

Quantitative Assessment in Land Use and Transportation

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Assessment Steps Recap

Use research questions developed and indicators identified in scoping

Profile existing conditions by collecting data for indicators that answer your research questions

Evaluate how the proposal will change selected indicators

Use results to develop recommendations and mitigations to address negative health impacts and maximize health benefits

A Health Impact Assessment of the Humboldt County General Plan Update

Proposal

Update Humboldt County's General Plan, including development scenarios to accommodate future growth in the county



Collaborators

Board of Supervisors

Public Health Branch

County Planning Department

The California Endowment

Human Impact Partners

HumPAL (community organization)

Alternative A

“Focused growth”

All new units built in areas with existing infrastructure

6,000 units over 25 years

Alternative B

Build primarily in areas with existing infrastructure

Some expansion to areas outside city centers

12,000 units (6,000 urban/6,000 non-urban)

Alternative C

Requires expansion of infrastructure

Allows new housing in outlying areas

18,000 units (6,000 urban/12,000 non-urban)

For 35 indicators selected

Literature review

Collection of existing conditions data

Analysis of how 3 alternatives would impact indicators, including vulnerable populations

Potential mitigations

Existing Conditions

In Humboldt County, VMT = 27 miles/person/day (2006)

California VMT = 24 miles/person/day

VMT affects health

Collisions, walking/biking, proximity to goods and services, social cohesion, global warming

Disparities

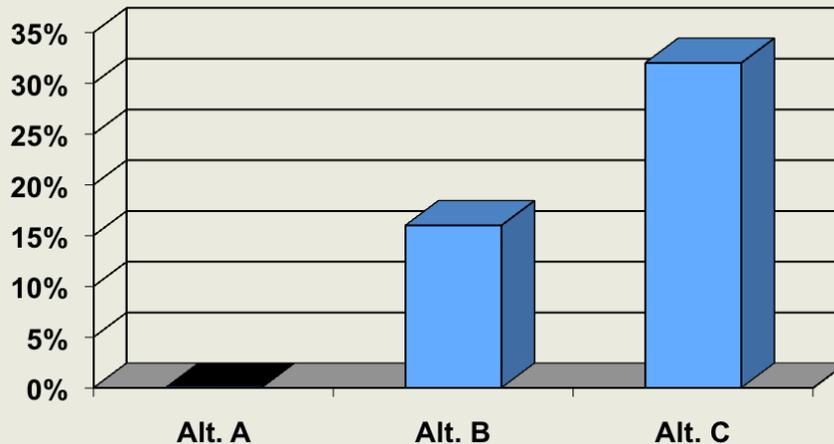
Seniors may be unable/unwilling to drive

Low-income people may not have access to cars or may need to spend large percent of income on driving

VMT: Average vehicle miles traveled per person per day

Alternative A (baseline)

Reduced individual travel expenses and time
Increased transit, walking, and biking



Alternative B

200 million more miles driven in
the county annually

Alternative C

400 million miles more

Method	Findings
Empirical Literature	In CA, per capita VMT is 2.7 times higher in rural areas when compared with urban areas.
Indicator	In 2006, Humboldt residents traveled 27 vehicle miles per capita per day.
Focus group	Raised the issue of walkability many times, and desire to analyze and minimize VMT.
Original analysis	Using Alternative A as a baseline, Alternative B would generate 16% (over 200 million miles) more VMT annually in the county, and Plan Alternative C would generate 32% (over 400 million miles) more VMT annually.

Examples of Transportation-related Recommendations

Encourage employer-based incentives for transit

Increase public education about public transit

Raise priority of non-motorized modes of transport

Collect data about pedestrian and bicycle use

Establish pedestrian and bicycle routes to schools

No decision yet on General Plan Update

Recommendations included in Circulation and Housing Elements

HIA included as appendix to EIS

Built collaboration between planning & public health agencies

Built awareness about health and land use among elected officials, general public, planners, community groups

Other counties interested in using the approach

Healthy Development Measurement Tool (HDMT)

Pedestrian Environmental Quality Index (PEQI)

Air Quality Modeling

Noise Modeling

Pedestrian Injury Collision Modeling



The screenshot shows the homepage of the Healthy Development Measurement Tool. The header features the title and a navigation menu with links for Home, Introduction, The Tool, HDMT Instructions, Application Resources, and About. Below the header is a 'Recent News' section with two entries: '2009-11-02 Galveston Adaptation of HDMT' and '2009-10-16 Denver Adaptation of HDMT'. The Galveston entry describes the tool's adaptation for post-disaster recovery in Galveston, Texas, following Hurricane Ike. The Denver entry describes the tool's customization for Denver, CO, for a redevelopment project in the La Alma/ Lincoln Park neighborhood. A photograph of a community market is also visible.

Healthy Development Measurement Tool
A comprehensive evaluation metric to consider health needs in urban development

[Home](#) [Introduction](#) [The Tool](#) [HDMT Instructions](#) [Application Resources](#) [About ...](#)

Recent News

2009-11-02 Galveston Adaptation of HDMT

Following the impact of Hurricane Ike last year, which damaged or destroyed 70% of Galveston, Texas' residential and commercial buildings, the island is adapting the HDMT to a post-disaster recovery scenario. The Center to Eliminate Health Disparities at the University of Texas Medical Branch is working with the local city and county governments, community-based service providers and non-profit agencies to ensure that current rebuilding efforts as well as new ordinances incorporate an assessment on the likely impact on health. To learn more, contact [Lexi Nolen at the Center to Eliminate Health Disparities](#).

2009-10-16 Denver Adaptation of HDMT

The Denver Housing Authority has sponsored a project to customize the Healthy Development Measurement Tool for use in Denver, CO. The customized Denver HDMT has been adapted to reflect conditions, data, and initiatives specific to Denver, as well as coordination with metrics such as LEED-ND and SSI (Sustainable Sites Initiative). The Denver HDMT will then be applied to the South Lincoln Homes Redevelopment project, currently in planning stages. This 15 acre site in the historic La Alma/ Lincoln Park neighborhood will be redeveloped into a mixed-income, mixed-use Transit Oriented Development (TOD), and represents a rather unique opportunity for leveraging public and private investment. To learn more, contact [Erin Christensen at Mithun](#).

Visit the [HDMT News Archive](#).

www.thehdmt.org

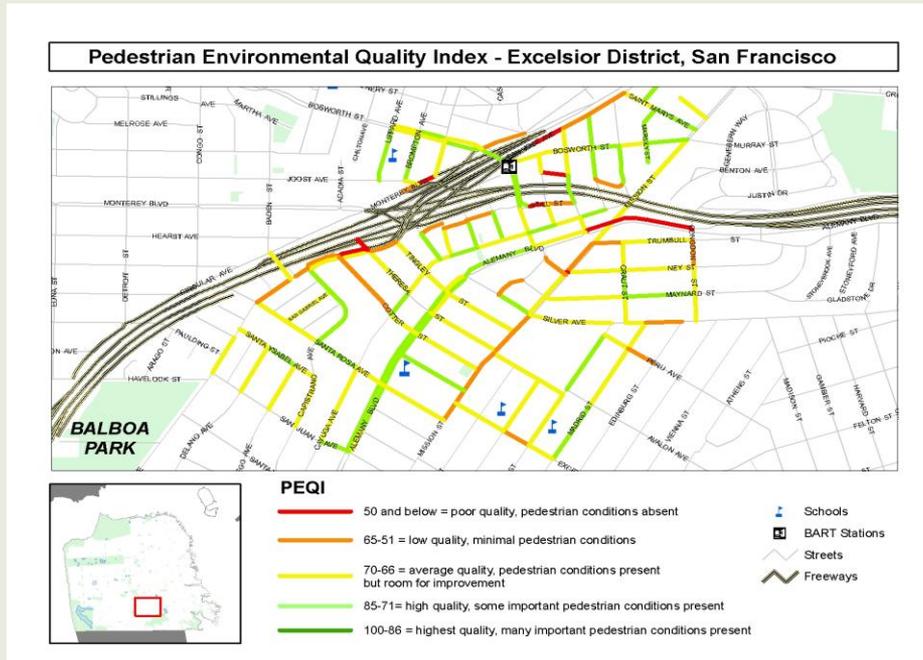
Over 120 measurable community health indicators and development targets

Data for San Francisco in the form of maps and tables, often disaggregated by neighborhood

Data is routinely measured, collected and updated by SFDPH

Used to support comprehensive and health responsive planning

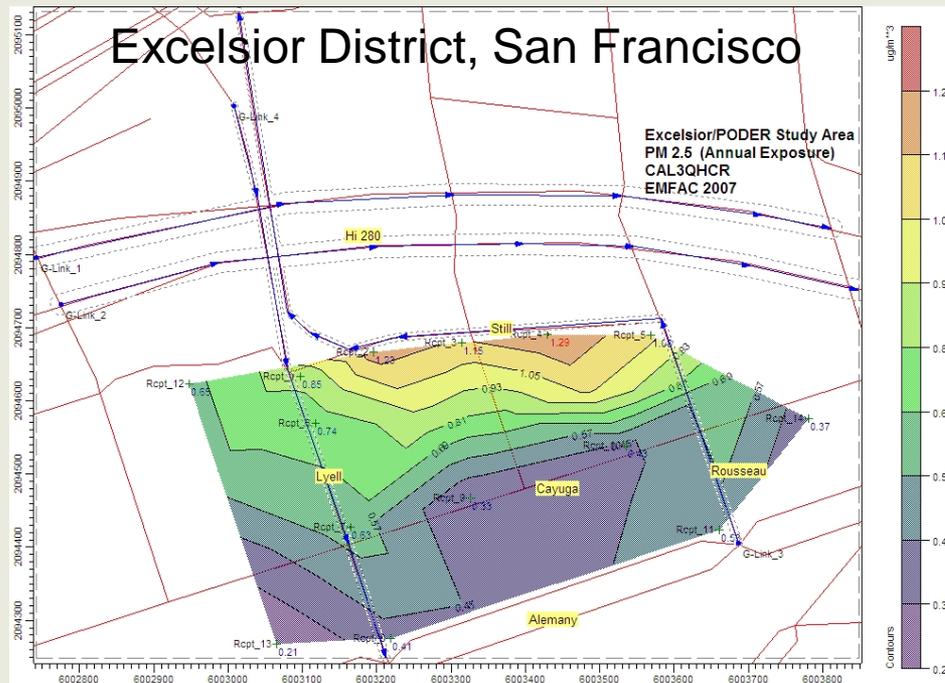
PEQI: A spatial assessment tool to assess environmental factors that support or prevent safe walking



Traffic
Street design
Intersection safety
Land use

Modeling vehicle source PM_{2.5} CAL3QHCR Line Source Dispersion Model

A 1 $\mu\text{g}/\text{m}^3$ change in PM_{2.5} predicts a 1.4% change in non-injury mortality!

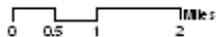
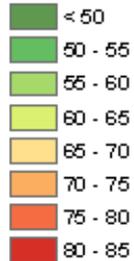


Air Quality Model Inputs

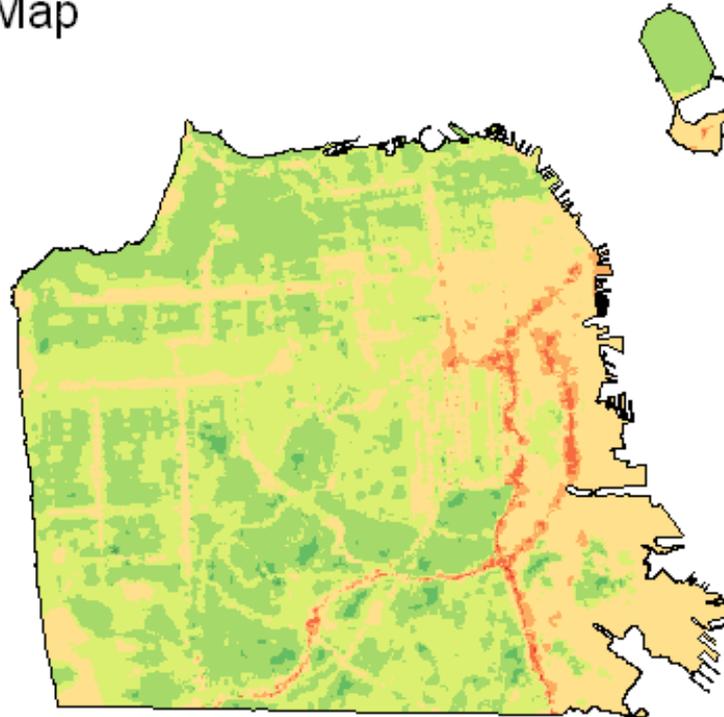
- Traffic data
- Vehicle emissions rates
- Traffic speed
- Temperature and humidity
- Surface meteorology
- Number of receptors

Traffic Noise Map

Noise Levels (dBA)



City and County of San Francisco
Department of Public Health
Environmental Health Section



The exposure threshold for increased incidence of heart disease is 65 dBA

Noise Model Inputs

Vehicle types and volumes

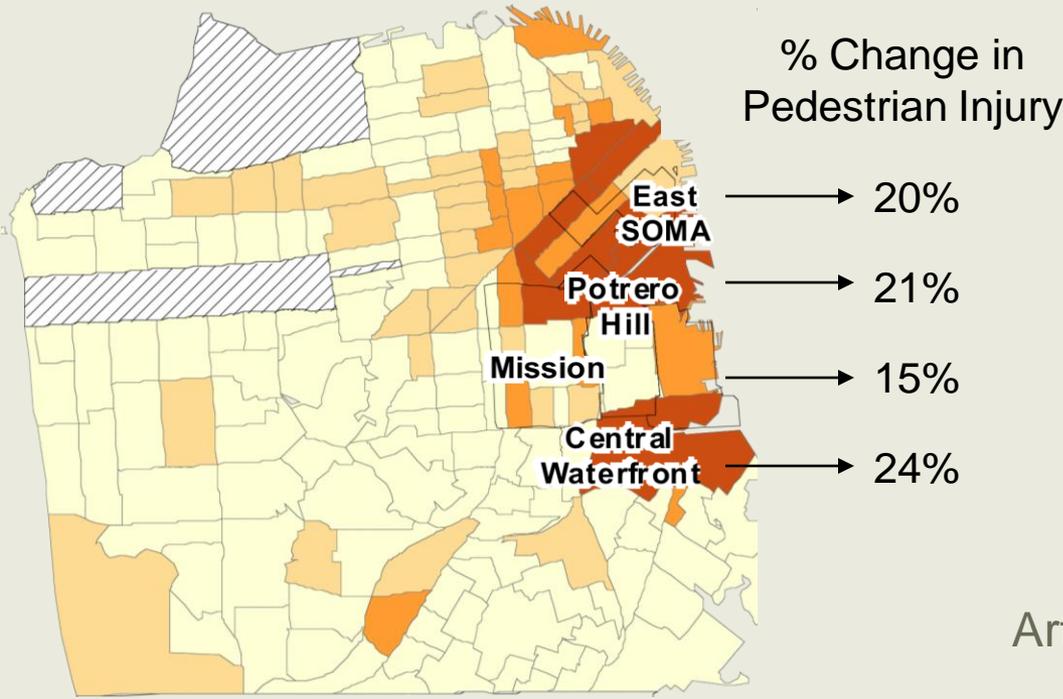
Temporal distribution of traffic

Use traffic noise model to find

exposure as function of distance

Add topography and building sizes

Add stationary sources



Citywide Target Rate Comparison: 104/100,000 Population

- Exceeds or Meets ($\leq 104/100,000$)
- 1 - 2 Times (105 - 208/100,000)
- 2 - 5 Times (209 - 520/100,000)
- > 5 times ($\geq 521/100,000$)
- Excluded because of Small Population

Injury collision rates resulting from Eastern Neighborhoods Rezoning

Developing a Collision Model

- Traffic volume
- Arterial streets (% without transit)
- Land area
- Percent car ownership
- Percent commuting via walking or transit
- Number of residents

Thank You!



Questions?

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