



Recent Declines in Public Transportation Ridership

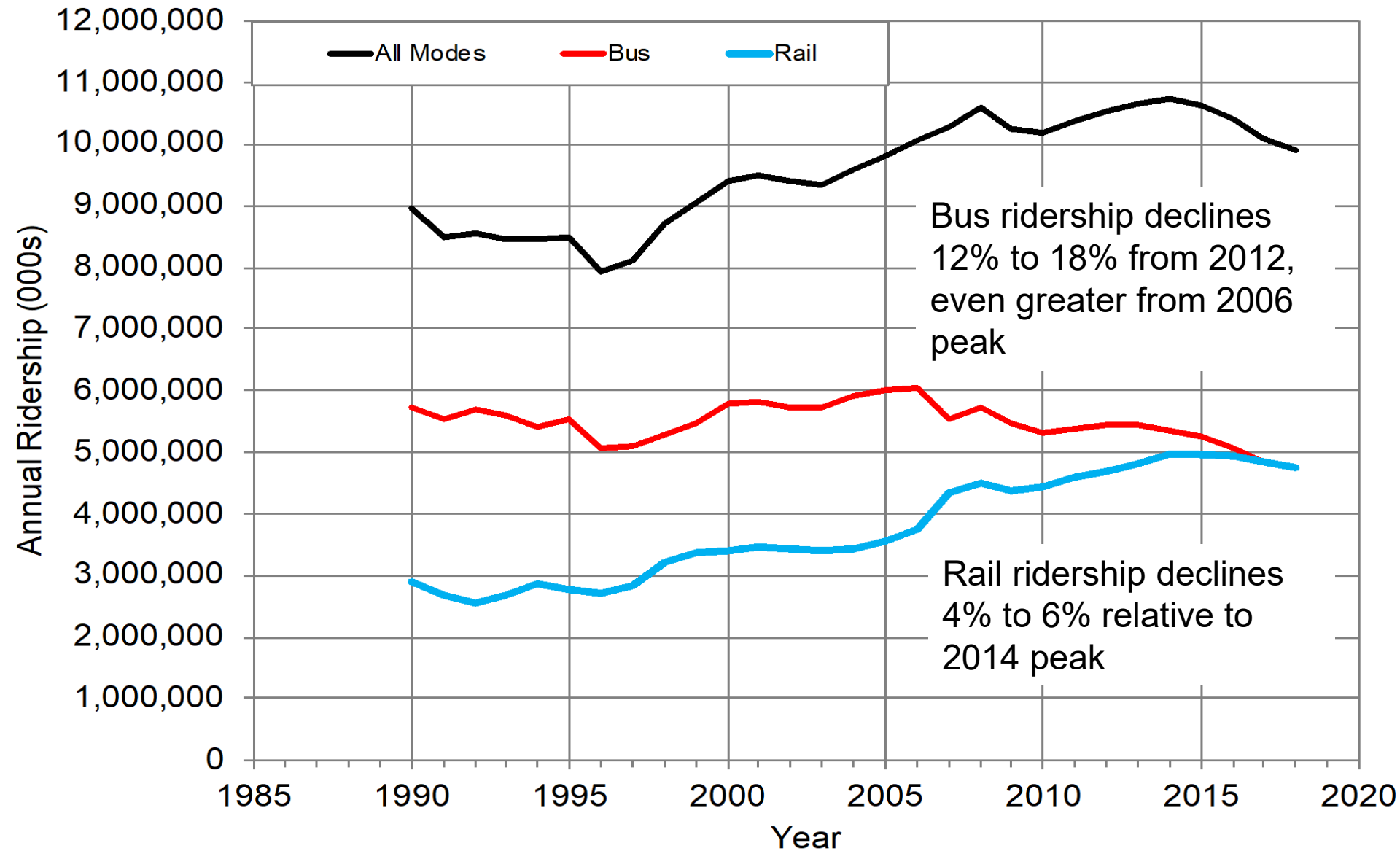
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Interstate Transit Research Symposium



US Transit Ridership by Mode



International Changes in Ridership

GROUP	COUNTRIES	CHARACTERISTICS IN COMMON
1. High demand in the beginning + large growth 	Switzerland, Austria, Luxembourg, Norway	Small and dense countries (except Norway) with a long history of public transport and large economic growth
2. High demand in the beginning + mild growth 	Germany, UK, Sweden	
3. High demand in the beginning + decline 	Russia, Ukraine, Bulgaria, Hungary, Czech Republic, Poland, Japan, Italy, Latvia	Improvement of living conditions and possibility of purchasing private vehicles (except Japan and Italy), reduction of population/small population growth, aging population
4. Low/medium demand in the beginning + mild/large growth 	Turkey, Belgium, China, New Zealand, Malta, Canada, Australia, Brazil, France	Notable increase in public transport investment, recognition of vital role public transport plays to alleviate growing congestion, tangible economic growth and fast urbanisation (for Turkey, China and Brazil)
5. Low demand in the beginning + decline 	Slovenia, Ireland, Spain	inadequate supply, financial crisis

US is not alone in their ridership losses, but most countries with similar losses have poor economic conditions or substantial changes in demographics.

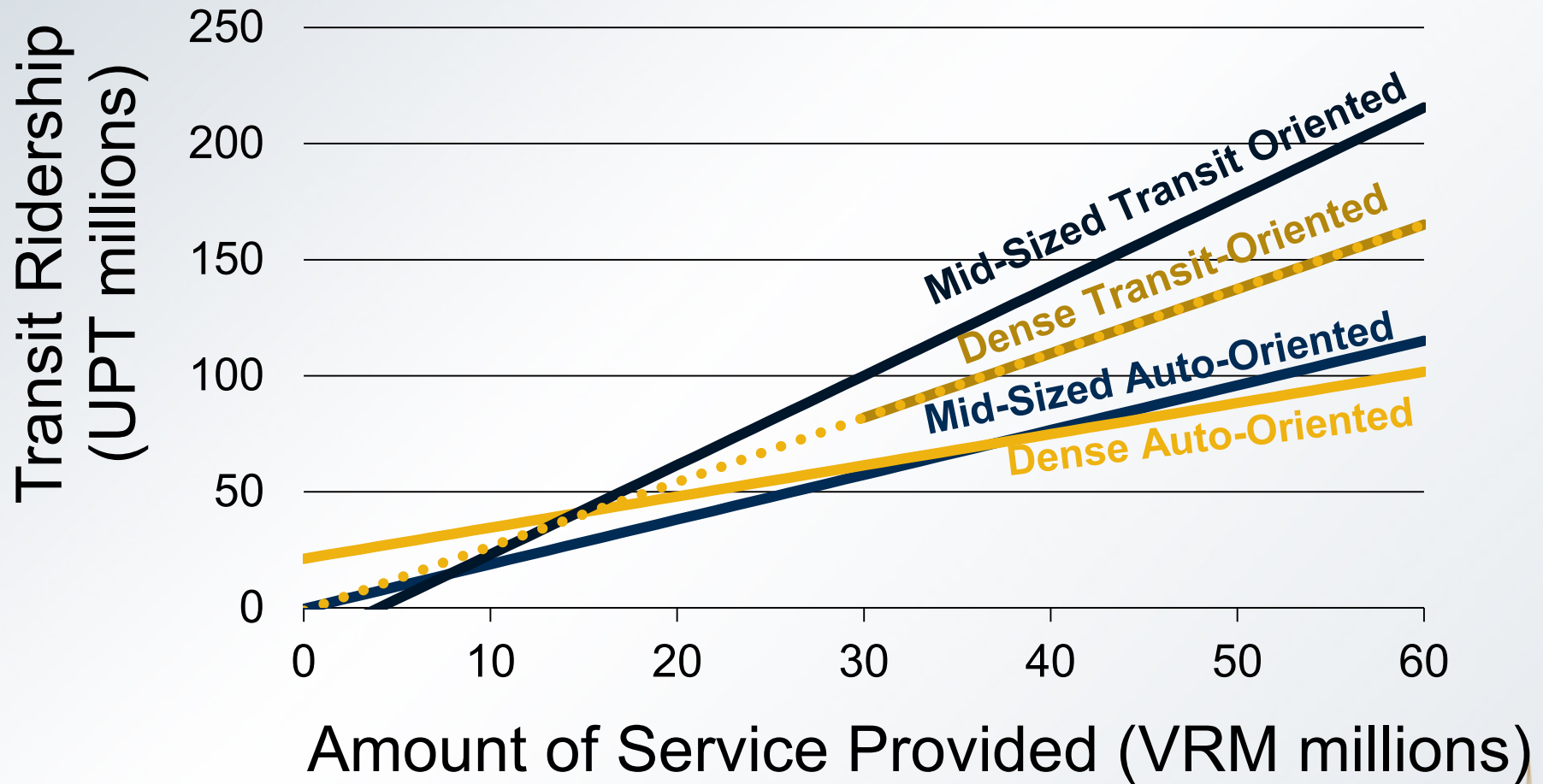
Graphics Source: UITP (2017)



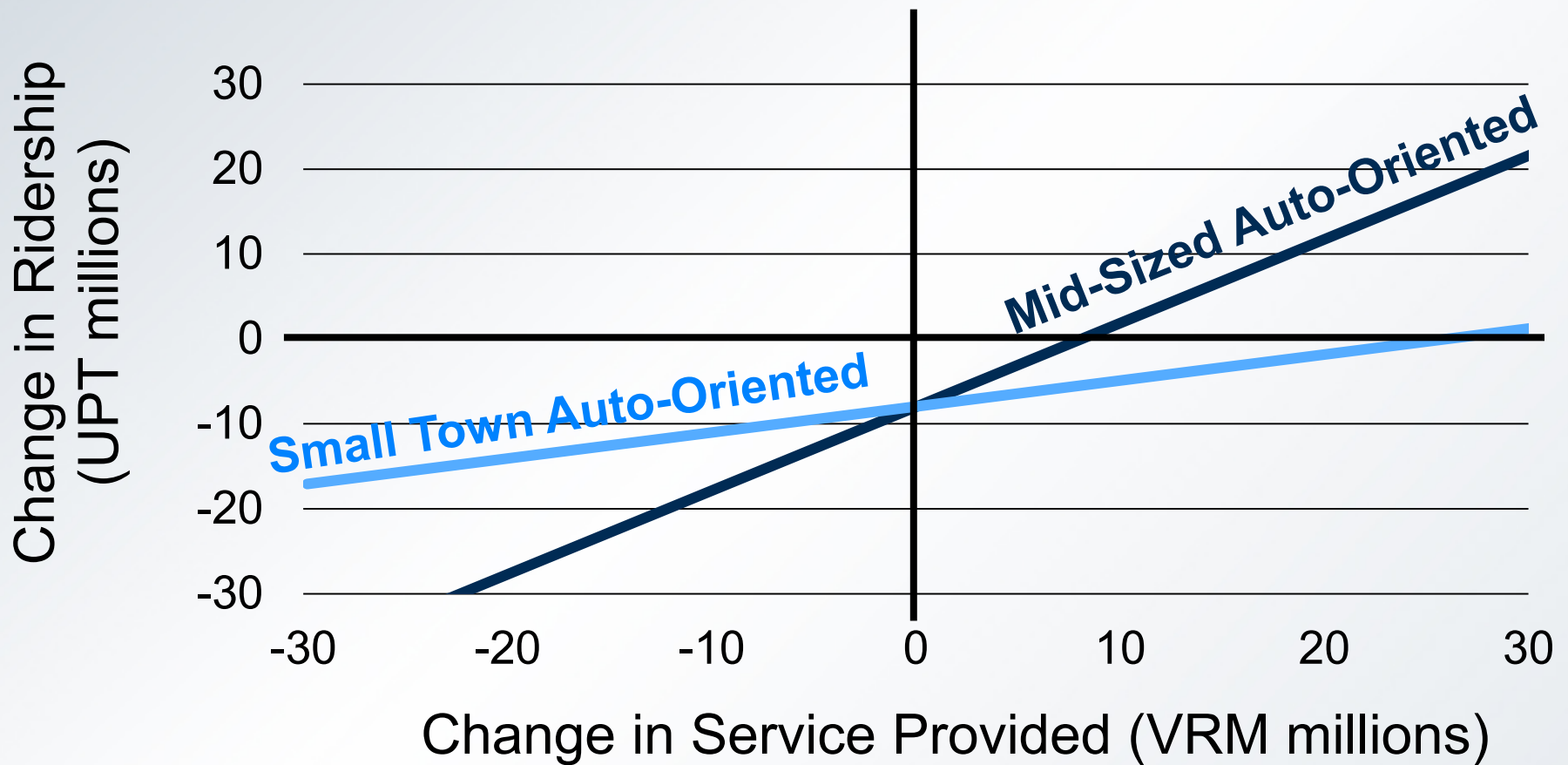
Ongoing Research

- Southeastern Transportation Research, Innovation, Development and Education Center (STRIDE)
 - “Transit in the Era of Shared Mobility”*
 - “Changing Access to Public Transportation and the Potential for Increased Travel”*
- Metropolitan Atlanta Regional Transit Authority (MARTA)
 - “Understanding Transit Ridership Decline”*
- Transit Cooperative Research Program (TCRP)
 - Report 209 – “Analysis of Recent Public Transit Ridership Trends”*
 - Project A-43 – “Recent Decline in Public Transportation Ridership: Analysis, Causes, Responses”*
- New T-SCORE University Transportation Center

Ridership vs. Service Provided



Change in Service vs Change in Ridership 2012-2016



Net Change in Bus Ridership Attributable to Each Factor

Description	High Op-Ex	Mid Op-Ex	Low Op-Ex
Vehicle Revenue Miles	5.8%	6.3%	7.2%
Land Use Changes	2.9%	2.7%	1.8%
Income & Household Characteristics	-3.8%	-3.5%	-2.9%
Average Fare (2018\$)	-0.1%	-1.2%	-3.9%
Average Gas Price	-4.5%	-4.7%	-5.0%
New Competing Modes	-9.3%	-13.1%	-10.6%
Total Modeled Ridership	-8.9%	-13.6%	-12.2%
Total Observed Ridership	-11.6%	-18.1%	-15.4%

Net Change in Rail Ridership Attributable to Each Factor

Description	High Op-Ex	Mid Op-Ex
Vehicle Revenue Miles	12.0%	21.7%
Land Use Changes	2.7%	2.3%
Income & Household Characteristics	-3.8%	-3.8%
Average Fare (2018\$)	-4.7%	-1.5%
Average Gas Price	-4.6%	-4.3%
New Competing Modes	-3.7%	-14.3%
Total Modeled Ridership	-2.3%	2.5%
Total Observed Ridership	-3.0%	0.6%

Causes of net transit ridership gains: 2012-2018

Two factors contributed to **net increases in transit ridership** from 2012-2018:

- **More service:** On average, transit agencies increased service, resulting in more transit ridership. Service increases were bigger on rail than bus.
 - More service results in 6% to 7% more bus ridership.
 - More service results in 12% to 22% more rail ridership.
- **Land use:** Metro areas grew in both population and employment over this period, contributing to net increases in transit ridership. However, as they grew, metro areas became slight less centralized, partially offsetting some of those gains.
 - Land use changes result in 2% to 3% more bus and rail ridership.

Causes of net transit ridership decline: 2012-2018

Four factors contributed to **net decreases** in transit ridership from 2012-2018:

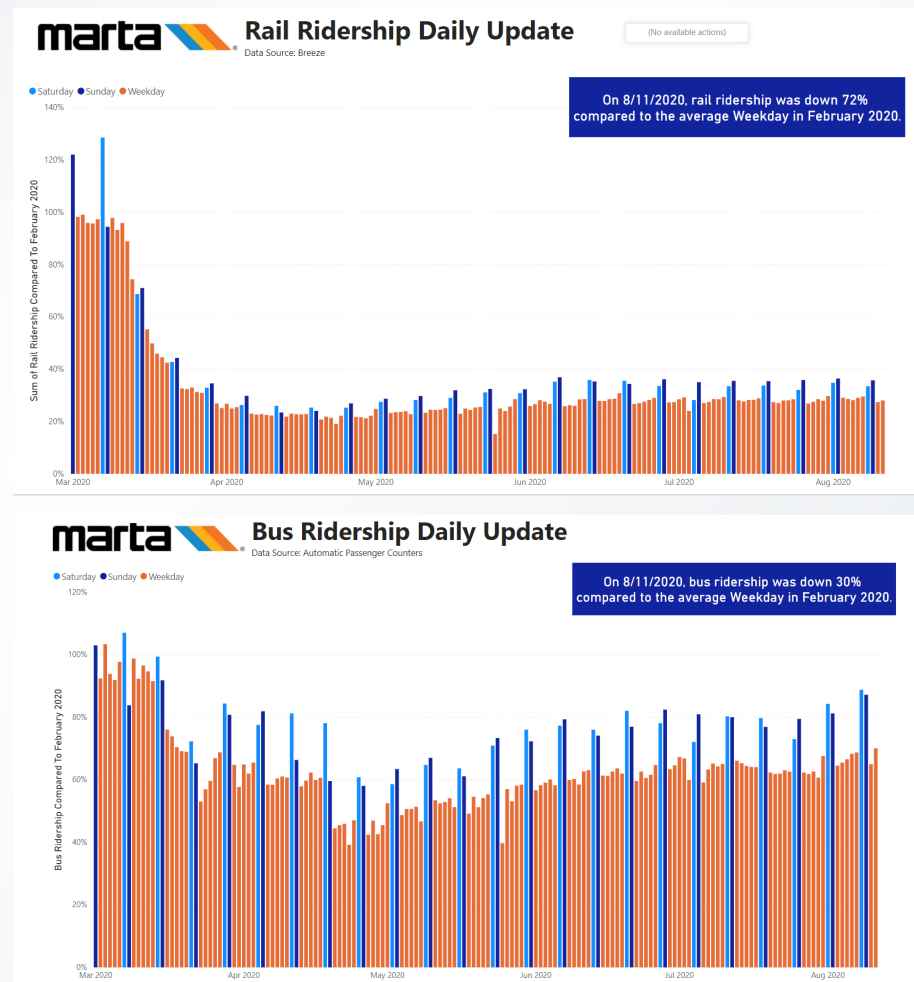
- **Income and household characteristics:** Over this period, median incomes increased, car ownership increased, and more people worked at home. Each of these three factors contributed to declining transit ridership.
 - Combined changes in these factors result in 3% to 4% less bus and rail ridership.
- **Transit travel becomes more expensive:** After adjusting for inflation, average bus and rail transit fares are higher in 2018 than in 2012 for most metro areas. The changes are not uniform, with bigger fare increases on rail and in the low operating expenses group.
 - Fare increases result in 0% to 4% less bus ridership.
 - Fare increases result in 2% to 5% less rail ridership.

Causes of net transit ridership decline: 2012-2018

- **Driving becomes less expensive:** After adjusting for inflation, average gas prices have declined about \$4.00 per gallon in 2012 to about \$2.85 per gallon in 2018, depending on the metro area. The lower cost of driving contributes to the transit ridership decline.
 - Cheaper gas results in 4% to 5% less bus and rail ridership.
- **New modes compete with bus:** New competing modes entered many metro areas over this period. Ride-hail has a negative and significant effect that varies in magnitude based on the mode and cluster. Bike share has a positive effect and e-scooters have a negative effect, but both are statistically insignificant.
 - New competing modes result in 9% to 13% less bus ridership.
 - New competing modes result in 4% to 14% less rail ridership.

COVID Impacts

- Short-term impacts to rail ridership significant
- Bus frequently carrying critical workers
- Long-term impacts yet unknown
- Telecommute, declining population density, low gas prices, higher fares
- New modes?
- Move beyond defining problem and begin to develop the solution of keeping transit sustainable and resilient into the next decade or more.



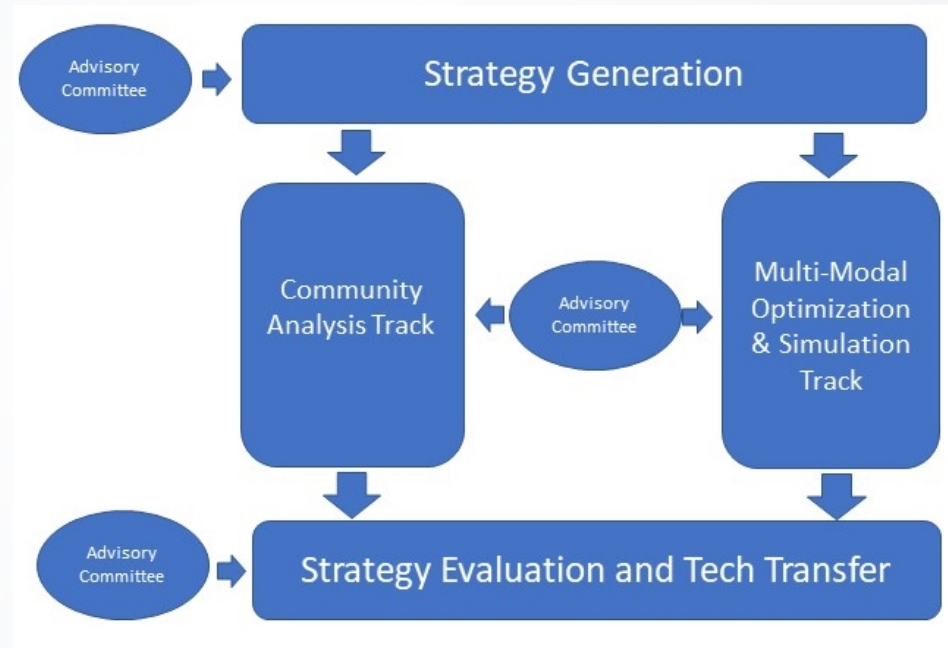
Transit Serving Communities Optimally, Responsively, and Efficiently (T-SCORE)

- New 18 month \$1 million USDOT university transportation center
- Research, Education, and Tech Transfer components
- *Vision: To define a set of strategic visions that will guide public transportation into a sustainable and resilient future, and to equip local planners with the tools needed to translate their chosen vision into their own community.*



T-SCORE Research Plan

- Possible Strategies:
 - Transit as a social service
 - Consolidation into high-volume, capacity-constrained corridors
 - Integrated on-demand multi-modal transit
 - Pricing and incentives
 - COVID-19 recovery strategy
- Please get in touch if you are interested:
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Thanks!



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