



HIGH SPEED RAIL

POLICY BRIEF PRESENTATION BY:

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AGENDA

Introduction to High-Speed Rail

Research Question

A Closer Look in the U.S.

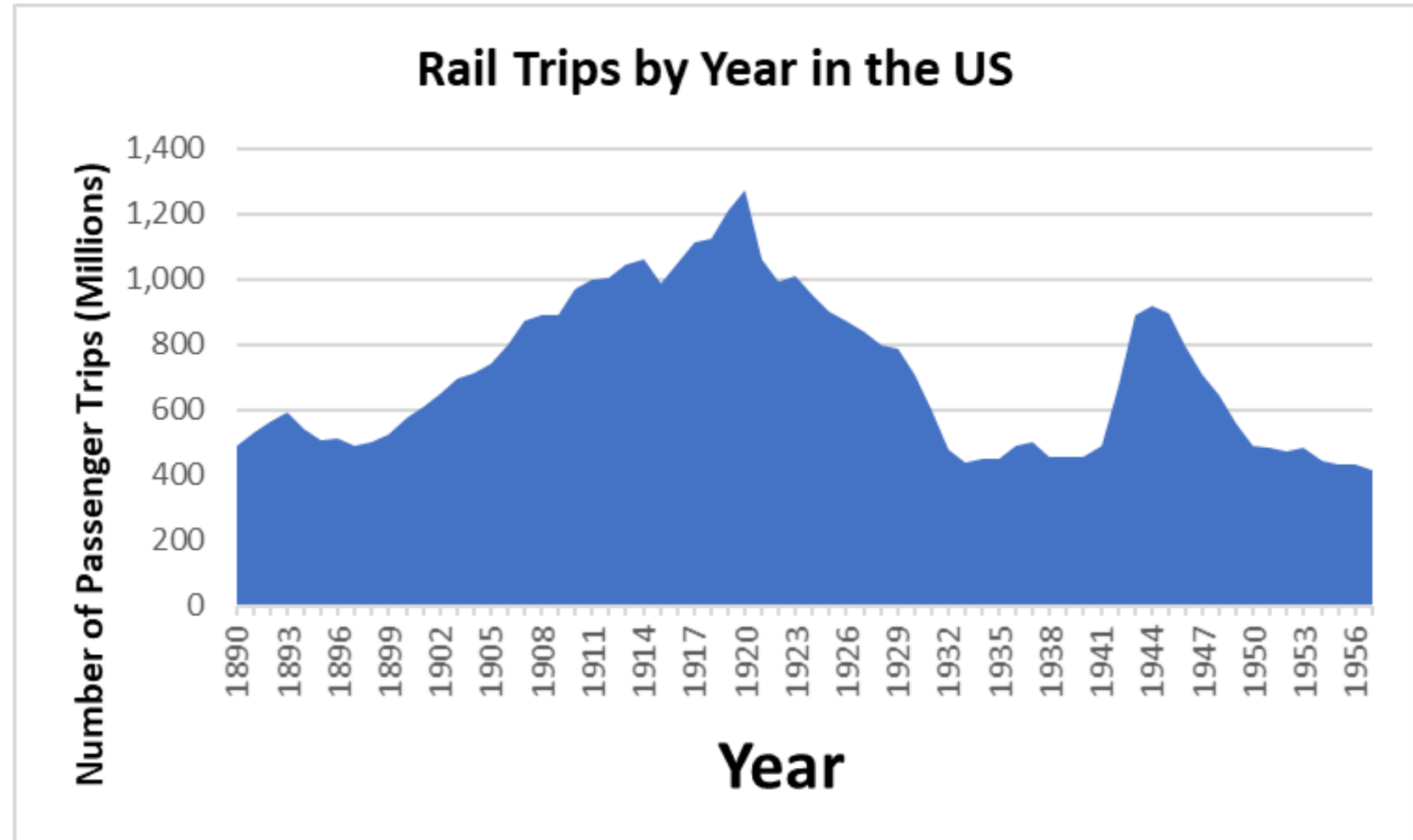
- California
- Texas
- Eastern Corridor

Cost Benefit Analysis

Recommendation

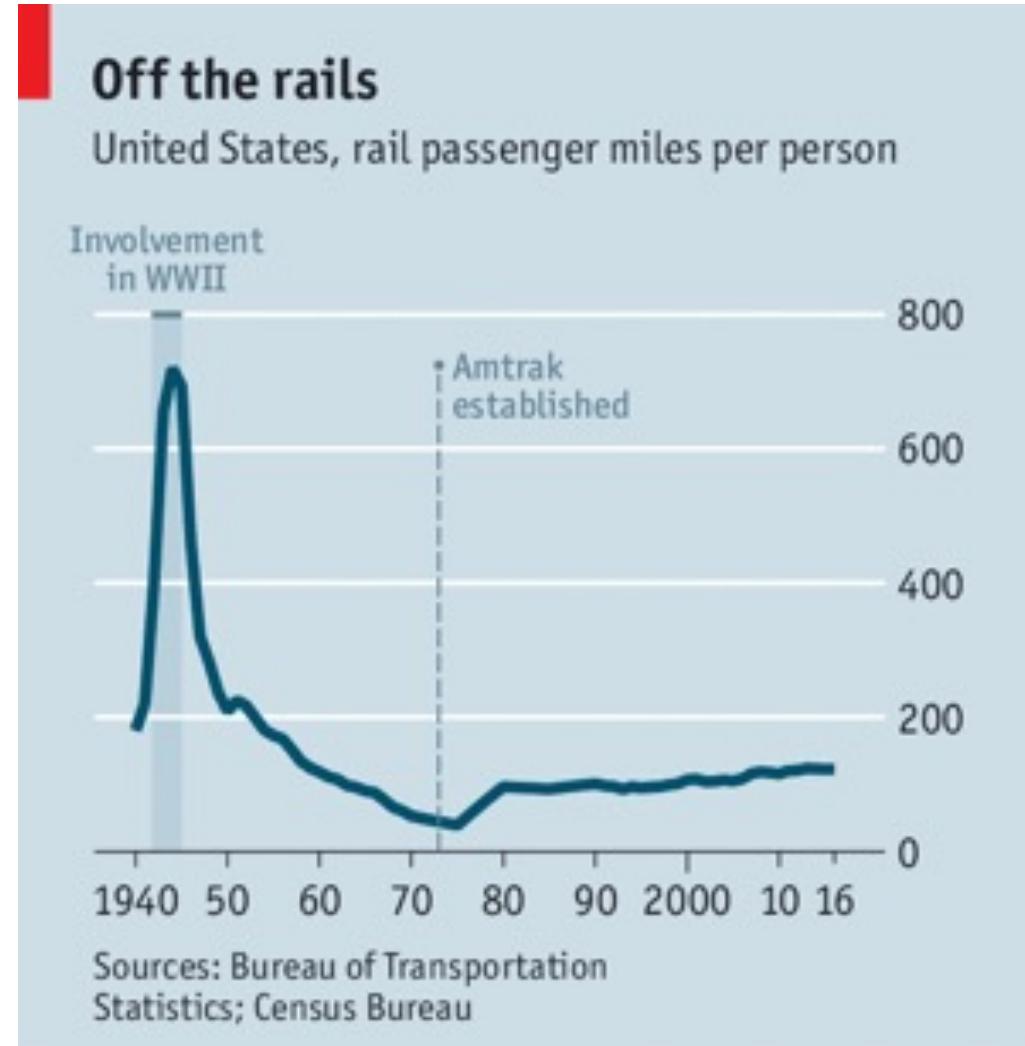
HISTORY OF RAIL IN THE US

■ Source: US Census Bureau



HISTORY OF RAIL IN THE US

■ Source: [The Economist](#)



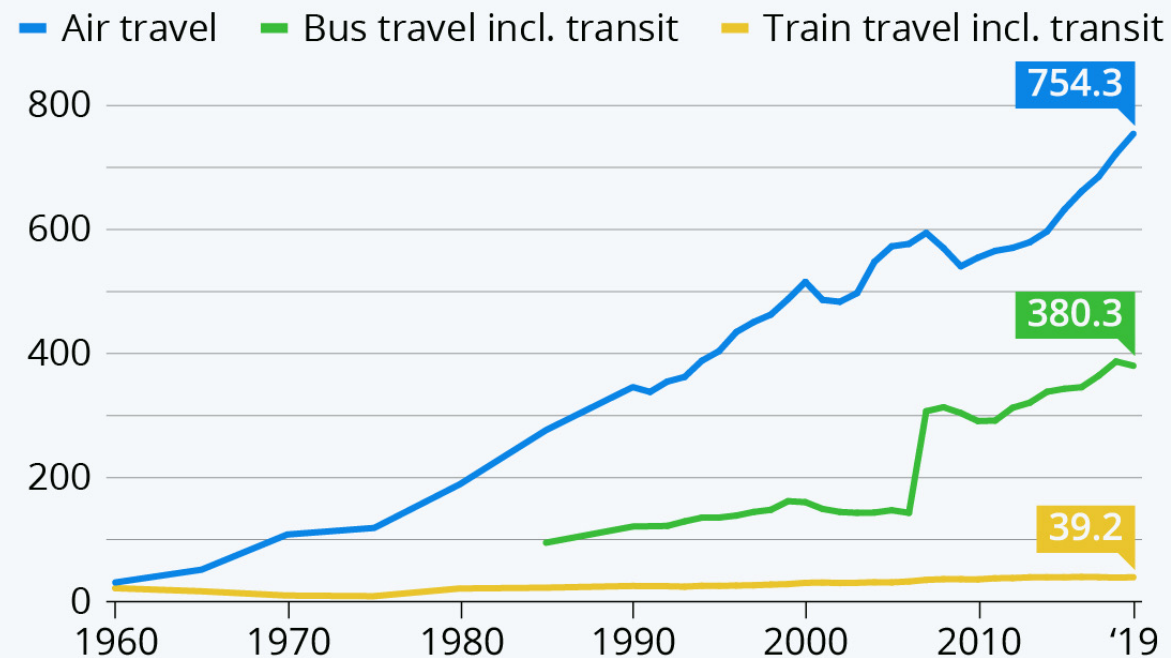
The Economist

OTHER FORMS OF PUBLIC TRANSPORTATION BECOME AVAILABLE

■ Source: [Statista](#)

Train Travel Loses Out in the U.S.

Number of U.S. passenger miles* travelled
on mass transit 1960-2019 (in billions)



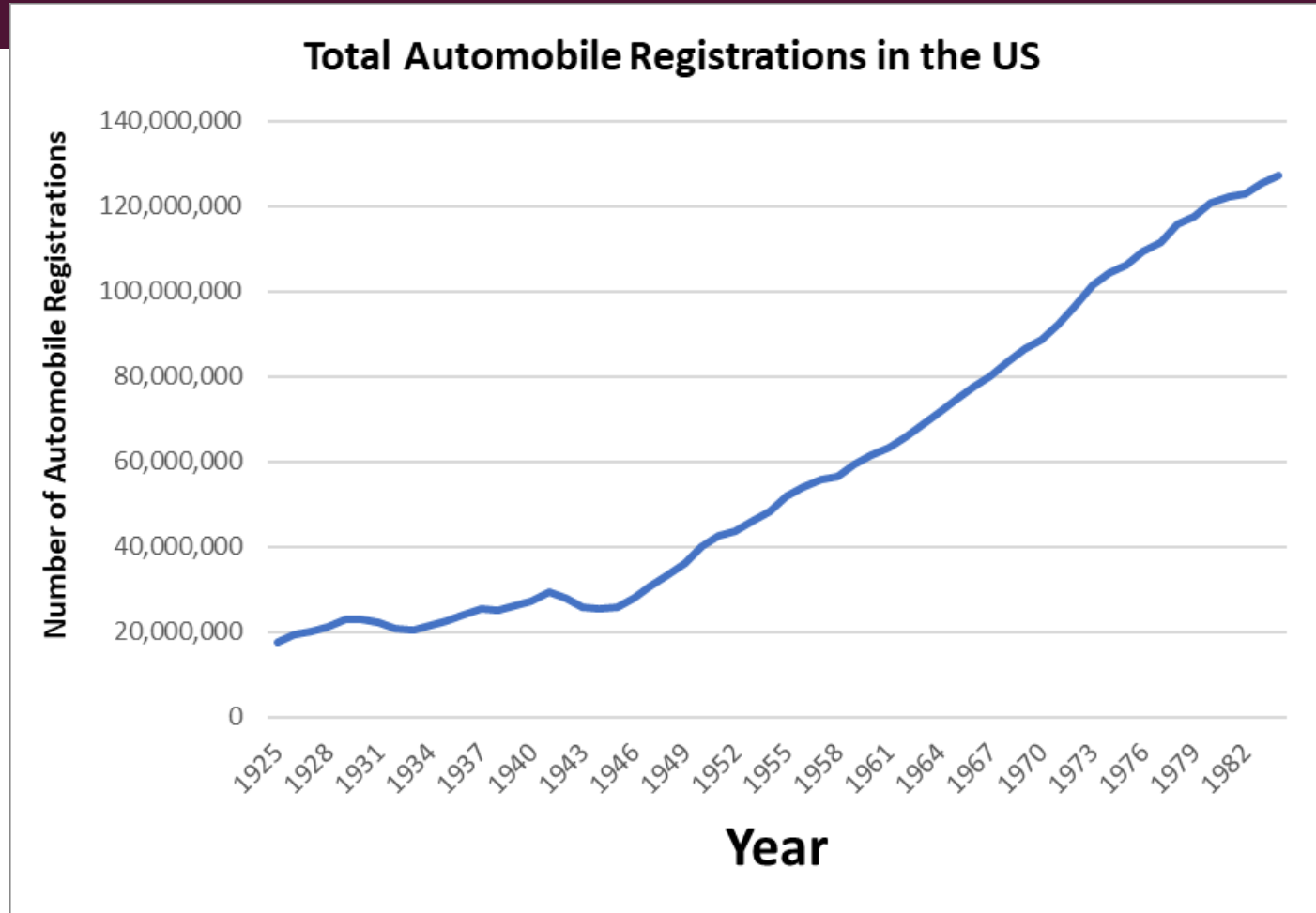
* Miles travelled by all vehicles multiplied by all passengers

Source: United States Department of Transportation



statista

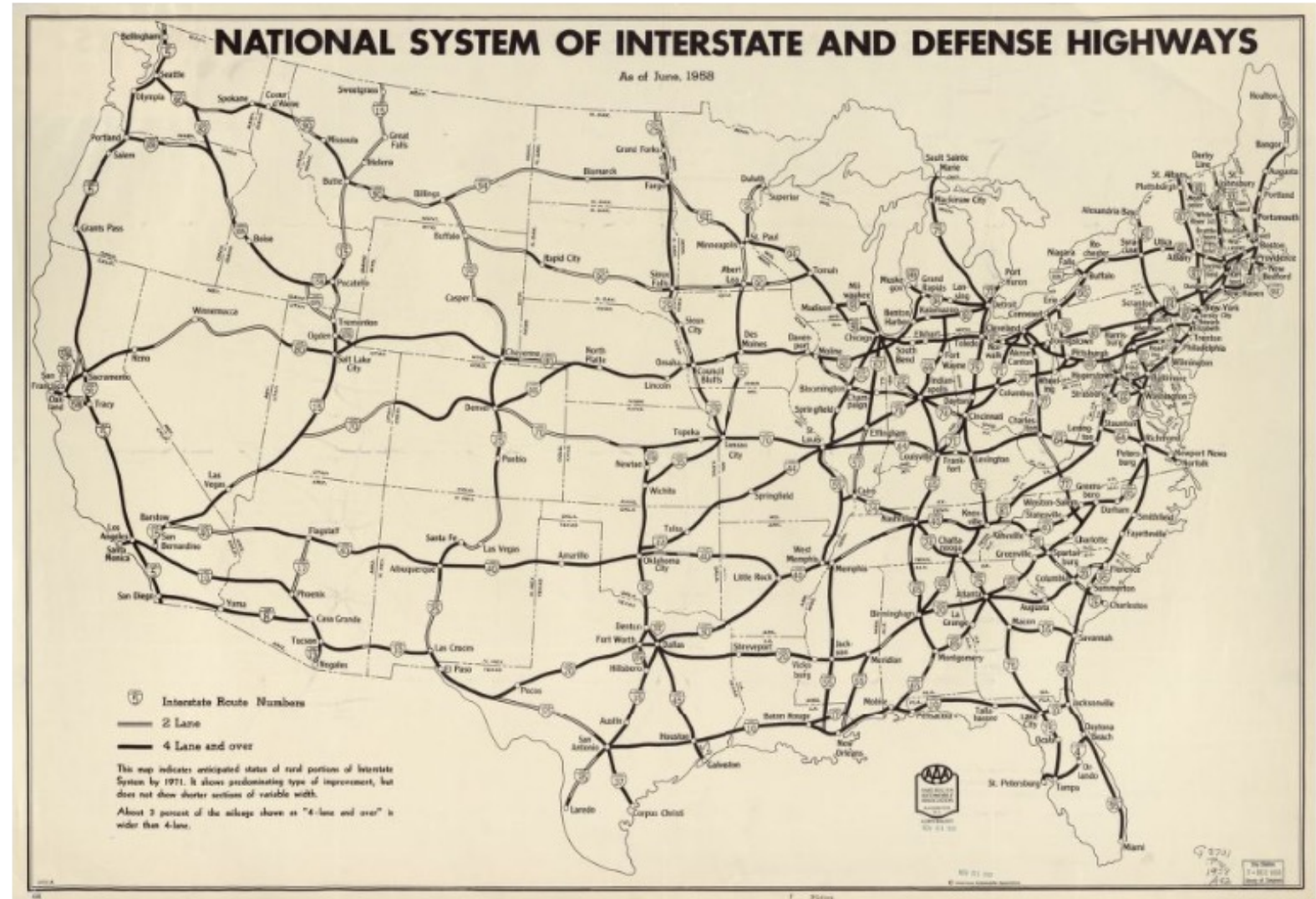
CARS BECOME POPULAR



Source: [Department of Transportation](#)

FEDERAL-AID HIGHWAY ACT OF 1956

- Constructed 41,000 miles of interstate highways
- Cost \$26 billion, which is \$270 billion today



OTHER COUNTRIES

Japan

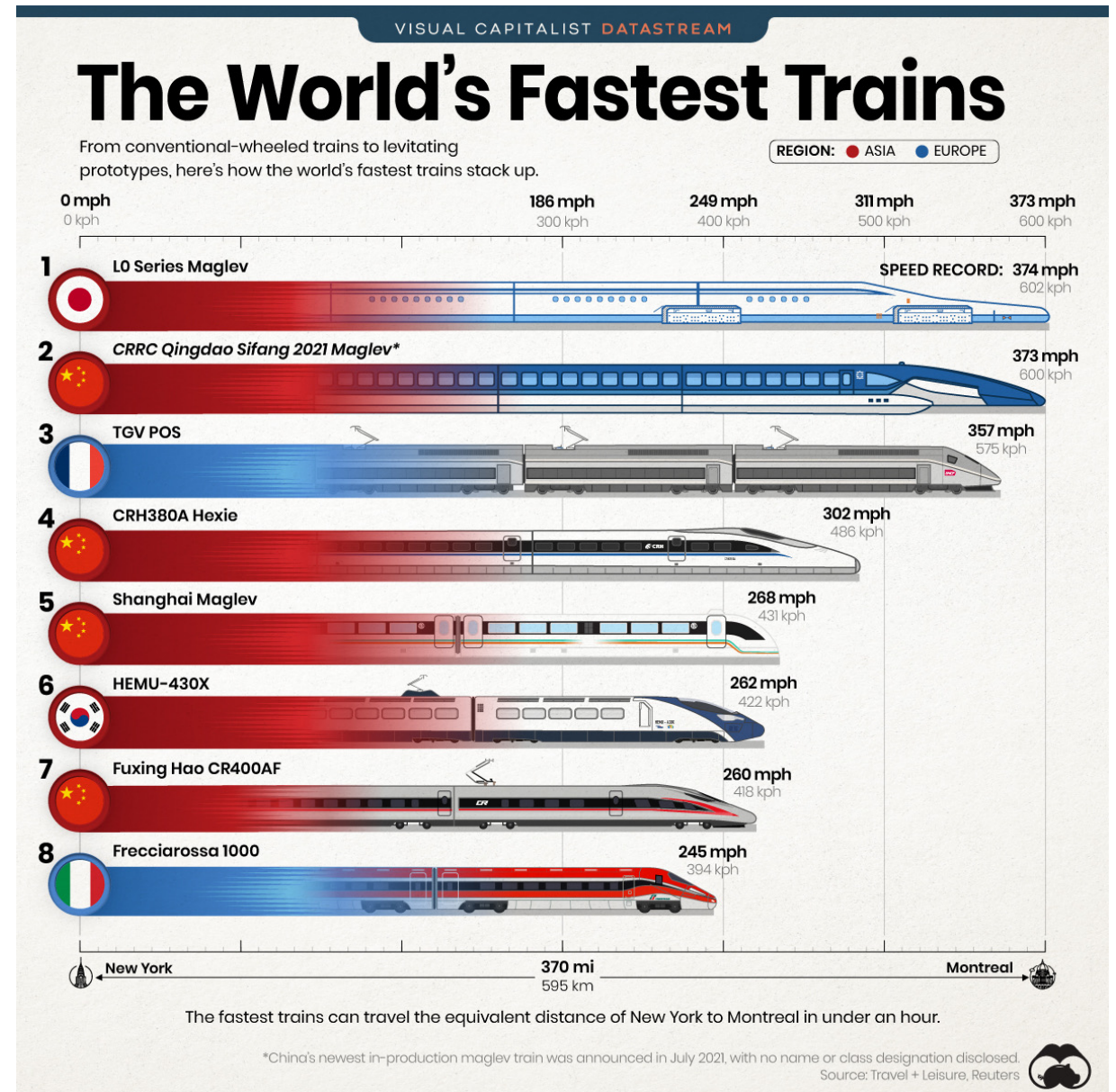
- 1964
- Privatization

France

- SNCF: la Société Nationale des Chemins de Fer Français

China

- 20 years
- Domestic Airlines vs High Speed Rail



RESEARCH QUESTION:

What are the cost-benefits to implementing a high-speed rail system in various segments of the United States?

A CLOSER LOOK: CALIFORNIA

California Rails

- Las Vegas -- Los Angeles
- San Francisco -- Los Angeles

Routes

- 260-mile route high speed rail (LV-LA)
- 520-mile route high speed rail (San Fran – LA)

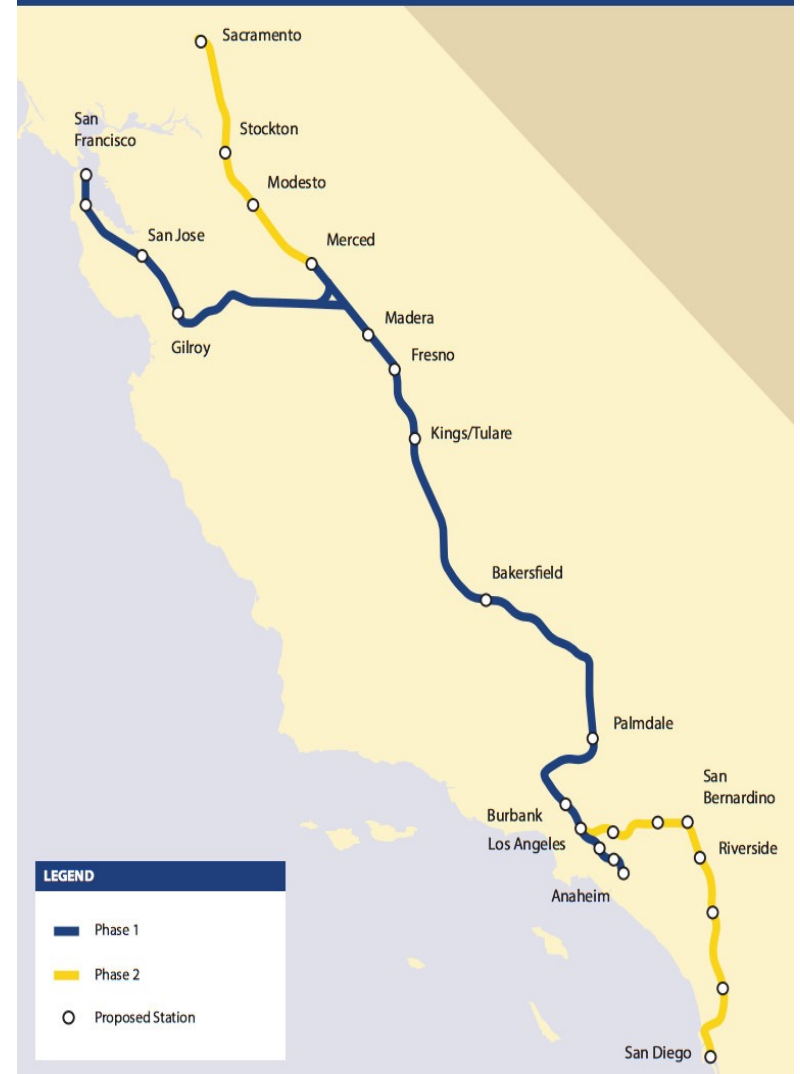
Brightline & California High-Speed Rail

- Expected 2026
- Expected 2033



CALIFORNIA HIGH-SPEED RAIL STATEWIDE SYSTEM

Proposed Statewide Alignment



LAS VEGAS TO LOS ANGELES - BRIGHTLINE



Characteristics

- \$8-12 billion estimated
- 260-Miles
- Top Speed of 180 MPH
- Will connect to Metrolink, Southern California's passenger rail system

Benefits

- 50 million one way stops per year, 85% are car or bus currently
 - Hope to attract up to 24% of the original 50 million travelers
- Reduction of 3 million vehicles
- Reduction of 400,000 tons of CO2 pollution per year
- Public Safety
- Roughly \$10 Billion of economic output
- 40,000 jobs created



SAN FRANCISCO TO LOS ANGELES – CALIFORNIA HIGH SPEED RAIL AUTHORITY

Characteristics

- \$105 billion estimated
- 520-Miles
- Top Speed of 200+ MPH
- Will extended in phase 2 into Sacramento and San Diego, 800-miles
- Feature 24 stops

Benefits

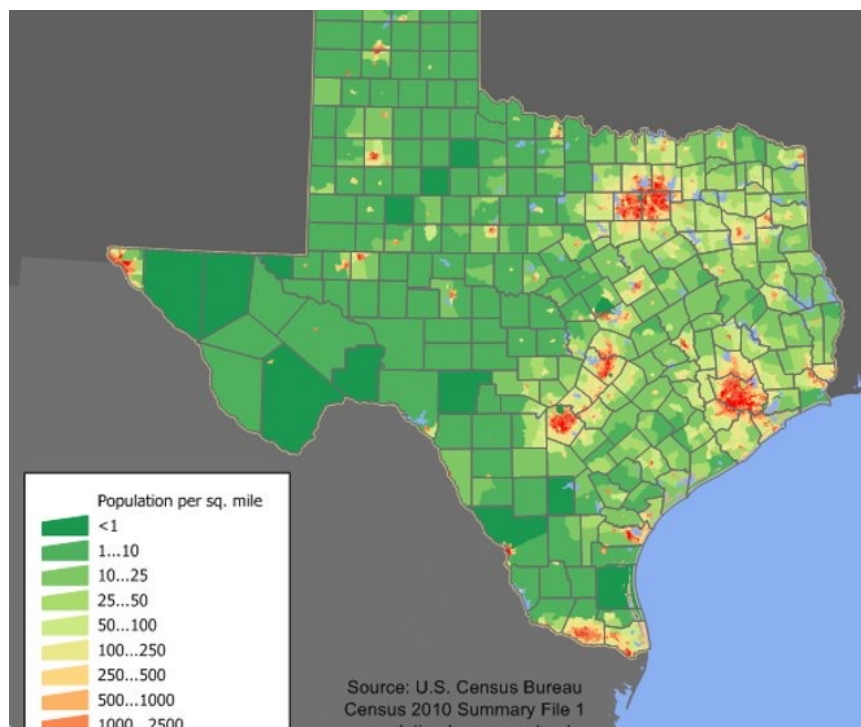
- 35.6 Million expected riders in 2033
- \$2.2 Billion in revenue for 2033
- Already created 7,300 jobs
- 100% eco-friendly
- Safety, every 40 hours someone in the San Francisco area is killed in vehicular accidents
- Roughly \$10 Billion of economic output



CALIFORNIA
High-Speed Rail Authority



A CLOSER LOOK: TEXAS



- Geography
- Demand
 - Fast Growing
 - Houston: 4th largest city in the U.S.
 - Dallas: 9th largest city in the U.S.
 - No train between Dallas - Houston

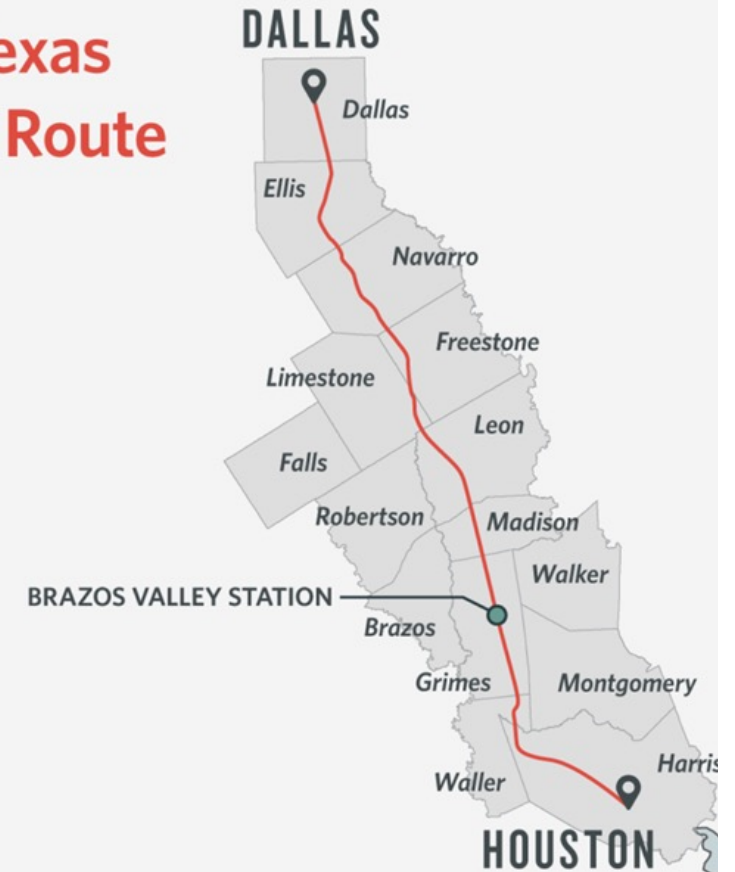


TEXAS CENTRAL RAILWAY

- Founded in 2014
- Private
- 3 Stop Route (240 miles)
 - Dallas
 - Brazos Valley
 - Houston
- Uses Japanese Series 700 Shinkansen equipment and technology



Texas in Route



HIGH SPEED RAIL IN TEXAS

- Costs
 - \$20 billion estimated (hard costs)
 - Land Concerns
 - *James Miles v. Texas Central* 2022
- Benefits*
 - Environmental
 - Removing 14,630 vehicles per day on I-45 between Houston and Dallas
 - Reduce greenhouse gas emissions by an estimated 101,000 tons per year
 - Safety
 - Elevated tracks
 - Increased Property Values
 - 1,500 + new jobs

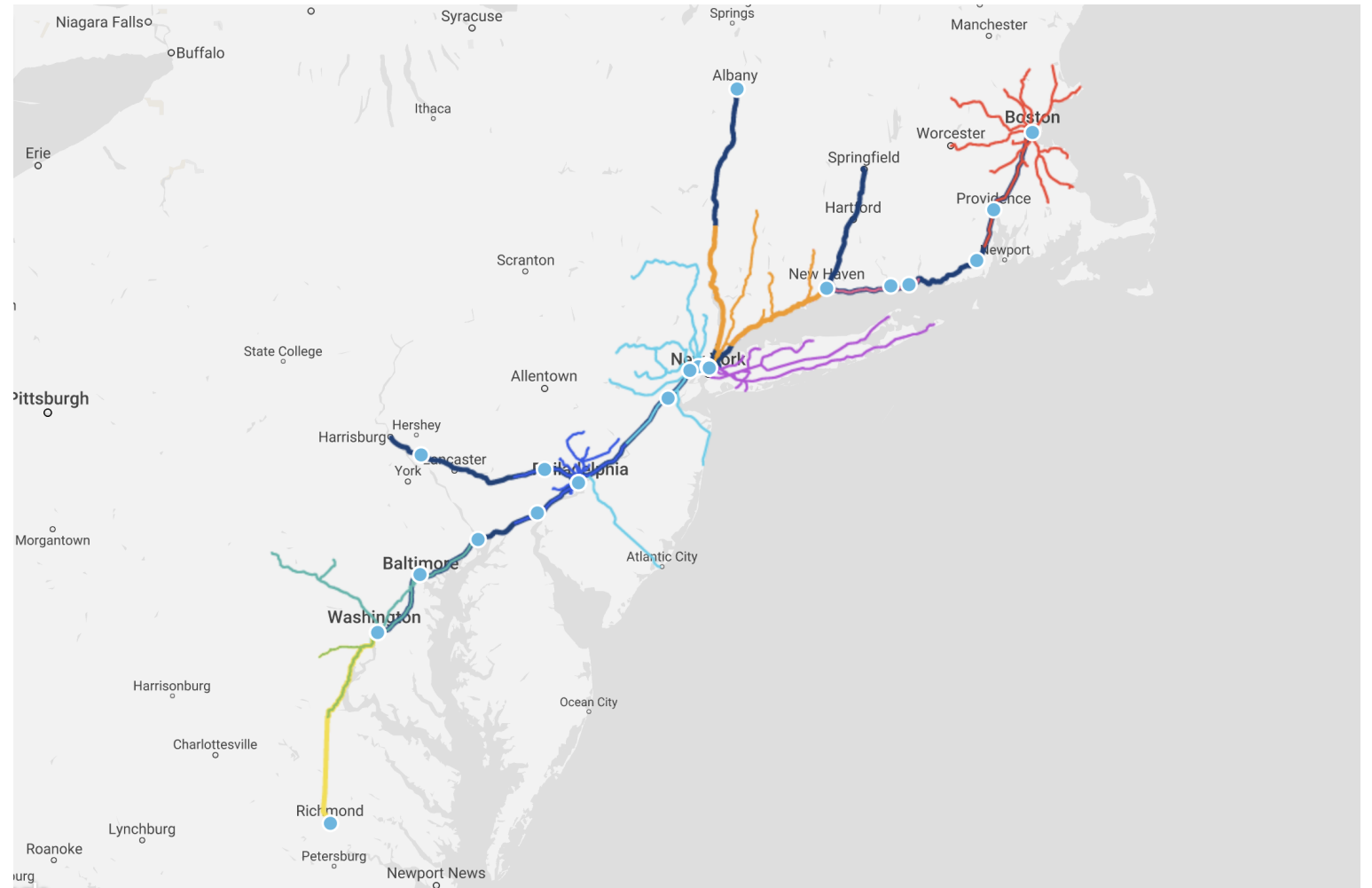
*according to the FDA's Draft Environmental Impact Statement done in 2020



A CLOSER LOOK: NORTHEAST CORRIDOR

Route

- 457-mile route high speed rail
- From Washington DC to Boston, with stops in Baltimore, Philadelphia, and New York City
- 7.5-hour route currently, but improvements would bring the time to 6.5 hours
- Upgrades would allow travel at 160 mph on 132 miles of track, up from the existing 150 mph on 32 miles of track



WHY UPGRADE THE NORTHEAST CORRIDOR?

- Existing route is already in place
- 12 million passengers a year travel the Northeast Corridor, which is 40% of Amtrak's traffic*
- There is a high population density along the Northeast Corridor
- Home to the country's only existing high-speed rail route, the Acela line
- The line is currently Amtrak's only major profitable route
- Some of the infrastructure holding the line together is over 100 years old and in need of repair
- There are more than 150 improvement projects over the next 15 years in the \$117 billion proposal

According to Reuters*

NORTHEAST CORRIDOR

- Costs

- \$117 billion estimated

- Benefits

- Increased Ridership
 - Fewer miles driven along the Northeast Corridor
 - Safety



INCREASED RIDERSHIP

An estimated 260 million annual passenger trips are currently taken along the Northeast Corridor, with half a billion predicted by 2040*

$\$117 \text{ Billion Cost} / 260 \text{ million trips} = \$450 \text{ per trip per person}$

$\$450 \text{ per trip per person} / 20 \text{ years of trips} = \$22.50 \text{ per trip per person}$

-This calculation doesn't consider increased ridership, and it doesn't discount money in the future

*according to Amtrak's Northeast Corridor Fact Sheet

FEWER MILES DRIVEN

About 500 million miles are traveled each day by drivers on highways and major arterials in the Northeast Corridor*

If 1/10th of these trips were taken by rail, 50 million miles driven would be saved

The IRS deducts 58.5 cents per mile driven for business use

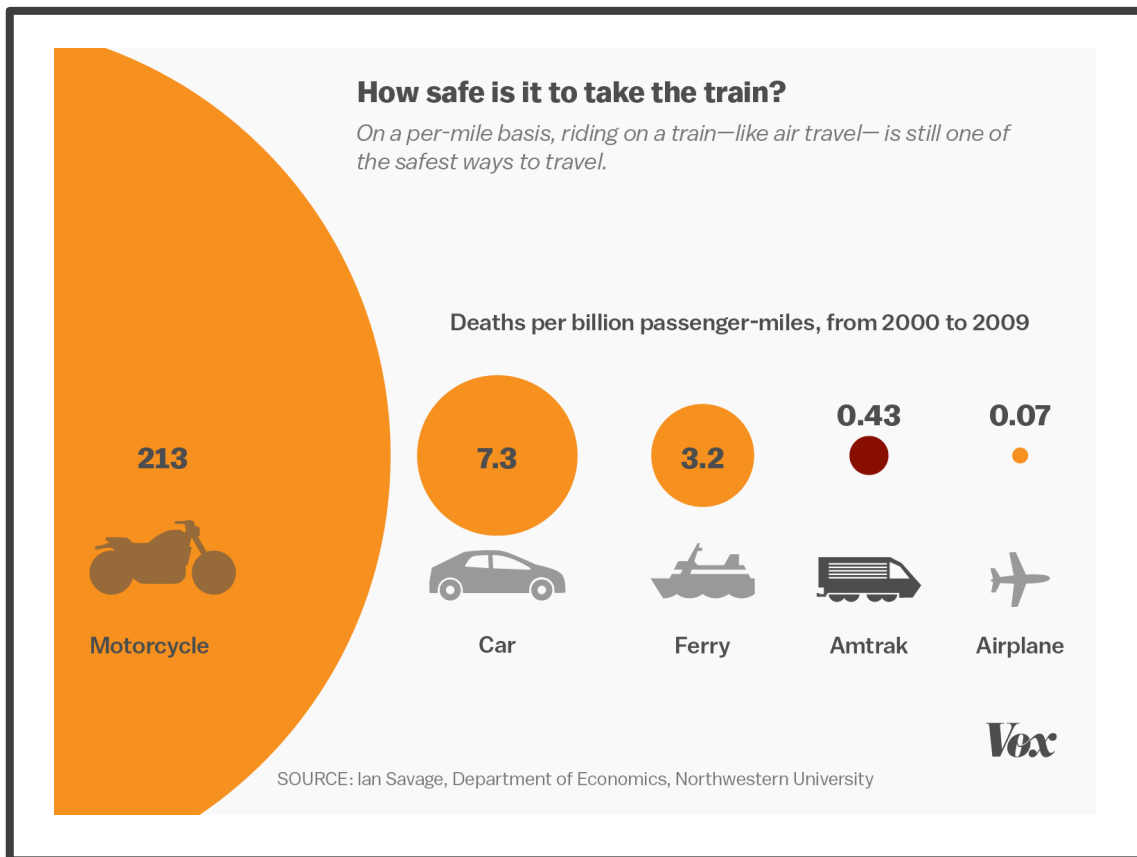
50 million miles * 58.5 cents per mile cost = \$29,250,000 saved in driving costs per day

\$29,250,000 per day * 365 days per year = \$10,676,250,000 saved in driving costs per year

\$10,676,250,000 * 20 years = \$213,525,000,000 saved in driving costs over the next 20 years

-1/10th of trips taken by rail is somewhat arbitrary, and this calculation doesn't discount money in the future

SAFETY



According to IIHS, there are 1.11 deaths per 100 million miles traveled in cars in the US

- If 50 million miles driven per day are saved, 203 lives could be saved each year
- That's 4,060 driver's lives saved over the next 20 years

Travel by rail is about 17 times safer than by car

- An expected increase of 239 rail deaths over the next 20 years

Net savings in lives: **3,821**

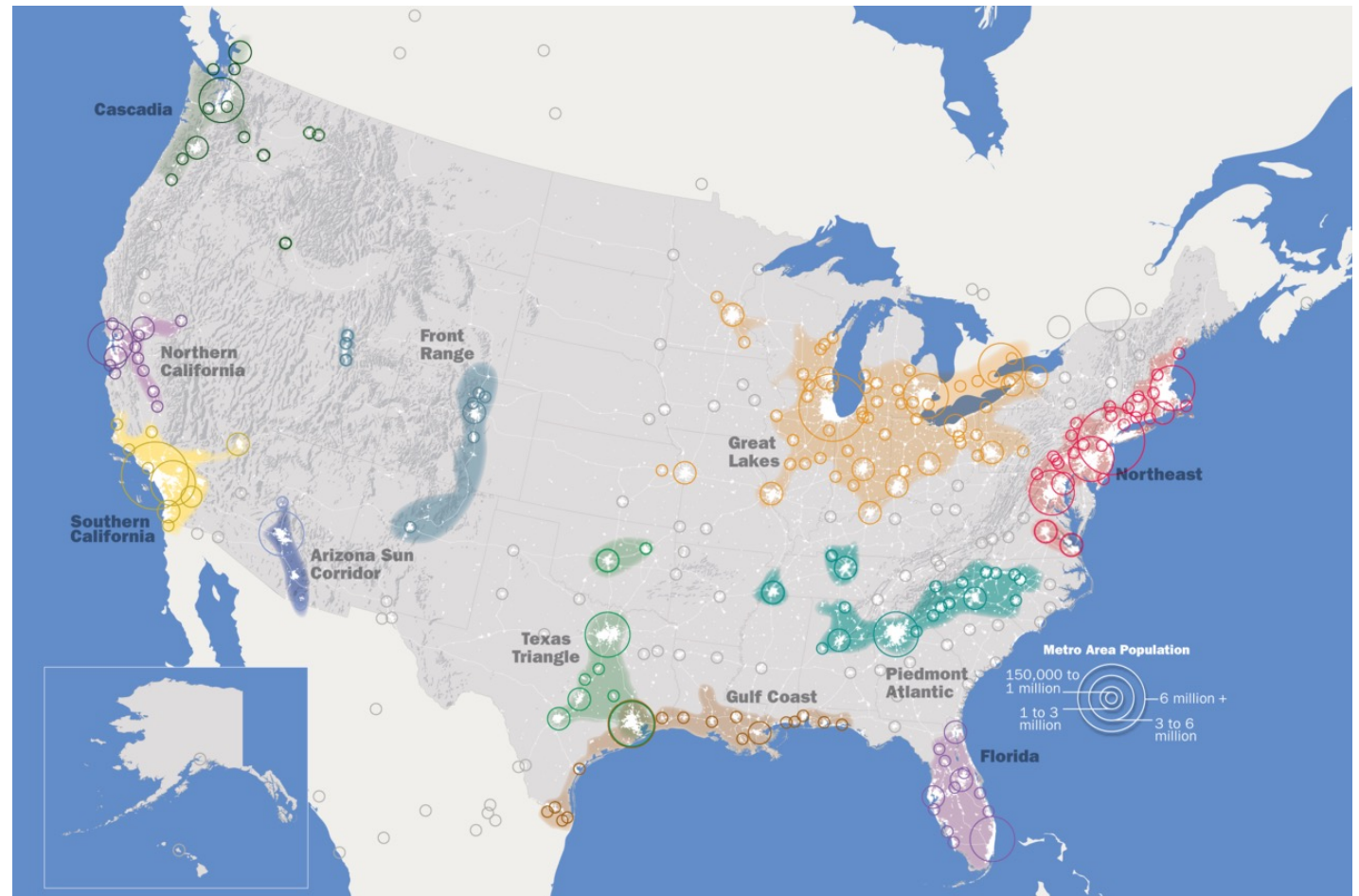
OUR ANALYSIS

- Quantitative
 - Upfront **Cost**: \$254 Billion up upfront cost
 - Money **Saved**: \$214 Billion saved in driving costs over the next 20 years
 - Combined **Output** $\approx$ \$56 Billion
 - \$20 Billion in economic output from California
 - \$36 Billion in economic output from Texas
 - Overall (*in billions*) = \$214 + \$56 - \$254 = \$16B Total Estimated Economic Output in 20 years
- Qualitative
 - Environmental: 501,000 tons of CO2 reduced annually between California and Texas
 - Safety: 3,821 lives saved in NEC
 - Economic: 50,000 Jobs created

OUR RECOMMENDATION:

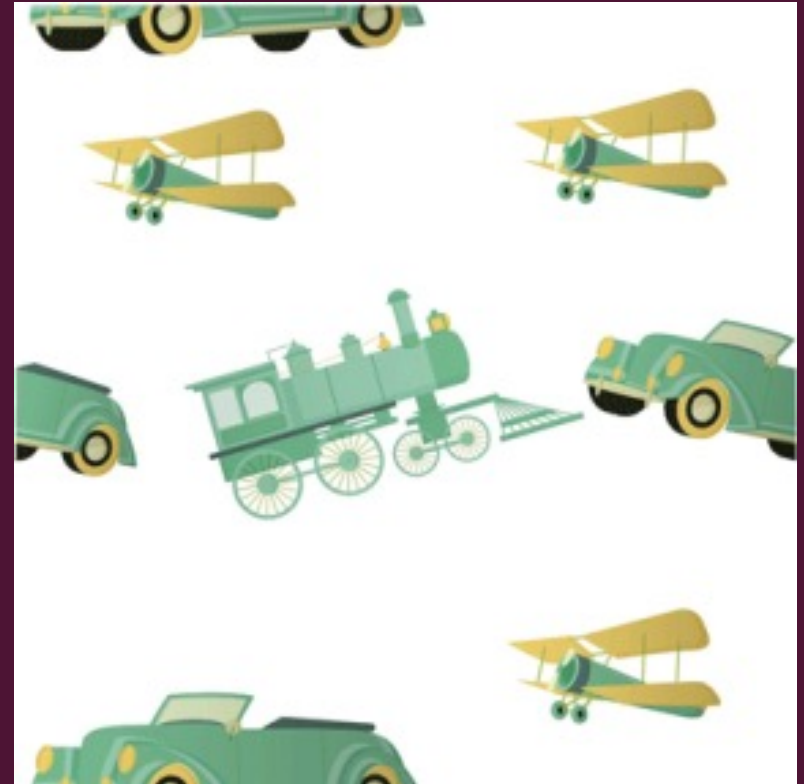
Yes

- Domino Effect
- COVID-19 Impact
on Telework
- Population Density and
Megaregions (pictured on
right)



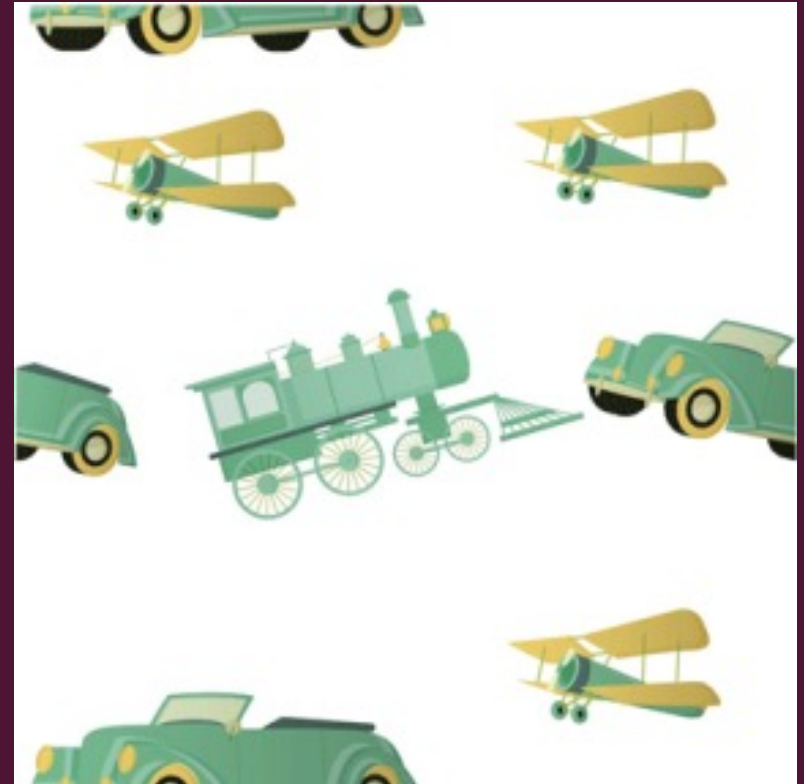
QUESTIONS?

THANK YOU!



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CITATIONS?

- *The Northeast Corridor - Amtrak*. 2017, https://nec.amtrak.com/wp-content/uploads/2017/08/NEC-Fact-Sheet-2017_Final.pdf.
- *Noteworthy U.S. Traffic Accident Statistics – Ehline Law Firm*, 2022, <https://ehlinelaw.com/practice/car-accident/traffic-accident-faq/los-angeles-and-u-s-statistics>
- *California High-Speed Rail 2020 Business Plan – California High Speed Rail*, 2020, https://hsr.ca.gov/wp-content/uploads/docs/about/business_plans/2020_Business_Plan_Ridership_and_Revenue_Forecasting.pdf