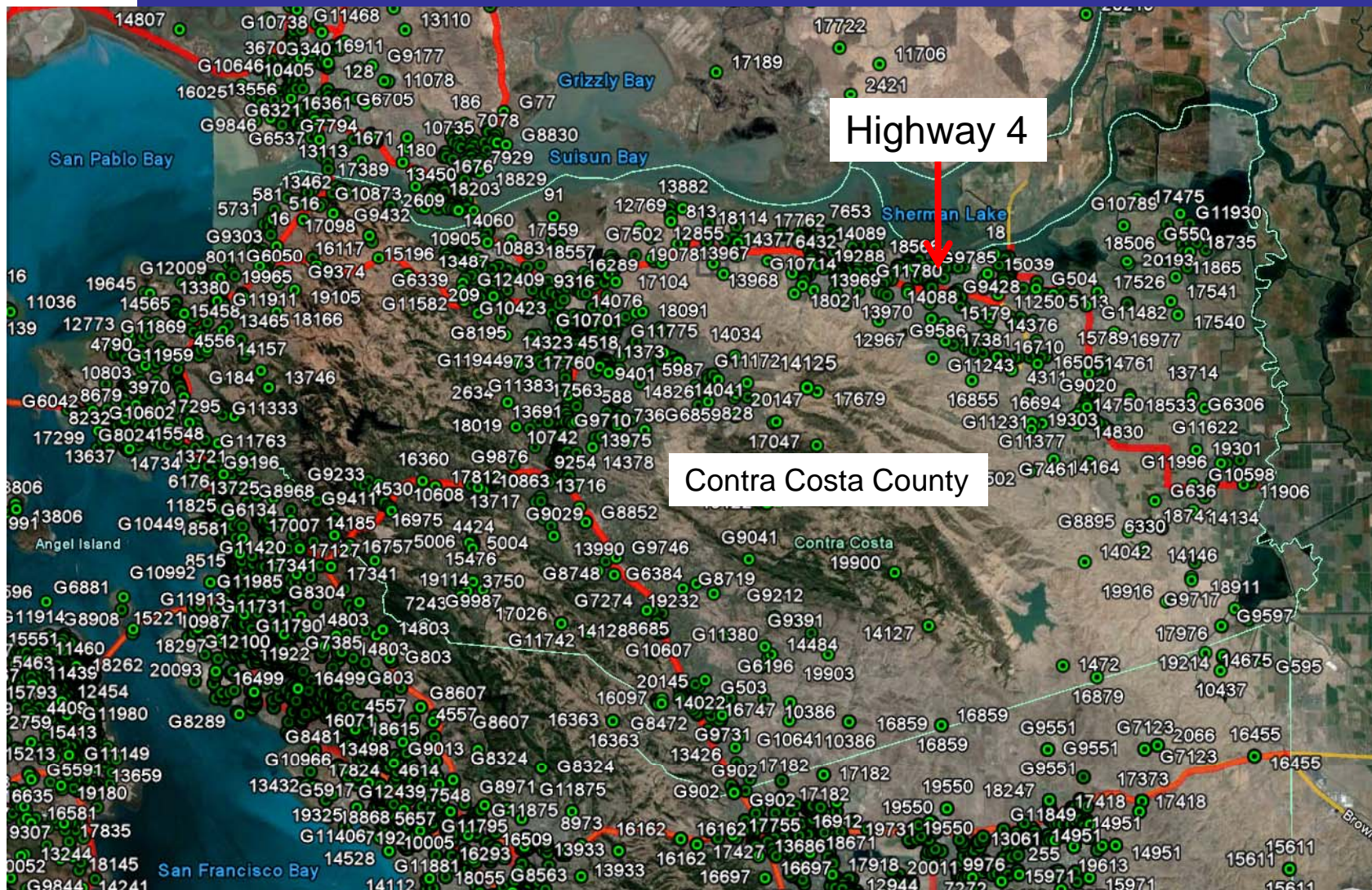
All Sources Together



Hwy 4 Recommendations

- Locate sensitive land uses further away from Highway
- Phase building
- Install mechanical air filtration systems
- Locate building air intake locations away from the freeway
- Prohibit sensitive receptors on the first floor
- Install tree buffers
- Electrification of loading docks
- TRUs on all trucks

Pittsburg Bay Point BART Area Plan: No Stationary Sources



Policy Considerations/Next Steps

- GHG and TAC exposure – seems like a conflict
- But can complement each other
- Less reliance on SOV = fewer TACs
- Green Building = less need for energy reduces stationary source emissions
- These tools are a start, we need more and better tools
- In Development
 - Improvements to Google Earth Tools
 - Construction Risk Screening Model
 - Railroad Screening Tables
 - Continue to work with Regional partners on SCS, other programs, and with locals to identify and mitigate sources

