



04

# Future Conditions



## 4 FUTURE CONDITIONS

Regional growth forecasts and corresponding land use patterns reflect anticipated increases in population, housing, and employment within Stanislaus County. These forecasts inform transportation system improvements necessary to accommodate varying levels of regional growth. The Stanislaus region is expected to continue to grow due to its proximity to major employment areas and its relatively inexpensive land prices and housing costs. Future traffic conditions and regional transportation improvements are developed in conjunction with demographic forecasts of population, households, and employment.

This section highlights the future of the Stanislaus region with regard to population, employment, commute patterns, mobility options, and the resulting growth in travel. As the Stanislaus region continues to grow, future improvements must also be considered within the context of a changing transportation landscape and the potential shifts towards various technology-induced mobility options, such as electric, autonomous, and shared vehicles.

### Demographic Forecasts

Effective planning requires an understanding of both existing conditions and of how the region is expected to change over time. To support these planning efforts, StanCOG is responsible for forecasting the region's demographic trends to inform and guide transportation investments and policy decisions.

These forecasts, including population, household, and employment, form the basis for developing the regional land use plan and transportation investment strategy. The remainder of this chapter explains the process used to develop the demographic forecasts and provides an overview of each of the three forecasts.

#### Forecasting Process

StanCOG, as part of an effort undertaken throughout the Central Valley, participated in the development of a countywide demographic forecast based on the latest federal, state, and local data.

The countywide forecast was published in the 2016 *Stanislaus County Forecast Summary* prepared by the Center for Business and Policy Research at the

University of the Pacific. The forecast considered local conditions and trends, including the recent economic and housing downturn, and state and national trends.

StanCOG has subsequently worked with local agencies within the region to break down the countywide forecasts. In addition to the RTP/SCS component, StanCOG and local agency staff will use this forecast as a basis for other future planning efforts.

#### Forecasts

The countywide forecast totals were used as inputs to establish future year baselines for anticipated growth in each jurisdiction within the region.

**Table 4.1** presents these forecasts. These totals suggest degrees of growth, in terms of population, employment, and housing units, but not the types of growth (e.g., household density, commute patterns, etc.). While the scenarios presented in the 2018 RTP/SCS represent different growth patterns for the region, each scenario remains consistent with the future baseline totals presented in the 2016 *Stanislaus County Forecast Summary*.

**Table 4.1 – RTP Growth**

Year	Population	Households	Employees
2018*	558,039	181,087	187,781
2020	571,139	187,171	192,931
2025	605,040	199,071	203,337
2030	639,754	208,407	212,861
2035	674,019	221,186	222,414
2040	707,554	231,606	231,718
2042*	720,568	235,471	235,307

Source: Stanislaus County Forecast Summary, University of the Pacific, 2016.

\*Year 2018 and 2042 estimates were interpolated.

Although the growth rate slowed slightly due to the recession in 2008, the Stanislaus region has continued to experience growth rates that outpace other areas in the state. By 2042, the County is projected to add approximately 162,500 people, increasing the total population from 558,039 in 2018 to 720,568 in 2042. This represents an anticipated increase of 29 percent. The total number of households is also anticipated to increase at a similar rate, growing by approximately 53,400 from 181,087 units in 2018 to 235,471 (an increase of approximately 30 percent) in 2042. The

employment growth rate is not expected to keep pace with population, especially in the later years of the Plan. The County is expected to add over 47,000 jobs by 2042, increasing the total number of jobs from 187,781 in 2018 to 235,307. This represents an increase of 25 percent, growing at a slightly slower rate than the County's population.

### Population

From 2010 to 2015, Stanislaus County's population grew by approximately 26,000 (or approximately 5 percent over a period of five years) to 540,794. This growth outpaces the growth of San Joaquin County and the State of California, which both grew by approximately 3 percent from 2010 to 2015.

**Table 4.2** shows the population distribution within Stanislaus County for 2015 compared to 2010.

The majority of the population in the Stanislaus region is concentrated along the major highway corridors. The three largest cities in the region—Modesto, Turlock, and Ceres—are located along SR 99 and comprise over 60 percent of the County's population.

The Cities of Patterson and Newman are located along I-5 and comprise just over 6 percent of the region's population. The remaining unincorporated areas account for just over 21 percent of the County's total population.

Although the City of Modesto maintains the largest population share of the County, that share is forecasted to decrease from 39 percent of the County's population in 2015 to 37 percent by 2060. Patterson will see the largest increase in population share, rising from 4 percent of the County's population in 2015 to 6 percent by 2060. As shown in Table 4.2, the population of Patterson is expected to increase almost two-fold by 2042.

### Population Age Dichotomy

The County's traditional small-town atmosphere, availability of affordable housing options, and lower cost of living attracts both seniors and young families, who are also brought in by the high quality of local schools.

**Table 4.2 - Stanislaus County Demographic Forecasts**

City	Current Trend			Future Trend	
	2010 <sup>*</sup>	2015 <sup>**</sup>	2010-2015 Change	2042 <sup>***</sup>	2015-2042 Change
Modesto	201,165	210,341	5%	272,761	30%
Turlock	68,549	72,229	5%	97,375	35%
Ceres	45,417	48,029	6%	65,903	37%
Riverbank	22,678	24,064	6%	33,562	39%
Patterson	20,413	23,067	13%	41,465	80%
Oakdale	20,675	21,902	6%	30,306	38%
Newman	10,224	10,854	6%	15,173	40%
Waterford	8,456	8,909	5%	12,003	35%
Hughson	6,640	7,080	7%	10,101	43%
Unincorporated	110,236	114,319	4%	141,919	24%
<b>Stanislaus County Total</b>	<b>514,453</b>	<b>540,794</b>	<b>5%</b>	<b>720,568</b>	<b>33%</b>
<i>San Joaquin County</i>	<i>685,306</i>	<i>708,554</i>	<i>3%</i>	<i>Estimates not available.</i>	
<i>Merced County</i>	<i>256,800</i>	<i>272,718</i>	<i>6%</i>		
<i>California</i>	<i>37,253,956</i>	<i>38,421,464</i>	<i>3%</i>		

<sup>\*</sup>2010 Source: US Census Bureau, ACS 5-Year Estimate

<sup>\*\*</sup>2015-2060 Source: Stanislaus County Forecast Summary, University of the Pacific, 2016.

<sup>\*\*\*</sup>Year 2042 estimates were interpolated.

As presented in the 2016 *Stanislaus County Forecast Summary*, although the number of individuals in all age groups is expected to grow, the senior population is projected to increase from the smallest group in 2010 through 2025 to the third-largest group from 2030 to 2050. While the population of seniors (persons over 60 years old) represents 19 percent of the population currently, by 2042 this share will increase to 24 percent. In contrast, the population group aged 0 to 19 is expected to decrease from just over 30 percent of the total population to 26 percent by 2042. As a result, it is expected that this will cause shifts in the labor force, the types of housing required, and transportation needs.

### Shifting Racial and Ethnic Diversity

The County's population is projected to be 571,139 by 2020 and reach 720,568 by 2042. While the majority of the County's population is white and below the age of 19, a significant portion of the County's growth is projected to occur within its Asian and Hispanic populations, and within the age group of persons 60 and older. The Hispanic population is projected to become more populous than the White population by 2042.

### Natural Increases

Stanislaus County has a high natural growth rate, defined as total births minus deaths, as the result of a relatively young population and family sizes that are higher than both the State and national average. Factors that attract young families to the area include quality of schools, nearby parks and open space, and affordable large-lot, suburban, single-family home developments.

### Employment

As stated earlier, employment within Stanislaus County is estimated to increase by 47,500 jobs by 2042. Agriculture plays a prominent role in the Stanislaus region and San Joaquin Valley economy. While only approximately 6.9 percent (Longitudinal Employer-Household Dynamics [LEHD], 2015) of the countywide workforce is directly employed in farming operations, a much larger percentage of the workforce is directly tied to the agricultural sector (e.g., those employed in the food manufacturing, transportation, and warehousing industries). Twelve of the 25 largest employers in the region are directly related to the agricultural/manufacturing industry (Employment

Development Department, 2018). Given the need to transport products from Valley farms to markets and ports in other parts of the State, agriculture-related industries depend on a transportation network that provides for the efficient movement of goods.

The role of agriculture is still a key component of employment for the region, but job diversification has been increasing as the population has also diversified. Stanislaus County's role as a source of workers for the Bay Area who live in the region has increased the need for retail jobs to support growing housing numbers.

Other sectors are starting to make gains based on priorities developed in the region to diversify employment and develop jobs that complement the agriculture industry. Successful examples of employment diversification in Stanislaus County can be seen in the development of the City of Patterson as a key warehousing and distribution center. Continued local growth in the transportation, warehousing, and utilities sectors points to the increasing importance of the region as a distribution hub. As a result, the transportation system is expected to play a key role in maintaining the growth and viability of the Stanislaus region's economy. **Table 4.3** presents the employment change by industry between 2010 and 2015.

**Table 4.3 - Employment Change by Industry**

Industry Title	Employment Change, 2010-2015	
	Number	Percent
<b>Total Employment</b>	<b>15,841</b>	<b>11%</b>
Total Farm	2,675	31%
Total Non-Farm	13,166	9%
Manufacturing	545	3%
Transportation, Warehousing, and Utilities	1,305	24%
Professional and Business Services	871	19%
Health Care and Social Assistance	2,341	10%
Leisure and Hospitality	542	43%
Government	1,695	56%

Source: US Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2015).

## Commuters

Located within the Sacramento and Bay Area (Alameda County, Santa Clara County, Contra Costa County, and San Francisco County) commute-shed (approximately 75 miles south of Sacramento and 80 miles east of San Francisco), the Stanislaus region tends to attract retirees, families, and commuters.

With two of the largest employment areas in California within commute distance, the region has become a “bedroom community” for those working in these employment areas.

The cost of commuting, however, has a profound impact on the region, in the form of traffic congestion, increased air pollution, and deteriorating roadways. Moreover, the commute results in increased actual and non-pecuniary costs to individual commuters, including fuel, automobile upkeep, bridge tolls, time away from family, and higher levels of stress.

Like many Valley communities, the Stanislaus region has seen single-occupancy commuting continue to increase over time. According to the 2016 American Community Survey, 80 percent of workers in Stanislaus County drove alone to their jobs. According to 2015 Longitudinal Employer-Household Dynamics (LEHD) data, 44 percent of the population commutes to jobs located outside of Stanislaus County, as shown in **Table 4.4** and **Figure 4.1**.

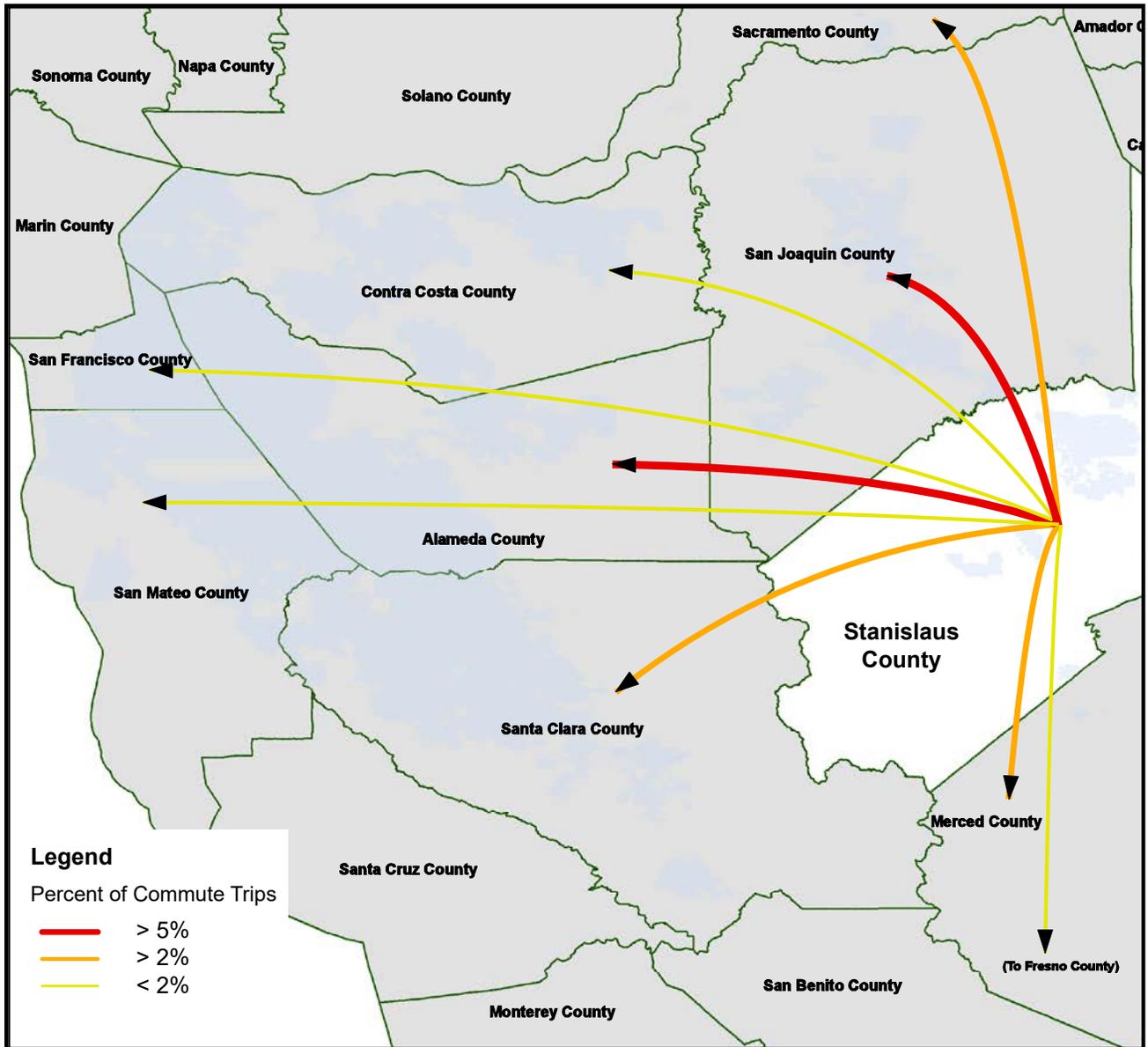
Although many new jobs have been created in Stanislaus County in recent decades, the lucrative job opportunities and the high housing costs of the Bay Area continue to increase the County’s jobs-housing imbalance. While 56 percent of workers in Stanislaus County commute to jobs within the region, 18,000 workers, about 10 percent of total commuters, commute to San Joaquin, and approximately 16 percent of total commuters commute to the Bay Area and Sacramento for their primary jobs. This heavy out-commuting requires the Stanislaus region to make costly improvements to the local and regional roadway systems to meet demand.

**Table 4.4 - Stanislaus Out-of-County Commuter Patterns**

County of Employment	Number of Stanislaus Resident Commuters	% of Stanislaus Resident Commuters
<b>Stanislaus</b>	<b>102,276</b>	<b>56.2%</b>
San Joaquin	18,125	10.0%
Alameda	10,099	5.5%
Santa Clara	8,326	4.6%
Merced	7,768	4.3%
Sacramento	5,035	2.8%
Contra Costa	4,094	2.2%
Fresno	2,935	1.6%
San Mateo	2,334	1.3%
San Francisco	2,307	1.3%
Other	18,717	10.3%

*Source: US Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2015).*

**Figure 4.1 Stanislaus Out-of-County Commute Patterns**



## Housing

The housing stock in Stanislaus County increased by nearly 2.5 percent during the past five years. There were approximately 179,500 units in 2010 (2014 RTP), which reached 184,013 units by 2015 (University of Pacific, 2016). This increase is attributed to the County’s affordable housing selection and its proximity to employment opportunities in the Sacramento and Bay Area. The number of households is expected to increase by approximately 54,000 more units by 2042.

As shown in **Table 4.5**, home sale prices in Stanislaus County are significantly lower than prices in other parts of California. The region also provides a different mix of housing options than the Sacramento and Bay Area. Currently, according to the American Community Survey (ACS, 2016) 79 percent of the County’s housing stock consists of single-family units, 16 percent consists of multi-family units, and 5 percent consists of mobile homes. Under Scenario 2 (Preferred Scenario/Infill Redevelopment), 38 percent of the County’s new housing stock consists of single-family units (30 percent on a small lot; 8 percent on a large lot), and 62 percent will consist of multi-family units.

**Much of the County’s total land area of 1,521 square miles is readily available for development, resulting in significantly lower housing and land prices as compared to Sacramento and the Bay Area.**

**Table 4.5 - Median Home Sales Prices in California**

County	Median Home Sales Price	Percent Difference from Stanislaus
Stanislaus	\$243,500	-
San Joaquin	\$278,400	14%
Alameda	\$656,700	170%
Santa Clara	\$836,800	244%
Merced	\$210,100	-14%
Sacramento	\$301,200	24%
Contra Costa	\$522,500	115%
Fresno	\$220,100	-10%
San Mateo	\$917,600	277%
San Francisco	\$941,400	287%

Source: US Census Bureau, ACS 5-Year Estimate.

## Jobs-Housing Balance

The ongoing trend of commuters migrating to the Valley for housing while continuing to work in other markets has historically led to a jobs-housing imbalance in Stanislaus County. Jobs-housing balance is typically achieved when both the quality and quantity of housing opportunities match the job opportunities within an area, with a resulting ratio of 1. With increases in employment opportunities as of 2015, Stanislaus County had approximately 180,056 jobs and 171,960 households, resulting in a balanced jobs-housing ratio of 1.05 jobs per household. By 2042, Stanislaus County is forecasted to have approximately 235,307 jobs and 235,471 households, resulting in a balanced jobs-housing ratio of 1.0.

To ensure an adequate relationship between jobs and housing within the Stanislaus region, the region must go beyond attempting to simply improve commuter travel times and develop policies to encourage, attract, and retain quality, higher-wage jobs through land use and fiscal decisions that develop Stanislaus County as a desirable location for employers and employees. Strategies to attract a mix of high-tech and industrial manufacturing jobs will rely heavily on providing a higher quality transportation infrastructure and more viable transportation options to make businesses more efficient, as well as providing community amenities that attract new businesses and a highly qualified workforce. To support this, investments have started to be made in amenities such as downtown development projects, performing arts centers, and community parks. These efforts will take time to take root and produce meaningful results.

## Farmland Conservation

Agriculture plays a significant role in the regional economy. As such, the preservation of agricultural land is also of key concern to the region, and balancing land conversion to accommodate growth with the preservation of farmland is particularly important.

Preserving farmland within Stanislaus County is therefore a guiding factor for regional transportation and land use planning within the 2018 RTP/SCS, and is critical to selecting an appropriate vision for the future of the region. Stanislaus County is approximately 956,600 acres in size and has more than 253,000 acres of agricultural land. As regional growth occurs, some of this land is converted to

other agricultural purposes, including grazing land, and other, lower classifications of farmland. Some agricultural land is also converted to other uses, such as residential, commercial, industrial, office, or university land uses. Under Scenario 2, approximately 6,000 acres are converted to these other uses, which is 1,500 acres fewer than Scenario 1 (General Plan Trend/Business As Usual).

### Travel Growth

With increases in population and employment within the region, and the potential for increased commuting between adjacent counties, the amount of vehicular travel is expected to increase. By 2042, Scenario 2 will result in an increase of approximately 2,295,111 vehicle miles traveled daily. This is lower than Scenario 1 (General Plan Trend/Business As Usual), which would result in an increase of 2,318,267 vehicle miles traveled daily by 2042.

The average trip length in 2042 under Scenario 2 is forecasted to be 12.41 miles (17.41 miles for commute trips). In addition, approximately 38.1 percent of all trips will be made in single-occupancy

vehicles (i.e., individuals driving alone in their personal car). By year 2042, pedestrian and bicycle trips are forecasted to account for 2.2 percent of all trips within the County. This is an increase from the current rate of 0.5 percent, estimated by the US Census Bureau (2016), and is due, in part, to the bicycle and pedestrian improvements included in the 2018 RTP/SCS project list.

### Technology Trends

There are several technology trends that have the potential to influence mobility options and transportation infrastructure over the coming decades, several of which are summarized in **Table 4.6**. Phone applications to plan and guide trips, online shopping, on-demand transportation (e.g., Uber, Lyft, etc.), and the continued roll-out of an increasing number of electric vehicles are just some of the trends influencing transportation today. In the future, more significant changes are likely to occur as self-driving cars begin to transport passengers and goods and as big data is harnessed to help manage the transportation system. Over time these transportation trends will not only

**Table 4.6 - Technology Trends Influencing Transportation**

Technology Trends	
<b>Transportation Network Carrier (TNC)</b>	Better known as Uber and Lyft, these companies are already disrupting the Taxi and Transit Industry. Among other effects, they have the potential to address the long-standing challenge of “the last transit mile service”.
<b>Emergence of Tech Companies as Transportation Leaders</b>	Tech Companies have emerged as both significant partners and competitors to public agencies. Areas that Tech Companies are emerging as leaders in include Traveler Information Systems (Google Maps, Apple Maps, etc.), routing and logistics (such as Amazon).
<b>Sharing economy</b>	Although there is debate over what the right name for this phenomenon, its primary transportation influence has been for consumers to access someone else’s goods or services. With the advent of Zipcar and the influence of Uber and Lyft, it is clear that the idea of sharing cars is one that is gaining popularity and will start to influence the number of individually owned vehicles in the future.
<b>Internet of Things (IOT)</b>	Often referred to as “connected devices”, items are embedded with technology that allows objects to exchange and collect data. With the ever-expanding range of items that join the IOT, the opportunity to collect data expands. From a traffic light bulb that notifies that it needs changing, to the multitude of roadway sensors that can count and or measure traffic, the opportunities to advance data streams are nearly boundless.
<b>Big Data</b>	While often confused to just mean “a lot of data” (which it can be), the real power behind Big Data is predictive analytics, or, simply put, better forecasts.

change the way individuals make trips but will also

drive land use decisions and policy, have a profound economic impact, and even influence the way we socialize and interact with each other.

Although the timing, extent, and impact of emerging transportation technologies is debatable, notable change is beginning and will continue to occur. As such, Stanislaus County is beginning to think about how transportation plans and programs may be affected. The following sections include discussion on several of these transportation technologies and their potential influence on the County.

### **Transportation-as-a-Service**

One of the more significant trends in transportation today is the increasing importance of mobility solutions that are not based upon personally-owned vehicles. Some of the better-known examples of these are Transportation Network Carriers (TNCs) such as Uber and Lyft, which provide transportation-as-a-service. While TNCs have primarily been operated by private firms to date, increasingly transit providers are considering how to integrate and/or provide on-demand transportation services to augment existing public systems and extend the reach of their systems to riders that might otherwise be too far from existing transportation hubs.

Transportation-as-a-Service also extends to the sharing economy. With the advent of Zipcar and several major car manufacturers openly planning to move into this market in the future (either in conjunction with autonomous car rollouts or through more conventional options), it is clear that there will be more options for using cars on an as-needed basis (i.e., renting a car by the hour or by the day for individual trips).

One of the primary benefits of Transportation-as-a-Service is the expectation that it will reduce transportation costs for most individuals while increasing the number and availability of transportation options. Depending on how appealing this is to consumers, it could ultimately influence transportation mode selection and reduce the total fleet size of personal vehicles as individual car ownership may become less desirable or essential. In turn this could have an impact on land use and parking requirements as fewer vehicles may be owned by individuals to meet their transportation needs.

### **Autonomous Vehicles**

While only a few years ago Autonomous Vehicles (AV) were still largely considered to be part of a distant future, considerable effort is now being expended across the US to establish regulations for their testing and operation. There is considerable investment being made in AV technology, and, while varying levels of autonomy already exist, several major car manufacturers have indicated they will bring near fully autonomous vehicles to market in the next five years.

As adoption increases system-wide AV transportation impacts will become more significant and noticeable. While we do not have absolute certainty as to what those will be, increasingly the consensus among experts suggests that:

1. Assuming the regulatory environment does not change, automated vehicles will likely cause overall Vehicles Miles Traveled (VMT) to increase in response to (1) reducing the “cost” of driving (time can be dedicated to non-driving tasks); (2) the movement of vehicles with zero occupants between pick-ups; and (3) the ability of some populations who cannot drive to travel more easily by themselves (e.g., the elderly, young, disabled, etc.).
2. New regulations and/or incentives may be necessary to manage congestion if a significant number of new trips are induced by the introduction of AVs.
3. Curbside and right-of-way management will likely be necessary near major pick-up and drop-off locations to maintain safe and orderly traffic operations.

### **Big Data**

While often thought of as simply meaning new or increased data availability, the real power behind Big Data is predictive analytics, or, simply put, the ability to provide better forecasts and information. Newly available data relating to trip origins and destinations, speeds and travel time reliability, and other operational considerations from Global Positioning Systems (GPS) or smartphone apps is changing our knowledge base regarding existing system operations. In conjunction with the availability of this data, analysis is also increasingly being automated, resulting in the ability of agencies to garner a more timely and complete understanding of their transportation systems.

At the same time as significant advances in big data for transportation are being made, the range of Internet of Things (IOT) devices (items embedded with technology that allows objects to exchange and collect data) are also expanding. From a traffic light bulb that notifies that it needs changing to the multitude of roadway sensors that can count and or measure traffic, the opportunities to use data to more efficiently manage the transportation system are significant. Big Data and IOT are expected to have a multitude of positive impacts on the ability to maintain and manage the transportation system.

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