Health in All Policies and an Urban Interstate

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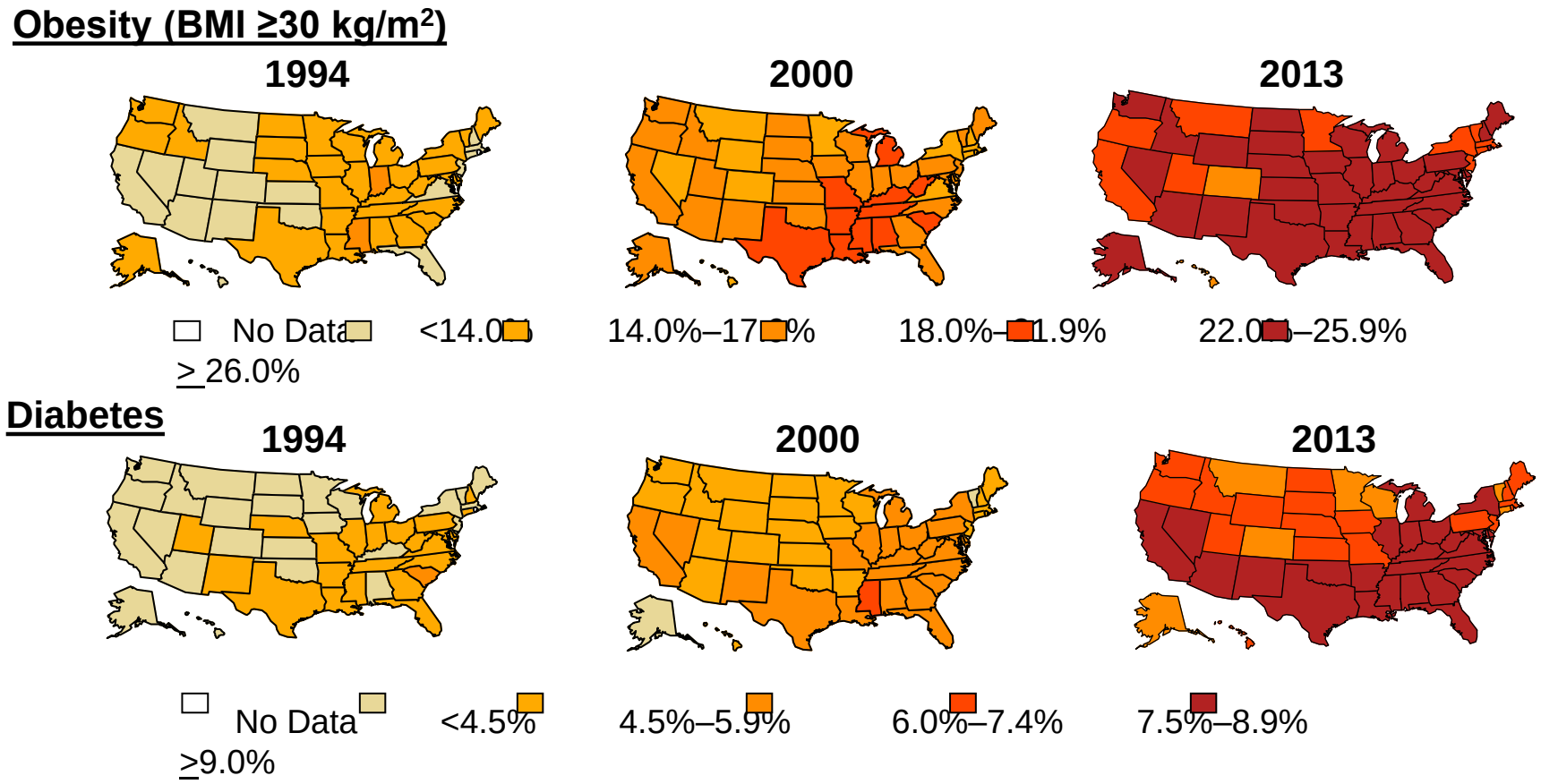
Tampa, FL

Hillsborough MPO
Metropolitan Planning
for Transportation

I’m a Transportation Planner. Why Look At Health?

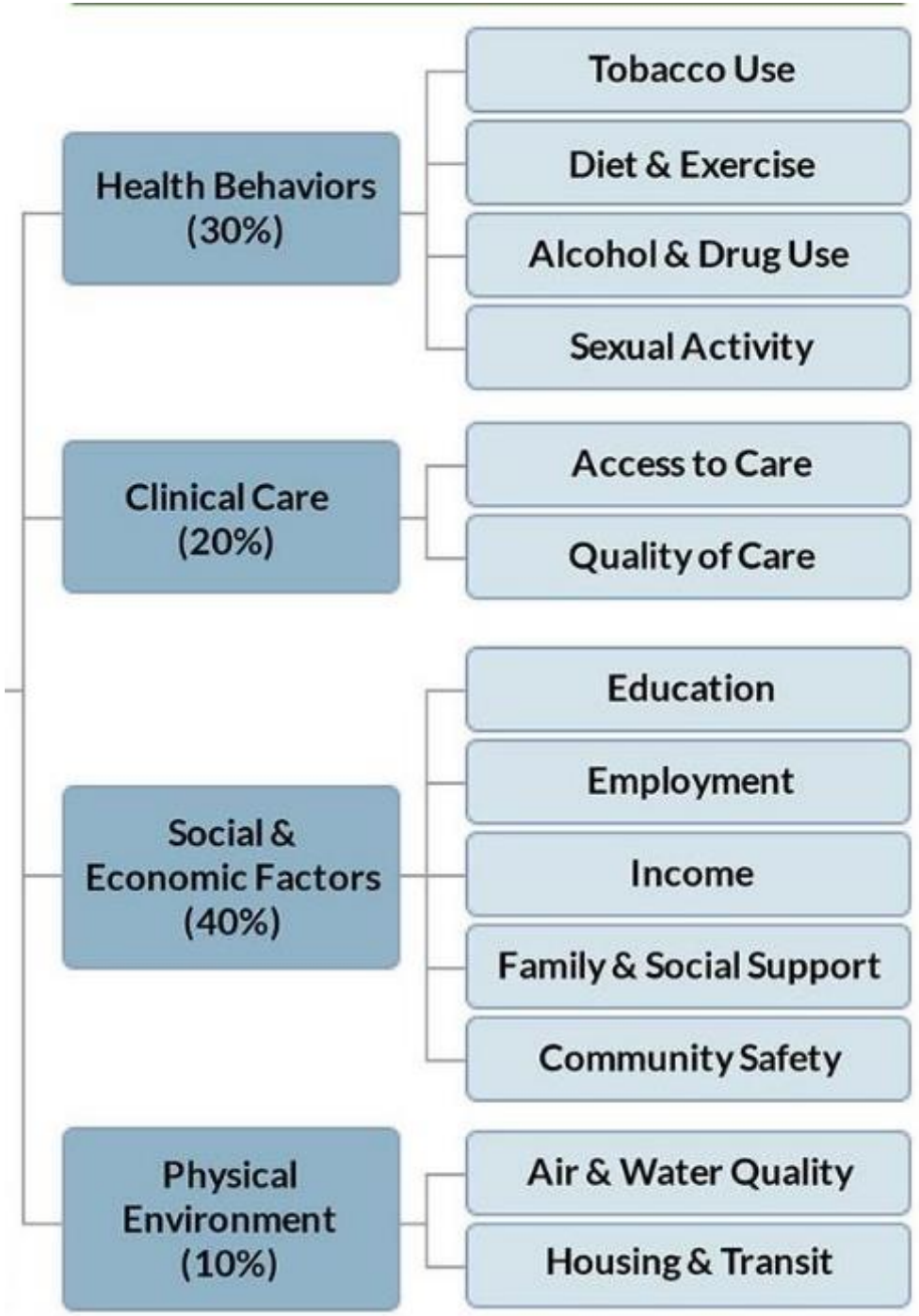


Age-adjusted Prevalence of Obesity and Diagnosed Diabetes Among US Adults

CDC’s Division of Diabetes Translation. National Diabetes Surveillance System available at http://www.cdc.gov/diabetes/statistics

Why Look At Health?

50% of our health outcomes are determined by **policies, systems** and the environment



Robert Wood Johnson Foundation/UWI Population Health Institute

How Can Planning Projects Improve Health?

- Injury and mortality rates of drivers, pedestrians, and bicyclists
- Physical activity rates through bike transit and walking to public transit
    - Obesity, chronic disease prevention and maintenance
- Air quality and greenhouse gas emissions
    - Reduce asthma exacerbations
- Access to goods, services and resources such as health care, healthy food, job opportunities, education

APHA Policy Statement, *Improving Health Through Transportation and Land-Use Policies*

Florida HEALTH
Hillsborough County

A Health-in-All Policies Approach to Transportation Plans

- **Safety.** Motor vehicle crashes are one of the leading causes of death in the United States. By providing transportation options and improving roadway facilities, transportation agencies can reduce the incidence of motor vehicle crashes.
- **Active transportation.** Transportation agencies and their partners can help people lead more active lifestyles by giving them options for getting to places they need to go without driving. They can also reduce the distance between destinations people travel to satisfy daily needs.
- **Air quality.** Air pollution has been linked with heart disease and respiratory illnesses, including asthma. Improving transportation system efficiency and supporting cleaner vehicles and fuels can improve air quality.
- **Connectivity to destinations.** Providing a well-connected, multi-modal transportation network increases people's ability to access destinations that can influence their health and well-being. For example, an effective transportation network can provide access to jobs, health care services, and parks.
- **Equity.** Ensuring that our aging parents and grandparents, children, persons with disabilities, low income families have access to make choices allowing them long and healthy lives

Customizing our Community's Approach

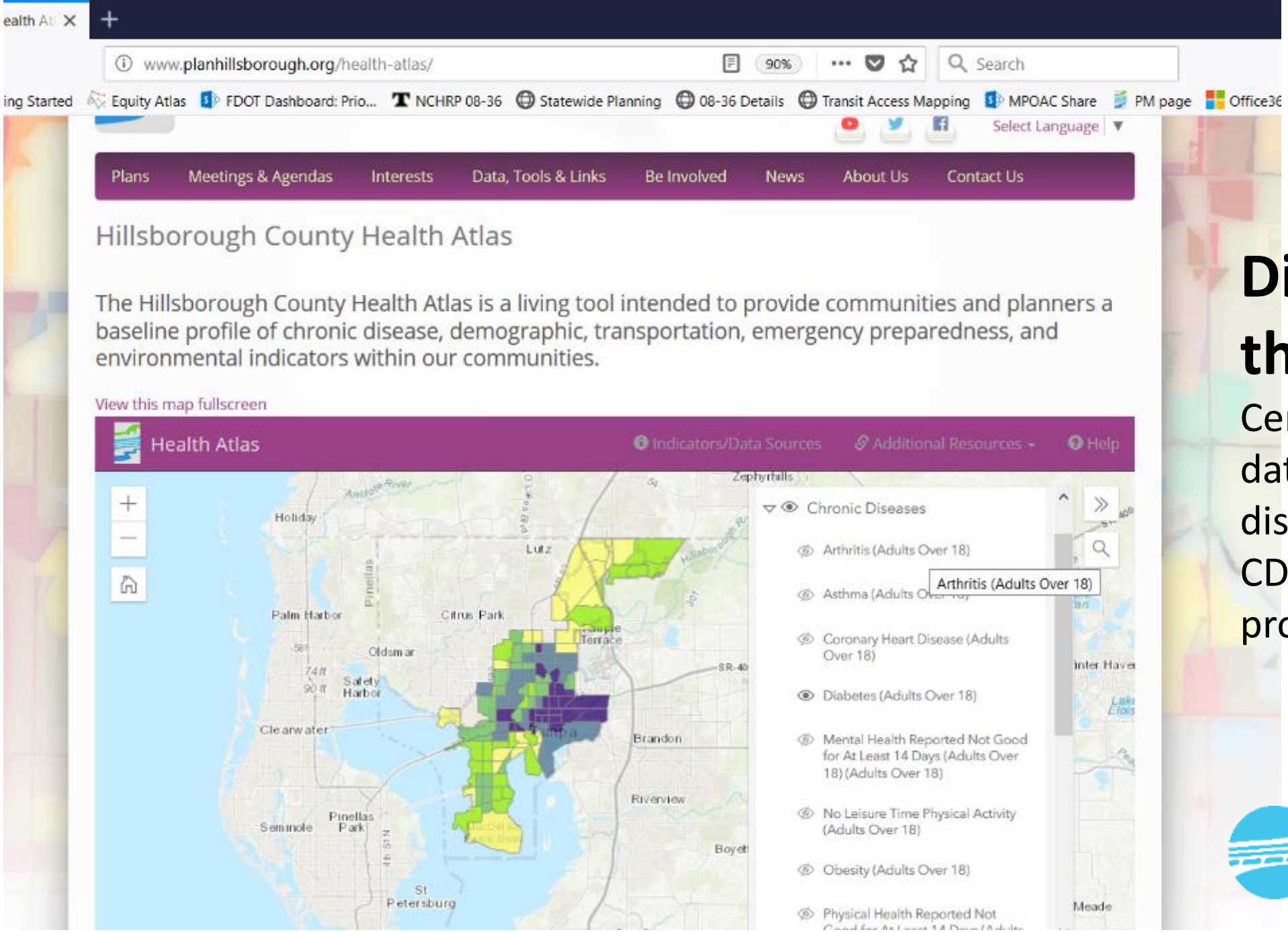
Community Health Assessment for Hillsborough County – Key Findings
Florida Dept. of Health, 2016

- Hypertension deaths: 21.5 vs. peers 6.1-12.8 per 100,000 pop.
- Diabetes deaths: 22.6 vs. peers 12.5-23 per 100,000 pop.
- Adult obesity: 28% vs. peers 20-24%
- Physical inactivity: 24% vs. peers 22-24%

- Cancer incidence rates higher than peers for all six reported types, and death rates higher than peers for four of the six types
- Asthma and Chronic Lower Respiratory Disease hospitalization rates higher than peers
- Adult smoking: 17% vs. peers 14-16%

- Motor vehicle deaths: 11.3 vs. peers 9.6-11.1 per 100,000 pop.
- Excessive drinking: 20% vs. peers 16-20%

University of WI Population Health Inst., 2016 County Health Rankings, and Florida Dept. of Health, Florida CHARTS 2014. Peer counties are in Miami/Ft. Lauderdale/Palm Beach and Orlando areas.



Digging into the Data

Census tract level data on chronic diseases from the CDC 500 Cities project

Hillsborough MPO
Metropolitan Planning for Transportation

MPO System Performance Report

Metropolitan Transportation Plan Performance-Based Programs

* Optional Measures

Good Repair & Resilience Program

- ❑ Pavement and Bridge Condition
- ❑ Transit Vehicle & Facility Condition
- ❑ Economic impact of a major storm

Vision Zero Program

- ❑ Severe & fatal crashes, and rates per VMT
- ❑ Crash rates in Communities of Concern

Smart Cities Program

- ❑ Travel Time Reliability
- ❑ Vehicle emissions exposure, countywide and COC

Real Choices When Not Driving Program

- ❑ Households, jobs and healthcare served by the bus system and trail/sidepath network

Intersection with Equity

CUTR CENTER for URBAN TRANSPORTATION RESEARCH

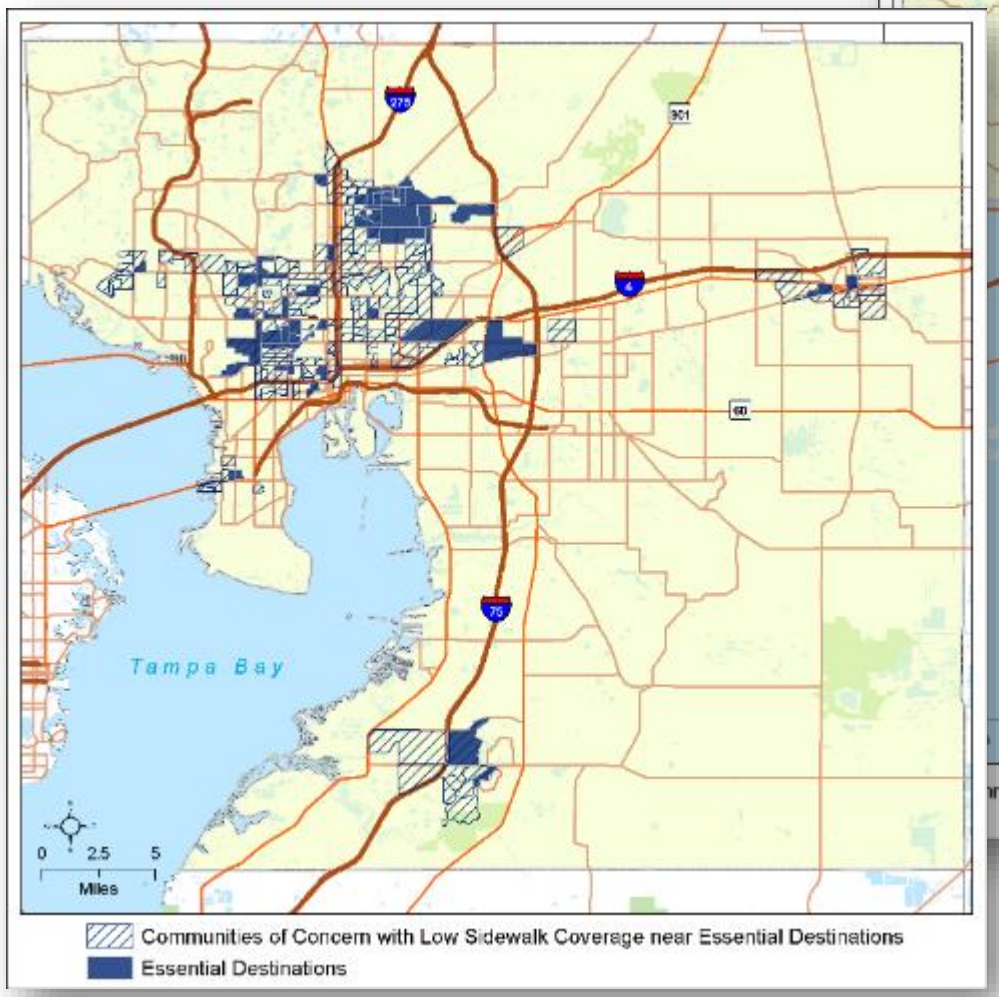
NITC NATIONAL INSTITUTE for TRANSPORTATION and COMMUNITIES

Hillsborough MPO Metropolitan Planning for Transportation

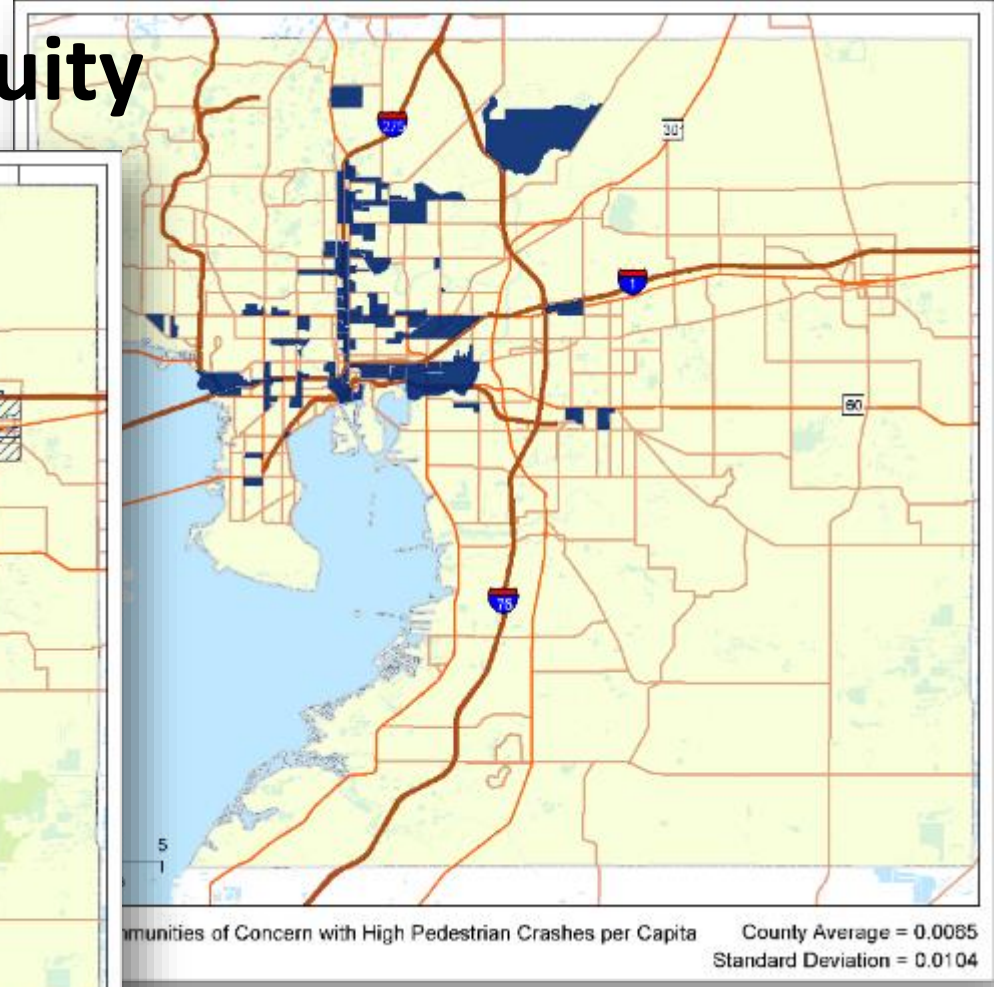
Defining our Communities of Concern (COCs)

Using standard deviations from the mean

- Minority
- Low-Income
- Zero-Vehicle
- Youth <18
- Elderly 65+
- LEP
- Disability



COCs with low sidewalk coverage within 1 mile of essential destinations

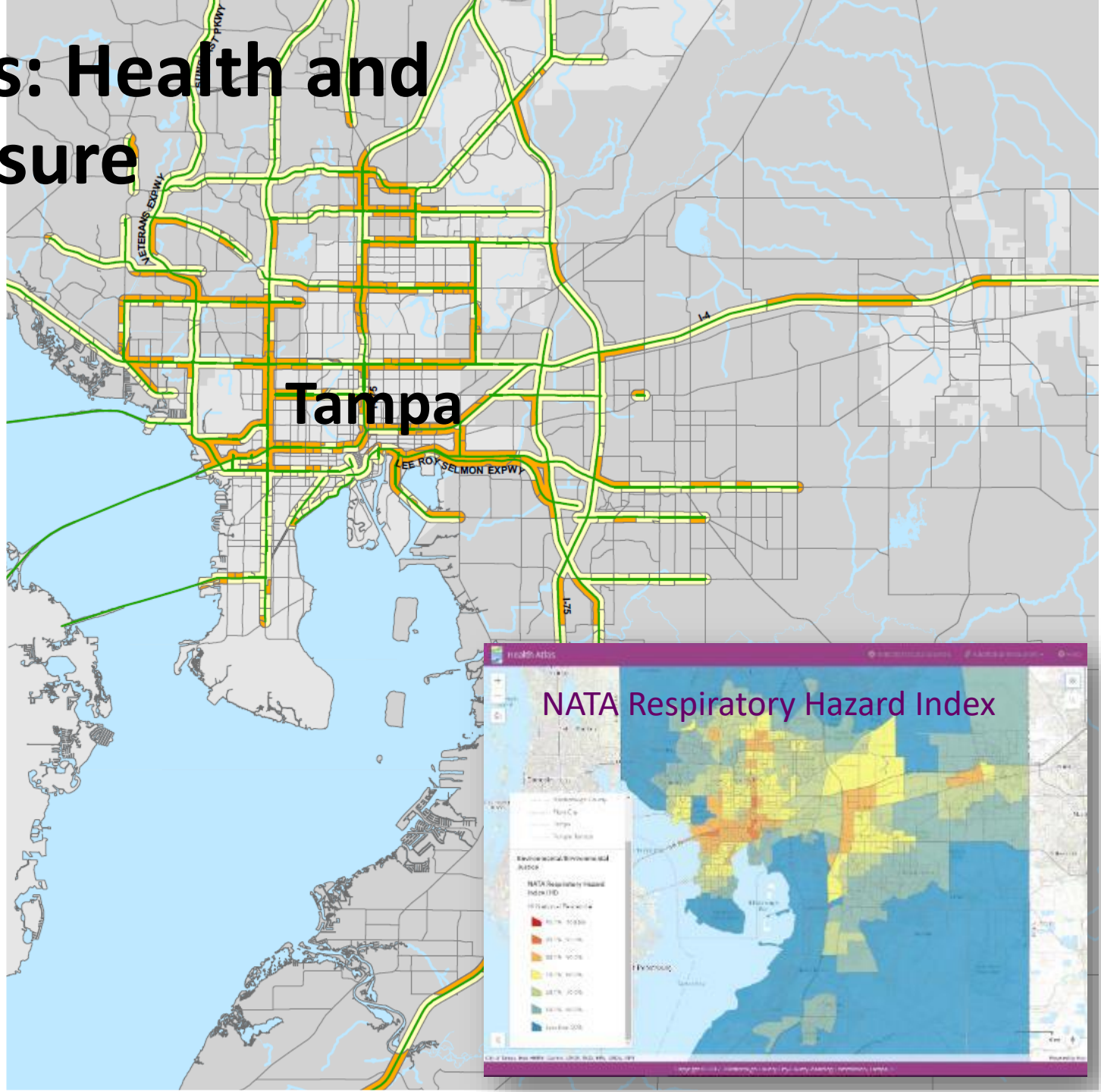


COC's in areas with the highest number of pedestrian crashes per capita

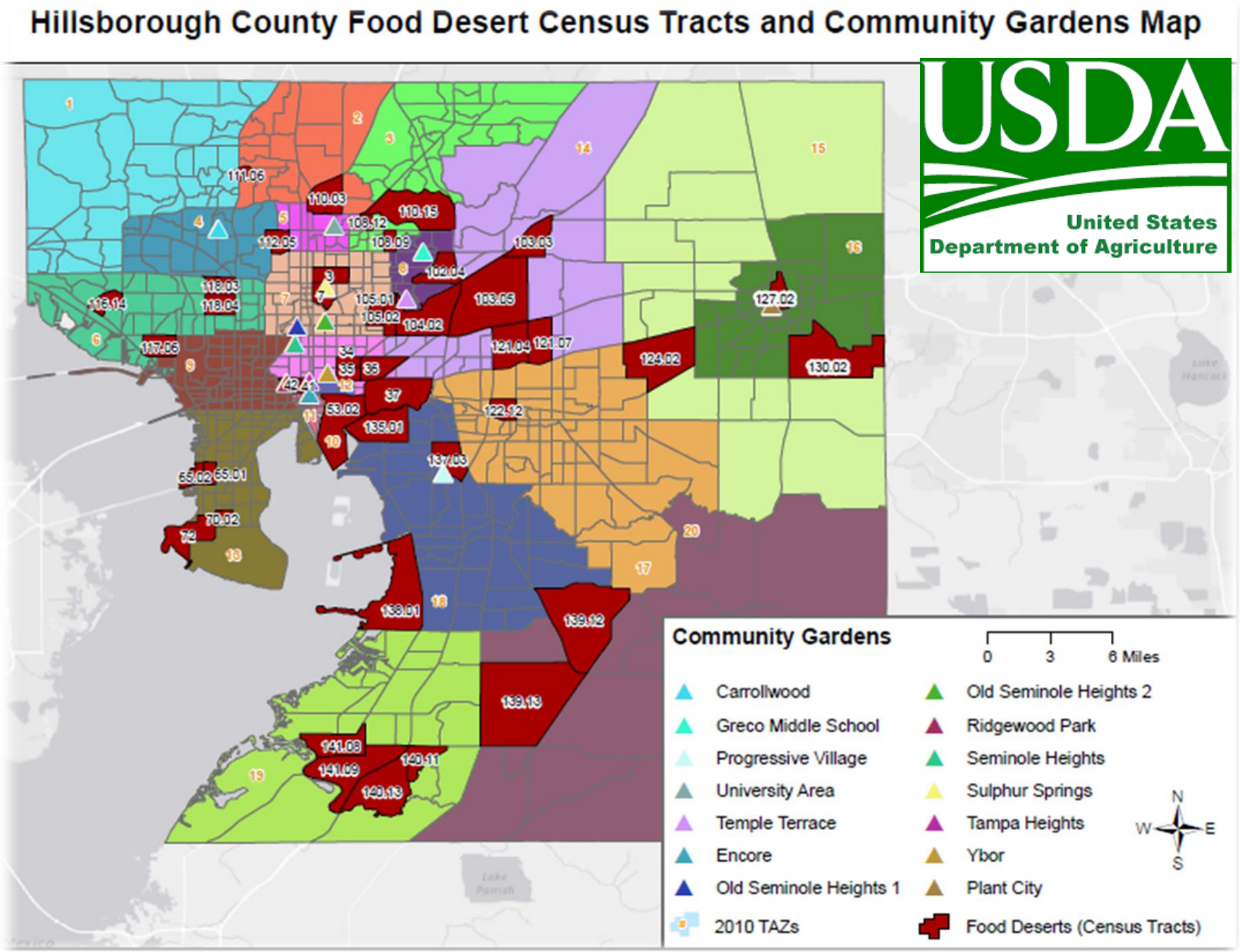
Your chance of being in a severe crash of any kind is 20% higher in a COC.

Connecting the Systems: Health and Vehicle Emissions Exposure

- Linked to asthma, chronic lower respiratory disease, cancer (several types)
- Metric: population within 300m of 30,000 AADT* = 20.7% exposure
- Communities of Concern = 23.4% exposure
  - 13% more exposed
  - Fewer resources to recover



* Journal of Environmental Health 2008;70:33-41



Connecting the Systems: Health and Food Access

Child obesity is higher in neighborhoods further from grocery stores

(2012, American Journal of Preventative Medicine)

Compound Challenges

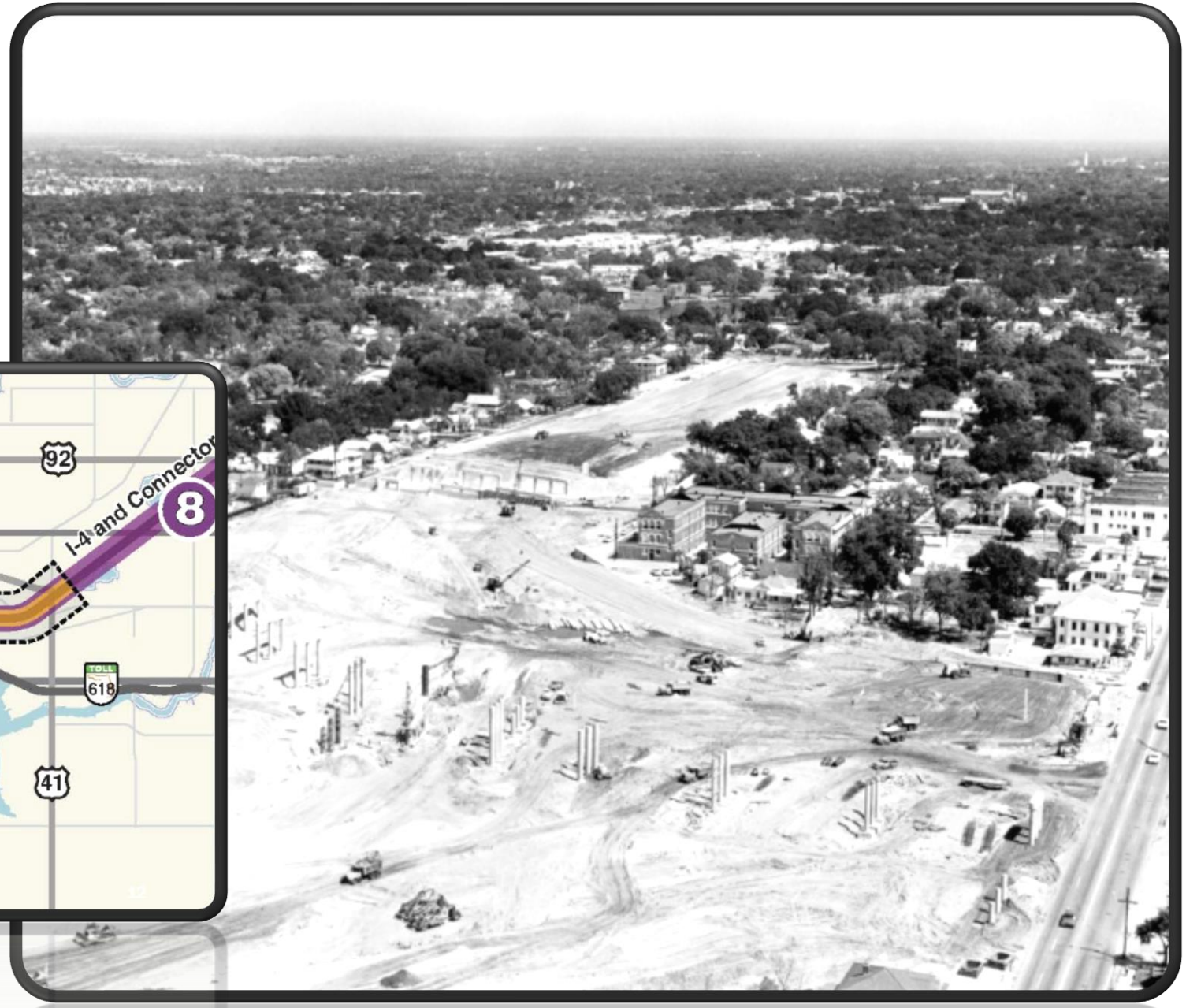
Tampa's food deserts often face:

- Low sidewalk coverage
- High numbers of severe crashes
- Low non-motorized access to fresh produce
- High Respiratory Hazard Index

High rates of:

- Diabetes
- Obesity
- Asthma
- Self-reporting no leisure time activity
- Self-reporting poor physical and mental health

I-275 Through Central Tampa



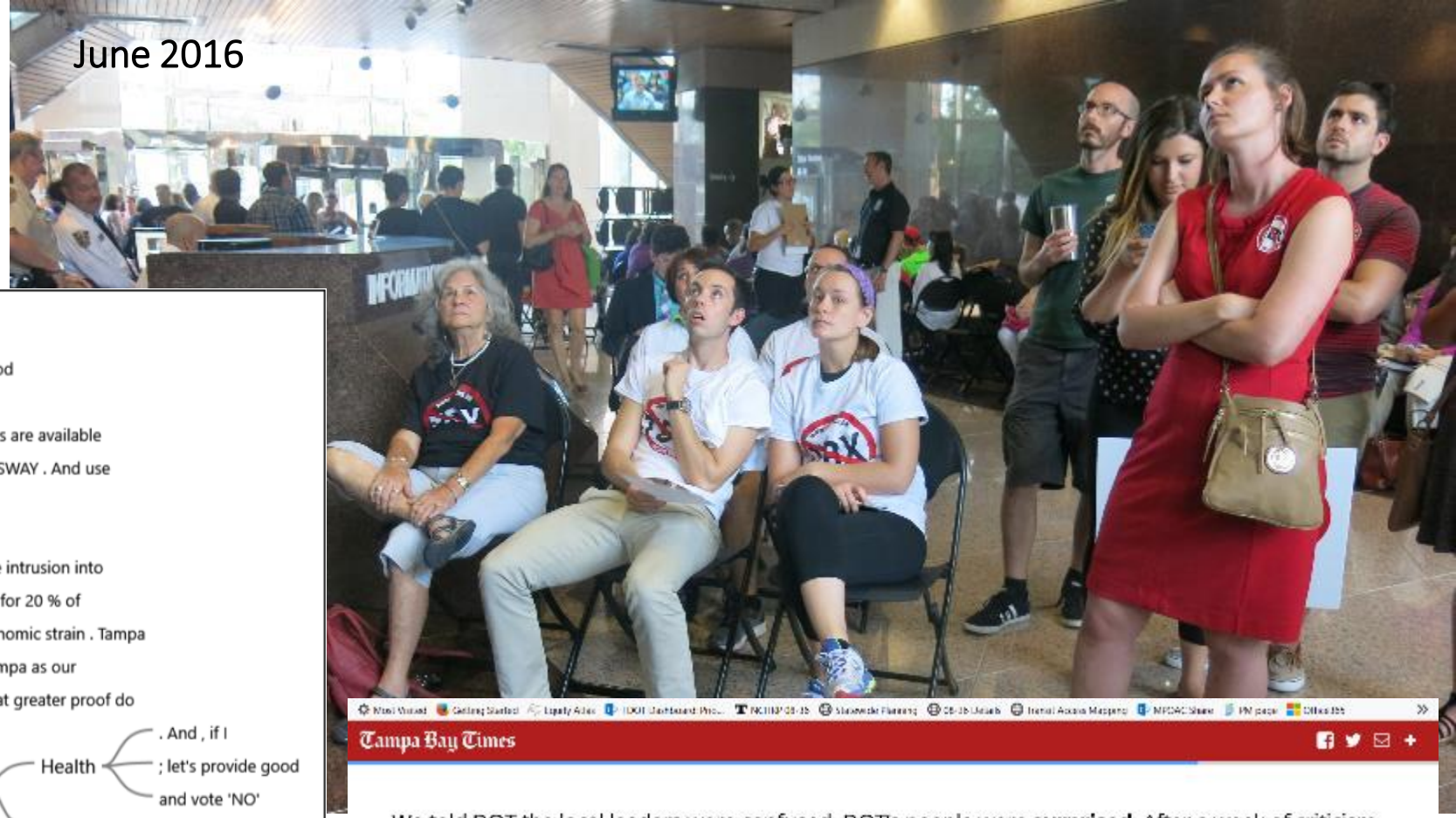
Downtown Interchange

Option A – Full Reconstruction with Express Lanes to North

Total Parcels Impacted: 369

Residential Relocations Remaining, 2019: 336

June 2016



We told DOT the local leaders were confused. DOT's people were **surprised**. After a week of criticism, they put the project on hold.

Motion:
Evaluate Impact to Air Quality

Carbon Monoxide modeled at 5 interchanges

- Tested Build Options A – D and No Further Action
- All predicted to be under national standard of 35 ppm
- Compared to No Further Action, Build Options predicted to lower CO levels except at:
  - ✓I-275 & MLK Blvd (11.9 vs. 10.5 ppm 1-hr concentration in AM)
  - ✓I-4 & 50th St (10.8 – 11.0 vs. 10.4 ppm 1-hr concentration in PM)

Traffic emissions impact air quality:

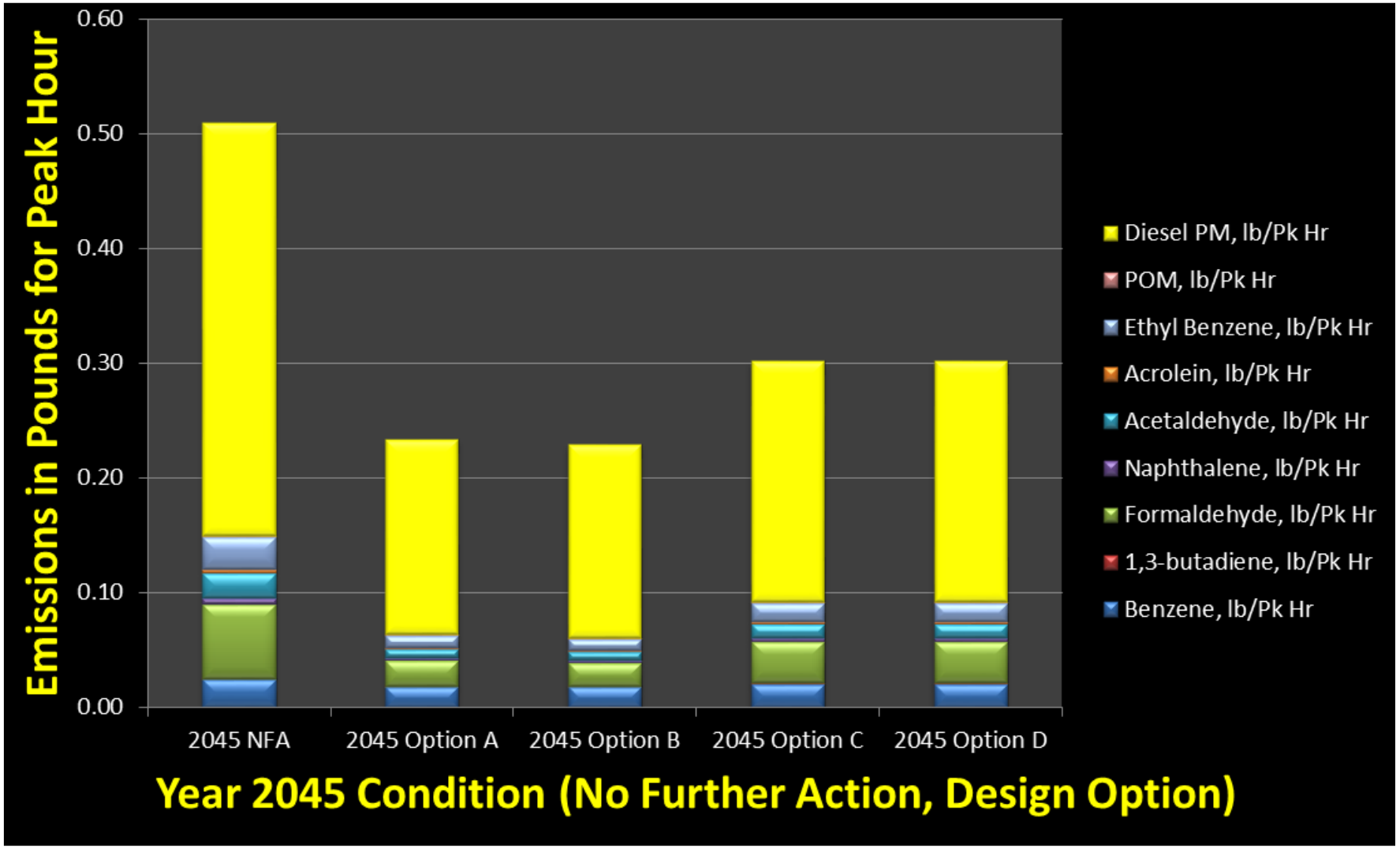
- carbon monoxide
- particulate matter
- ultra fine carbons

hydrocarbons

Air Quality Impacts (cont'd)

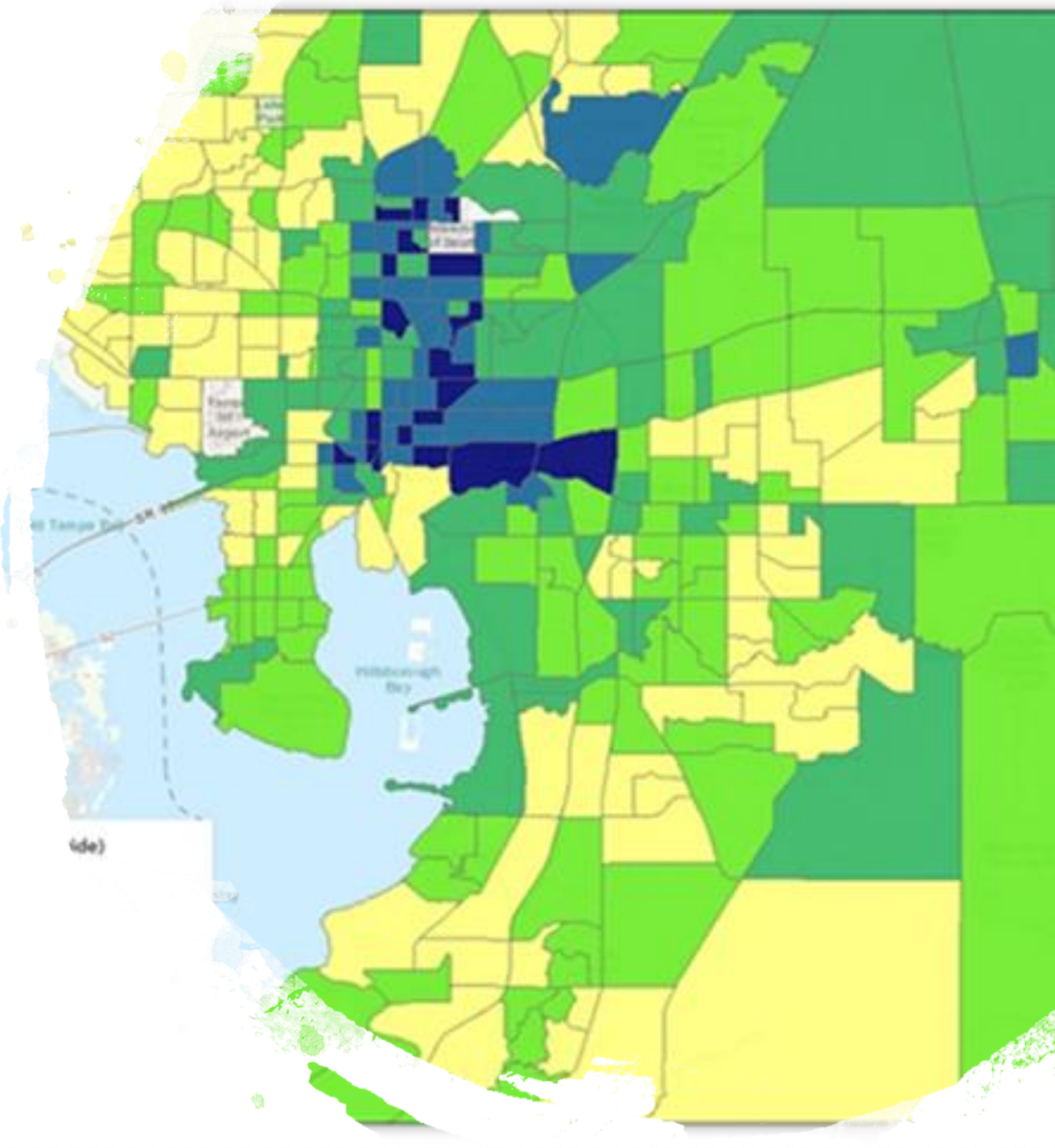
Mobile Source Air Toxics (MSAT) modelling results are based on:

- Assumption that new lane capacity will not be consumed by shifts in driving demand, and overall emissions will decrease as speeds increase
- National tail-pipe standards for new vehicles are projected to reduce MSAT by 90% by 2050



Air Quality Impacts (cont'd)

- Higher Incidence of Asthma & Chronic Diseases in SEIS area
- **Request that Design Phase address Quality of Life & Health Outcomes, such as**
  - **Construction Mitigation**
  - **Green Noise Walls**
  - **Greater Landscaping**



Health Risks of High-Volume Roads

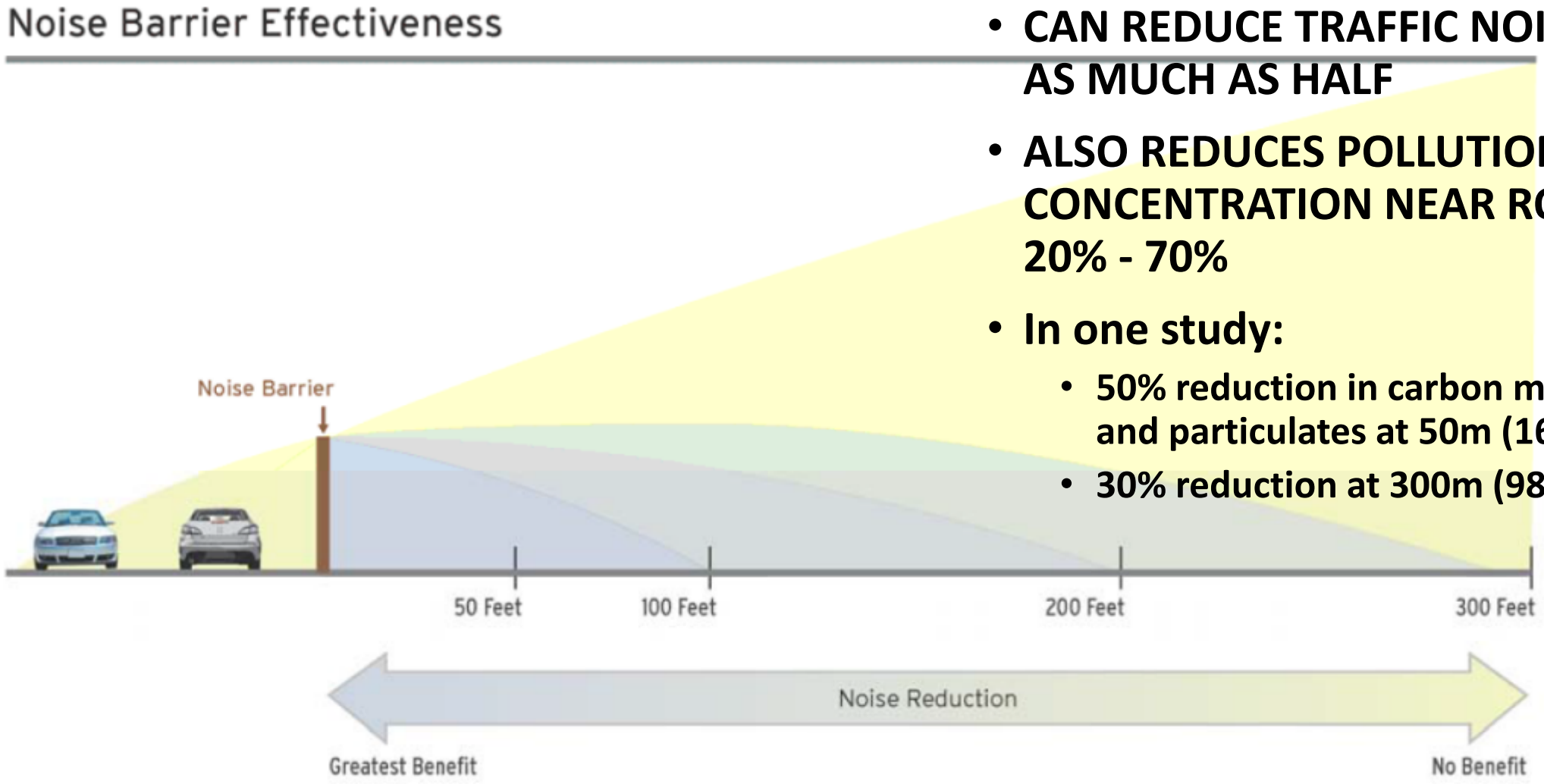
EMISSIONS HEALTH RISKS INCLUDE (per American Lung Assoc.):

- Childhood asthma
- Chronic obstructive pulmonary disease
- Impaired lung function

NOISE HEALTH RISKS INCLUDE

- Sleep Disorder
- Heart Disease
- Hypertension
- Cognitive impairment
- Hearing loss

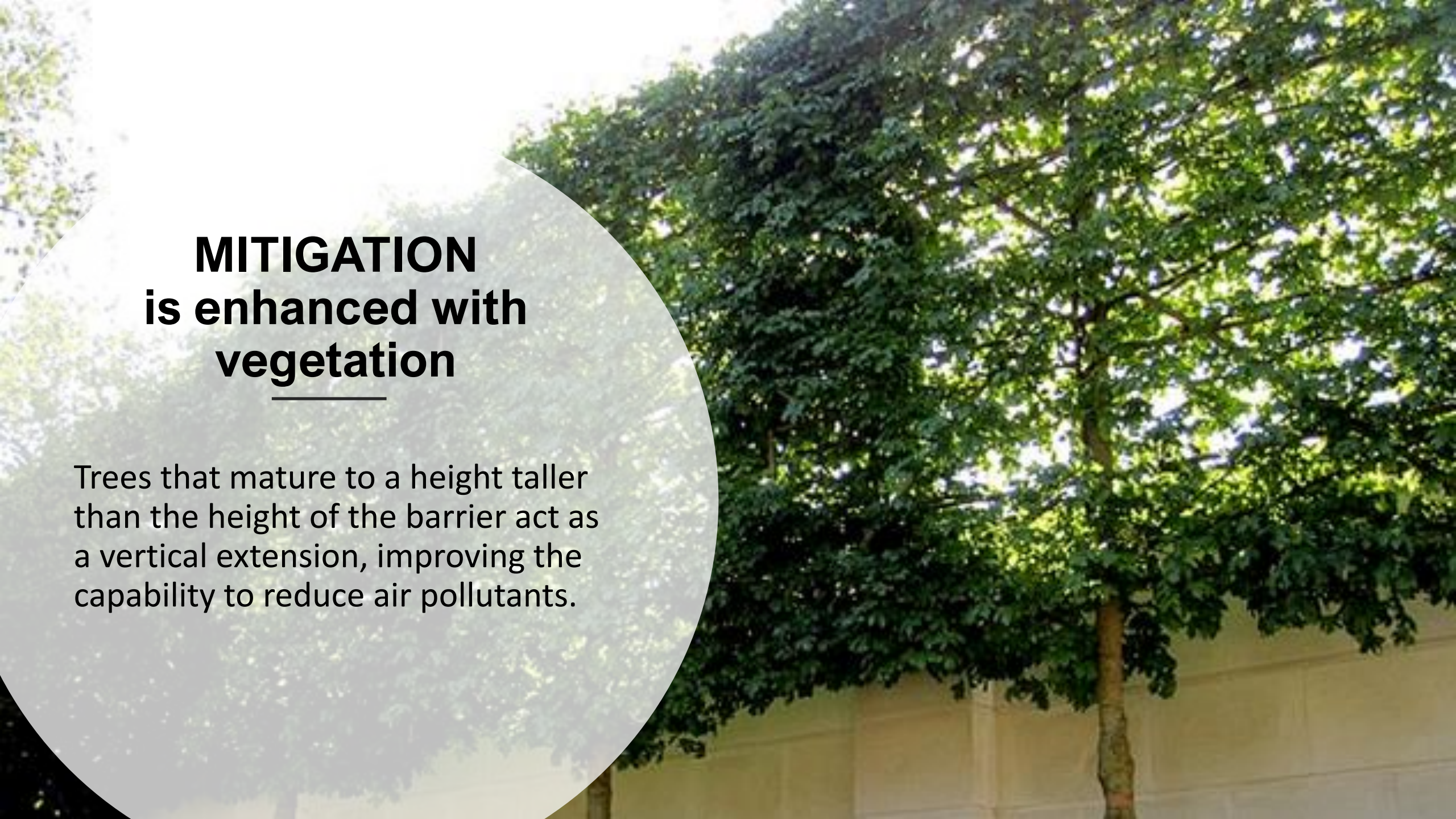
NOISE WALLS



- **MAKES THE MOST DIFFERENCE FOR PEOPLE WITHIN 200 FEET OF A HIGHWAY**
- **CAN REDUCE TRAFFIC NOISE BY AS MUCH AS HALF**
- **ALSO REDUCES POLLUTION CONCENTRATION NEAR ROAD 20% - 70%**
- **In one study:**
  - **50% reduction in carbon monoxide and particulates at 50m (164 ft).**
  - **30% reduction at 300m (984 ft)**

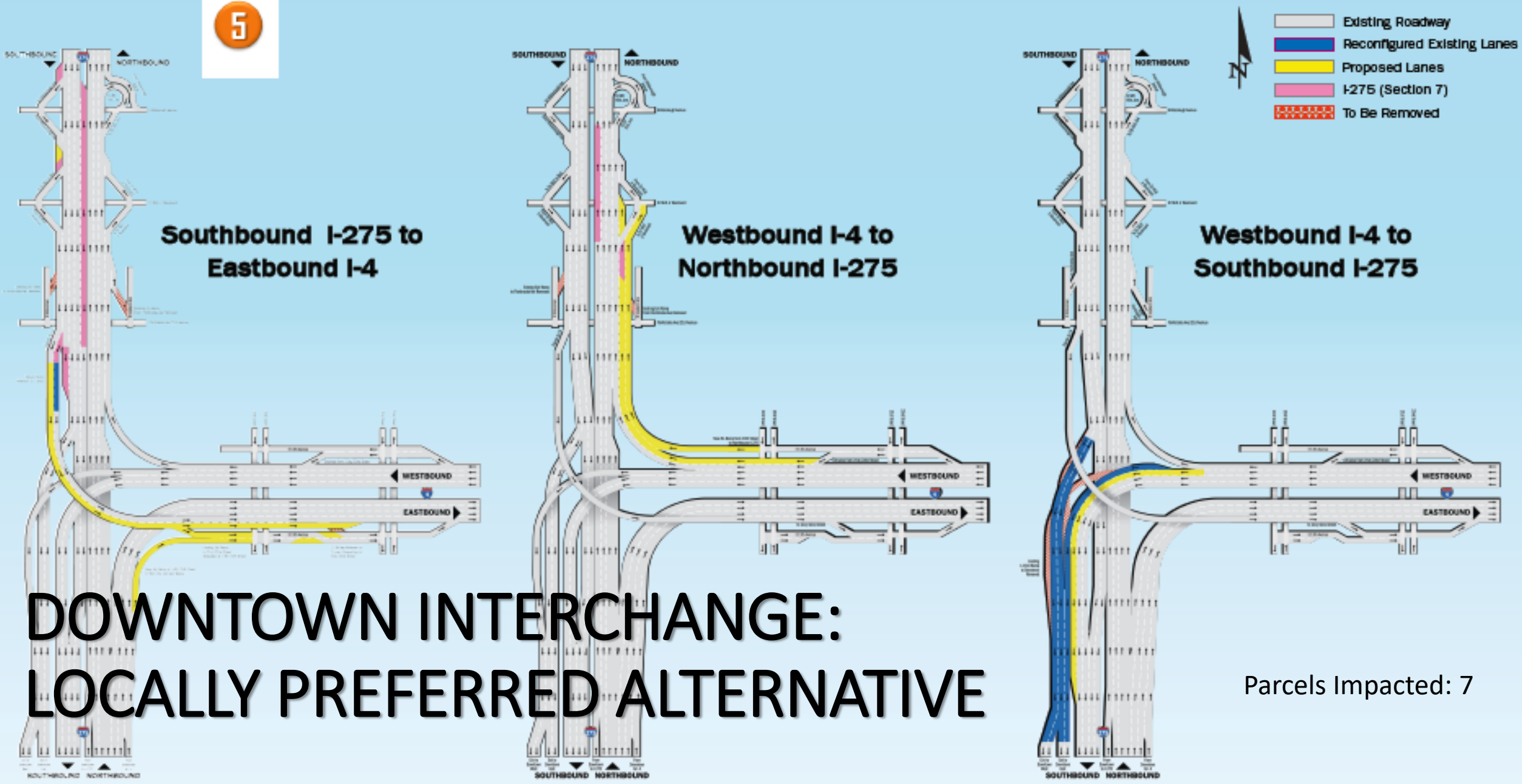
MITIGATION is enhanced with vegetation

Trees that mature to a height taller than the height of the barrier act as a vertical extension, improving the capability to reduce air pollutants.



I-275/I-4 Interchange Operational Improvements

5



DOWNTOWN INTERCHANGE: LOCALLY PREFERRED ALTERNATIVE

Parcels Impacted: 7

New Scenarios to Rethink the Big Picture

Scenario B

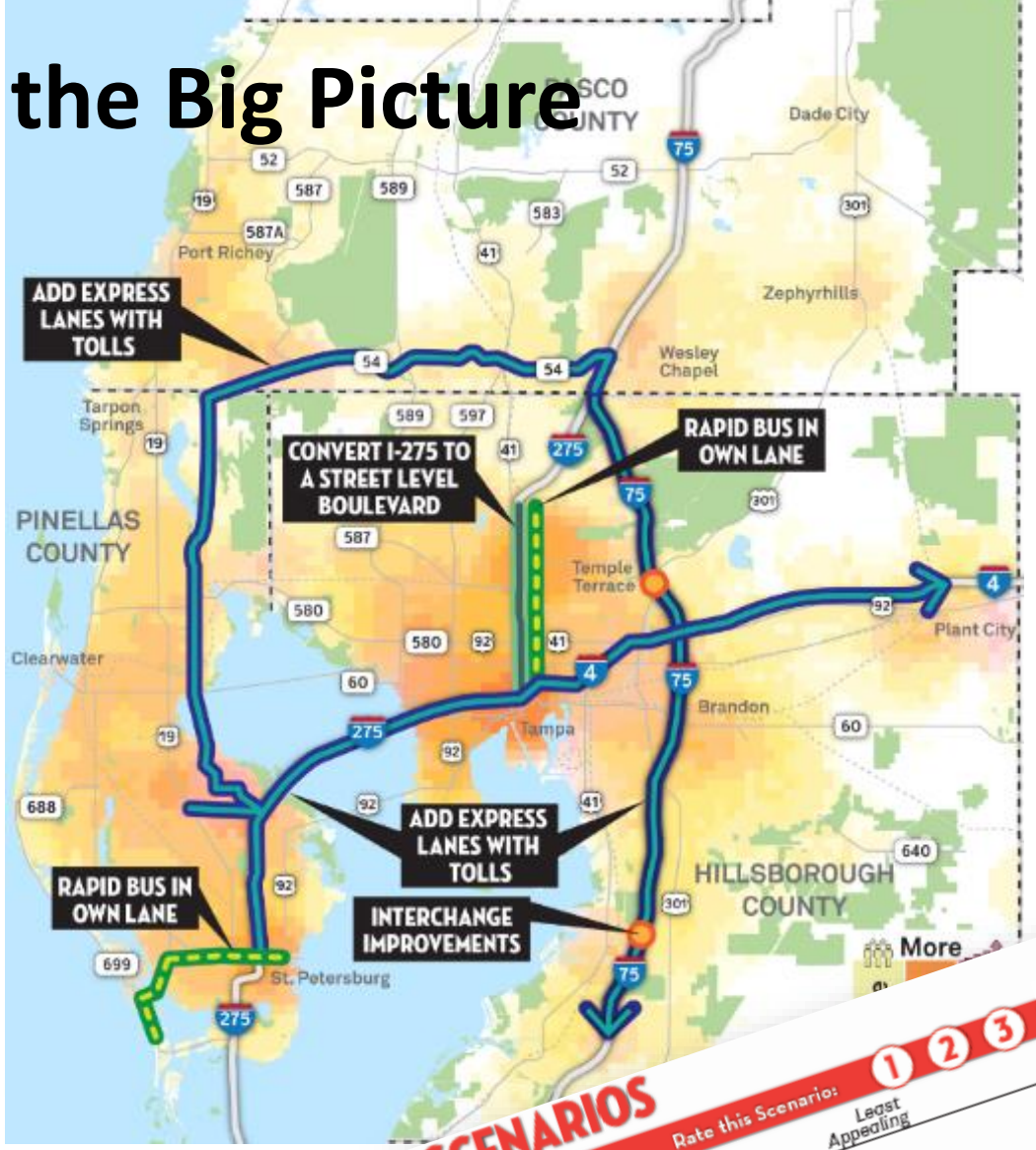
Imagine a future where we primarily invest in EXPRESSWAY LANES forming an outer loop so traffic does not have to go through the congested center of the region.

- New tolled express lanes create a loop linking the three counties
  - SR 54 (Pasco) to McMullen-Booth Road (Pinellas) to Howard Frankland Bridge to downtown Tampa (Hillsborough)

TOLLED EXPRESS LANES

- North of downtown Tampa, I-275 converted to street-level boulevard
- Growth focused near expressway interchanges with some urban redevelopment

I-275 CONVERTED TO BOULEVARD



Questions?

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evaluation
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More health impact planning results….

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Metropolitan Planning for Transportation

FDOT

Hillsborough County Florida

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City of Plant City
Florida

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Florida

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City-County
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Walk Bike Tampa
Connected Streets for a Livable City

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Hillsborough County Public Schools
Excellence in Education

Florida HEALTH
Hillsborough County

NAACP

CUTR

TGH Tampa General Hospital

COXMEDIA GROUP Tampa

WESTSHORE ALLIANCE

TAMPA DOWNTOWN PARTNERSHIP
Elevating the Potential

FLORIDA HOSPITAL

BayCare

tampaBAY partnership

St. Joseph's Hospital
BayCare Health System

!p Innovation Place

CIGAR CITY BREWING

AARP

MPO-led *Vision Zero Action Plan*

1 Tolled Express Lanes

DRAFT

Westshore Interchange

- Reconstructs I-275/SR 60
- Adds 2 tolled express lanes in each direction
- Connects express lanes on Veterans and Howard Frankland Bridge
- Direct access to TIA
- New underpasses at Kennedy/Reo, Occident, and Trask Streets
- Express lane access at Reo and Himes
- Provides transit envelope on I-275
- 15 additional parcels needed
- Total Cost: $1.6 Billion

Health-in-All Policies Indicators

	MPO PRIORITY AREA		HEALTH PRIORITY AREA*	MPO PERFORMANCE OUTCOMES
1.	Crash & Vulnerability Reduction/ Investment for Economic Growth	Recovery time for critical transportation links after a Category 3 storm	All	Regional Scenario
2.	Crash & Vulnerability Reduction	Total crashes reduced, fatal crashes reduced, bicycle/pedestrian crashes reduced	HE, LHL, AC, CD	TIP, LRTP
3.	Crash & Vulnerability Reduction	Number street lights installed in high crash corridors	All	TIP
4.	Crash & Vulnerability Reduction	Number of miles of sidewalk present in high pedestrian crash areas/ complete network	All	LRTP
5.	Crash & Vulnerability Reduction	Pedestrian intersection improvements (example-high visibility crosswalks, ADA compliant sidewalks, median pedestrian refuge and bulb-outs) 1/4 mile from transit stops	HE, LHL, AC, CD	TIP
6.	Minimize Congestion	Pedestrian friendly intersections for Communities of Concern	HE, LHL, AC, CD	TIP
7.	Minimize Congestion	Air Quality: Population or households adjacent (500 feet) to congested or high-volume roads (30,000 ADT or a volume to capacity ratio of 1.0 or greater)	CD, HE, LHL	Regional Scenario
8.	System Preservation/Investment for Economic Growth	Span and frequency of transit service	HE, LHL, AC, CD	TIP; LRTP
9.	System Preservation/Investment for Economic Growth	Highway centerline miles within 1/2 miles of major healthcare (hospitals), recreation (regional parks, entertainment venues), education (universities and colleges)	BH, CD, HE	Regional Scenario; LRTP
10.	Investment for Economic Growth/Real Choices	Transit and sidewalk coverage to areas of Essential Destinations (map attached)	All	TIP; LRTP
11.	Investment for Economic Growth/Real Choices	Ratio of sidewalk and/or bicycle lanes to roadway miles in the Urban Service Area	HE, LHL, AC, CD	LRTP
12.	Investment for Economic Growth/Real Choices	Transit and sidewalk coverage to behavioral health and chronic disease services	All	LRTP
13.	Real Choices when Not Driving	Miles of sidewalk and trails present within 1/4 mile of populations identified with high rates of behavioral health and chronic disease conditions	AC, IM, BH, CD	TIP
14.	Real Choices when Not Driving	Sidewalk coverage (both side of street) within 1/4 mile of transit stops	LHL, HE	LRTP; TIP
15.	Real Choices when Not Driving	Sidewalk coverage (both side of street) for block groups within 1/4 mile of restorative and social activities, e.g. parks, recreation, and community centers	LHL, CD, BH, HE	Regional Scenario; TIP; LRTP
16.	Real Choices when Not Driving	Transit service route miles within 1/4 miles of high proportion of elderly population (over 500 per square mile)	HE, LHL, AC, CD	LRTP; TIP
17.	Real Choices when Not Driving	Percent of Environmental Justice population living within 1/4 mile of a trail/side path	All	Regional Scenario
18.	Real Choices when Not Driving	Transit and sidewalk coverage within designated USDA Food Deserts	All	TIP
19.	Real Choices when Not Driving	Percent of Community of Concern population living within 1/4 mile of transit service (map attached)	HE, LHL, AC, CD	TIP; LRTP

*AC- Access to Care; BH- Behavioral Health; CD- Chronic Disease; HE- Health Equity; LHL- Long Healthy Life; IM- Infant Death

DRAFT 12/4/18

Access to Healthy Foods in Food Deserts: the *Garden Steps* Collaboration

Adults who consume at least 5 servings of fruits and vegetables a day: 16.1% vs. peers 19-24.2%

Florida Dept. of Health, Florida CHARTS 2013. Peer counties are in Miami/Ft. Lauderdale/Palm Beach and Orlando areas.

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TAMPA BAY - FLORIDA

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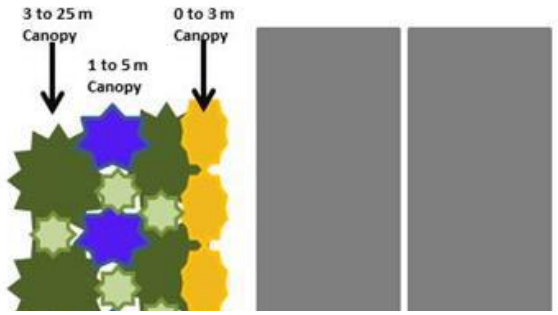
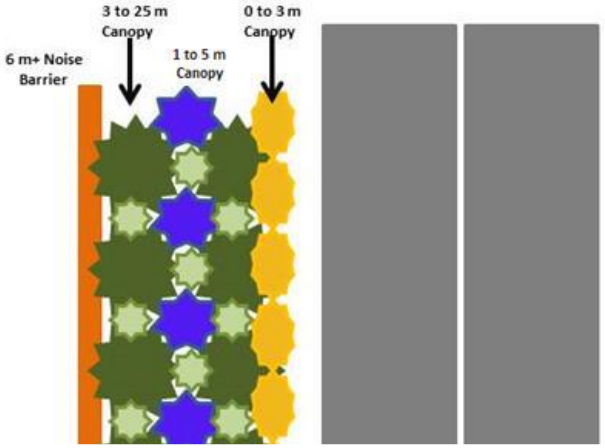


Scenario 1: Vegetation Only

10 meter planting thickness

Vegetation canopy coverage from 0 to 25 meters high

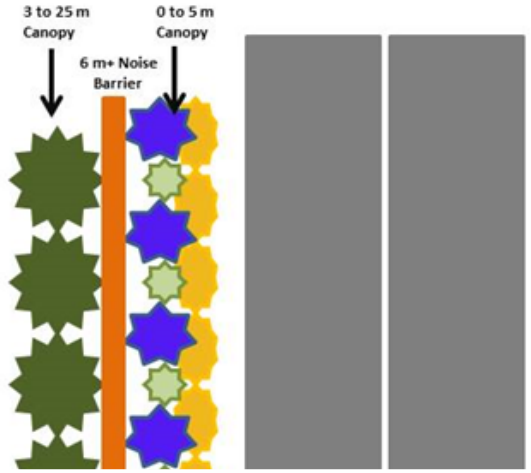


Scenario 2: Vegetation on One Side of Noise Barrier

10 meter planting thickness

Vegetation canopy coverage from 0 to 25 meters high

Noise barrier 6+ meters high



Scenario 3: Vegetation on Both Sides of Noise Barrier

10 meter planting area on both sides of noise barrier

Vegetation canopy coverage from 0 to 25 meters high

Noise barrier 6+ meters high

Noisewall Best Practices for Health Benefits

- Use at least two types of vegetation (i.e. trees and shrubs) to ensure that the foliage covers from ground level to top of canopy. Avoiding monocultures will reduce the risk of project failure due to an infestation of pests that target a certain species.
- Stagger spacing and plant low vegetation in between trees to maximize growth space and ensure uniform coverage.
- Fill the available space, both horizontally and vertically, with vegetation. Once mature, foliage should be a minimum of 10 meters thick (32 feet, 9.7 inches), 5 meters high (16 feet, 5 inches) and 1 meter (3 feet, 3.37 inches) higher than associated noise barriers.
- Barriers should extend 50 meters (164 feet) or more beyond the area to be protected, or can wrap around and extend perpendicularly away from the roadway.
- Expect tighter plant spacing when compared to landscape designs that are for solely aesthetic uses.

Infinitely long roadside barriers affect dispersion of vehicle related emissions in three ways:

1) increase vertical dispersion through additional turbulence generated in the wake of the barrier,
2) induce vertical mixing behind the barrier in the cavity region, and
3) loft the emissions above the barrier.

This field study showed that roadside barriers led to reductions in concentrations of vehicle-emitted pollutants relative to those measured in the absence of barriers. The reductions ranged from 50% within 50 m downwind of the barrier to about 30% as far as 300 m from the barrier.

Measurements showed the effects of a noise barrier on near-road air quality. The presence of this structure often led to pollutant concentration reductions behind the barrier during meteorological conditions with winds directionally from the road. CO and PM number concentrations generally decreased between 15 and 50% behind the barrier.