Emission Inventories of Toxic Air Contaminants (TACs) for the San Francisco Bay Area

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Presented to:
The CARE Program Task Force
San Francisco, CA
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Presentation Agenda

Overview of the toxic air contaminant (TAC) emission inventory (EI):

- Purpose and intended uses
- Development approach
- Key findings
- Demographic and health statistics data
- Recommendations for further study

Purpose & Initial Objective

Community Air Risk Evaluation (CARE) Program Goals

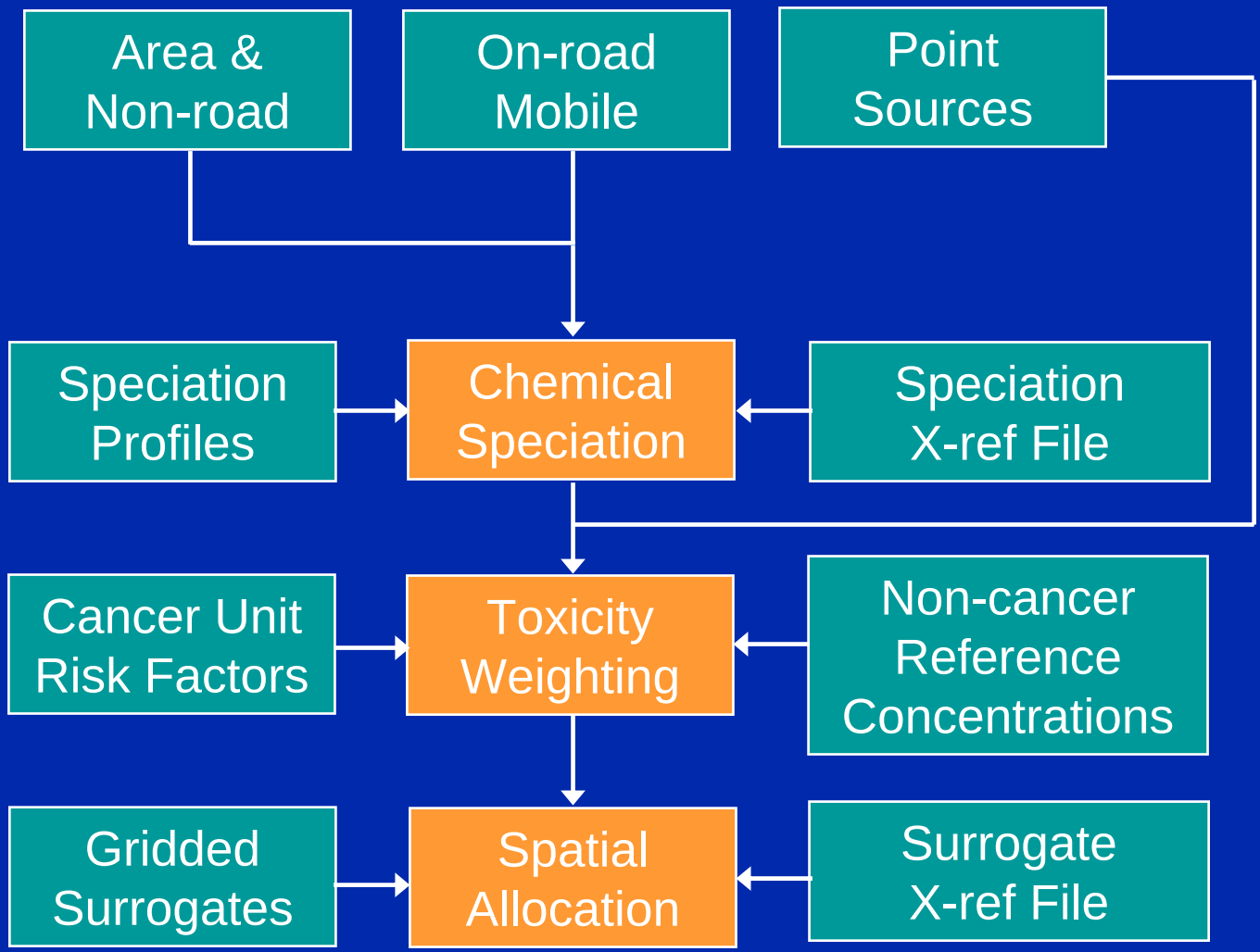
- Evaluate health risks from TACs.
- Inform the public.
- Plan and implement risk reduction strategies.
- **A TAC EI supports each of these goals.**

Initial Objective: Develop a first-draft TAC EI for the Bay Area using existing information that is suitable for use with dispersion and exposure models.

Intended Uses for the TAC EI

- Support screening-level assessments of population exposures.
- Aid in selection of a region for a detailed health risk assessment.
- Facilitate development of priorities and recommendations for further EI development.
- Serve as a starting point for the development of targets for emission reductions using grant and incentive funds.

TAC EI Development



Revised BAAQMD Inventories (1 of 3)

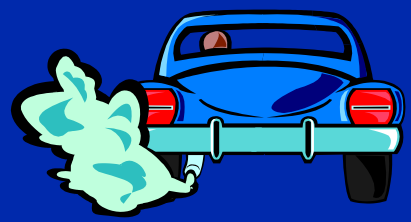
County-level TOG and PM inventories for area and non-road sources (annual average):

- Ship emissions updated to include emissions occurring within 100 miles of county shorelines
- Emission estimates for cargo handling and yard haul trucks at the Port of Oakland included
- Residential wood burning emissions updated based on survey results
- Livestock waste emissions revised

Revised BAAQMD Inventories (2 of 3)

Gridded TOG and PM on-road mobile source inventories (EMFAC2002 & DTIM):

- Heavy-duty truck emissions redistributed from a portion of Highway 580 to I-880
- Emissions estimated for trucks operating at the Port of Oakland
- Vehicle speed correction for a stretch of Highway 152 east of Gilroy



Revised BAAQMD Inventories (3 of 3)

Facility-specific TAC emission inventories for point sources:

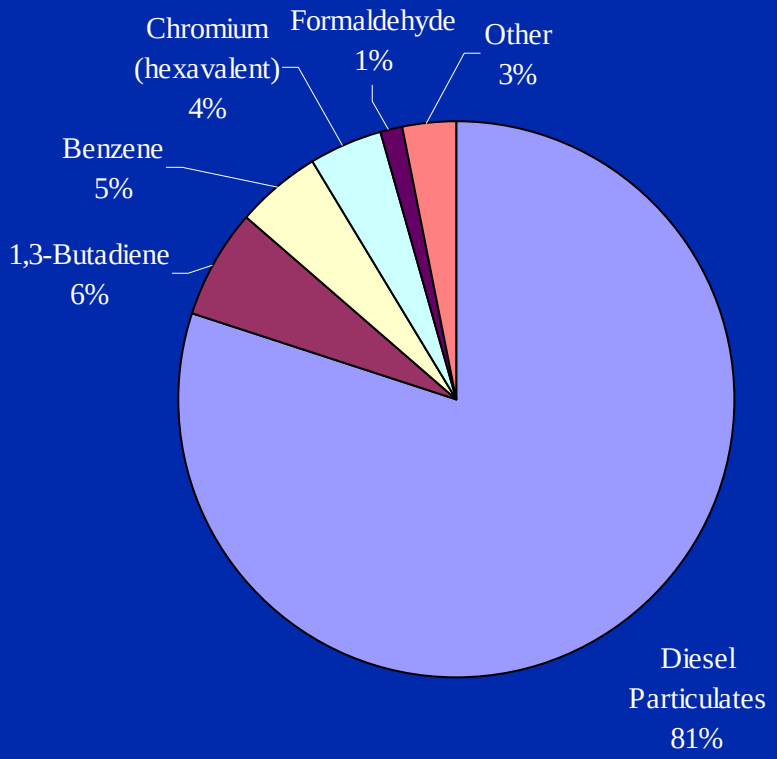
- Spatial information for 90 of the District's most significant point sources reviewed
- UTM coordinates corrected for 56 sites

STI TAC EI Updates

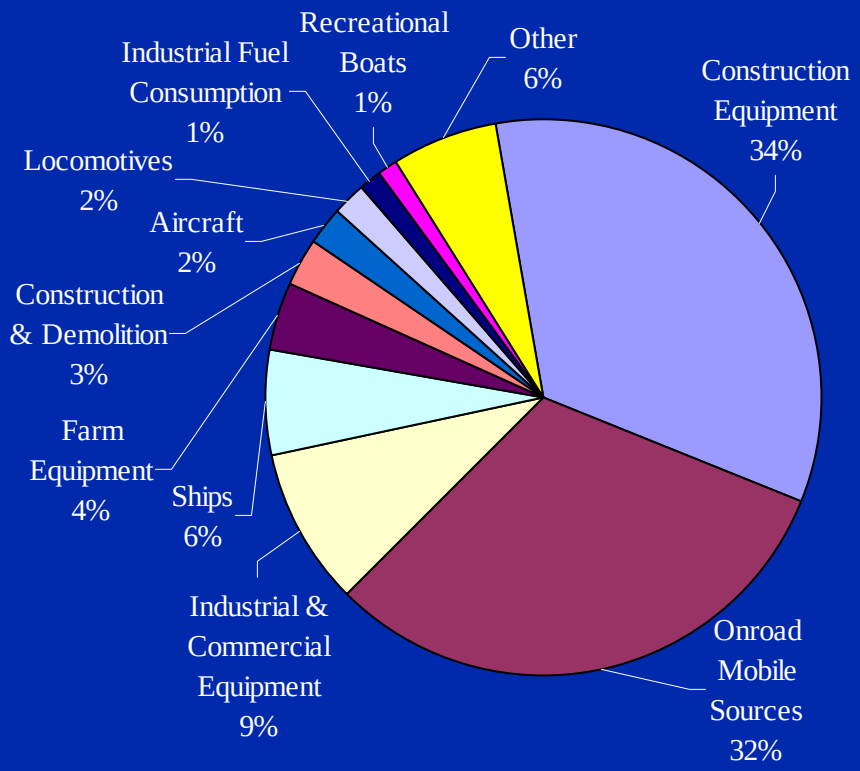
- Revised the spatial allocation of several sources (livestock waste, ship emissions, etc.)
- Limited the spatial allocation of Sonoma and Solano emissions to District boundaries
- Treated all ship emissions as DPM
- Corrected the assumed toxicity for particulate emissions of chlorine and phosphorous
- Assumed that 5% of the chromium in PM speciation profiles is emitted as chromium VI

Cancer Toxicity-weighted Emissions (1 of 2)

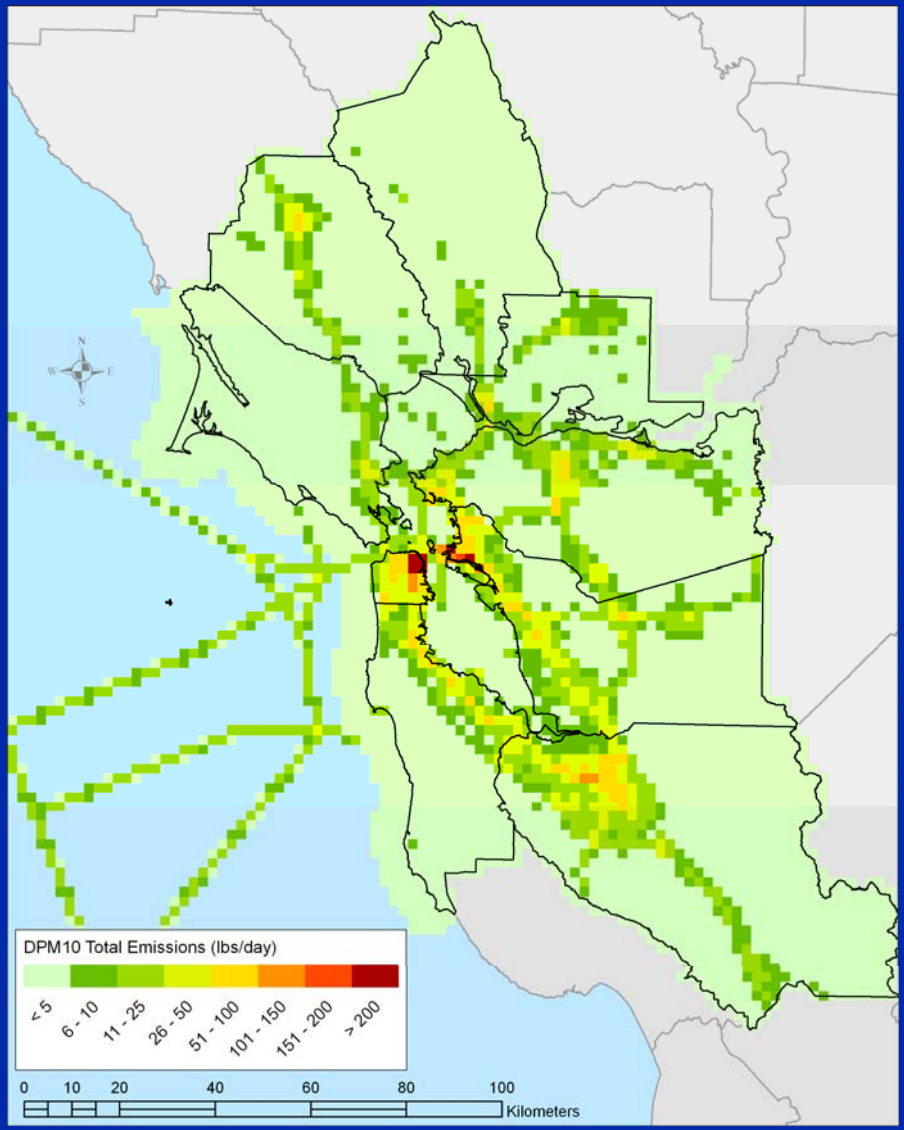
By Pollutant

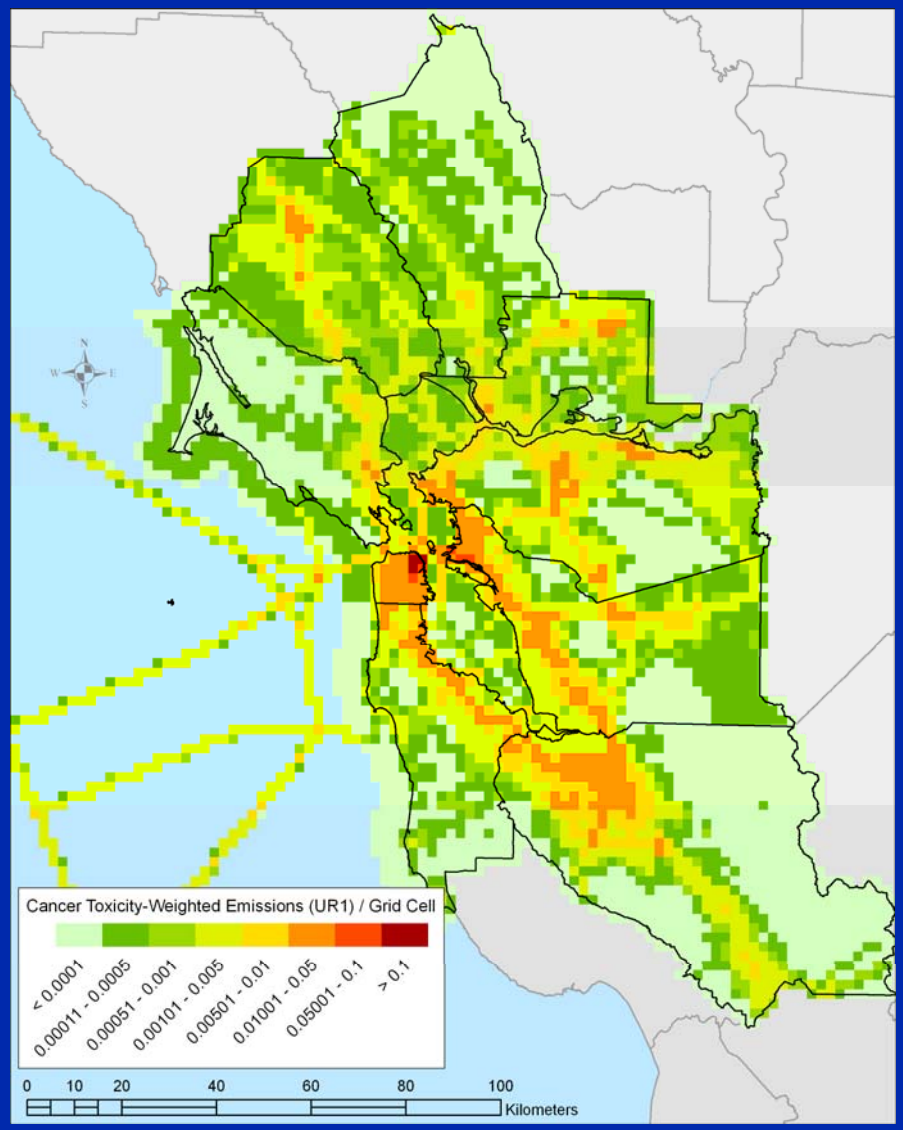


By Source Category



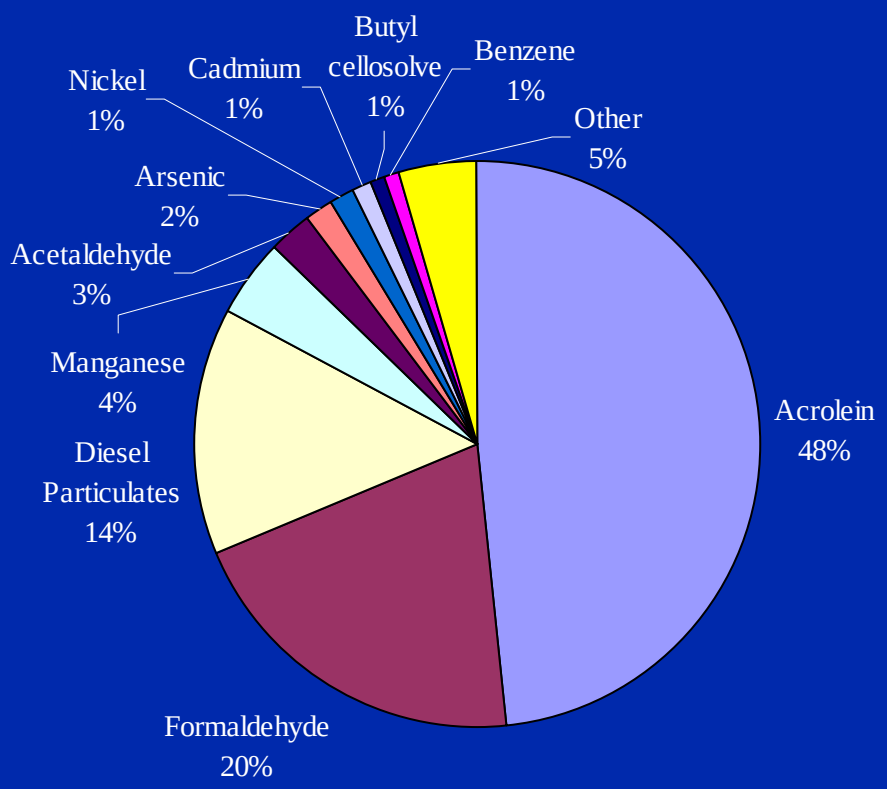
Cancer Toxicity-weighted Emissions (2 of 2)





Chronic, Non-Cancer Toxicity-weighted Emissions (1 of 2)

By Pollutant



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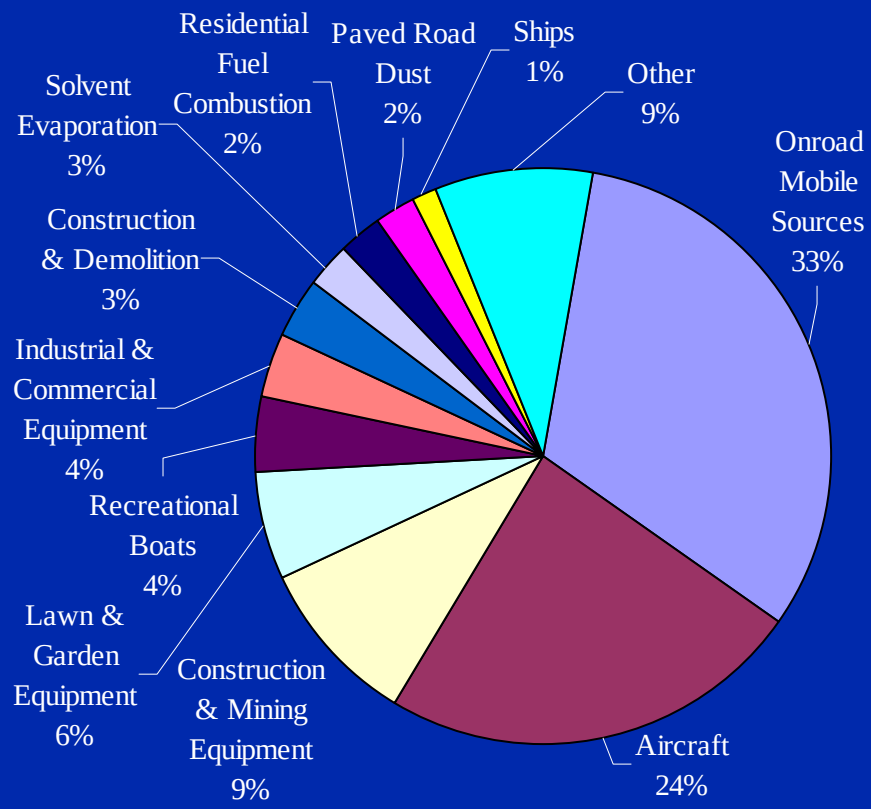
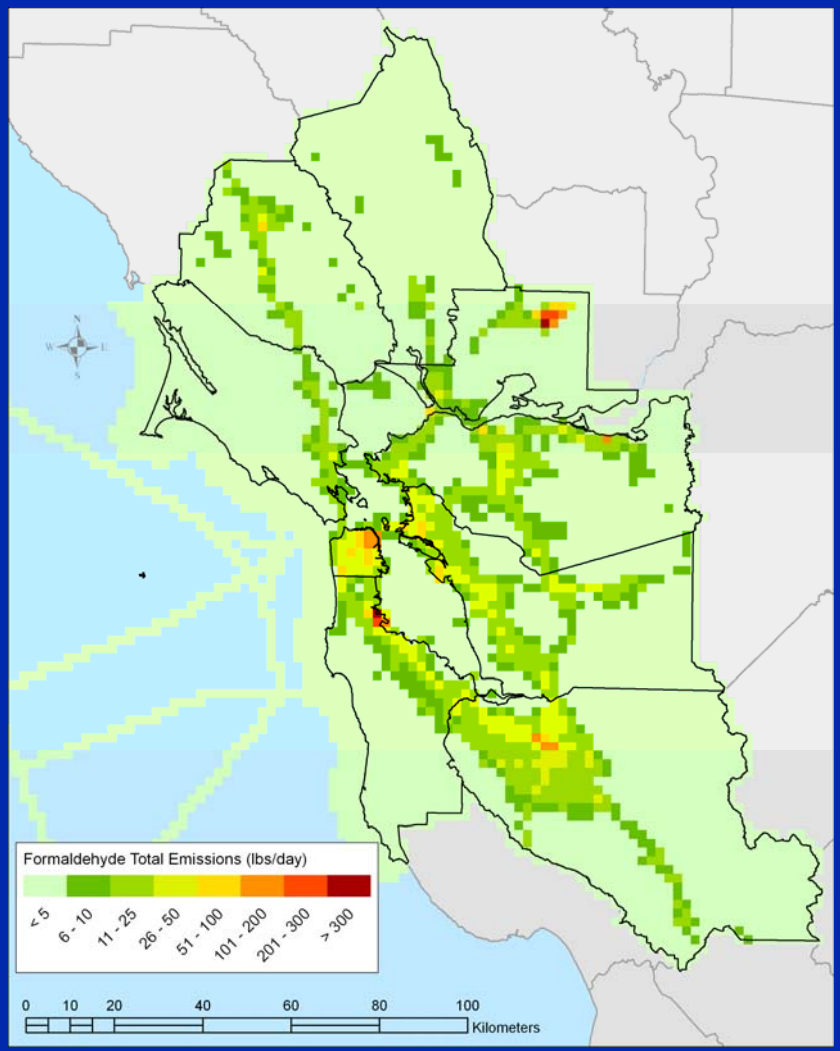
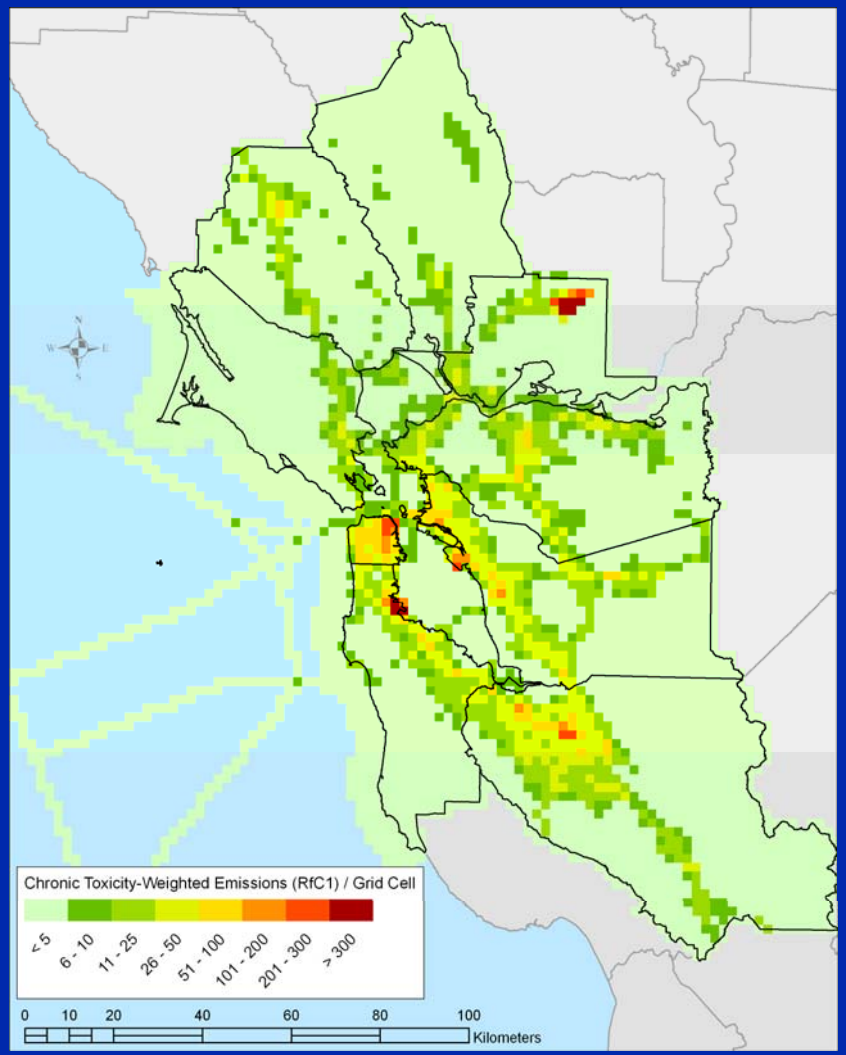


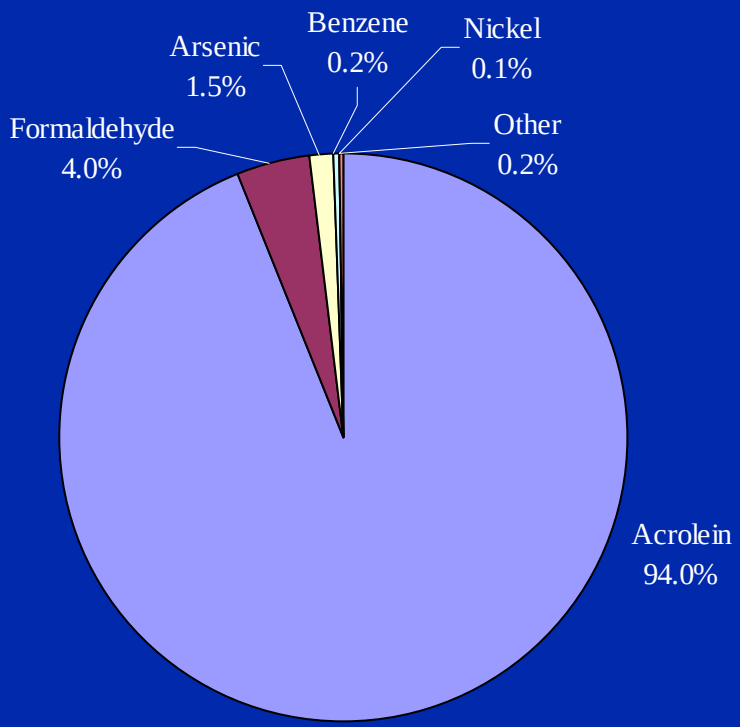
Chronic, Non-Cancer Toxicity-weighted Emissions (2 of 2)





Acute Toxicity-weighted Emissions (1 of 2)

By Pollutant



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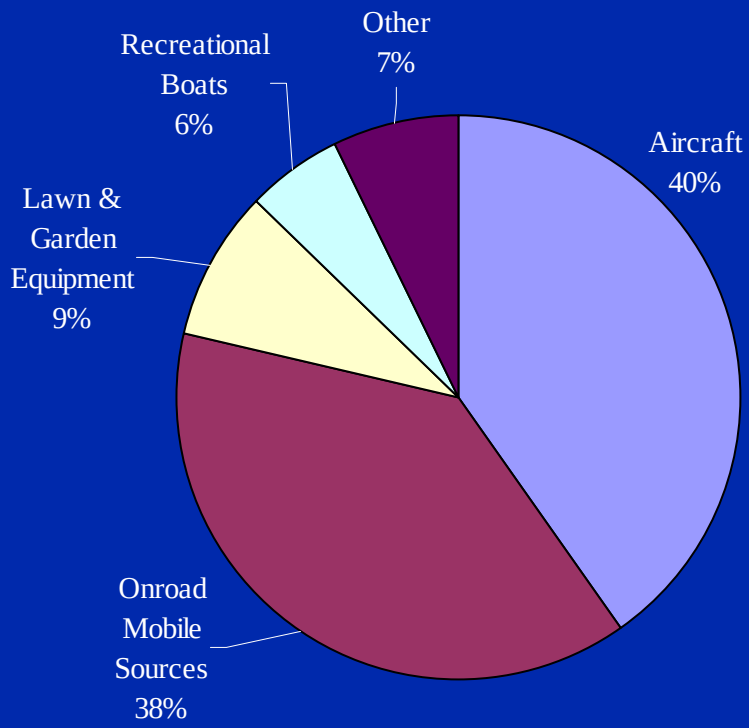
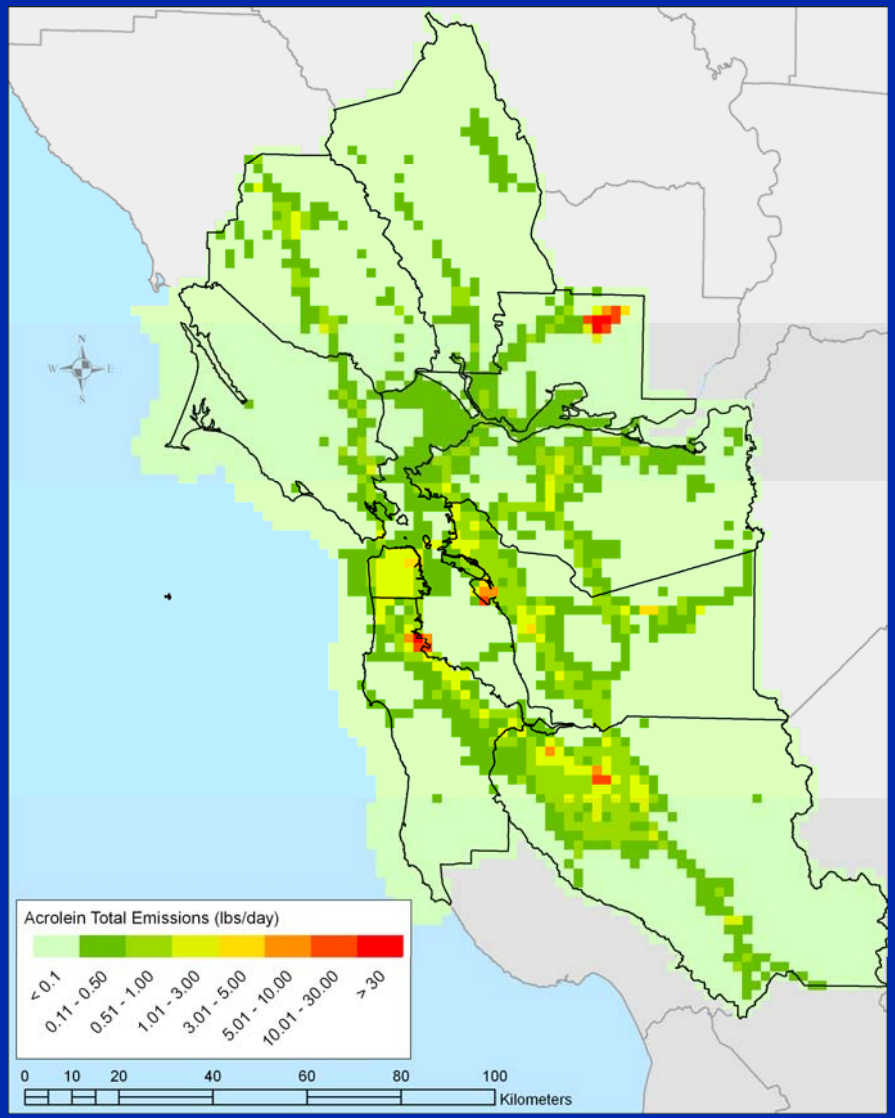
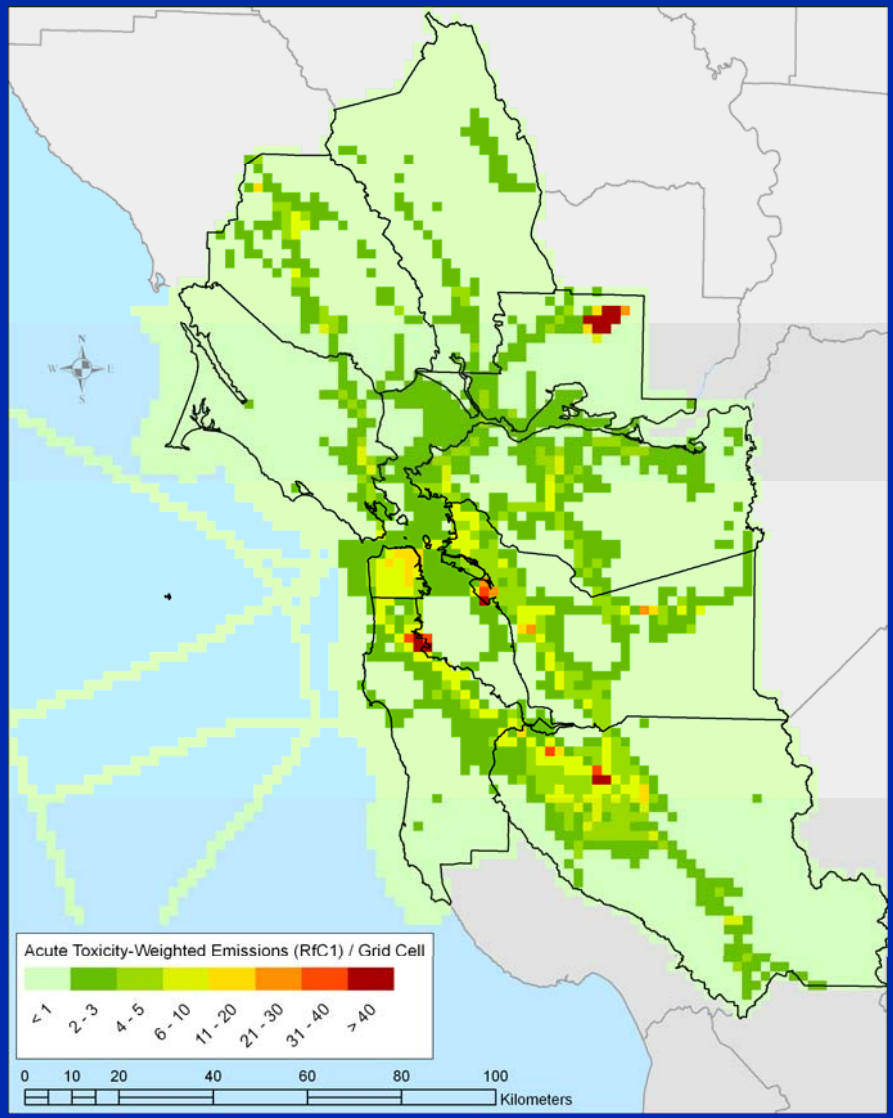
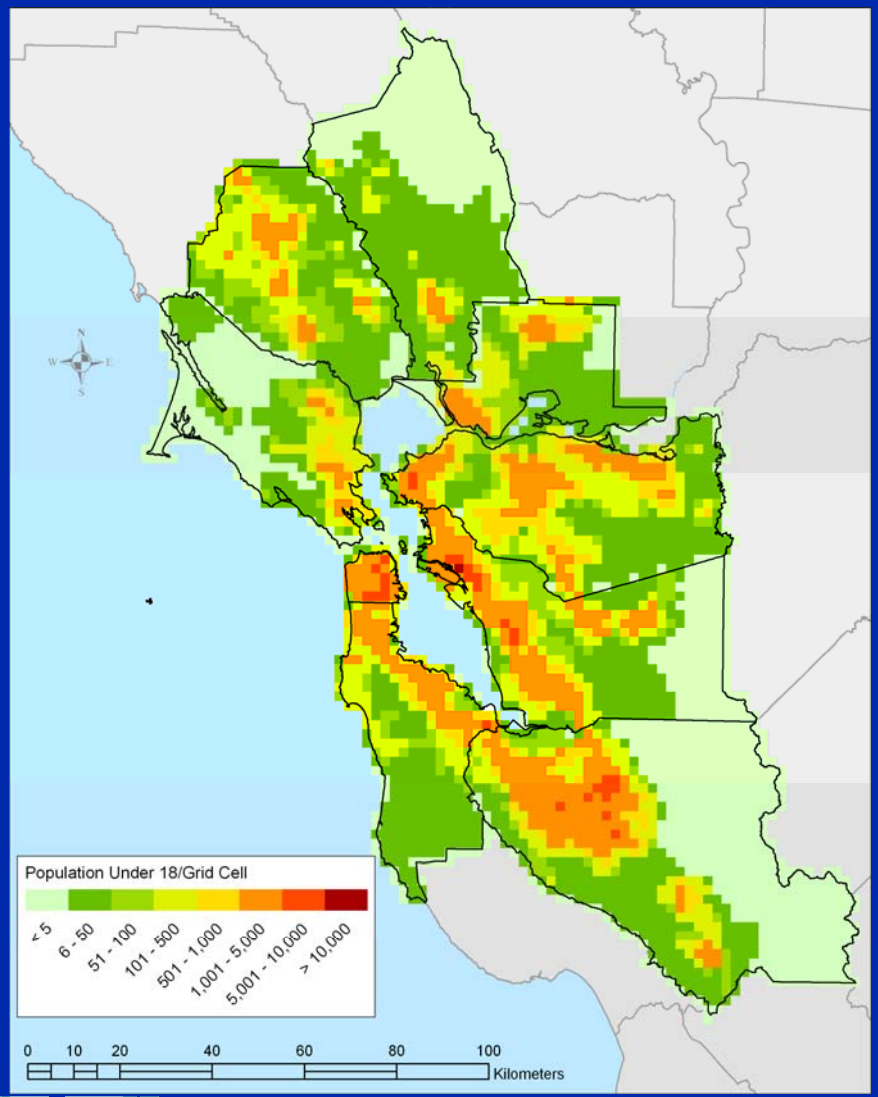


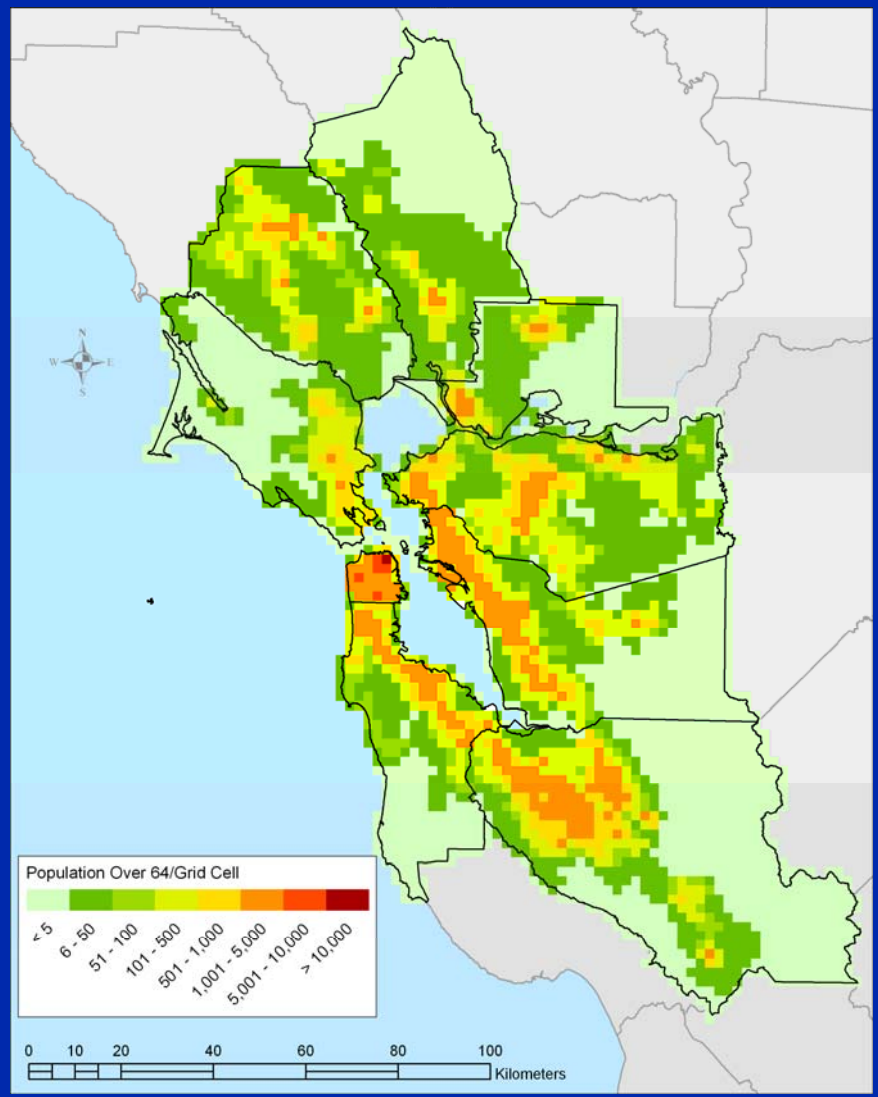
Acute Toxicity-weighted Emissions (2 of 2)



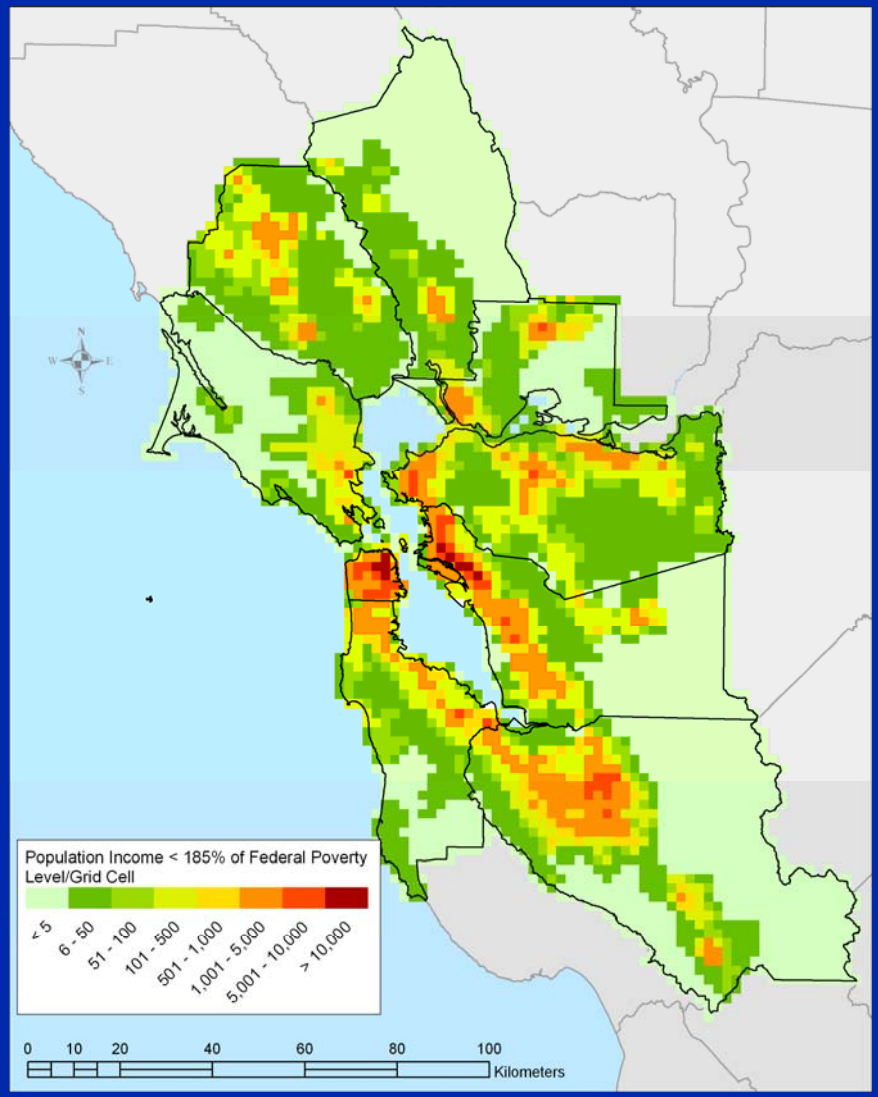


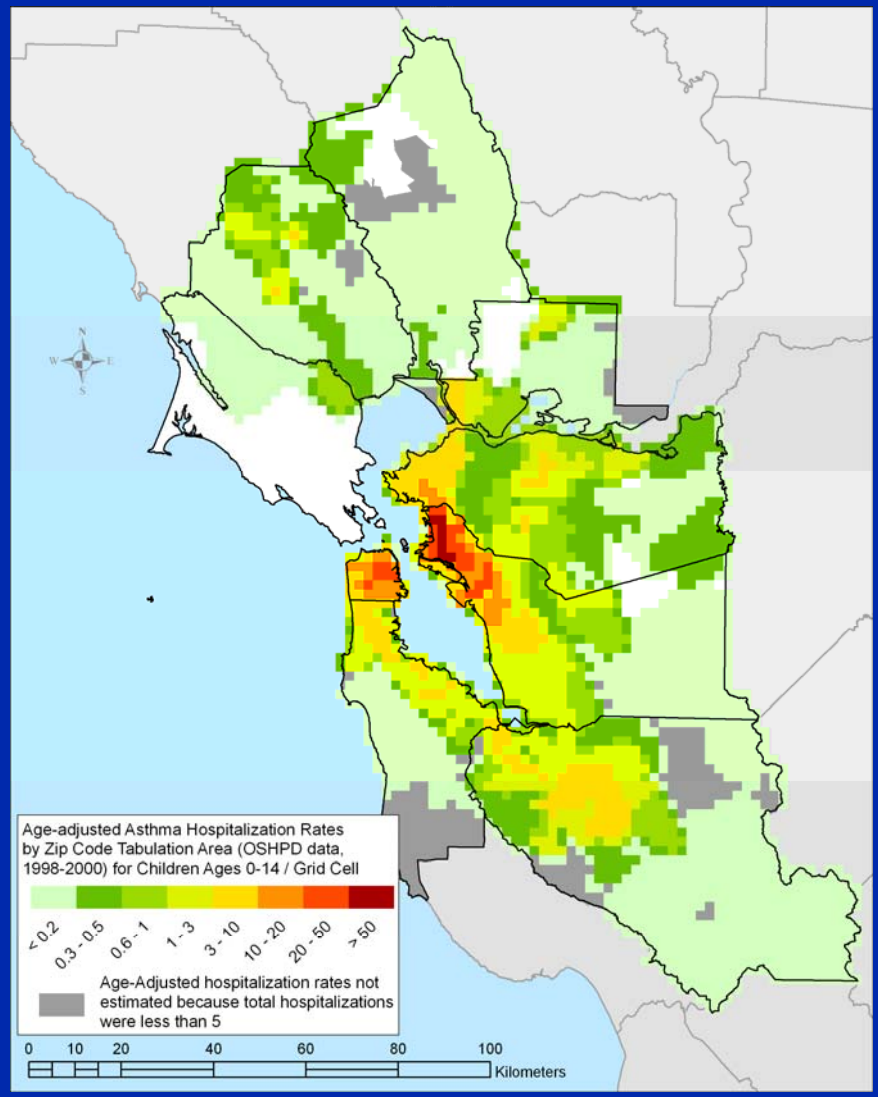
Demographic & Health Data (1 of 2)





Demographic & Health Data (2 of 2)





Recommendations (1 of 2)

- Continue inventory development and revisions using bottom-up methods
  - Begin with high priority TACS and source types
  - Investigate the spatial distribution of heavy duty truck emissions and construction activities
  - Investigate the quantity of DPM emitted by construction activities
  - Add emissions for TACs that may have been omitted from the inventory
  - Investigate key assumptions (chromium VI fraction, DPM emissions from ships)

Recommendations (2 of 2)

- Analyze TAC EI with other sources of data (e.g., demographic, socioeconomic, health statistics)
- Continue education and outreach efforts