Integrating Health in Transportation Policy: HIA, EIA or DNA

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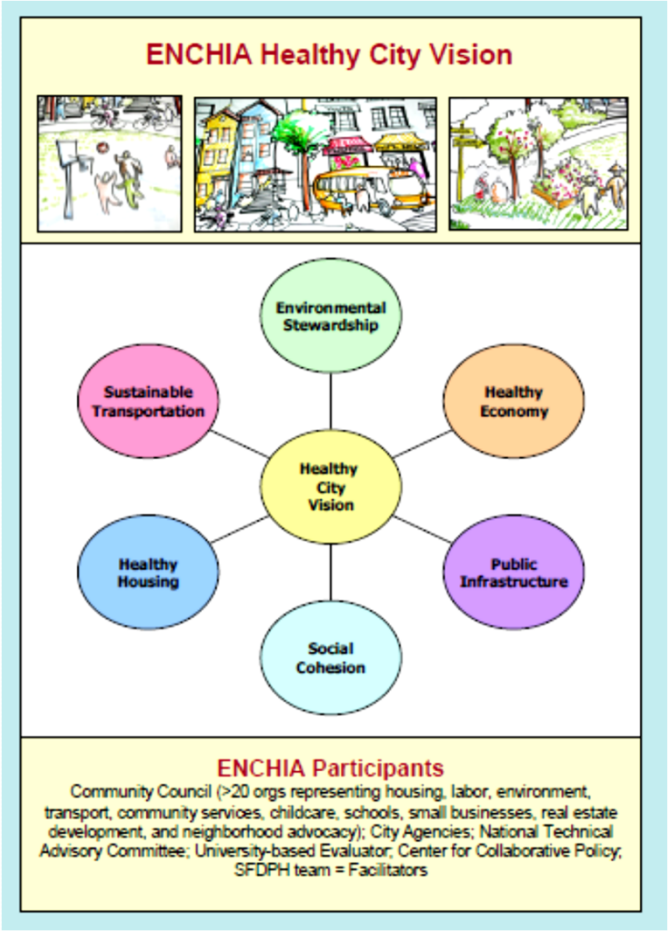
Eastern Neighborhoods Community Health Impact Assessment (ENCHIA)



- Collaborative, consensus-based health impact assessment to analyze how development in three SF neighborhoods affected health
- Multi-stakeholder public + private Community Council guided the process
- *ENCHIA stakeholders sought a* comprehensive human needs-responsive metric to guide and evaluate urban planning
- 18-month process culminated in the development of the "Healthy Development Measurement Tool"

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Diverse health needs impacted by urban transportation systems

- Access:
  - Convenient access to jobs, schools, basic needs
  - Ability to use walking, bicycling, and public transit
- Safety:
  - Clean Air
  - Quiet neighborhoods
  - Motor vehicle collision hazards
- Equity:
  - Areas with disproportionately higher environmental impacts and lower infrastructure investments

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SF's *Healthy Development Measurement Tool* provided a framework and monitoring system for urban planning

- Healthy city vision Community-health objectives
- Community-level Health Indicators
- Policy and Design Strategies
- Criteria for healthy development
- Public Health Evidence

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Metrics for a Healthy Transportation System

Access	Transportation Safety	Ambient Environmental Quality	Livability / Walkability
Daily travel time / distance	Share of urban road network with design speed <30 mph (urban arterials) and <20 (residential streets)	**Traffic density (vehicle miles travelled / unit area)**	**Pedestrian Environmental Quality Index / Pedestrian Level of Service**
Average daily travel trips	**Number injury collisions**	**Area with PM 2.5 or NOx concentration above health based standards**	Ratio of pedestrian network length to surface road network length
Share of income spent on transportation expenses	**Number of severe injuries and fatalities**	Health effects (pre-mature mortality, asthma hospitalizations, etc) attributed to traffic pollution	Pedestrian density
Number of health-relevant goods and services within walking distance		**Population exposed to ambient noise >55 dB (WHO community standard)**	Frequency of social contacts
Proportion of households within 1/2 mile of local or regional public transport stop with <15 minute frequency		Health effects (stress, sleep disturbance, etc) attributed to traffic noise	Population average minutes physical activity from active transportation

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Map of areas exceeding PM 2.5 standards:

Identifies high pollution areas for emissions and exposure reductions

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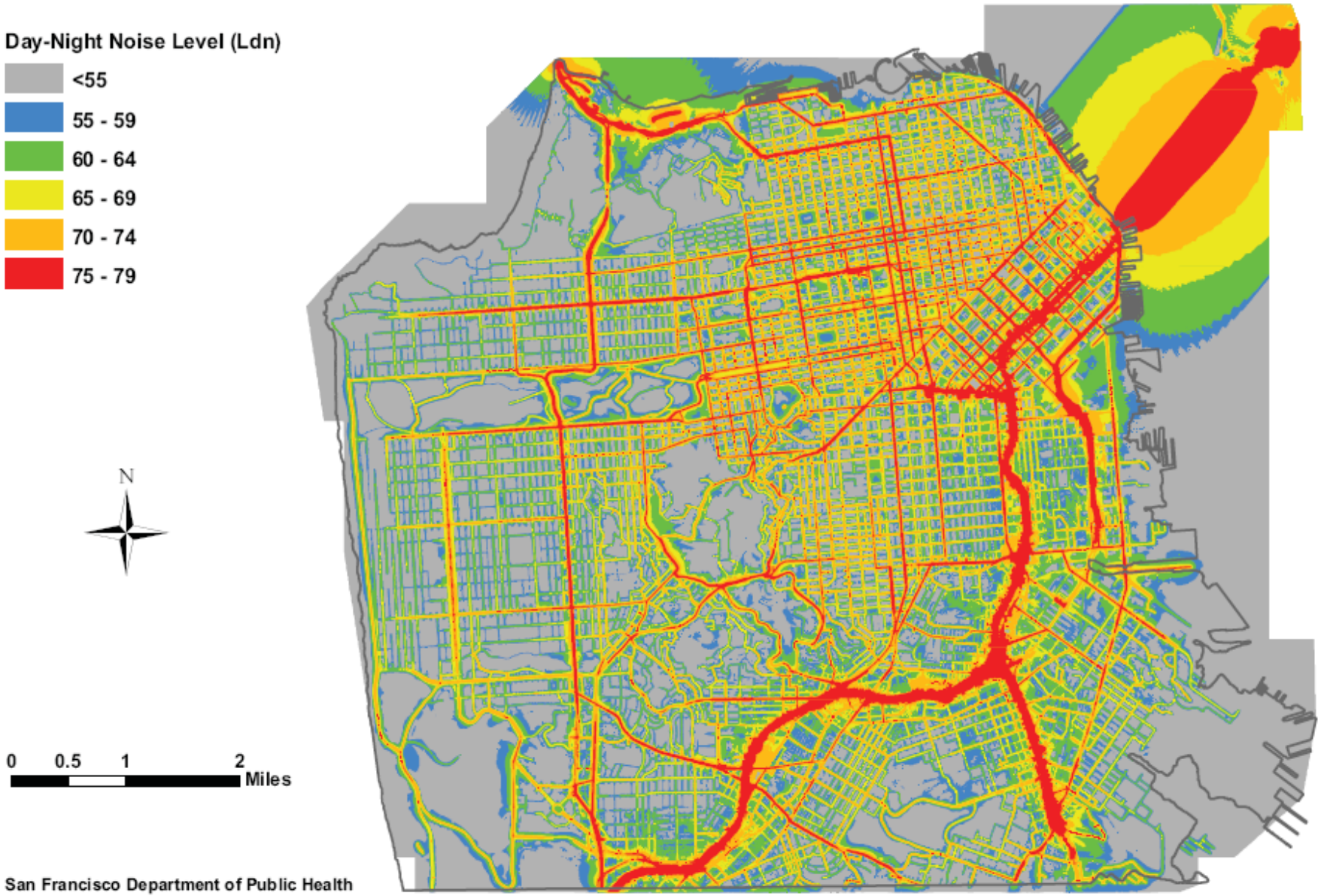
Transportation Noise Map 2008



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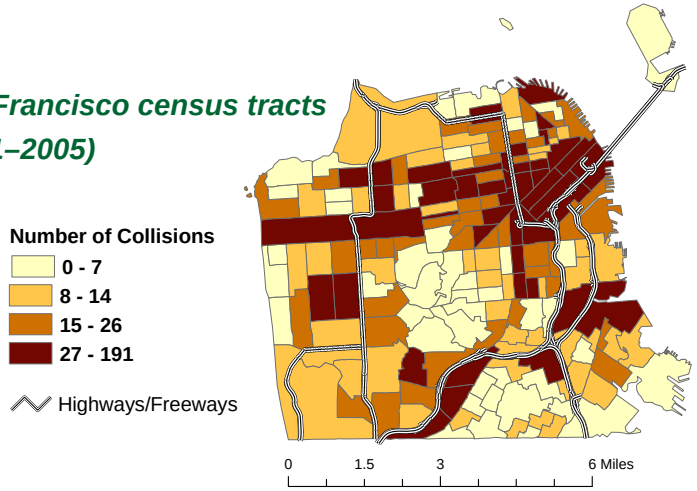
SFDPH Pedestrian Injury Forecasting and Spatial Assessment of Disparities

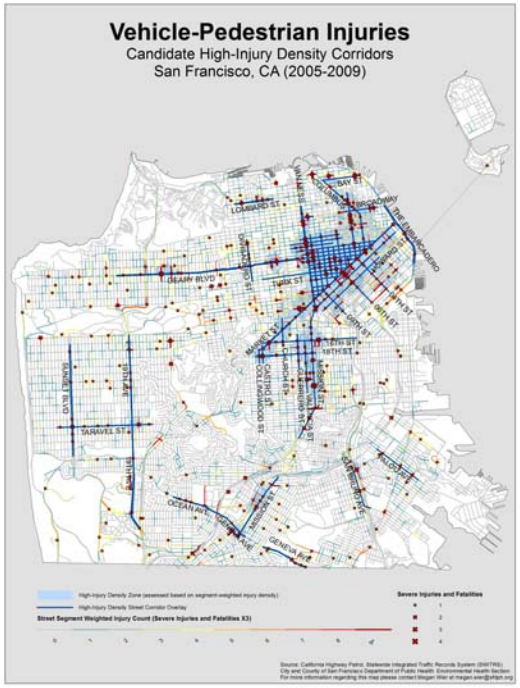
San Francisco census tracts (2001–2005)



Source: California Highway Patrol, Statewide Integrated Traffic Records System

Significant predictors of area-level collisions:

- Traffic volume (+)
- Arterial streets (+) w/o surface transit
- Neighborhood commercial zoning (+)
- Employees (+)
- Residents (+)
- Land area (-)
- Below poverty level (+)
- Age 65 and over (-)



High-injury (blue) corridor methodology identifies:

- 5.2% of city street length in miles
- 55% of severe and fatal pedestrian injuries
- 51% of total pedestrian injuries

Wier et al. *Accident Analysis & Prevention*. 2009.

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HIA of Road Pricing within SF Downtown Cordon

- Feasibility study approved by the San Francisco County Transportation Authority (SFCTA) Board: December 2010

The Northeast Cordon (AM/PM) was the best performing (greatest benefits with the fewest adverse impacts) among dozens of scenarios:

- 12% fewer peak period auto trips
- 21% reduction in vehicle hours of delay
- 16% reduction in Northeast Cordon GHGs (5% citywide)
- $60-80M annual net revenue for transportation services and amenities
- 20-25% transit speed improvement

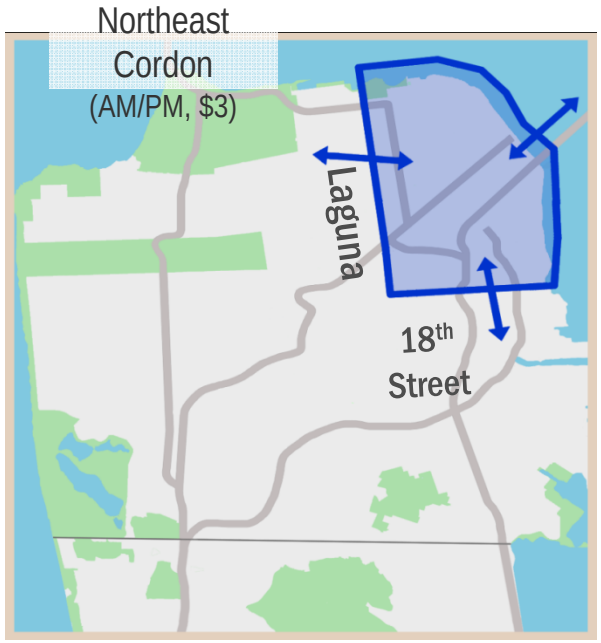
- Next steps: further study/analysis, including environmental review

- Implementation decision: likely 2-3 years, following environmental review

www.sfcta.org/sfmobility

SFDPH noted SFCTA study assessing:

- Transportation System Performance
- "3 Es": Environment; Economy; Equity



Health Impacts?

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Road Pricing HIA: Baseline conditions (2005)

- Substantial health burdens from transportation, including quantifiable impacts on air pollution-related mortality, noise-related heart disease, and traffic injuries to pedestrians and cyclists
- Substantial unrealized potential health benefits from active transport
- Disproportionately burden on residents living *within the pricing zone*

http://www.sfphes.org/transportation/Road_Pricing_HIA_Technical_Report.pdf

Road Pricing HIA: Future (2015) with and without road pricing

- Increased traffic volume and adverse transportation impacts in priority development areas with BAU
- Modest benefits from pricing effects on traffic volume under future conditions.
- Largest benefits related to active transportation and avoidance of vehicle-pedestrian collisions.

http://www.sfphes.org/transportation/Road_Pricing_HIA_Technical_Report.pdf

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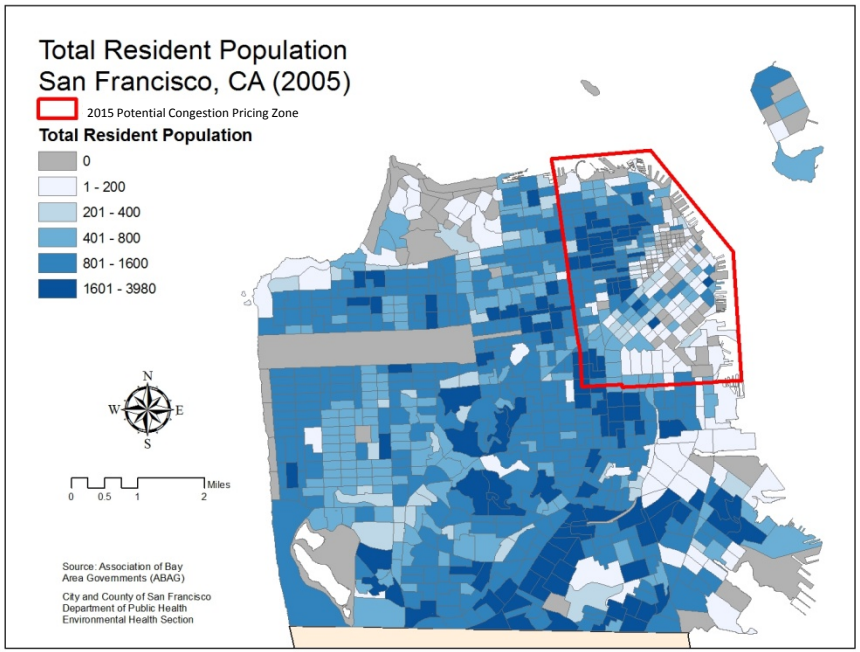
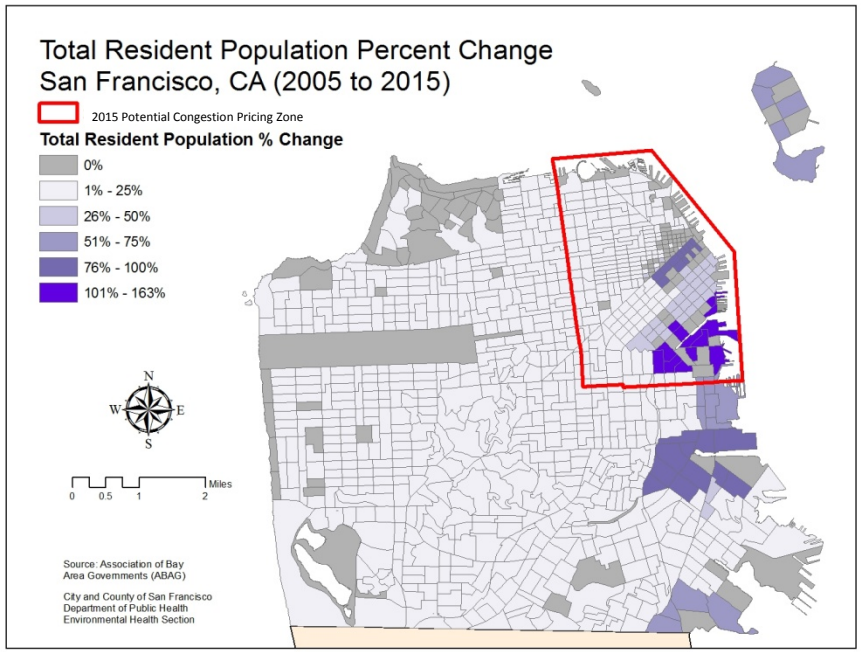
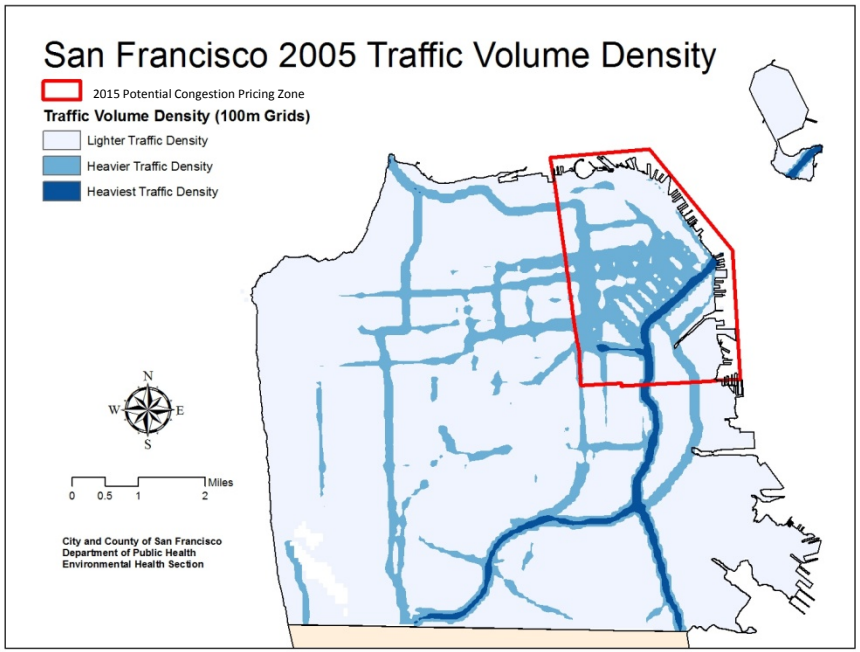
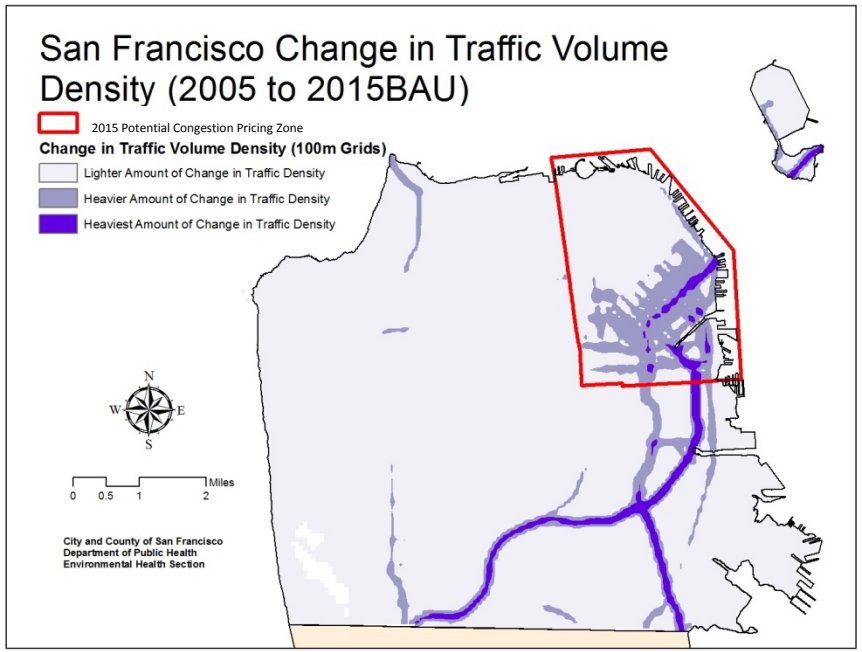




2005

2015 “Business As Usual”





Road Pricing HIA: Economic valuation

	Estimated Value ($, Millions)			
Economic value of health effects	2005	Change: 2005 - 2015 BAU	Change: 2005 - 2015 RP	Change: 2015 BAU - 2015 RP
Illness, injury and death from environmental hazards	-$1,124	-$49	$4	$53
Lives saved with active transportation (walking and biking)	$1,225	$80	$112	$32

http://www.sfphes.org/transportation/Road_Pricing_HIA_Technical_Report.pdf

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Road Pricing Recommendations to the Transportation Authority's Study Process

- Increase congestion pricing fees on poor air quality days
- Invest in walking and biking safety improvements where injuries are highest
- Use quieter, low-emission hybrid buses in areas where noise, air pollution are worse
- Invest in walking and biking infrastructure to encourage trips into/out of the zone

Van Ness Avenue Bus Rapid Transit (BRT)

- Proposed BRT for Van Ness Avenue, San Francisco's major north-south transit route
- Draft EIS/EIR included detailed study of air pollution, noise, pedestrian safety and transit performance effects.
- HIA judged to have low-information value – given project support and commitments and existing comprehensive impact assessment process
- Health department provided focus comments on EIA assessment of noise and pedestrian safety analysis

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Design and evaluation of Bay Area Transportation Plans now include health and equity metrics!

- GHG reduction
- Adequate housing
- Healthy and Safe Communities
  - PM 2.5 attributable mortality
  - Transportation Injuries
  - Active transportation time
- Open Space preservation
- Household transportation costs
- Reduction of Travel times
- Economic vitality—GDP growth
- Transportation system maintenance

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Broader Lessons for Healthy Transportation Planning

- Opportunities to integrate health performance metrics into existing routines and practices of the transportation planning.
  - Means for inclusion and prioritization of health supporting projects and designs
  - Leverages existing processes
  - Generates ownership by transport sector
  - Creates a monitoring and accountability system
- HIA has important residual roles
  - Inter-institutional learning
  - Major policy change and major projects
  - Metrics and methods development
  - Accountability where health is missing
- Main challenges and needs
  - Widely applicable metrics and methods
  - Sufficient attention to disproportionate impacts

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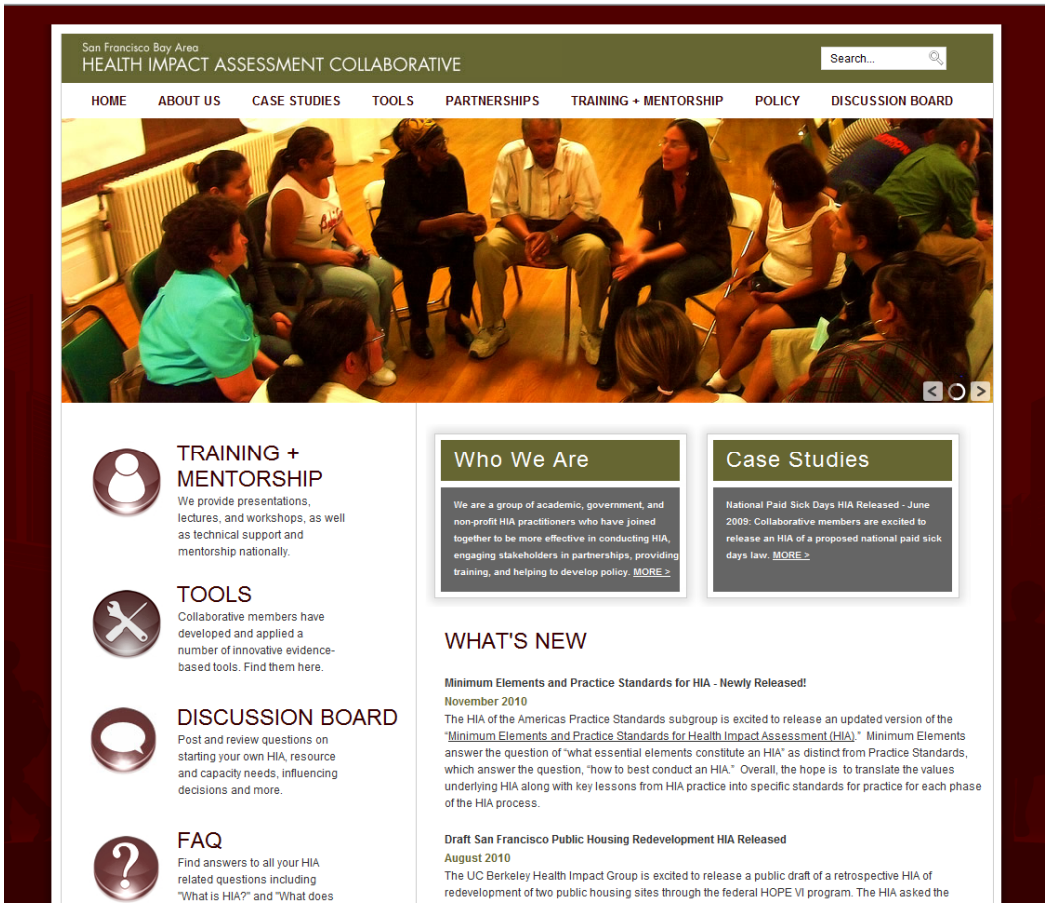
Technical needs for health and transportation planning

- Development of replicable, scalable, actionable metrics
- Estimation methods integrated with transportation modeling tools
- Robust methods for evaluating equity
- A toolbox of policy and design solutions
  - Road user charges
  - Design standards for non-motorized safety
  - Automated enforcement

Resources:



SF HIA Collaborative
www.hiacollaborative.org

SF Department of Public Health
www.sfphes.org

Healthy Development Tool
www.thehdmt.org

UC Berkeley HIA Group
http://sites.google.com/site/ucbhia

Human Impact Partners
www.humanimpact.org

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