San Francisco Mobility Trends Report 2018

San Francisco Municipal Transportation Agency

Jan 28, 2019
San Francisco, California

SFMTA


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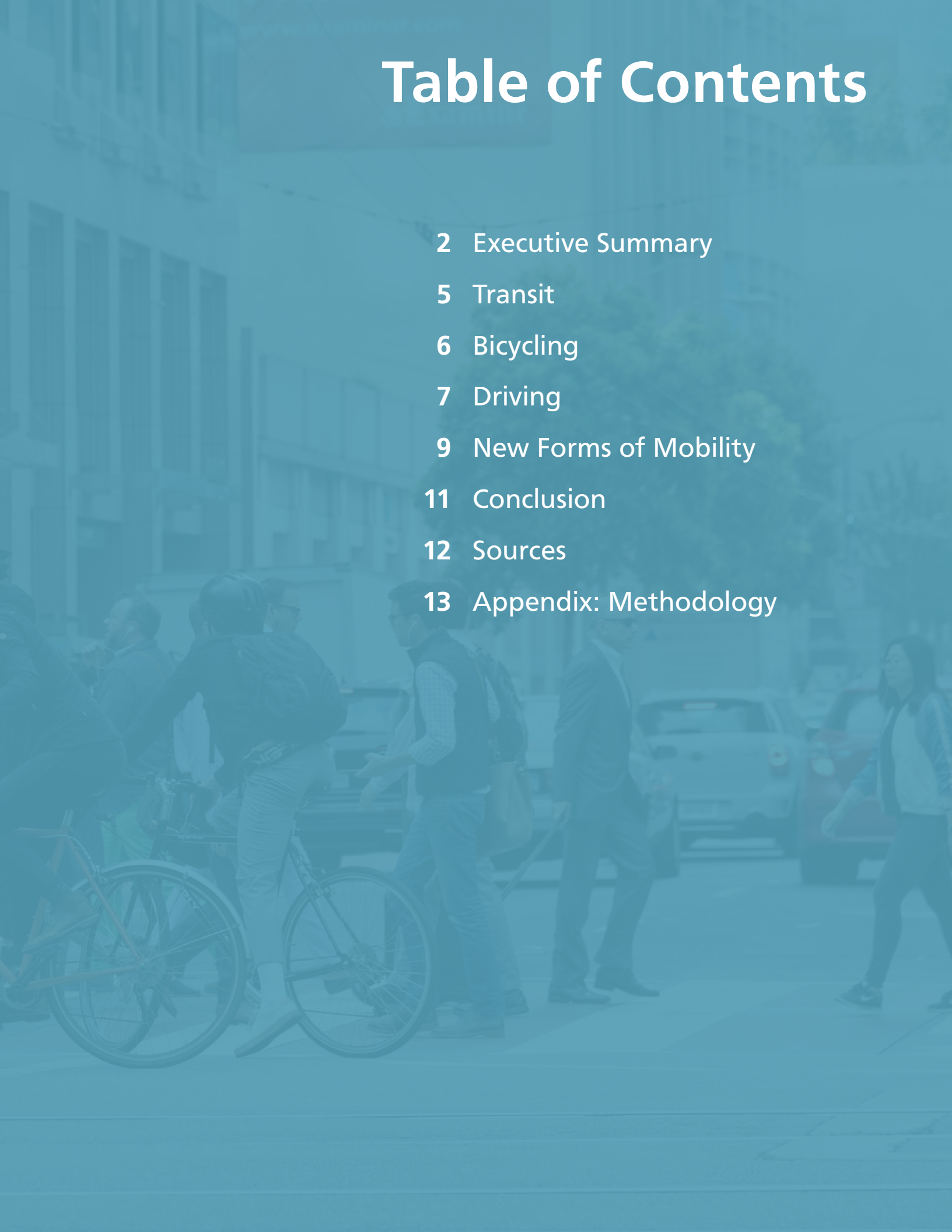


Executive Summary

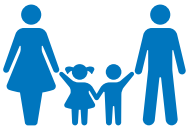
San Francisco Today

San Francisco has grown dramatically since the recession in the last decade. Since 2009, the city has added over 78,000 residents and over 175,000 jobs, outpacing all projections, and now has a population of 883,000 and 720,000 total jobs, all within 49 square miles.

San Francisco is hosting the most residents and jobs in its history, and the city is facing an array of transportation challenges including increased travel demand, greater infrastructure needs, and growing congestion — all against the backdrop of a wide variety of emerging transportation options. To execute its Charter mandated Transit First Policy and achieve the city's new climate action goal, the San Francisco Municipal Transportation Agency (SFMTA) has continued to encourage and promote sustainable modes like transit, bicycling and walking. However, San Francisco is projected to grow even more. Between now and 2040, the City is expected to add another 200,000 new residents and 150,000 new jobs. Further investment in the sustainable modes will facilitate the city achieving its new goal of 80 percent of all trips taken by sustainable modes by 2030 and net zero greenhouse gas emissions by 2050.

This report examines transportation trends over the last decade to show how the transportation sector is changing and helps inform how the city can adapt to the changes.

Since 2010, San Francisco has seen:



Population grow by 9 percent

Vehicular traffic entering San Francisco grow by 27 percent

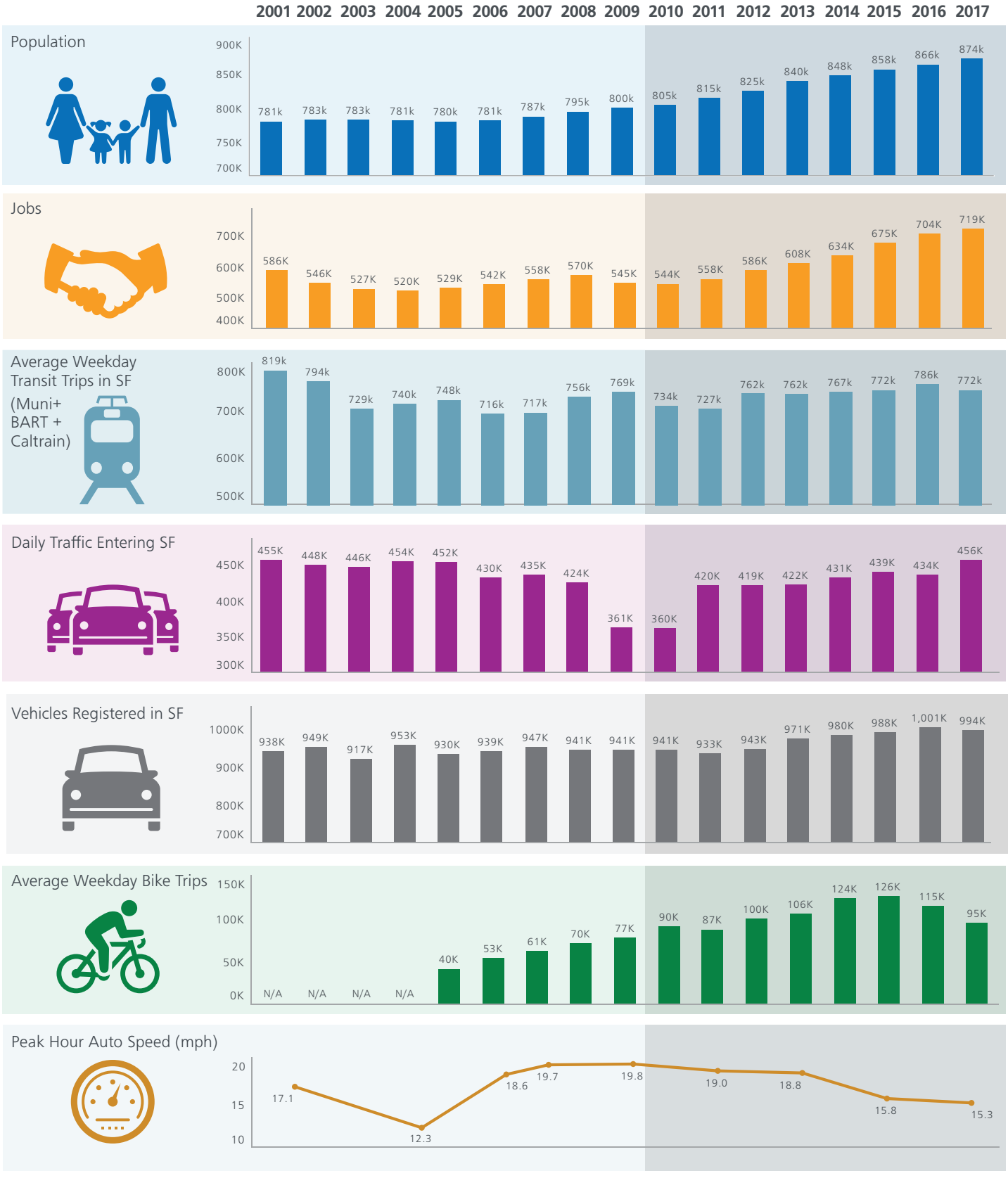
Employment grow by 32 percent, and unemployment drop from 8.5 percent to 2.4 percent

Vehicle registration within San Francisco increase by 6 percent

Transit ridership increase by 5 percent

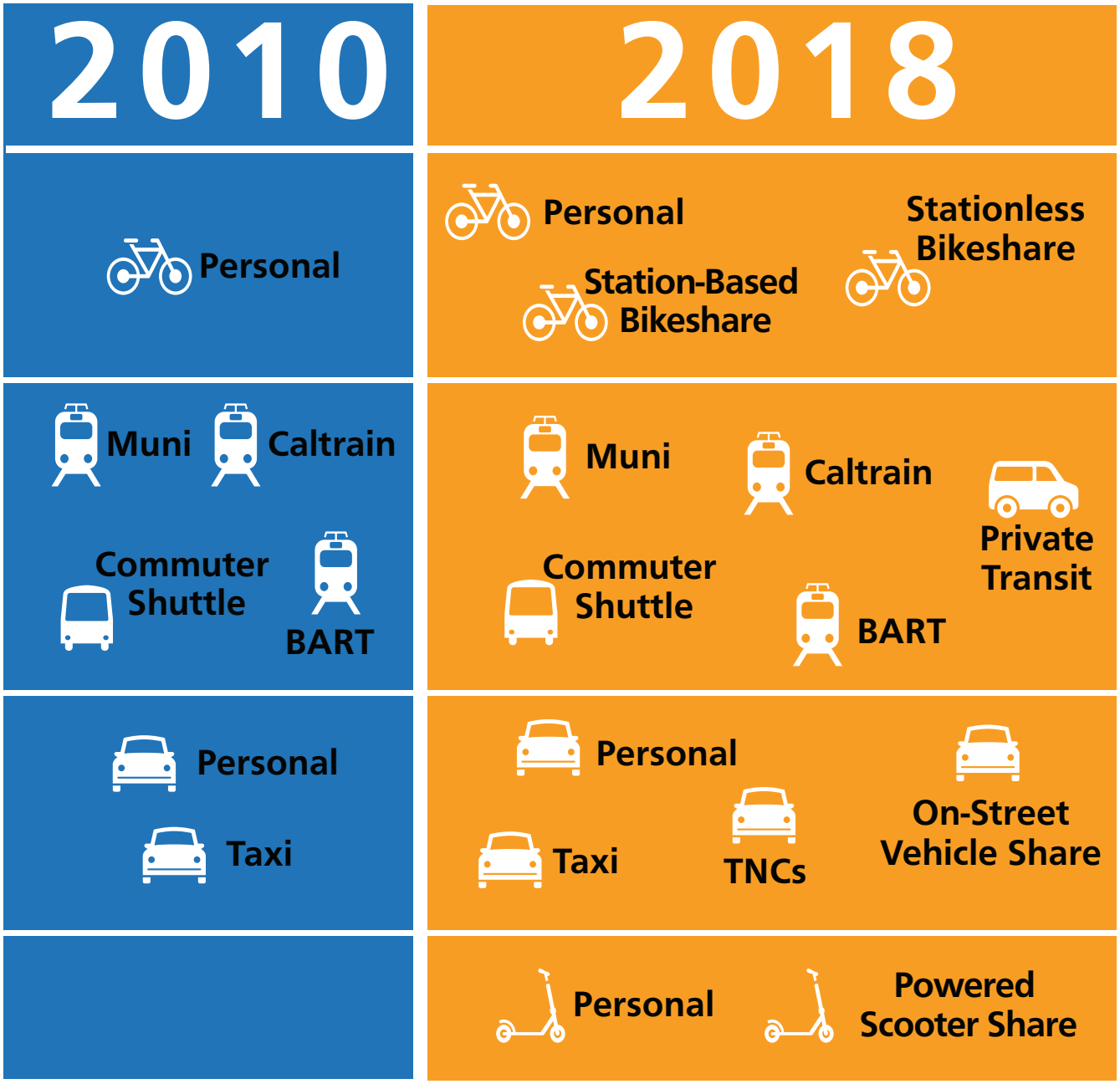
Citywide bike trips increase by 6 percent

Private auto speeds decline by 23 percent


2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
Population
900K
850K
800K
750K
700K
781k 783k 783k 781k 780k 781k 787k 795k 800k 805k 815k 825k 840k 848k 858k 866k 874k
Jobs
700K
600K
500K
400K
586K 546K 527K 520K 529K 542K 558K 570K 545K 544K 558K 586K 608K 634K 675K 704K 719K
Average Weekday Transit Trips in SF (Muni+ BART + Caltrain)
800K
700K
600K
500K
819k 794k 729k 740k 748k 716k 717k 756k 769k 734k 727k 762k 762k 767k 772k 786k 772k
Daily Traffic Entering SF
450K
400K
350K
300K
455K 448K 446K 454K 452K 430K 435K 424K 361K 360K 420K 419K 422K 431K 439K 434K 456K
Vehicles Registered in SF
1000K
900K
800K
700K
938K 949K 917K 953K 930K 939K 947K 941K 941K 941K 933K 943K 971K 980K 988K 1,001K 994K
Average Weekday Bike Trips
150K
100K
50K
0K
N/A N/A N/A N/A 40K 53K 61K 70K 77K 90K 87K 100K 106K 124K 126K 115K 95K
Peak Hour Auto Speed (mph)
20
15
10
17.1 12.3 18.6 19.7 19.8 19.0 18.8 15.8 15.3
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

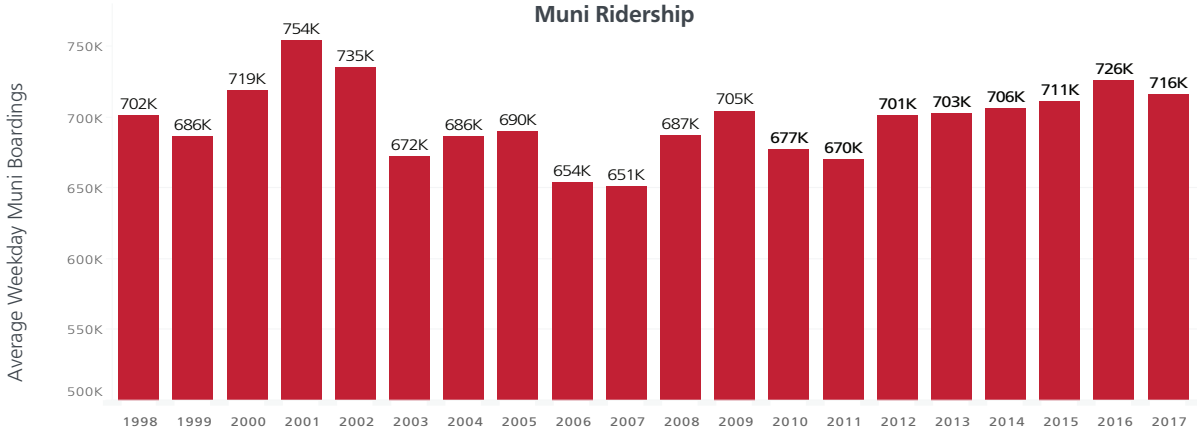
San Francisco has more transportation options than ever

Since 2010, San Francisco has seen a proliferation of new transportation options. These options are primarily enabled by smartphone technology, usually driven by demand in real time, and are privately operated. These emerging options include station-based and stationless bike share services, powered scooter, Transportation Network Companies (TNCs) like Uber and Lyft, privately operated transit, and more.



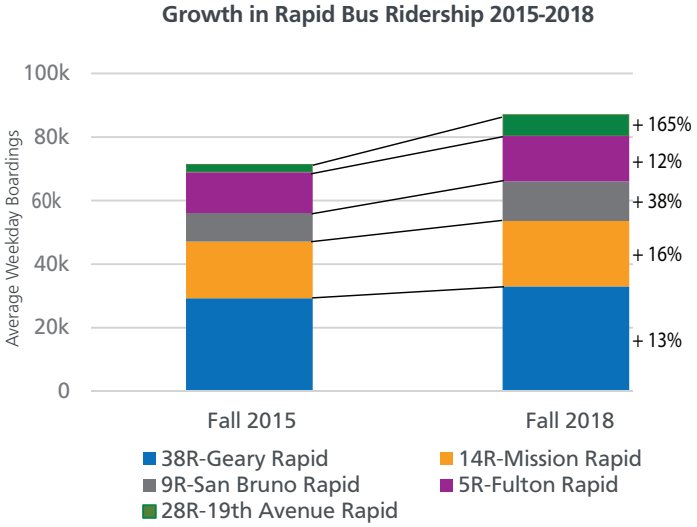
Transit

Public transit remains the backbone of San Francisco's transportation network, despite recent nationwide trends. Transit ridership in the US has declined six percent since 2014, with bus ridership declining nine percent. In 2017, total bus ridership in the United States reached its lowest in the past three decades. However, San Francisco's Muni system has continued to buck the national trends over this period, with ridership holding steady at 716,000 average weekday boardings. This is in part due to improvement the SFMTA has made in the system.



Muni ridership has grown overall since 2010 by 6 percent.

Muni ridership has been growing where the agency made investments. Over the past four years, the SFMTA has implemented some of the most significant service changes in Muni history, including launching the Rapid Network, realigning routes to better meet demand, and improving reliability through travel time improvements. The Rapid network has seen double-digit ridership growth and reliability has improved on corridors such as the combined 9/9R San Bruno. Additionally, Muni service has increased by 20% since 2010.

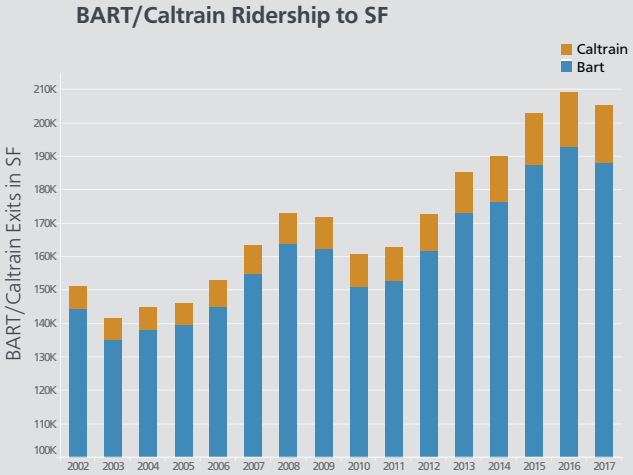


Paratransit

SF Paratransit is an integral part of the city's transportation network, providing door-to-door services to ADA eligible seniors and individuals with disabilities who are unable to access the Muni fixed route system. In 2018, SF Paratransit provided 775,000 trips for 13,000 riders, with over 2,000 trips on an average weekday across various services.

BART/Caltrain

Combined BART and Caltrain ridership to San Francisco has grown by 30 percent since 2010. Caltrain ridership to San Francisco has almost tripled in the last decade and half.



Bicycling

Bicycling provides an environmentally-friendly, healthy, and reliable way for many San Francisco's residents, workers, and visitors to get around the city. According to Census data, bike commute trips in San Francisco increased by 140 percent between 2005 and 2015. It is estimated that 95,000 bike trips were made in the City on a typical weekday in 2017. However, since 2015, there has been a decline in bicycle commuting that corresponds to a similar dip in the national trends. There are a few factors to consider when examining this recent trend:

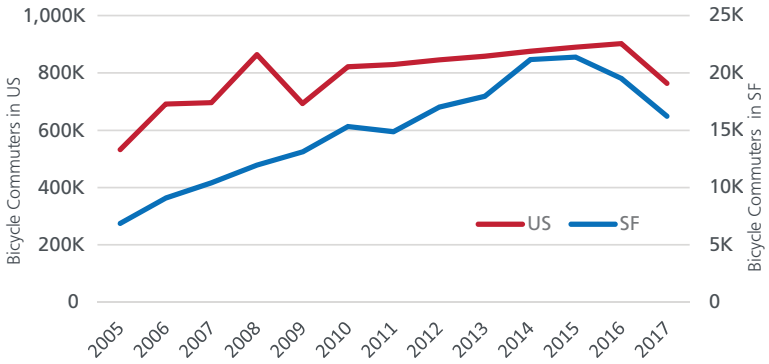
- The trend is based wholly on bike commuting, and only captures the predominant mode in a multi-modal trip. Changes in recreational, personal business, and other non-commute bike trips are not accounted for over time.
- Bicycling is becoming more popular in serving first mile/last mile trips to transit, which is not captured in the commute trend. Between 2008 and 2015, the share of passengers accessing San Francisco BART stations via bike has grown substantially. For example, the share of total riders accessing 16th Street Station has doubled.
- National bicyclist commute mode share started to drop around the same time that global oil prices started to decline.
- Similar to trends in Muni ridership, bike ridership has grown where the SFMTA has made investments, particularly in protected bike lanes that are separated from vehicle traffic using physical barriers like flexible posts, concrete barriers, or street parking.

Nevertheless, the declining trend in commute bicycling is concerning and worth close examination.

Bike Investment & Bike Ridership

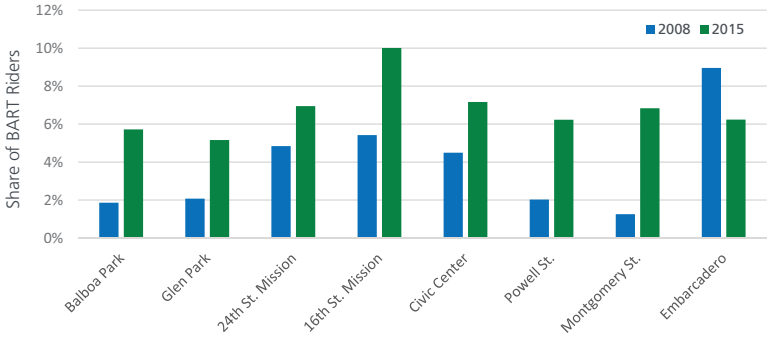
Recent data indicates that there may be a growing preference in San Francisco for protected bike lanes. For instance, since the completion of the Folsom Street protected bike lanes in 2018, bicycle counts have increased by over 20 percent in peak hours without seeing a decline from nearby Market Street. Conversely, the Valencia corridor, which has typically seen high bike ridership since the streetscape project in 2010, saw bicycle counts decline by 10 percent in the last two years. Increasing congestion in the city and an increase in double parking and pick-ups/drop-offs along Valencia make it less desirable for cyclists.

Total Bicycle Commuters, San Francisco vs United States



The share of SF residents commuting by bicycle has shot up since 2011, although it has started to dip in the last few years, mirroring national trends.

Share of BART Riders Accessing SF Stations by Bike



Bicycle access to SF BART stations has increased since 2008.

Bike Projects and Bike Counts Near Project Locations

Bike ridership has increased around areas with new infrastructure

Driving

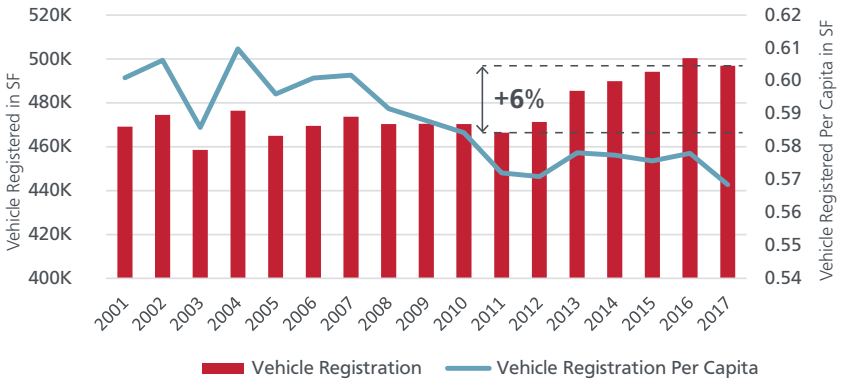
While San Francisco residents may be driving their own cars less, multiple indicators show that overall driving and congestion is growing. Since 2010, vehicle registration per capita has declined by three percent. But since the overall population has grown, the total number of vehicles registered in the city have grown by six percent, adding 26,000 more vehicles.

Since 2010, San Francisco's employment and population have grown, but employment growth has been triple that of population growth.Today, more people who work in San Francisco live elsewhere. As such, traffic entering San Francisco has grown by 27 percent and rebounded to previous levels seen in the early 2000s. The recent growth is driven mostly by Bay Bridge traffic, which was cut in half during the recession. Traffic from the Peninsula, South Bay and Marin County has remained relatively stable over the last two decades.

Additionally, total vehicle miles traveled (VMT) in San Francisco has increased. This includes total mileage driven within San Francisco by residents, commuters from other areas, commercial vehicles, TNCs, and tourists. According to an analysis by the San Francisco County Transportation Authority, total VMT in the city has increased by 13 percent from 2010 to 2016, and given the trends seen in other indicators, it is likely that this has continued to grow into 2018.

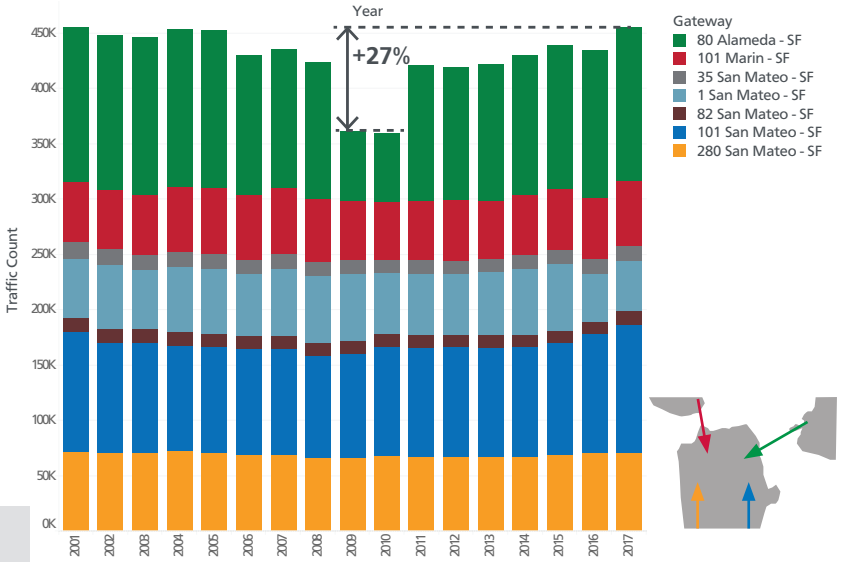
Taxis continue to play an important role in the city's transportation system. Through the SFMTA's program, taxis provide benefits not comparable to other ride-hailing services, such as equity of access to all users including seniors, people with disabilities, and riders without smart phones; a fleet comprised of 95% clean vehicles; and a high level of requirements ensuring safety and rider protection. There are about 9,000 trips taken by Taxi on an average weekday in 2018. In the next year, the SFMTA will track wait times at San Francisco International Airport and total taxi trips starting in San Francisco proper to better measure the effectiveness of taxi service.

Vehicle Registration in San Francisco



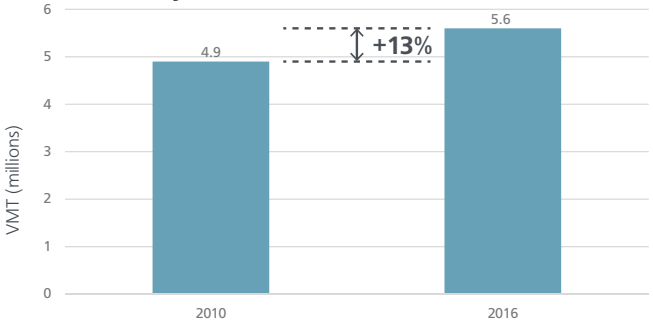
Vehicle registration per capita has declined; however, total vehicles registered in SF has grown due to population growth.

Daily Traffic Entering San Francisco



Inbound vehicle traffic to San Francisco has rebounded to levels seen in the early 2000s

Estimated Daily Vehicle Miles Traveled in San Francisco



Daily VMT within San Francisco has increased by 13 percent to 5.6 million miles driven in 2016.

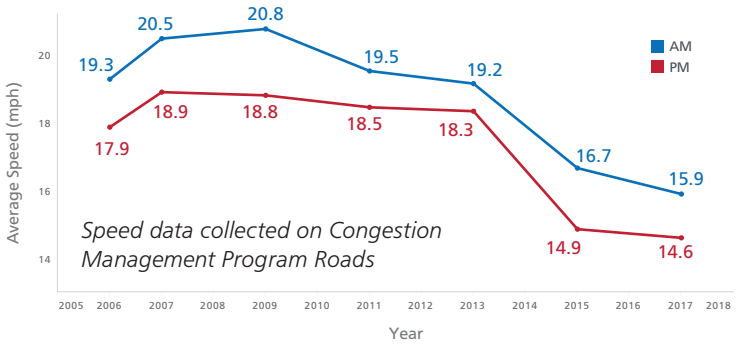
Congestion

As driving has increased, so has congestion within San Francisco. This can mean many things. On one hand, congestion is often correlated with population and employment growth, and is a sign – and perhaps even a result – of a booming economy. On the other hand, congestion is also an indicator of an inefficient use of time and resources. When people must drive within San Francisco, ensuring reliable and reasonable travel times on our streets also supports San Francisco's vibrancy and livability.

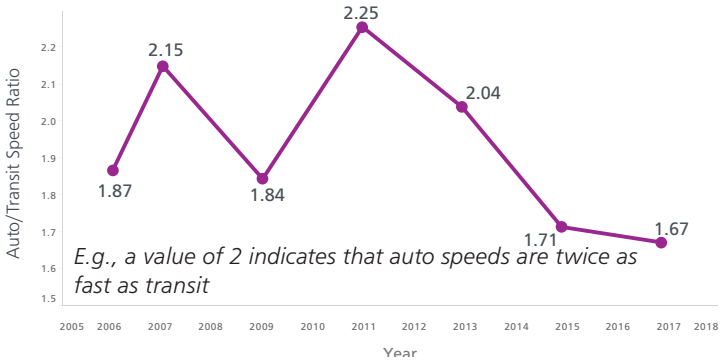
Average auto speed is one measure of congestion, and vehicles are moving slower in San Francisco. Average peak speeds on both freeways and arterial streets (such as Geary Boulevard and Mission Street) dropped by 16 percent in 2015 since 2013 and have continued to slow. However, while auto speeds have steadily declined, transit speeds and transit travel time have remained steady, meaning that transit is getting more competitive with driving than in the past.

Over the next 20 years, San Francisco is projected to add over 150,000 new jobs and 200,000 new residents. This would drive total jobs to 865,000 and overall population to 1.1 million. The city will not be able to sustain a corresponding increase in driving and congestion in the future. Continuous investment in transit, walking and bicycling, as well as adopting further demand management strategies, will allow San Francisco to accommodate the growing demand of travel in a sustainable and efficient way.

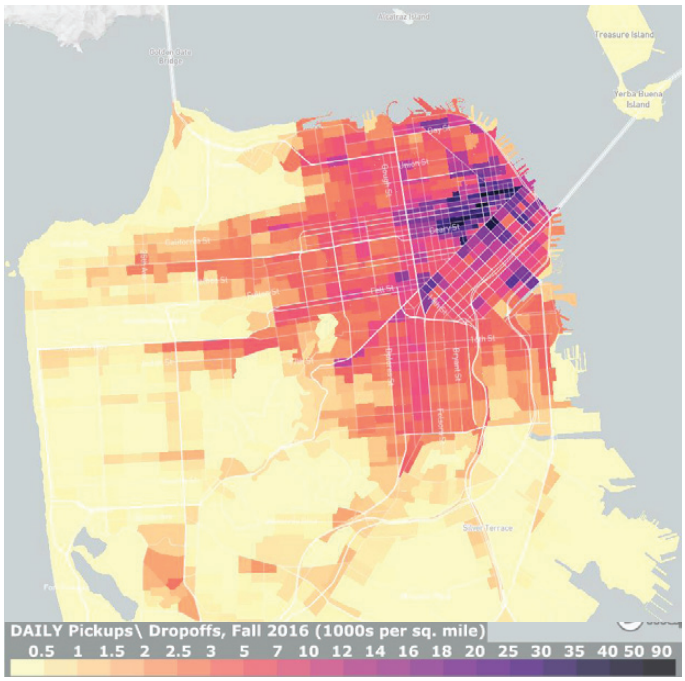
Average Speed (mph)



Auto/Transit Speed Ratio



Distribution of TNC Pickups/Dropoffs



TNC trips are concentrated in downtown San Francisco and SOMA.

Transportation Network Companies

Transportation Network Companies (TNCs) like Uber and Lyft are increasingly common on San Francisco streets. TNC vehicles now comprise a significant portion of traffic in the city, and their usage has increased rapidly. Based on analyses of 2016 data by the San Francisco County Transportation Authority:

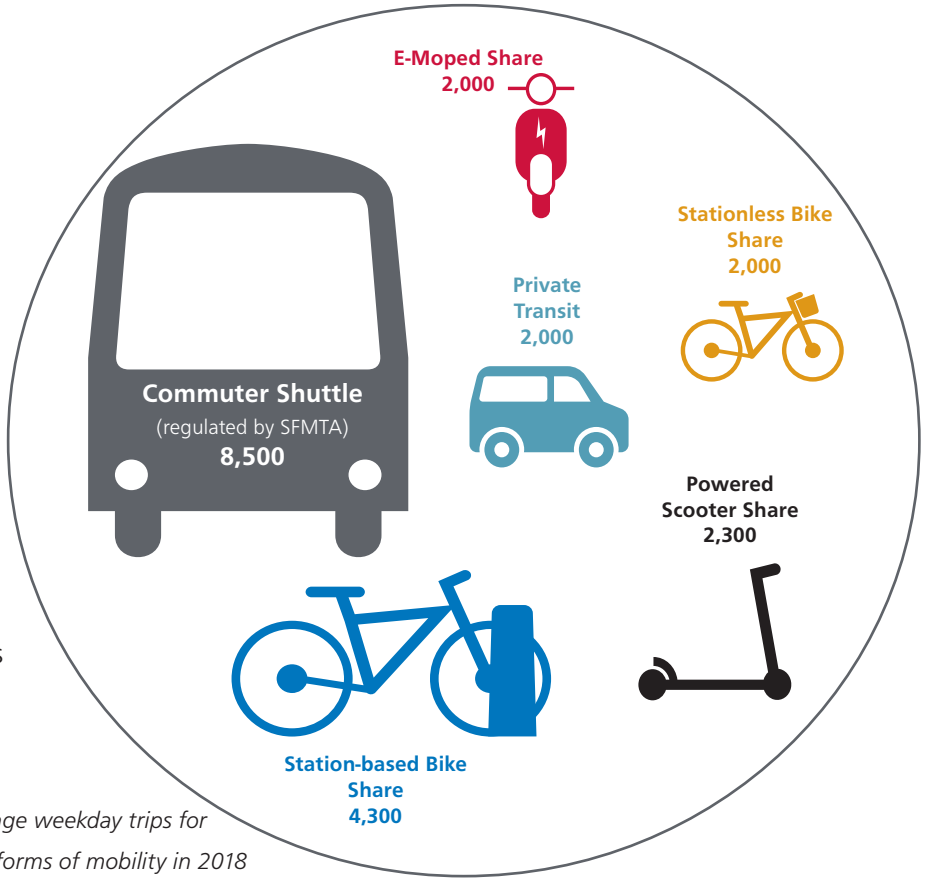
- TNCs make 170,000 daily trips on a typical weekday, representing 15% of all intra-San Francisco vehicle trips
- TNCs make 12 times the number of taxi trips
- 45,000 Uber and Lyft drivers operate in the city
- 5,700 TNC vehicles operate during peak period
- TNC trips comprise about 4 percent of all trips
- TNCs generate 570,000 daily VMT, accounting for 20% of all local daily VMT within San Francisco
- TNCs account for about half of the total increase in congestion in SF between 2010 and 2016, with population and employment responsible for the other half.

A 2018 report from Schaller Consulting indicated that TNC ridership has increased 37% nationwide from 2016 to 2017.

New Forms of Mobility

Transportation options in San Francisco are significantly different today than they were just a few years ago. New technology-enabled services have greatly changed the transportation landscape, and given San Francisco's role in the regional economy, the city continues to be a hub to test and implement these emerging mobility services.

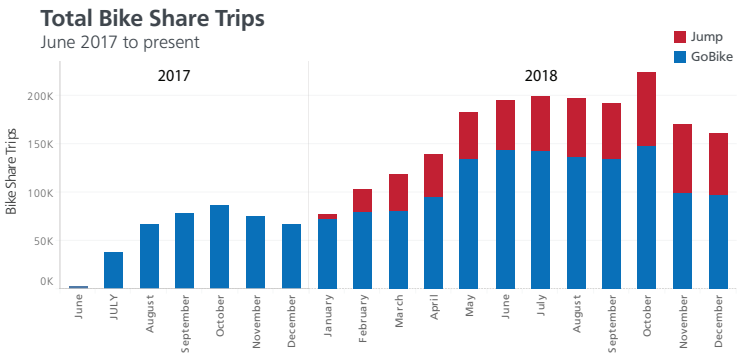
These new mobility services present both opportunities and challenges to the safe and efficient movement of people and goods in San Francisco. They also have the potential to complement further the city's policy goals for achieving 80 percent of trips taken through sustainable modes by 2030 and reaching net zero greenhouse gas emissions by 2050.



Average weekday trips for new forms of mobility in 2018

Bike Share

Bike share continues to grow in San Francisco. In 2017, Ford GoBike expanded upon the previous station-based Bay Area Bike Share system to reach a footprint of over 140 stations and 1,500 bicycles in the city, which has served over 1.5 million trips between June 2017 and October 2018. In 2018, the SFMTA also launched a Stationless Bikeshare pilot permit program, and issued a permit to Jump. Between January and September 2018, the Jump system saw strong growth and served 380,000 total trips. The program sees about 2,200 trips on an average weekday and 15,0000 unique users every month. In October 2018, the SFMTA allowed the Jump footprint to expand from 250 to 500 bikes, which is expected to fuel further growth in trips.



Powered Scooter Share

In 2018, the SFMTA established the Powered Scooter Share Permit and Pilot Program, and issued permits to Skip and Scoot, with a maximum of 625 scooters for each company. Thus far, the program sees about 2,300 trips on an average weekday and about 23,000 unique users every month.

On-street Vehicle Share

The SFMTA has operated an On-Street Shared Vehicle Permit Program since 2011. Currently, there are 202 spaces permitted to Getaround, Zipcar, Maven and U-Haul. Over 2 million car share trips have been made in San Francisco since 2015, and each shared vehicle in an on-street space serves an average of 19 unique users every month. Furthermore, nearly 20 percent of members of these services report selling or donating a car due to availability of on-street car share.

Commuter Shuttle

Certain employers provide privately-operated commuter shuttles to transport employees who live in San Francisco to their workplace, most of which are outside of the city. Many of the commuter shuttle providers participate in the SFMTA's Commuter Shuttle Program that provides access to a network of 100 permitted stops for pick-ups and drop-offs. About 8,500 average weekday trips are taken on the various providers that participate in the program.

Private Transit

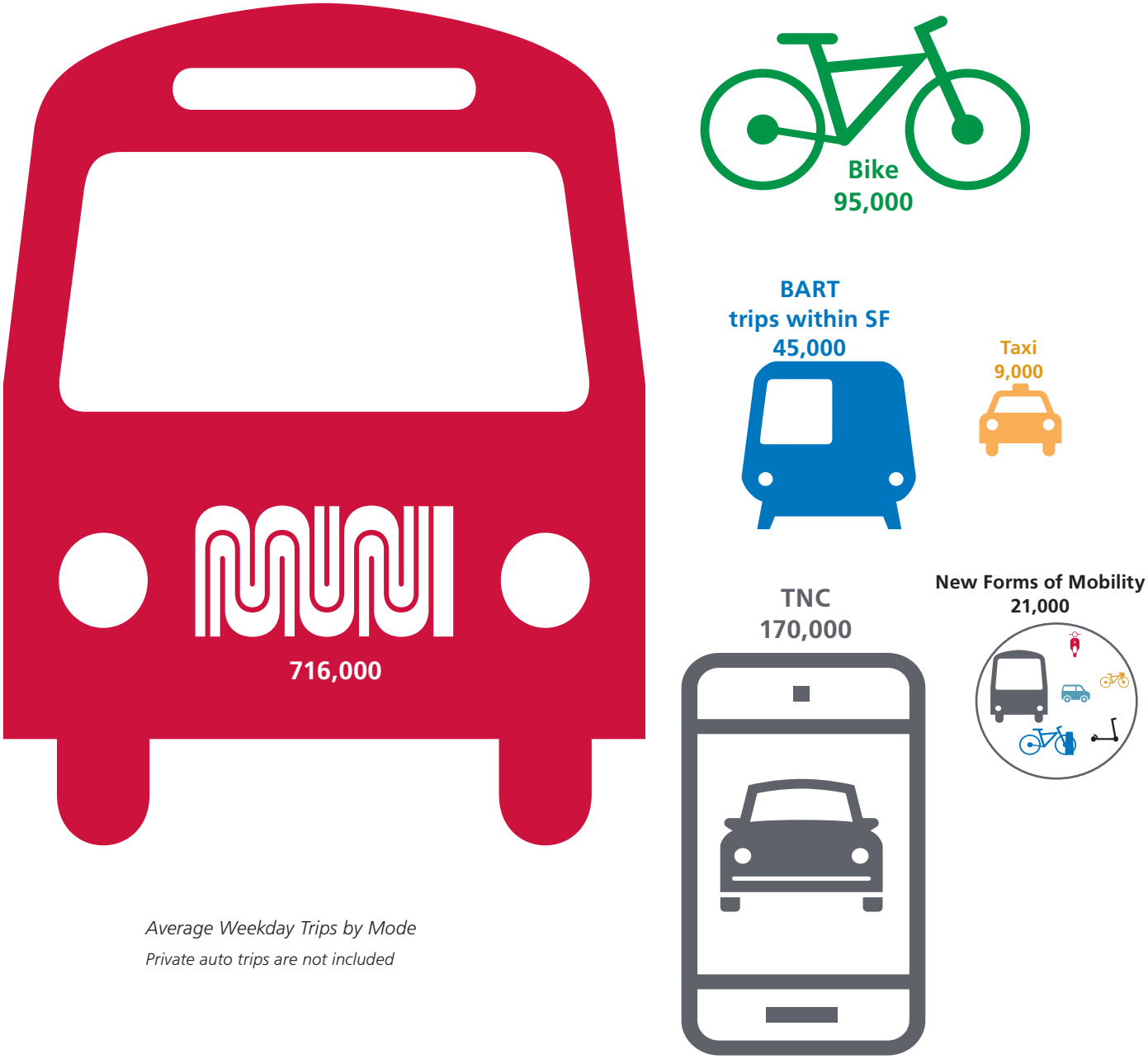
Private Transit Vehicles (PTV) are shared, privately-operated transportation services that are open to the public. In 2017, the SFMTA established a Private Transit Vehicle Permit Program and issued an operating permit to Chariot in April 2018. Chariot operates 12 routes in the AM peak and 9 routes during the PM peak and has seen 266,000 total trips in San Francisco in its first six months of permitted operation. However, Chariot is expected to cease operations in early 2019.

E-Moped

The Shared Electric Moped Parking Permit Program was created in June 2017 to further facilitate the use of this transportation option. Under the program, shared electric mopeds can utilize the small curb spaces between cars or short curb segments between driveways that cannot be used by a typical automobile, which yields more efficient use of curb space. The sole permittee, Scoot, has a fleet of about 550 vehicles that serve about 2,000 average weekday trips.

Conclusion

Besides the services regulated by SFMTA, there are more transportation options in San Francisco that do not participate in regulatory programs. While there has been a significant influx and growth of the new forms of mobility in recent years, their share of total trips in San Francisco remains relatively low. The 21,000 daily trips taken by all the regulated services are dwarfed by other modes such as the 95,000 trips taken on all bikes, the approximately 170,000 trips taken by TNC and the 716,000 daily trips on Muni. As San Francisco's population and employment grows, investing in sustainable modes will be the most effective way to support the system and ensure livability.



Average Weekday Trips by Mode

Private auto trips are not included

Sources

Population: California Department of Finance: Population and Housing Estimates, http://www.dof.ca.gov/Forecasting/Demographics/Estimates/

Jobs: California Employment Development Department: Current Employment Statistics, http://www.labormarketinfo.edd.ca.gov/

Population and Job Forecast: Metropolitan Transportation Commission, Plan Bay Area 2040, https://mtc.ca.gov/sites/default/files/2-The_Bay_Area_In_2040.pdf

Muni Ridership: SFMTA (data is reported by fiscal year)

BART Exits in SF: Bart ridership reports (data is reported by fiscal year), https://www.bart.gov/about/reports/ridership

Caltrans Exits in SF: Caltrain annual count ridership (data is reported by fiscal year), http://www.caltrain.com/about/statsandreports/Ridership.html

Transit Ridership of Systems other than Muni: Federal Transit Administration: National Transit Database (data is reported by fiscal year), https://www.transit.dot.gov/ntd/ntd-data

Estimated Bike Trips: American Community Survey + SFMTA Travel Decision Survey

Share of BART Riders Accessing SF Stations: BART Sttaion Profile Study (home origins), https://www.bart.gov/about/reports/profile

Traffic Entering San Francisco: California Department of Transportation: Traffic Census Program, http://www.dot.ca.gov/trafficops/census/

VMT: SFCTA TNC and Congestion https://www.sfcta.org/sites/default/files/content/Planning/TNCs/TNCs_Congestion_Report_181015_Final.pdf

Auto Speed and Transit Speed: SFCTA Congestion Management Porgram, https://www.sfcta.org/congestion

TNC Trips: SFCTA TNC today, https://www.sfcta.org/emerging-mobility/tncs-today

TNC Growth: Schaller Consulting, http://www.schallerconsult.com/rideservices/automobility.pdf

Trips Taken by New Forms of Mobility: SFMTA

Appendix: Methodology

Traffic entering San Francisco: Traffic entering San Francisco is estimated based on the traffic counts collected on State Highways at San Francisco County lines provided by California Department of Transportation (Caltrans). Estimated total traffic is the summation of northbound traffic observed on US-101 at San Francisco/San Mateo County line, northbound traffic on US-280 at San Francisco/San Mateo County line, northbound traffic on CA-82 (El Camino Real) at San Francisco/San Mateo County line, northbound traffic on CA-1 at San Francisco/San Mateo County line, northbound traffic on CA-35 (Skyline Blvd) at San Francisco/San Mateo County line, westbound traffic on I-80 (Bay Bridge) at San Francisco/Alameda County line, and southbound traffic on US-101 (Golden Gate Bridge) at San Francisco/Marine County line.

Average Weekday Transit Trips in San Francisco: Average weekday transit boardings in San Francisco is estimated by combining Muni ridership, BART ridership within San Francisco and Caltrain ridership within San Francisco.

Average Weekday Bike Trips: Average weekday bike trips is estimated based on the American Community Survey average count/sample of workers who commute by bike, and the Travel Decision Survey conducted by SFMTA. This American Community Survey provides an estimate of total workers (16 years and over) in San Francisco and the share of workers that bike to work. The SFMTA Travel Decision Survey provides an estimate of the share of bicycle travel that is commute-related (34% of bike trips made in San Francisco is commute-related). The calculation of estimated average weekday bike trips for 2016 and 2017 is provided below as an example.

SAN FRANCISCO COUNTY	2016	2017	DATA SOURCE & ASSUMPTION	CALCULATION
Workers 16 years +	500,469	523,364	American Community Survey	
% workers bike to work	3.9%	3.1%	American Community Survey	
Bike Commuters	19,518	16,224	American Community Survey	
Average weekday bike commute trips	39,036	32,448	1 bike commuter makes 2 commute trips a day	= Bike Commuters *2
Estimated average weekday bike trips	114,812	95,435	Travel Decision Survey: 34% of trips are commute trips	= Average weekday bike commute trips/34%

Bike Ridership near bike project locations: Bike ridership near bike project locations is measured by collecting data from a network of automated bike counters, which use sensors embedded in the pavement, and by conducting manual bike counts at key locations around the city. To evaluate effectiveness of bike investment, bike count data collected in weekday peak hours (7am to10am and 4pm to7pm) within quarter mile of project locations before and after project implementation are compared to analyze change in bike ridership.