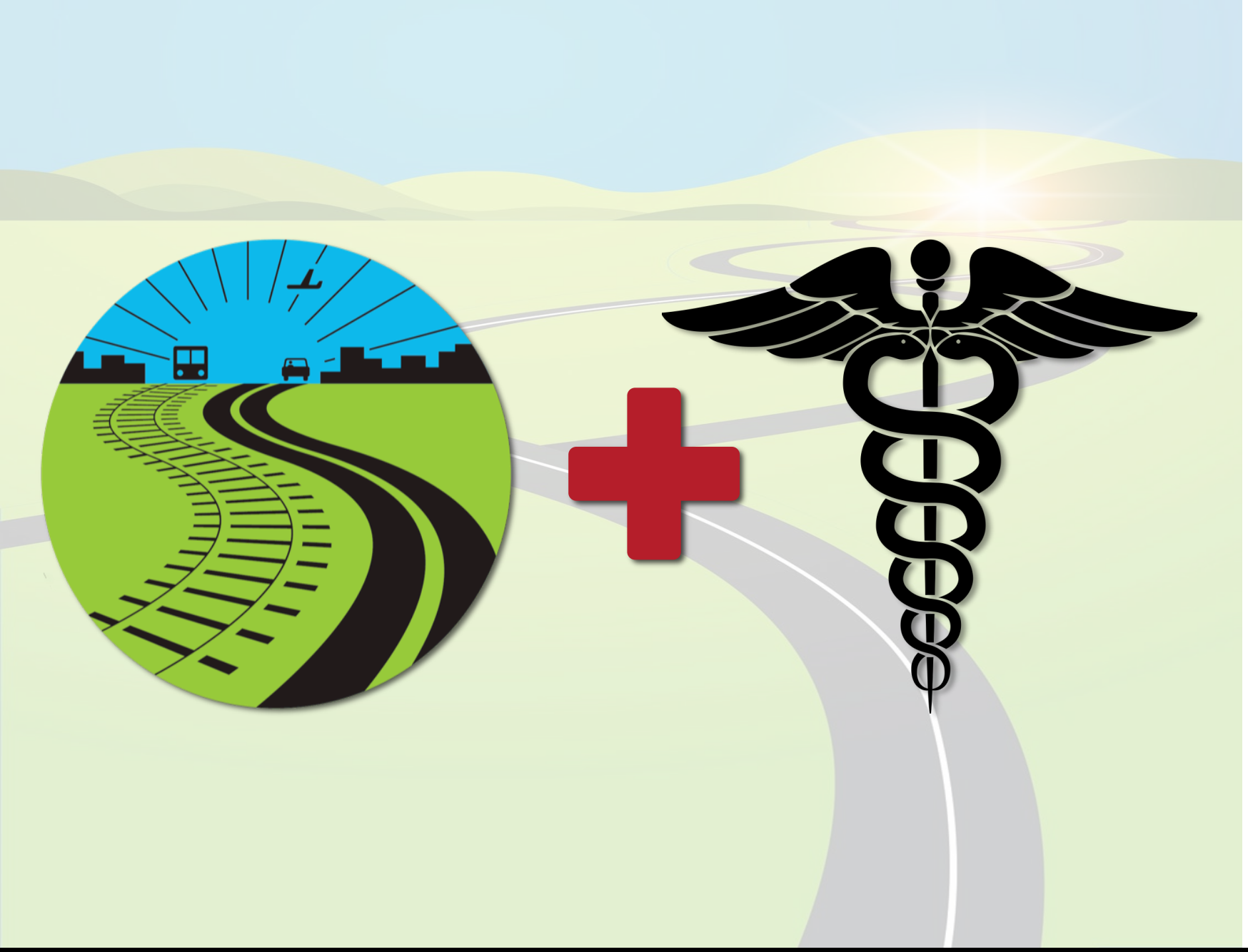


TRANSPORTATION & PUBLIC HEALTH:

Inextricably Linked for Better or Worse

Kelly McGuinness, AICP
Transportation Planner, Sam Schwartz

Advised by Samuel I. Schwartz, PE

IPATH Virtual Conference
September 28, 2023

IPATH
Pursuing Healthy Mobility

Sam Schwartz

Transportation and Public Health Inextricably Linked

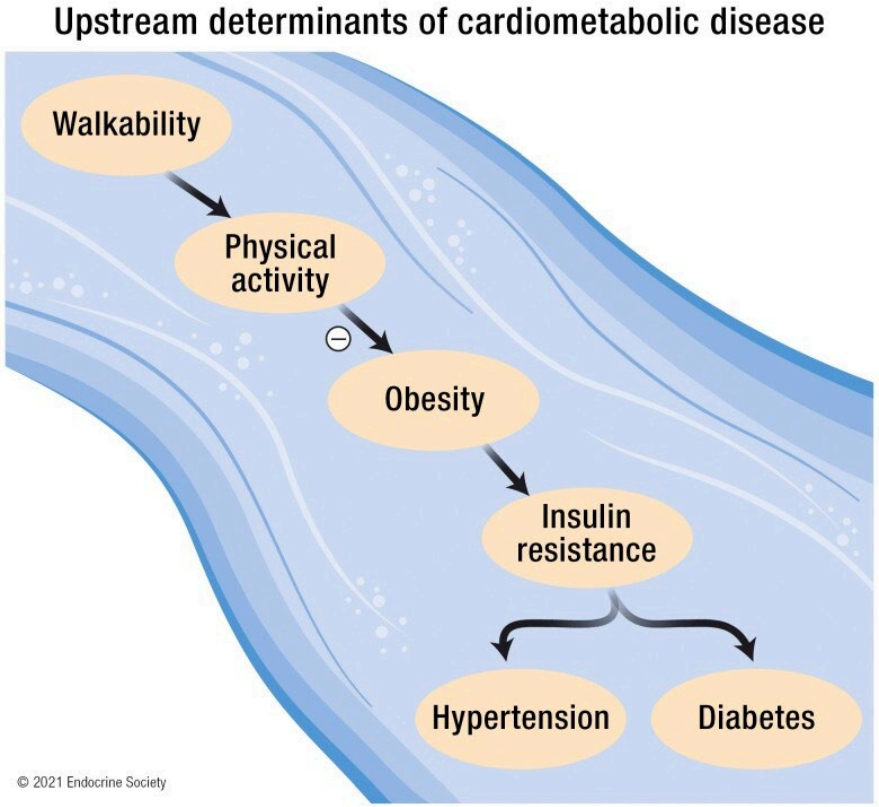
SUVs 3x more likely to kill pedestrians than sedans

"Road traffic injuries are now the leading killer of people age 5-29 years."

2018

World Health Organization

Road traffic leading killer of young people



Diseases linked to lack of walkable neighborhoods

Sources:
Behavioral Risk Factor Surveillance System, CDC
Fatality and injury risk of light truck impacts, NIH
Weight of Place: Built Environment Correlates of Obesity and Diabetes, NIH

The Public Space Surrendered to Cars

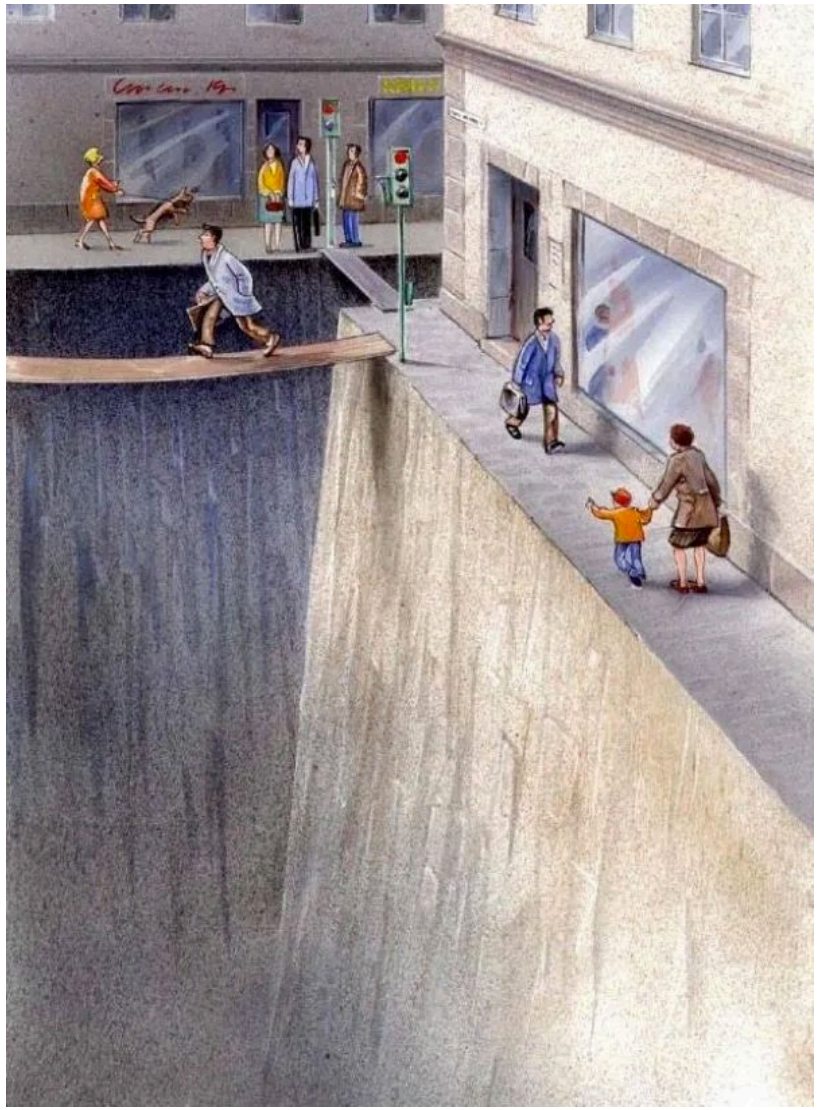
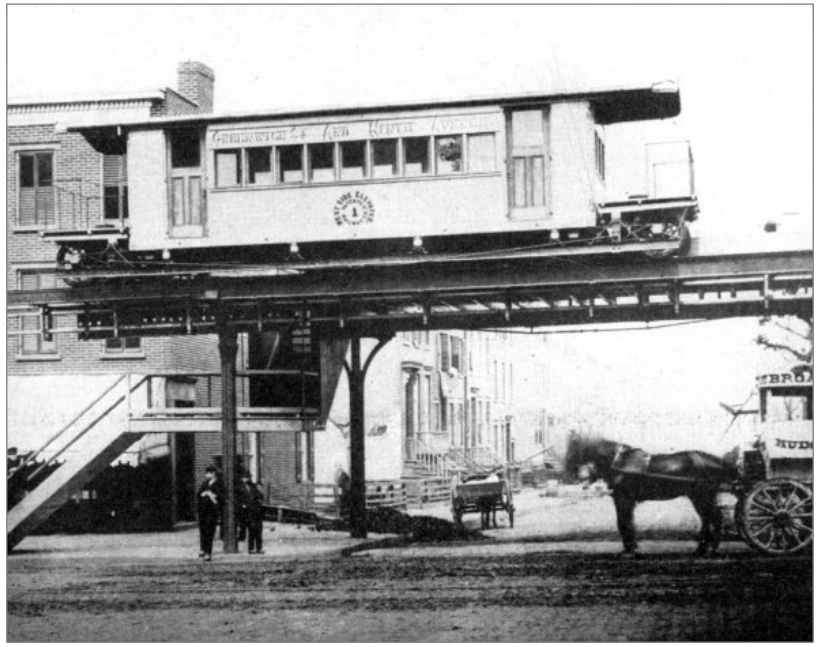


Image Source:
Karl Jilg

How Did We Get Here?

Walking City
Through 19th Century

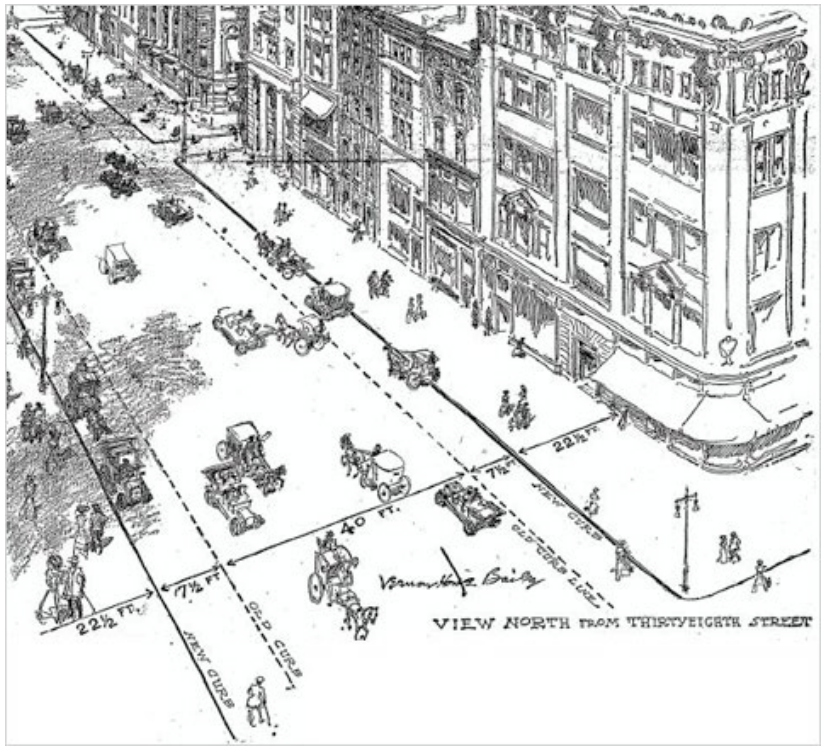


Tracked City
Mid 19th-Mid 20th Century

Rubber City
Post World War II

Lost New York

Fifth Avenue, 1909

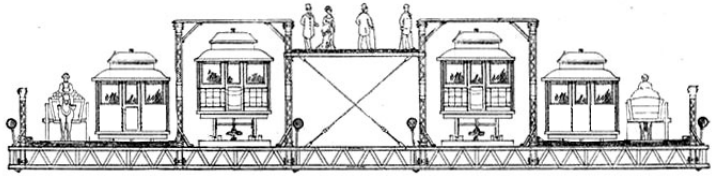


Lost: 15’ of sidewalk to provide space for two more vehicle lanes

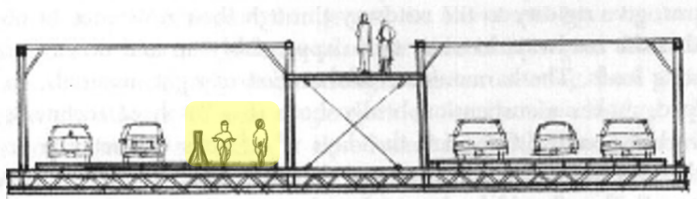
Park Avenue, 1920s

Lost: A park in the middle of Midtown.

Brooklyn Bridge Modernized circa 1948



426,000 (1907)



~200,000+ (2021)

Lost: 226 Thousand people

Highways Over People 1920's – 1970's (NYC)

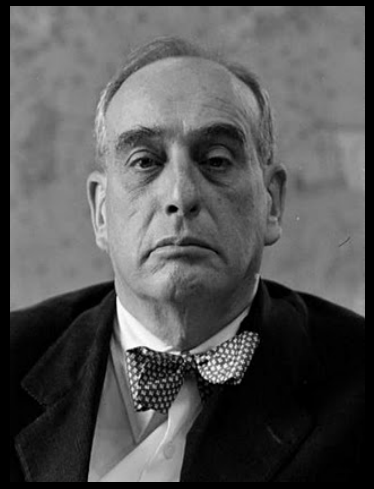
"When you operate in an overbuilt metropolis you have to hack your way with a meat ax."

Robert Moses, 1951 NY Times

"Modern highways standards require wide lanes, wide shoulders and buffers."

Robert Moses,

1964 NY Times



Displaced more than 1,500 families to build 7-mile expressway, contributed to "Burning of the Bronx"

Cross Bronx Expressway, under construction at 176th St. & Southern Blvd (early 1950's)

Bad Transportation Policy

WORSENS:

AIR POLLUTION

NOISE POLLUTION

TRAFFIC CRASHES

LACK OF ACCESS

(TO HEALTH CARE, JOBS, GREEN SPACE, ETC.)

"EVERYBODY DRIVES" PLANNING POLICY

ACCELERATES CLIMATE CHANGE

CONTRIBUTES TO:

RESPIRATORY DISEASE

CARDIOVASCULAR DISEASE

INACTIVITY DISEASES

SOME CANCERS

INJURIES AND DEATH

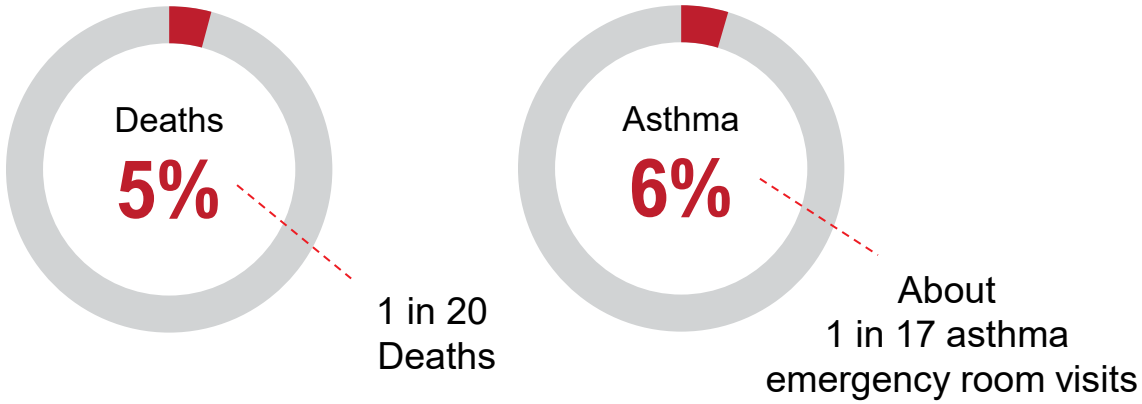
NEGATIVE MENTAL HEALTH IMPACTS

INEQUALITY

Air Pollution

- PM2.5 (microns) most harmful urban air pollutant, penetrates deep into the lungs and enters the bloodstream
- In NYC, PM2.5 contributes to 2,300 deaths/year
- **17%** of all PM2.5 emissions come from traffic
- PM2.5 levels from all traffic sources are **50% higher** in high poverty neighborhoods relative to low poverty neighborhoods

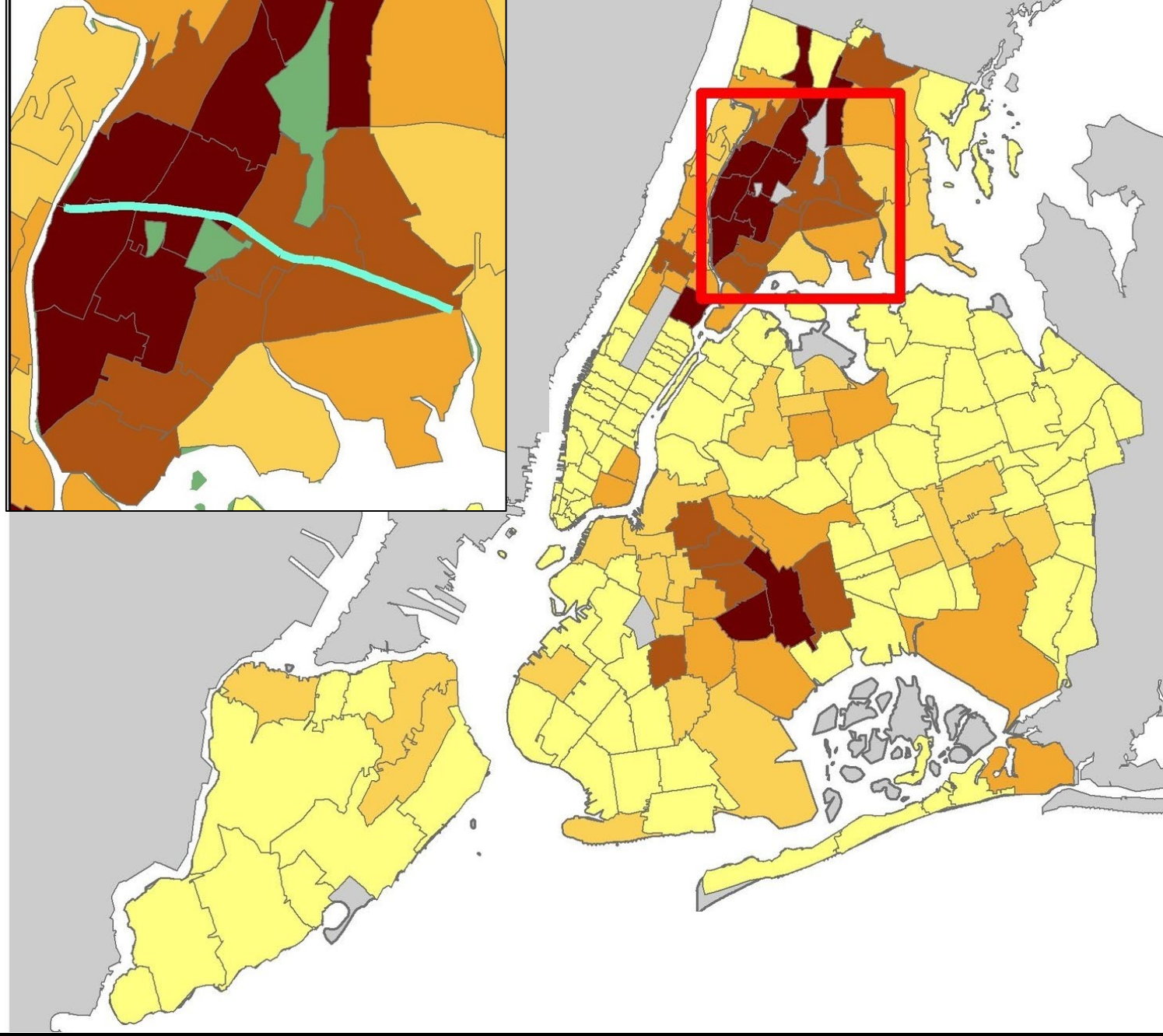
PM2.5 in NYC Contributes to:



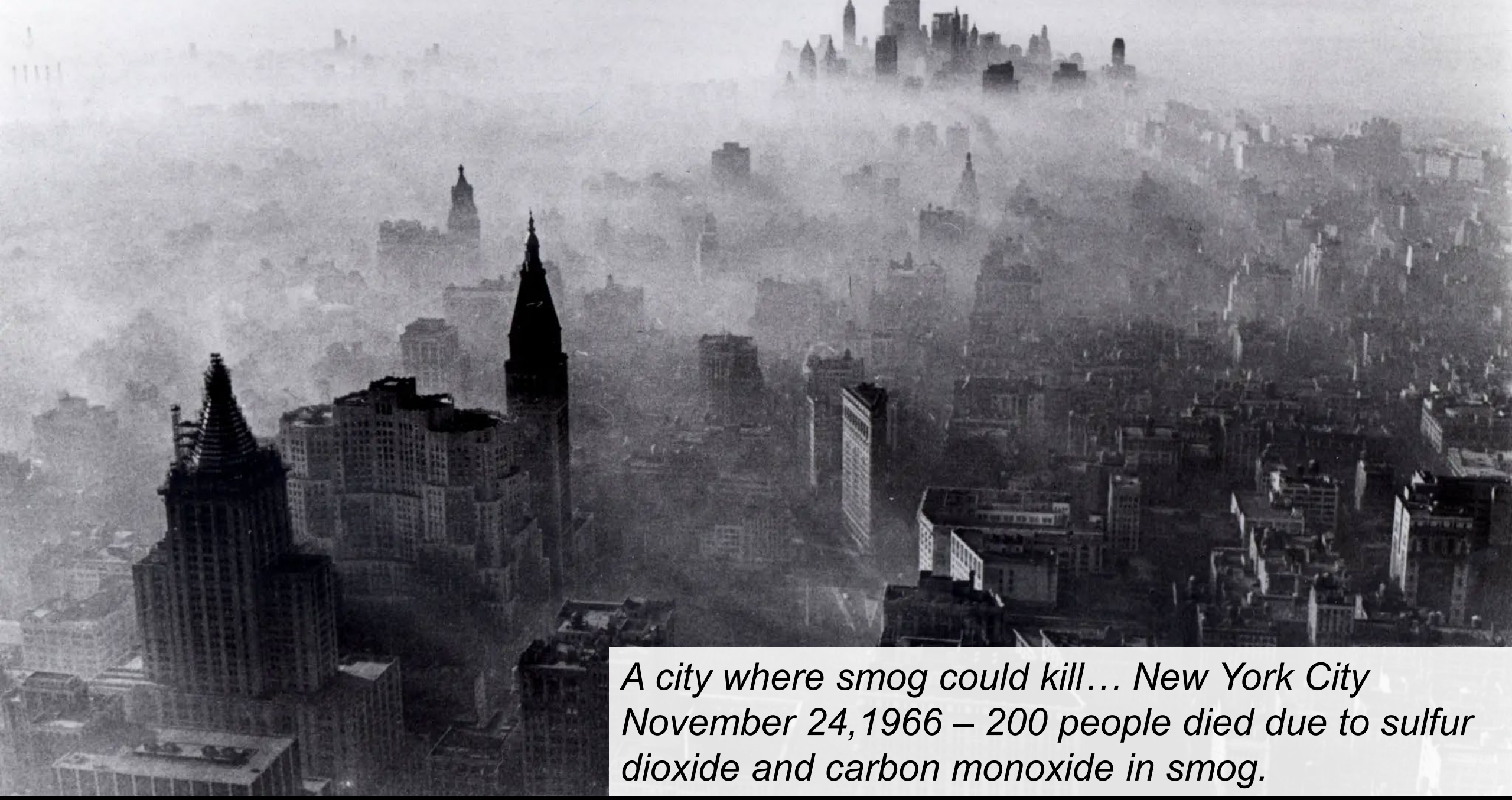
Source:
The contribution of motor vehicle emissions to ambient fine particulate matter public health impacts in New York City: a health burden assessment, *Environ Health*

PM2.5 disproportionately distributed to neighborhoods adjacent to truck routes – largely areas of low-income and high portions BIPOC

Most impacted neighborhoods include South Bronx/Tremont, East Harlem, Brownsville/East New York



Source: Cross-Bronx Study, NYC Office of the Mayor

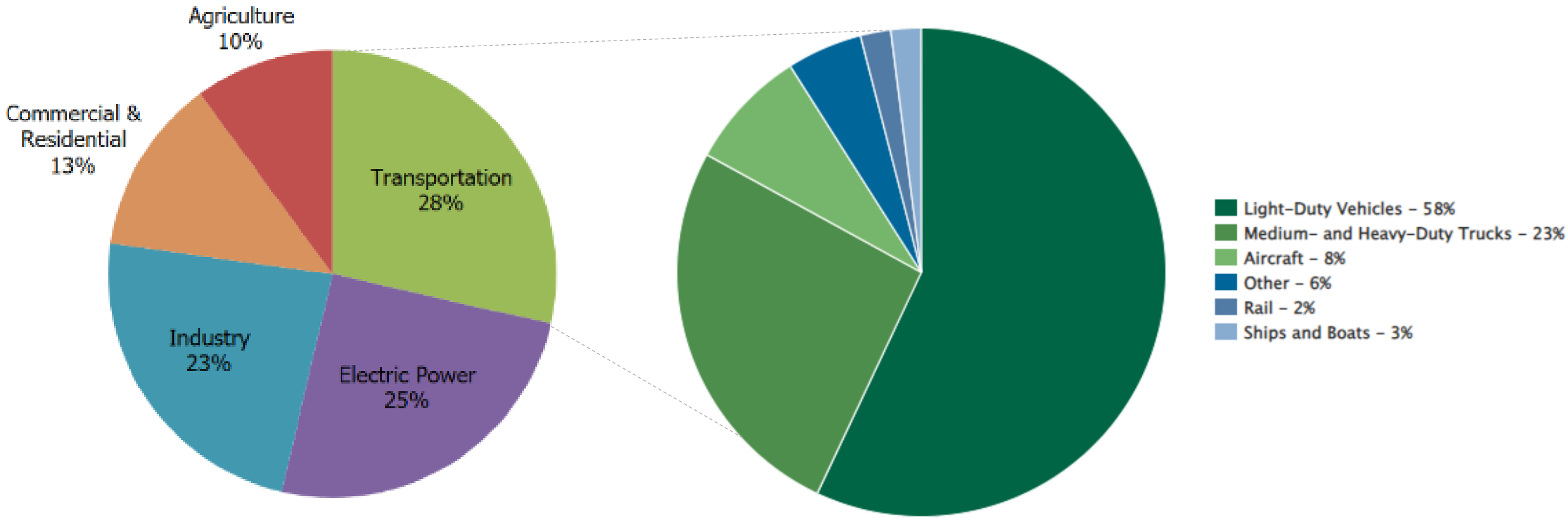


A city where smog could kill… New York City November 24,1966 – 200 people died due to sulfur dioxide and carbon monoxide in smog.

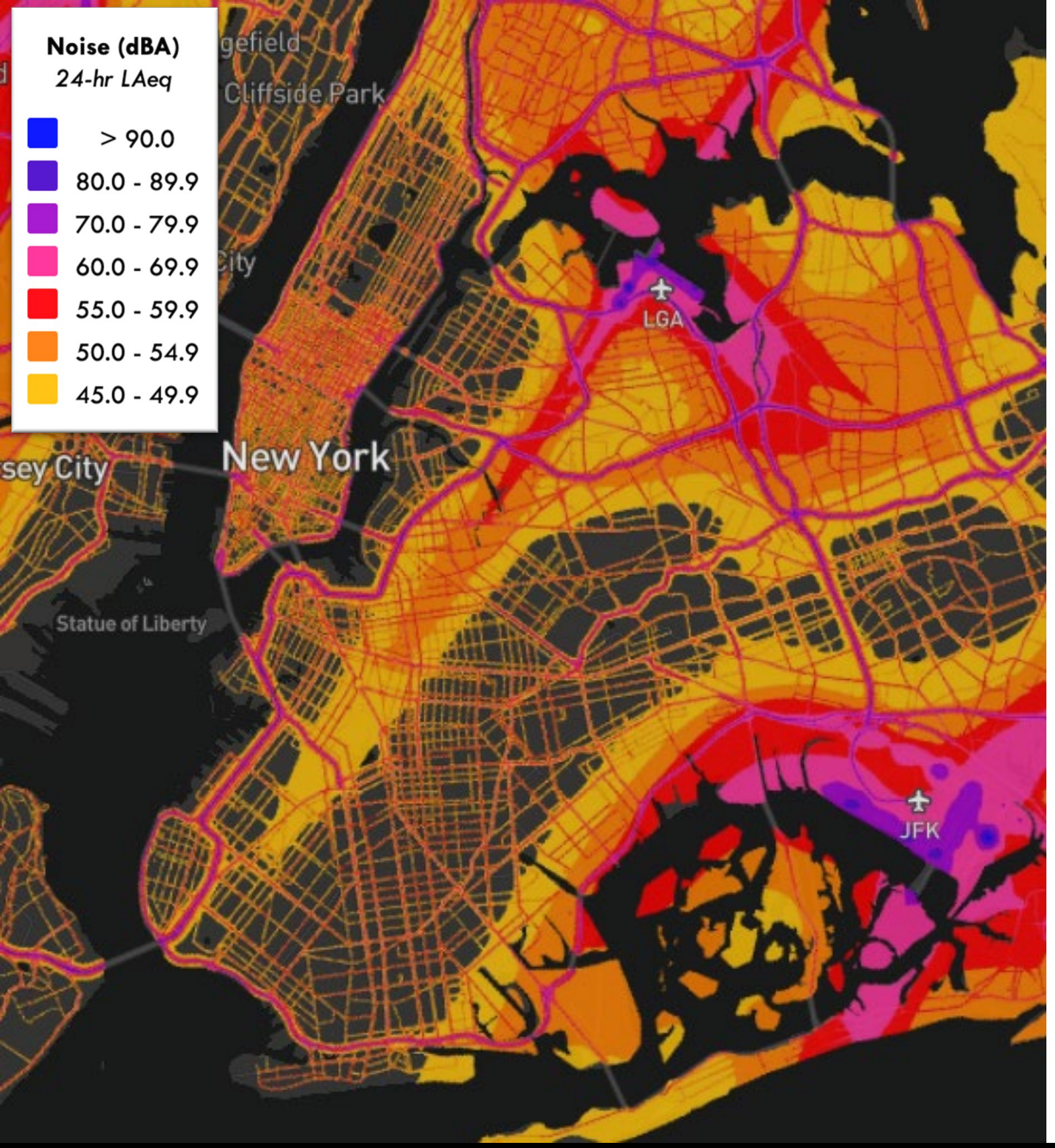
Source NYTimes

Total US Greenhouse Gas Emissions - 2021

Transportation sector is the leading contributor to United States greenhouse gas emissions, although down from 29% in 2019

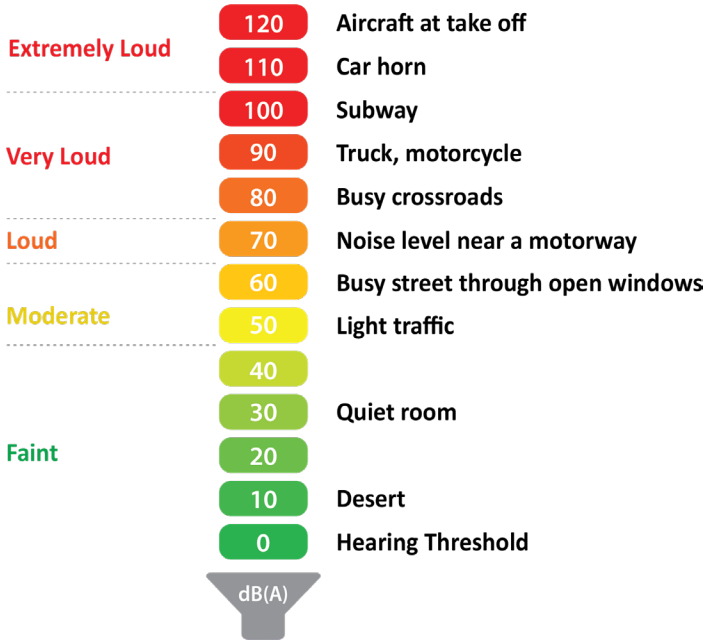


Source:
Sources of Greenhouse Gas Emissions, EPA



Noise Pollution

- Road traffic noise increases the risk for **heart disease** and potentially other cardiometabolic diseases, including **stroke, obesity, and diabetes**. - *WHO, 2020*
- Nighttime traffic noise was strongly linked to a range of insomnia symptoms - *NIH, 2022*

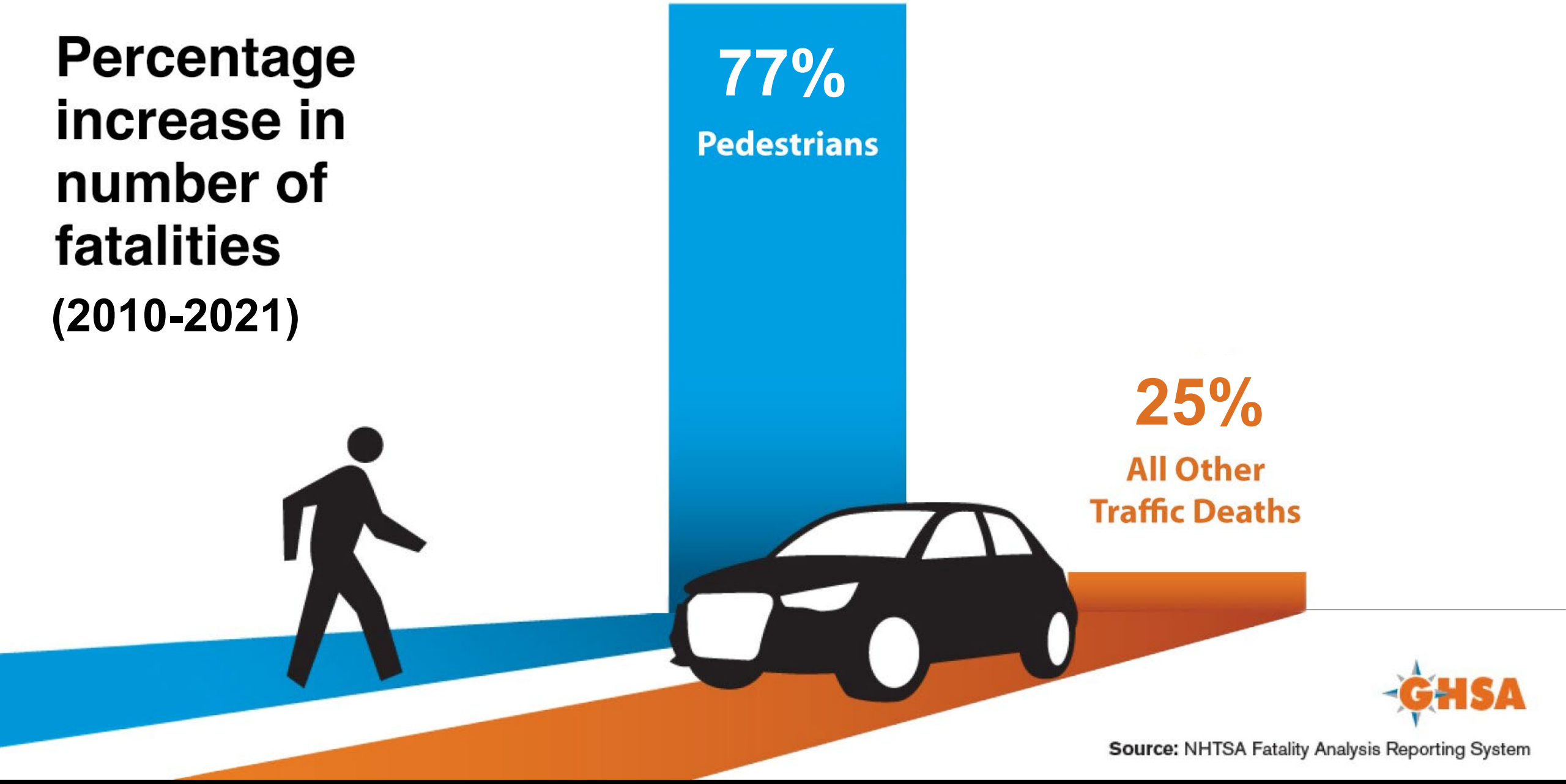


Sam Schwartz

Sources:
National Transportation Noise Map, BTS
Burden of disease from environmental noise, WHO
Environmental Noise and Effects on Sleep, NIH

Percentage increase in number of fatalities

(2010-2021)



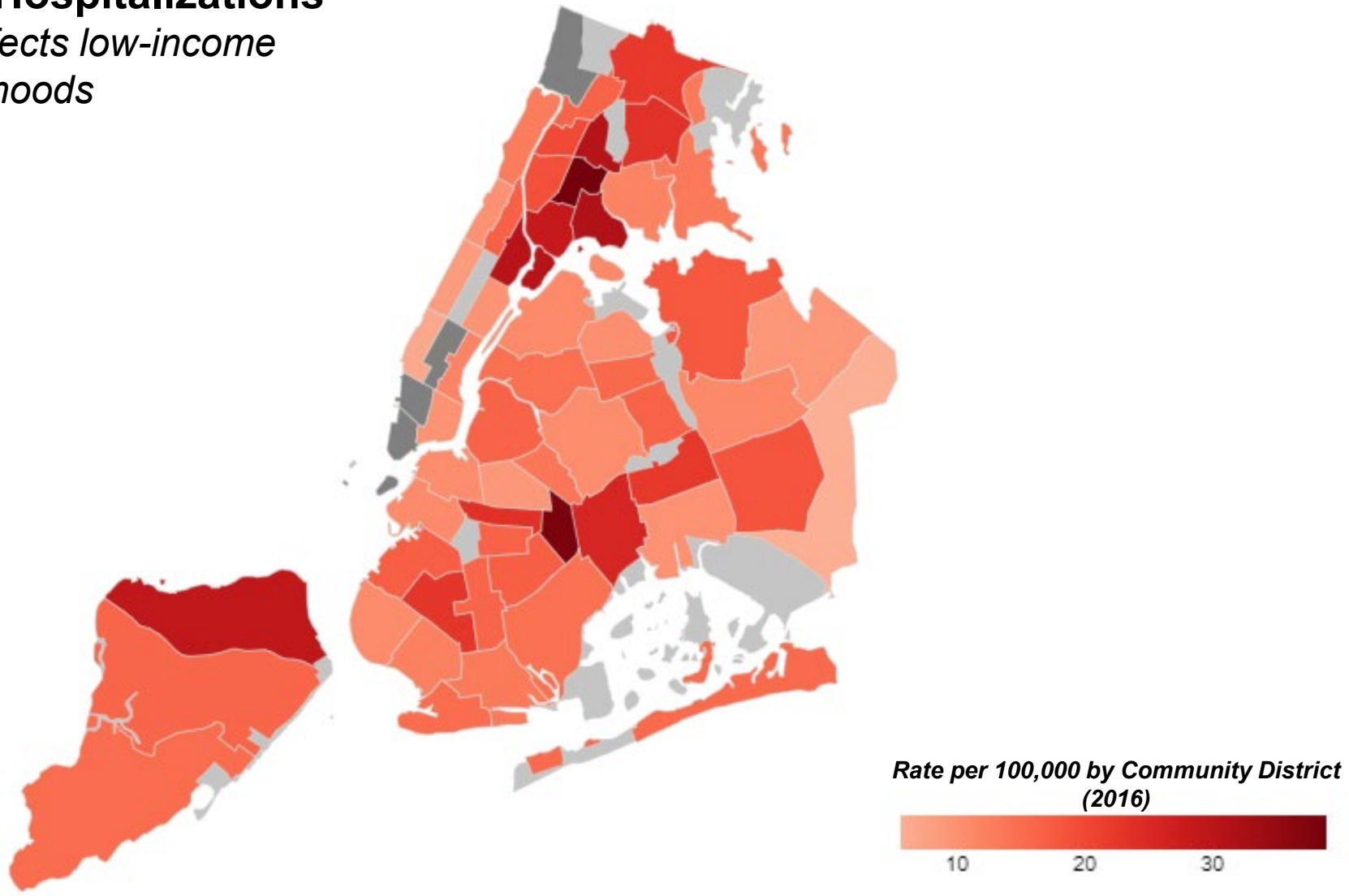
GHSA

Source: NHTSA Fatality Analysis Reporting System

Source:
Pedestrian Traffic Fatalities by State, 2022 Preliminary Data, GHSA

Pedestrian Injury Hospitalizations

Disproportionately affects low-income and BIPOC neighborhoods

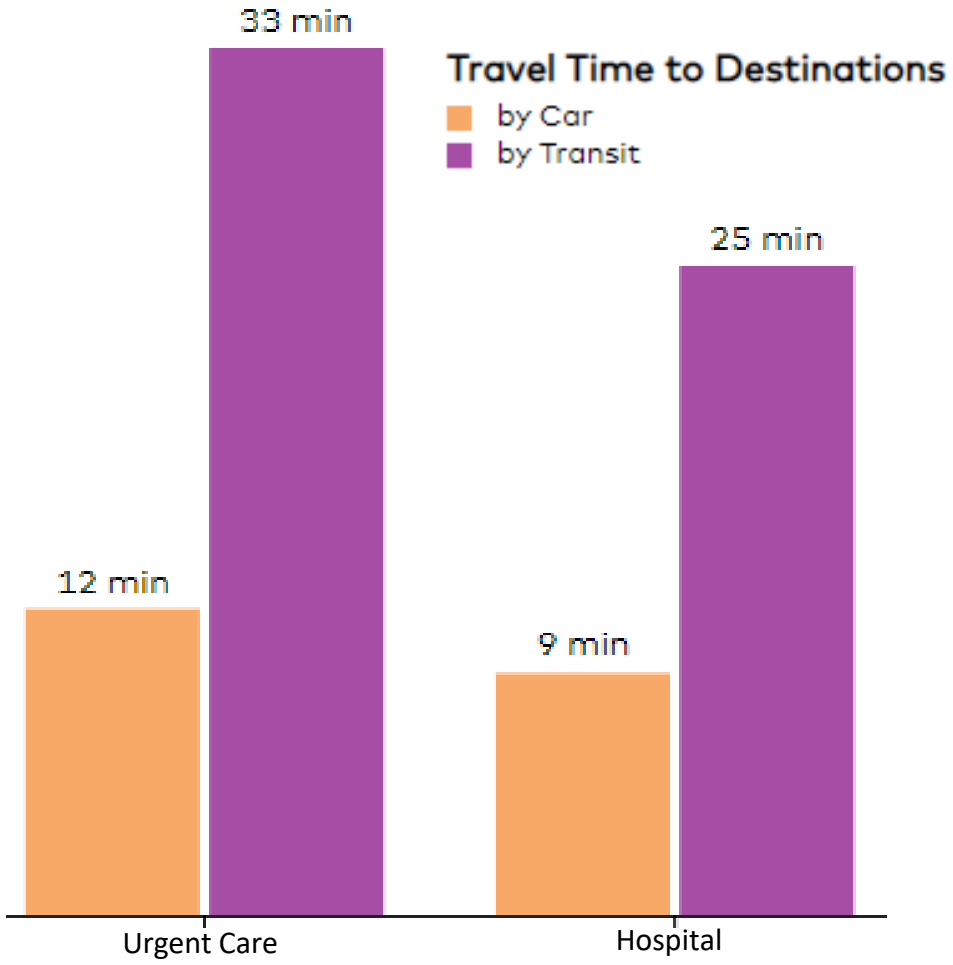


Source:
Pedestrian injury hospitalizations - Age-adjusted rate, NYC DOHMH

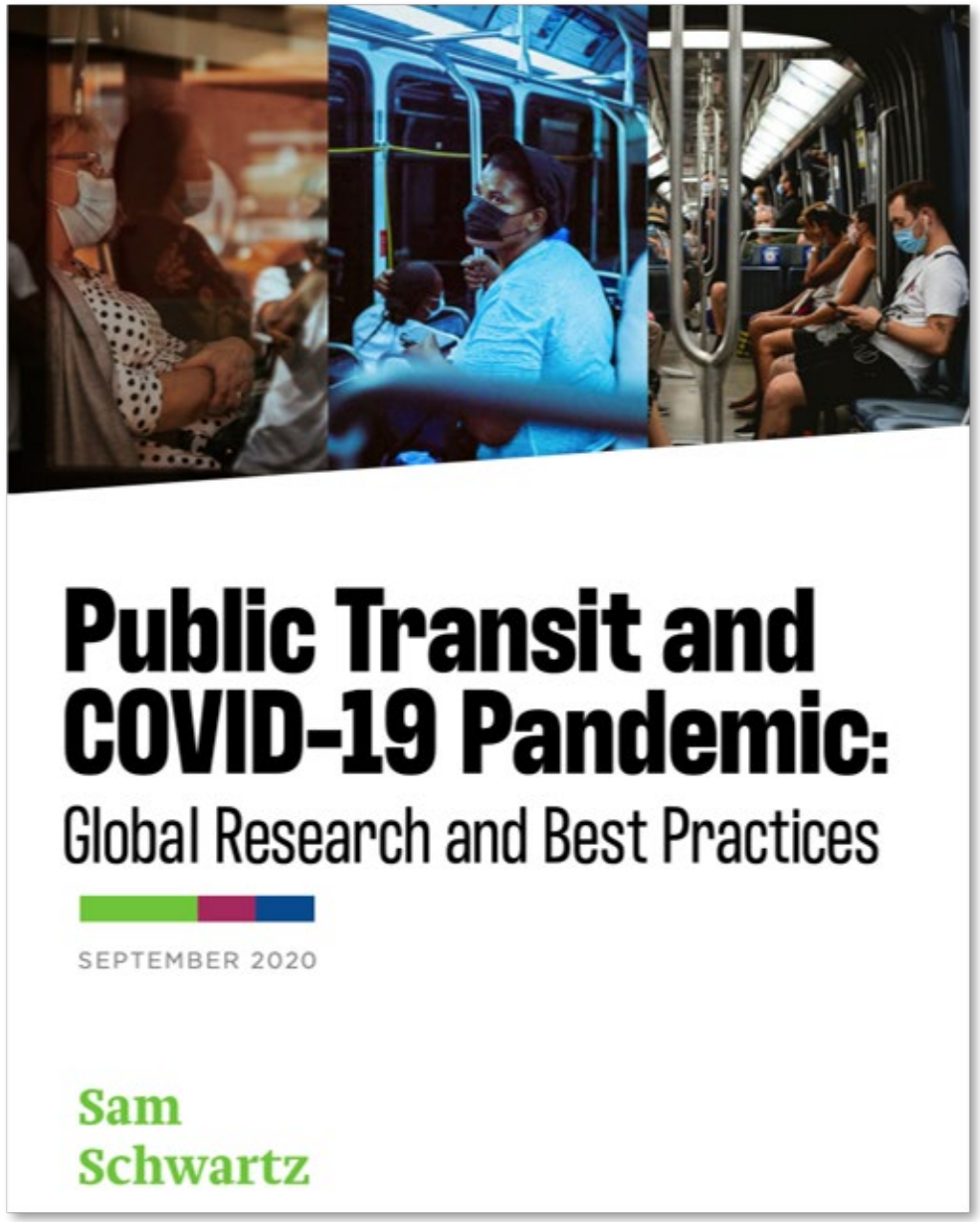
Transportation Inextricably Linked with Equity and Health

3.6 million people in the U.S. do not obtain medical care due to transportation barriers

- Transportation is the third largest barrier to accessing health services for older adults
- Older, less educated, female, minority, or low income more impacted by transportation barriers



Source:
Transportation and the Role of Hospitals, American Hospital Association
TransitCenter Equity Dashboard



Researchers and media, without much evidence, were quick to point to transit as a major cause of the virus's spread.

"The Subways Seeded the Massive Coronavirus Epidemic in New York City" – Massachusetts Institute of Technology, Department of Economics (April 2020)

"**Public Transit Use Is Associated With Higher Coronavirus Death Rates**" – WSJ, based on two economic studies (June 2020)

The New York Times

Are Cars Protecting Los Angeles?

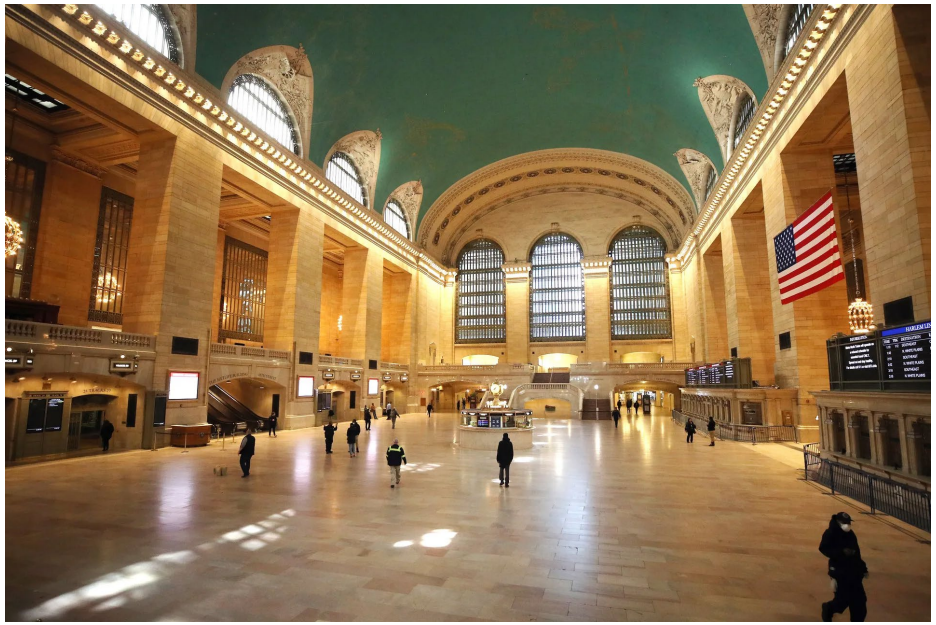
The city is reviled for its sprawl-and-crawl culture, but a pandemic can change things.

May 23, 2020

Sam Schwartz/APTA report, September 2020. ***Public Transit and COVID-19 Pandemic: Global Research and Best Practices.***

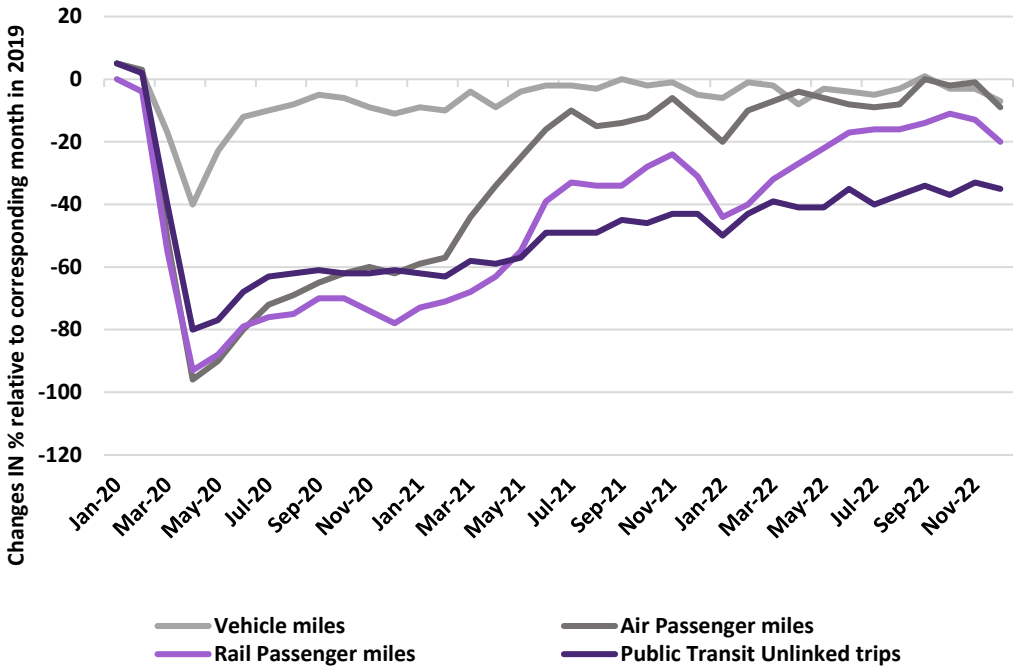
Public transit ridership took a hit

Peak pandemic, ridership on city systems declined between 70% - 90%+ percent and services were cut



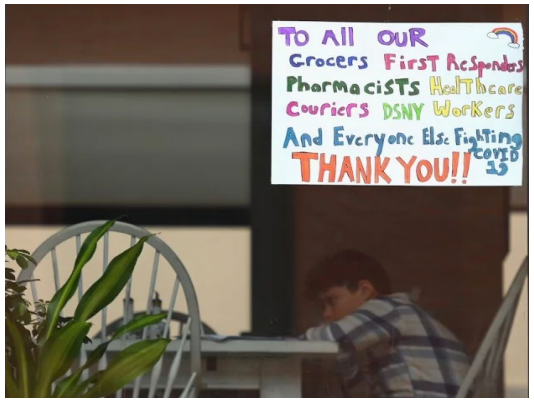
A nearly empty Grand Central Station.

Monthly Changes from 2019 for Selected Transportation Modes, Nationally



Nationwide, public transit and rail have struggled to recover ridership.

Source:
Monthly Changes in Key Transportation Indexes, Green Car Congress
Image: Getty



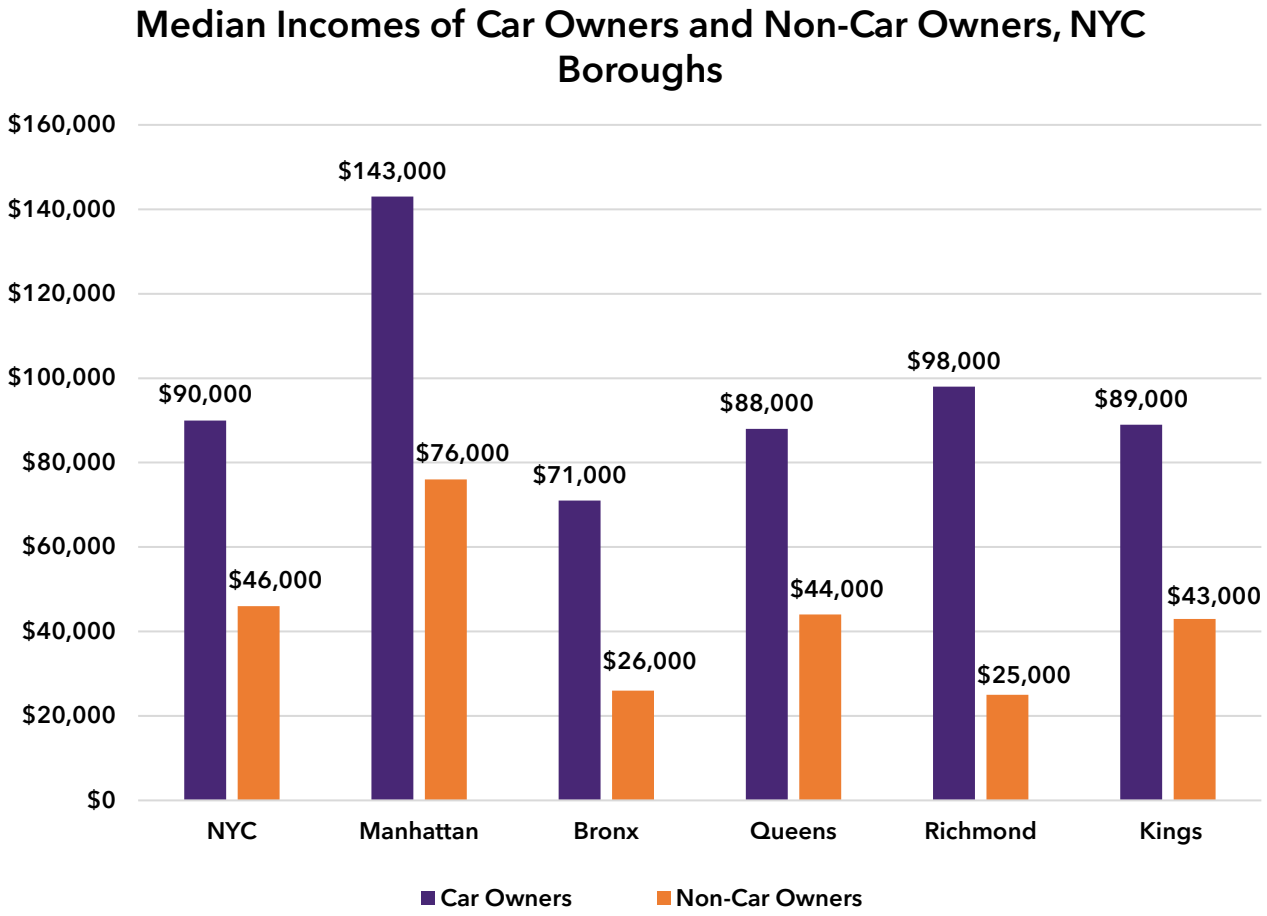
Disproportionate Impact on those who Rely on Transit

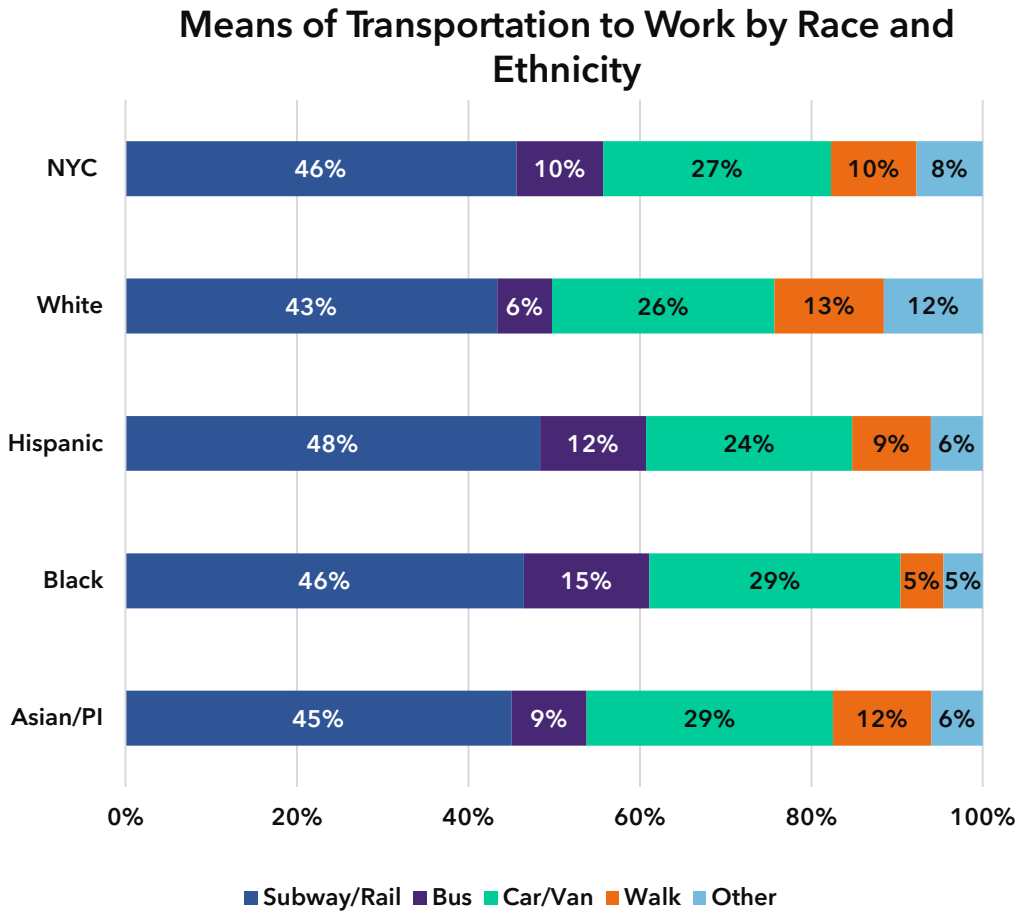
2.8 Million essential workers rely on public transit – 36% of all transit commuters nationwide

- **67% are BIPOC (vs 36%)**
- **26% are low-income (vs 11%)**

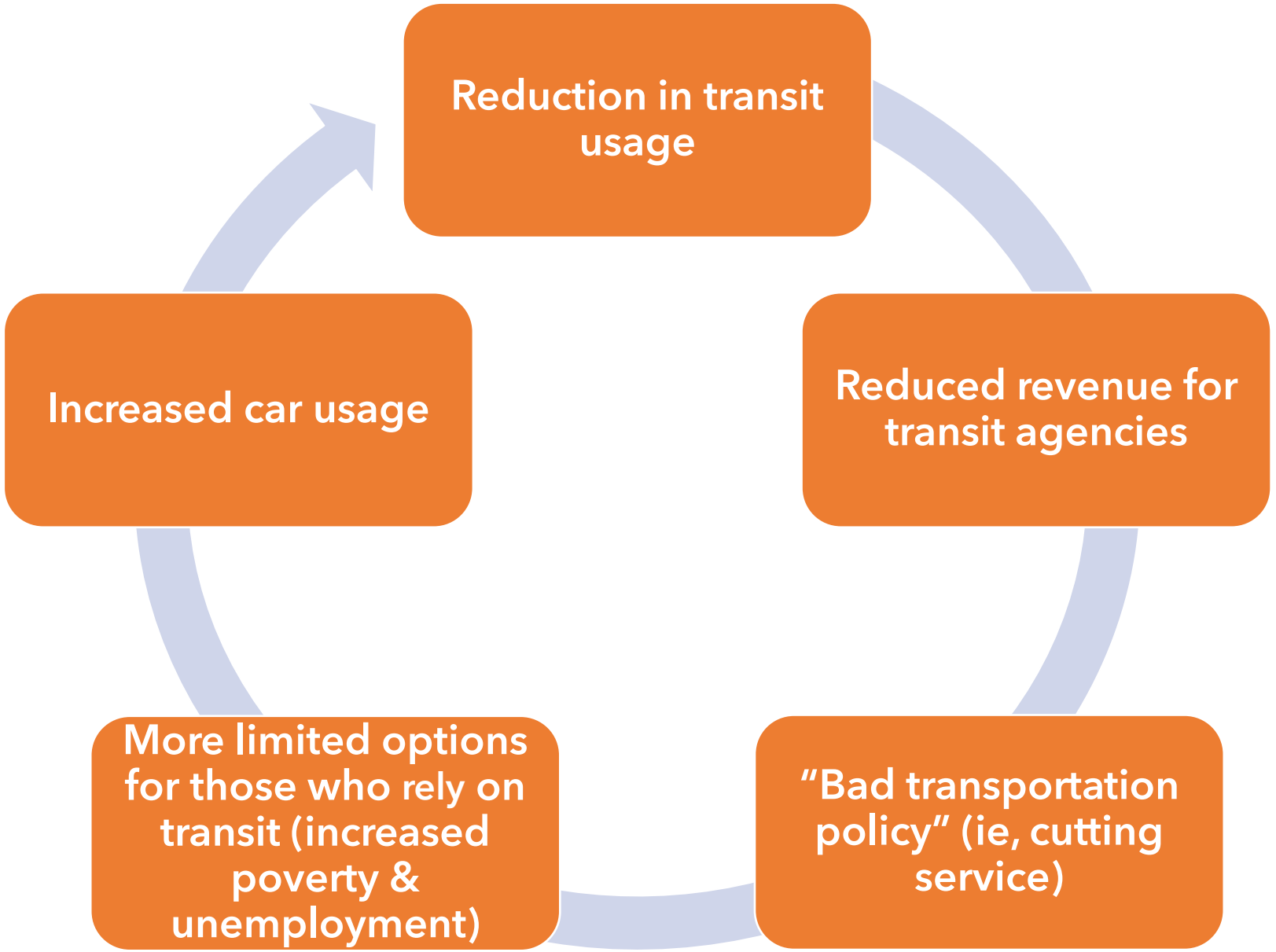
Sources:
Transit Cuts Felt Deepest in Low-Income Areas, NYTimes
Transit Is Essential, Transit Center
Tailoring Transit Service for Essential Workers Is a Matter of Racial Justice, Transit Center

Disproportionate Impact on those who Rely on Transit

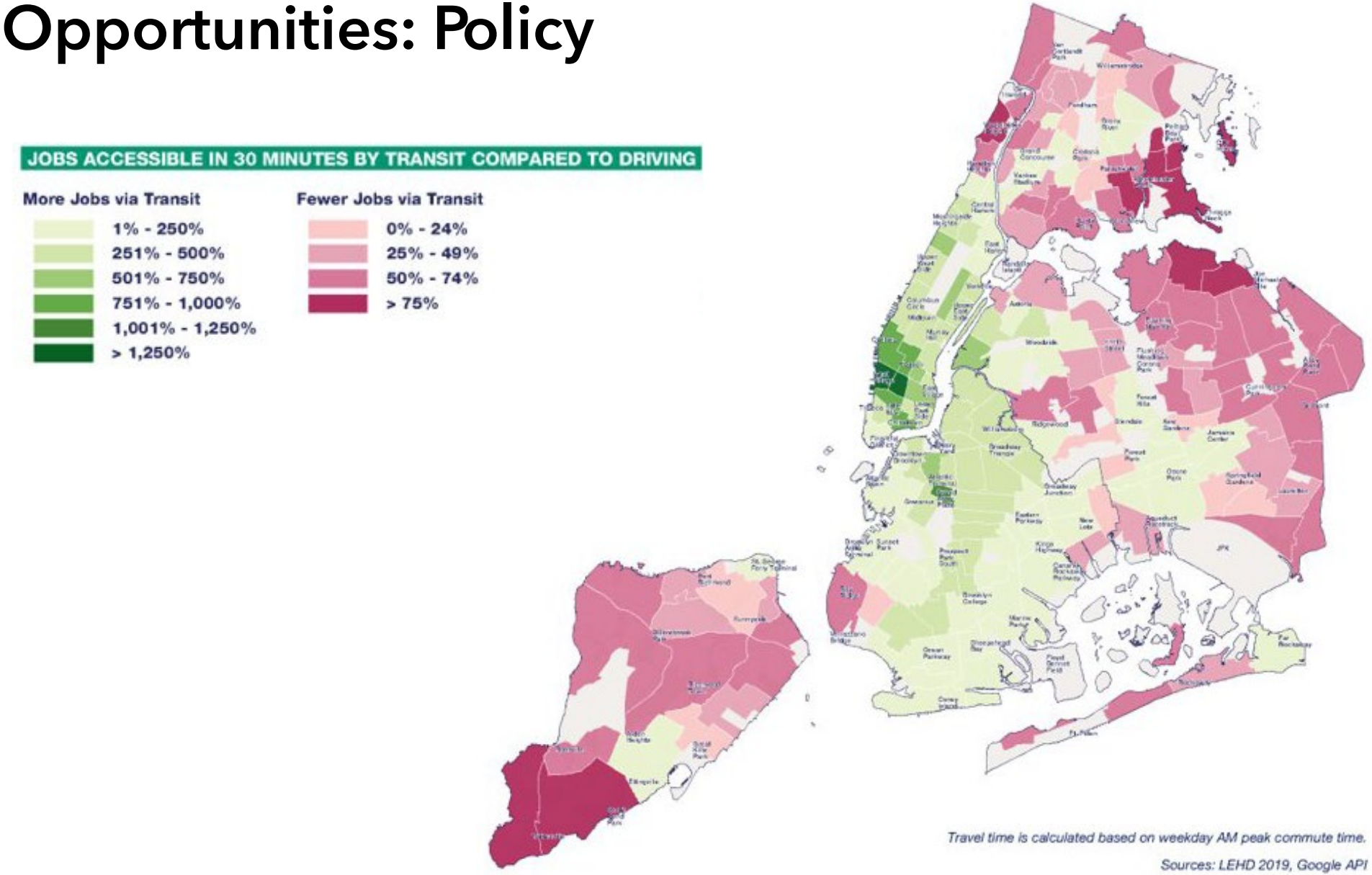




Source:
PUMS, ACS 2015-2019

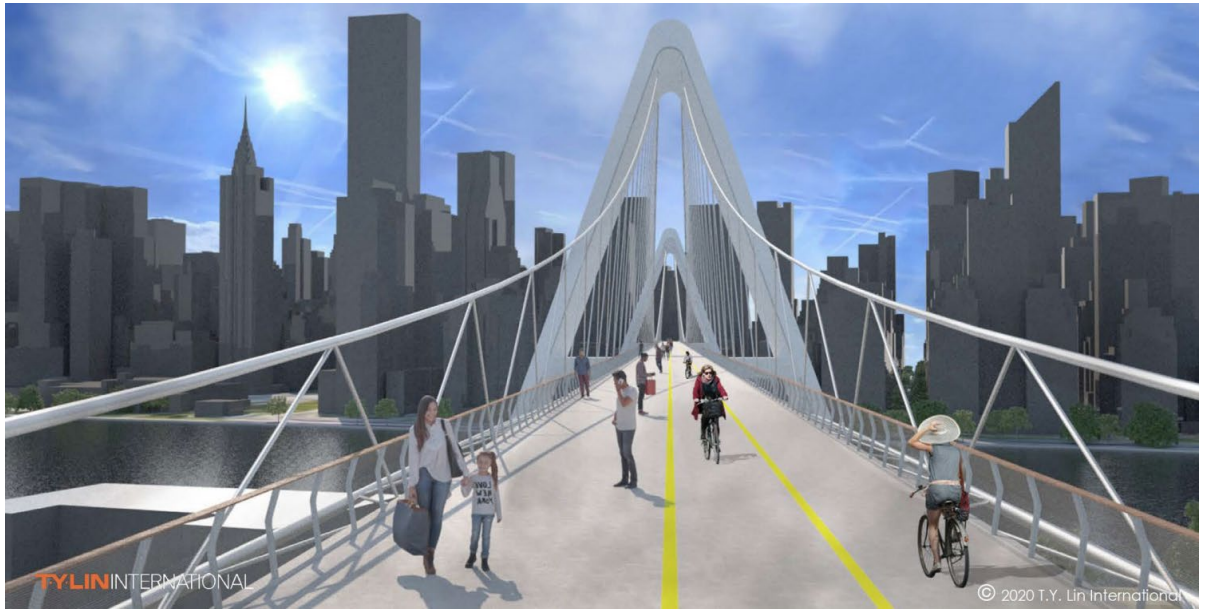

Reduction in transit usage
Reduced revenue for transit agencies
"Bad transportation policy" (ie, cutting service)
More limited options for those who rely on transit (increased poverty & unemployment)
Increased car usage

Opportunities: Policy



Source:
Streets Plan 2023, NYC DOT

Opportunities: Innovation

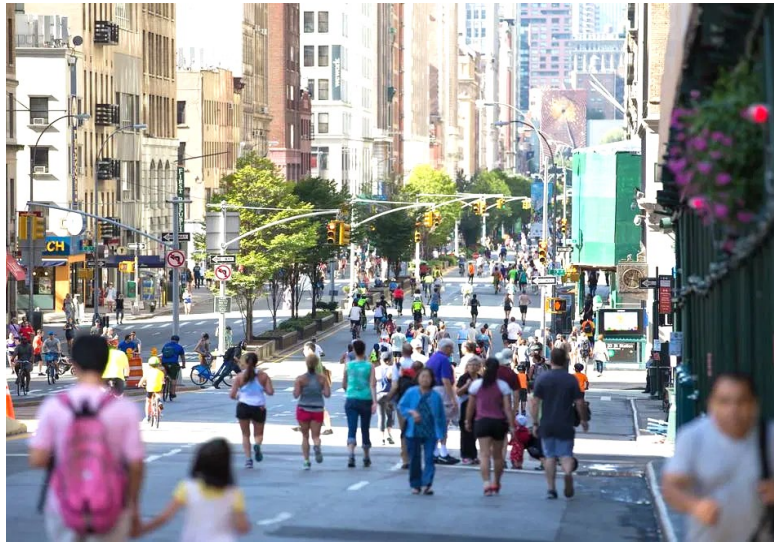


Source: Sam Schwartz, NYU IDC Innovation Hub, T.Y. Lin International, June 2020.

Opportunities: Politics

Opportunities: Rethinking our Streets

Park Avenue, 1920s



Open Streets, New York City

Open Restaurants, San Diego

Redesigned Intersection, Piazza Aperte, Milan

Busways, New York City

Bike Ways, Paris

Thank you!