



MEMO

TO: City of San Diego
FROM: WSP (Rick Curry, Tara Lake, and Sara Khoeini)
SUBJECT: Making Progress Towards Mode Share Goals (H197127)
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Making Progress Towards Mode Share Goals

1. GENERAL PLAN REFRESH (BLUEPRINT SD) OVERVIEW

The City of San Diego's (City's) 2022 Climate Action Plan (CAP) identifies an ambitious goal of achieving net zero greenhouse gas emissions by 2035. The on-road transportation network is the City's largest source of greenhouse gases (GHGs) and represents approximately 55 percent – over half – of the City's emissions. To address transportation-related emissions, strategy 3 of the CAP identifies mobility and land use as a key strategy and sets a 10 percent bicycle, 25 percent walking, and 15 percent transit mode share goal for all daily trips by 2035.

The General Plan is the City's guide for future growth. The General Plan is based on a City of Villages strategy, which focuses growth into walkable, mixed-use activity centers that are connected through a regional transit system. The Draft General Plan Refresh updates the General Plan to address CAP goals and reflect updates in the regional transportation network identified by the San Diego Association of Governments (SANDAG).

Blueprint SD is a key component of the Draft General Plan Refresh and identifies the best locations for growth, in partnership with the implementation of the City's mobility goals and strategies, to attain the CAP mode share goals. Blueprint SD identifies the most receptive locations that support biking, walking, and transit usage based on the Regional Travel Demand Model and maximizes achieving CAP goals. The City can achieve the CAP Strategy 3 goals through the Blueprint SD land use strategy and mobility investments and programs that address travel behavior. The Blueprint SD land use strategy is the maximum extent feasible land use scenario that - when combined with other mobility implementation strategies, which are part of the Draft General Plan Refresh - can achieve the mode shift goals of the CAP.

2. BLUEPRINT SD METHODOLOGY SUMMARY

The Regional Travel Demand Model is maintained by the San Diego Association of Governments (SANDAG). As a part of Blueprint SD, a series of sensitivity tests were conducted on the Regional Travel Demand Model to identify variables that most significantly affect biking, walking, and transit usage. The variables identified through sensitivity testing include:

- Dwelling unit density
- Retail employment density
- Mixed-use density
- The competitiveness of transit services
- Proximity to high-quality transit stops

These variables then informed the Blueprint SD optimization process, meaning that this process identified where increased land use densities and intensities throughout the City are needed to achieve the CAP mode share goals.

The Blueprint SD prediction model was created from the outputs of the existing Travel Demand Model. All variables were optimized for biking, walking, and transit usage for each Master Geographic Reference Area (MGRA¹) within the city.

Locations where dwelling unit density and retail employment density showed the highest likelihood for biking, walking, and transit usage were identified first. Preliminary ranking scores based on the likelihood of each area to support biking, walking, and transit usage were generated for each MGRA.

Transit scores were then generated for each MGRA based on the level of transit access to job centers and proximity to high-quality transit stops. Mixed-use scores were generated for each MGRA, as well, based on a formula to capture the benefits of having multiple uses present in a walkable urban form.

The residential dwelling unit and retail employment density ranking score was aggregated with the transit score and mixed-use score into an overall prioritization score for each MGRA. The overall prioritization score ranges from 1-14 with 14 representing areas with the highest likelihood of supporting biking, walking, and transit usage.

Three different growth scenarios that increased homes and retail jobs in high-propensity Blueprint SD areas (7-14) were modeled to assess the potential to meet the mode share targets of the Climate Action Plan. It is important to note again here that these numbers represent mode share from just the land use strategy in Blueprint SD; they do not represent total mode share taking into account the other necessary factors to ultimately achieve the full City mode share in the CAP as discussed more below in this memo.

¹ SANDAG's custom unit of geography used for the Travel Demand Model

| Daily Mode Choice | Climate Action Plan (2035 Target) | Model Run 1 (2050) ¹ | Model Run 2 (2050) ¹ | Model Run 3 (2050) ¹ |
|--------------------------------------|-----------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Walk | 25% | 13.8% | 15.3% | 16.8% |
| Bike | 10% | 2.6% | 2.8% | 3.0% |
| Transit | 15% | 7.3% | 7.5% | 7.9% |
| Vehicular (Total) | 50% | 76.4% | 74.5% | 72.3% |
| Vehicular (High-Occupancy Vehicle) | None | 37.9% | 37.0% | 36.0% |
| Vehicular (Single-Occupancy Vehicle) | None | 38.5% | 37.5% | 36.3% |

¹ Model run 1, 2 and 3 apply additional dwelling units to the existing dwelling units in 2022 within Blueprint identified priority areas. The model runs also adds commensurate citywide increases to employment and enrollment.

The vehicular mode share in the table above is the combination of both single occupancy vehicles and high occupancy vehicles. Vehicles would include electric vehicles as well as other clean vehicle technology.

The results of the Blueprint SD land use strategy demonstrate that by planning for the maximum density feasible in areas of the city that have the propensity for a greater use of multimodal travel, combined with the City’s mobility strategies in the General Plan Refresh, the City can achieve the mode share goals in the CAP.

3. BLUEPRINT MODEL/ANALYSIS

Travel models rely on observed patterns, collected from surveys of how people travel in San Diego, to predict future trends. Behavioral changes, beyond how people currently react to travel time and travel cost influences, are not reflected in the model. These behavioral changes may result from future policy decisions, socioeconomic changes, and/or cultural shifts - such as decisions to travel in healthier ways or striving to have a smaller climate footprint. Data for new/emerging technologies, such as adoption rates and travel behavior usage for e-bikes, micro-transit, bike-share, and scooter-share are limited and is considered in travel models in a simplistic way. The modes themselves are evolving and until they reach a more complete level of adoption, forecasts of their overall benefits will remain speculative. A similar historical example that demonstrates the need for speculative caution is the car-sharing implementation of Car2Go in San Diego. While a useful demonstration of what may come for future car-sharing, the specific implementation did not appeal to enough users to be sustainable.

Future unknown conditions may also affect forecasts. These may be cultural shifts such as the change in labor workforce participation rates by women starting in the 1960s or the change to work from home that has persisted beyond the pandemic. Unknown conditions could also be attributed to technological shifts such as the change from traveling to a video store to rent a movie to streaming movies directly at home. Land use forecasts may not predict changes in how land is utilized such as increased attraction of trips to light industrial areas to commercial uses such as microbrewing tasting rooms and activity centers holding gymnastics, dance, or trampoline like parks.

The limitations of the models and a point-in-time analysis should not disqualify information gained from them. The information is useful to planners and decision makers to combine with their expert knowledge to develop policy and actions. Additionally, regular updates and reevaluations as time progresses allow for incorporation of changing patterns.

4. LAND USE IMPACT ON CLIMATE GOALS

The CAP calls for San Diego to achieve an accelerated trajectory for greenhouse gas reductions, demonstrating that the City is a visionary leader with aspirational values. To compare, the only U.S. city that has achieved a mode share goal of 50 percent or higher is New York City at 57 percent of commute trips². Other examples of cities' mode shares are San Francisco at 32 percent², Portland at 16 percent², and Chicago at 26 percent².

CAP Strategy 3: Mobility and Land Use, focuses on changing how people move around the city through strategic land use planning and improvements to mobility infrastructure. A core method to influence travel behavior is to provide housing, services, and amenities in areas with mobility options that favor transit or active transportation infrastructure. This is the approach that informs Blueprint SD.

There is a distinct correlation between density patterns and auto usage; as density increases generally, so does bicycling, walking, and transit usage. As the results from Blueprint SD indicate, even with aggressive land use policies and increased densities, however, the ability to influence mode share in the near term is limited in isolation, without also considering other actions being taken to address vehicular travel behavior and mobility investments and programs. The subsequent section explains how land use changes are limited in their near-term impact to mode share.

HISTORICAL DEVELOPMENT AROUND THE AUTOMOBILE

The city's historical layout has favored automobiles, boasting wide roads and intersections, especially since the post-World War II era. Investment in pedestrian infrastructure and public transit has been much more limited. More recent efforts by the City and various agencies have aimed to promote multimodal travel, but undoing decades of car-centric planning requires extensive coordination, funding, and action. Adapting previously approved land uses that have been designed for cars, such as strip malls and sprawling master planned developments, presents significant challenges. Although progress is being made towards promoting transit-friendly urban planning, it will take some time to adapt older development and build new development that adheres to these principles.

TRANSITION FROM SINGLE-USE AREAS AND SINGLE-FAMILY ZONING

In addition to a street network that has been historically oriented towards automobiles, the city's land use pattern has predominantly focused on single-use areas. Single-use areas, such as distinct commercial, office, and residential areas, create long commute patterns that reinforce auto reliance. Single-family residential uses represent a significant portion (27 percent) of the city's land uses. Efforts to diversify zoning laws and allow for a greater mix of uses, including multifamily units, in strategic areas near transit, aim to counteract the creation of exclusive single-use enclaves. However, leveraging State and City regulations and incentivizing lenders, property owners, and developers to embrace these changes is a gradual process. The City has adopted programs that

² U.S. Census Bureau, "Means of Transportation to Work by Age" 2022 American Community Survey 1-Year Estimates (Disaggregated: "New York City", "San Francisco City", "Portland City", "Chicago City"), accessed March 1, 2024, <https://data.census.gov/table/ACSDT1Y2022.B08101?q=means+of+transportation+to+work>

aim to streamline development, especially affordable housing development. These programs are relatively early in their implementation; they will take time to affect mode choice.

CHALLENGES OF LIMITED DEVELOPABLE LAND

The city spans 372 square miles and is largely built out. Less than four percent is vacant, developable land, demonstrating the need for infill projects and adaptive reuse projects to continue to meet the demand for homes and jobs. Overcoming obstacles with infill and adaptive reuse sites, however, such as demolition costs, remediation (if necessary), and other challenges requires patience and collaboration among communities, developers, and policymakers.

Ownership patterns also play a key role in the ability to redevelop sites. Sites that have multiple property owners and require lot consolidation can be costly and challenging to assemble. Condominiums are challenging to redevelop with increased density due to the consensus required from multiple owners to make changes. As development continues to shift towards infill and adaptive reuse projects, the City can consider expanding its programs to address these challenges.

CONSIDERATION OF HUMAN BEHAVIOR AND PREFERENCES

Personal preference for specific housing types and neighborhood characteristics still plays a key role in development patterns. While policies can promote mixed use and multifamily development, some individuals will continue to favor living in detached, single-family homes. While the General Plan encourages the development of more dense, urban neighborhood villages throughout the city, some residents will desire a more suburban or rural setting. These individuals may move far outside of the city center to have access to and afford a detached, single-family home and choose a long-distance work commute by automobile. While the City has adopted policies to promote a diverse array of housing types to accommodate a variety of lifestyles and needs, land use is one consideration among many that affect mode choice. As the City plans for increasing mixed use development and overall densities, complementary mobility policies and programs that address transportation costs, speed, reliability, frequency, and convenience need to also be considered to effectively address mode choice.

5. COMPLEMENTARY POLICIES TO ENCOURAGE BIKING, WALKING, AND TRANSIT USAGE

Changing travel behavior is not as simple as increasing densities by transit. People make their own decisions regarding how to travel, and habitual travel choices are difficult to change. Other factors that affect mode choice include transportation costs, speed, reliability, frequency, and convenience. While changing land use patterns is key to shortening travel distances and making biking, walking, and transit usage more feasible, complementary strategies to incentivize these modes as competitive options to the car should also be considered. Land use changes should be considered as a part of a broader set of policies and actions for maximum effect.

COMPLETE STREETS AND MOBILITY IMPROVEMENTS

As discussed in the previous section, San Diego's historical land use pattern has developed around wide roads and intersections that favor the automobile. Implementing improvements that make streets designed for all users in mind is key to making biking, walking, and transit use more accessible and convenient forms of daily travel. Overcoming decades-long practices of building wide roads and intersections will take significant resources to overcome. Wayfinding, signage, striping, and street design are all components that should be considered as roads are repurposed

to better serve alternative modes. Strategies to repurpose the transportation network should be considered such as:

- Creating a continuous and safe network for low/slow-speed streets for alternative modes that connect destinations, such as schools, grocery stores, and other daily needs.
- Implementing continuous sidewalks.
- Promoting enhanced street design practices including protected and separated bike/micro-transit facilities and protected intersections.
- Implementing Intelligent Transportation System (ITS) and signal improvements such as transit-signal priority, leading pedestrian intervals, and other detection software to give priority/more time for alternative modes.
- Improving speed and reliability for transit, such as Transit Signal Priority (TSP) and dedicated bus lanes, to serve major transit corridors.

Each of these strategies are supported in the Draft General Plan Refresh. Additionally, the City recently adopted a Complete Streets Policy, which will continue to guide mobility improvements. Efforts to quickly implement mobility improvements in the near-term, such as the Mobility Master Plan, can also help reduce vehicle usage.

ON-SITE EMPLOYEE AMENITIES

Work locations in the city are decentralized. For San Diego, the Downtown area (or central business district) is the third largest employment area following Sorrento Valley and Kearny Mesa. While significant investments have been made to expand transit to these other employment centers, such as the development of six new light-rail transit stations to the University area, many other employment locations do not have high transit accessibility. People commuting by automobile will predetermine many other trips along their route such as shopping or picking up kids from school. Providing on-site employee amenities for eating, shopping, and childcare may make trips shorter and/or easier to adjust. Strategies that promote on-site amenities and create employment-oriented mixed-use villages, such as the City's Prime Industrial - Flex land use designation, should be considered. These strategies are supported by the policies in the Draft General Plan Refresh.

TRANSPORTATION DEMAND MANAGEMENT

The City working together with the private sector in developing transportation demand management (TDM) programs is an integral component of sustainability strategies. By addressing transportation-related challenges such as traffic congestion, environmental impact, and employee mobility, private companies can not only enhance their operational efficiency but also contribute to broader societal goals. The City has worked with private companies to develop TDM plans, including such strategies as:

- Employee Commute Options: Private companies can play a significant role in reducing single-occupancy vehicle trips by providing a range of commute options for employees. This includes offering subsidies or incentives for public transit passes, facilitating ridesharing and carpooling programs, providing amenities for cyclists such as bike racks and showers, and supporting telecommuting or flexible work arrangements.
- Shuttle Services: Larger corporations or campuses can establish shuttle services to facilitate employee commuting to and from work. Shuttle services can connect transit hubs to office locations, provide transportation between different office buildings within a campus, or offer last-mile connectivity for employees living in areas with limited public transit access.
- Parking Management: Effective parking management strategies can incentivize employees to choose alternative modes of transportation over driving alone. Private companies can implement measures such as parking cash-out programs, where employees receive cash incentives for opting out of parking benefits, or dynamic pricing schemes that adjust

parking fees based on demand and occupancy levels. Additionally, companies can designate preferential parking spaces for carpool vehicles, electric vehicles, or fuel-efficient vehicles to encourage environmentally friendly commuting options.

- **Corporate Mobility Plans:** Developing corporate mobility plans that outline strategies and initiatives to promote sustainable transportation options can help private companies align their transportation efforts with broader sustainability goals. These plans may include targets for reducing single-occupancy vehicle trips, increasing the use of public transit and active transportation modes, and reducing greenhouse gas emissions from employee commuting. By integrating transportation planning with broader sustainability initiatives, companies can demonstrate their commitment to environmental stewardship and social responsibility while improving operational efficiency.
- **Partnerships and Collaboration:** In addition to partnering with the City, private companies can collaborate with SANDAG, MTS, NCTD, and other stakeholders to develop and implement TDM programs that benefit both employees and the surrounding community. By participating in transportation management associations, business improvement districts, or industry groups, companies can leverage collective resources and expertise to address common transportation challenges, share best practices, and advocate for supportive policies and infrastructure investments.

These strategies are supported by the policies in the Draft General Plan Refresh.

TELE-POLICIES

The pandemic accelerated the adoption rates for technologies that allow for remote work, school, shopping, medical care, and banking. Continuing to adopt policies that encourage and promote activities done at or close to home will help reduce the need for auto travel. Community fabrics will adapt to the change with additional services, such as restaurants, near home locations. With continued hybrid work from home conditions, additional opportunities will be present for office to housing conversion in denser mixed-use employment centers where biking and walking usage could be higher. These strategies are supported by the policies in the Draft General Plan Refresh.

MOBILITY AS A SERVICE

Mobility as a Service (MaaS) is a consolidated, on-demand, digital platform that integrates various forms of transportation options and programs into one application. MaaS can include an integrated payment system that covers all transportation services which can include transit information and passes, scooter or shared mobility device rental and booking, bike routes and bike rental, managed lane payments, transportation network company services, and on demand or shared services. MaaS implemented in a planned, managed, and safe framework can reduce barriers, speeding adoption of mobility modes other than automobile travel. Pairing MaaS with other parking and pricing strategies can heighten the impact. These strategies are supported by the policies in the Draft General Plan Refresh.

MICROTRANSIT

Microtransit, is defined as on-demand, flexible transportation services that operate within defined geographic areas, leveraging technology, data analytics, and innovative business models to provide personalized and efficient transportation options for urban residents. Unlike traditional fixed-route transit systems, microtransit services adapt to the specific needs and preferences of users, offering dynamic routing, real-time scheduling, and convenient door-to-door service. By leveraging advanced algorithms and mobile applications, microtransit operators can optimize routes in response to changing demand patterns, provide personalized trip planning assistance, and ensure efficient utilization of vehicles and resources. This flexibility allows microtransit to fill gaps in existing transportation networks, serve low-density areas, and complement traditional

transit services, enhancing overall mobility and accessibility for residents. Examples in San Diego are the Pacific Beach Bug and the Downtown Free Ride Anywhere Downtown.

One of the key advantages of microtransit is its ability to improve first- and last-mile connectivity. By providing convenient access to transit hubs, employment centers, and other destinations, microtransit facilitates seamless transfers between different modes of transportation, encourages multimodal travel behavior, and reduces reliance on automobiles. This not only enhances the efficiency and effectiveness of the public transit system but also promotes sustainable transportation choices and reduces congestion and emissions associated with automobile trips.

Furthermore, microtransit has the potential to enhance mobility options for underserved populations, including seniors, people with disabilities, and residents of low-income communities. By offering flexible, on-demand transportation services that are tailored to the needs of these populations, microtransit can improve access to essential services, healthcare facilities, and employment opportunities, thereby reducing social isolation, improving quality of life, and promoting social equity and inclusion. These strategies are supported by the policies in the Draft General Plan Refresh.

MOBILITY HUBS

Mobility hubs serve as critical catalysts for promoting multimodal transportation options and reducing reliance on automobiles. By providing convenient access to various modes of transportation such as public transit, biking infrastructure, ridesharing services, and electric scooters, mobility hubs offer travelers a diverse range of options to choose from based on their preferences, needs, and circumstances. This multimodal approach not only enhances flexibility and convenience for commuters but also helps alleviate traffic congestion, reduce air pollution, and improve overall mobility within urban areas.

Furthermore, mobility hubs play a key role in enhancing accessibility and connectivity for all members of the community, including those with limited mobility or transportation options. By incorporating universal design principles and ensuring barrier-free access to transportation services, mobility hubs promote inclusivity and equity in transportation planning and infrastructure development. This is particularly important in addressing disparities in access to transportation among underserved populations, such as low-income communities, seniors, and people with disabilities, who may face barriers to mobility and experience greater social and economic isolation as a result.

Serving as vibrant hubs of activity and interaction within urban environments, mobility hubs foster social cohesion, economic vitality, and placemaking opportunities. By integrating transportation facilities with amenities such as retail shops, restaurants, green spaces, and cultural attractions, mobility hubs create vibrant, pedestrian-friendly environments that encourage active living, social interaction, and community engagement. This not only enhances the quality of life for residents but also attracts visitors, stimulates local economies, and promotes sustainable urban development. These strategies are supported by the policies in the Draft General Plan Refresh.

AGENCY PARTNERSHIPS

It is important for the City to continue to collaborate with SANDAG and transit agencies (MTS and NCTD) on speed and reliability improvements to key destinations; examples include five to seven minute headways, express service on key corridors, and transit signal priority. In addition, they should continue to work together on strategies to improve access and convenience of transit, such as subsidized passes, improved transit stops, and development of mobility hubs. These strategies are supported by the policies in the Draft General Plan Refresh.

MAXIMIZE OTHER LAND USE CHOICES/OPPORTUNITY

The Blueprint SD metamodel focuses on siting residential dwelling units in locations that would minimize auto usage through having short distance access to community activity locations such as restaurants and retail and access to transit to reach employment centers and daily trips. While this will provide the largest impact, additional evaluation using goal-based analysis and optimization processes could find additional areas of opportunity to change travel behavior towards sustainable modes. The following strategies should be considered to help reach the CAP goals:

- Place additional focus on finding community imbalances such where the population to retail employment is lower than city averages, locations where communities have the longest trip length to eating establishments, or communities with the lowest rate of biking and walking to school.
- Review employment centers travel characteristics and encourage job growth in centers with the highest transit accessibility.

These strategies are supported by the policies in the Draft General Plan Refresh.

PARKING

Policies that constrain parking will lead to less levels of auto usage. In 2019, the City adopted a program to eliminate parking requirements in transit priority areas for multifamily development. This has been since superseded by Assembly Bill 2097 which prohibits public agencies from imposing or enforcing a minimum parking requirement on a residential, commercial, or other development project that is within one-half mile of defined public transit. Over time, this law may result in reducing the average number of cars per household. The model is currently calibrated to 2016 travel survey data (which precedes the adoption of this law). Continuing other efforts to reduce auto reliance like parking maximums, reduced parking standards for other uses, and shared parking arrangements, should also be prioritized. These strategies are supported by the policies in the Draft General Plan Refresh.

PUBLIC-PRIVATE PARTNERSHIP OPPORTUNITIES

The City should continue to work with developers to deliver community benefits like on-demand and autonomous shuttles, bike parking/storage, other transportation demand strategies, and neighborhood-serving commercial and retail uses. These strategies are supported by the policies in the Draft General Plan Refresh.

6. SUMMARY

Blueprint SD is an initiative aimed at identifying areas for growth in San Diego while aligning with climate goals. By analyzing factors like density and transit accessibility, Blueprint SD prioritizes locations conducive to biking, walking, and transit usage. While not mandating specific land uses, it serves as a guide for future planning decisions. This memorandum highlights challenges such as historical development patterns and emphasizes the need for comprehensive strategies. Blueprint SD is a foundational approach to complement various measures in achieving climate goals and promoting sustainable urban development. While land use pattern changes alone do not suffice to achieve CAP goals, Blueprint SD offers a strategy to be complemented by various measures and includes policies that will support the implementation of these strategies. Through collaboration, policy innovation, ongoing evaluation, and a range of different initiatives, San Diego boldly progresses towards a more sustainable and equitable future. The land use strategy, combined with the policies outlined in Blueprint SD related to mobility, ensure that the City will best maximize the opportunities to achieve its GHG emissions reductions under CAP Strategy 3. The land use

strategy in Blueprint SD represents the extent that the City could achieve its mode share shift in isolation. That, together with the other policies in Blueprint SD related to mobility, and the City's continued efforts to address mode shift through infrastructure investments and programs, will ensure that the City can achieve its climate goals.