

**DEVELOPMENT OF 2019 SAN DIEGO FORWARD:
THE REGIONAL PLAN**

File Number 3102000

Introduction

SANDAG is updating San Diego Forward: The Regional Plan, and anticipates Board adoption in fall 2019. The updated plan will be known as "2019 San Diego Forward: The Regional Plan" (commonly referenced as the Regional Plan). The framework of the Regional Plan will be built around its vision, goals, and policy objectives. The plan will use these foundational elements to create an integrated set of public policies, strategies, and investments to maintain, manage, and improve the transportation system so that it meets the diverse needs of the San Diego region through 2050.

Transportation currently is undergoing a major shift toward using more technological solutions to meet existing mobility needs and safety concerns. The Policy Advisory Committees and the Board of Directors have discussed potential impacts of emerging technology on the San Diego region and how technological innovations could be integrated into future plans. Since emerging transportation technologies are expected to play a large role in the update of the Regional Plan, staff has developed an outline for a white paper to explore the potential role of technology in the 2019 Regional Plan. The outline also includes information about ongoing efforts related to the Future Mobility Research Program and the Advanced Technologies Urban Area Transit Strategy (AT-UATS), both activities that are summarized in this report.

The Regional Planning Committee is asked to provide feedback on public outreach options to inform or refine the vision, goals, and policy objectives for the 2019 Regional Plan and on the emerging transportation technologies white paper outline.

Discussion**Vision, Goals, and Policy Objectives**

The development of the vision and goals contained in the 2015 Regional Plan was based on the evaluation of feedback received from the Board, Policy Advisory Committees, the public, local jurisdictions, focus groups, working groups, and a regionwide survey. The resulting feedback indicated a preference for prioritizing the economy and job opportunities, maintaining and improving the transportation system, and supporting environmental preservation and healthy communities. The current vision and goals, as adopted in the 2015 Regional Plan, are illustrated on the right and the policy objectives are included below.



To provide innovative mobility choices and planning to support a sustainable and healthy region, a vibrant economy, and an outstanding quality of life for all.

Policy Objectives

The policy objectives for *San Diego Forward: The Regional Plan* provide a broad context in which local and regional decisions can be made that foster a healthy environment, a vibrant economy, and a high quality of life for all. They also provide a framework for specific actions that the region can take to achieve the plan's goals, realize its vision, and measure progress.



Mobility
Choices

- Provide safe, secure, healthy, affordable, and convenient travel choices between the places where people live, work, and play.
- Take advantage of new technologies to make the transportation system more efficient and environmentally friendly.



Regional
Economic
Prosperity

- Invest in transportation projects that provide access for all communities to a variety of jobs with competitive wages.
- Build infrastructure that makes the movement of freight in our community more efficient and environmentally friendly.



Healthy and
Complete
Communities

- Create great places for everyone to live, work, and play.
- Connect communities through a variety of transportation choices that promote healthy lifestyles, including walking and biking.



Habitat and
Open Space
Preservation

- Focus growth in areas that are already urbanized, allowing the region to set aside and restore more open space in our less developed areas.
- Protect and restore our region's urban canyons, coastlines, beaches, and water resources.



Partnerships/
Collaboration

- Collaborate with Native American tribes, Mexico, military bases, neighboring counties, infrastructure providers, the private sector, and local communities to design a transportation system that connects to the mega-region and national network, and works for everyone and fosters a high quality of life for all.
- As we plan for our region, recognize the vital economic, environmental, cultural, and community linkages between the San Diego region and Baja California.



Environmental
Stewardship

- Make transportation investments that result in cleaner air, environmental protection, conservation, efficiency, and sustainable living.
- Support energy programs that promote sustainability.

Input on Public Outreach Options to Inform or Refine the Vision, Goals, and Policy Objectives

The current vision, goals, and policy objectives are the result of the extensive public outreach effort that was conducted for the 2015 Regional Plan. In July, the Board received information on the updated Public Involvement Plan (PIP) for the 2019 Regional Plan, which provides a menu of outreach options to be selected depending on the audiences and evolving circumstances. Examples of outreach practices from the updated PIP include focus groups, public opinion surveys, SANDAG Board and Policy Advisory Committee meetings, public workshops, partnership network with regional community-based organizations to reach low income and minority communities, and web-based interactive communications. Staff is seeking input about what additional public outreach options are desired to further inform/refine the Vision, Goals, and Policy Objectives for the Regional Plan update.

White Paper Updates

For the 2019 Regional Plan, staff proposes to revisit and update the 2015 white papers, which focused on public health, economic prosperity, climate change and adaptation, and emerging technologies. A proposed outline of the Emerging Transportation Technologies White Paper is included as Attachment 1 of this staff report and described below. Two new efforts, also described below, will help inform the Emerging Transportation Technologies White Paper.

Emerging Transportation Technologies White Paper

Based on the premise that better information yields better planning, the Emerging Transportation Technologies white paper will seek to enhance the understanding of transportation technologies so that the Regional Plan can better anticipate their implications on transportation investments and operations. More specifically, the introduction of connected and/or autonomous vehicles (CV/AVs) is predicted to be so significant that it will require planners and decision makers, alike, to rethink various capital investments, operations assumptions, as well as the interactions between transportation and land use.

Automakers and private mobility providers are introducing pilot programs and announcing partnerships at a rapid pace, fueling the advancement of transportation technologies. This revolution is disrupting transportation services as we know them today and placing cities and regions at the forefront of these changes. The objective of the Emerging Transportation Technologies white paper is to delineate potential assumptions that could be made in the Regional Plan about the adoption and application of technologies to improve transportation network decision-making. The draft white paper outline is included as Attachment 1, and will be supplemented by information resulting from the efforts described below. Staff is seeking feedback on the draft outline.

Future Mobility Research Program

In tandem with the development of the white paper, the four largest Metropolitan Planning Organizations (MPOs) in California (SANDAG, Metropolitan Transportation Commission, Sacramento Area Council of Governments, Southern California Association of Governments) have partnered to establish the Future Mobility Research Program with the purpose of jointly conducting research on the potential impacts of transportation technologies, and identifying policy issues and appropriate roles for the MPOs in relation to emerging transportation technologies.

This cooperative effort ensures a consistent approach for evaluating the range of potential changes to travel behavior associated with emerging technologies, and will provide recommendations on how

to model travel behavior and incorporate technology into Regional Transportation Plans and Sustainable Communities Strategies. The Emerging Transportation Technologies white paper will be informed by findings of the Future Mobility Research Program related to identifying technologies that are disrupting transportation planning and recommending analytical methods for evaluating these technology innovations and supportive programs for future plans.

Advanced Technologies Urban Area Transit Strategy

Additionally, the Urban Area Transit Strategy, first developed for the 2011 Regional Transportation Plan, is being updated to look at existing and emerging transit technologies and their applications to operational improvements, first/last mile solutions, and transit opportunity areas. A primary focus of the update is to better understand how advanced technologies would influence the interconnectivity of modes and maximize use and need of major trunk transit routes. The AT-UATS would seek to understand how transit could adapt to incorporating possible options such as autonomous transit vehicles, flexible/ on-demand routes, integration with ridesourcing, or on-demand ridesharing companies (Uber, Lyft), and how new technologies could help enhance transit service within the urban core. Consideration will be given to the benefit of operations technologies (e.g. Universal Transportation Accounts) and their impact on the regional transit system. The study also will discuss potential co-benefits of combined transit technology applications. Similar to the Future Mobility Research Program, the AT-UATS will inform the development of the Emerging Transportation Technology white paper where feasible. The scope of work for the AT-UATS study includes the following key topics:

- Development and evaluation of network alternatives including low and high levels of technology components (the following is a list of potential transportation technologies that could be applied, at varying degrees, to help shape the transit component of the transportation networks.)
 - CV/AV technology to be deployed with Shared Mobility Services and public transit
 - Mobility Hubs
 - Roadway infrastructure and capital investment strategies that enhance a technology alternative.
 - Transportation Demand Management or Intelligent Transportation Strategies or programs that could enhance the alternatives.
 - CV/AV technology solutions that could increase the overall capacity of Managed Lanes/Express Lanes
 - Transportation Network Connections or a “smart system” that could recognize the interconnectivity of other modes and associated benefits of interconnectivity (health benefits, cost savings, travel time savings, etc.).
 - Transit Signal Priority (Smart signals, signal interconnect, adaptive signals)
 - Freeway Shoulder Use with Technology Assistance (Smart Meters, overhead changeable or variable message signage)
 - Optimizing trunk services (COASTER, SPRINTER, Trolley, *Rapid*) with flexible services from ridesourcing companies

- Restructuring existing transit infrastructure to support technology innovations
- Universal fare systems
- Zero emission vehicles
- Development of capital and operating costs for network alternatives
- Expert panel to review and provide input on draft study findings

Next Steps

The Board also will be asked for input on outreach options to inform or refine the vision, goals, and policy objectives for the 2019 Regional Plan as well as input for the Emerging Transportation Technologies white paper outline in September 2017. The draft white paper, as well as white papers on other topics, would be presented to the SANDAG working groups, Policy Advisory Committees, and Board, as well as to interested stakeholders and the public, in fall 2017 and winter 2018, to help inform the update of the Regional Plan.

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Attachments: 1. Emerging Transportation Technologies White Paper – Draft Outline

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Emerging Transportation Technologies White Paper – Draft Outline

Background and Need

The pace of technology is moving more rapidly than anyone could have predicted. In the early 20th century, it took nearly 75 years for evolutionary technologies such as the telephone or automobile to reach market penetration. Today revolutionary technologies, like the cell phone and smart phone are being absorbed by the market at a far quicker rate. As of 2016, 95 percent of Americans owned a cell phone and the number of Americans that own smartphones is 77 percent, up from 35 percent according to a 2011 Pew Research Center survey¹. Technology is influencing every aspect of our lives including how we travel. On-demand mobility services, like Uber and Lyft, did not exist a decade ago but now these services are available in hundreds of cities across the world disrupting the transportation industry. Additionally, nearly every major auto manufacturer in the world is racing towards production of autonomous vehicles (AVs) anticipating to have AVs commercially available as early as 2020. To the extent possible, planning for technology today will help the region prepare, adapt, and benefit from technology in a comprehensive and coordinated fashion. The objective of this white paper is to outline potential assumptions that could be made in the San Diego Forward: The Regional Plan (Regional Plan) about the adoption and application of technologies to improve transportation network decision-making.

Sections

The following represent some of the major transportation disruptors that may have the greatest impact on mobility and long-range transportation planning processes.

Transportation Disruptors

1. *Shared Mobility Services*: New transportation models and changing attitudes on mobility present significant opportunities for shared mobility to expand and private automobile ownership to decline in the United States. One of the major unknown factors surrounding shared mobility is how local/state governments will regulate these services in terms of Americans with Disabilities Act accessibility, geographic coverage, parking, and data sharing to name a few. Other unknowns include how autonomous technology will influence these services.
 - On-demand ridesharing services (e.g., Uber, Lyft) link passengers with available drivers based on a trip's origin and destination while determining the most efficient route. These services have largely spawned as unregulated entities through which regulations came after they were in operation. While the future of these services is unknown, their popularity continues to grow and their business model is expanding into areas including pooled trips, subscription services, and even food delivery. As the popularity of these services grow, so do concerns about the impact they might have on traffic congestion, curb space, and transit ridership. To address these concerns, public agencies are beginning to establish partnerships and demonstration projects that attempt to use these services to bridge gaps in the existing public transportation network and reduce reliance on the private automobile. Additionally, Uber and Lyft's recent investment in the advancement of vehicle automation could speed the

¹ Pew Research Center. "Mobile Fact Sheet". <http://www.pewinternet.org/fact-sheet/mobile/> (January 2017)

adoption of AVs, lowering the cost of ridesharing service and potentially reducing vehicle ownership, especially in the most urban areas.

- Bikesharing is relatively new to the United States but has experienced substantial growth in the past decade with new models of publicly and privately operated bikeshare services emerging. Though various models exist today, the most successful bikeshare programs are in urban cores or activity centers and purposefully integrated with the larger public transportation system to provide a convenient first/last mile solution.
 - Carshare and scooter share services offer access to motorized, neighborhood-based vehicle fleets 24 hours a day, seven days a week. Websites or mobile apps help users locate available vehicles within a specified service area that may include transit stations. These services provide connections beyond the first/last mile while offering viable alternatives to personal vehicle ownership. Various service models exist that may require policy changes to re-allocate curb space. One unknown factor is how automated vehicles will affect the prevalence of personally operated shared services.
 - Microtransit services provide a flexible mobility option for a group of travelers. Often targeting peak period commute travel, microtransit can supplement fixed-route transit services by offering a demand-based mobility option in areas where high frequency transit is not warranted or too costly to operate. These services obtain mobile app ride requests from passengers and directs them to meet at a common location or at specified points along the vehicle's route. Examples include the Free Ride Everywhere Downtown (FRED) service in downtown San Diego, the Bay Area's Google Bus for Google employees, and other currently operating private microtransit companies like Chariot, Lyft Shuttle, and Via. The long-term viability of these services is not clear.
 - Mobility as a Service (MaaS) is an emerging concept that supports the integration of public and private shared mobility services into a single smartphone platform for trip planning, trip booking, and payment. Many unknowns exist as to how this model could work given the complexities around data sharing, integrated payment systems, and ensuring equitable access for all populations. However, if MaaS is achieved, it could completely transform transportation with an integrated system of door-to-door shared services that are affordable, accessible, and convenient.
2. *Zero-Emission Vehicles (ZEVs)*: By taking advantage of opportunities to implement existing and proven alternative fuels and vehicle technologies, the San Diego region can realize the significant benefits of decreasing its reliance on petroleum-based transportation fuels. Alternative fuels include electricity, biofuels, hydrogen, natural gas, and propane. As more research and subsequent outreach on alternatively fueled vehicles and their energy sources emerges, local governments and regional stakeholders can help support the deployment of both the vehicles and fueling infrastructure needed to reach critical mass within the market. While ZEVs are evolving at a fast pace in terms of charge/refuel time, range, and retail and maintenance costs, the viability of alternative fuels and vehicle technologies are expected to become increasingly evident as adoption grows. Innovative vehicle fueling technologies could significantly alter the auto industry and reduce the environmental impact of transportation in the United States. However, the impact of clean energy vehicles on vehicle miles traveled (VMT) is still to be determined.

3. *Connected Vehicles:* Although the technology of fully connected cars has not been developed or deployed, there have been many speculations on the potential costs and benefits they might have on society. Many aspects of how connected vehicles will be deployed remain unknown including: how they will interact with different landscapes, what changes will need to happen within the built environment of cities, and how connected vehicles will be protected against cyber security threats. The incorporation of connected vehicles into the vehicle fleet will present an opportunity to rethink traditional ideas about roadway capacity yielding an opportunity to improve network efficiencies. It also is anticipated that connected vehicles could dramatically reduce injuries and fatalities associated with automobile crashes.
4. *Autonomous Vehicles:* In the past decade, the speed and volume of technology developing around driverless vehicles has been vast and seen across many industries. There are major unknowns surrounding AVs – when they will be commercially available, rates of adoption and market penetration, whether they will be introduced in shared fleets or exacerbate VMT, what federal regulations will exist around them, how this technology will handle moral situations, and which party will be liable if there is a collision. Further, the way in which AVs are deployed and regulated is anticipated to be a major influence on the transportation system, parking demand, land use, and goods movement.

Development of Key Findings for Inclusion into the Regional Plan

The key findings from the white paper will be integrated into the 2019 Regional Plan. This may include sharing how the mobility landscape is evolving rapidly and how this may impact planned investments (both capital and operations) necessary to absorb these changes. Findings from the white paper can reflect potential positive and negative impacts of emerging technologies, policy considerations, and opportunities to integrate combinations of transportation disruptors into the suite of transportation modeling tools.

Benefits and Risks of Emerging Technologies

Many unknowns still exist about the implications of technology on transportation. Developing an understanding of when these technologies will reach critical mass and the potential impacts they will have on mobility and land use will be relevant for regional transportation decision-making. These services are changing the way we travel, how we travel, and when we travel, yielding both positive impacts and unintended consequences. The white paper could explore the assumptions we can reasonably make about the adoption of these technologies and include a discussion of the opportunities and challenges that will need to be considered.

Policy Considerations

In order to maximize future benefits and minimize potential negative impacts, various policies could help shape the implementation of emerging technologies into our transportation system. This section could explore opportunities for policies, partnerships, and investments that will encourage innovation and private sector involvement while protecting the public good.

Integration of Emerging Technologies into Transportation Models

The integration of emerging technologies into regional travel demand modeling can estimate benefits or consequences of various technologies through the use of performance metrics. Given the

uncertainty of vehicle and system functionality related to these technologies, a range of applications can be explored as well as potential combinations of these elements into possible transportation network scenarios. This work could include testing variables related to the transportation disruptors including personal value of time, auto ownership predictions, operating costs changes, vehicle congestion and delay, and corridor throughput.

Integration with the Future Mobility Research Program and Advanced Technologies Urban Area Transit Strategy

The white paper will describe the integration of these two parallel activities with Emerging Transportation Technologies. These efforts, as they develop, will help shape how the various transportation technologies are evaluated in, and incorporated into, the Regional Plan.

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