Transit Ridership Trends and Reasons

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CUTR

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Transit Ridership Trends and Reasons

Sunday, June 21, 2019

Steven E. Polzin, PhD.

Outline

- Transit in July 2019
- Underlying trends driving demand
- Why Ridership matters and what do we do?

What is Happening?

2012-2014

Transit ridership near 60 year high

Millennials are different

We passed peak VMT

We are urbanizing and CBD's are thriving

Developers embrace transit

Strong referendum success

TNC's address first-mile/last-mile issue

2015-2017

Transit ridership loss accelerates in 3-year decline

Growth and migration resume historic patterns

VMT and VMT/Capita returned to growth

Millennials buy cars and move to suburbs

System conditions, reliability, health care costs, etc. plague transit operators

How much will that subway cost? When will Hawaii's rail system open? How is that new streetcar doing?

TNC's can cannibalize transit ridership

Why do we need transit with CAV?

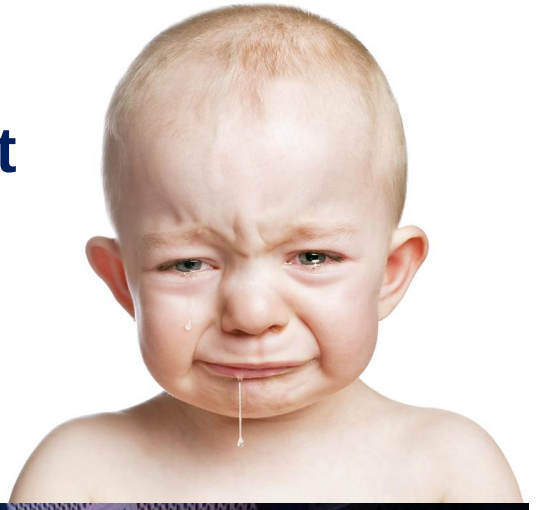
2018 →

?

Waymo to Buy Up to 62,000 Chrysler Minivans for Ride-Hailing Service. NYT, May 31, 2018

Governing

It's Been a Rough Year for Mass Transit



With falling ridership and scrapped expansion projects, urban transit faces an uncertain future.

June 2019

Commentary By Alan Ehrenhalt | Senior Editor

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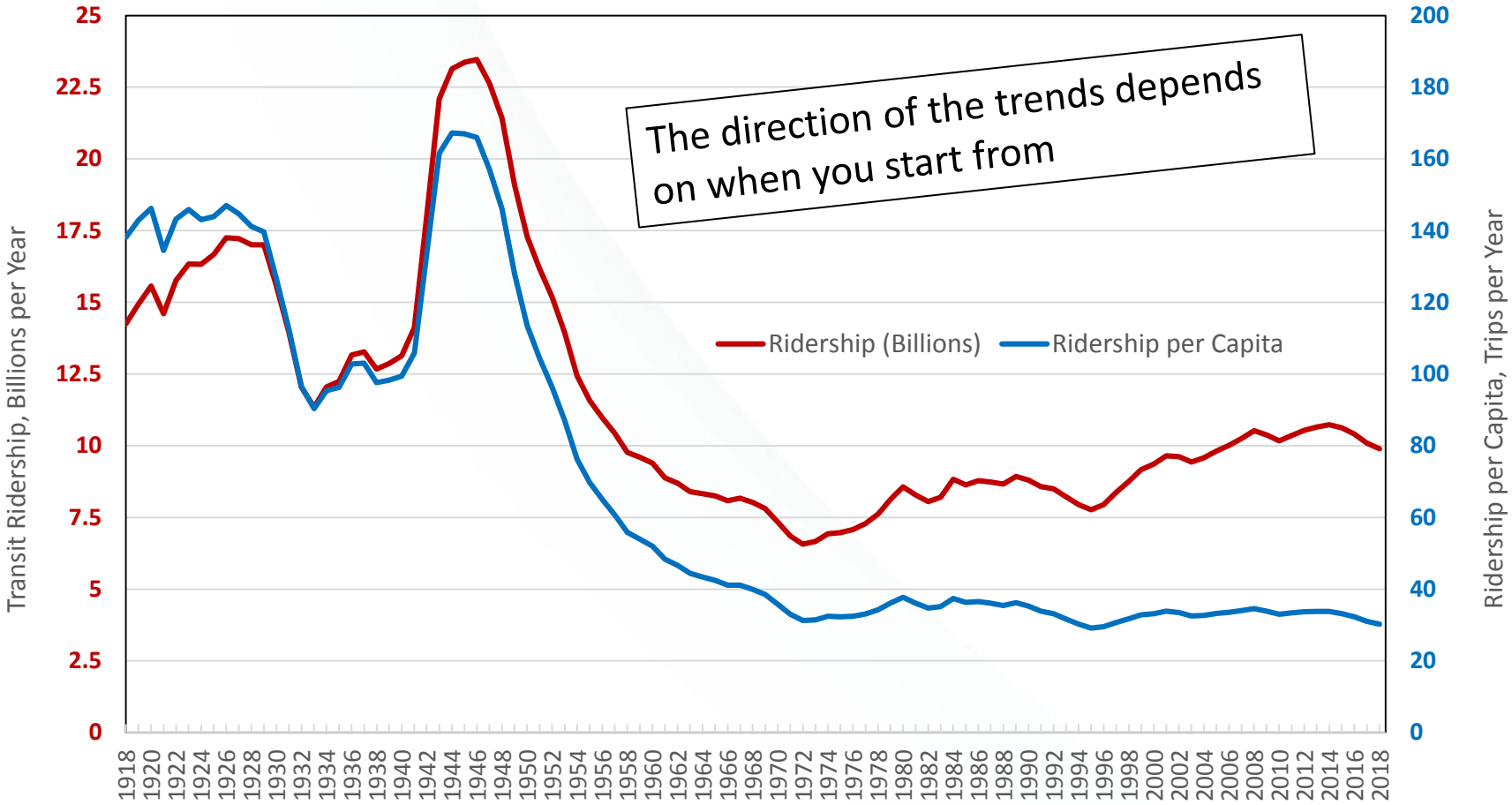
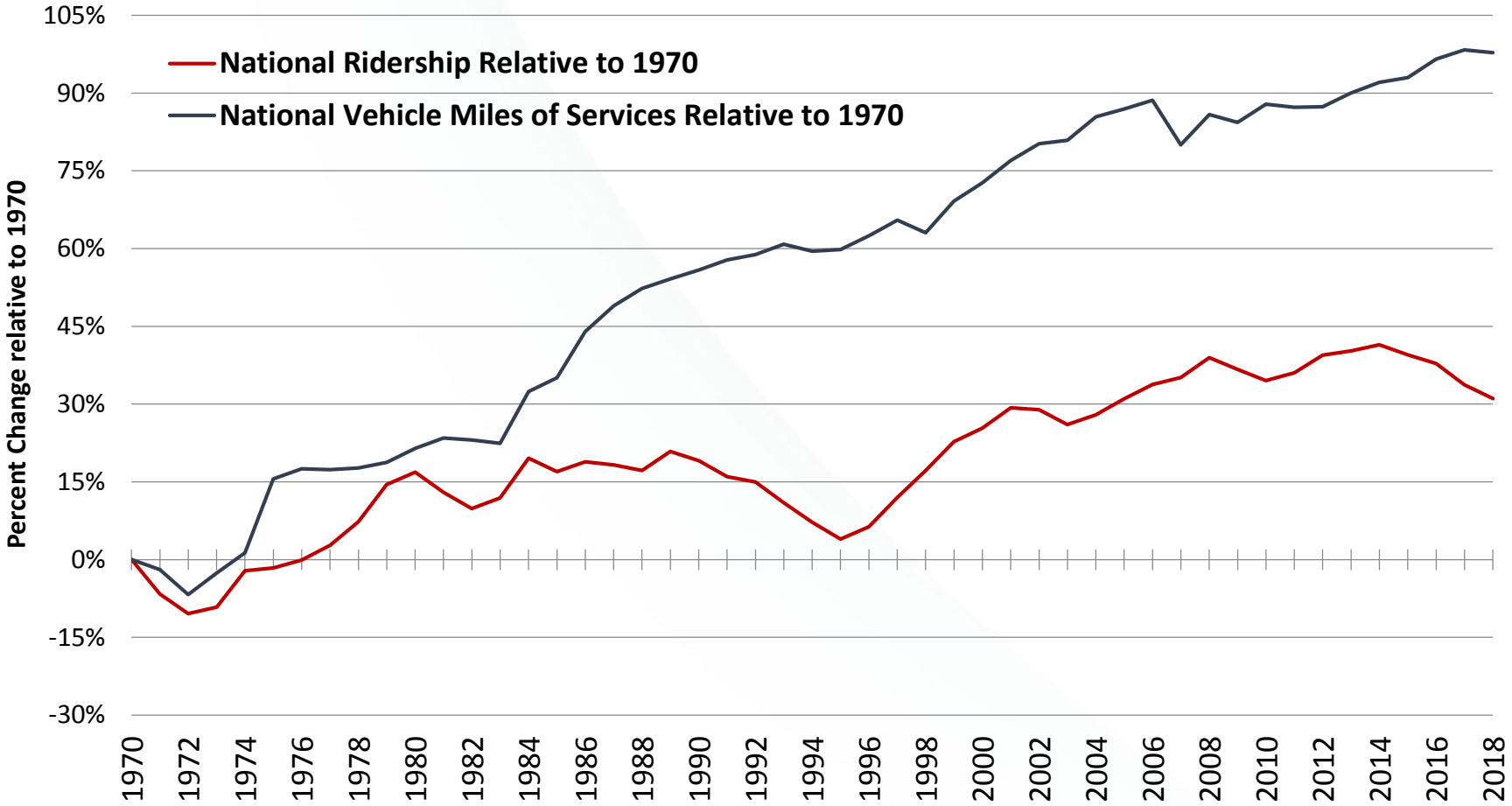
National Transit Ridership Trend



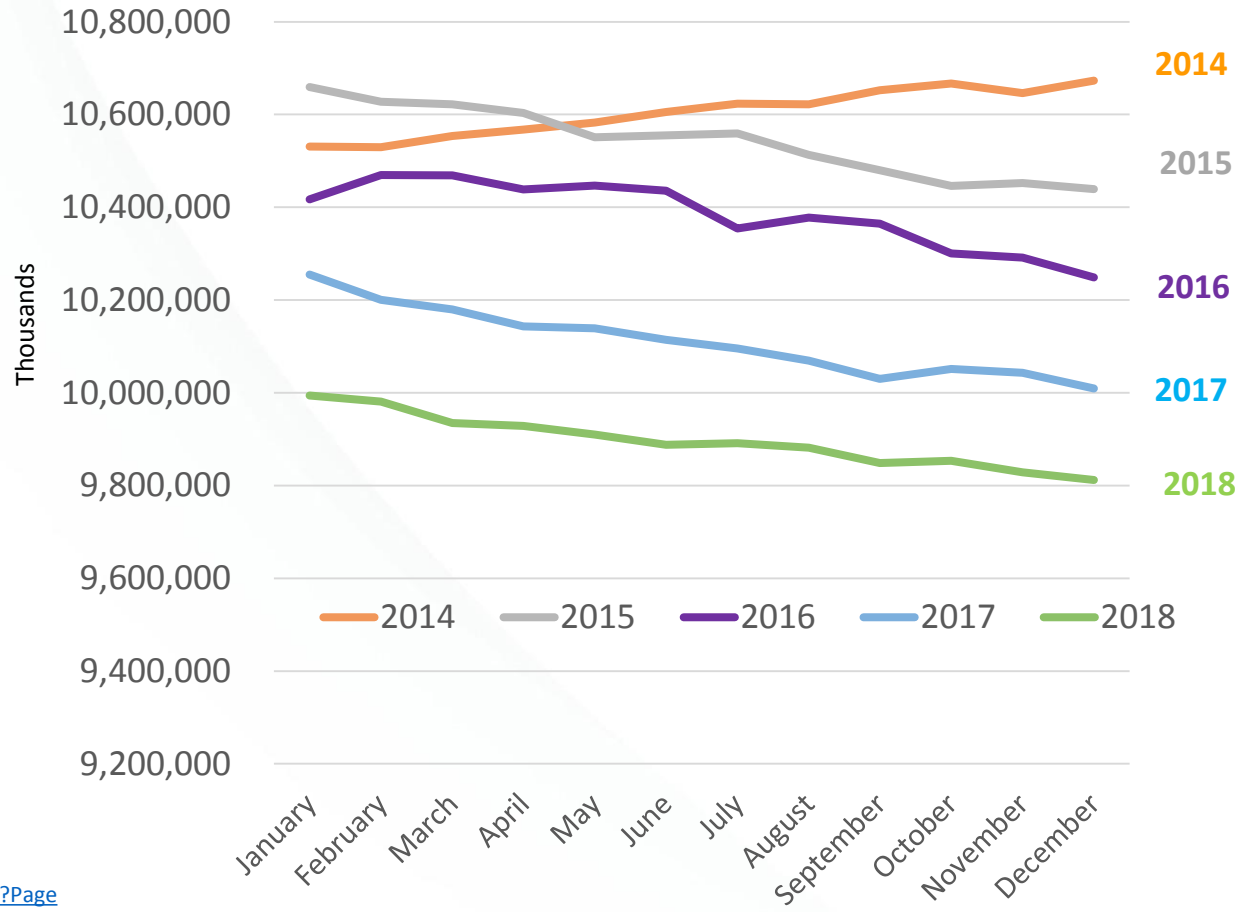
Trends in Ridership and Service



U.S. Transit Ridership Trend, Rolling 12-Month Count

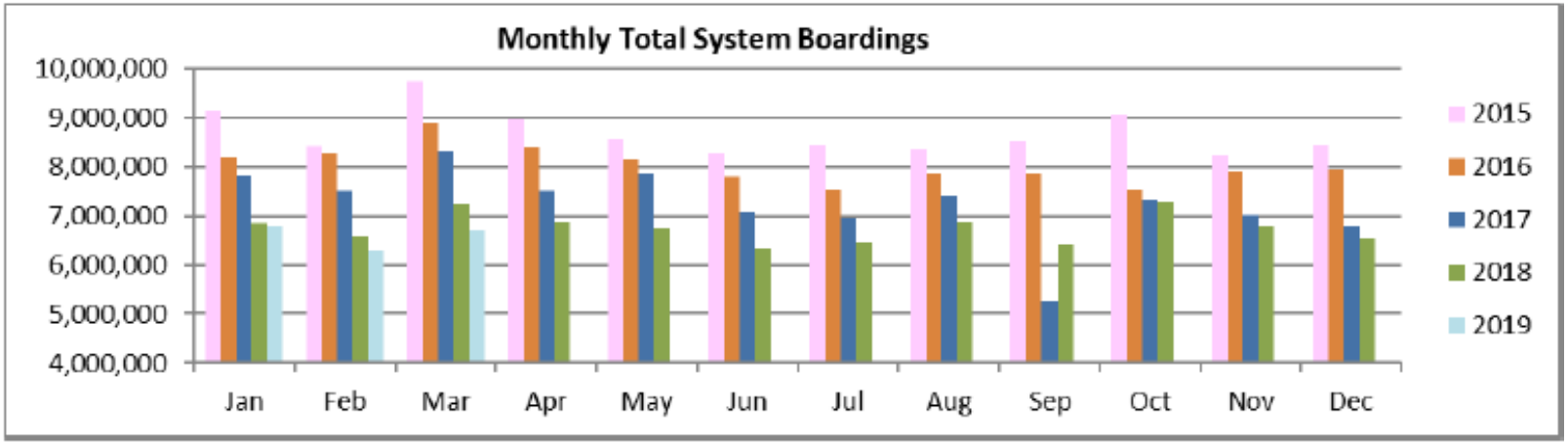
Approximate 8% decline in four years

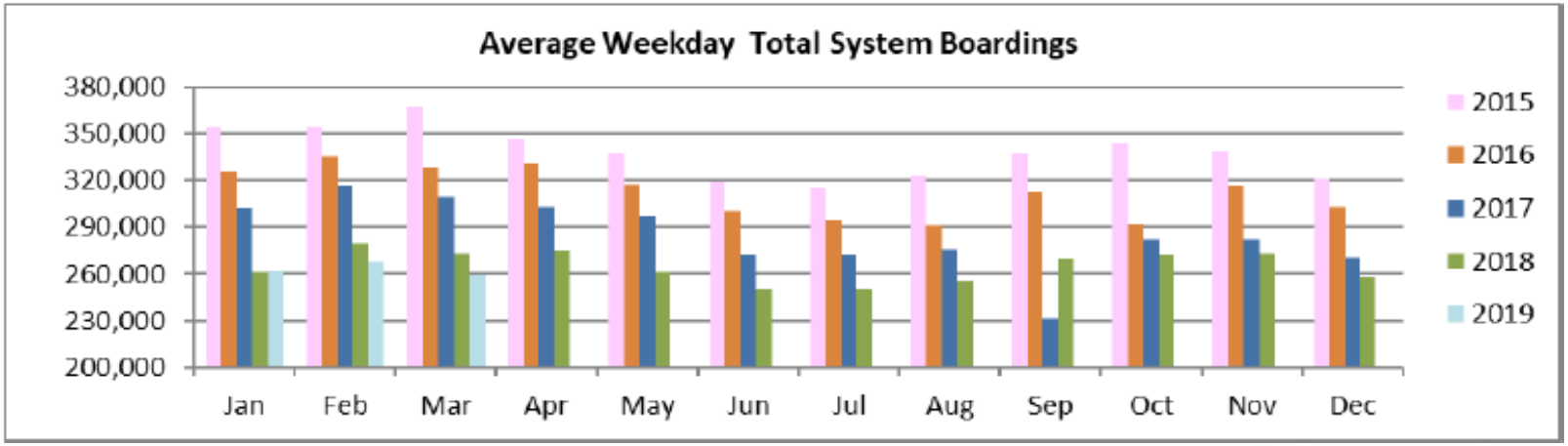
Losing over a half million trips per day for the past 4 years



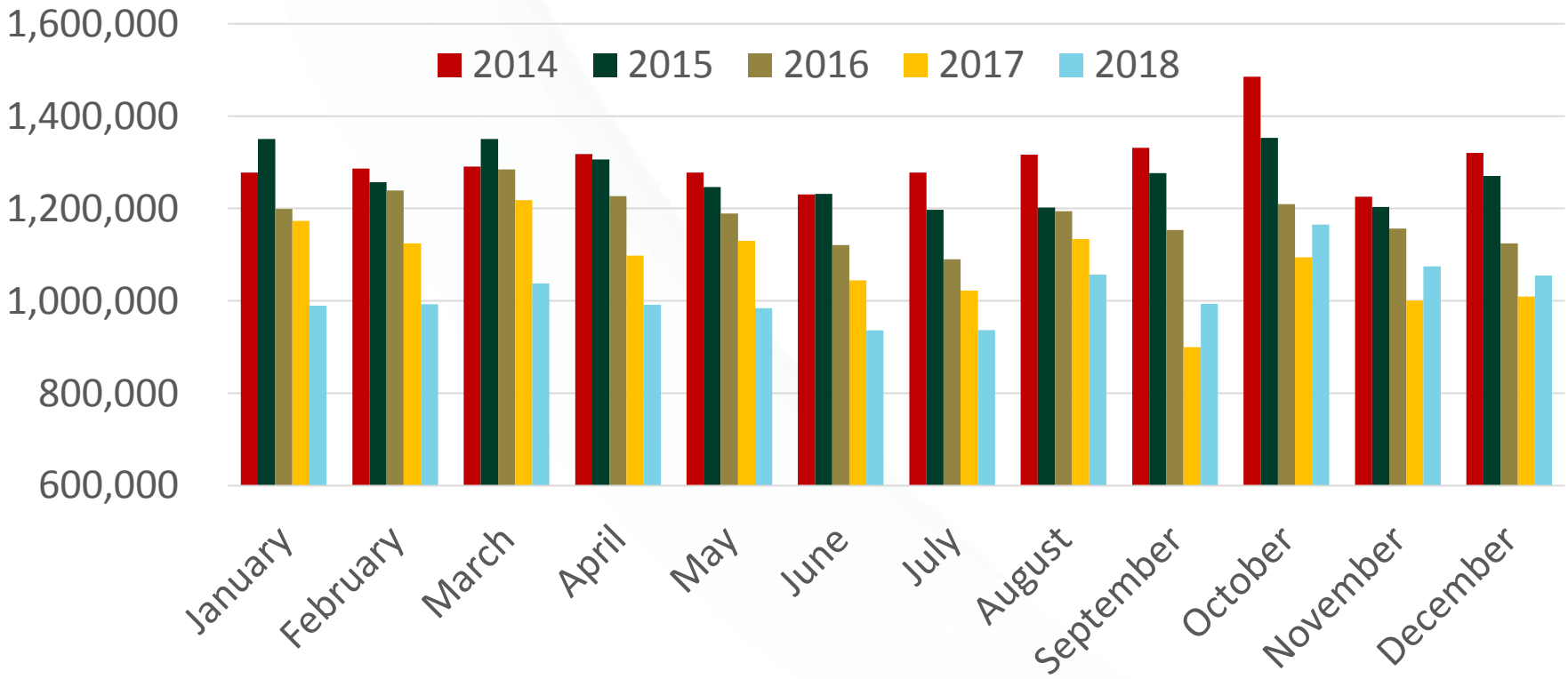
Source: https://www.transtats.bts.gov/osea/seasonaladjustment/?PageVar=TRANSIT

Miami Dade Total Monthly and Average Weekday Ridership





HART Monthly Ridership Trends



U.S. Context and Travel Trends

As of May 2018

	2015 vs 2014	2016 vs 2015	2017 vs 2016	2018 YTD vs 2017	Months	Source
U.S. Population	0.8%	0.7%	0.7%	0.6%	12	Census
Total Employment	1.7%	1.7%	1.3%	1.3%	12	BLS
Real GDP	2.9%	1.6%	2.2%	2.9%	12	BEA
Gas Price	-29.3%	-14.8%	15.1%	11.3%	12	EIA
Registered Cars and Light Trucks	2.1%	2.4%	2.4%	2.1%	12	Hedges Co.
Light Vehicle Sales	5.8%	0.1%	-1.8%	0.8%	12	BEA
Count of Zero-Vehicle households	-1.0%	-1.9%	-0.7%	-	-	Census
VMT	2.3%	2.4%	1.2%	0.4%	12	FHWA
Public Transit Ridership	**-1.4% to -2.2%**	**-2.1% to -1.8%**	**-2.7% to -2.5%**	**-1.95% to -1.97%**	12	APTA and NTD
Amtrak Ridership (FY)	-0.3%	1.9%	1.9%	0.0%	12	Amtrak
Airline Passengers	5.3%	3.9%	3.5%	4.8%	12	USDOT, BTS

Top 40 UZAs by 2017 Transit Ridership, Change 2014-2017 (Millions)

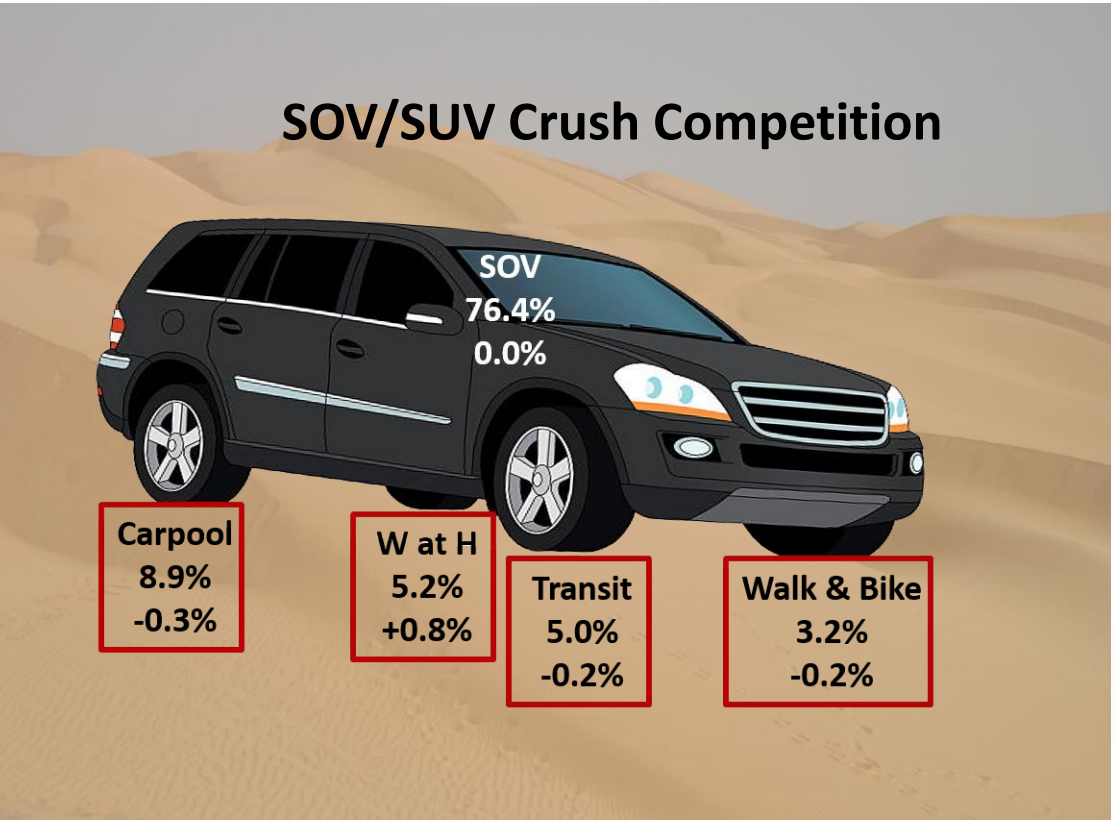
Seattle +16.609, 8.3%
Portland -3.430, -3.0%
Sacramento -5.661, -18.8%
Salt Lake City -1.077, -2.4%
San Francisco -13.081, -2.8%
San Jose -6.800, -15.0%
Las Vegas +1.131, 1.7%
Denver -5.262, -5.1%
Los Angeles -111.277, -16.9%
Riverside -4.838, -20.1%
San Diego -11.392, -10.5
Phoenix -3.387, -4.7%
Dallas -7.902, -10.1%
Austin -4.561, -13.8%
San Antonio -6.228, -15.0%
Honolulu -3.575, -5.3%
Houston +3.662, 4.5%
Minneapolis -3.904, -4.0%
Milwaukee -6.586, -15.5%
Chicago -41.151, -6.6%
Cleveland -9.629, -19.6%
Detroit -1.350, -3.7%
Columbus -0.633, -3.3%
St. Louis -9.208, -18.4%
Cincinnati -2.065,-10.0%
Providence -3.365, -16.7%
Hartford +0.462, 2.6%
Boston -38.684, -9.2%
Buffalo -0.511, -2.0%
New York -130.783, -3.0%
Pittsburgh -1.960, -3.0%
Philadelphia -35.968, -9.9%
Baltimore -14.733, -12.8%
Washington, D.C. -65.581, -14.0%
Charlotte -5.895, -20.9%
Atlanta -7.949, -5.8%
Orlando -3.811, -12.8%
Miami -36.597, -22.1%
Tampa -5.312, -17.3%
New Orleans -0.401, -1.8%

Top 40 urban areas make up 85.2% of U.S. ridership decline from 2014-2017.

Source: NTD Monthly Raw Database

Hey Watson,
Have we found
the bottom yet?

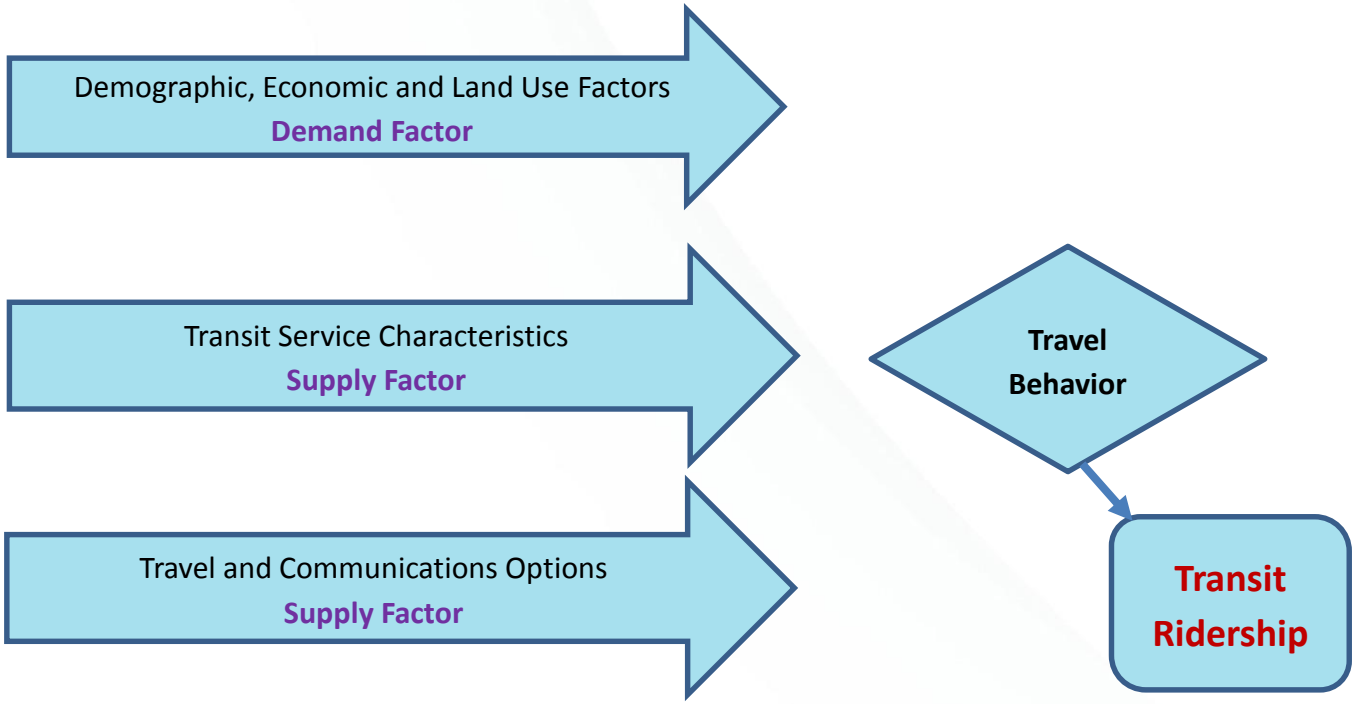
Commuting Share 2017, Change from 2013



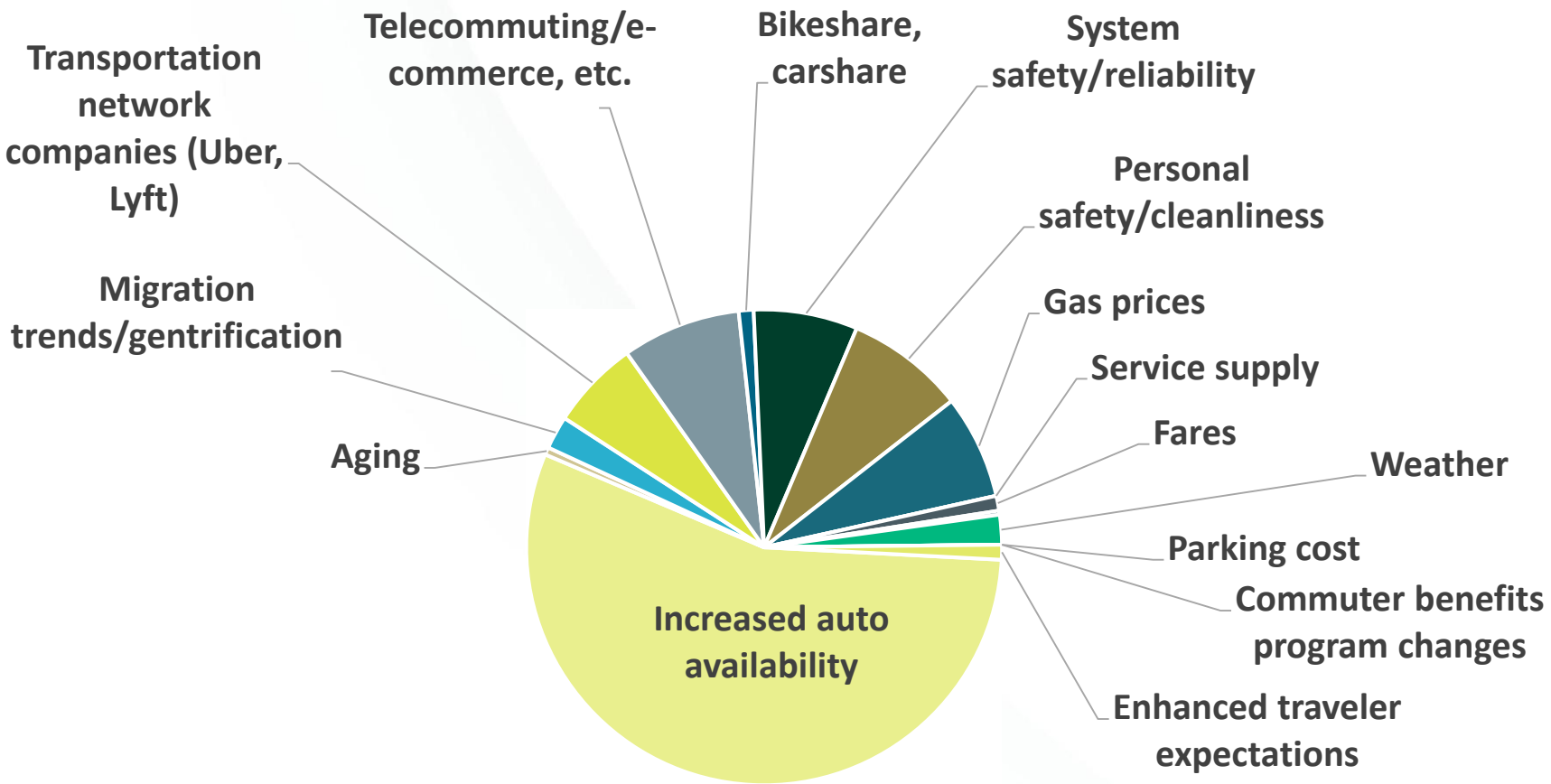
- 8.6% of US HH have zero vehicles, down 0.5% since 2013 (about 5.9% of population)
- 5.0% of US HH with workers have no cars
- In August 2018, < 30% of new vehicles were autos, (WSJ)

Sources: ACS, WSJ

What Impacts Ridership?



What Underlies the Ridership Trends?

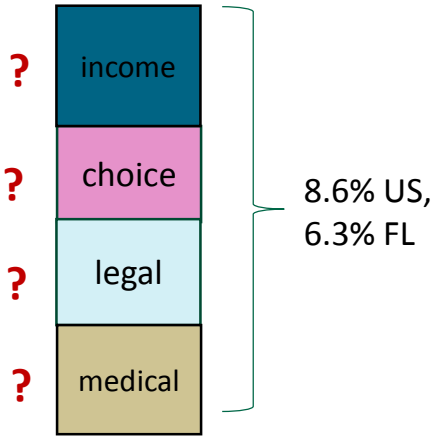


Zero-Vehicle Households are Declining

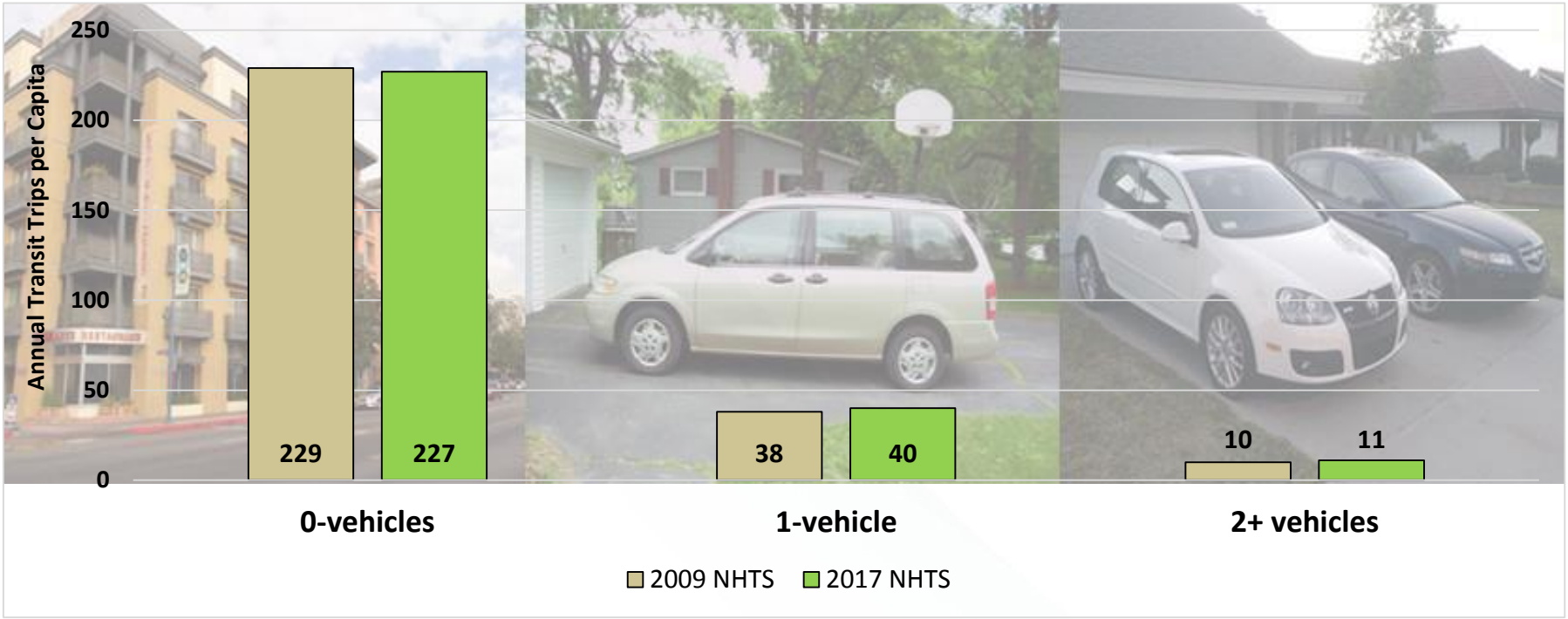
U.S. Household Vehicle Availability

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
No vehicles available US	8.9%	8.8%	8.7%	8.8%	8.9%	9.1%	9.3%	9.2%	9.1%	9.1%	8.9%	8.7%	8.6%
No vehicles available FL	6.6%	6.6%	6.2%	6.6%	6.6%	7.0%	7.3%	7.4%	7.2%	6.9%	6.8%	6.6%	6.3%

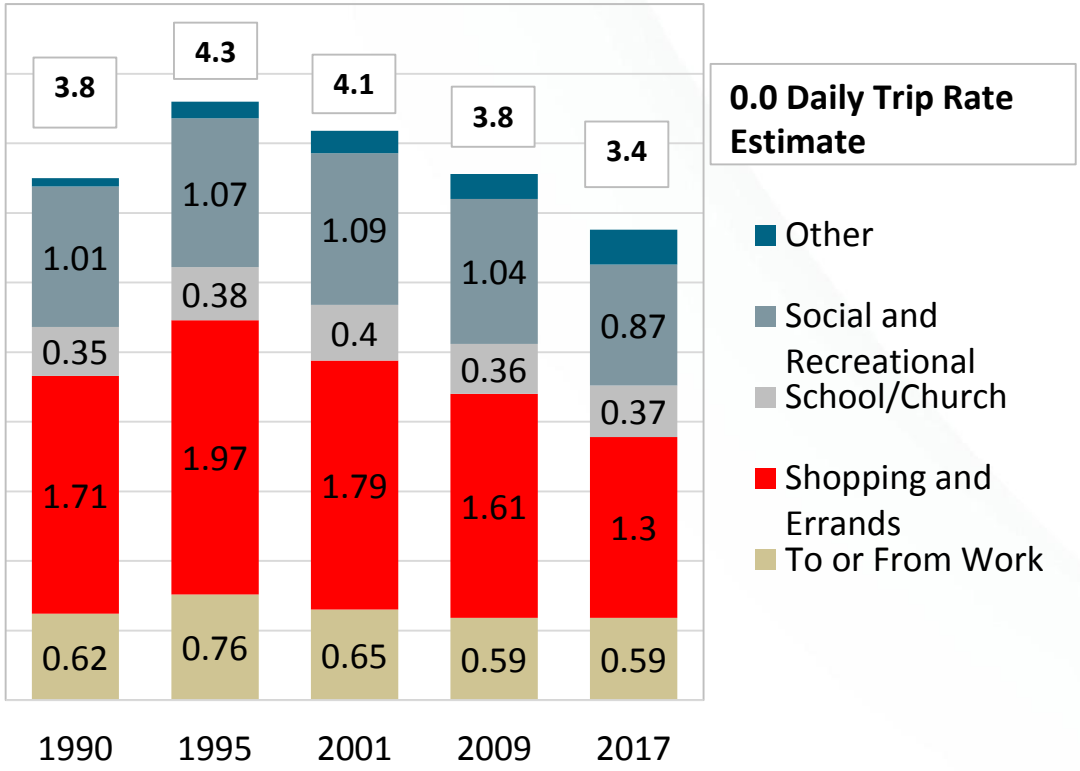
- Nearly half of all transit trips are made by residents of zero-vehicle households – 44.6% in 2001 NHTS, 48.1% in 2009 NHTS, 43.0% in 2017 NHTS
- We do not know what share of zero-vehicle households are zero-vehicle by choice, law, physical/medical condition, or income
- The share of zero-vehicle households ranges from 4% in Utah to 12.6% in Massachusetts then 29% in New York and 37.3% in DC



Per Capita Annual Transit Trips by Household Vehicle Availability



Possible Impact of Reduced Trip Making



If declining trip making occurred proportionally for transit

- Person trip rate declining .05 trips/day/per year
- 21.5 million Floridians over 5
- If 1% were transit trips

Over 3 years this would be ≈ 15,000,000 reduction in transit trips/year

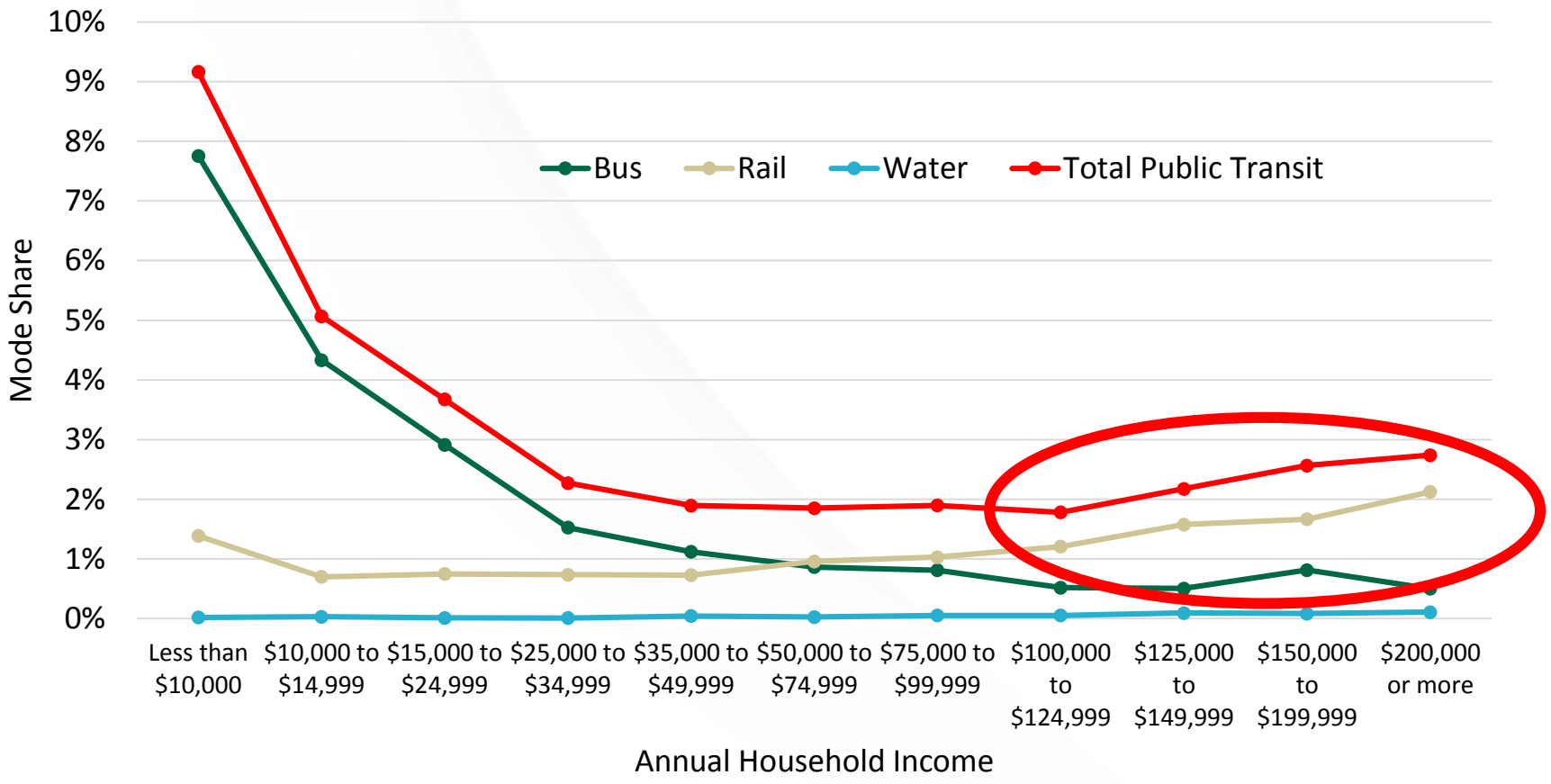
Approximately 40% of the decline in transit use

Source: Nancy McGuckin analysis of NHTS data

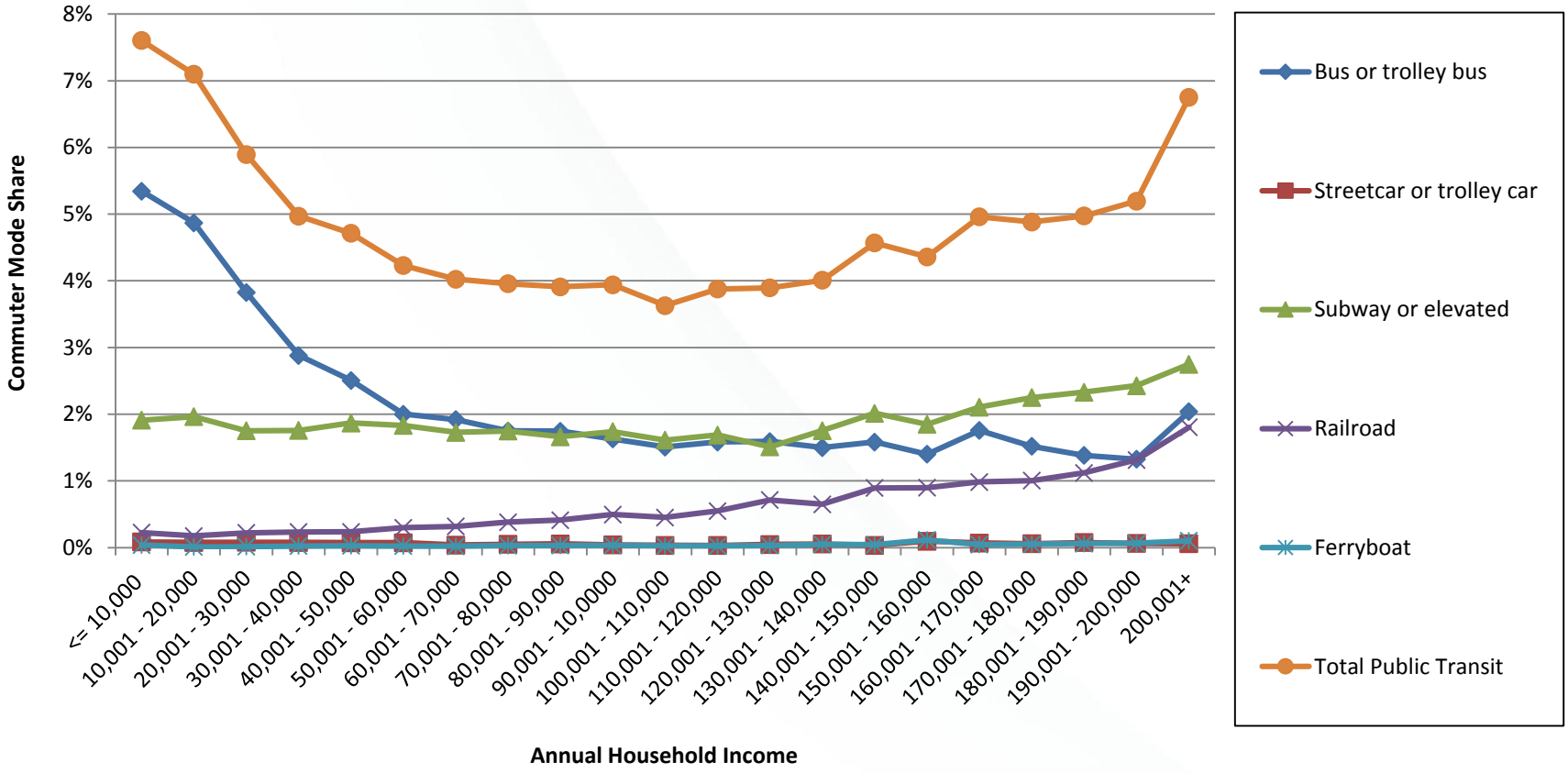
Real World Implications of Declining Trip Rates

- 9.6% of retail sales are via e-commerce
  (Q2 2018, +15.4% over 2017, Census)
- Homeschooling increased from 1.7% to 3.3% of children from 1999 to 2016
  (National Center for Educational Statistics, 2017)
- Church attendance declined 3.7% between 2007 and 2014 (Pew Research Center)
- Banks have closed over 10,000 branches since financial crisis (S&P Global Market Intelligence)
- Movie Ticket sales in 2017 were the lowest in 20 years (https://www.the-numbers.com/market/)
- Major League Football and Baseball in multiyear attendance decline (http://www.espn.com/nfl/attendance)

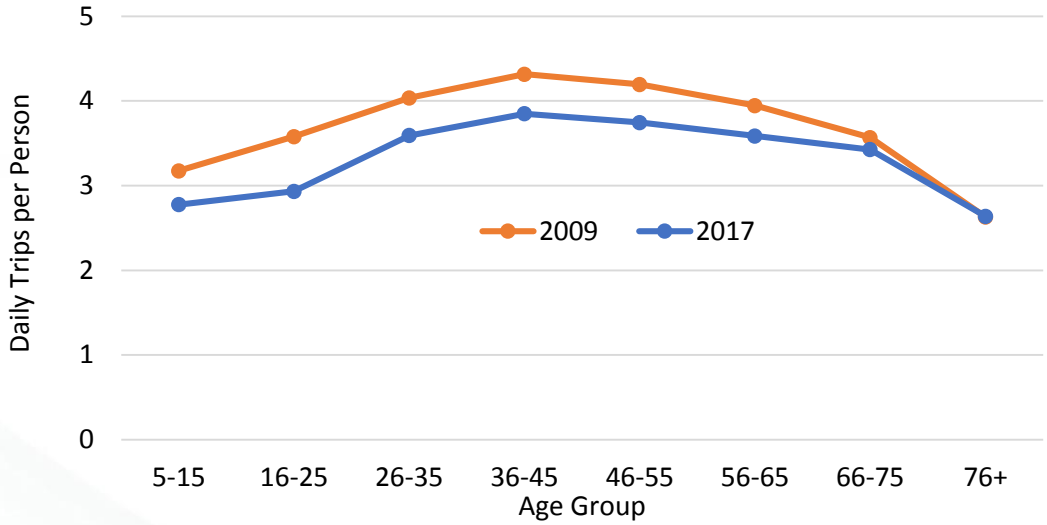
Changing Demographic Profile of Riders

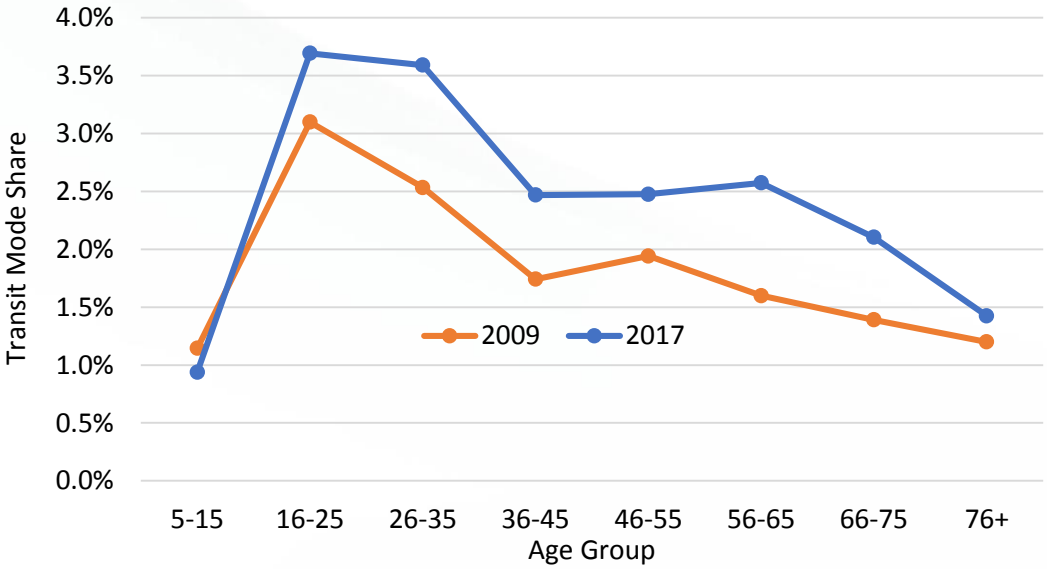


2017 ACS Commuting Mode Share by Income and Transit Sub Mode



Travel and Transit Use by Age





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Migration and Growth are Higher in Low Transit Use Areas

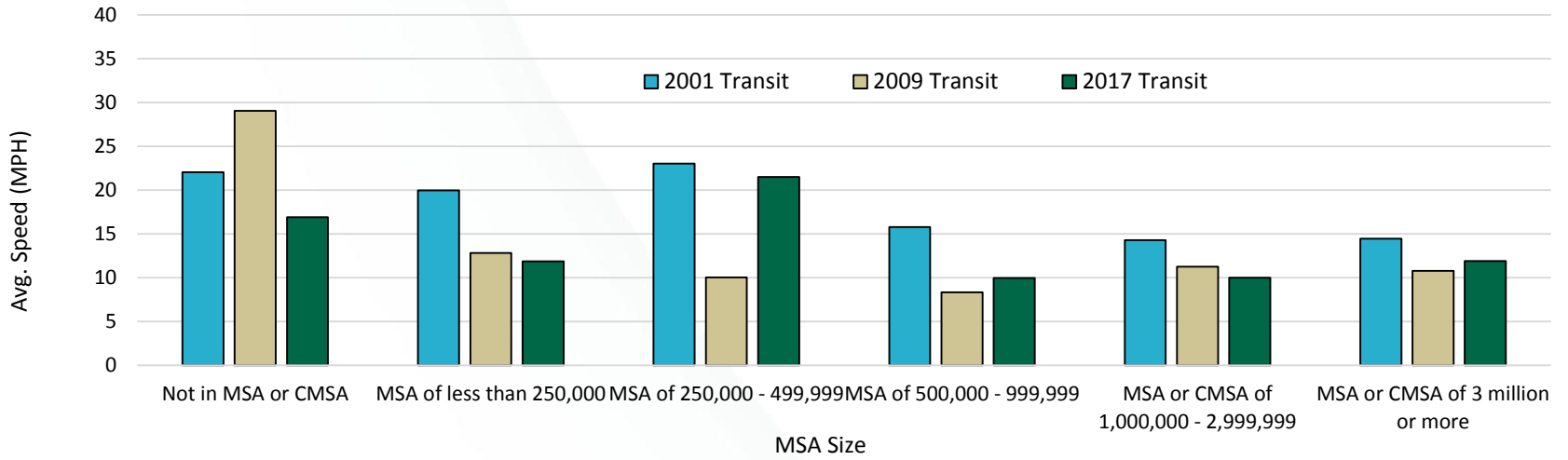
Top 10 Largest-Gaining Counties (Numeric Change): July 1, 2015 to July 1, 2016

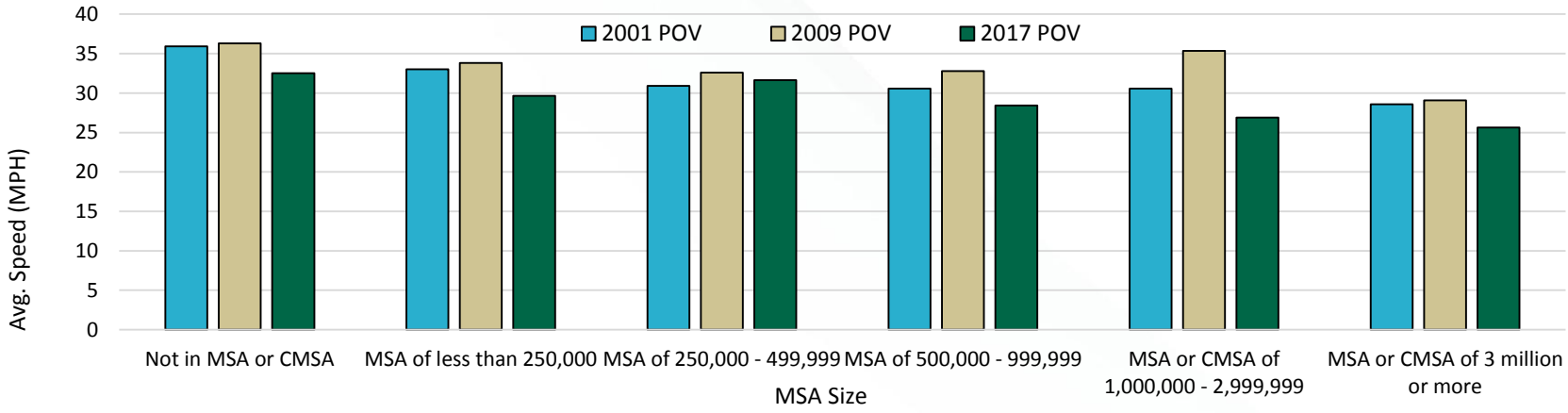
County	Population	Numeric Change	Percent Change	Transit Commute Share 2015
Maricopa County, Arizona	4,242,997	81,360	1.95	2.3%
Harris County, Texas	4,589,928	56,587	1.25	2.8%
Clark County, Nevada	2,155,664	46,375	2.2	4.2%
King County, Washington	2,149,970	35,714	1.69	12.6%
Tarrant County, Texas	2,016,872	35,462	1.79	0.6%
Riverside County, California	2,387,741	34,849	1.48	1.4%
Bexar County, Texas	1,928,680	33,198	1.75	2.6%
Orange County, Florida	1,314,367	29,503	2.3	3.2%
Dallas County, Texas	2,574,984	29,209	1.15	2.9%
Hillsborough County, Florida	1,376,238	29,161	2.16	1.7%
Average				3.4%

Largest-Declining Counties or County Equivalents (Numeric Change): July 1, 2015 to July 1, 2016

County	Population	Numeric Change	Percent Change	Transit Commute Share 2015
Cook County, Illinois	5,203,499	-21,324	-0.41	18.8%
Wayne County, Michigan	1,749,366	-7,696	-0.44	2.5%
Baltimore city, Maryland	614,664	-6,738	-1.08	19.6%
Cuyahoga County, Ohio	1,249,352	-5,673	-0.45	5.1%
Suffolk County, New York	1,492,583	-5,320	-0.36	6.8%
Milwaukee County, Wisconsin	951,448	-4,866	-0.51	6.2%
Allegheny County, Pennsylvania	1,225,365	-3,933	-0.32	9.1%
San Juan County, New Mexico	115,079	-3,622	-3.05	0.3%
St. Louis City, Missouri	311,404	-3,471	-1.1	9.7%
Jefferson County, New York	114,006	-3,254	-2.78	0.0%
Average				7.8%

Transit Remains About Half as Fast as Driving





Comparative Employment accessibility, Auto VS transit, 2017

Metro Rank by Jobs	Metro Area	Employment 2017	Jobs Accessible by Transit in 60 Mins (Access Across America: Transit 2017)	Metros Rank By Transit Accessibility	Jobs Accessibile by Auto in 60 Minutes (Access Across America Auto 2017)	Ratio of Transit Accessible Jobs to Auto Accessibile Jobs
1	New York	8,654,470	1,287,186	1	5,165,184	24.9%
11	San Francisco	2,164,298	415,289	2	2,414,867	17.2%
7	Washington DC	2,776,148	357,510	4	2,555,148	14.0%
23	Portland	1,093,778	156,682	11	1,130,378	13.9%
45	Salt Lake City	576,320	144,560	14	1,044,810	13.8%
15	Seattle	1,709,920	185,318	8	1,421,132	13.0%
33	Las Vegas	897,183	110,821	23	856,257	12.9%
10	Boston	2,401,512	275,182	5	2,261,287	12.2%
47	Buffalo	529,252	70,219	24	582,827	12.0%
37	Milwaukee	771,322	139,321	12	1,172,274	11.9%
3	Chicago	4,389,339	342,635	3	3,012,464	11.4%
18	Denver	1,356,387	180,478	10	1,617,550	11.2%
32	San Jose	909,053	203,107	9	2,163,277	9.4%
27	San Antonio	986,091	86,468	26	949,332	9.1%
14	Minneapolis	1,794,806	146,905	13	1,754,122	8.4%
6	Philadelphia	2,793,982	205,692	7	2,542,247	8.1%
17	San Diego	1,363,986	113,058	18	1,433,964	7.9%
48	New Orleans	513,830	48,220	30	616,252	7.8%
29	Austin	917,901	81,826	22	1,051,765	7.8%
22	Pittsburgh	1,100,915	76,673	21	1,000,173	7.7%
2	Los Angeles	5,636,421	341,437	6	4,517,360	7.6%
40	Louisville	627,630	52,872	37	720,647	7.3%
30	Sacramento	915,759	72,932	28	1,063,577	6.9%
31	Columbus	911,367	74,521	25	1,093,480	6.8%

Metro Rank by Jobs	Metro Area	Employment 2017	Jobs Accessible by Transit in 60 Mins (Access Across America: Transit 2017)	Metros Rank By Transit Accessibility	Jobs Accessibile by Auto in 60 Minutes (Access Across America Auto 2017)	Ratio of Transit Accessible Jobs to Auto Accessibile Jobs
9	Miami	2,412,346	113,542	16	1,737,359	6.5%
13	Phoenix	1,865,829	109,972	19	1,739,291	6.3%
20	Baltimore	1,291,995	111,707	15	1,926,759	5.8%
46	Oklahoma City	574,561	35,139	44	619,587	5.7%
28	Cleveland	955,181	74,528	29	1,372,782	5.4%
19	St. Louis	1,310,349	64,119	33	1,200,988	5.3%
41	Jacksonville	626,060	32,651	48	634,122	5.1%
39	Virginia Beach	707,752	33,168	46	659,585	5.0%
35	Charlotte	877,360	55,578	34	1,137,958	4.9%
42	Richmond	617,617	33,016	42	697,915	4.7%
34	Indianapolis	886,380	52,705	35	1,115,194	4.7%
5	Houston	2,888,073	114,960	17	2,520,388	4.6%
43	Hartford	593,012	64,698	27	1,443,504	4.5%
25	Kansas city	1,023,563	47,330	40	1,087,996	4.4%
38	Povidence	757,913	53,339	31	1,279,767	4.2%
26	Cincinnati	1,018,914	48,793	39	1,197,690	4.1%
36	Nashville	801,589	34,390	43	847,287	4.1%
8	Atlanta	2,416,397	72,599	32	1,791,972	4.1%
21	Tampa	1,227,356	52,728	38	1,328,760	4.0%
24	Orlando	1,050,065	48,584	41	1,323,827	3.7%
4	Dallas	3,206,364	100,304	20	2,941,638	3.4%
44	Raleigh	583,916	36,321	47	1,070,759	3.4%
12	Detroit	1,869,538	64,677	36	1,975,248	3.3%
49	Birmingham	476,681	17,858	49	582,467	3.1%
16	Riverside	1,635,100	39,302	45	1,815,028	2.2%

Changing Travel

- People appear to be foregoing onerous travel to the extent they can – in spite of a strong economy, VMT per capita contracted in 2018 and so far in 2019.
- Less outside the home activities and more communication substitution for travel (e-commerce, distance learning, gaming and media streaming, etc.)
- Growth in person travel seems strongest for longer distance social recreational travel (millennials value experiences).

CAV – When, What Price, What Geographic Markets?

Morgan Stanley | RESEARCH

December 20, 2018 05:01 AM GMT

Autos & Shared Mobility | North America

Top 10 Potential Surprises for Global Autos and Space in 2019

2019 is shaping up to be an eventful year for the global auto, shared mobility, and space industries. We offer our top potential 10 surprises as a thought exercise.

6. **Safety drivers *not* removed from autonomous car fleets.** While we are optimistic on the direction and end-state of AVs, we do not expect the tech to be "ready for prime time" in 2019. Look for expansion of AV fleets in the US to have at least one if not two safety drivers to satisfy regulations and mitigate risk for years to come.

Automotive News

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November 30, 2018 12:00 AM

Ready for self-driving future? Sorry, it's drizzling out.

TWEET | SHARE | SHARE | EMAIL | PRINT

Pete Bigelow

An autonomous vehicle belonging to Michigan State University parks on a curb in the Spartan Village section of campus, which engineers are using to gather AV-related data and conduct test drives.

Even a little crummy weather might pose big problems for self-driving systems.

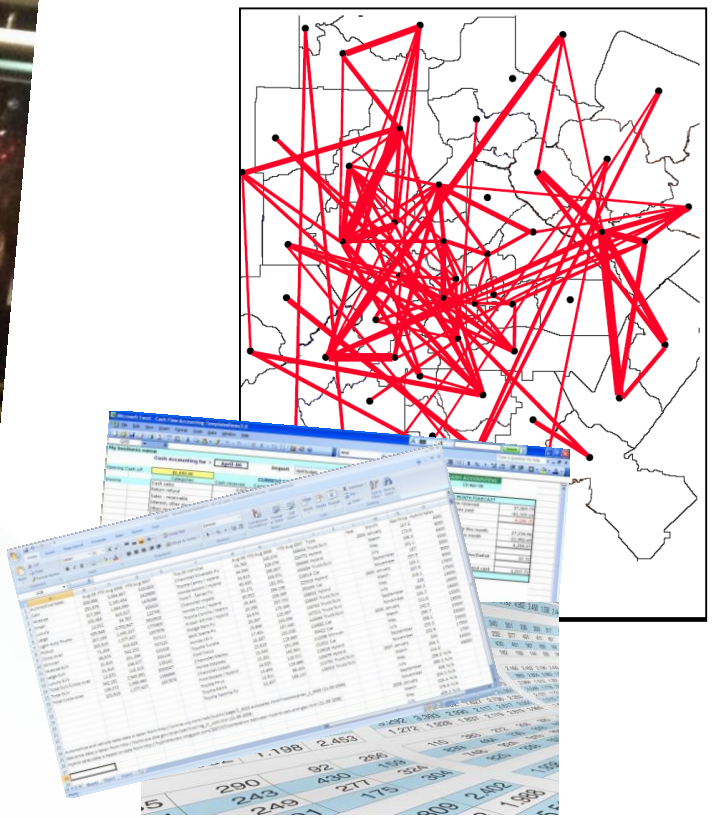
Moving People is Not Just a Logistics Problem

The transit industry

moving people, building places

The Technology and Financial Interests

logistics and dollars



TNC as a Transit Alternative

Reason for most recent TNC trip versus transit trips

	BART15	MARTA	NJ Transit	WMATA
TNC connecting to transit	16%	6%	8%	3%
TNC instead of Transit	11%	16%	17%	39%
Transit not an option (reason)	32% (26% hour, 6% route)	16% (8% hour, 8% route)	19% (no data for reason)	13% (4% hour, 9% route)
Haven't used TNC in region	41%	62%	56%	45%

Source: TCRP RESEARCH REPORT 195, Broadening Understanding of the Interplay Among Public Transit, Shared Mobility.

and Personal Automobiles

Implications of TNCs

- Analyst Bruce Schaller has noted 70 percent of Uber and Lyft trips are in nine large, densely populated metropolitan areas (Boston, Chicago, Los Angeles, Miami, New York, Philadelphia, San Francisco, Seattle and Washington DC.)
- Coincidentally, the same nine metropolitan areas account for over 72 percent of public transit ridership nationally and, with the exception of Seattle, constitute a dramatic share of the national ridership decline.

  The New Automobility: Lyft, Uber and the Future of American Cities, July 25, 2018, Schaller Consulting. Ridership data from APTA 2017 Public Transit Fact Book (2015 data).

What is Next?

- Bikes, E-bikes, Scooters, other micromobility devices

So How Does Transit Respond?

The goal is not to preserve the institutions or technologies that we know as public transportation today.

The goal is not to remake the world to meet the vision of transit planners or undo the technological progress that has impacted transit ridership.

The goal is to ensure that the public purposes public transportation serves continue to be met in the future.

Some Thoughts on Service

1. Safety Net Services for those without travel options.
   i. Growing need
   ii. Public support
   iii. Challenge in addressing cost effectively

Some Thoughts on Service

2. Competitive services in markets where transit can provide a resource effective means of travel.

   i. For choice travelers, competitiveness is important.

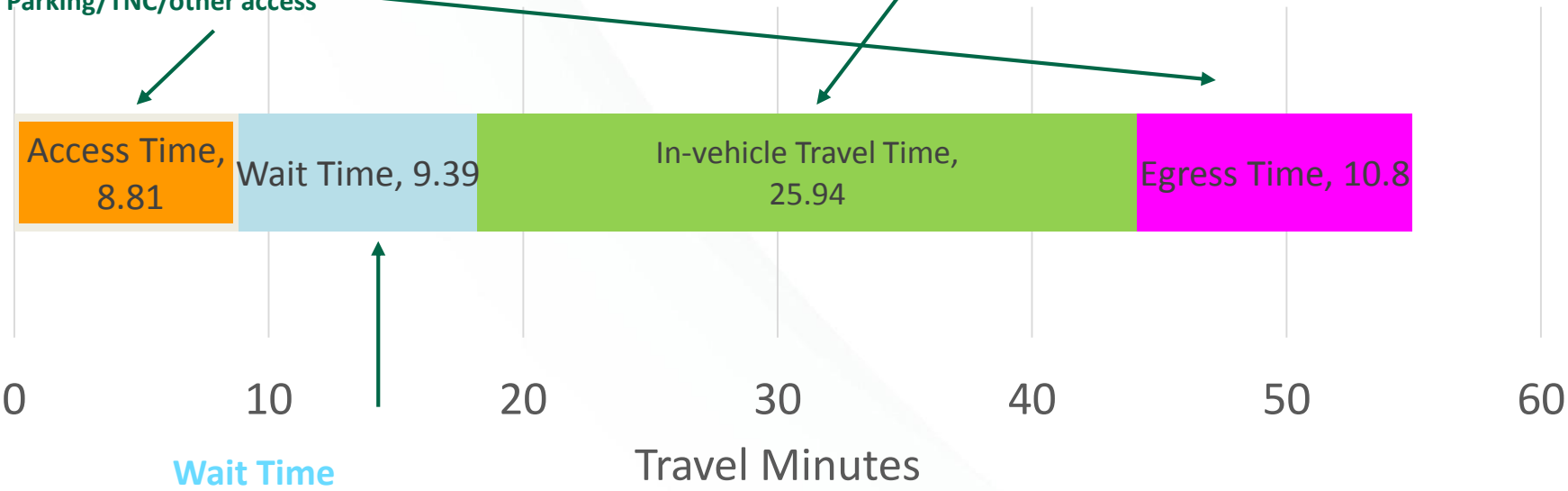
   ii. Understand your market(s) if you contemplate trading off access for competitiveness.

Transit Competitiveness

Time components of an average transit trip

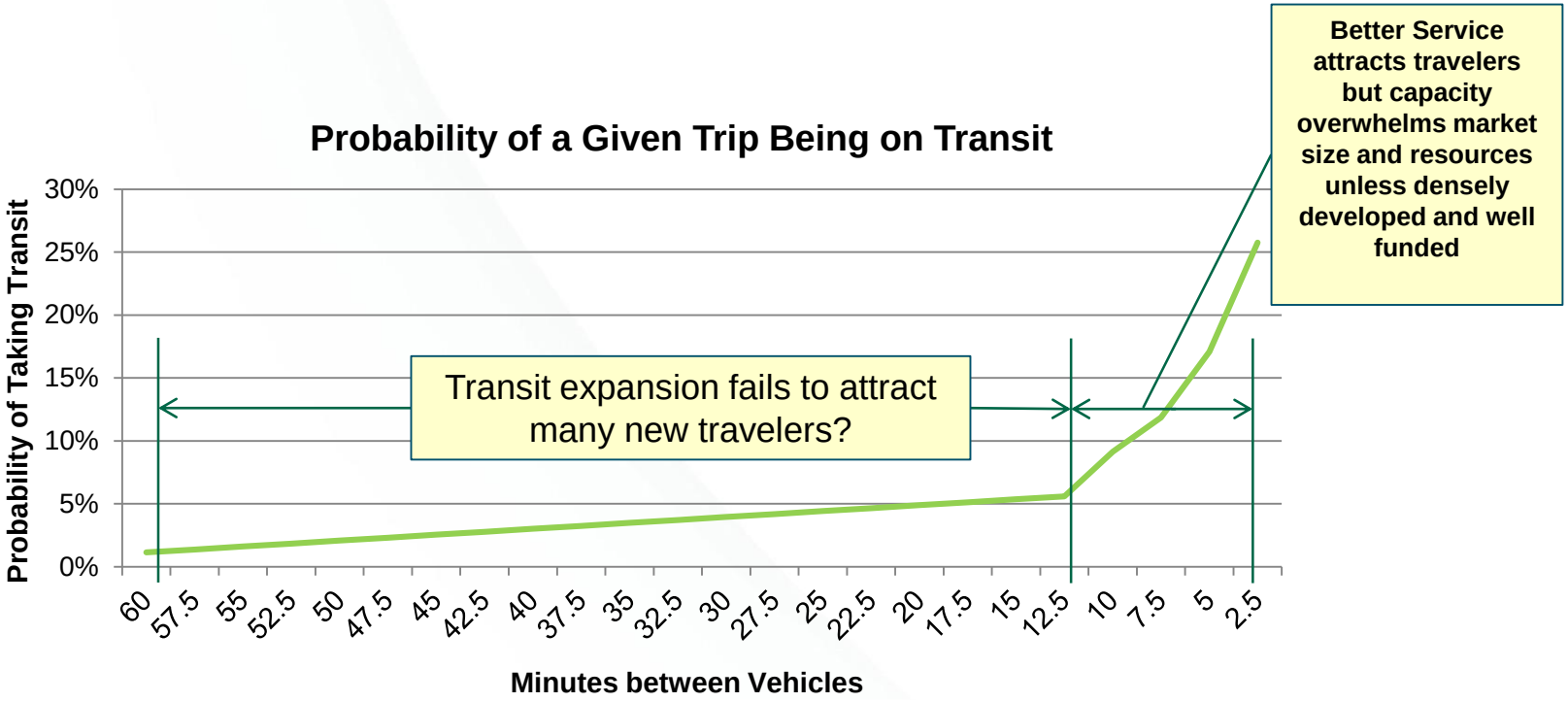
In Vehicle Time
- Speed (exclusivity of ROW)
- Preferential treatments
- Route directness
- Network structure
- Fare, bike, mobility aide handling

Access/Egress Time
- Route alignments/density
- Stop spacing
- Land use/TOD
- Bike/walk network
- Parking/TNC/other access



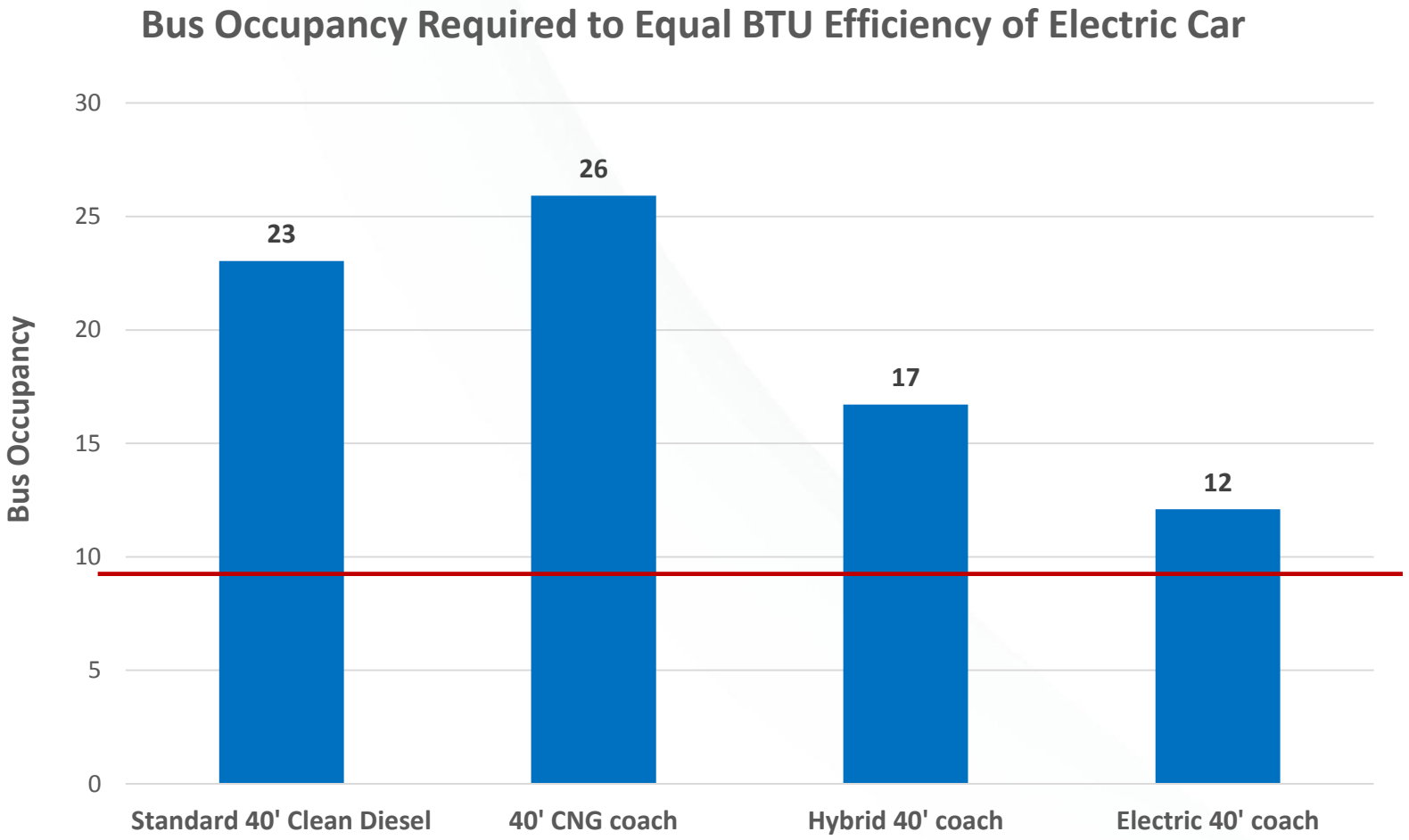
Wait Time
- Frequency/headway
- Reliability
- Network design
- Customer information

When is Service Good Enough?



frequency

Why Ridership Matters



U.S. average bus occupancy is 9 today

Vehicle Emission Data:
Source: Argonne National Lab GREET model

Fixed Route Transit Works
Where Fixed Route Transit Works

Some Thoughts on Service

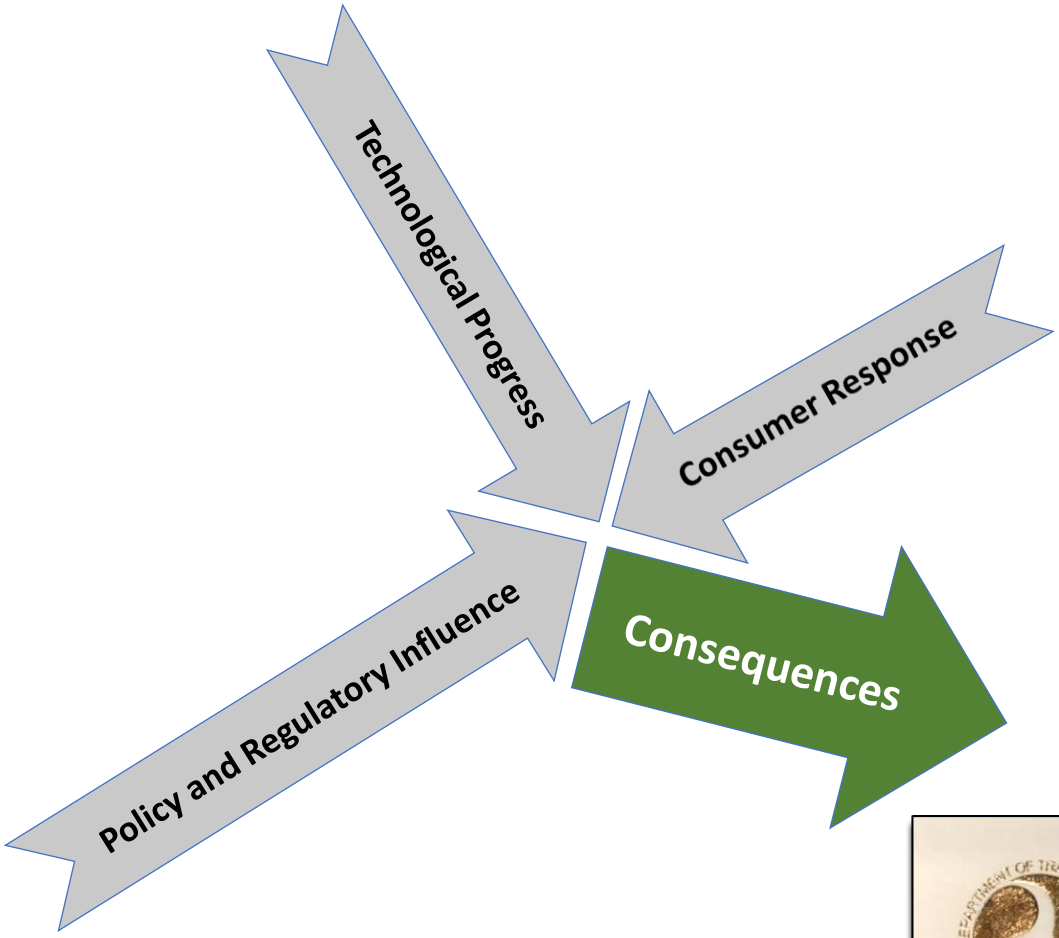
3. Provide a high quality transit corridor as part of the portfolio of community type choices the metropolitan area offers.

   Many metropolitan areas should have an urban corridor or corridors to offer an urban living environment that includes high quality transit.

   It may not be particularly efficient or cost effective and may not be prudent to have high quality services region wide.

Don’t Force a Solution Where it Doesn’t Fit.

Change it to make it work or find some other ways to help meet the mobility, resource efficiency and quality of life desires of your community.



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