

Attachment A: 2025 Blueprint Pathways Transportation Evaluation

The 2025 Blueprint Pathways outline diverging futures for the distribution and the type of growth the region could experience between now and 2050 and the transportation system needed to serve those futures. SACOG will ultimately use these pathways to inform a Final Preferred Pathway that will balance the region's mobility needs with the realities of limited future dollars.

The pathway assumptions are, at their core, test cases to examine where and what kind of housing and job growth could occur in the region between 2020 and 2050, and what transportation investments and programs will be needed to serve that growth. It's helpful to think of the pathways as "crash test dummies" for informing decision making.

The sections below explore the transportation assumptions for each Pathway as well as metrics related to mode choice and access, transit ridership, vehicle miles traveled, and congestion. For an in-depth review of the land use assumptions and metrics underlying pathways, visit SACOG's website at: [2025 Blueprint Pathway Land Use Evaluation - Sacramento Area Council of Governments \(sacog.org\)](https://www.sacog.org/2025-Blueprint-Pathway-Land-Use-Evaluation)

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1) What are we planning for?

Forecasting Growth to 2050

The Sacramento region has a population of roughly 2.5 million people today and remains one of the fastest growing regions in California. In fact, while California has lost population in recent years, the Sacramento region has continued to add residents at a steady rate. The growth projections endorsed by the SACOG board for the 2025 Blueprint reflect a slowing down of growth compared to previous decades, based on national and statewide demographic trends, but still assumes our region will add population at rate of nearly one percent annually, or roughly 550,000 new people by 2050 (an increase of 23% over today).

Over the last decade (2010 to 2020), growth in the region came from a combination of sources including natural increases from births, which make up about 50% of our growth, international migration at about 37%, and domestic migration at just under 15%. While domestic migration makes up the smallest amount of the region's annual growth, it does reflect a trend of residents from coastal regions in the state moving to Central Valley communities seeking more affordable housing options. In El Dorado and Placer counties, domestic migration by Bay Area transplants made up well over half of their population growth between 2010 and 2020. Despite this unique domestic migration trend, natural population increase, will likely continue to be the dominant driver of population growth in the region.

While population growth, along with the growth in jobs and housing that comes with it, are an important part of what drives the regional economy, that growth also presents challenges. How the region plans to accommodate that growth has implications for our current as well as future residents, changes the demands on our transportation systems, and affects our air quality and natural environment. In a recently completed Built Environment Poll conducted in partnership with Valley Vision and California State University, Sacramento, many residents cited continued growth in the region as a factor in their concerns about housing affordability and traffic congestion. A slight majority of poll respondents felt that the region was growing too fast and that we should look to slow down the production of new homes. However, there were notable differences between homeowners and renters as well as rural, suburban, and urban parts of the region. While all respondents were highly concerned with housing affordability, renters and people living in cities felt that the region should be encouraging housing growth to combat the affordability crisis. And while nearly 80% of homeowners acknowledge the region is becoming less affordable to young people and first-time homebuyers, they felt their communities were growing too quickly and cited congestion and parking as primary concerns.

The Blueprint Pathways are an opportunity to examine the implications of 550,000 new people in the region and different strategies for how the region can collectively accommodate that growth while maintaining and improving on what makes this region an appealing place to live. The Blueprint Pathways illustrate three different ways 550,000 new people could be accommodated in the region under different development patterns, and how each development pattern affects people's quality of life.

2) How were the Transportation Assumptions developed for each Pathway?

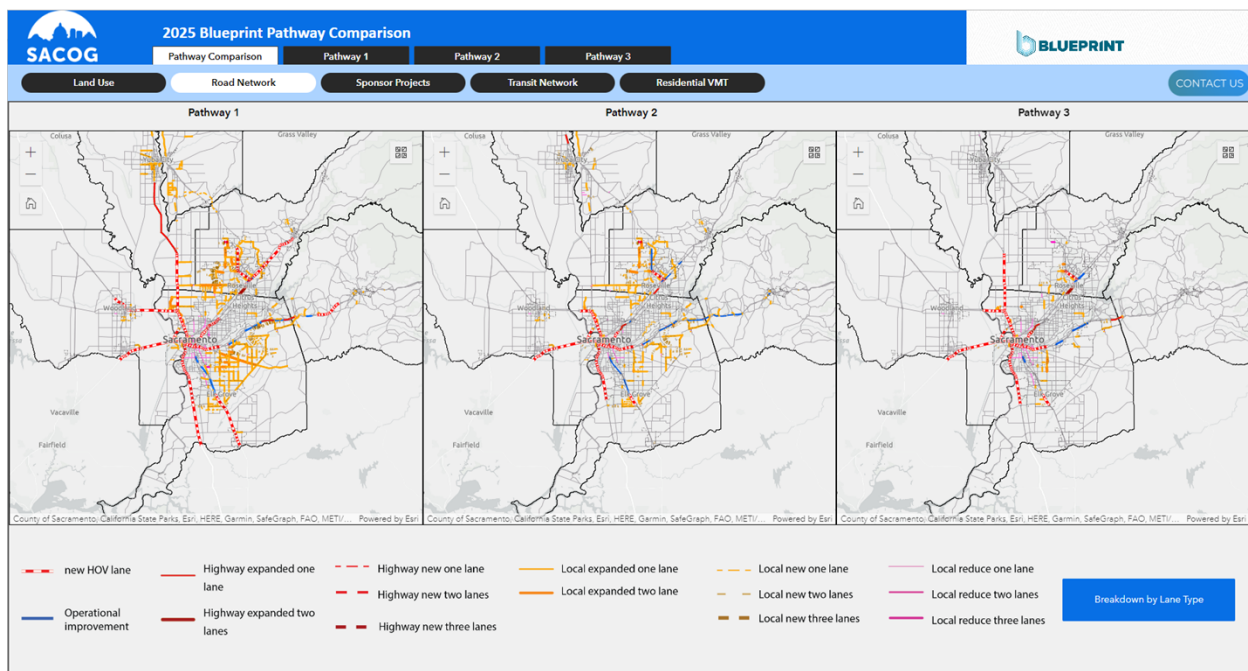
Project Nomination Process

Over the summer of 2022, cities, counties, Caltrans, transit operators, and other agencies nominated transportation projects to consider for the 2025 Blueprint. Over 2,000 projects were nominated and evaluated as part of this process. In addition to nominated projects, SACOG also collected additional project information from transit plans and the draft [Regional Transit Network](#) to identify locations and frequencies for local and commuter bus routes.

Selecting Projects for Pathways

A transportation project was included in a specific Pathway if: it aligned with the housing and job growth included in each Pathway, supported existing or forecasted travel demand, had congestion relief benefits, or provided additional travel choices. Each Pathway utilizes a different approach to accommodating travel needs as is discussed in more detail below. Generally, Pathway 1 emphasizes road and highway investments as the primary way to accommodate travel needs while Pathway 3 relies more on transit services. For example, a project serving existing communities with infill growth is a likely candidate for inclusion in Pathway 3 where most future growth occurs in existing urban and suburban communities with capacity to grow. Pathway 1 on the other hand includes more new development outside of existing communities, necessitating the inclusion of additional road and transit capacity to serve these new growth areas. Pathway 2 most closely resembles the region's current long-range plan and lands between the other two pathways in terms of road, highway, and transit emphasis.

To further explore the pathways' land use growth assumptions and transportation projects, SACOG has created an interactive map that allows users to dive deeper into each of the Pathways. To access the interactive map, click [here](#) or visit <https://bit.ly/3BTq6go>.



3) Imagining a transportation system for the future

An important decision facing the SACOG board in the 2025 Blueprint is determining how best to prioritize spending on transportation infrastructure and programs with limited dollars. There simply is not enough money to maintain what we have, invest in improvements to the existing system, and expand the system to all the new growth areas planned for throughout the region. In addition to meeting multiple policy goals, the Blueprint will need to incorporate a transportation investment strategy that fits the region's 25-year transportation budget. To better illustrate the effects of different development patterns on quality of life, the Blueprint Pathways are not financially constrained on transportation investments.

To help the region understand decisions about how and where to invest in transportation infrastructure and services, each of the Blueprint Pathways looks at different growth and transportation investment futures. While the following sections focus on the differences between the pathways, it is important to consider how they are similar. The Blueprint growth forecast assumes that housing and jobs will grow by about 30% from today (from 950,000 to 1,230,000 homes and from 1,130,000 to 1,393,000 jobs), which means the remaining 70% of housing and jobs are here today and likely to look very similar in 2050. The growth increment is what really drives the land use change differences among pathways. Along the same lines, all three pathways share about \$5.2b in road and highway capital projects.

To acknowledge the diversity of different places and types of communities throughout the region, SACOG uses a framework for describing the region in terms of "Community Types." Local land use plans such as general plans, specific plans, master plans, corridor plans, and more are categorized into one of six Community Types based on the location of the plans. Attachment 1 includes a summary of the various Community Types SACOG uses to examine differences across the diverse types of communities that make up the region. These Community Types are used in the pathway descriptions below to illustrate the overarching development pattern underlying each pathway.

Community Types Framework

Table 1: Housing and Job Growth by Community Type

Community Type	2020		2020-2050 Growth					
			Pathway 1		Pathway 2		Pathway 3	
	Jobs	Homes	Jobs	Homes	Jobs	Homes	Jobs	Homes
Center and Corridor Communities	44%	13%	36%	21%	42%	38%	46%	52%
Established Communities	52%	76%	40%	21%	40%	27%	43%	36%
Developing Communities (already under construction)	1%	2%	10%	27%	9%	22%	7%	11%
Potential Developing Communities (not yet under construction)	1%	0%	14%	27%	8%	12%	3%	0%
Rural Residential Communities	2%	7%	1%	4%	0%	1%	0%	1%
Agricultural and Natural Lands	1%	1%	0%	0%	0%	0%	0%	0%

Pathway 1: Outward Expansion and Limited Infill includes relatively more growth in new growth areas and rural residential communities than the other pathways. While 30% of new housing growth and 45% of new employment growth is the same as the other pathways, the remaining growth occurs predominantly in developing communities that have either not started to develop or have yet to see more than half of their capacity for homes built as of today. Approximately 56% of housing growth in Pathway 1 occurs outside the existing infill areas of the region (Centers and Corridors + Established Communities). Job growth across all pathways continues much as it has in the past with the majority of new jobs occurring in Center and Corridor and Established Communities closer to where most people live in the region. In Pathway 1, 76% of job growth occurs within the region's existing developed footprint.

To serve homes in new growth areas, Pathway 1 adds nearly 1,700 additional lane miles to the roughly 11,700 lane miles making up the major road and highway system serving the region today. Of these additional lane miles, 62% or just over 1,000 miles are new or extended roadways providing access to new growth areas while the remaining 38% or roughly 600 miles are made up of additional lanes added to existing roads and highways. This expanded road and highway network is important in Pathway 1 to connect housing in new growth areas to the jobs, both existing and future, in already developed parts of the region. The cost of this expanded major road and highway system exceeds \$14 billion, more than double the road and highway capacity budget of the current 2020 MTP/SCS. While the pathways are not financially constrained, for reference this level of spending on road and highway expansion is significantly higher than the region has seen historically or in recent years. The region's current program of road and highway capital projects, as described in the [Metropolitan Transportation Improvement Program \(MTIP\)](#), spends between \$100 and \$300 million annually on road and highway capital projects. The road and highway investments in Pathway 1 would require between \$400 and \$500 million per year (in current year dollars).

Transit service in Pathway 1 focuses more on coverage¹ and commuter services, likely fed through Park-and-Ride lots, to give commuters options for accessing job centers throughout the region. The tradeoff for this expanded coverage is less frequent service in areas of the region with the mix of uses and density that would otherwise be compatible with higher frequencies. Overall, this pathway increases the total amount of transit service from today by about 34% or slightly more than 1,100 daily service hours at an annual operating cost of around \$400 million or 40% higher than today. The share of the region's homes with ready access to high frequency service, service of 15 minutes or less, remains relatively stable with slight reduction compared to today from 11% today to 9% by 2050.

Pathway 2: Balanced Infill and Phased Expansion looks to achieve a balance of growth in existing communities and new growth areas and most closely resembles the current MTP/SCS with 65% of housing growth and 89% of jobs occurring in the infill Center and Corridor and Established Communities. While 30% of new housing growth and 45% of new employment growth is the same as the other pathways, the remaining growth is balanced between infill and new growth areas. As a result, the

¹ Transit "coverage" generally refers to the spreading out of transit services across a wide area. Covering a wide area most often comes at the expense of higher frequencies. Transit systems that emphasize coverage, on average, mean that everyone gets a little bit of service, regardless of where they live. These systems prioritize covering a wider area with some level of transit over prioritizing services that generate the highest ridership.

transportation system in Pathway 2 doesn't rely as much on an expanded road and highway network to serve growth on the outer edges of the region. Comparatively, Pathway 2 includes just over half the amount of expanded roadway system at roughly 900 lane miles compared to the 1,700 in Pathway 1. Consequently, the cost of roadway expansion reduces to just under \$9 billion, or \$5 billion less than Pathway 1.

Transit service in this Pathway nearly doubles in terms of daily hours of service from today, expanding coverage to new growth areas and also increasing frequency on productive routes where a mix of uses and density of destinations make using transit a more attractive option for daily needs. The combination of more growth within the existing development footprint and the increase in transit frequencies increases the number of homes with access to high frequency transit to nearly 40% by 2050. The cost of providing these services increases the region's annual transit operating expenses by more than double to approximately \$650 million a year.

Pathway 3: Focused Infill and Limited Expansion explores a future where new housing growth occurs primarily within the existing development footprint with closer proximity to existing job centers and where job growth typically concentrates within the region. While 30% of new housing growth and 45% of new employment growth remains the same as the other pathways, the remaining growth in this pathway predominantly occurs in the infill areas of the region. As mentioned in the description of Pathway 1, historical job growth has occurred in centrally located parts of the region to maximize access to the regional labor market and the existing transportation system. Between 2016 and 2020, nearly 90% of the region's job growth concentrated along existing commercial corridors and downtowns or along major principal arterials and highways within the existing development footprint of the region. Following this trend, Pathway 3 focuses the vast majority, nearly 90% of housing growth within existing communities that have concentrations of underutilized or vacant parcels with capacity for housing growth, in newer suburban developments that have already absorbed at least 50% of their buildout capacity, and along commercial corridors that are planned for housing, but have lagged in housing production due to regulatory or infrastructure barriers that make them challenging for development.

The transportation system in Pathway 3 prioritizes investment in an extensive transit network with high frequency bus, expanded light rail, and bus rapid transit representing more than 2.5 times the amount of transit service available in the region today. Like the road and highway budget in Pathway 1, this pathway includes a significant increase in overall transit spending compared to historic levels. Under Pathway 3, the cost to operate and maintain the transit system would likely exceed \$950 million annually, a more than 230% increase. For reference, this level of increased spending on transit operating costs over the course of three decades (the planning period for the 2025 Blueprint) is not unprecedented in the region. In the years between 1990 and 2021, operating expenses increased by more than 400% in the region based on National Transit Database reporting. As a result of the extensive increase in transit in this pathway, nearly half of all homes in the region are within ½ mile of a transit stop with 15-minute or better frequencies by 2050 in this pathway.

Pathway 3 allocates the least amount of investment to expanding the regional road and highway network. This Pathway allocates roughly \$6.5 billion to add a little under 300 new lane miles to the system, which is focused on creating a managed lane network, preserving funding for investing in transit

as well as maintenance and rehabilitation of the existing system. Only 22% is spent widening roadways in developing communities before 2035.

Table 2: Road, Highway, and Transit Expansion

	Total Lane Miles (Highways and Major Roadways)	Expanded Road & Highway Capital Costs	Hours of Weekday Transit Service	Annual transit operating cost	Homes within ½ mile of high frequency transit
2020	11,700	NA	3,400	\$284 million	106,000 (11% of all homes)
Pathway 1 (2050)	13,400	\$14.2 billion	4,700	\$400 million	114,000 (9% of all homes)
Pathway 2 (2050)	12,600	\$9.2 billion	7,700	\$650 million	440,000 (36% of all homes)
Pathway 3 (2050)	12,000	\$6.2 billion	12,700	\$950 million	600,000 (50% of all homes)

How are people getting around in the future?

With 550,000 additional people, more than 260 thousand new homes, and nearly 280 thousand new jobs, we can anticipate an increase in travel demand around the region in the future. More travel demand comes with risks and opportunities. Opportunity to create economically viable and vibrant places by enhancing more choice of travel modes to people within all different types of communities across the region. More travel demand also increases risks including more congestion, wear and tear on the region's roadways, and emissions that can impact people's health. The Blueprint Pathways analysis lends itself to testing different land use and transportation development patterns to weigh the benefits and risks of each pathway and compare to how people travel today to see how each future may improve or impact residents' daily travel needs and quality of life. The following sections are divided into two parts: 1) Mode Choice and Access; and 2) Vehicle Miles Traveled and Congestion.

1) Mode Choice and Access

Personal automobiles will continue to be the main means by which people travel in the region in 2050.

Driving, whether alone or with other people in the vehicle, will continue to be the primary means of travel in the region in 2050 in all pathways. As shown in Table 3, driving alone and carpooling account for about 87% of all trips today increasing slightly in Pathway 1 to 88%. Pathways 2 and 3 reduce the share of driving trips by approximately 1% and 2%, respectively as more people can take other means of travel including transit, walking, biking, or ride-hailing services like Uber or Lyft. These changes may seem modest but are meaningful in absolute terms. On a daily basis, Pathway 3 sees an increase in non-driving trips by more than 500,000 trips per day.

Table 3: Mode Choice by Pathway

Weekday Travel	2020	Pathway 1 (2050)	Pathway 2 (2050)	Pathway 3 (2050)
Total trips by drive alone	4.3 million	5.6 million	5.4 million	5.3 million
<i>Drive Alone Share</i>	<i>45.7%</i>	<i>48.8%</i>	<i>47.0%</i>	<i>46.3%</i>
Total trips by carpool	3.9 million	4.5 million	4.5 million	4.5 million
<i>Carpool Share</i>	<i>41.5%</i>	<i>39.3%</i>	<i>39.3%</i>	<i>39.1%</i>
Total trips by transit, bike, walk, and ride-hailing services (e.g., Uber, Lyft)	1.2 million	1.4 million	1.6 million	1.7 million
<i>Transit, bike, walk, and ride-hailing services (e.g., Uber, Lyft) Share</i>	<i>12.5%</i>	<i>11.6%</i>	<i>13.5%</i>	<i>14.3%</i>

People's willingness and ability to choose not to drive is dependent, in part, on the built environment around them. In locations where homes and services or jobs are in closer proximity to each other and infrastructure or services provide convenient and safe alternatives to driving, people will choose to use those modes more often.

Table 4 below includes a breakdown of transportation mode choice today and in 2050 for each pathway by Community Types. Centers & Corridors and Established Communities, on average, provide more opportunities to travel to daily activities by means other than driving alone. These areas have an

advantage in being in closer proximity to existing bicycle and pedestrian amenities and transit service. This is shown in the higher shares of walking, biking, and transit use today and in the future across all pathways in these areas.

Table 4: Mode Choices for all trips by Community Type

Base Year (2020)	Drive Alone	Carpool	Transit	Bike	Walk
Centers & Corridors	43.2%	36.4%	2.7%	2.9%	13.9%
Established Communities	45.7%	41.9%	0.9%	1.8%	9.1%
Developing Communities	44.2%	47.6%	0.3%	1.2%	6.3%
Rural Residential	51.1%	42.9%	0.2%	0.9%	4.5%
Agriculture & Natural Lands	49.4%	44.4%	0.2%	1.0%	4.7%
Total	45.7%	41.5%	1.1%	1.9%	9.2%
Pathway 1 (2050)					
Centers & Corridors	47.1%	33.5%	2.5%	3.4%	12.6%
Established Communities	48.0%	40.2%	1.0%	1.9%	8.3%
Developing Communities	52.7%	39.4%	0.5%	1.3%	5.7%
Rural Residential	53.0%	41.2%	0.2%	1.0%	4.2%
Agriculture & Natural Lands	53.0%	41.0%	0.3%	1.1%	4.4%
Total	48.8%	39.3%	1.1%	2.0%	8.3%
Pathway 2 (2050)					
Centers & Corridors	43.8%	32.7%	3.7%	3.9%	15.1%
Established Communities	46.9%	40.3%	1.2%	1.9%	9.1%
Developing Communities	50.4%	40.9%	0.6%	1.4%	6.3%
Rural Residential	51.8%	42.3%	0.2%	1.0%	4.4%
Agriculture & Natural Lands	50.5%	43.3%	0.2%	1.1%	4.6%
Total	47.0%	39.3%	1.5%	2.1%	9.5%
Pathway 3 (2050)					
Centers & Corridors	43.4%	32.3%	4.1%	4.2%	15.1%
Established Communities	46.6%	40.3%	1.5%	2.0%	9.0%
Developing Communities	47.0%	43.7%	0.8%	1.4%	6.6%
Rural Residential	51.7%	42.2%	0.3%	1.0%	4.5%
Agriculture & Natural Lands	49.6%	44.1%	0.3%	1.1%	4.6%
Total	46.3%	39.1%	1.9%	2.3%	9.8%

Developing Communities and Rural Residential Communities may have some access to transit and other facilities, but the distances between destinations and the relative availability of transit services or bicycle and pedestrian infrastructure is more limited than in other Community Types. This is demonstrated by the relatively lower rates of non-driving modes in these locations shown in the table.

Many newly planned Developing Communities include significant plans for walking and biking options. Where a mix of commercial and other employment uses are planned alongside residential development in a new growth area, the ability for people to opt into walking, biking, or transit can be significantly

increased. However, these communities often take many decades to complete and in general, the housing is built long before the employment focused uses. That means, when looking out at the growth the region can expect over just the next three decades, most Developing Communities will not have built out the ultimate mix of uses and transportation options that would facilitate shorter car trips and other modes of travel. This is illustrated by continued higher shares of driving in Developing Communities compared to Centers & Corridors and Established Communities.

While transit makes up a smaller share of overall trips than other modes of transportation, a strong transit system is an important part of an economically vibrant and equitable region.

Today transit trips account for only 1.9% of all trips taken in the region today as shown in Table 4. However, even small increments of change can have large impacts on accessibility and assist in congestion relief. This is especially true in Centers & Corridors where transit is more likely to be used by residents for at least some of their regular travel needs. The share of trips that utilize transit in Centers & Corridors is as high as 4.1% in Pathways 2 and 3. In all pathways, transit ridership and the number of destinations reachable within a reasonable travel time on transit improves from today. Table 5 below includes transit ridership and accessibility indicators for each pathway. Overall transit ridership increased by 3% in Pathway 1 from existing conditions. In Pathway 2 and 3, typical weekday ridership increased by 87% or 126,000 additional rider trips for Pathway 2 and 126% or 184,000 additional rider trips for Pathway 3.

Table 5: Transit Ridership and Accessibility

	2020	Pathway 1 (2050)		Pathway 2 (2050)		Pathway 3 (2050)	
	Total	Total	% change	Total	% change	Total	% change
Weekday Transit Ridership	146,000	150,000	3%	272,000	87%	330,000	126%
Average Trip Travel Time by Transit (minutes)	44	46	5%	39	-10%	38	-13%
Homes within ½ mile of high-frequency transit	60,000	64,600	8%	238,100	296%	306,600	411%
Jobs within 30-minute transit ride of homes	6,600	14,500	118%	26,000	291%	32,000	382%
Jobs within 30-minute transit ride of homes in environmental justice areas	8,100	23,200	186%	39,600	389%	45,900	467%
Homes within a 30-minute transit ride of medical services	9,700	17,600	81%	32,000	230%	40,900	322%
Homes within a 30-minute transit ride of colleges and universities	5,100	12,800	148%	21,700	322%	25,600	399%

While transit is likely to remain a small share of overall trips in the region, it will continue to play an important role for those with limited access to personal vehicles and can provide a convenient and inexpensive alternative to driving for many others. According to the Built Environment Poll conducted by

Valley Vision and Sacramento State, nearly a third of residents believe transit has improved in the last five years. Further, the poll results also suggested that there are improvements that can be made to encourage more people to utilize these transportation methods—namely, placing bus stops near their home or where they need to go (38%), improving safety (38%), improving sanitation (28%), and increasing travel efficiency (26%). While not a majority of residents, these numbers represent a meaningful segment of the region’s population and indicate that transit has a critical role in the region’s mobility options.

Transit plays a particularly important role for households and individuals with limited access to personal vehicles and is part of creating an equitable transportation network.

In all the pathways, vehicle ownership offers the most direct and fastest access to jobs, schools, and other destinations people travel to on a regular basis. A [2018 examination](#) of the Sacramento region by the Brookings Institute as part of the development of the [Regional Prosperity Strategy](#) found great disparities between the number of jobs accessible by driving and transit in the region. The examination found that about 69 percent of workers in the region could reach downtown Sacramento within a 30-minute drive while this number dropped to 6 percent of workers within a 45-minute transit commute.

Transit services are often most essential for households in more vulnerable communities. Households with lower incomes more frequently have access to only one or no vehicles and rely on transit more often to make essential trips such as going to work, school, or the grocery store. Regionally both Pathway 2 and Pathway 3 see significant increases in the number of homes near high-frequency transit with headways of 15 minutes or better. For comparison, today about 1 in 10 homes are within ½ mile of high-frequency transit. In Pathway 1, this ratio stays largely the same. In Pathway 2 that number goes up to more than 3 in 10 homes and in Pathway 3 nearly half of all homes in the region are within ½ mile of a high-frequency transit route.

Among the most important indicators to help understand how and why people make their travel decisions are the activities and destinations they can reach within a reasonable travel time. While the Blueprint does not attempt to forecast the location of all types of destinations (such as grocery stores or entertainment venues), examining the number of jobs available within reasonable travel times can serve as a proxy for many of the activities people travel to on a regular basis. Additionally, it can be helpful to examine households’ ability to access certain essential destinations such as medical facilities and colleges and universities. Across all three pathways access to destinations within a 30-minute transit ride sees a major increase from today by 2050. Access to number of jobs within 30 minutes by transit increases by over 100% for Pathway 1 and over 300% in Pathway 3. In environmental justice communities, accessibility to jobs increases even more across all three pathways, from almost 200% in Pathway 1 to nearly 500% in Pathway 3.

Many medical trips can be difficult for people with disabilities or those who do not have access to a car. Often, taking transit is the only option available for these important travel needs. The number of households with access to medical services within a 30-minute transit ride increases in all three Pathways. Pathway 1 increases from 9,700 households to 17,600. Pathway 2 increases to 32,000, and Pathway three sees the largest increase in households’ access by 41,000.

Access to higher education is an important contributor to economic opportunity. Pathways compare the number of households within a 30-minute transit ride to colleges and universities. Pathway 1 increases

from 5,100 households to 12,700. Pathway 2 increases to 21,700, and Pathway three serves the largest increase in households' access by 25,600.

Walking and biking offer an opportunity to create connections between healthy, active lifestyles and transportation choices.

Walking and biking make up 11% of all trips in the region today and generally serve as good alternatives to driving for shorter trips or as last mile connections on either end of a transit trip. Because of the shorter nature of walking and biking trips, they may have less potential to replace longer vehicle trips that contribute to higher vehicle miles traveled, but remain an important part of a healthy transportation system. Walkable and bikeable communities, particularly those that connect where people live to their daily activities, contribute meaningfully to quality of life. Additionally, the public health benefits of walking and biking can be significant.

As illustrated in Table 6, all pathways see an increase in total walking and biking trips but vary in the share of trips and the minutes per capita people spend monthly using these options. Pathway 1 decreases the share of trips made by walking or biking by 1% and reduces the amount of time spent monthly, on average, by about 12 minutes per capita compared to today. On the other end of the spectrum, Pathway 3 increases the share of trips by bike and walk by 1% compared to today and total trips by 40%. On a monthly basis, people spend 24 minutes more engaged in walking or biking as part of their daily travel when compared to today. While this time does not account for the time people spend engaging in these activities for the health or recreation benefits alone, it is still a reasonable metric for understanding how people interact with the built environment around them. As a next step in understanding the potential connections the built environment and public health, SACOG is working with a team at Urban Design 4 Health (UD4H) to examine how the land use pattern and transportation system in pathways can affect several health outcomes for residents. This information will be presented to the board later this year.

Table 6: Walking and Biking

	2020	Pathway 1 (2050)	Pathway 2 (2050)	Pathway 3 (2050)
Daily Walk and Bike Trips (in millions)	1.0	1.2	1.3	1.4
Walk and Bike Mode Share	11.1%	10.2%	11.6%	12.1%
Change in minutes of walking/biking per month per capita	260 minutes	-12 minutes	+16 minutes	+24 minutes

2) Vehicle Miles Traveled and Congestion

A key metric for regional planning is vehicle miles traveled (VMT); a measure of the amount of travel for vehicles in a geographic region over a given period of time. As the demand for travel increases, VMT tends to increase along with vehicle emissions, roadway maintenance costs, and traffic congestion. By considering how public sector policy decisions and investments affect growth patterns and the travel choices people make, we can start to understand how choices today might impact total VMT in the future.

Looking at VMT across the Blueprint Pathways in Table 7, Pathway 1 shows an increase in total VMT of 12.4 million miles per day and an average VMT per capita increase of 4% from roughly 18 miles per day in 2020 to nearly 19 miles per day by 2050. Both Pathway 2 and Pathway 3 also see increases in total VMT as the region adds an additional 550,000 people although the increases are less than in Pathway 1. In fact, both Pathways show decreases in VMT per capita from today by 1% and 4%, respectively meaning people are driving slightly less on a daily basis for work and other activities compared to today. This is an important distinction between pathways. One sign of efficiency when conducting integrated land use and transportation system planning is maintaining VMT growth at a level at or below the population growth rate. For the 2025 Blueprint, the region is expected to grow by about 23% in total population by 2050. Household VMT growth in Pathway 1 outpaces population growth with a total VMT increase of 27% by 2050. In both Pathways 2 and 3 total household VMT is growing slower than anticipated population growth; 21% in Pathway 1 and 18% in Pathway 2 indicating a future where, on average, people do not have to drive as often or as far as they do today to access daily activities.

Table 7: Vehicle Miles Traveled

	2020	Pathway 1 (2050)	Pathway 2 (2050)	Pathway 3 (2050)
Household daily vehicle miles traveled	46.1 million	58.5 million	55.9 million	54.3 million
<i>Growth from 2020</i>	<i>NA</i>	<i>27%</i>	<i>21%</i>	<i>18%</i>
Household daily vehicle miles traveled per capita	18.1	18.8	17.9	17.4

Table 8 below shows both total and congested household VMT, in other words the number of miles households in the region drive on a daily basis as well as the amount of that VMT that is congested, along with per capita congested VMT. While some congestion can be a sign of a vibrant economy and well utilized transportation system, too much congestion can increase emissions and decrease quality of life for residents. As noted previously, congestion continues to rank among the top concerns for residents in the region alongside housing affordability.

Travel on roadways tends to fluctuate during the day as people travel to and from work, school, and other daily activities. During low points of the day, vehicles tend to flow at free flow speeds as roadways carry volumes lower than their designed capacity. During high points of the day, speeds slow to below free flow speed as volumes approach or even exceed the designed capacity of roadways. Roadways that regularly experience faster than usual speeds even during highest demand periods of the day can be an indication of underutilized roadway infrastructure. While it's nice to travel at higher speeds, underutilized roadways can have a large, often hard to see, capital and maintenance cost burden to communities and residents. At the same time, congestion during expected lower demand periods of the day is a sign of overutilized roadways. As volumes increase well beyond the design capacity of any roadway or corridor, growing congestion can result in operational breakdown of the system where people experience excessive delay and emission rates begin to increase due to longer vehicle idling and slower speeds.

Table 8: Vehicle Miles Traveled and Congestion

	2020	Pathway 1 (2050)	Pathway 2 (2050)	Pathway 3 (2050)
Household daily vehicle miles traveled (in millions)	46.1	58.5	55.9	54.3
Household daily vehicle miles traveled in congested conditions (in millions)	3.7	5.9	5.9	6.0
Congested VMT per Capita	1.9	2.6	2.6	2.7

Overall, similar performance across pathways in managing congestion indicates that the region cannot afford to eliminate or prevent congestion from occurring completely by relying solely on adding road, highway, and transit capacity.

Diving in deeper to where congestion occurs reveals some differences between pathways as shown in Table 9. Travel patterns continue to be similar to today, where existing jobs centers in Established Communities and Centers and Corridors tend to experience the most roadway congestion during high demand times as people from across the region travel to these areas for work.

Table 9: Miles and Share of Congested Travel by Community Types

	2020	Pathway 1 (2050)	Pathway 2 (2050)	Pathway 3 (2050)
Centers & Corridors	386,800	769,400	894,800	1,055,800
<i>Share of total congestion</i>	10%	13%	15%	17%
Established Communities	2,958,700	3,920,300	4,019,200	4,339,500
<i>Share of total congestion</i>	80%	67%	69%	72%
Developing Communities	112,400	735,700	619,100	323,300
<i>Share of total congestion</i>	3%	13%	11%	5%
Rural Residential	187,300	260,700	244,500	249,600
<i>Share of total congestion</i>	5%	4%	4%	4%
Agriculture & Working Lands	55,600	197,300	81,700	80,100
<i>Share of total congestion</i>	2%	3%	1%	1%
Total	3,700,800	5,883,400	5,859,300	6,048,300

In all three pathways most congestion continues to occur on major roads and highways that pass through established communities. This makes sense as the majority of households and a significant number of jobs within our region exist in these areas. By 2050, as growth occurs in different parts of the region, the share of congested travel also shifts. Where pathways differ the most is within Center & Corridor and Developing Communities. In Pathway 1, where more growth occurs in new growth areas, congestion shifts outward, increasing the share of total congestion in Developing Communities from 3% today to 13% in 2050. Conversely, in Pathway 3 where more growth occurs within the existing development footprint, the region's Centers & Corridors capture a higher share of congestion growing from 10% today to 17% of all congestion in 2050.

Further exploration of where and when congestion occurs would likely reveal additional differences across pathways and is something SACOG can explore as development of the 2025 Blueprint progresses. Additionally, examining how other measures for managing congestion, such as programs to support remote work, pricing strategies to manage demand, and operational improvements to make better use of existing infrastructure are all areas SACOG will be able to incorporate into future analysis and discussions.

Next Steps

Pathways represent a first step in examining the choices facing the region today and the start of a conversation about a collective vision for 2050. They provide a glimpse into the interactions between land use, transportation investments, and travel in the region and are intended to generate questions about how the region can plan for a future centered on a Triple Bottom Line Framework for equity, economy, and environment. Based on input and questions received from the SACOG board as well as input received through the variety of public outreach efforts SACOG is undertaking as part of the Blueprint update, SACOG will build on the technical analysis presented above and dive deeper into the issues of greatest importance to the region. Upcoming topics related to the update of the 2025 Blueprint include examining the implications of various growth patterns and investments for public health and air quality, exploring the financial realities of paying for transportation, and the roll tolling and pricing can play in helping manage the transportation system.