

# Smart Growth:

Health, Justice & Equity in Freight & Infrastructure Development

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*February 3, 2012*



## Cesar Chavez High School

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*Inequity, Health Hazards & Siting/Zoning*

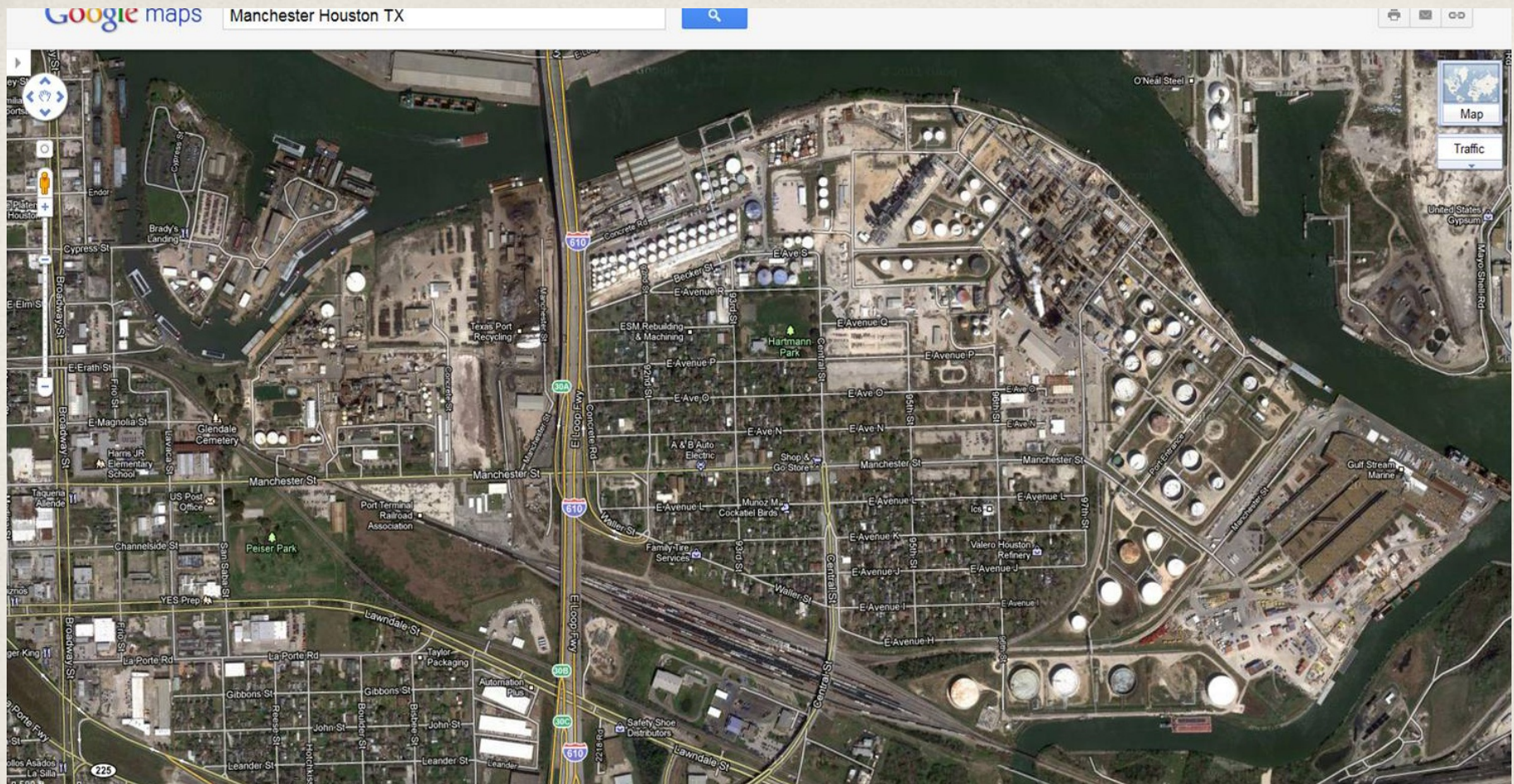
# Inequity:

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- ✦ Building Safe Schools: Invisible Threats, Visible Actions (CHEJ, 2005)
  - ✦ Texas is one of 20 states in the nation with no policy of any kind that restricts building schools on or near contaminated sites.
  - ✦ CCHS sits approximately 1/4-mile from three industrial facilities. The site was previously used as an auto repair facility, auto salvage yard, dry cleaner, service station, and lavatory chemical factory. Underground pipelines still traverse the school property. It is also in the Worst Case Scenario Kill Zone for the industrial Facilities.
- ✦ The Smokestack Effect: Toxic Air and America's Schools (USA Today)
  - ✦ 1st Percentile: Exposure to cancer-causing toxics & other toxic chemicals (1-3, Butadiene; Sulfuric Acid; Diisocyanates; Chlorine; Dimethylformamide N,N).
  - ✦ 116 of 127,809 schools have worse air.





# Manchester Community

*Cumulative Risk, Disproportionate Affects*

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# Manchester:

“My grandfather lived here, my father lived here and now I live here”

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# Valero Refinery:

This is another possible destination for the Keystone XL Pipeline.

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# Manchester:

## Fence-line Communities

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*Date*



# Peiser Park, Manchester

Adjacent "Greenspace" donated from your friendly industrial neighbors.

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Manchester Arial Pic

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# HEALTH

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Susceptibility

Differential Exposure

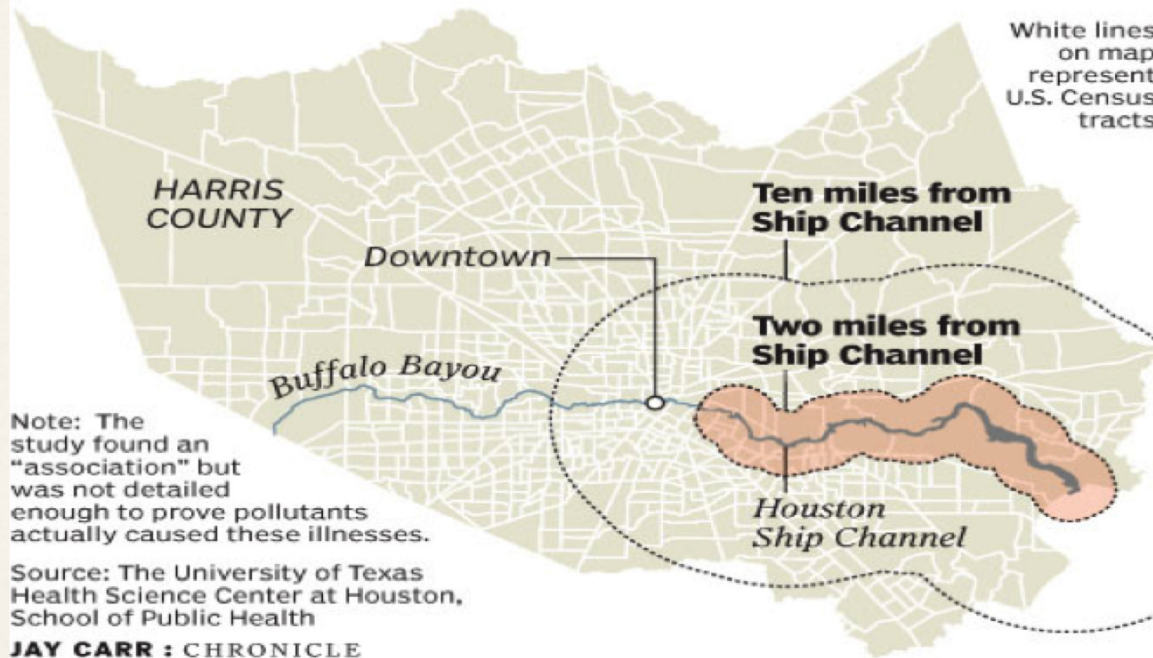
Differential Preparedness

Differential Ability to Recover



## CANCER STUDY AREA

Researchers at the University of Texas School of Public Health have found a 56 percent increased risk of acute lymphocytic leukemia among children living within two miles of the Houston Ship Channel, when compared with children living more than 10 miles from the channel.



Sexton, Linder, Marko, Bethel, Lupo (EHP, 2007)

Comparative Assessment of Air Pollution-Related Health Risk in Houston

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## East Houston Definite Risk Pollutants

Census Tract Number	Total Pollutants	Acrolein	Chromium VI	Diesel Particulates	Formaldehyde	Benzene	Chlorine	1,3-Butadiene	Hexamethylene diisocyanate
3203	7	X	X	X	X	X	X	X	
2121	6	X	X	X	X	X	X		
2334	6	X	X	X	X	X	X		
2336	6	X	X	X	X	X	X		
2337	6	X	X	X	X	X	X		
3116	6	X	X	X	X	X		X	
3201	6	X	X	X	X	X		X	
3204	6	X	X	X	X	X	X		
2115	5	X	X	X	X	X			
2116	5	X	X	X	X	X			
2118	5	X	X	X	X	X			
2119	5	X	X	X	X	X			
2120	5	X	X	X	X	X			
2122	5	X	X	X	X	X			
3107	5	X	X	X	X	X			
3110	5	X	X	X	X	X			
3111	5	X	X	X	X	X			
3114	5	X	X	X	X				X
3115	5	X	X	X	X	X			
3108	4	X	X	X	X				
3109	4	X	X	X	X				
3112	4	X	X	X	X				
3113	4	X	X	X	X				
3202	4	X	X	X				X	
3205	4	X	X	X				X	
3206	3	X	X	X					
3207	3	X	X	X					
3217	3	X	X	X					

Institute for Health Policy



THE UNIVERSITY of TEXAS  
SCHOOL of PUBLIC HEALTH

# City of Houston Mayor's Task Force

## Air Quality in Manchester/Chavez High School Areas

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**Table 1. Definite Risk Pollutants**

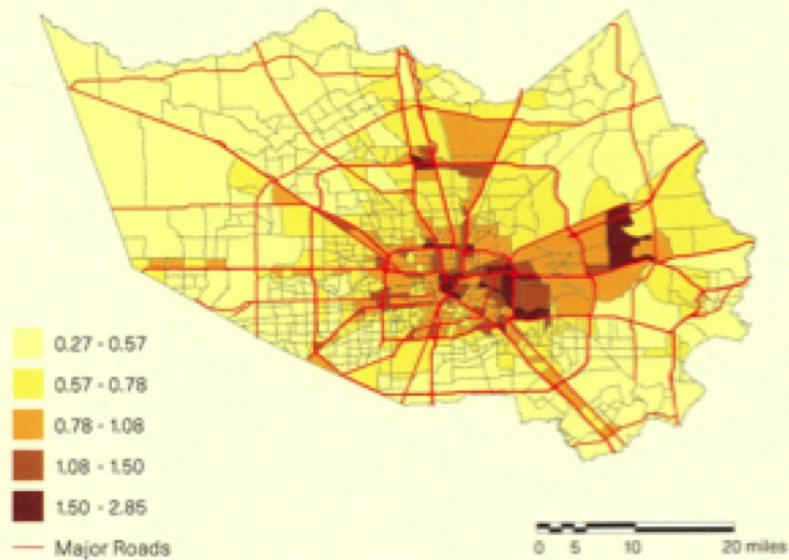
Air Pollutant	Health Effects <sup>2</sup>		Emission Source <sup>1</sup>			
	Cancer endpoint	Chronic endpoint	Point	Mobile		Area
				On Road	Off Road	
Ozone		Respiratory /Cardiovascular/Immune	N/A	N/A	N/A	N/A
Fine Particulate Matter (PM 2.5)	Yes	Respiratory /Cardiovascular	X	X	X	X
Diesel Particulate Matter	Yes	Respiratory		X	X	
1,3-Butadiene	Yes	Female reproductive	X	X	X	X
Chromium VI	Yes	Respiratory	X	X	X	X
Benzene	Yes	Immune	X	X	X	X
Ethylene Dibromide (Dibromoethane)	Yes	Male reproductive	X			X
Acrylonitrile	Yes	Respiratory	X			X
Formaldehyde	Yes	Respiratory, Eyes	X	X	X	X
Acrolein	No	Respiratory	X	X	X	X
Chlorine	No	Respiratory	X			X
Hexamethylene Diisocyanate	No	Respiratory	X			X

<sup>1</sup>Emissions taken from the National Emission Inventory (NEI), 1999; (U.S., EPA, 2005c)

<sup>2</sup>Only chronic health effects associated with chronic health value used in the analysis are depicted in the table.

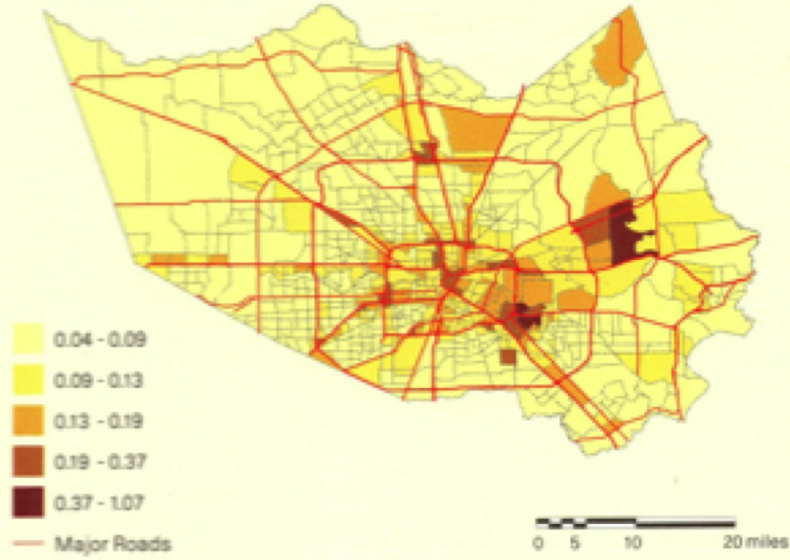
# Health Effects & Sources in East Houston

Date



**Figure 1: Benzene concentrations (ppb)**

*Benzene concentrations (ppb) across Harris County census tracts.  
 Data from the US EPA's 1999 NATA [4].*



**Figure 2: Concentrations of 1,3-butadiene (ppb)**

*Concentrations of 1,3-butadiene (ppb) across Harris County census tracts.  
 Data from the US EPA's 1999 NATA [4].*

# Concentrations of Benzene & 1,3 Butadiene

US EPA's 1999 NATA

Date

