

# At a Crossroads in Our Region's Health: Freight Transport and the Future of Community Health in the San Francisco Bay Area

Executive  
Summary

December 2011



PACIFIC  
INSTITUTE



DITCHING  
DIRTY DIESEL

# At a Crossroads in Our Region's Health: Freight Transport and the Future of Community Health in the San Francisco Bay Area

**December 2011**

**Lead Authors:**

Catalina Garzón, MCP, *Pacific Institute*  
Freight Transport Committee, *Ditching Dirty Diesel Collaborative*

**Contributing Authors:**

Whitney Berry, *Pacific Institute\**  
Eyal Matalon, *Pacific Institute\**  
Eli Moore, *Pacific Institute*

**Editors:**

Paula Luu, *Pacific Institute*  
Nancy Ross, *Pacific Institute*

**Project Advisors – Ditching Dirty Diesel Collaborative Freight Transport Committee:**

Wafaa Aborashed, *Bay Area Healthy 880 Communities*  
Azibuike Akaba, *Regional Asthma Management and Prevention Program*  
Diane Bailey, *Natural Resources Defense Council*  
Christine Cordero, *Center for Environmental Health*  
Paul Cummings, *Alameda County Department of Public Health*  
Joel Ervice, *Regional Asthma Management and Prevention Program*  
Frank Gallo, *Bay Area Healthy 880 Communities*  
Margaret Gordon, *West Oakland Environmental Indicators Project*  
Richard Grow, *US Environmental Protection Agency Region 9*  
Michael Kent, *Contra Costa Health Services*  
Anna Yun Lee, *Communities for a Better Environment\**  
Mona Mena, *Alameda County Department of Public Health*  
Karen Pierce, *Bayview Hunters Point Community Advocates*

\* = former affiliation

**Pacific Institute**

654 13th Street, Preservation Park  
Oakland, California 94612  
www.pacinst.org  
Phone: 510.251.1600  
Facsimile: 510.251.2203

© Copyright 2011. All Rights Reserved

ISBN: 1-893790-37-1  
ISBN 13: 978-1-893790-37-7

**Cover Photo:** ©iStock.com, T. Lorien (left), J. Brycen (right)



## About the Ditching Dirty Diesel Collaborative

The Ditching Dirty Diesel Collaborative (DDDC) is a Bay Area collaborative of over a dozen environmental justice and health organizations that work to reduce diesel pollution and improve health in environmental justice communities throughout the San Francisco Bay Area. The Freight Transport Committee of DDDC works to advance community health and social equity in freight transport and land use decision-making.

## About the Pacific Institute

The Pacific Institute is one of the world's leading independent nonprofits conducting research and education to create a healthier planet and sustainable communities. Based in Oakland, California, we conduct interdisciplinary research and partner with stakeholders to produce solutions that advance environmental protection, economic development, and social equity— in California, nationally, and internationally. Our Community Strategies for Sustainability and Justice Program partners with community-based organizations and coalitions to conduct action research that supports organizing, leadership development, and policy advocacy for environmental health, justice, and sustainability in low-income and communities of color. Since our founding in 1987, the Pacific Institute has become a locus for independent, innovative thinking that cuts across traditional areas of study, helping us make connections and bring opposing groups together. The result is effective, actionable solutions addressing issues in the fields of freshwater resources, climate change, environmental justice, and globalization. More information about the Institute and our staff, directors, funders, and programs can be found at [www.pacinst.org](http://www.pacinst.org).

## About the Lead Authors

### **Catalina Garzón**

Catalina Garzón is Program Co-Director of the Pacific Institute's Community Strategies for Sustainability and Justice Program. She has a Masters Degree in City and Regional Planning (MCP) with a concentration in Housing and Community Development from the University of California at Berkeley. Her work with the Community Strategies Program has included coordinating community-based transportation planning projects, collaborative research and mapping projects on freight transport and climate change adaptation issues with coalition partners, and participatory curriculum development efforts with community partner organizations. Ms. Garzón's prior training and technical assistance work has included serving as a brownfields redevelopment researcher with the Community Partnerships Office at the Institute of Urban and Regional Development and coordinating Urban Habitat's Leadership Institute for Sustainable Communities. She has co-authored numerous publications and articles based on her work with community and coalition partners in peer-reviewed academic journals as well as advocacy and popular media. Ms. Garzón is the 2010 recipient of the Thomas I. Yamashita Prize, which honors a scholar-activist whose work serves as a bridge between academia and the community.

### **The Ditching Dirty Diesel Collaborative (DDDC)**

The Ditching Dirty Diesel Collaborative (DDDC) is a regional environmental justice coalition led by a Steering Committee comprised of organizations based in communities most impacted by diesel pollution in the San Francisco Bay Area. Community-based organizations on the Steering Committee include Bayview-Hunters Point Community Advocates in southeast San Francisco, Communities for a Better Environment (CBE) in East Oakland and Richmond, Bay Area Healthy 880 Communities in San Leandro, and the West Oakland Environmental Indicators Project. Since its founding in October 2004, the Diesel Collaborative has launched successful campaigns to educate communities and truck drivers about anti-idling regulations as well as to advance health-protective policies in local, regional, and state-level transportation and land use planning. The Diesel Collaborative has co-authored several publications with the Pacific Institute, most recently the curriculum guide *Gearing Up for Action* (2010) based on capacity-building workshops about freight transport issues conducted with DDDC member organizations and the research report *Paying with Our Health* (2006) which quantified the public health costs of the freight transport system in California. More information about the Diesel Collaborative and its members can be found on our website, <http://www.ditchingdirtydiesel.org/>.

## **Acknowledgements**

We would like to thank the East Bay Community Foundation and the San Francisco Foundation for providing grant support to make this report possible. We extend our deepest thanks to members of the Ditching Dirty Diesel Collaborative's Freight Transport Committee, who generously dedicated their time to advise the research process for this report and review the mapping results as well as a draft of the research report. We would also like to thank the many social equity advocates who offered their valuable perspectives on this project, in particular Ada Chan, Lindsay Imai, Parisa Fatehi-Weeks, Joél Ramos, and Stephanie Reyes. Thank you also to Amir Fanai and Phil Martien at the Bay Area Air Quality Management District, Michael Smith at the Association of Bay Area Governments, and Stella Wotherspoon at the Metropolitan Transportation Commission for making available the data sets needed to conduct the analysis summarized in this report.

## Glossary

**Association of Bay Area Governments (ABAG):** Metropolitan planning organization in the San Francisco Bay Area responsible for coordinating regional planning efforts across cities and counties in the region.

**Bay Area Air Quality Management District (BAAQMD):** Regional agency responsible for meeting federal and state air quality standards in the San Francisco Bay Area.

**Bay Conservation and Development Commission (BCDC):** Regional agency responsible for protecting the San Francisco Bay and overseeing development along its shoreline.

**Buffer Zone:** An area separating a polluting land use, such as a freeway or rail yard, from a sensitive land use like housing to mitigate the effects of one land use on the other.

**California Air Resources Board (CARB):** State agency responsible for regulating air quality in California.

**CARE Communities:** Communities that the Bay Area Air Quality Management District has designated as having the highest health risk from toxic air contaminants in the region through its Community Air Risk Evaluation (CARE) program as areas that would most benefit from mitigation strategies to reduce exposure. These include greater Richmond, parts of Concord, southeast San Francisco, San Jose, Redwood City and East Palo Alto, and the I-880 corridor in the East Bay (Berkeley, Oakland, San Leandro, and Hayward).

**CARE-impacted Priority Development Area (PDA):** An area targeted for regional development that is located in a CARE community with high health risk from toxic air contaminants in the Bay Area.

**Climate Action Planning:** A local, regional, or state-level effort to identify a set of policies and programs that can be put in place to reduce greenhouse gas emissions in a certain area.

**Climate Change:** A long-term change in measures of Earth's climate, such as temperature and precipitation, due to natural variability or human activity.

**Co-Pollutant:** Other gases that may be released along with the air pollutant of concern.

**Development:** Building new structures or changing the natural landscape for human use.

**Diesel Particulate Matter (DPM):** Solid particles resulting from the combustion of diesel fuel. Diesel particulate matter is considered a toxic air contaminant in California (see "Toxic Air Contaminant").

**Freight Transport:** The movement of products and raw materials via ship, truck, train, or plane.

**Greenhouse Gas Emissions:** Gases resulting from the combustion of fossil fuels like petroleum that contribute to climate change, such as carbon dioxide (CO<sub>2</sub>).

**Health Impact Assessment:** A process for assessing the potential health impacts of a proposed policy, program, or project.

**Infill Development:** Development on underutilized urban land, such as vacant lots and buildings.

**Land Use Planning:** A process for making decisions about the best way to use land in a certain area.

**Land Use Conflict:** A conflict that is created by placing land uses that are incompatible with each other, such as a residential development and an industrial facility, next to each other.

**Metropolitan Transportation Commission (MTC):** Regional agency responsible for transportation planning as well as dispensing state and federal transportation funds allocated to the San Francisco Bay Area.

**Magnet Source:** A land use that attracts mobile sources of pollution like trucks and trains, such as a port or rail yard.

**Mitigation:** An action taken to reduce the environmental or health impacts of a proposed development.

**Mobile Source:** A source of air pollution that can move on its own, such as a truck or train.

**Off-Road Source:** Sources of air pollution that do not operate on paved roads, such as ships and aircraft.

**On-Road Source:** Vehicles that operate on paved roads, such as passenger cars and heavy-duty trucks.

**Opportunity Site:** A property that is likely to redevelop because the land itself is worth more than what is already built on that land.

**Point Source:** A fixed source of air pollution, like an industrial facility.

**Priority Development Area (PDA):** An area being prioritized for infill and transit-oriented development by regional agencies as part of SB 375 implementation in the San Francisco Bay Area.

**Senate Bill (SB) 375:** State climate legislation in California that requires metropolitan planning organizations to set regional greenhouse gas reduction targets and develop a coordinated regional plan to meet those targets.

**Sensitive Land Uses:** Areas where individuals most sensitive to exposure to air pollution, like children, the elderly, and those with pre-existing health conditions, are most likely to spend time. These include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, health clinics, and residences.

**Sustainable Communities Strategy (SCS):** A set of goals and policies to align transportation, housing and land use priorities in a California region in order to reduce greenhouse gas emissions in that region.

**Toxic Air Contaminant:** A chemical that has been determined to be harmful at any level of exposure. For example, diesel particulate matter is considered a toxic air contaminant in the state of California.

**Transit-Oriented Development (TOD):** Development within walking distance of public transit infrastructure, such as a light rail station or a major bus corridor.

**Zoning:** A set of rules for implementing land use policies by specifying what can get built where

## Executive Summary

A recipe for a truly sustainable community must include community health along with quality housing and jobs connected by public transit as key ingredients. Regional plans are afoot in the San Francisco Bay Area to reduce air pollution that contributes to climate change, known as greenhouse gas emissions, by encouraging more compact development in already urbanized areas along transportation corridors. However, this approach to regional development could also pose hazards to community health by putting more residents next to sources of toxic pollution like freeways, rail yards, ports, and distribution centers. To protect both our climate and the health of future generations, our strategy for creating more sustainable communities in our region must account for and address potential conflicts between existing polluting land uses and proposed developments like new housing. By planning for health, we can create sustainable communities in the San Francisco Bay Area that are as rich in opportunities for a long healthy life as they are for quality jobs, housing, and transit for all residents.

As this report shows, suitable places to put new housing, schools, parks, and other sensitive land uses can be found in Bay Area communities that will protect residents from being exposed to sources of harmful pollution. Freight transport, or the movement of products and raw materials via truck, train, ship or plane, is a major source of unhealthy pollution that disproportionately affects low-income and communities of color in our region. Partly due to their proximity to polluting land uses, many of these communities are also burdened with the highest health risk from toxic air contaminants in the Bay Area. For many residents of these communities, conflicts between residential and freight-transport related land uses materialize in their daily lives in the form of noise, traffic congestion, pedestrian safety hazards and, worse yet, serious health problems like asthma, cancer, and heart disease.

Our report focuses on portions of the region where areas that have been prioritized for future development, or Priority Development Areas, overlap with communities with the highest health risk from toxic air contaminants, referred to as CARE communities. Using mapping and spatial analysis, the report assesses the current and potential conflicts that exist between freight transport-related land uses and sensitive land uses such as housing, schools, parks, and health clinics in these areas. To determine which places are most impacted by freight-related land uses, we generated health-protective buffers around freight transport-related land uses including freeways, rail yards, seaports, airports, warehouses, and distribution centers. We then identified how many sensitive land uses, such as schools, parks, and health clinics, are already located within these health-protective distances from freight-related land uses. Lastly, we calculated the amount of residentially zoned land within these health-protective buffer zones to assess the potential for future land use conflicts.



This report shows that, without proper regional planning, the potential for exacerbating land use conflicts between residential and freight-transport related land uses is significant in the San Francisco Bay Area. Our analysis found that **nearly half (42%) of the land being prioritized for development in our region is located in communities with the highest health risk from toxic air contaminants.** One-fourth (25%) of the land in Priority Development Areas that intersect with CARE communities is within a distance from freight-related land uses where it is unadvisable to site sensitive land uses like new housing, according to regulatory agencies like the California Air Resources Board.

Fortunately, many healthier places where we can locate sensitive land uses like new housing exist in communities being targeted for regional development in the Bay Area as part of efforts to reduce greenhouse gas emissions. We found that **three-fourths (74%) of the land in Priority Development Areas that intersect with CARE communities is far enough away from freight transport hazards to be suitable for sensitive land uses like new housing.** One out of every three acres of this more suitable land for sensitive land uses is zoned as residential or mixed residential/commercial.

Our report also outlines steps that regional and local decision-makers can take to better plan for health when making land use and transportation decisions that will affect residents of these communities for generations to come. To minimize potential land use conflicts, **available suitable land located at a health-protective distance from freight-related land uses should be prioritized for new housing and other sensitive land uses.** The remaining land area located in close proximity to freight-related land uses can be prioritized for commercial and light industrial development that creates jobs for local residents while protecting worker health. By accounting for health in deciding where to place new housing, we can retain the industrial and commercial land we need to accommodate economic growth while proactively reducing anticipated land use conflicts in residential areas.

We recognize that, in order to meet their housing needs, some communities may need to consider development opportunities for building new housing and other sensitive land uses near freight-related land uses. **Our report also contains a detailed list of measures that can be incorporated into the design of proposed developments near freight transport-related land uses to reduce exposure to harmful pollution.** Such measures include installing air filtration systems, triple-paned sealed windows, and other design elements that can help protect indoor air quality from harmful air pollutants. Other measures that can be taken include notifying prospective residents of the health risks posed by freight transport-related land uses surrounding the development and informing existing residents of the potential impacts of proposed expansion projects at freight-related land uses.

Siting sensitive land uses like housing near freight transport-related land uses in any community can pose a health risk to existing and future residents. However, planning for health is particularly important for addressing the burden posed by past land use and development

decisions that have created unhealthy neighborhood conditions in communities already overburdened by toxic pollution. Our findings indicate that we can advance regional development priorities in ways that protect community health while creating jobs and housing to benefit existing and future residents in these communities.

To realize a vision for truly sustainable communities, our blueprint for regional growth must strike a balance that benefits existing and future residents by protecting community health while providing quality housing and job opportunities for all. In creating a blueprint that will shape the future of all communities in the Bay Area, decision-makers and planners are in a prime position to ensure that community health also lies at the heart of our region's strategy to protect our climate. A key step on the path to the healthy future that all Bay Area residents deserve is to ensure that new housing, schools, parks, and other sensitive land uses are healthy places to spend our everyday lives. When deciding what should get built where, it's important to ask: "Would I want to live, work, play, pray, or go to school here?" For a community to be truly sustainable, the answer to that question must be "Yes!"

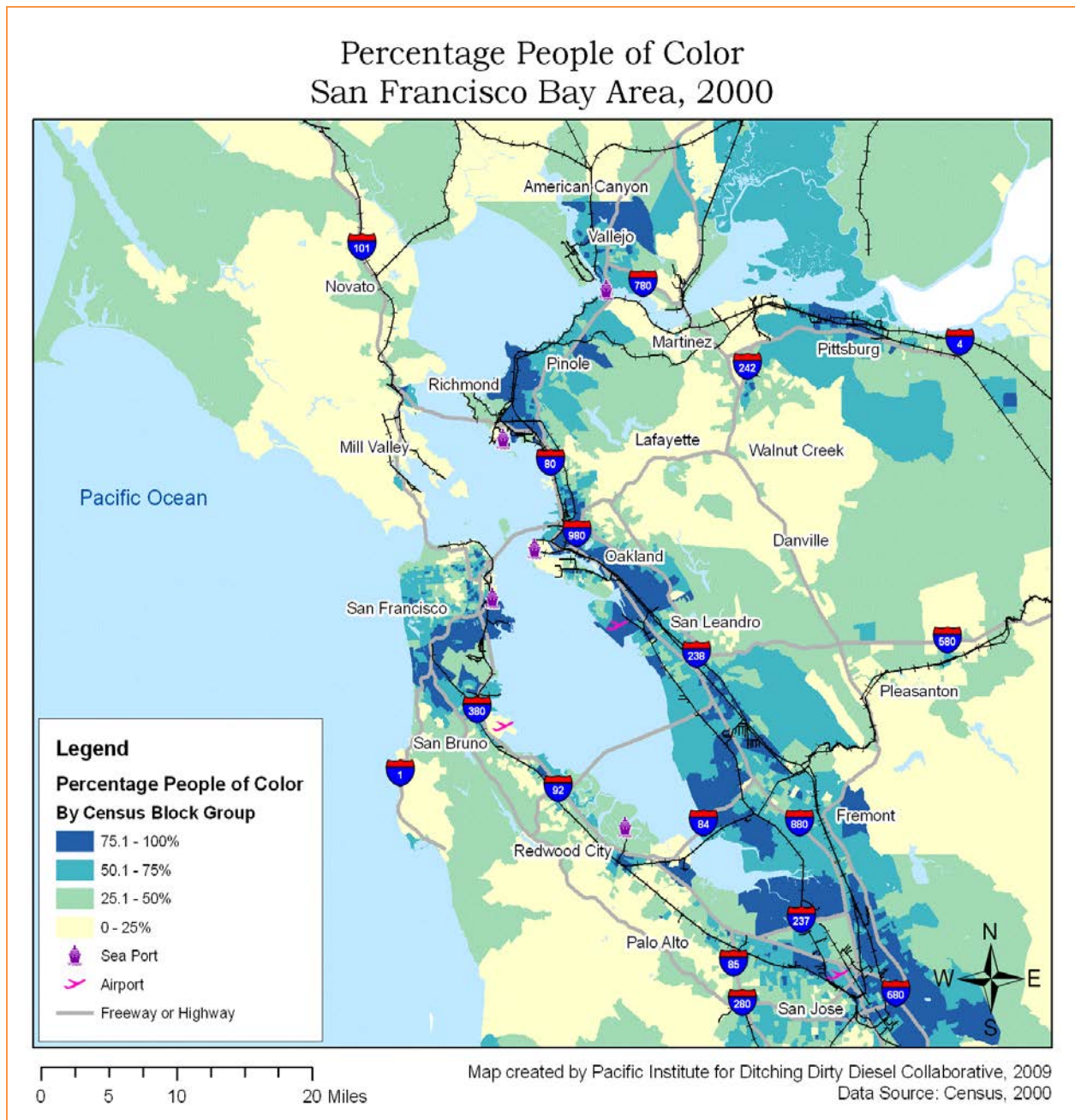


Figure 1. Freight transport infrastructure and people of color by Census Block Group, San Francisco Bay Area, 2000

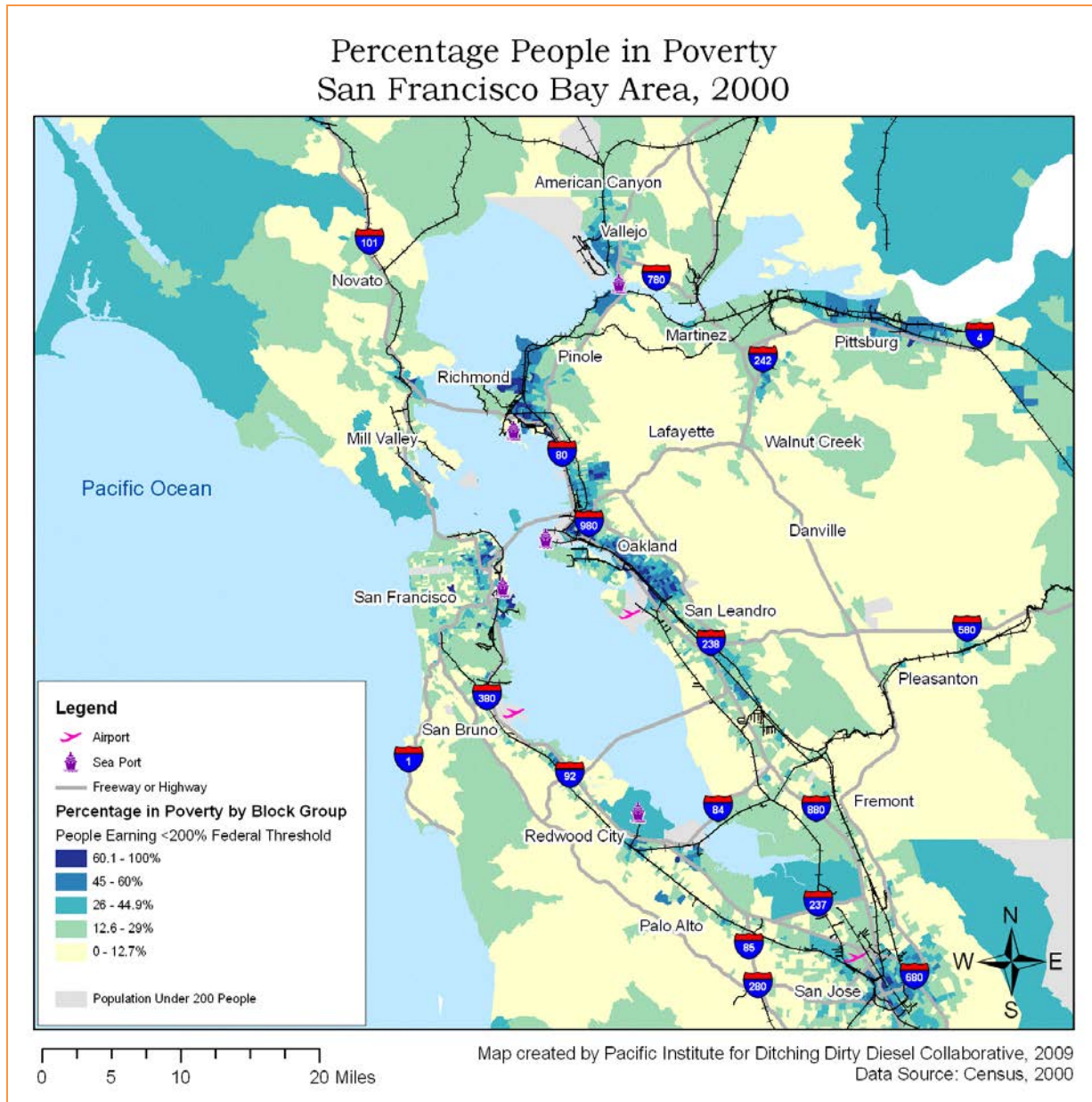
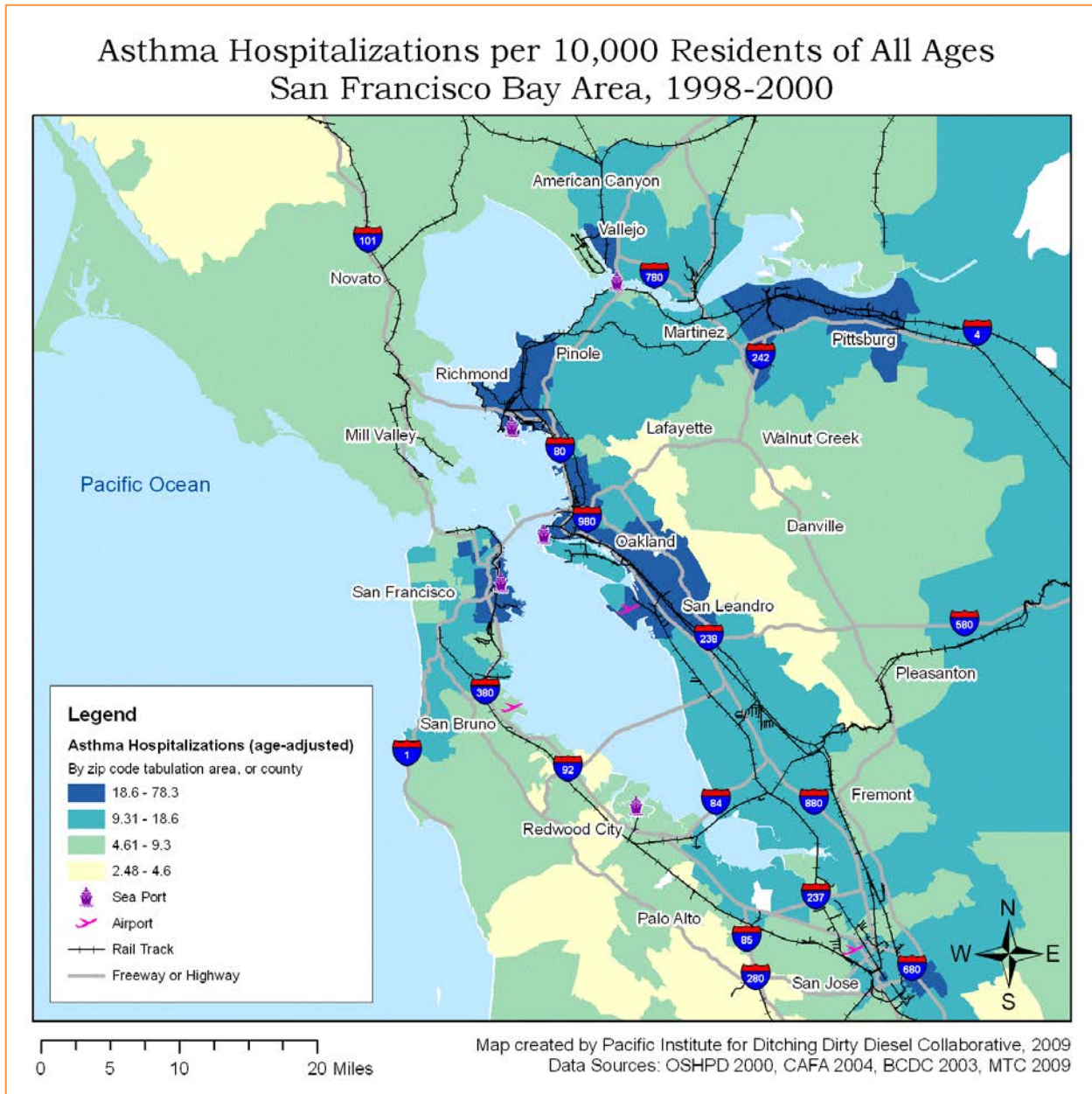


Figure 2. Freight transport infrastructure and poverty rates by census tract, San Francisco Bay Area, 2000



**Figure 3. Freight transport infrastructure and asthma hospitalization rates by zip code, San Francisco Bay Area, 1998-2000**

**A full list of maps accompanies this report. Maps are available for Alameda County, East Contra Costa County, West Contra Costa County, San Francisco County, San Mateo County, and Santa Clara County. To download the maps, go to [www.pacinst.org/reports/crossroads\\_for\\_health/index.htm](http://www.pacinst.org/reports/crossroads_for_health/index.htm)**