DESIGNING FOR FUTURE TRANSIT:

DEVELOPING A FRAMEWORK FOR THE LIVABLE FUTURE CITY

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NELSON NYGAARD

SELF-DRIVING

NETWORKED

SHARED

ELECTRIC

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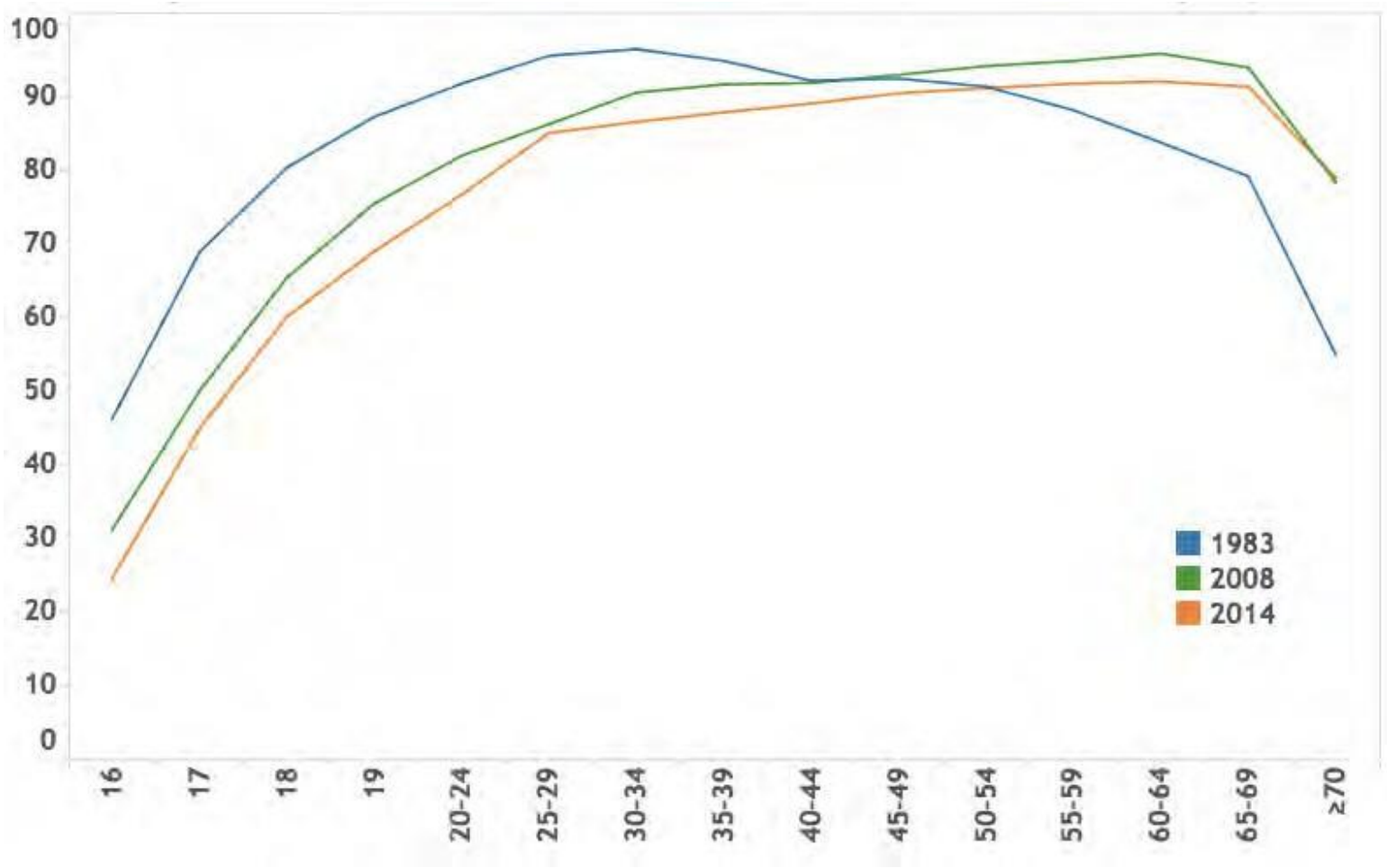
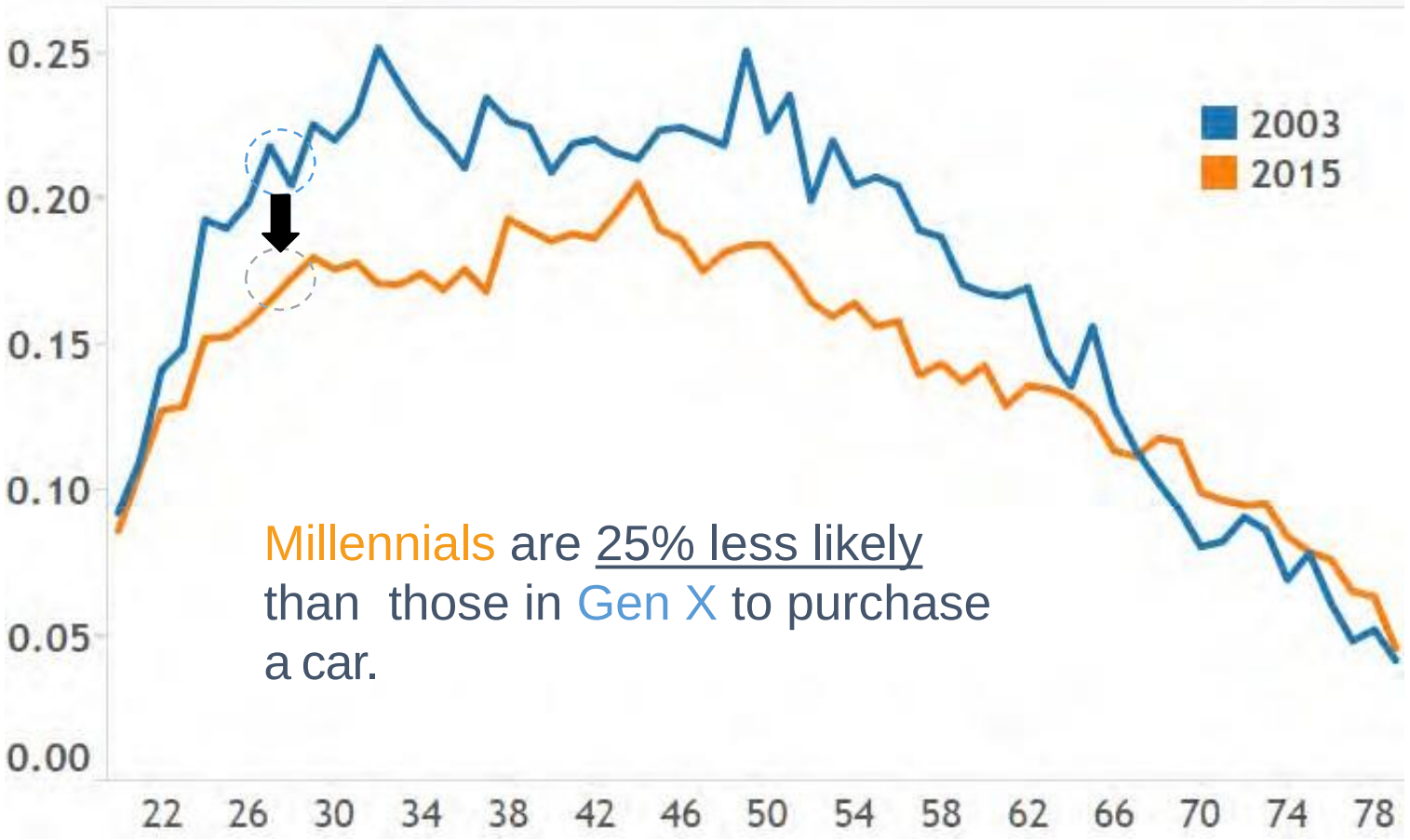
Proportion of Americans with a driver's license, by age



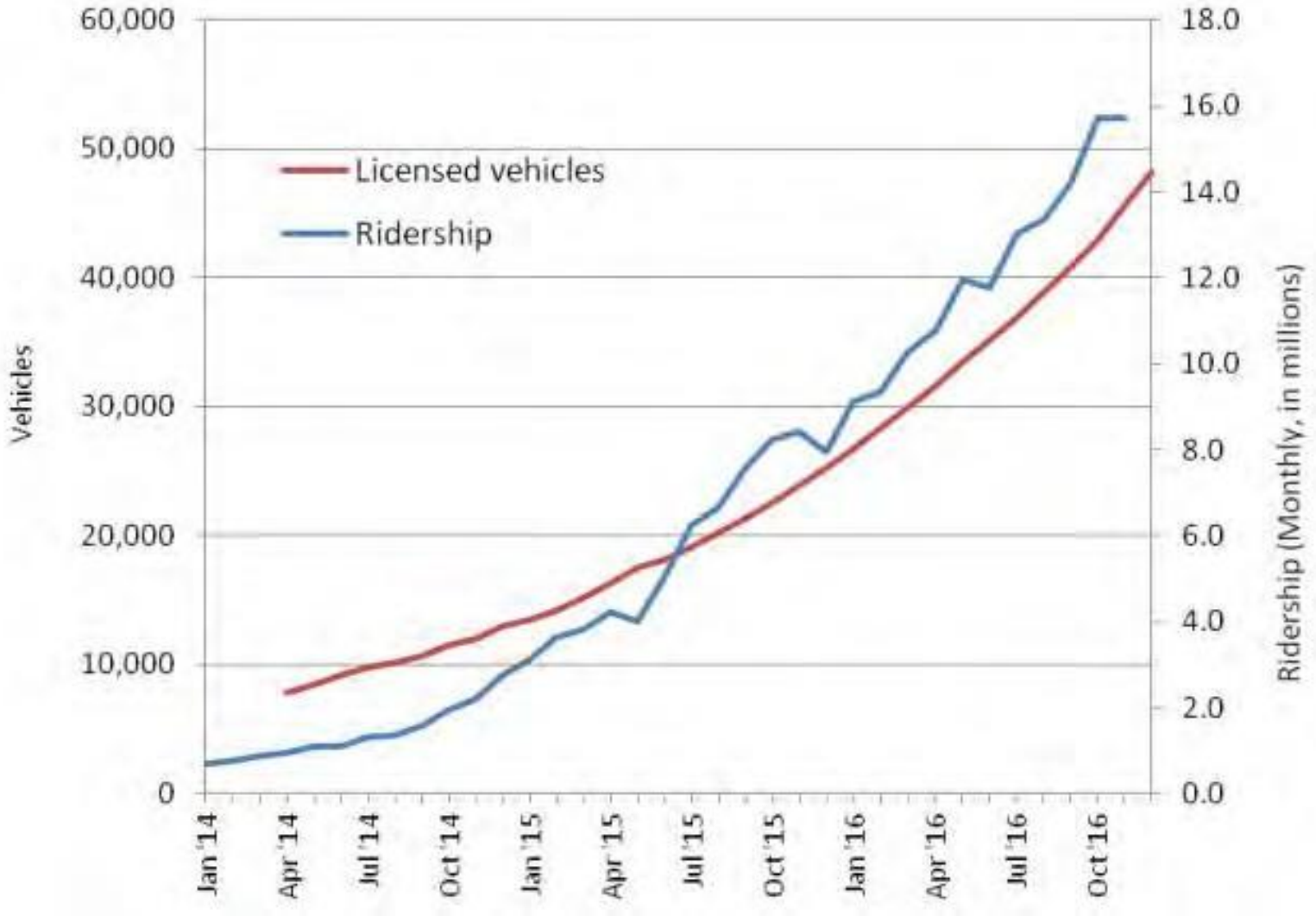
Source: University of Michigan Transportation Research Institute

Car loan originations per capita, by age

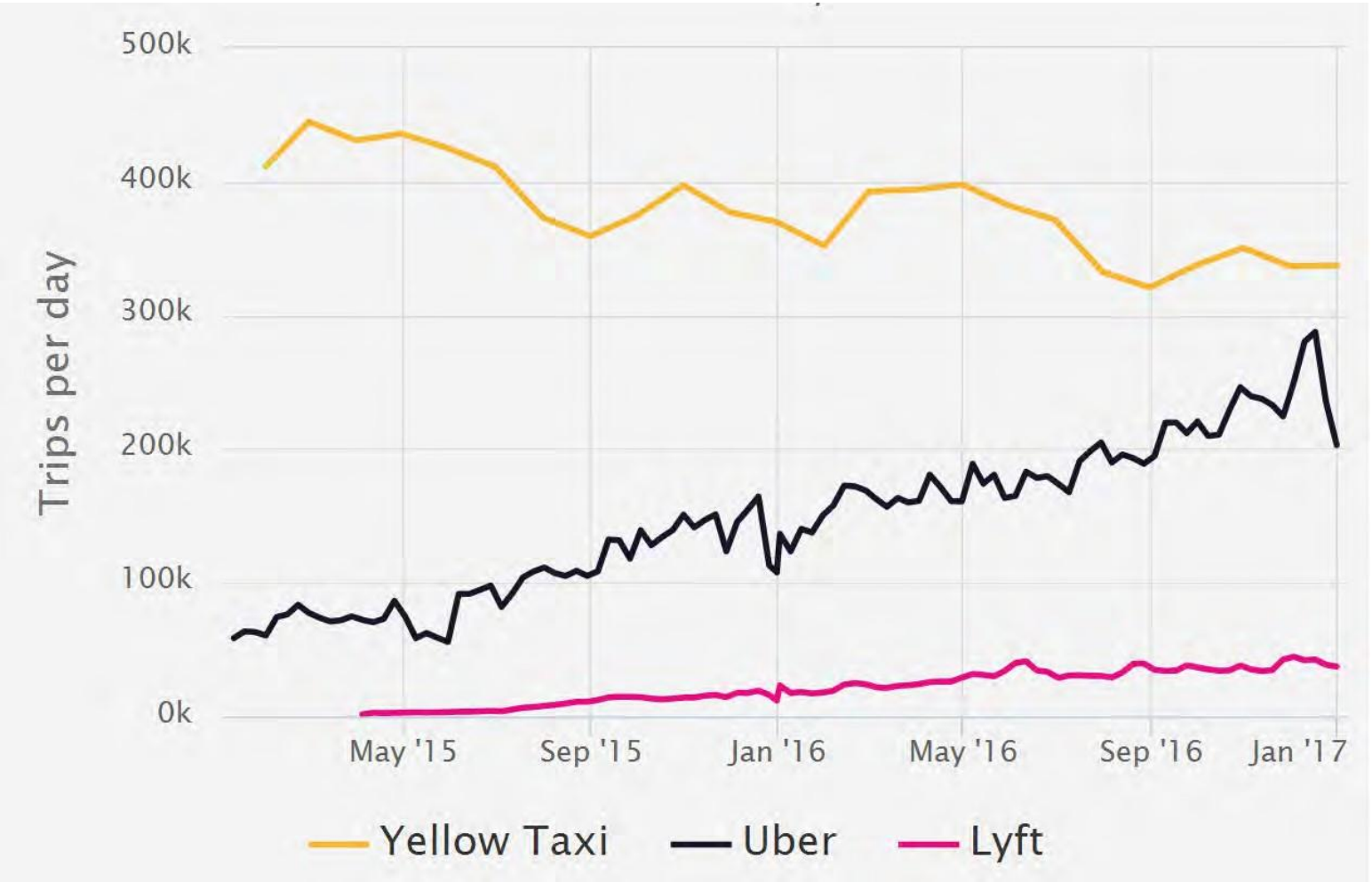


Source: Federal Reserve Bank of New York

Use of ride hailing services

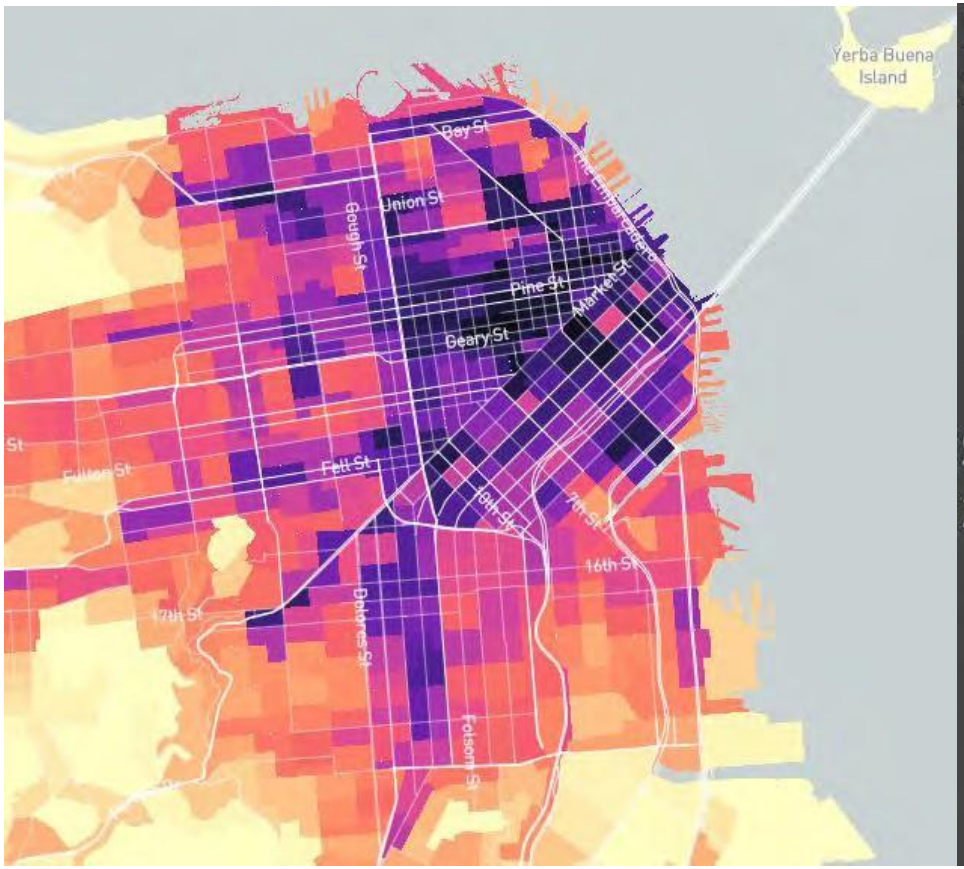


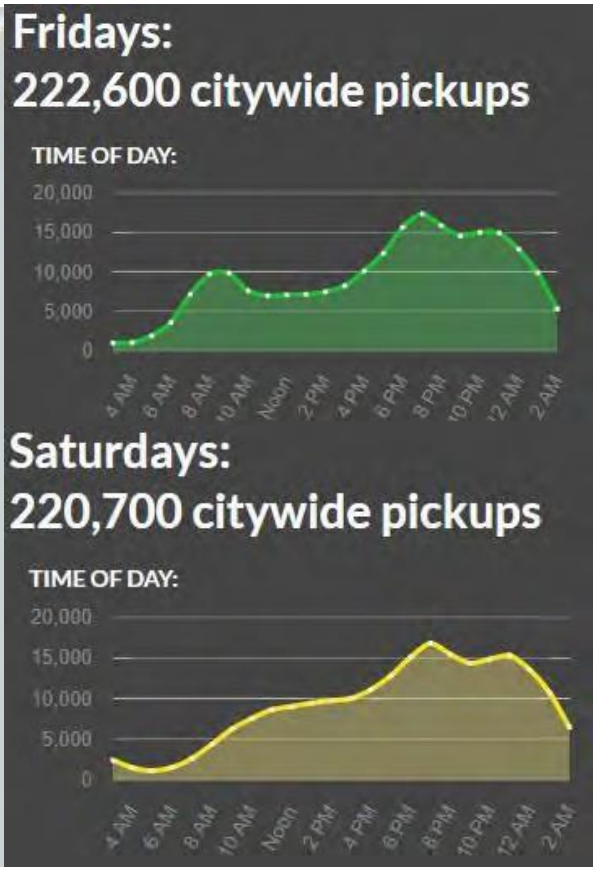
New York City daily trips



Source: Todd Schneider, NYC TLC TNC Trip Data (2017)

Ride hailing trips

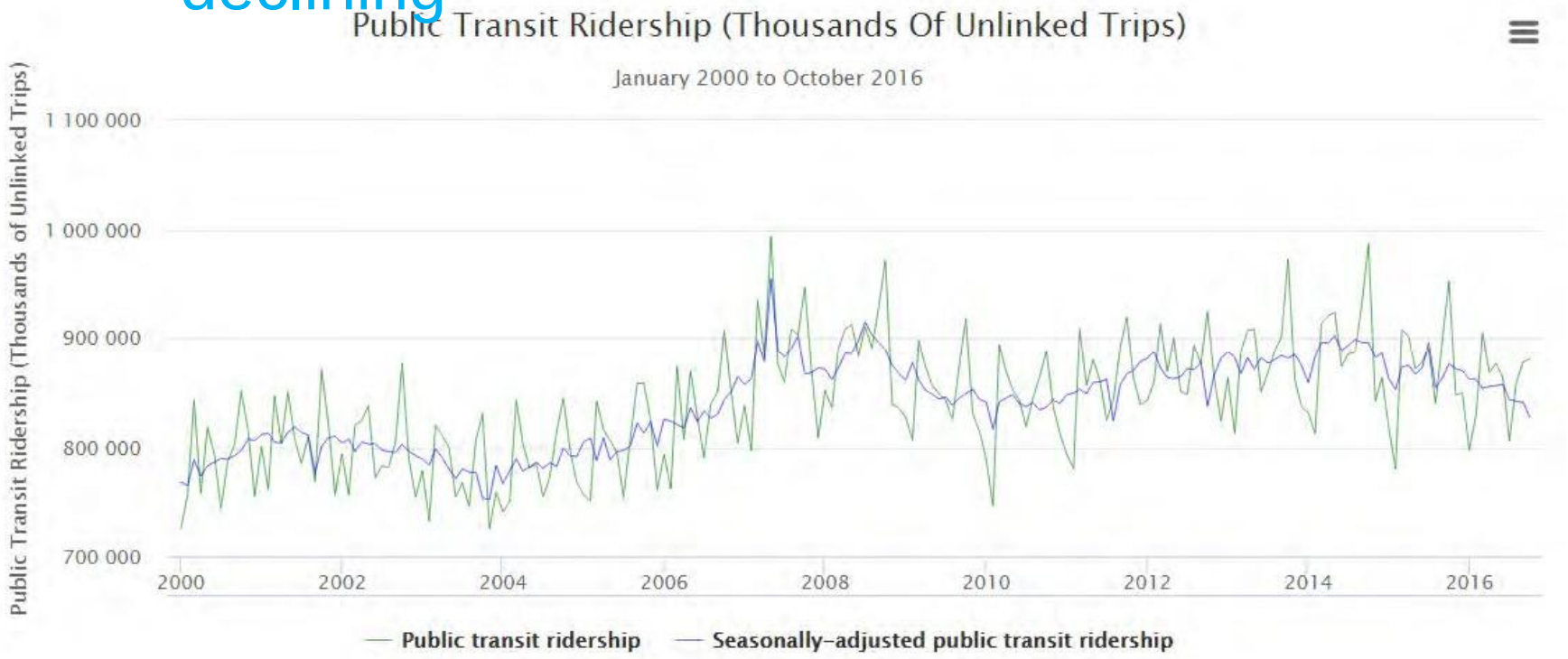




Source: San Francisco County Transportation Authority

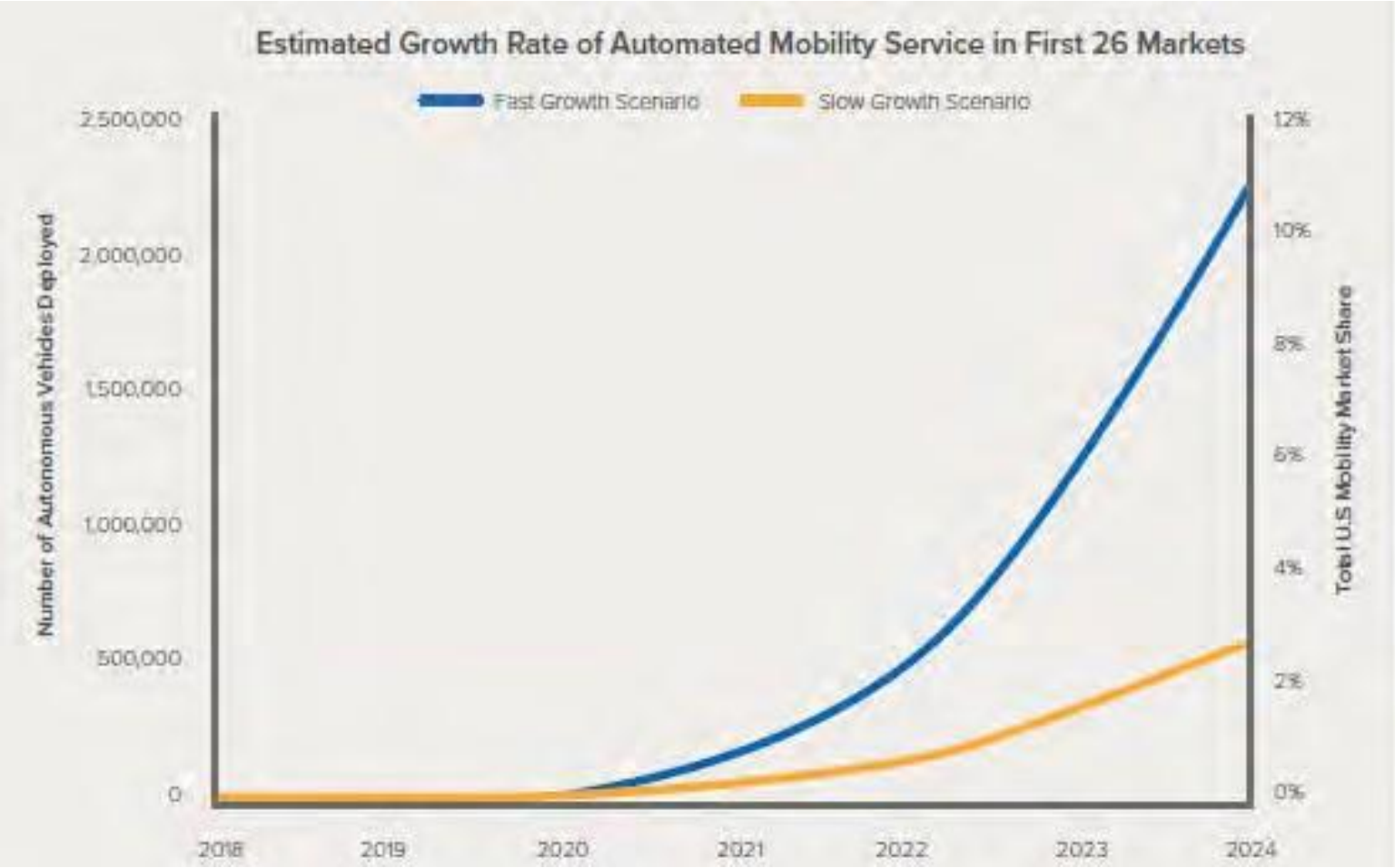
Public transit ridership

BUT… transit ridership flat and declining



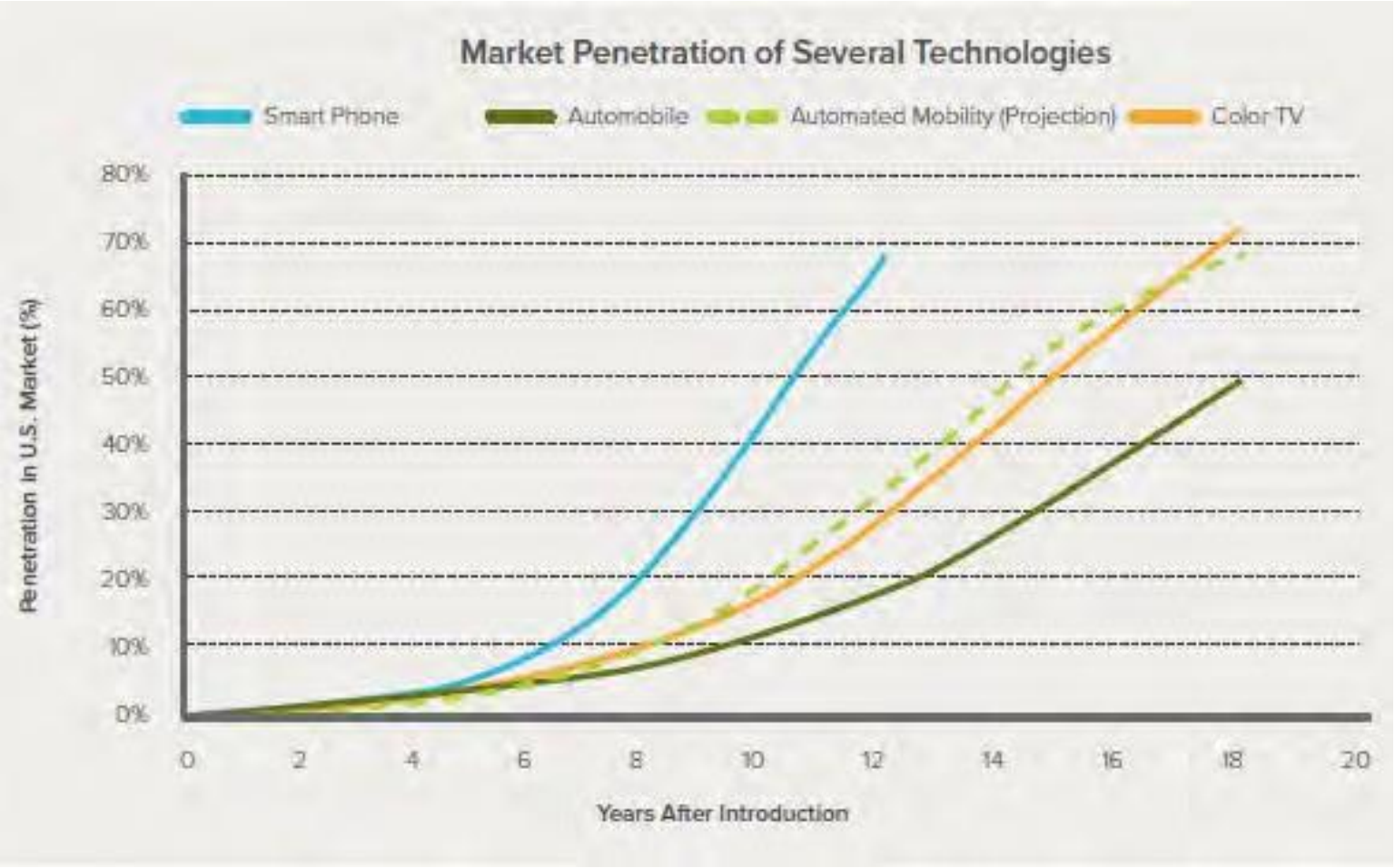
Source: American Public Transportation Association (APTA) / U.S. Bureau of Transportation Statistics (BTS)

Timeline for adoption



Source: Rocky Mountain Institute

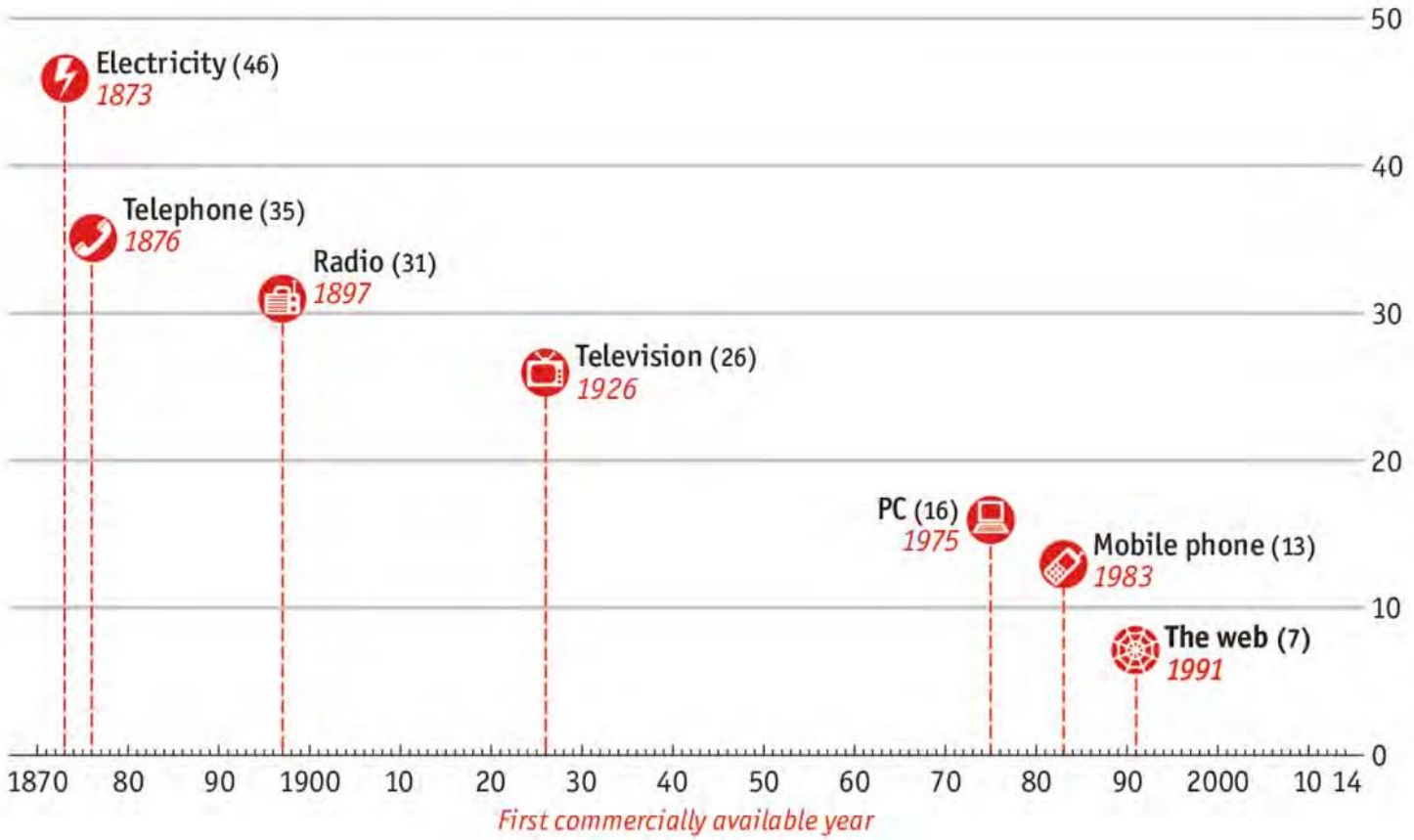
Timeline for adoption



Source: Rocky Mountain Institute

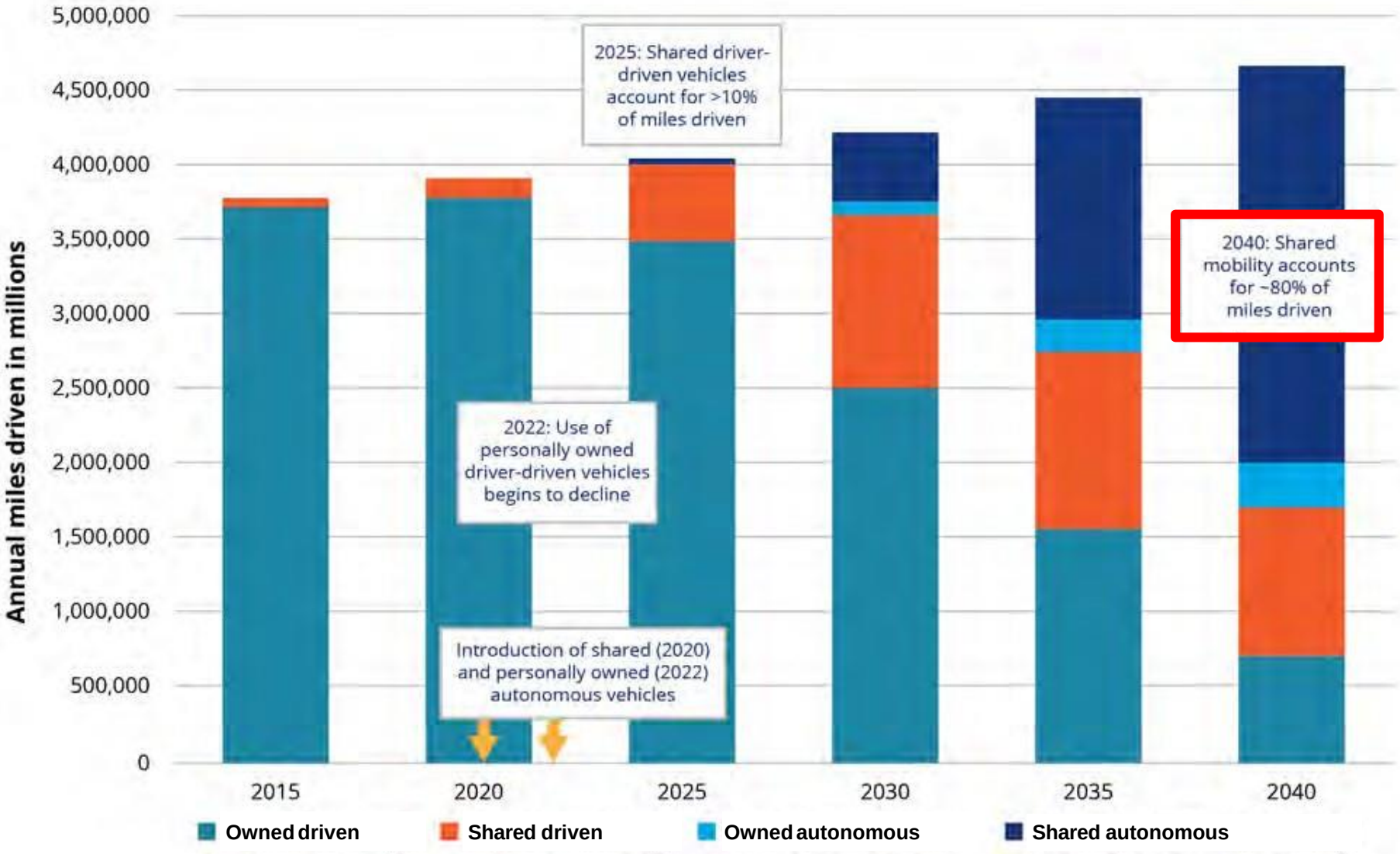
Technology adoption

Years until used by one-quarter of American population



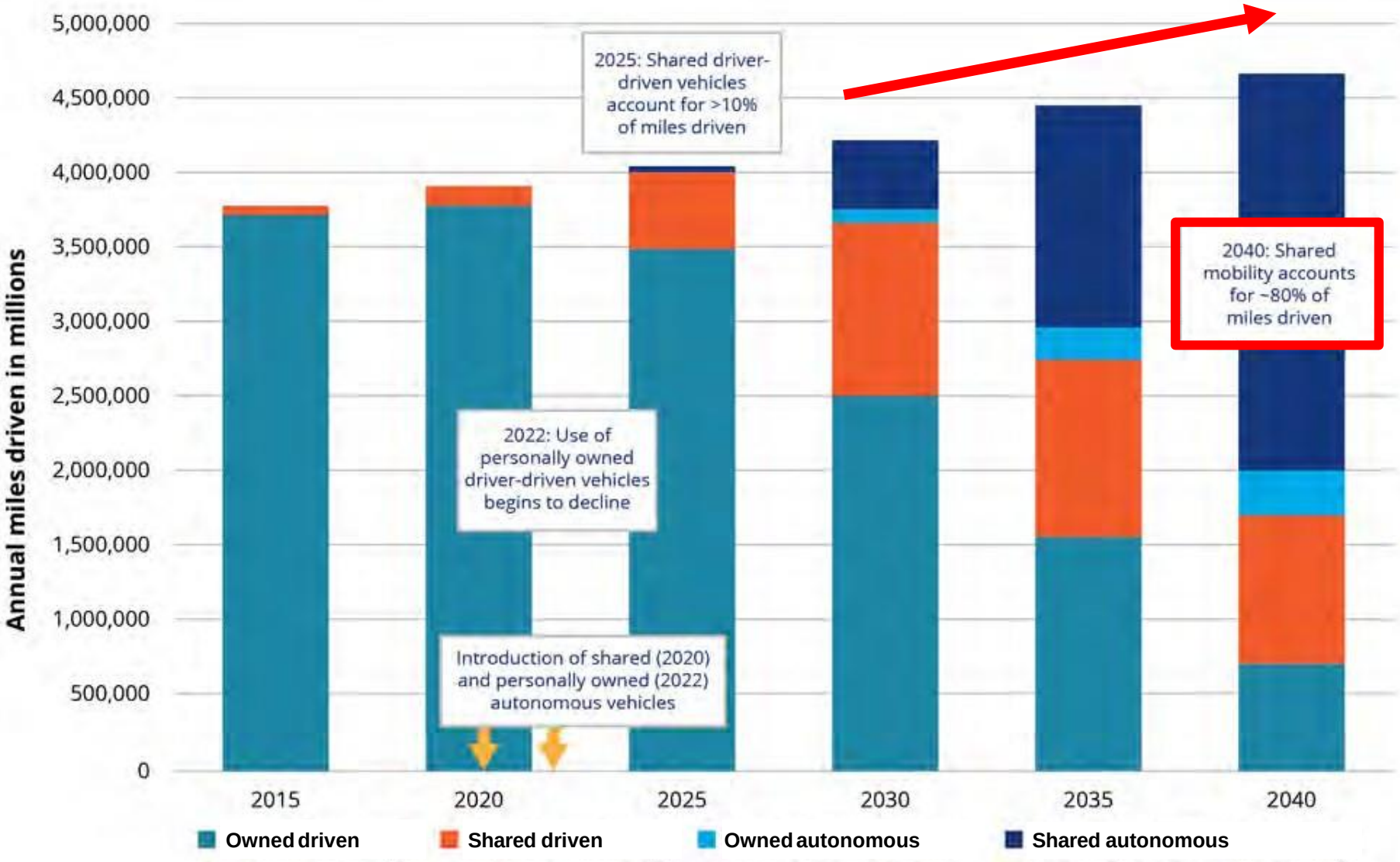
Source: The Economist / Singularity.com

Projected Automobile Miles Driven, by mode type



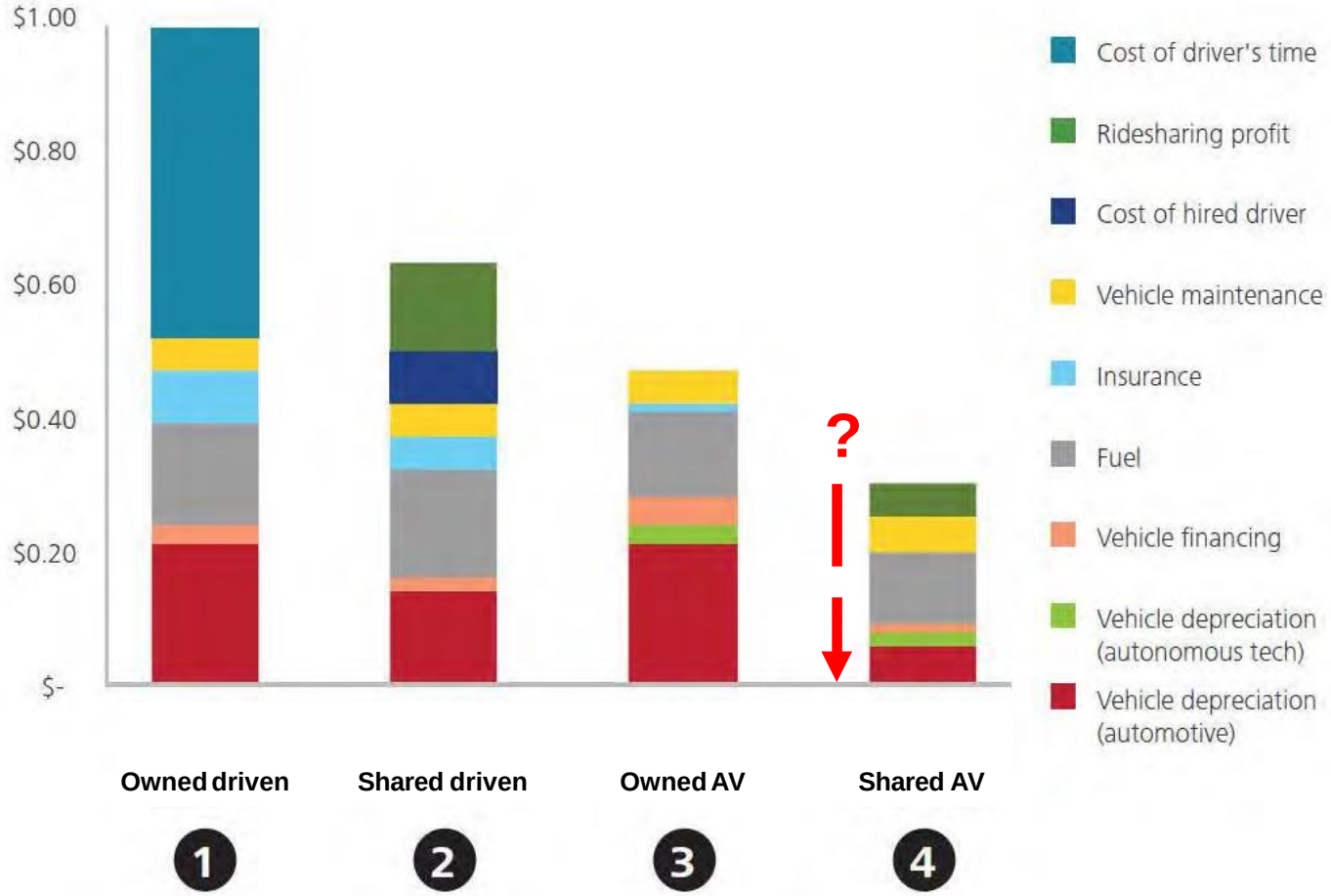
Source: Deloitte

Projected Automobile Miles Driven, by mode type



Source: Deloitte

Projected cost per mile breakdown, by future state



Source: Deloitte

Maximum number of parked vehicles projected for different scenarios

			Max. Parking requirements	% of baseline
		Baseline	160 000	
100% shared self-driving fleet	Ride sharing (TaxiBot)	No high-capacity public transport	11 563	7.2
		With high-capacity public transport	8 901	5.6
	Car sharing	No high-capacity public transport	25 621	16.0
		With high-capacity public transport	17 110	10.7
50% private car use for motorised trips	Ride sharing (TaxiBot)	No high-capacity public transport	5 928 + 153 122*	99.4
		With high-capacity public transport	4 622 + 116 689*	75.8
	Car sharing	No high-capacity public transport	12 705 + 153 330*	103.8
		With high-capacity public transport	9 561 + 116 467*	78.8

* = shared + private cars

85-95% reduction in parking stalls with 100% shared fleet

Source: International Transport Forum (ITF)

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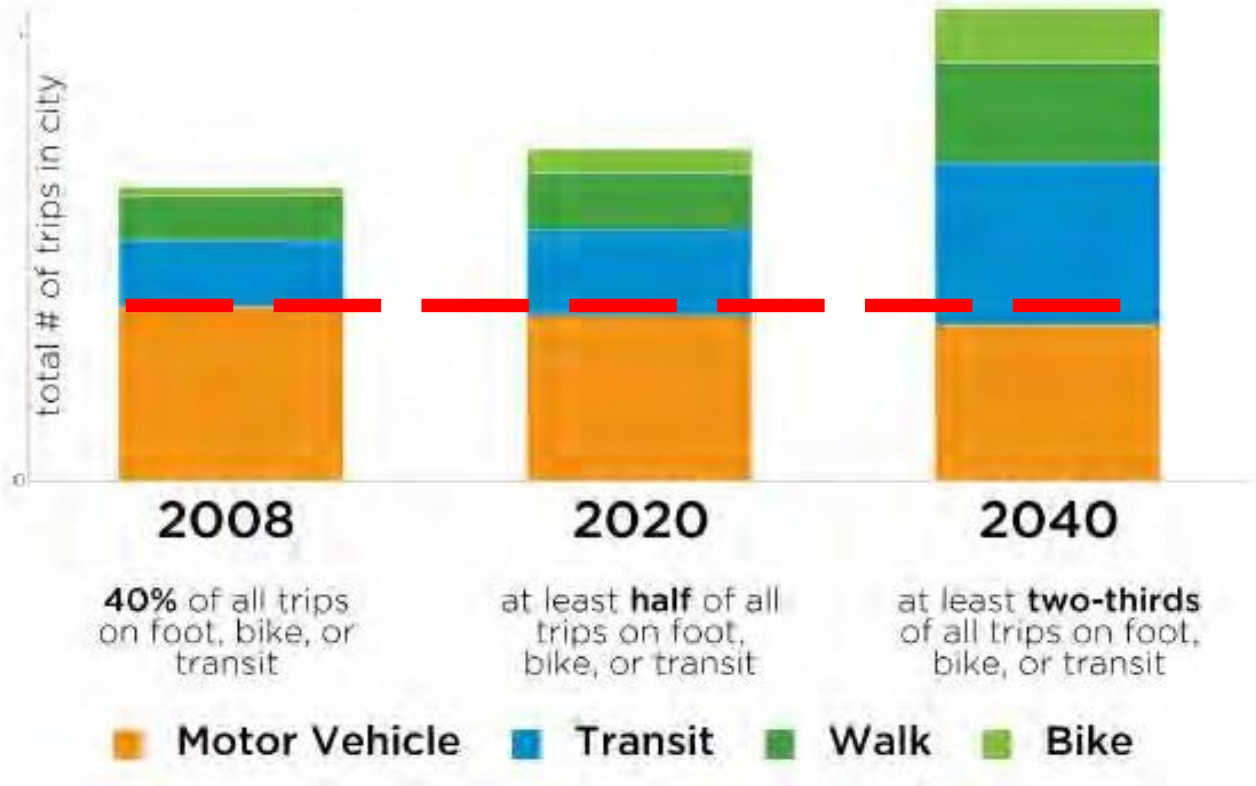
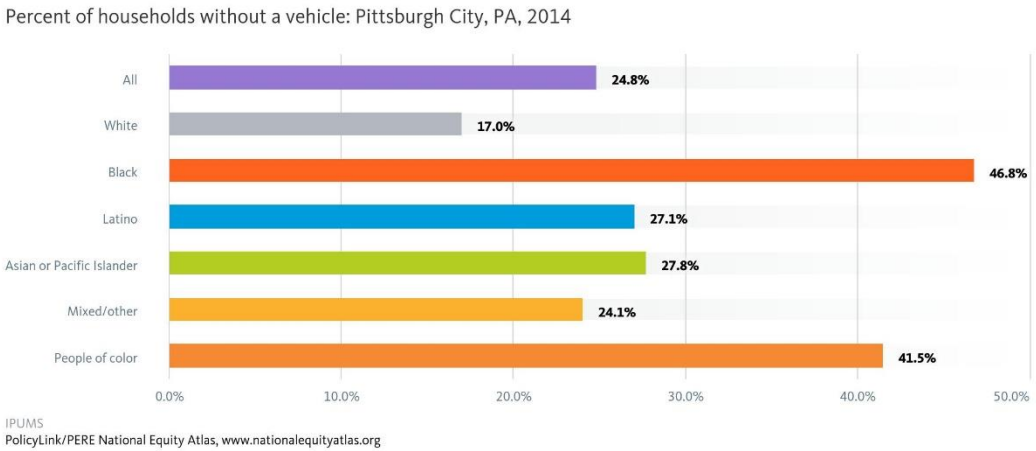
Transit Must Lead



Source: City of Vancouver, Transportation 2040 Plan

Establish data protocols for public good

Data should inform transportation system
Barriers to flow of data between public and private sector
Disaggregate data by race, income, and other demographic categories.
Explain the problem that data will solve.



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Quantify and Promote Equity

Focus on outcomes:

- Health
- Access to employment and services
- Share of income and time spent on mobility

Consider ethnicity, income, age, ability, gender

Price least efficient modes to subsidize mobility for those with the fewest choices

Private profit motive will ignore those with greatest need

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Reorganize government around mobility

Be decisive about public transit agency survival
Realign taxation: replace gas and parking taxes with VMT and congestion fees
Align public right of way ownership (state, county, local) with operations
New regional mobility authorities?

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Go big on AV BRT

Best contexts for AVs:

- Long haul trucking
- Bus Rapid Transit

Cities must partner with transit operators: Dedicated right of way in exchange for AV BRT, 24/7 every 2 minutes

Begin process now to minimize any job loss

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Provide a quality future of work

4.4 million American workers are drivers
Partner with labor leadership now
Future jobs require tech or customer service skills
Current trajectory jeopardizes public sector pensions

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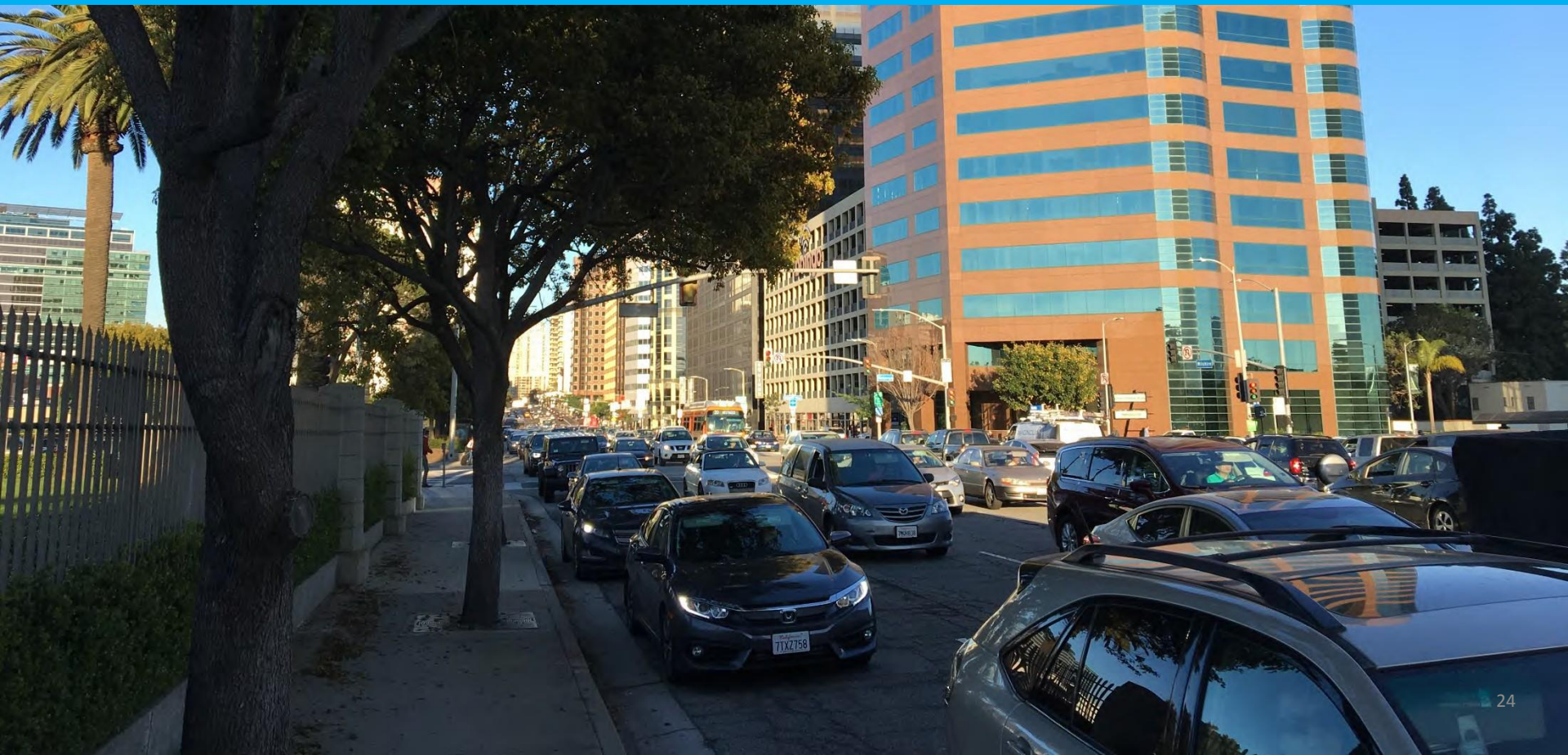
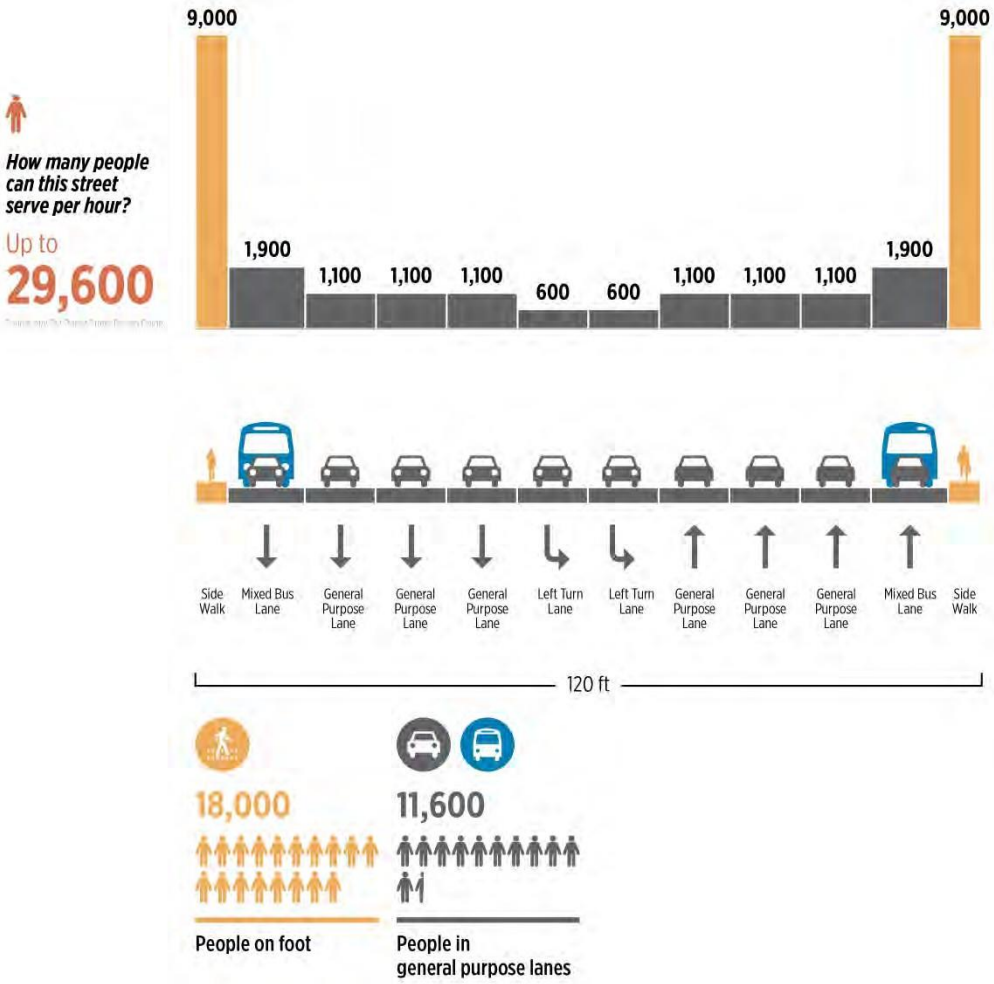
Put active transport first

A VISION FOR WILSHIRE BOULEVARD



Present



Many cars, few people

Up to 29,600 people per hour

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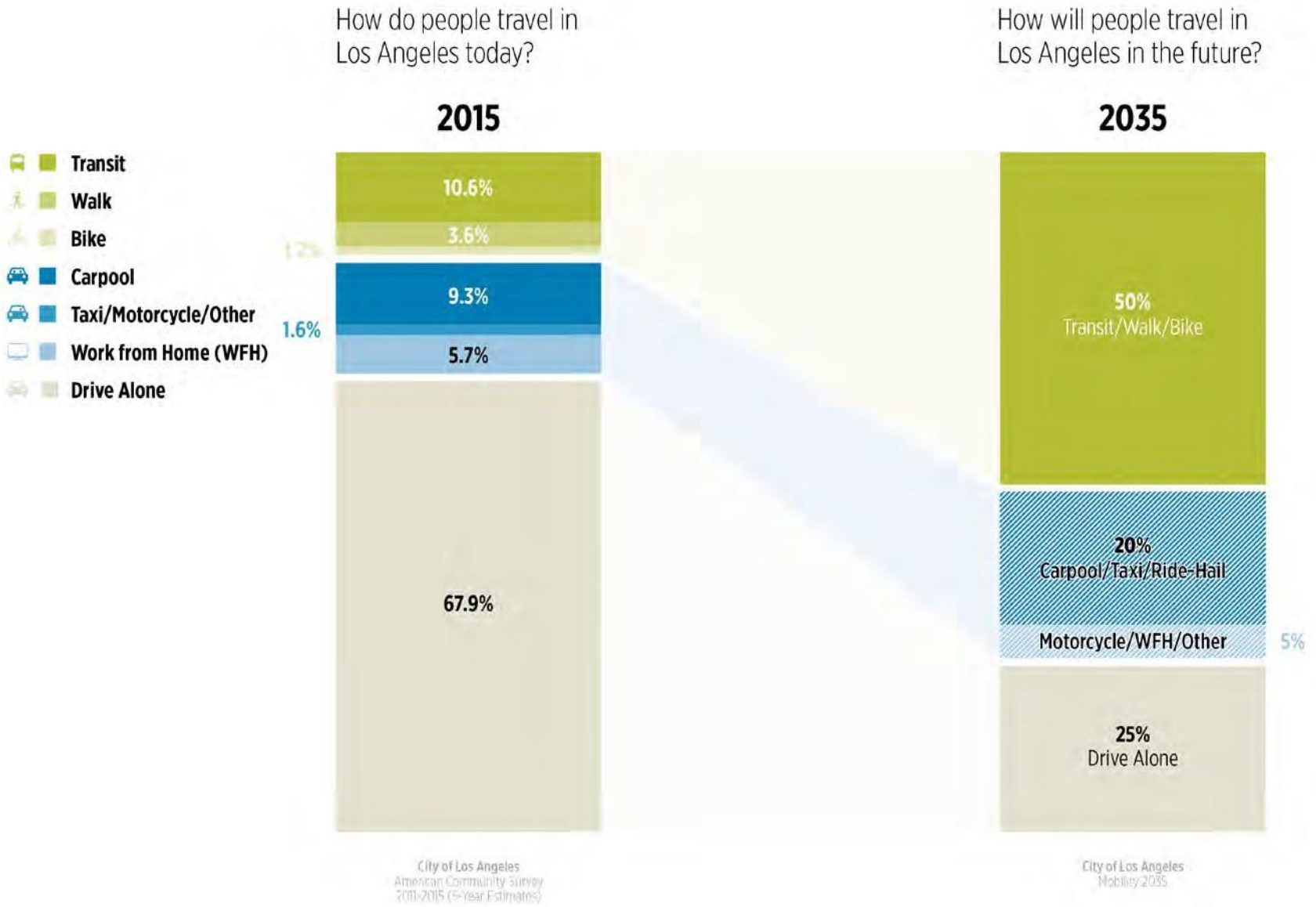
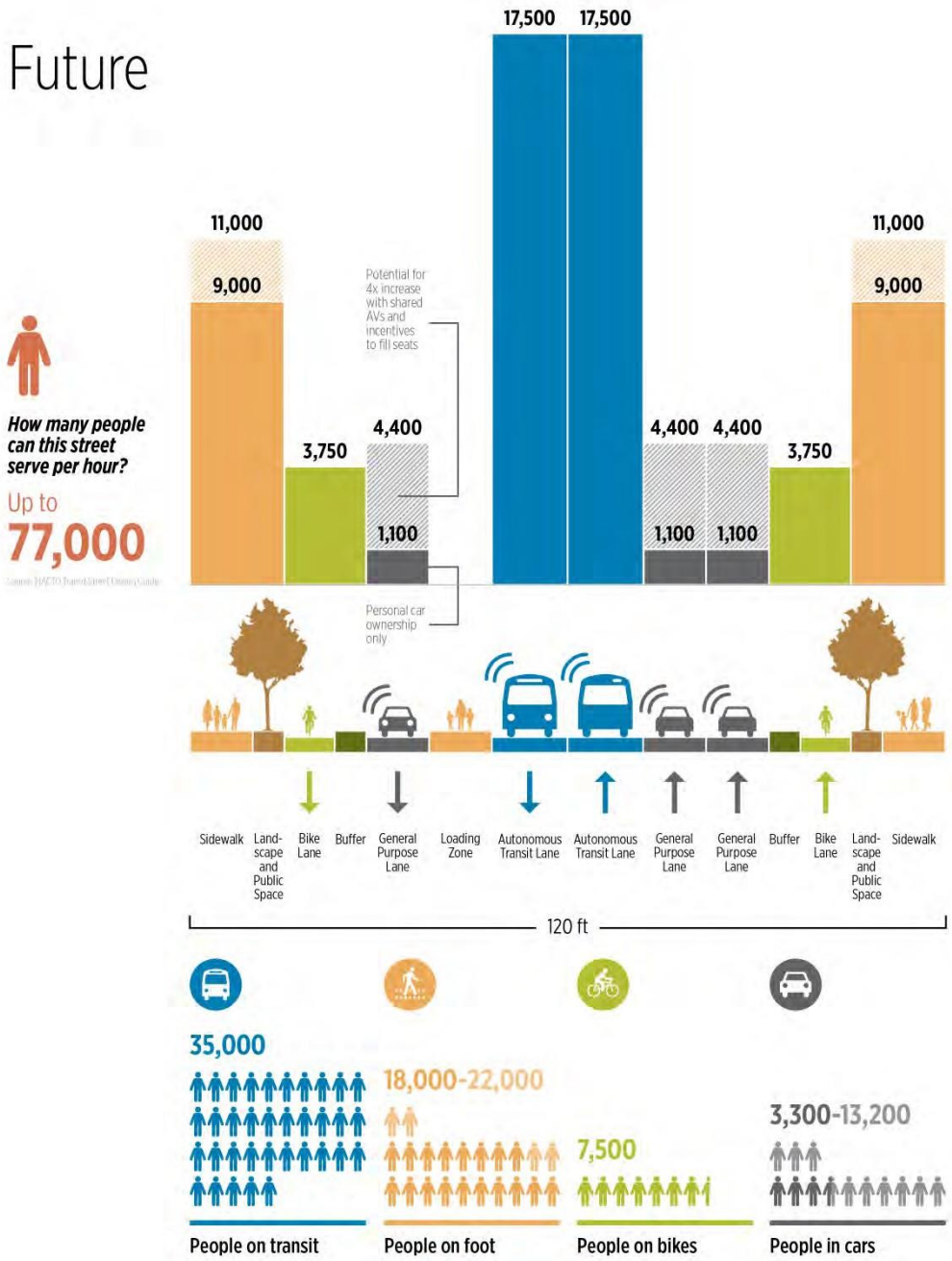

How do people travel in Los Angeles today?
2015
Transit
Walk
Bike
Carpool
Taxi/Motorcycle/Other
Work from Home (WFH)
Drive Alone
1.2%
1.6%
10.6%
3.6%
9.3%
5.7%
67.9%
City of Los Angeles
American Community Survey
2011-2015 (5-Year Estimates)
How will people travel in Los Angeles in the future?
2035
50%
Transit/Walk/Bike
20%
Carpool/Taxi/Ride-Hail
Motorcycle/WFH/Other
5%
25%
Drive Alone
City of Los Angeles
Mobility 2035


Wilshire / Veteran

Future



Fewer, narrower lanes and more people served

Up to 77,000 people per hour

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