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The Policy and Politics of Highway Expansions

By

AMY ELISABETH LEE
DISSERTATION

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Table of Contents

| | |
|--|------------|
| Abstract | iv |
| Acknowledgements | vi |
| Dedication | vii |
| 1 Introduction | 1 |
| 1.1 Research Questions..... | 4 |
| 1.2 The Benefits and Burdens of Highways | 7 |
| 1.3 Institutional Evolution & Responses..... | 18 |
| 1.4 A Theoretical Framework of the Highway Policy Process..... | 25 |
| 2 Research Design & Methods, Part 1 | 33 |
| 2.1 Design & Methods Overview | 33 |
| 2.2 Sample and Methods: Transportation Plans versus Transportation Spending | 35 |
| 3 Transportation Planning versus Spending among California Metropolitan Regions | 51 |
| 3.1 Executive Summary | 51 |
| 3.2 Introduction & Background..... | 54 |
| 3.3 Research Question | 67 |
| 3.4 Findings..... | 68 |
| 3.5 Findings & Policy Recommendations..... | 95 |
| 4 Research Design & Methods, Part 2 | 99 |
| 4.1 Sample and Methods: Who, What, Why of Highway Expansions | 99 |
| 4.2 Case Highway Expansion Projects..... | 108 |
| 5 Who are the Powerful Players in Highway Expansion Projects? | 137 |
| 5.1 Introduction & Research Questions | 137 |
| 5.2 A “Rube Goldberg Machine” of Transportation Governance | 140 |
| 5.3 Who’s in the driver’s seat and who’s along for the ride? The Cases of I-80, I-710, and SR 37 | 142 |
| 5.4 Local Control: County Transportation Authorities, Self-Help Counties, & Local Elected Officials..... | 173 |
| 5.5 Caltrans & Caltrans Districts | 186 |
| 5.6 Rank and File Staff..... | 196 |
| 5.7 Influence in the State Transportation Policy Arena | 199 |
| 5.8 Discussion..... | 205 |
| 6 What Problems are We Trying to Solve with New Highway Capacity? | 210 |
| 6.1 Introduction & Research Questions | 210 |
| 6.2 For Every Problem, a Transportation Solution | 211 |
| 6.3 Congestion, Congestion, Congestion..... | 213 |

| | |
|---|------------|
| 6.4 Highway Building for Building’s Sake..... | 233 |
| 6.5 Freight & Goods Movement | 249 |
| 6.6 Land Development | 251 |
| 7 Why do Policy Actors Believe that Highway Expansions are the Solution? | 254 |
| 7.1 Introduction & Research Questions | 254 |
| 7.2 Outcomes for Congestion..... | 255 |
| 7.3 Outcomes for VMT and Induced Travel..... | 266 |
| 7.4 Outcomes for Environmental Justice and Equity | 288 |
| 8 Conclusions | 308 |
| 8.1 Summary of Key Findings..... | 309 |
| 8.2 Implications for Institutions and Policy Change | 313 |
| References | 319 |
| Plans and Programming Documents Cited | 319 |
| General References..... | 320 |
| Appendix | 335 |
| A. Table of Abbreviations..... | 335 |
| B. Interview Instrument..... | 336 |

Abstract

This mixed-methods dissertation explores questions related to the governance landscape and the institutional and political factors that surround highway expansion projects. Highways and highway building are a central contributor to a myriad of environmental and social problems, ranging from local air pollution to global climate change to displacement of homes and businesses. But even as toxic air pollution and climate events batter people around the globe, states like California – a forerunner in climate and air quality policy – continue to spend billions of dollars each year to expand highway capacity. This invites questions: what transportation infrastructure is in the plans that aim to reduce transportation emissions, to what degree do actual transportation investments align with these plans, and why does highway expansion receive such a large amount of funding? I investigate the regional transportation planning and programming process as well as power, perception of problems, evaluation of solutions, and policy beliefs among actors in the highway policy arena.

To what degree do actual transportation investments align with regional transportation plans? I use a detailed project-level analysis to examine and compare the regional transportation plans and transportation funding – “programming” – for five metropolitan regions in California. Auto infrastructure received the majority of planned and programmed funds in all regions except the San Francisco Bay Area. Near-term programming was more auto centric than the investments in long-range regional transportation plans. Spending patterns in most regions frontloaded auto infrastructure by putting a majority share of the funding toward road and highway expansions, which bakes in auto-oriented land development and travel demand and undermines the GHG reduction goals of the regional plan. Results also showed significant variation in how different MPOs in the state do business, the practice of “washing” or stretching funds for unstated purposes,

and pervasive opacity in the descriptions of projects in the pipeline that obscures scrutiny of project impacts and benefits.

Why does California spend this significant amount of transportation dollars to expand highways? California has taken state-level action to compel the transportation sector to contribute to solving climate change, air quality, and equity problems. But the highway policy arena is highly decentralized and its most influential players are not focused on solving these larger-scale and longer-run problems. Influence and control in California's highway policy arena largely rests at the local level. With local influence on highway projects and, in many cases, locally controlled funding, these institutions can set the agenda for highways in their jurisdictions. They can choose what transportation problems to solve and the salient and urgent transportation policy problems for local institutions were near-term and nearby. There is a mismatch between the scale of influential institutions and the problems they are trying to solve. This mismatch perpetuates highway expansion despite the near certainty that continued highway expansion impedes the state's efforts to reduce greenhouse gas emissions, improve air quality, and further equity. But these findings indicate several possible routes for attenuating highway expansion.

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Dedication

Octavia Butler said that “the very act of trying to look ahead to discern possibilities and offer warnings is in itself an act of hope.” For everyone who sees highways planned in their communities, air basins, or states and wonders about the opportunities for policy change, this dissertation is for you. I hope it serves you.

1 Introduction

Transportation systems do not spring up out of thin air. They are planned—and, in many cases, planned poorly when it comes to people of color. Conscious decisions determine the location of freeways, bus stops, fueling stations, and train stations. Decisions to build highways, expressways, and beltways have far-reaching effects on land use, energy policies, and the environment.

Robert Bullard, *Highway Robbery*

In the summer of 2021, wildfires burned over 7.1 million acres across the American West. The nearly one-million-acre Dixie Fire became California’s largest single wildfire in state record and second largest wildfire overall. The largest had been in 2020. Thousands of people were evacuated, thousands of homes were destroyed, and damages cost an estimated \$11.5 billion (NOAA 2023). Hurricane Ida made landfall in Louisiana with 150 mile-per-hour winds, causing 100 deaths, long-duration power outages, and an estimated \$75 billion in damages (NOAA 2023). A “catastrophic” heat wave sat over the Pacific Northwest of the United States and Canada, causing “hundreds of attributable deaths and across the Pacific Northwest, mass-mortalities of marine life, reduced crop and fruit yields, river flooding from rapid snow and glacier melt, and a substantial increase in wildfires” (White et al. 2023), and cost an estimated \$8.9 billion in damages (NOAA 2023). Record temperatures were recorded in major metro regions of Portland, Seattle, and Vancouver, with the peak temperature recorded when Lytton, British Columbia hit 121.3° Fahrenheit on June 29. The International Panel on Climate Change, a scientific body convened by the United Nations, released the Sixth Assessment Report outlining and updating the physical science understanding of climate

change and climate systems. UN Secretary General António Guterres called its findings a “code red for humanity” (UN 2021).

And on June 30 US Congressman John Garamendi, a Democrat from the Central Valley of California, announced a “major victory” for his congressional district. The United States Department of Transportation had just awarded an \$86 million federal grant to expand Interstate 80 in Yolo and Sacramento Counties. The congressman had “spent years advocating for this project alongside state and local partners,” whom he thanked in turn, and announced that this 17-mile highway expansion project “will greatly improve traffic flow across the Yolo Bypass, reduce greenhouse gas emissions, and improve agricultural and manufactured goods movement to the Port of Oakland, Port of West Sacramento, the San Francisco Bay Area, and the greater Sacramento region” (Garamendi 2021). A City of Davis council member and a Yolo County supervisor also expressed their gratitude to their many partners who had undertaken a “collaborative team effort approach” to successfully advocate for the expansion project – District 3 of the California Department of Transportation (Caltrans), the MPO for the Sacramento region, the Yolo County Transportation District, US Congressman Garamendi – and stated that its outcomes and benefits will include reduced congestion, reduced greenhouse gas emissions, smoother travel across the Yolo causeway, and improved goods movement, transit, and regional transportation options (Garamendi 2021).

About 400 miles south of the Interstate 80 project, a decades-long plan to expand Interstate 710 in Los Angeles County had just been put on “absolute pause” at a meeting of the California Transportation Commission. One hour into the two-day commission meeting, a commissioner asked the director of the California Department of Transportation (Caltrans), Toks Omishakin, about a letter that the US Environmental Protection Agency (EPA) had sent to Caltrans District 7 and the Los Angeles Metropolitan Transportation Authority (LA Metro) in March (CTC 2021). The

letter had informed District 7 and LA Metro that after “thoughtful consideration, multiple interagency meetings, and good faith efforts by EPA, Caltrans and Metro,” the EPA had concluded that a full air quality analysis was necessary for the project to comply with the Clean Air Act (Adams 2021). EPA made this conclusion in recognition of the “collective challenges to protecting human health while delivering transportation projects within the I-710 Corridor, an area with communities already overburdened by existing goods movement and industry in an area with the worst air quality in the United States” and despite the agencies “attempting to remove the status of the project as a ‘Project of Air Quality Concern’” (Adams 2021). The commissioner pointed out EPA’s comment on environmental justice impacts, asked the director of Caltrans if he had been dealing with the issue, and what his plans were to address the EPA’s enforcement of the Clean Air Act. The director was indeed “familiar with the project, familiar with the issue, and familiar with the letter from the EPA” and had met with senior state transportation officials about it. Director Omishakin informed the commissioner – and in doing so, perhaps also informed LA Metro and Caltrans District 7 – that Caltrans Headquarters wanted to “put an absolute pause on this project” because it was problematic for both air quality and environmental justice as it would displace hundreds of people:

This is not just an air quality issue that we’re facing on this project. The EJ [environmental justice] issues with potential relocations, to me, are just as potentially problematic. We’re in a place right now where we want to put an absolute pause on this project in the format that it’s currently in. It is not aligning with the direction ... that we are taking the state from a transportation standpoint. It’s plain and simple.

We haven’t responded, I believe – I don’t think we’ve responded to that EPA letter yet but with the air quality issues that this project potentially raises, even with a clean truck program, and the relocation issues that this will potentially bring, [I] don’t see how this project can in any way move forward in its format.

We will probably reach out to you, Commissioner Lyou, to give you an offline update on the path forward. But what you see in front of you today in the current format, we will not be moving forward – at least from Caltrans, and I’m sure Metro, they may have to take another vote on this particular project – but from our

end, on the state's side, I don't see how we can move forward with this project in its current format.

Meanwhile in a national wildlife refuge in the San Francisco Bay Area, a project that had started a decade earlier as an academic study about the threats of climate change and sea-level rise to State Route 37 was making its way through planning and environmental analysis. But this highway project had few of the elements that had been identified to make SR 37 resilient to climate change and sea-level rise, such as elevating the freeway out of the marshlands, despite forecasts that SR 37 would be inundated by bay waters by 2050 (Shilling et al. 2015). Rather, this project was an “interim” project that would expand the existing alignment of SR 37 to address the more urgent problem of traffic congestion between Solano County and the coastal Sonoma and Marin Counties.

1.1 Research Questions

The transportation sector contributes to a myriad of environmental and social problems, ranging from local air pollution to global climate change to displacement of homes and businesses. These problems have been noted in policy and policy documents, including the Sixth Assessment Report of the International Panel of Climate Change. The federal Clean Air Act passed in 1962 to regulate air pollution from mobile and stationary sources (42 U.S.C. §7401 et seq.) Though there is no federal climate change law in the US, the 2021 federal Infrastructure Investment and Jobs Act (HR 3684) included programs to mitigate climate change from transportation sources as well as programs to reconnect communities that had been severed by transportation infrastructure. Legislation in states like California, Colorado, Washington, and Massachusetts has also recognized and aimed to address the social and environmental damage caused by transportation. California recognized in the 2000s

that it needs to reduce carbon emissions from transportation if it is to meet its climate goals, and that reducing driving is a necessary strategy to meet those goals (SB 375 2008, SB 743 2013).

Highways and highway building are a central contributor to transportation impacts and emissions. Decades of research shows that increasing highway capacity induces more driving – among both passenger vehicles and freight – thereby increasing air pollution and greenhouse gas (GHG) emissions in the long run (Handy & Boarnet 2014, Duranton & Turner 2011). A uniquely high percentage of Californians live proximate to highways and roadways with very high traffic volumes, where the concentration of vehicle emissions and air pollutants is elevated, and people of color or with low household incomes are more likely to live near high-volume roads and highways (Rowangould 2013, Tian et al. 2012). Air pollution and climate change have deleterious effects on public health and cause disproportionate impacts on vulnerable and socially disadvantaged communities (Morello-Frosch et al. 2009, Shonkoff et al. 2011). But even as wildfires, heat waves, floods, and hurricanes batter people around the globe and high fuel prices motivate people to look for alternatives to driving, states like California – a forerunner in climate and air quality policy – continue to spend billions of dollars each year to expand highway capacity.

Motivated by the human and environmental burdens of climate change and air pollution, this dissertation explores questions related to transportation investments and the institutional and political factors that surround highway expansion projects. It investigates power, perception of problems, evaluation of solutions, and policy beliefs. Questions of governance are often ignored in transportation policy research but if we are to understand how to change current patterns of investment and decision making, “it is important to know the ‘who, what and why’ of influence in a policy sphere in order to understand the potential barriers and opportunities for policy change” (Marsden and Reardon 2017). Four research questions guide this study:

1. To what degree are transportation investments aligned with regional transportation plans that aim to reduce transportation GHG emissions?
2. Who are the powerful actors in highway projects and highway policy arenas, and how do they exert influence?
3. What are the key problems that policy actors are trying to solve with highway capacity expansion?
4. Why do policy actors believe that highway expansion is a solution to those problems? More specifically, what do policy actors anticipate the outcomes of highway expansion will be?

1.2 The Benefits and Burdens of Highways

Highways proliferated in the United States almost immediately upon sale of the first internal combustion engine motor vehicles at the beginning of the 20th century. As one historian says, “Americans took to cars as completely and wholeheartedly as they did to anything in the nation’s long cultural history” (Muller 2017), and as motor vehicle market share grew, taking ridership from the urban rail and streetcar systems of the 1800s, the state and federal governments started investing in roadways with revenues from newly imposed gas taxes and other fees (Deakin 2021). The 1916 Federal Aid Highway Act offered grants for highway building but required that states (1) match the federal funds dollar-for-dollar, and (2) create a state highway department that was “technically skilled [and] managed in accordance with the principles of scientific administration of the day” (Deakin 2021). These technocratic administrative principles were derived from military hierarchical management and aligned with the contemporaneous “Progressive Era values that favored expertise and science in the management of urban affairs” (Brown et al. 2009). These state highway departments became today’s departments of transportation, institutions that are central to transportation policy and infrastructure provision (Deakin 2006, Deakin 2021).

The State of California was an early and “especially enthusiastic investor in highways” (Deakin 2021). In 1947 California passed the Collier-Burns Act to significantly increase the state gas taxes and highway user fees to fund state highways between and through cities (Morris, Brown, and Taylor 2016). It also put the state Division of Highways in charge of highway building, a responsibility that had previously been entirely in the hands of local governments (Brown 2002). This model of highway finance was copied around the country, including by the US Congress in 1956 when writing the bill to fund the interstate system, and led to California building an ambitious state-owned highway network in addition to interstates (Deakin 2021, Mitchell 2006). There were several reasons cited for building the interstates, including safety and the oft-cited benefit of national

defense, but “the general proposition the heart of all the traffic justifications for the urban Interstates was that freeways allow a freer flow of traffic, and hence are able to shorten driving times and reduce traffic congestion” (Schwartz 1976).

Federal legislative efforts to fund the interstate highways started in earnest in the early 1950s. The roadway “building boom” in the 1950s and ‘60s, funded almost entirely by a new federal gas tax, brought about an “extensive network of highways designed for fast, safe mobility, including the Interstate Highway System” (Deakin 2021). Two bills – one in 1952 and one in 1954 – funded interstate construction but provided “really only a pittance” that only slightly sped up highway building (Schwartz 1976). A 1954 speech by then-Vice President Richard Nixon to the Governors’ Conference reportedly had an “electrifying effect” for the “often mundane highway issue” and catalyzed the sweeping federal interstate program (Newcomb 1954). A 1955 attempt to significantly invest in interstates was unsuccessful – legislators from urban areas were “lukewarm” and it was opposed by the American Automobile Association and intercity bus industry, as well as the tire, oil, and trucking industries who opposed a fuel tax in favor of financing highways through general revenues (Brown et al. 2009; Schwartz 1976). The latter coalition ultimately became powerful members of the highway lobby despite initial opposition (Brown et al. 2009). Congress passed the Federal-Aid Highway Act only a year later in 1956 in a “nonpartisan landslide” (Schwartz 1976), with lobbying from the auto industry and highway construction industry as well as with a hastily planned urban interstate network to appeal to the urban politicians – “urban routes for the entire nationwide system were mapped out in a planning process that lasted just eight months, with very little local consultation and even less local control” (Brown et al. 2009). The 1956 bill also changed the local funding match requirements from 50 percent (costs shared equally) to 10 percent – that is, “the federal government picked up about 90 percent of the cost” of the new interstate facilities (Deakin 2021).

1.2.1. Unprecedented Mobility and Growth

These road and highway investments enabled explosive growth of suburbs, spurred also by New Deal housing and mortgage policies (e.g., Jackson 1985, Rothstein 2017). The state and federal highway engineers “imposed a narrow, traffic-service-oriented focus vision on metropolitan freeways that focused on maximizing vehicle throughput” and the output was a highway system that “undeniably conferred great benefits in terms of enhanced mobility” (Brown, Morris, and Taylor 2009). The expanded system of cars and highways and its unprecedented automobility offered “fast, safe, efficient, and convenient” mobility for people and goods (Deakin 2021). This facilitated a “massive acceleration of the deconcentration” of metropolitan regions, but fast travel speeds on beltways and radial highways still allowed people to commute from the new suburbs to employment in the central business districts within acceptable time budgets (Muller 2017, Deakin 2021).

The benefits that highways offered were significant but complex. At the time new suburbs were seen “not as a problem, but as a strategy for allowing people in congested cities to escape to areas where they could enjoy higher quality housing, healthier lifestyles, and parks and open space” (Brown et al. 2009). But a home in the suburbs was generally available only to white people because of de jure and de facto segregation such as exclusionary zoning, “sundown” laws, and racist home lending policies and practices (Rothstein 2017). Highway planners in the 1950s believed that urban highways would also be beneficial to urban neighborhoods – “through traffic would be diverted to the interstate, ordinary streets would become ‘quiet and safe’ and more suitable for neighborhood use” (Schwartz 1976). The mobility benefits of automobiles and highways were also distributed differently among racial groups – for Black people, especially those in the South, public transit was a “daily reminder” of the legalized oppression and caste system in the US (Archer 2020). Comparatively, “automobiles and highways offered a much-needed respite from the daily indignities of living in Jim Crow America” (Archer 2020). The ability to travel within and between towns and

cities a private automobile offered the “opportunity to travel ‘incognito’ in a covered car without constantly confronting the significance of their skin color gave southern blacks a taste of the mobility, freedom, and equality that otherwise had not materialized after Reconstruction” (Seo 2019).

1.2.2. Massive Displacement

But highway building imposed immediate burdens. New highways routed through cities divided and destroyed entire neighborhoods, in many cases used intentionally to reshape the built environments and to evict their residents (Brown et al. 2009, Rose & Mohl 2012). The estimates of homes destroyed by highway building vary but most agree that “massive amounts of urban housing were destroyed” in the building of the interstates and highways (Rose & Mohl 2012). The federal Bureau of Public Roads estimated that one million people would be forced from their homes to build the interstates (Altshuler 1965). The US House Committee on Public Works reported that by the late 1960s, construction of federal highways was destroying over 62,000 homes and displacing an estimated 200,000 people each year (Mohl 2004). The majority of neighborhoods that were destroyed were thriving, long-established communities and “the victims of highway building were overwhelmingly poor and Black” (Rose & Mohl 2014). Highway building was used as a tool of urban renewal – for “slum clearance” and to eliminate “blighted” areas – where “‘slums’ and ‘blight’ were widely understood euphemisms for African American neighborhoods” (Rothstein 2017). Highway planners relied on “a racialized hierarchy of space” (Loukaitou-Sideris et al. 2021) which was codified by the Federal Housing Administration and (later, according to Fishback et al. 2021) the Home Owners’ Loan Corporation with their infamous “redlining” maps. These institutions mapped and classified neighborhoods based on their desirability and risk for mortgage lending, classifying some neighborhoods as “hazardous”, which made obtaining a home loan and thus

homeownership nearly impossible. A primary indicator that the Home Owners' Loan Corporation used to classify blighted neighborhoods was the percentage of Black residents (Loukaitou-Sideris et al. 2021). Neighborhoods designated as “hazardous” on redlining maps – where communities of color lived – “were three times more likely than the best rated neighborhoods to be subjected to Interstate highway placement” (Nall & O’Keefe 2018). And the relationship between communities of color, low-income neighborhoods and routing of highways indeed appears causal. That is, routing highways through low-income and ethnic minority neighborhoods “was to a large extent, purposefully done, and for reasons openly stated” (Schwartz 1976). In the redlined neighborhood of Lincoln Heights in Los Angeles, an official from the Homeowner’s Loan Corporation stated that the community was “ripe for an urban renewal or highway construction project” (Avila 2014). The executive director of the American Association of State Highway Officials recalled in a 1972 interview that local officials saw highway building as a “good opportunity” to destroy their local Black neighborhoods (Schwartz 1976). Displaced residents were not compensated until funding for relocation assistance was included in a 1962 federal bill, at which point “much of the harm had been done” (Downs 1970, Schwartz 1976).

Community political power was also key factor in the routing of highways through low-income neighborhoods and communities of color: “urban freeways ‘follow the geographical path of least political resistance’” (Schwartz 1976, Downs 1970). In communities where affluent residents, expert consultants, and city councils coordinated to form well-resourced coalitions, they were often successful in pushing back against the plans of the Department of Transportation. Such was the case in Beverly Hills and the cancelled Beverly Hills Freeway (Avila 2014). Other communities felt similarly angry but powerless against the DOT. Across town from Beverly Hills unfolded stories “familiar to many Mexican American families of East Los Angeles during the 1950s and 1960s” – upon notice from the California Division of Highways that their home lie in the path of a planned

freeway, families “accepted modest compensation and moved when asked to move” (Avila 2014). Documents show that the officials in the Division of Highways likely “misinterpreted the reticence” of residents who moved without organizing opposition as support of their work (Avila 2014). The Division of Highways destroyed fifteen hundred homes for the Harbor Freeway (Interstate 110) and noted that the long-term residents they displaced did not meet them with reluctance nor defiance; rather, they “gladly cooperated” so as not to “stand in the way of progress” (Avila 2006). This was likely a matter of perceived political powerlessness, not enthusiasm to give up one’s home for the sake of “progress.”

1.2.3. Social and Environmental Health Burdens

Other social and environmental burdens of highway building soon followed. Highways severed and segregated cities, creating both physical and symbolic divisions (Fotsch 2007). “White flight” to the newly built suburbs and the forced relocation of communities of color within newly bisected urban areas resulted in cities that were more racially isolated and more intensely segregated (Rose & Mohl 2012). And because of the socio-spatial residential patterns caused, enabled, and propelled by the highways, the communities of color that remained in cities were disproportionately exposed to the environmental health burdens of highways compared to their white and wealthier counterparts.

These socio-spatial residential patterns persist today. Ethnic minority and low-income households are overrepresented in the areas immediately surrounding highways and high-volume roads, and Census tracts in the West were found to have the highest correlation between race and traffic density (Rowangould 2013, Tian et al. 2012, Boehmer et al. 2013).

A wealth of research has measured the high levels of pollution surrounding highways (e.g., Karner et al. 2010, Zhu et al. 2002a, Zhu et al. 2002b). Because of their proximity to highways and high-volume roads, communities of color and low-income households face a disproportionately high

exposure to pollution and emissions from passenger and freight vehicles (Gunier et al. 2003, Houston et al. 2004, Houston et al. 2008). Epidemiological studies have quantified the health risks associated with exposure to air pollution – risk of respiratory illness, cardiovascular disease, cancer, et cetera – and found that elevated exposure to vehicle-generated emissions causes deleterious health effects, and that “race plays an explanatory role in risk distribution even after controlling for other economic, land-use, and population factors” (Morello-Frosch et al. 2001; also: Pastor et al. 2005, Kim et al. 2001, Garshick et al. 2004, Garshick et al. 2008, Mahmood & Pham 2007). Loukaitou-Sideris et al. (2023) discuss in further detail these relationships between highways, segregation, air pollution, and health risk for both the national context and in California.

Residential proximity to highways also makes those households more susceptible to impacts when those highways are expanded. The government has authority to “acquire private property for public use” by way of eminent domain, which allows the California Transportation Commission to adopt a “right of way resolution of necessity” and for the Department of Transportation to “condemn property to be used for highway and related purposes” (California SHC § 102, CTC 2023). This is the process by which homes and businesses are destroyed and residents relocated for the expansion of highway right of way. FHWA estimates that over 83,000 households and 65,000 businesses nationwide have been displaced since 1991 (FHWA 2022). The estimate for California is nearly 10,000 households, nearly 7,000 businesses, and 56,000 parcels since 1991 (FHWA 2022).

1.2.4. Highway Expansion & Climate Change

Climate change is causing more frequent and more extreme weather events. Heat waves, drought, wildfires, and floods are expected to increase in frequency and severity in California (IPCC 2021) and evidence points to climate change and climate events causing disproportionate effects on the health and economic stability of vulnerable and socially marginalized populations (Morello-Frosch et

al. 2009). Climate change-driven extreme heat, exacerbated air pollution, urban heat island, economic disruption, employment shifts, and property damage pose greater risk to low-socioeconomic status groups in California (Shonkoff et al. 2011). This creates what researchers call the “climate gap,” where the poor and people of color are the hardest hit by the health and economic consequences of climate change – “climate change is not just an environmental issue; it also has human rights, public health, and social equity dimensions” (Morello-Frosch et al. 2009, Shonkoff et al. 2011).

Globally, the transportation sector contributes about 23 percent of anthropogenic greenhouse gas (GHG) emissions. In the United States the transportation sector weighs in as the largest source of GHG emissions with 28 percent of total emissions. That figure jumps in America’s western states – transportation is the largest source of GHG emissions in California, accounting for over 40 percent of statewide GHG emissions (see Table 1). And of California’s GHG emissions from transportation, the vast majority are generated by passenger transportation – light duty cars and trucks (CARB 2022). The second largest source of transportation GHGs is heavy duty on-road vehicles, such as goods movement trucks (CARB 2022).

| Table 1: Greenhouse Gas Emissions from Transportation | |
|--|---|
| Geography (Year) | Percent of GHGs from Transportation Sector |
| Globally (2014) ¹ | 23% |
| United States (2016) ² | 28.5% |
| California (2017) ³ | 40.1% |

¹ IPCC 2018; ² EPA 2018; ³ CARB 2018

Technology is one avenue to clean up the transportation sector. California has pioneered vehicle efficiency and clean fuels policies and more recently has encouraged adoption of alternative-fuel vehicles (e.g., electricity and hydrogen). Electric vehicle policy, especially, has diffused to freight regulations, fleet standards, building codes, and local government ordinances around the US and especially cities throughout the West Coast (ICCT 2018).

But technology innovation alone will not be enough. As the International Panel on Climate Change (2018) puts it, we will need “not just technological-focused measures such as energy efficiency and fuel-switching” to mitigate the transportation sector’s carbon emissions. To keep global warming below 1.5 degrees “[s]tructural changes that avoid or shift transport activity are also important” (Rogelj et al. 2018). California policy has had a similar tune: “even taking these [technological] measures into account, it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation” (California SB 375, 2008). Changing land use patterns and increasing transportation options are crucial mechanisms to increase multi-modal accessibility and reduce vehicle miles traveled (VMT), and reducing VMT is necessary for auto-dependent states like California to meet climate mitigation goals (UC Davis Policy Institute for Energy, Environment and the Economy 2015). In its 2022 Scoping Plan – the roadmap for decarbonization in California – the California Air Resources Board states that “VMT reductions will play an indispensable role in reducing overall transportation energy demand and achieving the state’s climate, air quality, and equity goals.” And VMT reduction needs to happen quickly, CARB says: “The pace of change to reduce VMT must be accelerated” and one strategy to do so is to “reimagine new roadway projects that decrease VMT in a way that meets community needs and reduces the need to drive”.

1.2.5. Induced Vehicle Travel

How does highway expansion relate to transportation policy that aims to achieve climate, air quality, and equity goals? Expanding highway capacity is often proposed as a strategy to reduce traffic congestion, improve air quality, reduce GHG emissions, and improve transportation equity, as this dissertation and other research demonstrates. The logic is that increasing highway capacity increases vehicle speeds, which lets vehicles operate at speeds with greater fuel efficiency and lower per-mile

emission rates of GHGs and toxic air pollutants. But this logic fails to account for the fact that demand for vehicle travel is indeed elastic – that is, vehicle travel demand responds to the cost of travel, which is generally measured in travel time. This is called the induced travel effect: increasing highway capacity – either constructing a new facility or expanding an existing highway – does indeed increase vehicle travel speeds and reduce travel times, thus reducing the effective cost of highway driving. Like any good sale price on an ordinary good, the reduction in cost spurs – or induces – more vehicle travel on the highway. The additional vehicle miles traveled (VMT) are called induced travel.

Induced travel is explained by the bedrock economic principles of supply and demand. Increasing the supply of the highway network, as illustrated in Figure 1a, reduces the cost of vehicle travel and the total volume of driving consumed increases. This is seen in the graph on the left, where the supply curve shifts to the right and VMT consumed increases from V to V' . The increase in VMT comes from people taking more frequent vehicle trips, choosing farther destinations or longer routes, or shifting from other travel modes to driving. In the long run, expanded highway capacity leads to households and businesses moving to more distant locations and can spur land development in more distant locations or more dispersed development patterns. These long-run changes “harden” demand for driving and further induce VMT, illustrated in Figure 1b with the shift of the demand curve and the commensurate shift in VMT consumption from V' to V'' . The empirical research finds that the full slate of long-run effects of highway expansion on VMT takes five to 10 years to realize (Hansen & Huang 1997, Duranton & Turner 2011).

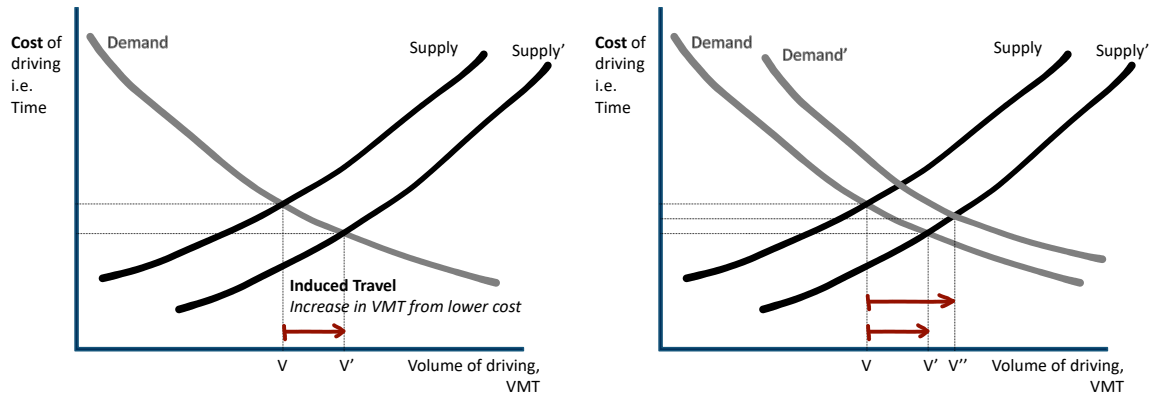


Figure 1. Supply and Demand for Vehicle Travel:

(a) Short-Term Induced Travel and (b) Long-Term Induced Travel

Induced travel has been well-documented in theoretical and empirical research. It has been anecdotally observed since the adoption of the automobile (e.g., Ladd 2012) and theorized at least since Anthony Downs' watershed paper in 1962. Induced travel has been measured in empirical research for decades (see Cervero 2002) and with an increasingly level of sophistication (Noland & Cowart 2000, Cervero & Hansen 2002, Duranton & Turner 2011, Melo et al. 2012, Hymel 2019). The magnitude of the induced travel effect is often measured and discussed as an elasticity, where a percent change in one factor brings about a percent change in another factor. In the case of induced travel, this is measured as the elasticity of VMT with respect to lane miles – the percent change in VMT for each percent change in lane miles. A 2014 review of the induced travel research found that “the best estimate for the long-run effect of highway capacity on VMT is an elasticity close to 1.0” (Handy & Boarnet 2014). That is, expanding highway lane miles by 10% was measured to increase VMT by 10% in the long run. This implies that “in congested metropolitan areas, adding new capacity to the existing system of limited-access highways is unlikely to reduce congestion or associated GHGs in the long-run” (Handy & Boarnet 2014).

1.2.6. Highway Expansion, Travel Behavior, Land Use, and Environmental Justice

The literatures on travel behavior, land use, displacement, air quality, and environmental justice reveal a complex set of relationships with highways and highway expansion, and they demonstrate that the expansion of highway capacity has broad effects. This dissertation adapts and expands upon the frameworks from Handy 2005 and Cervero 2003 to explore and engage with the factors that are a result of and give rise to highway expansion projects. The figure below illustrates the factors, relationships, and feedback loops that I present and discuss in the findings. This conceptual model posits that downstream burdens of highway capacity expansion – such as traffic congestion, air pollution, and sociospatial residential patterns – also explain the continued expansion of highway capacity.

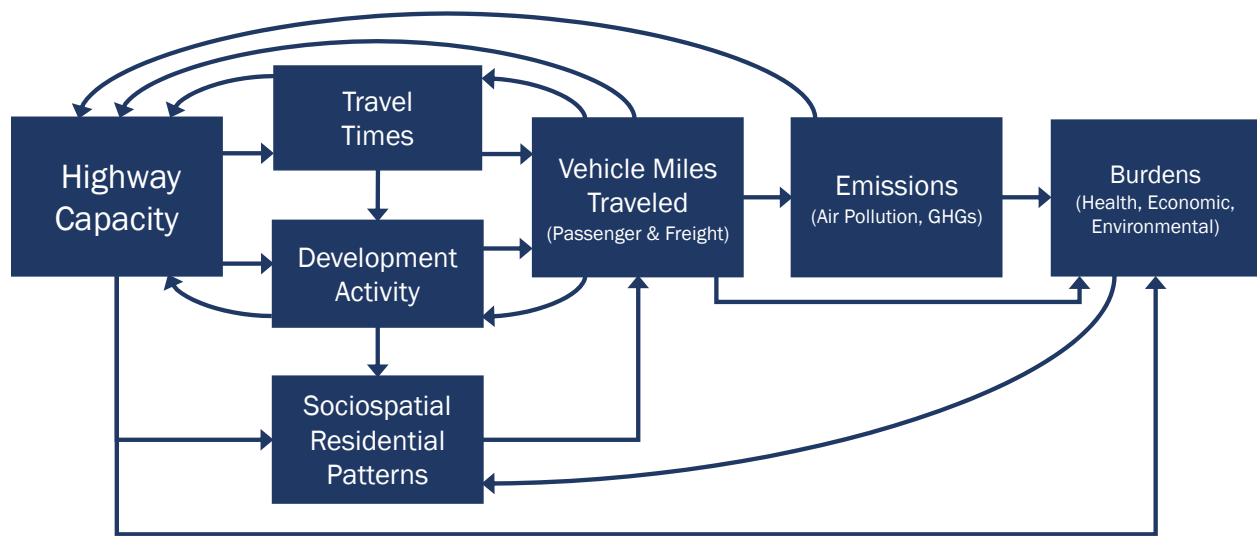


Figure 2. Relationship between highway expansion, travel behavior, land use, and environmental justice (adapted from Handy 2005 and Cervero 2003)

1.3 Institutional Evolution & Responses

The dramatic increase in highways throughout the 20th century brought about an evolution of the transportation institutions in the US. Before the state and federal highways, transportation

governance had mostly been a local matter. Taxes and fees for transportation were locally collected and administered and “because they controlled the money, cities had the autonomy to shape their own road networks and use them to guide development” (Brown et al. 2009). Even in the early decades of highway building, urban transportation systems and urban highways were in the purview of local governments – “local governments had complete responsibility for urban freeway construction” – while the state and federal governments focused primarily on rural highways (Brown 2002, Brown et al. 2009).

The first policy discussion of a state owned and operated highway system in California was a “radical break” from the traditional transportation governance model and “encountered serious opposition” from policy actors that were wary of cities and counties losing control to the state (Brown 2002). But the economic argument for highways was ultimately more powerful than the argument for local control of transportation, and the State Highway Act of 1909 ushered in a new era of transportation institutions in California and “marked the beginning of a sometimes uneasy relationship between state and local governments to control highways” (Brown 2002).

The state and federal government imposed the first gasoline and fuel taxes in the 1920s and 30s, which provided a robust revenue source for the highway system. But gas taxes were collected and administered by the state and federal government, beginning a shift in transportation decision making power “from city halls to statehouses and Washington” (Brown et al. 2009). With that shift also came deference of city transportation officials to their state and federal counterparts in order to stay in their good graces and receive state transportation funds for their projects (Taylor 2000, Brown et al. 2009). As municipal transportation revenues waned, cities lobbied statehouses for a larger portion of the state highway revenues and were ultimately successful. But state funding was accompanied by state control. A 1947 bill in California handed control of metropolitan highway building to the state Division of Highways (Brown 2002). Brown et al. called this a “Faustian

bargain” (2009). State highway departments imposed their engineering-based, throughput-focused, and rural-oriented philosophies and biases on urban highways. They largely ignored other urban issues, such as housing, and city planners sparred with state highway engineers over their narrower, technocratic approach (Brown et al. 2009). The federal interstate highway program in 1956, which included mapped-out urban highway routes to earn votes from the urban congressmembers, supercharged the enthusiasm of state highway departments and the expansion of the highway system (Schwartz 1976). Local influence in highway construction deteriorated further (Brown et al. 2009), highway building boomed, and the “federal bulldozer” – often driven by state highway departments – destroyed homes, communities, air quality, parklands, and waterfronts to make way for highways (Schwartz 1976).

Perhaps unsurprisingly, opposition movements and protests erupted as highway construction intensified in urban centers (Mohl 2004). Early “freeway revolts” started in San Francisco in the 1950s and an antihighway movement became widespread through the 1960s, led by coalitions of community groups, academics, and elected officials (Sciara & Handy 2015). The freeway revolts coinciding with and shared aspects of the Civil Rights, environmental, and counterculture movements that challenged top-down decision-making processes and deference to experts (Mohl 2004, Deakin 2021).

The freeway revolts and antihighway movement led to institutional change in transportation and another shift in the locus power, this time to the regional level. The 1962 Federal Aid Highway Act Planning was a turning point. It required that urban areas implement “a continuing comprehensive transportation planning process carried on cooperatively by States and local communities” in order for transportation projects to be eligible for federal funding (Sciara & Handy 2015, Deakin 2021, Mohl 2004). The federal legislature required that this “3-C” transportation planning process be led by local elected officials and carried out by a new type of government agency: a regional-scale

planning organization that eventually became known as the metropolitan planning organization (MPO). It required that the regional transportation planning process include highways as well as other forms of transportation and consider the effects on future land development (HR 12135 1962). In the 1962 Federal-Aid Highway Act, the Congress “established a foothold for metropolitan transportation planning and decision making in federal law” – this foothold gave local governments the potential to collectively challenge the power of state highway departments (Sciara & Handy 2015, Mohl 2004). Subsequent federal policy and highway bills specified MPOs’ responsibilities, putting them in charge of long-range transportation planning and near-term programming of state and federal funding (23 U.S. Code § 134).

The challenges and changes to transportation and highway decision making in the 1960s were part of other political and institutional reforms of the era. A slate of environmental legislation expanded the responsibilities of transportation institutions. Air pollution research in the 1950s and 60s linked automobiles to air pollution and health risks. The federal Clean Air Act Amendments of 1970 required exhaust control systems on new vehicles, created national ambient air quality standards, and required states to create plans to achieve these standards (Aldy et al. 2022). The 1990 Clean Air Act Amendments California strengthened the air quality requirements in the 1970 amendment and increased punishment for failing to conform, including the withholding federal transportation funding to regions that failed to meet air quality conformity (Sciara & Handy 2015). The 1990 Clean Air Act Amendment also required MPOs to analyze regional transportation plans and near-term programming of funds for conformity with air quality standards. In the late ‘60s California and the federal government adopted environmental analysis and disclosure laws in the – the California Environmental Quality Act and the National Environmental Policy Act, respectively – which required evaluation of alternatives and assessment and disclosure of environmental impacts caused by federally funded and discretionary public “projects,” such as transportation infrastructure

projects. These environmental review laws also created avenues for public participation in and litigation of highway projects (Deakin 2021, Mohl 2004). But until 2020, California’s landmark environmental review law considered automobile delay to be the transportation impact of import, requiring projects to assess and mitigate traffic congestion and thus incentivizing projects that can demonstrate at least short-term congestion relief, like highway expansions (Volker, Lee & Handy 2018). Legislative change took effect in 2020 to measure transportation impacts from VMT generation, rather than automobile level-of-service (Lee & Handy 2018).

Civil rights laws have also influenced transportation institutions. Civil rights laws addressing discrimination in federal transportation and housing programs were enacted in the 1960s, including the Civil Rights Act in 1967. The 1962 highway bill required that state highway departments to provide relocation assistance to any residents or businesses displaced by highway projects, which was bolstered in additional legislation in 1968 and 1970 (HR 12135 1962, Mohl 2004). A federal executive order in 1994 required federal agencies to identify and address environmental justice impacts of federal actions “to the extent practicable and permitted by law” (EO 12898 1994).

The 1991 federal transportation bill – “ISTEA” – was another major turning point for transportation governance, funding, and the distribution of influence. ISTEA “took a multimodal approach toward transportation planning and funding,” increased funding for active transportation, and significantly increased the responsibilities and flexibility of MPOs (Deakin 2021). It “shifted transportation decision making more visibly from the state to the regional scale” by making several substantive changes to MPOs’ planning process: (1) it required that long-term transportation plans and near-term investment programs be fiscally constrained, reflecting reasonably anticipated funding, (2) it granted MPOs more discretion and flexibility in some funding decisions, and (3) required that MPOs involve the public in planning and investment processes (Sciara & Handy 2015).

Other legislative and voter actions in California shifted influence in transportation, swinging the pendulum back toward the local level. California's Proposition 13 in 1978 slashed property tax rates and restricted how much they could increase, which creating mayhem for local government finance. Some local municipalities became further dependent on state and federal revenues while others enacted local sales tax measures that were specifically dedicated to transportation projects. In the decade after Prop. 13, 18 of California's mostly-urban counties adopted transportation sales tax measures to fund highways, transit, and other transportation projects (Brown 2002). This gave local governments greater control over their "transportation destinies" and a "new assertiveness" in transportation planning, project prioritization and selection, and their advocacy for local and regional control of state transportation funds (Goldman & Wachs 2003, Brown 2002, Brown et al. 2009). But it also shifted transportation decision making onto local ballots and into the local electoral process, bringing rise to an era of much debated "ballot box transportation policy" (Goldman & Wachs 2003, Fang & Thigpen 2017). In 1997 California Senate Bill 45 further devolved transportation responsibilities to MPOs and county-level transportation agencies, increasing the control of local and regional agencies over project selection, project design, and programming of funds (Deakin 2021, Brown 2002). The degree to which SB 45 actually empowered MPOs in decision making is debated, but scholars agree that it made counties a more influential player in transportation planning and programming (Brown 2002, Deakin 2021) – indeed, "to a large extent, the planning and programming process in California is heavily dependent on what the counties want" (Deakin 2021).

A second environmental era emerged in the late 1990s and 2000s, fueled by information about sprawl and climate change. In the late 1990s some local jurisdictions and MPOs voluntarily conducted "blueprint" planning exercises that coordinates and integrates their regional plans for transportation, land use, and air quality (Barbour & Teitz 2006). AB 32 (2006) set California in

motion to reduce statewide GHG emissions. In 2008, California policymakers legislated that all MPOs create integrated land use and transportation planning in the fashion of the earlier regional blueprints, with the aim to rein in Californians' VMT and thereby reduce GHG emissions. Senate Bill (SB) 375 – the Sustainable Communities & Climate Protection Act – which requires that MPOs create regional transportation plans that meet increasingly stringent targets for automobile use and their related carbon emissions. A core component of these regional plans – called “Sustainable Communities Strategies” (SCSs) – “must map a future growth strategy that will help the region stem automobile-dependent development” (Sciara 2020). But MPOs bumped up against their institutional authority with SB 375 because Sustainable Communities Strategies “are at once mandatory and yet entirely unenforceable and dependent on local implementation,” which made the governance of SCSs “paradoxical” (Sciara 2020).

That paradox has led to lackluster implementation of SCSs. California Air Resources Board assesses the progress of SB 375 and found in its 2018 progress report of the Sustainable Communities & Climate Protection Act. CARB not only found that “California is not on track to meet the greenhouse gas reductions expected under SB 375 for 2020”; it found “emissions from statewide passenger vehicle travel per capita increasing and going in the wrong direction” (CARB 2018). The progress report emphasized that “California – at the state, regional, and local levels – has not yet gone far enough in making the systemic and structural changes to how we build and invest in communities that are needed to meet state climate goals” and that the state “will not achieve the necessary greenhouse gas emissions reductions to meet mandates for 2030 and beyond without significant changes to how communities and transportation systems are planned, funded, and built.” The “systemic and structural changes” that CARB calls for include decreasing the share of people driving alone and increasing the shares of carpooling, transit, walking, and bicycling; they also include land use and housing strategies – increasing housing supply and “particularly homes

affordable to low-income communities” – to reduce lengthy commutes. CARB calls for changes in transportation investments to decrease the proportion of infrastructure dollars “spent on roads versus on infrastructure for other modes.”

1.4 A Theoretical Framework of the Highway Policy Process

As an institutionalist studying empirical phenomena, I presume that individuals try to solve problems as effectively as they can. That assumption imposes a discipline on me. Instead of presuming that some individuals are incompetent, evil, or irrational, and others are omniscient, I presume that individuals have very similar limited capabilities to reason and figure out the structure of complex environments. So it is my responsibility as a scientist to ascertain what problems individuals are trying to solve and what factors help or hinder them in these efforts.

Elinor Ostrom, *Governing the Commons*

This dissertation is concerned with questions about institutional and political factors that drive infrastructure decisions and investments, particularly highway capacity expansions. To ground these research questions I adapt, expand, and combine conceptual frameworks from the transportation literature and the policy process literature. Frameworks from Handy (2005) and Cervero (2003) explain the complex links between transportation policies and investments, land use, and travel behavior, particularly the causal pathways that result from new highway capacity. I combine and expand the frameworks that explain the “downstream” outcomes of additional highway capacity – outcomes such as air pollution, greenhouse gas emissions, residential and commercial displacement, health risks (Figure 2). These downstream outcomes are what motivate this research.

But this dissertation grapples with the transportation planning, investment processes, and institutions of which highway expansion projects are an *output*. By institutions I mean the individuals,

agencies, and organizations, their relationships, as well as the rules and norms they follow. These institutions are “upstream” from highway capacity projects – highway capacity projects are the policy outputs – and require different theoretical frameworks to analyze and explain their key causal factors and the relationships among them. To explore and explain these upstream factors, I draw from the policy process theory literature to investigate the context in which transportation and highway expansion policies are made. I investigate who is influential, what problems they are trying to solve, and why they think highway expansion is a solution to those problems because, as noted earlier, “[i]t is important to know the ‘who, what and why’ of influence in a policy sphere in order to understand the potential barriers and opportunities for policy change, and stability of policy over time” (Marsden & Reardon 2017).

1.4.1. Policy Process Theory

The policy process literature provides a long-standing discussion of the role of the individual in the policy process, their roles and positions in formal and informal institutions, the factors that motivate them, the rules animate and constrain their actions, and how their interactions create outcomes. The Advocacy Coalition Framework (ACF), developed by Paul Sabatier and Hank Jenkins-Smith, offers one framework to focus on wicked problems – those involving “substantial goal conflicts, important technical disputes, and multiple actors from several levels of government” (Sabatier and Weible 2007). Central to the ACF is the concept of beliefs, and that policy participants are motivated to translate beliefs into actual policy (Sabatier and Weible 2007). It assumes that people who participate in policy have strongly held beliefs that are very stable over time, which makes major policy change “very difficult” (Sabatier and Weible 2007).

The Institutional Analysis and Development (IAD) Framework, developed by Elinor Ostrom, offers a similarly rich conceptual framework for evaluating the policy process. It “provides a

language, and way of thinking, about the ways in which different institutions foster collective action” (Cairney 2019) and is most useful in explaining the “logic, design, and performance of institutional arrangements” (Ostrom et al. 2014). The IAD defines constructs and relationships that help to analyze elements of these cooperative relationships – how policy actors share information, who they trust and perceive to be reliable, and with whom they collaborate to create, monitor, implement, or enforce policies for the benefit of the collective.

I use both the ACF and the IAD framework to help answer my research questions related to the highway policymaking process. Much of this dissertation focuses on beliefs of policy actors, and I use the ACF to guide my investigation of core policy beliefs, information, problem definitions, and evaluation of solutions. The ACF also provides a foundation for analyzing the coalitions that form in the highway policy arena and provides a language to understand what causes seemingly “odd bedfellows” to ally. I draw from the constructs, definitions, and relationships described in the IAD framework, as well as its embrace of complexity. and use them in combination with concepts and relationships defined in the ACF. The conceptual model that guided this dissertation is illustrated in Figure 3 and shows the primary constructs that I engaged with and their proposed relationships: (1) policy actors in formal positions, (2) policy actors’ beliefs and information, (3) their perception of problems, and (4) why they think highways provide the outcomes that they desire. I discuss the theoretical foundation for each of these factors below.

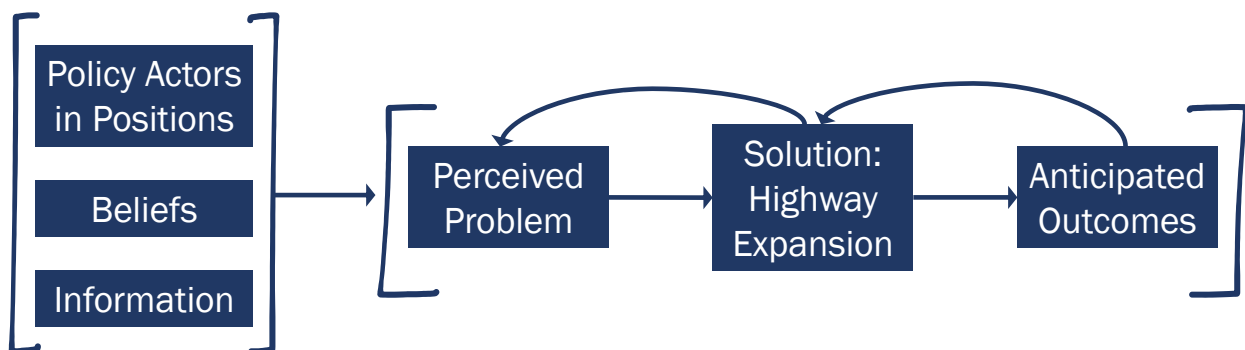


Figure 3. Conceptual model for this dissertation (adapted from Sabatier 1988 and Ostrom 1990).

Policy Actors

Individuals involved in the policy process are who I call “policy actors.” Many policy process theories assume that individual policy actors are “boundedly rational” – that actors have limited time, resources, and cognitive ability and thus decisionmakers resort to “satisficing” and heuristics rather than finding optimal solutions (Simon 1955, Kahneman 2003). Other policy process theories encourage the researcher to make explicit assumptions about individuals’ beliefs, values, information, and the internal mechanisms they use to make decisions (e.g., the IAD Framework, Ostrom 2007). The ACF differs from these frameworks as it assumes that normative beliefs must be empirically ascertained. This dissertation follows the ACF’s school of thought.

Policy Arenas

Policy actors animate policy arenas. Both the ACF and the IAD Framework assume a central locus of policy activity in which policy actors and coalitions interact and negotiate with each other. The ACF calls this the “policy subsystem.” It defines the policy subsystem as the framework’s primary unit of analysis and was designed to explain major policy changes in policy subsystems that are “both ideologically divisive and technically complex” (Sabatier & Jenkins-Smith 1993, 1999; Henry 2011). The IAD framework uses the term “action arena,” which it defines as “the social space where individuals interact, exchange goods and services, solve problems, dominate one another, or fight (among the many things that individuals do in action arenas)” (Ostrom 2007). I call the locus of policy activity the “policy arena” throughout this dissertation.

Beliefs

The concept of beliefs is central to the ACF, and the framework theorizes that beliefs are what motivate policy actors to engage in the policy arena. That is, actors seek to transform their beliefs into outcomes by way of policy. Beliefs provide a policy actor with a fundamental philosophy, guide their specific policy actions, and influence which problems a policy actor thinks “should receive the highest priority, the causal factors that need to be examined most closely, and governmental institutions most likely to be favorably disposed” to their point of view (Jenkins-Smith & Sabatier 1993). The ACF’s emphasis on policy actors, coalitions, and their beliefs makes it apt for this study of the motivations of influential policy actors and coalitions in the highway policy arenas around California.

The ACF assumes that actors who share particular beliefs form coalitions, and it outlines a three-tiered belief system: deep core beliefs, policy core beliefs, and secondary beliefs (Jenkins-Smith et al. 2018). Deep core beliefs are “fundamental normative values and ontological axioms,” too broad to guide detailed policies but rather can apply to multiple policy topics and subsystems (Sabatier 1988; Jenkins-Smith et al. 2018; Cairney 2013). Deep core beliefs consider policy actors’ “underlying personal philosophy” about humans and nature (Sabatier & Jenkins-Smith 1993). Examples include how to rank values such as freedom and security, whose welfare should be prioritized, and the divide between the left and right wings of politics (Sabatier 1998). Changes to deep core beliefs are “akin to religious conversion” (Sabatier 1988).

Policy core beliefs “are more specific (such as the proper balance between government and market) but still unlikely to change” (Cairney 2013). Policy core beliefs can be empirical (what is happening?) or normative (what should happen?) – including overall assessments, basic causes, and preferred solutions of the policy problem (Jenkins-Smith et al. 2018). Examples include definition and perception of policy problems, their causes, if society and government can or should attempt to

solve it, the role of government and private industry in solving the problem, and the “proper” distribution of power across levels of government (Jenkins-Smith 2018, Sabatier 1993, Sabatier 1998).

And finally, secondary beliefs “relate to the implementation of policy” and are the most likely to change as they address “the specific instrumental means for achieving desired outcomes outlined in the policy core beliefs” (Cairney 2013; Jenkins-Smith et al. 2018). They can relate to funding, delivery of policy goals, and information gathered to support this process (Sabatier 1993).

Policy core beliefs include how policy actors define and perceive problems, the causes of policy problems, and how they evaluate the solutions and outcomes. As such, the construct of core policy beliefs is the focus of this study.

Information

The ACF also places scientific and technical information as an important factor in the workings of a policy arena. While the ACF describes beliefs as the central mechanism for interpreting the world, beliefs are “not simply abstract representations of values and priorities”—beliefs also include policy actors’ perceptions of causality and relationships, and scientific and technical information is a major source of policy actors’ perceptions about causal patterns (Jenkins-Smith et al. 2018). Information can help actors define relationships between factors, attributes of policy problems, and policy alternatives (Jenkins-Smith et al. 2018). Information contributes to “policy learning,” in which policy actors adapt and evolve their beliefs in light of new information (Carney 2013). Secondary beliefs adapt more quickly with new information, while core beliefs may change over years or decades. The ACF considers policy learning is a prominent driver of policy change (Jenkins-Smith et al. 2018).

Information is also used as a resource. Weible (2007) calls information the “political salvo to win policy disputes.” Policy actors use information to support and defend their policy views, to argue

against the policy views of opponents, to influence public opinion, and to persuade other policy actors and policymakers to support their positions (Weible 2007). Information and evidence that is of higher quality or that supports a policy view does not guarantee policy success, but it requires opposing actors and coalitions to expend additional resources to “neutralize the advantage” of better information (Weible 2007).

But information is also used strategically. Technical information is often politicized and policy actors “selectively interpret information and use it to exercise power” (Cairney 2013). Policy actors and coalitions can “successfully challenge the data supporting policy change for years” (Cairney 2013). This pattern emerges in this dissertation around the incorporation, omission, and dismissal of scientific information about public health, air quality, and induced vehicle travel.

And because scientific and technical information is an important factor in the ACF, the researchers and analysts who produce scientific and technical information are key policy actors in policy arenas.

Public Opinion

Opinion polls showing public support for certain policy beliefs is a major resource for policy actors and coalitions (Jenkins-Smith et al. 2018). Policy actors that have the public “on their side” can argue that their positions represent the public interest, which is a resource when advocating for changes to legislation and regulations (Weible 2007). Public opinion also sways who is likely to be voted into to elected office, and changes public opinion can be a causal factor for changes in a policy arena (Sabatier and Weible 2007).

The Devil Shift

The ACF defined a pattern of interaction in which policy actors “perceive opponents to be more powerful and ‘evil’ than they actually are” (Sabatier et al. 1987). Based in prospect theory from behavioral science, in which people remember losses more acutely than wins (Quattrone and Tversky 1988) and people filter information through their belief system, Sabatier called this pattern “the devil shift.” The devil shift leads policy actors to exaggerate the relative influence and untrustworthiness of their opponents and contributes to noncollaborative attitudes and mistrust (Sabatier et al. 1987). The devil shift emerges throughout this dissertation in how policy actors talk about each other, who they perceive as powerful and what their resources are, how they perceive others actors’ motives, and who they perceive as “incompetent, evil, or irrational” (Ostrom 2015).

2 Research Design & Methods, Part 1

2.1 Design & Methods Overview

This dissertation uses mixed methods to answer its research questions. Questions related to “who, why, what, and how” of transportation planning, programming, the policy process, and highway expansion require different methods to answer them, and I combine quantitative and qualitative methods to explore transportation investments and the actors and factors that motivate them. This research is presented in two parts. The first is a mixed-methods study of transportation investments in transportation plans and in transportation programming. The second part is a qualitative study of why a significant share of transportation investments is dedicated to highway expansion in California.

To answer questions about transportation plans and programming in the first part of this dissertation, I used quantitative analysis to investigate planned and programmed investments for a sample of five case study metropolitan regions in California. Focusing on individual projects and the fiscally-constrained project lists – rather than the plans’ policies or forecasted funding allocations – allows us to evaluate the projects that are entering the planning and construction “pipeline” and if California’s climate policy aimed at transportation *planning* is in fact impacting transportation *investments*. I supplemented the project-level analysis with five semi-structured key informant interviews with regional planners. This qualitative analysis aimed to clarify the methods and practices used by MPOs in regional transportation planning and programming.

The comparison of transportation plans and programming showed that road and highway capacity expansion make up a significant share of planned and programmed funding across the state and especially in the Central Valley, suburban areas of the San Francisco Bay Area, and on major freight corridors. So in the second part of this dissertation, I explore the policy process and policy arenas of which highway expansions are an outcome. I qualitatively analyze the policy arenas of three case study highway expansion projects – Highway 37 in the North Bay Area, Interstate 80 in the Sacramento region, and lower Interstate 710 in Los Angeles County – as well as the associated statewide transportation policy arena. I conducted 48 key informant interviews with a variety of policy actors throughout California who were involved with one of the case study projects or with transportation policy at a statewide level. This exploratory analysis answered the research questions about the people, problems, and anticipated outcomes that motivate the case study highway expansion projects and highway expansion generally. In addition to key informant interviews, I draw on primary sources such as project documents, campaign contribution data, and press releases to compile the story of the powerful policy actors and the motivating factors surrounding the case study highway expansion projects.

2.2 Sample and Methods: Transportation Plans versus Transportation Spending

To compare climate-oriented transportation plans to transportation infrastructure spending, I look at two primary outputs of metropolitan planning organizations (MPOs) in California: regional transportation plans (RTPs) and transportation improvement programs (TIPs) for a sample of MPOs. I chose a sample of case study regions and their relevant MPOs to investigate in-depth, based on several factors that are described below.

2.2.1. Case Study Regions

I examine five MPOs, selected for a diversity of size, geography, and urban development patterns:

- Fresno Council of Governments (Fresno COG)
- Metropolitan Transportation Commission (MTC)
- Sacramento Area Council of Governments (SACOG)
- Shasta Regional Transportation Agency (SRTA)
- Tulare County Association of Governments (TCAG).

The five metropolitan regions and MPO cases are summarized in Table 2 and shown geographically in Figure 5¹.

Figure 4. Case Study Regions



¹ We initially planned to include SANDAG as a Southern California example but were unable to do so because their project listings and project data necessary for this analysis are not available in a single document and creating a database from the multiple sources in which the needed information resides is beyond the scope of this project.

Table 2. Case Study MPOs

| MPO (North to South) | Jurisdictions | Population, 2020 | RTP/SCS Analyzed (Year Adopted) | TIPs Analyzed (FFYs) |
|---|---|------------------|---------------------------------|----------------------------------|
| ● Shasta Regional Transportation Agency (SRTA) | 1 county, 3 cities | 182,155 | 2018 RTP & SCS (2018) | ● 2019 – 2022 ● 2021 – 2024 |
| ● Sacramento Council of Governments (SACOG) | 6 counties, 22 cities (excluding the Tahoe Basin) | 2,578,590 | 2020 MTP/SCS (2019) | ● 2019 – 2022* ● 2021 – 2024* |
| ● Metropolitan Transportation Commission (MTC) | 9 counties, 101 cities | 7,765,640 | Plan Bay Area 2040 (2017) | ● 2019 – 2022 ● 2021 – 2024 |
| ● Fresno Council of Governments (Fresno COG) | 1 county, 16 cities | 1,008,654 | RTP/SCS 2018-2042 (2017) | ● 2019 – 2022* ● 2021 – 2024* |
| ● Tulare County Association of Governments (TCAG) | 1 county, 8 cities | 473,117 | RTP 2018 (2018) | ● 2019 – 2022 ● 2021 – 2024 |

* Including TIP amendments

Per SB 375, the California Air Resources Board assigns each MPO a greenhouse gas (GHG) reduction target for its RTP. MPOs must demonstrate that their long-range plan can meet the GHG target through planned transportation investments and land use patterns. The Air Resources Board periodically updates these GHG targets, making them increasingly more stringent. GHG reduction targets for each of the case study regions are summarized in Table 3, showing the first set of regional targets (set in 2010) and the more recent set (updated in 2018)². No similar regional GHG reduction targets exist for the regional TIPs (Sciara and Lee 2018).

Table 3. SB 375 Regional Plan Climate Targets, percent change in per capita passenger vehicle GHG relative to 2005 (Source: California Air Resources Board 2021)

| MPO | Targets through September 2018 | | Targets beginning October 2018 | |
|------------|--------------------------------|------|--------------------------------|------|
| | 2020 | 2035 | 2020 | 2035 |
| Fresno COG | -5% | -10% | -6% | -13% |
| MTC | -7% | -15% | -10% | -19% |
| SACOG | -7% | -16% | -7% | -19% |
| Shasta RTA | 0% | 0% | -4% | -4% |
| Tulare CAG | -5% | -10% | -13% | -16% |

² CARB 2021: SB 375 Regional Plan Climate Targets

2.2.2. Data & Methods

I collected, coded, and analyzed two sets of data from each MPO: (1) the financially constrained transportation project listings from the most recently adopted RTP/SCSs, and (2) project listings from the two most recent federal TIPs. Project listings summarize the details of project-level investments that MPOs plan to fund over the long-range horizon of the RTP/SCS, and that MPOs have programmed for funding in the four-year horizon of the TIP.

Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Data

I collected financially constrained transportation project lists from the most recently adopted RTP/SCS for each MPO. These lists are often included as an appendix to the plan and published as a project-level summary table that includes for each project:

- A unique project ID
- Title
- Description
- County
- Lead agency
- Anticipated completion year
- Total project cost, in current year dollars and year of expenditure (YOE) dollars
- Project cost in current RTP/SCS, in current year dollars and year of expenditure (YOE) dollars

Many MPOs include information additional to the above fields in their project lists. Fresno COG, for example, includes a project type field (Bike & Pedestrian, Streets & Roads – Capacity Increasing, Streets & Roads – Maintenance, Streets & Roads – Operations, or Transit). MTC includes fields for system (Bike/Pedestrian Facility, Goods Movement Facility, Public Transit Facility, Street/Highway Facility, Other) and mode (Auto, Bike/Pedestrian, Port of Oakland, Program, or Transit). SACOG includes fields for project status (Planned, Programmed, or Project Development Only) and budget category (e.g., Bike & Ped, Road & Highway Capacity, Maintenance

& Rehabilitation, Programs & Planning). SRTA includes fields for project type/project intent (e.g., intelligent transportation system, ramp meter, auxiliary lane) and expected funding sources (e.g., State Highway Operation and Protection Program [SHOPP], Local). In the RTP project lists, none of the five MPOs in our sample include a field that specified the system on which the project is located (e.g., federal, state, transit).

An illustrative sample of transportation projects in the five MPOs' fiscally constrained RTPs is in Table 4, below.

Table 4. Illustrative Sample of Fiscally Constrained RTP Projects by MPO

| Lead Agency | Project Title | Project Description | Completion Timing |
|---|--|--|-------------------|
| Fresno COG | | | |
| City of Clovis | Dog Creek-Ashlan to Gettysburg: Trail | Construct Class I Trail | 2025 |
| City of Fresno | Olive – Fresno to Cedar: AC Overlay | AC Overlay | 2023 |
| Fresno Area Express (FAX) | Cedar Avenue BRT | Add BRT service to Cedar Avenue transit corridor. | 2030 |
| MTC | | | |
| City of Novato | Widen Novato Boulevard between Diablo Avenue and Grant Avenue | Widen Novato Blvd. between Diablo Ave. and Grant Ave. to accommodate future growth and enable roadway system to operate safely and efficiently, per City's General Plan. | 2020 |
| City of Fremont | Irvington BART Station | Construct a new BART station in Irvington PDA in Fremont on Osgood Road near Washington Boulevard as called for in the 2014 Alameda County Transportation Expenditure Plan | 2022 |
| Santa Clara Valley Transportation Authority (VTA) | US 101 Express Lanes: Whipple Ave. in San Mateo County to Cochrane Road in Morgan Hill | Convert HOV Lanes to express lane and add a second express lane in some segments. | 2025 |
| SACOG | | | |
| Caltrans D3 | WB Cambridge Rd. Loop Ramp Meter | WB Cambridge Rd. Loop Ramp Meter | 2031-2035 |
| City of Roseville | Roseville Parkway Widening | In Roseville, on Roseville Parkway, widen from 6 to 8 lanes from just east of Creekside Ridge Drive to Gibson Drive (E). | 2020-2025 |
| Sacramento Regional Transit District (RT) | Folsom Gold Line Service Enhancements | Construct side tracking needed to increase Gold Line frequencies from 30 minutes to 15 minutes on the segment between Sunrise Station in Rancho Cordova and Historic Folsom station in Folsom. Toll Credits for ROW. | 2020-2025 |
| SRTA | | | |
| Shasta County | Bridge Replacement | Jackrabbit Flat Rd @ Burney Creek – Replace Bridge | 2026-2040 |
| City of Redding | Shared Use Path | Park Marina Dr (east side) from Sundial Bridge Dr to E Cypress Ave | 2018-2025 |
| Caltrans | Ramp Meter | I-5, Start/End PM 12.26, S. Bonnyview, Ramp Meter - Northbound | 2026-2040 |
| TCAG | | | |
| Visalia | Ferguson Ave. | Construct new roadway: New 2-lane; collector | 2020 |
| Porterville | Hillcrest St. | Widen existing roadway: Widen to 4-lane Arterial | 2035 |
| Tulare | Tulare Ave./Oakmore St. | Tulare Ave. at Oakmore St.: Traffic Signal | 2022 |

I used these additional fields for analysis but did not use these additional categories when coding projects. Rather, I based project coding on the project title, project description, lead agency, and – when necessary – project information from lead agencies’ websites. I discuss the coding process in more detail below.

Nominal Dollars versus Year of Expenditure Dollars

Project costs are usually listed in both nominal and year-of-expenditure dollar values. To the extent

possible I use nominal dollars in this analysis – funds programmed in TIPs use nominal dollars and this ensures a more accurate comparison.

However, MTC does not include nominal dollar estimates for projects in Plan Bay Area 2040, SRTA lists near-term projects in nominal dollars and long-term projects in year-of-expenditure dollars, and Fresno COG does not specify dollar year in its RTP/SCS.

What are the “financially unconstrained” projects?

- Fresno COG includes about 100 transportation projects in its separate financially unconstrained project list, the plurality of which are roadway rehabilitation projects.
- MTC’s Investment Strategy Report, a supplement to Plan Bay Area 2040, includes a list of 23 “projects on the horizon”. Projects include rail extensions and stations, highway interchange and express lane expansions, sea-level rise mitigation, and a multi-use path on the western span of the Bay Bridge.
- SACOG includes in its MTP/SCS about 250 projects in the “project development only” phase that sum to about \$5.6 billion. The overwhelming majority are auto capacity projects on the local and highway networks throughout the region, but they also contain two major extensions to the light rail network.
- SRTA includes several hundred unconstrained projects that span every type of project: active transportation projects, bridge rehabilitation projects, highway operations projects, highway expansion projects, and interchange reconfigurations.
- TCAG includes a separate list of about 150 projects in its “unconstrained project requests”. All projects in this list are operational or capacity increasing projects. The 2018 RTP includes modal plans as appendices, which the MPO

Fiscal Constraint

I include only “financially constrained” projects in this analysis. Federal regulation requires that transportation investments in RTPs and TIPs be within budget of “reasonably expected” funding resources³. However, plans “can include, for illustrative purposes, additional projects that would be included in the adopted transportation plan if reasonable additional resources beyond those identified in the financial plan were available”⁴. Accordingly, some MPOs include financially unconstrained projects in their RTP/SCS transportation project lists.

For example, Fresno COG includes a separate list of unconstrained projects in its RTP/SCS. SACOG includes in its 2020 MTP/SCS project list “projects [that] are financially unconstrained and expected to be constructed after 2040” with the status “Project Development Only”. Although construction will occur after 20-year horizon of the plan, SACOG specifies that “projects listed as ‘Project Development Only’ are anticipated to begin early stages of development including project planning, design, preliminary engineering, environmental clearance, and ROW [right of way] acquisition by 2040. These projects remain eligible to seek federal and state funding, but under the financial constraint requirements for forecasting revenues, the construction phase is not included in the 2020 MTP/SCS”⁵. I exclude financially unconstrained projects from this analysis.

RTP Amendments

I analyze the transportation project lists as adopted in the initial four-year plan, not capturing later amendments. MPOs must update regional transportation plans at least every four years, but they can amend or revise their transportation plans and associated transportation project lists “at any

³ 23 U.S. Code § 134

⁴ 23 U.S. Code § 134

⁵ SACOG 2020 MTP/SCS

time ... without a requirement to extend the horizon year”⁶. Amendments are major revisions to RTPs such as adding or deleting a project or changing the project cost or scope.

While RTP amendments may constitute “major” revisions to individual projects, they are generally marginal changes to overall plans. For example, MTC adopted an amendment to Plan Bay Area 2040 in 2018 to modify the scope and project cost of the U.S. Highway 101 Managed Lanes Project in San Mateo County. The amendment “clarifies the project description and changes specific lane configuration assumptions” and changes the total project cost from \$365 million to \$534 million – an increase of \$178 million, or a 0.06% change in the \$303.3 billion cost of all projects in Plan Bay Area 2040⁷. A 2020 amendment to Plan Bay Area 2040 added a specific express lane project to the plan, using funds from the “express lanes reserve” that was an adopted project in the initial financially constrained plan⁸. Capturing amendments in this analysis would give the most accurate detail of MPOs’ transportation investments, but amendments are published in separate documents and would require line-item revisions to individual project listings. I omit them from this analysis.

Transportation Improvement Program (TIP) Data

I collected from each MPO the project listings for the two most recent Transportation Improvement Programs (TIPs). In these five cases, the most recent TIPs were adopted in 2019 and 2021 per California law requires that TIPs be updated and adopted every two years (“each odd-numbered year”)⁹. Each TIP covers four federal fiscal years, so two consecutive rounds of TIPs

⁶ 23 CFR § 450.324

⁷ MTC 2018, Plan Bay Area 2040 Amendment

⁸ MTC 2020, Plan Bay Area 2040 Amendment

⁹ 7 California Government Code § 65082

cover six federal fiscal years, or roughly one-third of the 20-year horizon of the long-range RTP/SCS.

I include two rounds of TIPs to capture variation between TIP cycles. Projects included in a given TIP are influenced by the available funding, competitive grant awards, project phasing, and the readiness of certain projects or phases to seek funding at a given time. As such, the magnitude of funds programmed in total and for various modes fluctuates from TIP to TIP and a single TIP can be skewed by a single large project reaching the programming phase in that TIP cycle. I include two cycles to capture a wider timeframe and more representative sample of programmed projects.

I ensured that each project had sufficient information for analysis. I used the following information, which is required for each project or project phase:

- “Sufficient descriptive material (i.e., type of work, termini, and length) to identify the project or phase”
- Estimated total project cost
- Amount and category of federal funds to be obligated during each year for the project or phase
- Lead agency
- In areas of “non-attainment” or “maintenance” under the Clean Air Act
 - Projects that are identified as “transportation control measures” (TCMs) in a State Improvement Plan
 - All included projects must be specified with sufficient detail for air quality analysis in accordance with the EPA transportation conformity regulations.

Most of the case study MPOs publish a summary table of TIP projects with the above fields, similar to the transportation project list in the RTP. When a summary table was not publicly available, I obtained them with help from MPO staff or – in the cases of Shasta RTC and Tulare CAG with relatively short project lists – transcribed them manually. One MPO (SANDAG) could not provide such a table and was thus omitted from the sample of this study.

Lump Sums

Projects that are exempt from air quality conformity analysis are very often included in TIPs as grouped projects, rolled up with similar projects and listed together with a “lump sum” of programmed dollars. I include grouped projects and lump sums in this analysis.

TIP Amendments

Like RTPs, TIPs can be and are regularly amended¹⁰. In two of the five case MPOs – Fresno COG and SACOG – the TIP project listings reflect amendments. TIP data from MTC, SRTA, and Tulare CAG do not include amendments.

SACOG, for example, adopted two formal amendments and 33 administrative modifications to its 2019 TIP. One of the amendments included 55 in-line revisions to project or phase cost, funding sources, completion year, name, or description. New projects were added and existing projects were deleted or combined with other existing projects¹¹. Data that include amendments certainly give the most accurate snapshot of funding, but I include amended TIP data only in cases where the MPO maintains and makes publicly available a TIP project database with amendments. In this sample, those MPOs were Fresno COG and SACOG.

Why TIPs?

I analyzed TIPs because they reflect policy decisions. That is, MPOs adopt TIPs by a vote of their board members. TIPs “obligate” transportation funds, guaranteeing that lead agencies can be reimbursed for implementation of those transportation projects regardless of future changes in policy direction or priorities. Cash flow documents would reflect the current flows of monies but

¹⁰ 23 U.S. Code § 134

¹¹ SACOG 2019, Amendment #11 to the 2019-22 MTIP

would reflect policy decisions from past years or decades. To better understand current decision-making, I analyze TIPs in this study.

What is a “Project”?

These two data sources, RTPs and TIPs, both provide a project-level inventory of transportation investments. However, a “project” in a long-range plan is often conceptually different from a “project” in a TIP. This is particularly true for large, complex projects and projects further in the future.

For example, MTC discusses in Plan Bay Area 2040 a high-priority regional express lanes project. In the project list of Plan Bay Area 2040, express lane projects are listed for several Bay Area highways (e.g., “US 101 Express Lanes: Whipple Ave. in San Mateo County to Cochrane Road in Morgan Hill”, “I-880 Express Lanes”, “SR 85 Express Lanes: US 101 (South San Jose) to Mountain View”) and describes conceptually (e.g. “Convert HOV Lanes to express lane and add a second express lane in some segments”, “Convert existing HOV lane to an express lane in both directions between I-880 and SR-85”). In the two TIPs, these conceptual projects are broken into smaller, more specific projects by phase or component. Projects in the TIPs direct funds to individual components of an express lane implementation, programming funds for specific elements like “implement roadway pricing on US 101 carpool lane”, “Install ETS [electronic tolling system]”, and “I-880 in the northbound direction from Hacienda Avenue to Hegenberger Road: widen to provide one HOV/express lane”.

Both RTPs and TIPs offer a portfolio of project-level transportation investments, and the TIP must be consistent with the RTP. But in many cases, the fundamental concept of a “project” differs between the RTP and TIP and thus should be compared carefully. As one regional planner

analogized¹²: In an RTP, a project tells you that we would like to build a house, its general size and style, and where it is located. Projects in a TIP detail the framing, electrical specifications, kitchen installation, et cetera.

Disparity in Project Descriptions

I analyzed and coded each project in the five RTPs and ten TIPs – almost 9,000 projects – based on their project title and project description. Lead agencies differ greatly in the specificity and clarity of project descriptions. Such ambiguity makes understanding and analysis of transportation investments challenging and onerous. For example, many project descriptions in the five case study regions describe “congestion relief”, “operational improvements”, and “safety enhancements” without specifying the investments that will be taken to reach such outcomes. One such project is “SR 17 Corridor Congestion Relief in Los Gatos” in the jurisdiction of MTC:

“Operational improvements for the SR 17 Corridor, including upgrading Highway 17/Highway 9 interchange to improve pedestrian and bicycle safety, mobility, and roadway operations; deploying advanced transportation technology to reduce freeway cut thru traffic in Los Gatos, including traffic signal control system upgrades in Los Gatos, traveler information system, advanced ramp metering systems and multi-modal congestion relief solutions.”

The lead agency’s project website gives more clarity about the “operational improvements” and “congestion relief solutions”. Among other things, the project will “[m]odify SR 17 mainline lanes and shoulder to eliminate lane-drops and bottlenecks from Lark Avenue to SR 17/SR 9 interchange”¹³. That is, it likely adds to this stretch of highway in southern Silicon Valley an additional travel lane between an on- and off-ramp 2.2 miles apart.

¹² Personal correspondence, Summer 2021

¹³ Valley Transportation Authority 2019, State Route 17 Corridor Congestion Relief Project

I found similar cases throughout the five case study MPOs, particularly with projects that add automobile capacity: road rehabilitation projects that widen local streets, safety projects that realign roads and add lanes, and operations and system management projects that add auxiliary lanes or add lanes to interchanges and highway on- and off-ramps. MPOs and lead agencies should be specific and uniform in their descriptions and reporting of transportation projects and project components, especially when projects pose ongoing maintenance needs and VMT impacts, such as with projects that expand auto capacity.

2.2.3. Summary Statistics

Summary statistics for the five RTP project lists and ten TIP projects lists are in Table 5, below. Some of the projects in this accounting of the RTP project list were omitted from analysis because they were planned for completion beyond the horizon year of the plan, and thus were considered by the MPO to be fiscally unconstrained projects. For example, one of the 1,604 projects in SACOG's RTP project list is an auxiliary lane on Highway 50 in El Dorado Hills that SACOG categorized with a status of "Project Development Only". It is expected to be complete "Post-2040". Projects like this were not included in analysis. Similarly, some projects are listed in TIPs even when they do not receive funds during that TIP cycle, oftentimes for accounting purposes. "It helps us keep track of projects", said a regional planner. For example, MTC included in its 2019 TIP a project that converts HOV lanes on I-880 in Alameda and Santa Clara Counties to express lanes. The project is expected to cost \$132,500,000 but no funding was programmed to the project during the four years covered by the 2019 TIP. This kind of project was also omitted from analysis.

Table 5. Summary Statistics of RTP and TIP Project Lists

| MPO | Number of Projects in RTP | Number of Projects in 2019 TIP | Number of Projects in 2021 TIP |
|--------------|----------------------------------|---------------------------------------|---------------------------------------|
| Fresno COG | 3,032 | 328 | 245 |
| MTC | 377 | 792 | 783 |
| SACOG | 1,604 | 725 | 568 |
| Shasta RTA | 349 | 23 | 17 |
| Tulare CAG | 286 | 35 | 34 |
| Total | 5,648 | 1,909 | 1,647 |

2.2.4. Project Coding

Every MPO in our sample uses different categories to describe transportation investments in their RTPs and TIPs. TCAG categorizes projects by fund source (e.g., SHOPP, local funds). SRTA uses broad project categories by facility type (e.g., ITS, interchanges, ramp meter, capacity, active transportation). SACOG uses 15 “budget categories” (e.g., Road & Highway Capacity, Maintenance & Rehabilitation, Transit Capital (Major), Transit Capital (Minor), System Management/Operations/ITS). To compare investment patterns between MPOs and across time, I developed a project coding scheme to apply uniformly across all project listings.

I evaluated a sample of projects from several MPOs and drafted the coding scheme to consistently categorize projects by primary mode, secondary mode, and type of investment. I tested the coding scheme on an outside sample of projects (i.e., projects not evaluated in the development of the coding scheme) and revised it with input from a three-person research team. A research assistant and I then independently coded projects with this coding scheme, working in batches of 50 projects, until the two researchers reached 95% agreement in their assigned codes. Afterward the research assistant and I together coded all projects, and then I reviewed all projects for any errors or inconsistencies.

I coded individual projects based on their title, description and, when necessary, lead agency and project information from lead agencies’ websites. Each project was coded with the mode for which

the project was primarily intended, a specific mode, and the type of project. The codes and their decision rules are summarized in Table 6 and Table 7.

Table 6. Coding Primary Mode & Specific Mode

| For what mode is this project primarily intended? If it allocates physical space, for what mode is that space “zoned”? | |
|---|--|
| Primary Modes | Specific Modes (subset of primary mode) |
| Auto | Parking, Highway, Local |
| Transit | Bus, Rail, Ferry, Bus & Rail, Other Transit |
| Active Transport | Bike, Walk, Bike & Walk, Micromobility |
| Heavy Rail/Maritime | Heavy Rail, Maritime |

Table 7. Coding Investment Type

| | |
|--|--|
| Does the project change the transportation network or built environment? | If yes: Continue to (a) If no: Skip to (e) |
| (a) Does the project add new links or transit frequency to the transportation network? | If yes: New Capacity Else: (b) |
| (b) Is the project major reconstruction of an existing asset? (E.g., redesign and/or realign geometry) | If yes: Reconstruction Else: (c) |
| (c) Does the project rehabilitate or replace an existing component of the transportation network? | If yes: Rehabilitation, Maintenance, Preservation Else: (d) |
| (d) Does the project change the way a person interacts with or use the existing transportation network? | If yes: Operations |
| (e) Is this project a stage/phase of a project that ultimately changes the transportation network or built environment? | If yes: Back to (a) for the overall project Else: (d) |
| (d) Is the end product a plan, study, or program? | If yes: Planning, Study, Program Else: Indirect Investment |

Many projects contain investments for multiple modes. To capture multi-modal investments, we coded projects that satisfied the question “Does this project include investment for any other modes that would not have been made but for the primary mode?”. If this was the case, we coded the project for the “secondary mode” accommodated by the project. The project elements for this secondary mode were coded using that same decision criteria summarized in Table 6 and Table 7.

The project team used several “rules of thumb” to clarify the coding scheme. Highway interchanges and on- and off-ramps, for example, were coded as being on the highway network. Highway overcrossings and undercrossings with no ramps to the highway were coded as being on

the local network, though they may require state action (e.g., a permit). Streetscape projects were generally considered to be auto reconstruction projects unless they added specific complete streets or traffic calming features – in these cases they were considered active transport projects. Road diets that reallocated roadway space to bikeways or sidewalks were considered active transportation projects. Indirect investments are projects such as bus wash facilities, retrofitted agency buildings, streetsweepers, and maintenance stations.

2.2.5. Key Informant Interviews

In addition to the RTP and TIP project lists and documentation, I conducted five semi-formal interviews with key informants at the case study MPOs. Interviewees were MPO staff responsible for developing the RTP project lists and TIPs. The nature of these interviews was to consult with MPO staff and clarify agency practices for creating project lists for the RTP and TIPs, terms and definitions used by the agency, and agency rules and norms for developing these project lists.

Interviews ranged in time from 30 to 90 minutes and were conducted by phone. I did not record interviews but rather took detailed notes. And to encourage candid discussion, I committed to keep the names and agency affiliations of the interviewees anonymous.

3 Transportation Planning versus Spending among California Metropolitan Regions

3.1 Executive Summary

I examine and compare regional transportation planning and regional transportation funding – “programming” – using a detailed analysis of long-range regional transportation plans (RTPs) and short-range transportation improvement programs (TIPs) for five metropolitan planning organizations (MPOs) in California. I develop and use a common coding scheme to categorize transportation projects in both the RTPs and TIPs and compare expenditures planned in the long-range RTP to the funds committed in the near-term TIP for automobile, transit, and active transportation infrastructure.

RTPs and TIPs serve related but distinct purposes in the transportation planning process. RTPs in California are a regional strategy for a transportation system and land use pattern that together meet regional goals and decrease transportation-related greenhouse gas emissions per California’s Senate Bill 375. TIPs are spending plans – they budget funds to specific projects and are meant to implement the RTP. TIPs track in detail the transportation investments made with federal and state funding sources or that are “regionally significant,” regardless of funding source. Thus, TIPs give a nearly comprehensive picture of the role of state and federal funds in attaining the goals of the RTP.

Findings show that among the five case study regions, the state, federal, and – in some cases, local – expenditures programmed in TIPs are generally less multimodal and more auto-centric than the investments outlined in MPOs’ long-range transportation plans. The three largest MPOs program a larger share of funds for auto infrastructure and a smaller share of funds for transit than

the planned expenditures in their respective RTP/SCSs. Auto infrastructure (e.g., new capacity, road rehabilitation, operations) receives the majority of planned and programmed funds in all regions except the San Francisco Bay Area. New auto capacity (e.g., new or wider roads, new auxiliary or toll lanes, new or wider interchanges and ramps) makes up a significant share of planned and programmed funding in all regions, particularly in the Central Valley and suburban areas of the Bay Area. Indeed, new auto capacity receives the plurality of programmed funds in two of the five case regions (SACOG and TCAG).

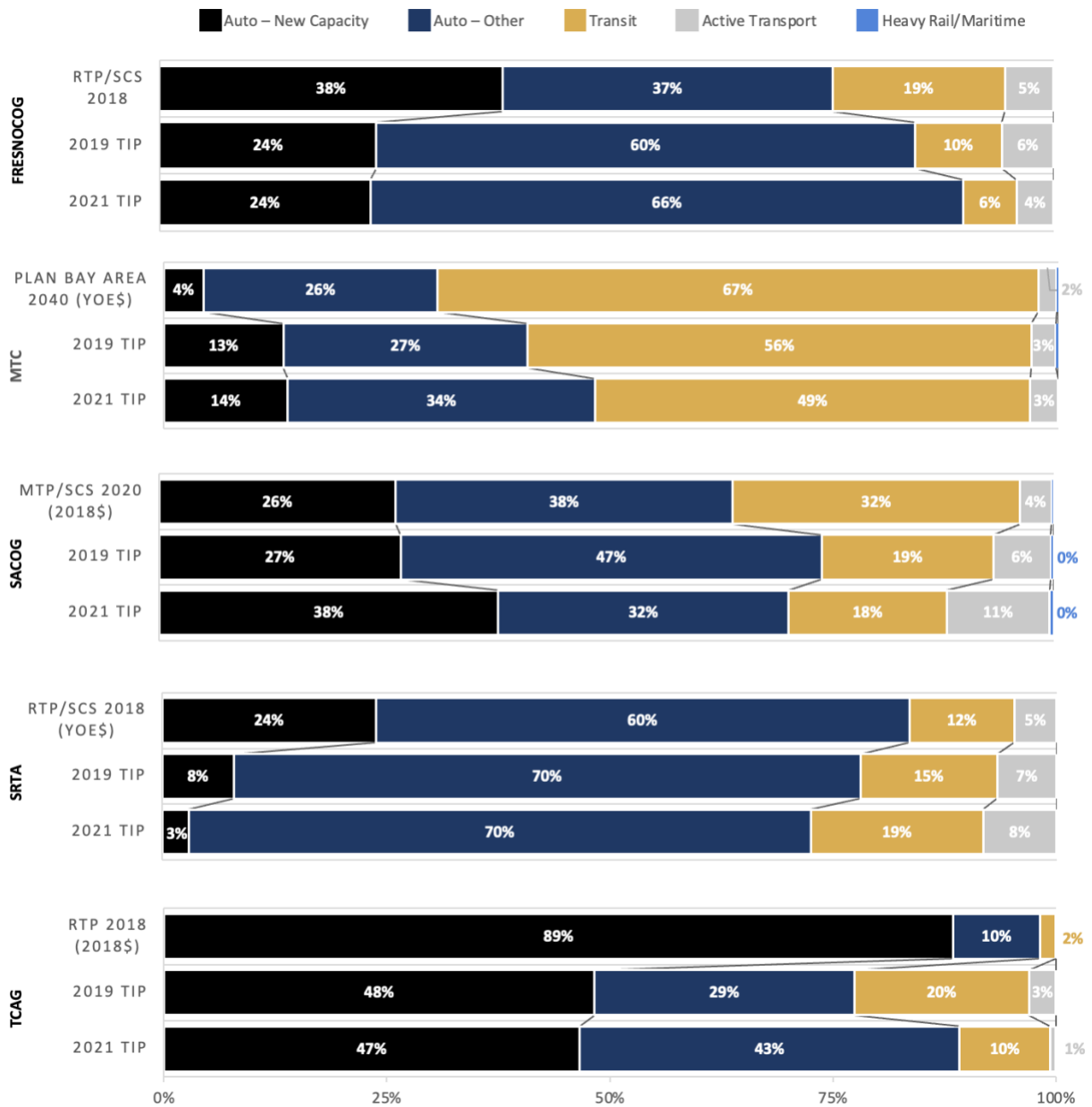
These results indicate that despite ambitious multimodal investment plans in some RTP/SCSs, the TIPs tend to frontload auto infrastructure and backload transit with their state and federal funding. This leaves local governments with responsibility for using their local funds to develop the projects that will realize much of the GHG reduction envisioned in the RTP/SCSs. But local governments have their own priorities that may or may not align with the state and regional GHG reduction goals. The state needs to align its transportation funding sources with its transportation policy, and MPOs need policy mechanisms to compel their local jurisdictions to spend local transportation dollars on GHG reducing projects. And because TIPs inconsistently capture local spending, MPOs need a way to systematically monitor and report RTP/SCS implementation across all sources of transportation funds.

This pattern of investment, particularly the near-term prioritization of VMT-inducing roadway expansion¹⁴, contravenes California's GHG reduction goals and hinders the decreased auto dependence that RTP/SCSs aim to achieve. To implement the GHG reductions envisioned and budgeted in California's regional plans, policy is needed that will redirect California's core transportation funding programs – such as the STIP and SHOPP – and the local project

¹⁴ Durant and Turner 2011

development and prioritization processes away from auto capacity projects and toward investments that reduce auto dependence, such as transit and active transportation.

Figure 5. Regional Plan Investments vs. Programmed Investments



3.2 Introduction & Background

Planning, funding, construction, and governance of the transportation system span a complex network of players at multiple levels of government. Legislatures, elected officials, agencies, departments, and commissions play key roles at the federal, state, regional, and local governments. In California, the state legislature put regional transportation agencies – metropolitan planning organizations (MPOs) – at the helm of transportation planning efforts to reduce transportation-related greenhouse gas (GHG) emissions when it enacted Senate Bill (SB) 375 in 2008, tasking MPOs with developing long-range transportation plans that attenuate automobile use and shift passenger travel toward transit, bicycling, and walking. A core component of these regional plans – called “Sustainable Communities Strategies” (SCSs) – is an integrated land development and transportation investment plan that will reduce GHG emissions from passenger vehicles. Since 2008, most MPOs in California have adopted three rounds of regional transportation plans (RTPs) under SB 375 that have demonstrated that they can hit the GHG emissions targets set by the California Air Resources Board CARB.

But California’s lack of on-the-ground progress toward meeting its GHG goals is alarming. In its 2018 progress report of SB 375, CARB found not only that “California is not on track to meet the greenhouse gas reductions expected under SB 375 for 2020”; it found “emissions from statewide passenger vehicle travel per capita increasing and going in the wrong direction” (California Air Resources Board 2018). The progress report emphasized that “California – at the state, regional, and local levels – has not yet gone far enough in making the systemic and structural changes to how we build and invest in communities that are needed to meet state climate goals” and that the state “will not achieve the necessary greenhouse gas emissions reductions to meet mandates for 2030 and beyond without significant changes to how communities and transportation systems are planned, funded, and built”. CARB calls for structural changes to the transportation planning process in order

to make the magnitude of change that is necessary to meet climate targets, in part by changing transportation investment patterns. Shifting investment toward transit and active transport networks and away from VMT-inducing roadway expansions will be a necessary part of that structural change.

California's MPOs have created the plans to ostensibly reduce VMT and transportation related GHG emissions. What is the nature of the transportation investments in those long-range plans? And are those plans being implemented in a way that reflects their GHG reduction goals? I examine the transportation planning and programming process and analyze five case study regions to answer these questions.

3.2.1. The Transportation Planning and Programming Process

The federal government sets broad national policy goals, generates revenues for transportation, and allocates transportation funds to state, regional, local, and tribal agencies to implement the federal goals (Caltrans 2020).

State-level transportation planning in California is carried out by several entities. The state legislature sets broad policy priorities and establishes funding sources and their allocation priorities through state statute. Various state agencies and commissions advise on transportation policies and programs and have responsibility for programming and allocating state and federal funds to transportation projects. The state department of transportation, Caltrans, is responsible for planning, designing, constructing, and maintaining the state highway system for automobiles, transit, and active transportation.

Local governments – cities, counties, and special districts such as public transit agencies – have responsibility for the transportation system within their local jurisdictions. Local government agencies set policy goals in the plans and ordinances adopted by their councils and boards and can

impose local tax measures to fund them (Agrawal et al. 2021). City and county public works departments are responsible for planning, designing, constructing, and maintaining their respective streets and roads, which often include bicycling and walking facilities, using funds from state fuel tax subventions and local tax measures (Sciara & Lee 2018, Agrawal et al. 2021). Transit agencies are responsible for the planning and provision of public bus and rail services within their jurisdictional boundaries.

But when local governments, transit agencies, and Caltrans plan to make certain investments in their transportation systems – projects that are “regionally significant” or receive state and federal funds – these “implementing agencies” nominate those projects for funding to their regional metropolitan planning organization (MPO). Regionally significant projects must be included in the investment lists of MPOs’ long-range regional transportation plans (RTPs) and programmed in MPOs’ regional transportation improvement programs (TIPs) (Sciara & Handy 2017).

Implementing agencies are responsible for conceiving of and building projects that expand, modify, operate, and maintain the transportation system, but MPOs play an important role in the transportation planning process (Sciara & Handy 2017).

3.2.2. The Regional Planning Process

MPOs are responsible for “planning, coordinating, and administering federal, state, and local funds that enhance their region’s multimodal transportation network” (Caltrans 2020). Federal policy makes MPOs responsible for two key aspects of the transportation system: (1) developing long-range transportation plans, a process by which regions establish a vision for their desired future and determine the investments and policies that will direct them towards that future; and (2) near-term funding, or “programming”, of transportation projects where MPOs commit state and federal funds to individual projects in their jurisdictional boundaries (23 U.S. Code § 134(c)(1)). These long-range

transportation plans, called Regional Transportation Plans (RTPs), document the MPOs' vision and strategy for its regional transportation system. Transportation Improvement Programs (TIPs) document projects that have been programmed for funding.

Both RTPs and TIPs must “provide for the development and integrated management and operation of transportation systems and facilities (including accessible pedestrian walkways, bicycle transportation facilities, and intermodal facilities that support intercity transportation, including intercity buses and intercity bus facilities and commuter vanpool providers) that will function as an intermodal transportation system for the metropolitan planning area” (23 U.S. Code § 134(c)(2)). And the process of developing both RTPs and TIPs involves review and approval at multiple levels of government including adoption by the MPO board, approval by the state and the U.S. Department of Transportation, and involvement of many stakeholders throughout the process (Sciara & Handy 2017).

The Regional Transportation Plan (RTP)

The RTP communicates the region's vision for its transportation system, looking out least twenty years in the future, and guides policies and investments to reach that goal. Federal and California statute states that RTPs shall direct regions toward a “balanced regional transportation system” for a wide variety of people and freight – “including, but not limited to, mass transportation, highway, railroad, maritime, bicycle, pedestrian, goods movement, and aviation” – and be “action-oriented and pragmatic” (7 CGC § 65080(a), 23 CFR 450.306(b)).

California Senate Bill 375, enacted in 2008, requires that RTPs contain a “Sustainable Communities Strategy” with an integrated land development pattern and transportation network that will reduce greenhouse gas (GHG) emissions from automobiles and light-duty trucks (7 CGC §

65080(b)(2)(B)). Increasingly stringent GHG reduction targets are set for each region by the California Air Resources Board¹⁵.

To carry out the planning process for the RTP, MPOs evaluate the current conditions and performance of the regional transportation system, as well as regional trends region (e.g., population growth, land use, mode share). They set performance targets for the plan’s horizon year. Federal policy requires that MPOs use a performance-based approach to planning, though leave the actual target in the discretion of the MPO¹⁶, and California’s SB 375 requires that the RTP demonstrate that it can hit its GHG target¹⁷. MPOs then generally put out a “call for projects” to the implementing agencies and develop a list of proposed transportation investments to meet those targets – “the list of proposed investments becomes the core of the long-range plan”¹⁸.

The RTP must be “fiscally constrained”, meaning that the list of investment cannot be an unbounded wish list of the projects nominated by local governments and other implementing agencies. Rather the project list must be within the budget of “a realistic projection of available revenues”¹⁹. RTPs are also subject to the federal Clean Air Act, where the MPO must demonstrate the effect of the plan on transportation-related air quality standards. The process of “conformity” with air quality standards and plans is complex but ultimately, MPOs that are “unable to show air quality conformity could experience sanctions, including withholding of federal transportation funds”²⁰. So while MPOs depend on implementing agencies to carry out the goals of the RTP, the requirements of fiscal constraint and air quality conformity offer a few points of regional leverage.

And once adopted by the MPO board, the RTP is implemented through the TIP. Per state statute and the state RTP Guidelines, the RTP must “serve as the foundation the Federal

¹⁵ 7 CGC § 65080(b)(2)(A)

¹⁶ 23 U.S. Code 150(b)

¹⁷ California Senate Bill 375, 2008

¹⁸ Sciara & Handy 2017

¹⁹ 7 CGC § 65080(a)(4)(A)

²⁰ Sciara & Handy 2017

Transportation Improvement Program (FTIP) ... The California Transportation Commission (CTC) cannot program projects that are not in the RTP”²¹.

The Transportation Improvement Program (TIP)

The TIP is a spending plan that includes the projects listed in the long-range RTP that have been prioritized for near-term investment. The TIP must contain projects that are consistent with and “reflect the investment priorities established in the current metropolitan transportation plan”²². As the MPO in for the Fresno region puts it: “the basic premise behind an FTIP is that it is the incremental implementation of the long-range RTP”²³.

TIPs are “developed and formally adopted by an MPO as part of the metropolitan transportation planning process”²⁴. That is, their adoption is a policy decision by an MPO board. Upon adoption by their board, MPOs submit TIPs to Caltrans for approval and inclusion in the Federal Statewide Transportation Improvement Program, which Caltrans sends to the Federal Highway Administration and Federal Transit Administration for approval²⁵. As with projects in the RTP, the list of transportation projects in the TIP are nominated by implementing agencies – local governments, public transit operators, Caltrans – not (or very rarely) by the MPO²⁶.

Like the long-range plan, the projects programmed, or budgeted, for funding in the TIP have certain constraints. TIPs are also financially constrained – the TIP “shall include a project, or a phase of a project, only if full funding can reasonably be anticipated to be available for the project within the time period contemplated for completion of the project”²⁷. And per the Clean Air Act,

²¹ CTC 2017 RTP Guidelines

²² 23 U.S. Code § 450.326

²³ Fresno COG 2021 FTIP

²⁴ 23 CFR § 450.104 – Definitions

²⁵ Caltrans 2021 FTIP

²⁶ Sciara & Handy 2017

²⁷ 23 CFR 450.326(k)

MPOs must demonstrate that the TIP will conform to federal air quality standards²⁸. These requirements “enable MPOs to assert regional priorities more firmly when selecting projects than if they had to include all projects proposed by local governments”²⁹.

And only certain projects from the RTP are programmed in the TIP. Federal policy requires that TIPs include projects that receive federal funding, require federal action, or are “regionally significant” regardless of funding source³⁰. Thus, every transportation project that receives federal funding or approval must be programmed in the TIP. The Clean Air Act requires that projects that are not “exempt” (e.g., roadway capacity expansions) be included in the TIP. State guidelines say that projects funded by two of the biggest state programs – the State Transportation Improvement Program (STIP) and the State Highway Operation and Protection Program (SHOPP) – are also to be included in MPO’s TIPs³¹. Projects that do not tend to show up in TIPs are those funded exclusively with local or regional dollars that affect only local circulation (and, of course, are exempt from air quality conformity). These can include bicycle and pedestrian facilities, transit operations, and local road maintenance.

But some MPOs take a more inclusive tack with the projects in their TIP. One regional planner said³² that their MPO relies on the TIP to be “the one place to record and remember all of [the MPO’s] programming decisions”, and therefore includes nearly all projects funded with any type of state or federal funds – not just STIP and SHOPP funds – in addition to what is minimally required by federal law and the Clean Air Act.

What constitutes a “regionally significant” project, and thus requires that a project be listed in the TIP, has more grey area than its funding source. Federal code defines a regionally significant

²⁸ 23 CFR 450.326(a)

²⁹ Sciara & Handy 2017

³⁰ 23 CFR 450.326(f)

³¹ Caltrans 2021 FSTIP

³² Personal correspondence, Fall 2021

project as one that “is on a facility that serves regional transportation needs” – for example, projects that provide “access to and from the area outside the region; major activity centers in the region; major planned developments such as new retail malls, sports complexes or employment centers; or transportation terminals”, such that they “would normally be included in the modeling of the metropolitan area’s transportation network”³³. Ostensibly, roadway classification and the technical capacity of the travel demand model could be factors in determining a project’s regional significance.

Planners at MPOs in California spoke to the methods they have developed to navigate the grey area of “regional significance” and to determine which projects make the cut³⁴. Multiple planners pointed to the Clean Air Act and the projects that it defines as “exempt from the requirement to determine [air quality] conformity”³⁵ as their proxy for a firm definition of regional significance: projects that are not exempt are considered regionally significant and thus included in the TIP. One planner said that any project that increases capacity on a roadway that is classified as a minor arterial or above is considered regionally significant, again referring to the Clean Air Act as a statutory basis. A complex project involving multiple implementing agencies, like a multi-modal transportation hub, would also likely be considered regionally significant, even if it would not increase roadway nor transit capacity.

RTPs, TIPs, and the Project Development Process

Both RTPs and TIPs list a project-level inventory of transportation investments. However, a “project” in a long-range plan is often conceptually different from a “project” in a TIP. This is particularly true for large, complex projects and projects further in the future. TIPs, with their financial constraint and four-year timeframe, include only near-term projects that are sufficiently

³³ 23 CRF § 450.104

³⁴ Personal correspondence, Fall 2021

³⁵ 40 CFR § 93.126

developed such that their implementing agencies have firm cost estimates for each project phase and are essentially ready start construction. Implementing agencies – local governments in the case of local street and road projects, Caltrans in the case of projects on the state highway network, transit agencies in the case of bus or rail projects – propose and guide individual projects through the project development process from concept, design and engineering to environmental review to construction and, ultimately, to maintenance and rehabilitation³⁶.

The Sources and Strings of Transportation Funds

Funding for transportation projects comes from an array of federal, state, local, and – in rare cases – regional sources. Federal, state, and local governments generate the majority of revenues for transportation (e.g., they levy taxes or fees), which they then allocate through an often-complex series of statutes, frameworks, rules, and distribution formulae, earmarking funds with varying degrees of specificity for certain modes, systems, and services³⁷.

In an analysis of California’s state transportation revenues and allocation formulae, researchers showed that relies on “a handful of key allocation rules of thumb” such as a jurisdiction’s population, centerline miles of roadway, number of registered vehicles, a historical grouping of northern and southern counties, and an “often repeated” city and county formula.³⁸ And crucially, the distribution formulae for state transportation funding is “more reflective of historical political deals and statewide geopolitics than of contemporary climate policy.”³⁹ Senate Bill 1, the California Legislature’s most recent bill to generate new transportation revenue, “largely inherited formulae

³⁶ Sciara & Handy 2017

³⁷ Sciara & Lee 2018

³⁸ *ibid.*

³⁹ *ibid.*

that have been negotiated to broker the politics of modal siloes; administrative, geographic, and jurisdictional divides, and competition for state resources”⁴⁰.

Further, local governments generate the majority of California’s transportation funding – just under half of total transportation funding⁴¹. Locally adopted sales tax measures fund the transportation system in nearly two-thirds of MPOs in California⁴², and those sales tax measures must include specific expenditure plans. That expenditure plan often takes at the shape of a specific lists of transportation projects, which can direct local transportation priorities for decades.

MPOs rarely generate their own revenues and “have little independent authority over how most funds are expended” because nearly all funds have strings attached⁴³. Building the RTP’s investment list thus becomes somewhat of a “matchmaking process”, as one regional planner put it⁴⁴, between projects that are consistent with the regional plan’s goals and can satisfy the requirements of the federal, state, and local funding sources. The TIP process has a similar matchmaking process: “[the TIP] programs transportation funding from a wide variety of sources. All of these fund sources have eligibility criteria that a project must meet in order to be considered for the fund source”⁴⁵. These state and local strings tied to funding and project prioritization make for “governance mismatch, collective action problems, and information asymmetries that hamstring SB 375’s success”⁴⁶.

Comparing RTP and TIP Project Lists

What, then, should we consider when comparing investments in the RTP and TIP? First, all projects in the TIP must be consistent with the long-range plan – “as such, the TIP represents a

⁴⁰ Sciara & Lee 2018

⁴¹ Agrawal et al. 2021

⁴² Sciara 2020

⁴³ Sciara & Handy 2017

⁴⁴ Personal correspondence, Fall 2021

⁴⁵ SACOG 2021 MTIP

⁴⁶ Sciara 2020

four-year snapshot that is a small part of the [long-range] plan”⁴⁷. But MPOs have some discretion over what projects they list in the TIP in addition to the minimum federal and state requirements, so TIP projects listings will vary by MPO.

Second, the list of projects included in a TIP will have some systematic differences from the RTP. TIPs provide a nearly comprehensive list of projects that receive federal and state funds, even if projects have some portion of local funding as “match”, and list of projects that are not exempt from air quality conformity. That is, they are not one of the facilities listed in 40 CFR § 93.126 such as pavement rehabilitation, transit operating assistance, replacement transit vehicles, bikeways, or walkways. But because of the administrative burden of using federal funds, MPOs sometimes aggregate federal funding onto larger, usually capital projects that will be “federalized” at some point in its life cycle. MPOs trade funding sources from one project to another, within the constraints of the fund sources, a process a planner called “money washing”⁴⁸. Swapping local funds for federal allows smaller projects to avoid the burden and delays that come with federal funds – or avoid “getting STIPed”, as it is begrudgingly called by local agencies. The money washing process skews which projects that get programmed with federal and state funds and thus which projects reliably show up in the TIP. Smaller projects that are exempt under the Clean Air Act — i.e., bikeways or walkways paid for exclusively by the local government – will often be excluded from TIPs.

The Metropolitan Transportation Commission (MTC), the MPO for the San Francisco Bay Area, compared its 2021 TIP to its long-range plan and described the caveats for interpreting the results⁴⁹:

“...there is an important difference between these two documents that complicates any side-by-side comparison. While the Plan includes the universe of revenues reasonably expected to be available (federal, state, local, and private funds) to

⁴⁷ MTC 2021 TIP Investment Analysis

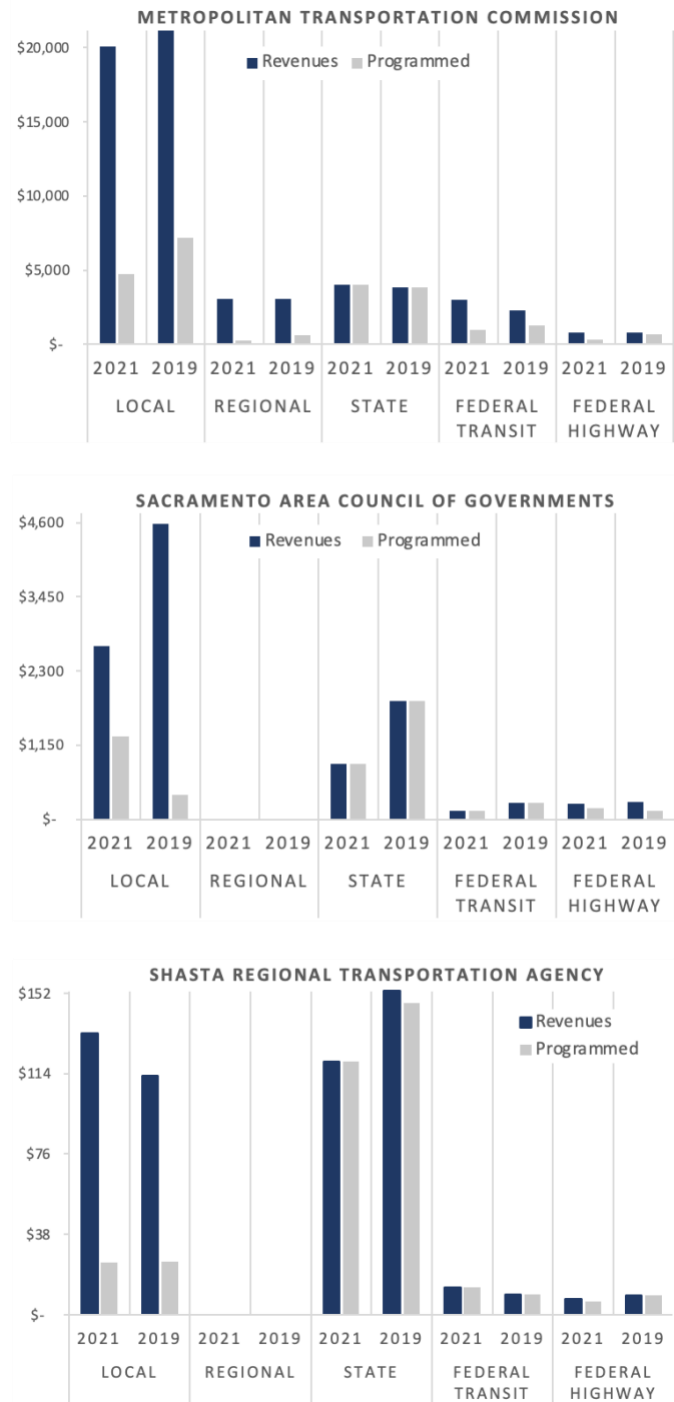
⁴⁸ Personal correspondence, Fall 2021

⁴⁹ MTC 2021 TIP Investment Analysis

implement planned transportation projects, program, and strategies, the TIP is much more focused on projects with federal funding or that affect air quality conformity. This means that the TIP is more heavily weighted toward large capital projects, such as transit and highway expansions, that are more likely to require federal funds or action. The vast majority of funds that go to operate, maintain, and manage the region’s existing transportation system, a top priority of the long-range plan, are not typically captured in a TIP as they tend to be locally funded.”

We can better understand the context and limitations of a side-by-side, RTP-to-TIP comparison by evaluating not just the “universe of revenues reasonably expected to be available”, but also the universe of funds programmed in the TIP, both of which are required components in order to show fiscal constraint. Figure 6 compares the revenues generated in the region to the dollars programmed for three MPOs in California. It shows that in their 2019 and 2021 TIPs, the MPOs programmed nearly every dollar of state and federal revenues available (“apportioned”) to them, though only programmed a portion of locally and regionally generated revenues. The remainder of local and regionally generated revenues. The remainder of local and regionally generated revenues are spent at the discretion of local agencies for

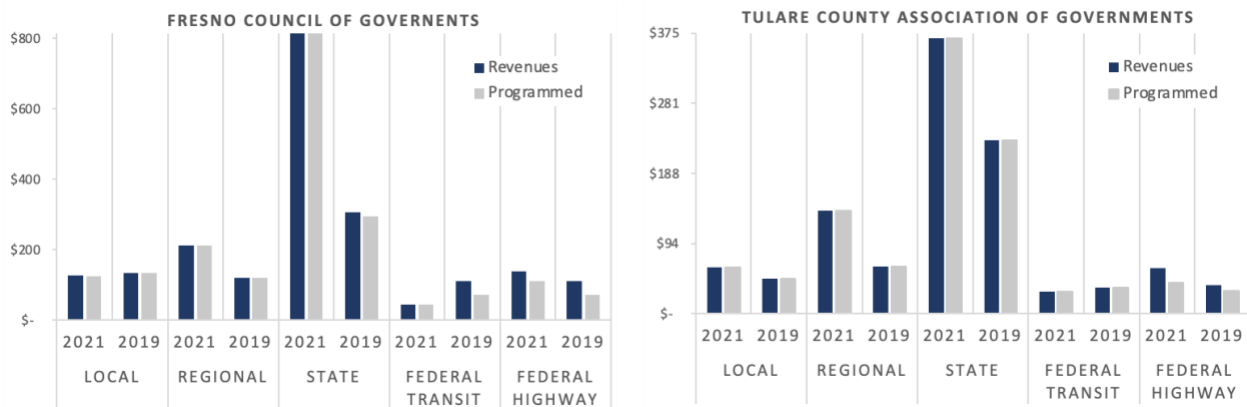
Figure 6. Revenues & Programmed Funds, MTC, SACOG, & SRTA, 2021 and 2019 TIPs, \$ in millions



projects that may not be programmed by the MPO. Thus, for these three MPOs, TIPs will give a fairly comprehensive picture of the nature of projects that receive state and federal funds but will have a gap for a large swath of local and regional dollars.

But some regions – e.g., Fresno Council of Governments and Tulare County Association of Governments, shown in Figure 7 – also program all the reasonably expected local and regional transportation revenues in their 2019 and 2021 TIPs. This is evidenced by the equal magnitudes of revenue and programmed funds across all fund sources.

Figure 7. Revenues & Programmed Funds, FresnoCOG & TCAG, 2019 and 2021 TIPs, \$ in millions



So across the board, a comparison of TIPs to RTPs demonstrates the types of projects that receive state and federal investment and how well those projects reflect or contravene the investment priorities of the long-range plan. And in the cases where programming includes all local and regional revenues, this comparison demonstrates how well the region’s entire portfolio of transportation spending aligns with the GHG reduction goals of the long-range plan.

3.3 Research Question

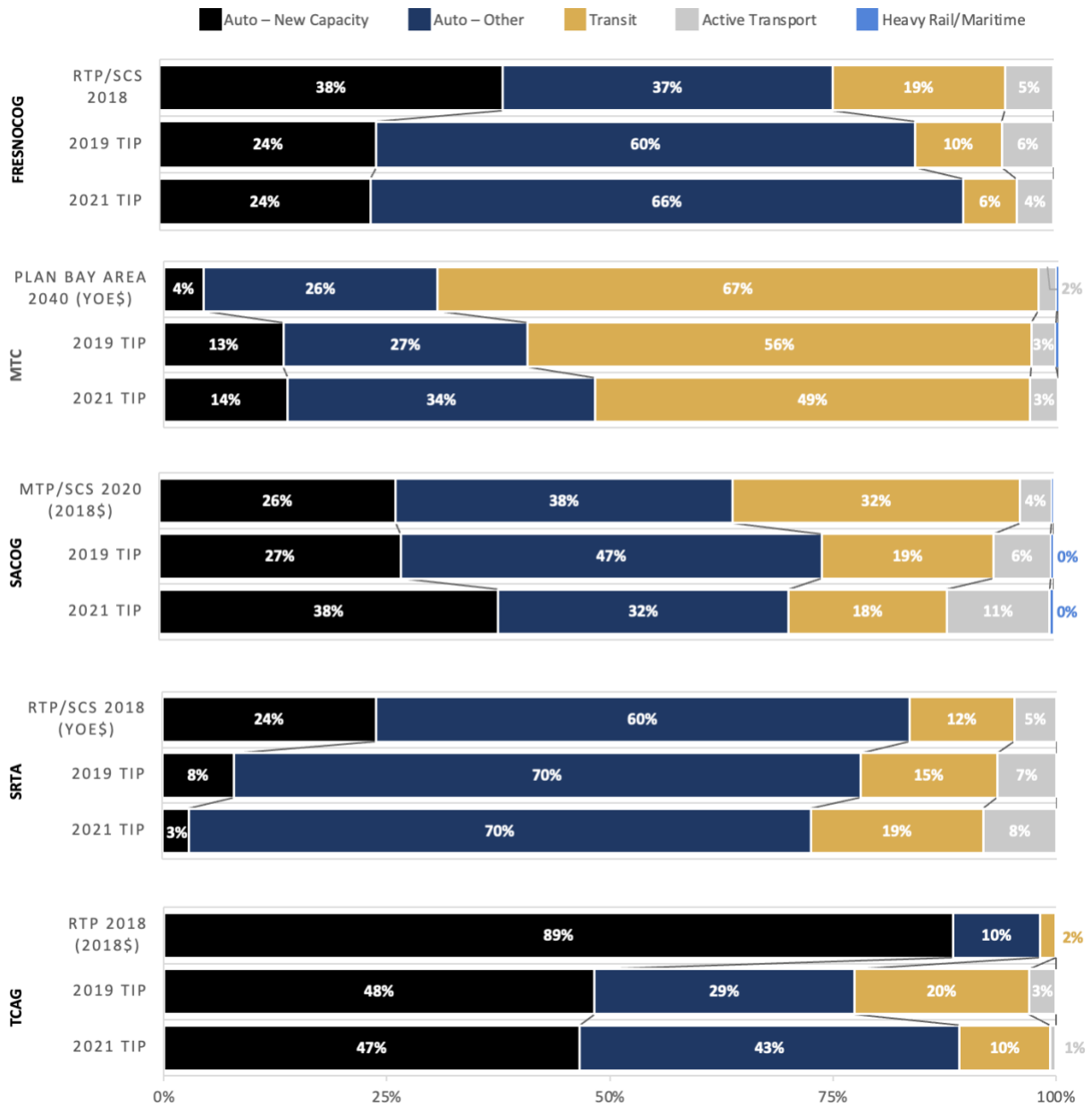
California's MPOs have been tasked with the challenge of reining in the state's auto dependence by planning for a future that shifts transportation onto a wider array of modes – fewer and shorter trips by auto and more trips by bus, walking, and biking – and helps implement the state's climate policy goals. MPOs have demonstrated a pathway to ostensibly reduce transportation GHG emissions with their RTP/SCSs and strategic investments in the transportation network. But because of the paradoxical governance structure of transportation planning and SB 375, MPOs depend on federal, state, and local entities to realize those plans and achieve the GHG emissions reductions.

And “real-world results are falling significantly short of the SB 375 targets and are moving in the wrong direction” (CARB 2018), so what pathway are local, regional, and state governments following? Do the funded projects align with the GHG reduction goals in the long-range plans? Or is investment prioritizing certain types of projects, leaving other, VMT-reducing projects to be implemented in later years? TIPs, while somewhat truncated in scope, give the most comprehensive view into the progress or failure to implement the RTP/SCSs. I examine funding patterns across long-range plans and short-term TIPs in five case study regions to answer this question.

3.4 Findings

Findings show that among the five case study regions, expenditures programmed in TIPs are generally less multimodal than expenditures planned in RTP/SCSs. The three largest MPOs – MTC, SACOG, and Fresno COG – tend to program a larger share of funds for auto infrastructure and a smaller share of funds for transit than the planned investments in their respective RTP/SCSs. The two smaller MPOs – SRTA and TCAG – show a different pattern: expenditures in in the RTP/SCSs invest almost exclusively in auto infrastructure but the TIPs program a smaller share of funding for auto infrastructure than was planned in the RTPs. Figure 6 illustrates the planned versus programmed funds by mode for all five case study MPOs.

Figure 8. Regional Plan Investments vs. Programmed Investments



Auto infrastructure (new capacity, reconstruction, rehabilitation, operations, plans/studies) receives the majority of planned and programmed funds in all regions except MTC in the San Francisco Bay Area. New auto capacity (e.g., new or wider roads, new auxiliary or toll lanes, new or wider interchanges and ramps) makes up a significant share of planned and programmed funding in

all regions, particularly in the Central Valley and suburban areas of the Bay Area. Indeed, new auto capacity receives the plurality of programmed funds in both TIPs for TCAG and the 2021 TIP for SACOG.

3.4.1. Fresno Council of Governments (Fresno COG)

Fresno COG’s 2018 RTP/SCS dedicates nearly a quarter of total expenditures for transit and active transport and the remaining three quarters to auto infrastructure. But programmed projects fail to realize the multimodal aspirations of the long-range plan. Funding for transit accounts for 19 percent of planned funds in the RTP/SCS, but accounts for only 10 and 6 percent of programmed funds in the 2019 and 2021 TIPs, respectively. Active transportation investments hover between 4 and 6 percent in both the RTP/SCS and the two TIPs. See Figure 9 and Table 8.

Figure 9. Fresno COG's Planned vs. Programmed Expenditures

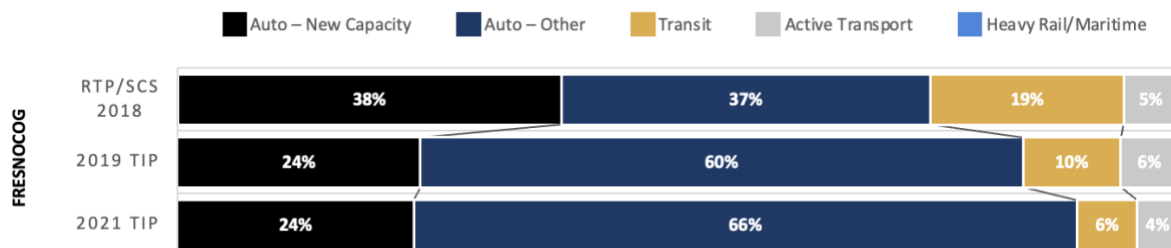


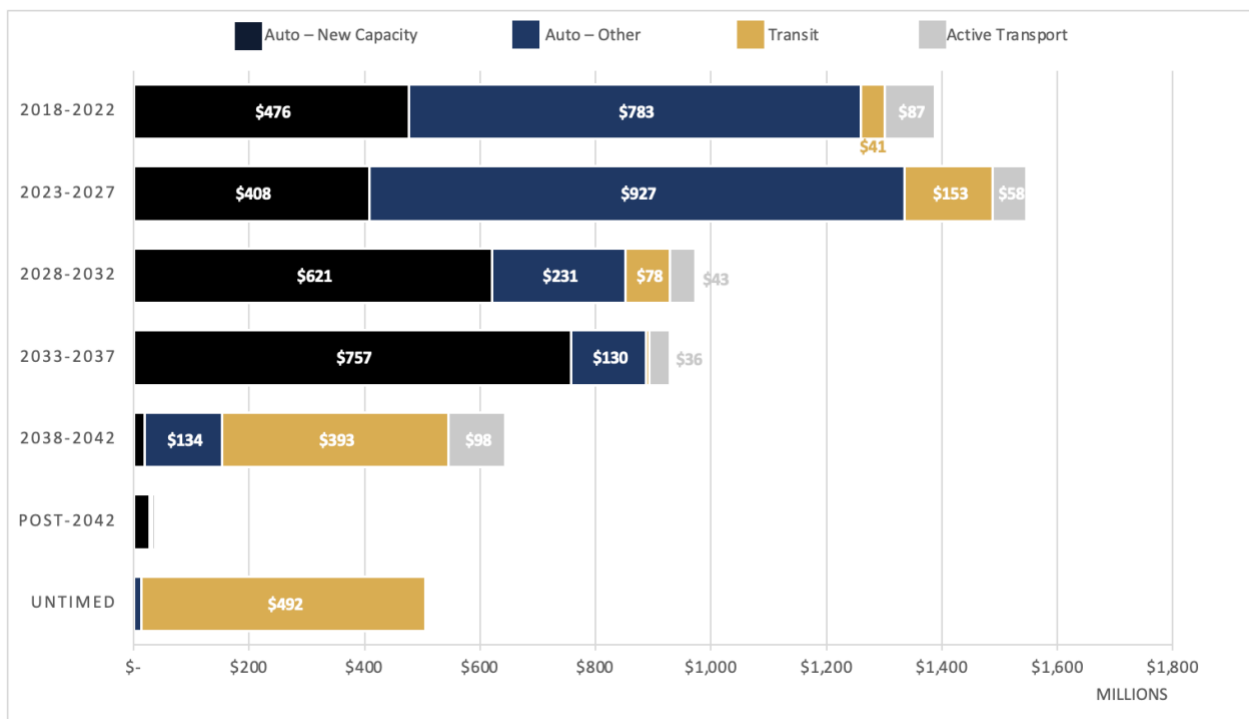
Table 8. Fresno COG’s Planned vs. Programmed Expenditures by Mode and Project Type

| Expenditures | RTP/SCS 2018 (\$Year Unspecified) | 2019 TIP | 2021 TIP |
|------------------------------|--|-------------------------|-------------------------|
| Active Transport | 5.5% | 5.8% | 4.1% |
| New Capacity | 5.2% | 4.9% | 3.2% |
| Reconstruction | 0.2% | 0.6% | 0.5% |
| Rehabilitation & Maintenance | 0.1% | 0.1% | - |
| Operations | - | 0.6% | - |
| Plan/Study/Program | - | - | - |
| Indirect | - | - | - |
| Auto | 75.3% | 84.5% | 89.9% |
| New Capacity | 38.3% | 24.3% | 25.6% |
| Reconstruction | 2.2% | 8.3% | 6.1% |
| Rehabilitation & Maintenance | 26.6% | 48.0% | 59.0% |
| Operations | 5.6% | 2.0% | 1.0% |
| Plan/Study/Program | - | 0.2% | 0.1% |
| Indirect | 2.6% | 1.7% | < 0.1% |
| Heavy Rail / Maritime | - | - | - |
| New Capacity | - | - | - |
| Reconstruction | - | - | - |
| Rehabilitation & Maintenance | - | - | - |
| Operations | - | - | - |
| Plan/Study/Program | - | - | - |
| Indirect | - | - | - |
| Transit | 19.3% | 9.8% | 6.0% |
| New Capacity | 10.6% | 1.2% | 0.4% |
| Reconstruction | 0.2% | - | - |
| Rehabilitation & Maintenance | 4.9% | 3.6% | 2.5% |
| Operations | 2.5% | 3.6% | 1.6% |
| Plan/Study/Program | 0.5% | 0.1% | 0.1% |
| Indirect | 0.6% | 1.3% | 1.4% |
| Total | \$ 6,022,424,000 | \$ 1,128,459,000 | \$ 1,475,327,000 |

The skew of programmed funds away from transit makes more sense in the context of phasing of investments in the RTP/SCS, shown in Figure 10. There are about \$1.1 billion of transit investments over the life of Fresno COG’s RTP/SCS. About 40 percent of those are untimed and ongoing expenditures – critical investments such as operating expenses, preventative maintenance,

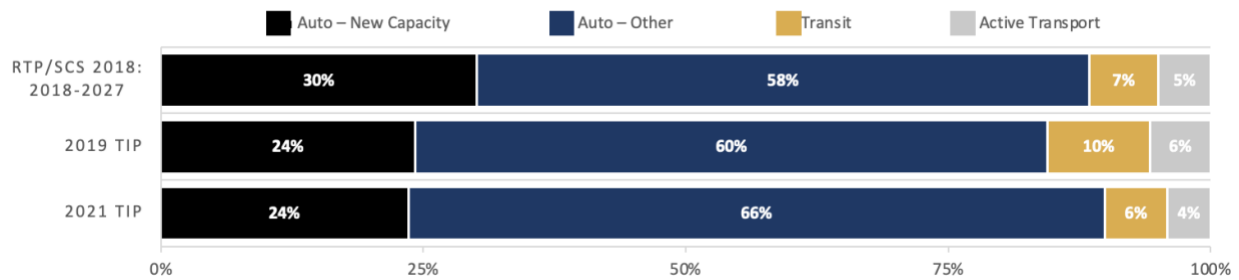
tire leases, replacing buses, and system studies. And a full one-third of transit expenditures in the RTP/SCS – \$392 million for new bus rapid transit running down the median of the Ventura, Kings Canyon, and Blackstone corridors – is planned for the plan’s final four years. Only 17 percent of the transit expenditures in the RTP/SCS are planned for the first decade of the plan (2018 through 2027). Conversely, nearly 40 percent of the \$2.3 billion of auto capacity expenditures planned over the course of the RTP/SCS are slated for the first decade of the plan.

Figure 10. Fresno COG RTP/SCS Investments by Completion Timing, \$ in Millions



When I compare programmed funds in the TIP to the first decade of the RTP/SCS the investment patterns indeed look more similar. See Figure 9, below.

Figure 11. First Decade of RTP/SCS Expenditures vs. 2019 and 2021 TIPs



What are the auto capacity projects getting priority in planning and programming? In the RTP/SCS, the three largest auto capacity projects to open in the first decade of the plan are:

- \$60 million for Caltrans to build the Excelsior Expressway, widening a two-lane road to a four-lane expressway, to be complete by 2024.
- Just over \$50 million is for the City of Fresno to build Phase 3 of a new interchange on State Route 99 at Veterans Boulevard, including sidewalks and a multi-use trail, estimated to be open to traffic in 2020.
- Nearly \$25 million is for the City of Fresno to grade separate Veterans Boulevard over the Union Pacific and high-speed rail tracks and construct a new six-lane divided bridge and “super arterial”, signal timing, and other roadway construction.

These projects all show up in both the 2019 and 2021 TIPs. The 2019 and 2021 TIPs programs \$10 million and \$100,000, respectively, for a segment of the Excelsior Expressway near the City of Fresno. Both the 2019 and 2021 TIPs program \$61.1 million for the State Route 99 and Veterans Boulevard interchange, ostensibly up from its initial \$50 million cost estimate. And both TIPs program \$41.2 million for the grade separation of Veterans Boulevard over the rail tracks.

But other projects that add auto capacity show up in these two TIPs. The 2019 TIP programs \$31.8 million for an interchange project at SR 99 and East North and Cedar Avenues, and the 2021

TIP combines that new interchange project with two others to create the “South Fresno SR99 Corridor Project” that gets \$130.1 million of programmed funds and open to traffic around 2026. The TIP project listings show that the majority of funding for these new and expanded SR 99 interchanges comes from Measure M, Fresno County’s local sales tax, local funds from a regional transportation mitigation fee, and the Regional Improvement Program of the State Transportation Improvement Program (STIP).

3.4.2. Metropolitan Transportation Commission (MTC)

The Metropolitan Transportation Commission in the San Francisco Bay Area dedicates the largest share of planned and programmed transportation funds to transit and the smallest share to auto infrastructure of the five MPOs in this study. An unparalleled 67 percent of investments in Plan Bay Area 2040 is dedicated for transit and a mere 4 percent for new auto capacity.

But programmed funds in the 2019 and 2021 TIPs follow a different pattern, albeit not nearly as auto centric as the funds programmed by Fresno COG, SACOG, or TCAG. Funds programmed transit made up 56 and 49 percent of funds in the 2019 and 2021 TIPs, respectively – by far the greatest share of funding for transit in this sample. Auto investments account for 30 percent of planned expenditures in the RTP/SCS, and only 4 percent is for new auto capacity; however, 13 to 14 percent of actual programmed funds were for new auto capacity in the 2019 and 2021 TIPs, respectively. Active transportation investments hover between 2 and 3 percent in both Plan Bay Area 2040 and in two TIPs. See Figure 12 and Table 9.

Figure 12. MTC's Planned vs. Programmed Transportation Expenditures

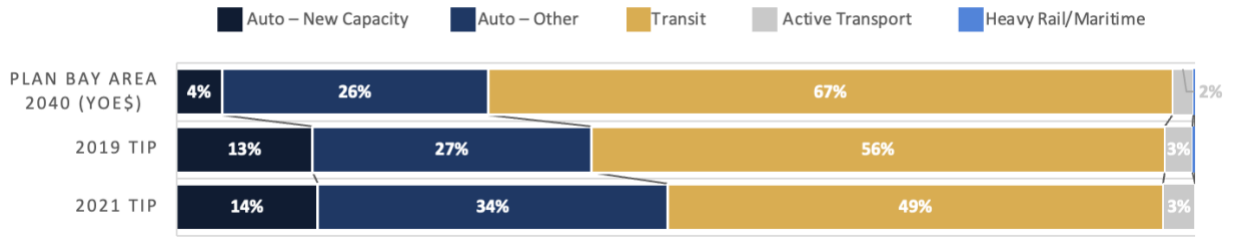


Table 9. MTC’s Planned vs. Programmed Transportation Expenditures by Mode and Project Type

| Expenditures | Plan Bay Area | | |
|------------------------------|---------------------------|--------------------------|--------------------------|
| | 2040 (YOES) | 2019 TIP | 2021 TIP |
| Active Transport | 2.0% | 2.7% | 3.1% |
| New Capacity | 1.1% | 1.7% | 2.4% |
| Reconstruction | 0.7% | 0.8% | 0.6% |
| Rehabilitation & Maintenance | - | 0.2% | 0.1% |
| Operations | - | - | < 0.1% |
| Plan/Study/Program | 0.2% | 0.1% | - |
| Indirect | - | - | - |
| Auto | 30.6% | 40.7% | 48.2% |
| New Capacity | 4.4% | 13.4% | 13.9% |
| Reconstruction | 1.39% | 8.2% | 11.5% |
| Rehabilitation & Maintenance | 21.6% | 16.2% | 21.9% |
| Operations | 2.1% | 1.4% | 0.6% |
| Plan/Study/Program | 0.2% | 0.7% | 0.3% |
| Indirect | 0.8% | 0.8% | 0.1% |
| Heavy Rail / Maritime | 0.2% | 0.3% | - |
| New Capacity | 0.1% | - | - |
| Reconstruction | - | 0.3% | - |
| Rehabilitation & Maintenance | - | - | - |
| Operations | < 0.1% | - | - |
| Plan/Study/Program | < 0.1% | - | - |
| Indirect | - | - | - |
| Transit | 67.2% | 56.3% | 48.6% |
| New Capacity | 11.9% | 43.6% | 38.8% |
| Reconstruction | 1.6% | 5.0% | 0.3% |
| Rehabilitation & Maintenance | 11.1% | 6.3% | 4.2% |
| Operations | 40.8% | 0.7% | 4.9% |
| Plan/Study/Program | 0.1% | 0.1% | 0.3% |
| Indirect | 1.7% | 0.6% | 0.1% |
| Total | \$ 303,316,400,000 | \$ 13,578,702,516 | \$ 10,288,736,434 |

The phasing of investments in Plan Bay Area 2040 gives important detail (Figure 13).

Particularly important are the “ongoing” expenditures that include most of the plan’s investments.

Ongoing expenditures account for \$246 billion of the \$303 billion of the plan’s total budget.

Included in those ongoing costs are all annual transit operating costs (\$120 billion), annual transit

capital maintenance (\$32 billion), and annual operating costs for Clipper (\$1.7 billion) of the Bay Area’s existing transit services through the plan horizon. General bicycle and pedestrian facilities, multimodal streetscape projects, and transportation demand management activities are also included as ongoing investments, as are rehabilitation projects for streets, highways, and bridges.

Figure 13. Plan Bay Area 2040, Investments by Completion Timing, \$ in billions

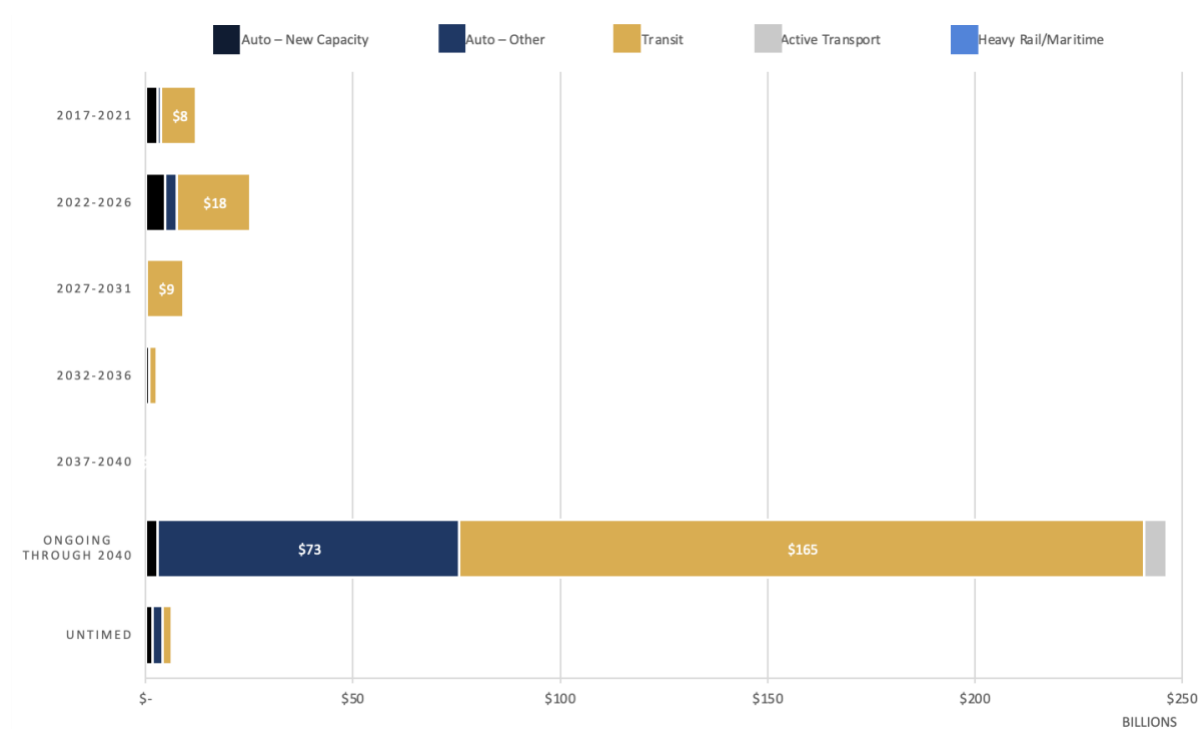
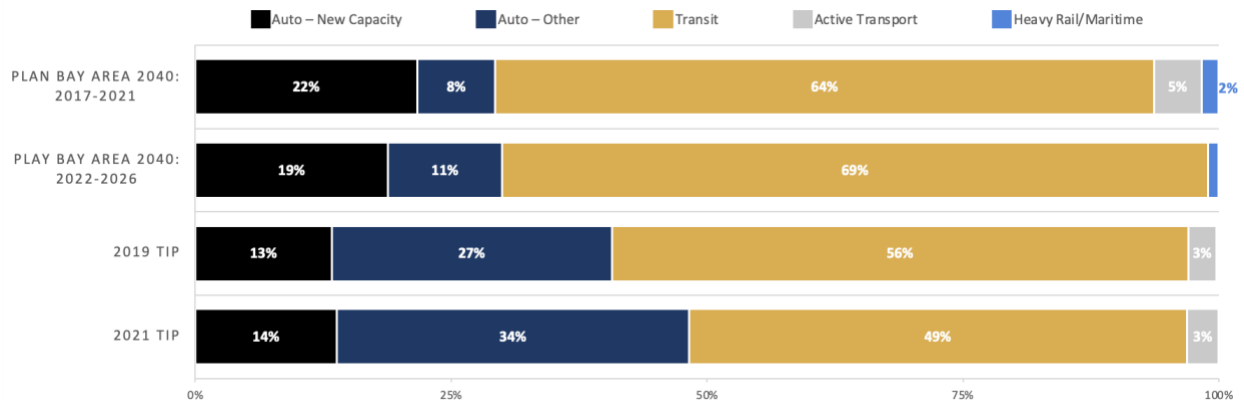


Figure 13 also shows that Plan Bay Area puts a significant share of its early investments – in the first decade of the plan – into transit. In the first four years of the plan (2017 – 2021) \$8.3 billion of the total \$12.9 billion is planned for transit, \$3.8 billion is planned for auto infrastructure, and \$601 million for active transportation. In the second four years (2022 – 2026) of the plan \$17.5 billion of the total \$25.4 billion is planned for transit and \$7.6 billion for auto infrastructure. Figure 12 zooms in on these phases and compares investment patterns to the 2019 and 2021 TIPs. Figure 14 shows

that a sizable share – about 20 percent – of Plan Bay Area 2040’s early investments are slated for auto capacity.

Figure 14. Early Phases of Plan Bay Area 2040 (2017-21, 2022-2026) vs. TIPs



What are the transit projects prioritized for the first half of Plan Bay Area 2040? And which show up in the TIPs? The largest transit expenditures in the first decade of the plan are:

- A \$5.5 billion project to extend Bay Area Rapid Transit (BART) to Silicon Valley, from the Berryessa Station to downtown San Jose and then to Santa Clara. The project includes four new stations and operating expenses. \$2.6 billion and \$3.2 billion are programmed to this project in the 2019 and 2021 TIPs, respectively. The biggest funding source is local sales tax, but it also gets funding from state programs: RIP, Traffic Congestion Relief Program (TCRP), and the Transit and Intercity Rail Capital Program (TIRCP). The lead agency is the Santa Clara Valley Transportation Authority.
- A \$4.1 billion project for the Caltrain/High Speed Rail Downtown San Francisco Extension, which will extend existing Caltrain service and future high-speed rail service into the Transit Center in downtown San Francisco. The project includes a new station, pedestrian facilities, and operating expenses. \$598 million and \$103 million are programmed to this project in

the 2019 and 2021 TIPs, respectively. Programmed funding sources are property tax, sales tax, federal transit funds (5339), and private sources. The lead agency is the Transbay Joint Powers Authority.

- \$3.5 billion for the BART Transbay Core Capacity Project, which includes multiple elements to increase transit capacity in the Transbay corridor. \$1.1 billion and \$424.8 million are programmed to this project in the 2019 and 2021 TIPs, respectively. Funding sources are federal transit funds (5309), sales tax, and California’s SB 1 funds. The Bay Area Rapid Transit District is the lead agency.

Other large transit capital projects programmed in the 2019 and 2021 TIPs include procurement of nearly 800 BART railcars, electrification of the Caltrain corridor, the Clipper 2.0 fare payment system, expansion and maintenance of rail and bus fleets, and SF Muni track maintenance.

While a small share of its overall budget, Plan Bay Area 2040 plans to spend \$7.6 billion for new auto capacity in the first decade of the plan. What, where, and by whom are the auto capacity projects planned and programmed in the Bay Area? Of the new auto capacity spending in the plan, about 73 percent is on the highway system, 27 percent on local streets and roads. There are 72 lead agencies listed in Plan Bay Area 2040 – ten lead agencies sponsor more than 60% of the planned expenditures for new auto capacity.

- Contra Costa Transportation Authority (CCTA): \$947 million
- Alameda County Transportation Authority (ACTC): \$943 million
- San Francisco County Transportation Authority (SFCTA): \$800 million
- San Mateo City/County Association of Governments (CCAG): \$567 million
- Santa Clara Valley Transportation Authority (VTA): \$381 million
- Sonoma County Transportation Authority (SCTA): \$243 million

- City of Dublin: \$219 million
- City of Fremont: \$208 million
- City of Livermore: \$192 million
- Transportation Authority of Marin (TAM): \$175 million

Funds programmed in the TIP have somewhat different breakdown. Of the funds programmed for new auto capacity, more than 80 percent was on the highway system in both the 2019 and 2021 TIPs, with the remaining 17 percent expanding local streets and roads.

When it comes to programmed auto capacity projects, the field of lead agencies narrows significantly. In the 2019 TIP, only five lead agencies sponsor more than 80 percent of the funds programmed for new auto capacity:

- Valley Transit Authority: \$518.6 million
- San Mateo City/County Association of Governments: \$472.9 million
- Alameda County Transportation Authority: \$206 million
- Contra Costa Transportation Authority: \$201.3 million
- Sonoma County Transportation Authority: \$88.8 million

This lineup is nearly the same for the 2021 TIP but with a few exceptions. MTC is a project sponsor for the \$242.7 million managed lane project on Interstate 80 in Solano County. Solano Transportation Authority is the project sponsor for \$80 million of highway capacity expansion and \$15 million of local roadway expansion. And the City of Hayward is the project sponsor for \$31.8 million of interchange capacity projects on I-880.

3.4.2. Sacramento Area Council of Governments (SACOG)

SACOG’s long-range plan is ambitious in its multimodal funding with 32 percent of investments allotted for transit, 4 percent for active transport, and the remaining 64 percent for auto infrastructure. New auto capacity accounts for 26 percent of total investments in the MTP/SCS. After MTC, SACOG’s long-range plan invests the largest share in transit of the five case study MPOs.

But programming patterns in the TIPs are somewhat different. Between 70 and 75 percent of programmed funds go toward auto infrastructure (new capacity, rehabilitation, operations, et cetera), and 27 and nearly 40 percent of funds are programmed for new auto capacity in the 2019 and 2021 TIPs, respectively. New auto capacity receives the plurality of funding in the 2021 TIP.

Funds programmed for transit make up less than 20 percent of both the 2019 and 2021 TIPs. But programming for active transportation is somewhat more optimistic – active transport projects make up 6 to 11 percent of programmed funds, distinctly more than the 4 percent of expenditures planned in the MTP/SCS. In the 2019 and 2021 TIPs, nearly 5 percent and over 9 percent of programmed funds were for new active transportation facilities. See Figure 15 and Table 10.

Figure 15. SACOG’s Planned vs. Programmed Transportation Expenditures

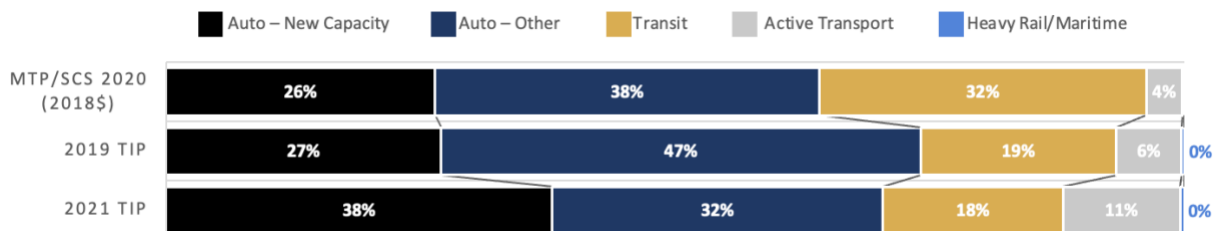


Table 10. SACOG’s Planned vs. Programmed Transportation Expenditures by Mode and Project Type

| Expenditures | MTP/SCS 2020 (2018\$) | 2019 TIP | 2021 TIP |
|------------------------------|----------------------------------|-------------------------|-------------------------|
| Active Transport | 3.5% | 6.4% | 11.5% |
| New Capacity | 2.1% | 4.9% | 9.1% |
| Reconstruction | 1.3% | 1.3% | 2.4% |
| Rehabilitation & Maintenance | < 0.1% | < 0.1% | < 0.1% |
| Operations | 0.1% | < 0.1% | < 0.1% |
| Plan/Study/Program | 0.1% | 0.1% | < 0.1% |
| Indirect | - | - | - |
| Auto | 64.1% | 74.1% | 70.4% |
| New Capacity | 26.4% | 27.0% | 37.9% |
| Reconstruction | 7.3% | 12.8% | 13.7% |
| Rehabilitation & Maintenance | 25.7% | 29.9% | 15.0% |
| Operations | 2.9% | 4.0% | 3.2% |
| Plan/Study/Program | 1.2% | 0.2% | 0.4% |
| Indirect | 0.5% | 0.2% | 0.2% |
| Heavy Rail / Maritime | 0.2% | 0.3% | 0.4% |
| New Capacity | - | - | - |
| Reconstruction | 0.2% | 0.3% | 0.4% |
| Rehabilitation & Maintenance | - | - | - |
| Operations | - | - | - |
| Plan/Study/Program | < 0.1% | - | < 0.1% |
| Indirect | - | - | - |
| Transit | 32.1% | 19.2% | 17.7% |
| New Capacity | 10.4% | 11.2% | 8.6% |
| Reconstruction | 0.6% | 0.5% | 0.8% |
| Rehabilitation & Maintenance | 4.0% | 4.5% | 5.4% |
| Operations | 16.5% | 2.7% | 2.1% |
| Plan/Study/Program | < 0.1% | < 0.1% | < 0.1% |
| Indirect | 0.5% | 0.2% | 0.9% |
| Total | \$ 35,157,128,449 | \$ 4,262,544,031 | \$ 2,806,095,846 |

Looking at the phasing of investments in the MTP/SCS explains some of the skew of programming patterns (Figure 16). The majority of investments in the MTP/SCS – \$20 billion of the total \$35 billion – are slated for the final four years of the plan, from 2036 through 2040. But looking at the project list shows that over \$6 billion of the funds planned for the sunset of the plan

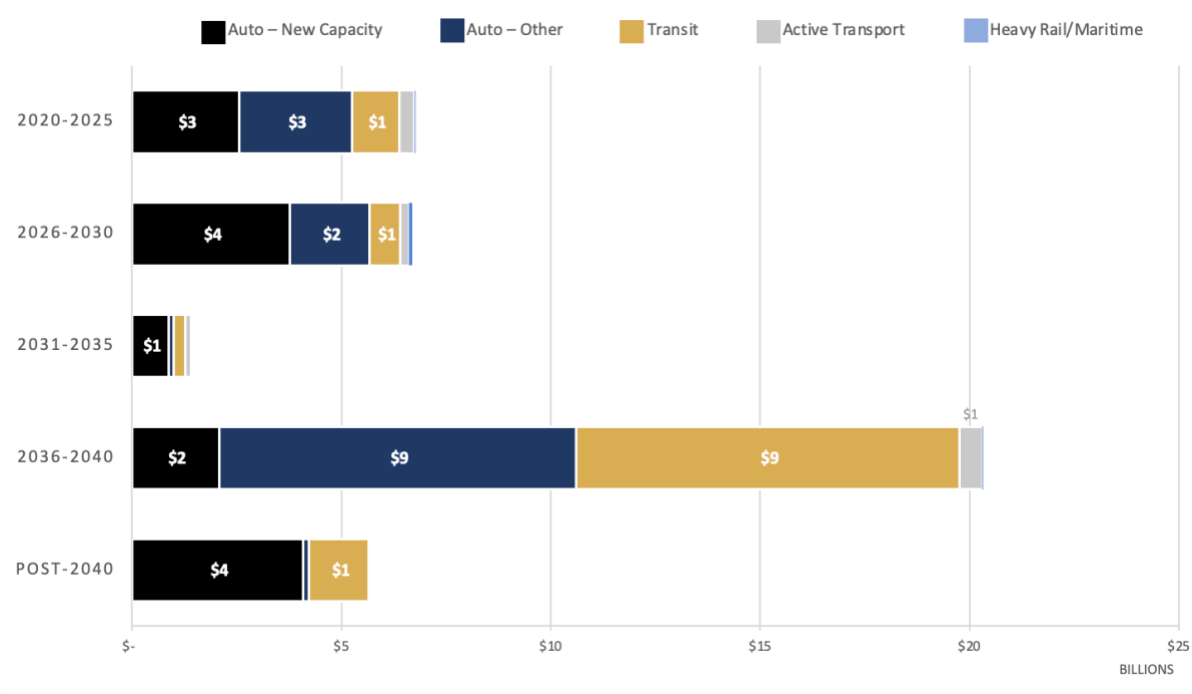
– nearly 17 percent of the plan’s total budget – are lump-sums for annual transit operations and maintenance for fiscal years 2023 through 2040. Similarly, about \$250 million of the active transport funds planned in the final four years of the MTP/SCS are lump sums for ongoing bicycle and pedestrian improvements. Categorizing these expenditures for the final phase of the MTP/SCS is misleading as these occur throughout the lifetime of the plan.

However, there are large transit capital outlays planned for the final years of the MTP/SCS.

Among these projects are:

- Nearly \$540 million in bus rapid transit infrastructure and vehicles for the Sacramento Regional Transit District.
- The \$426 million Valley Rail Program, which will include track improvements, additional track, and new stations to increase regional rail service (Altamont Corridor Express and the San Joaquin).
- \$225 million for the Sacramento Intermodal Transit Facility, a multimodal transportation center to accommodate high-speed rail, commuter rail, light rail, streetcar, intercity buses, and local buses.
- \$195 million for light rail infrastructure and rolling stock to increase frequency on Sacramento Regional Transit’s Gold Line.

Figure 16. SACOG's MTP/SCS Investments by Completion Timing, \$ in Billions



What are the auto capacity projects planned for the first half of the MTP/SCS? The largest expenditures for auto capacity in the first decade of the MPT/SCS are implemented by Caltrans District 3 and include:

- \$438 million for State Route 51 (Capital City) Corridor Improvements. This project extends carpool/bus lanes, widens the American River bridge to ten lanes, adds an auxiliary lane and transition lane, widens a local street, and adds a Class IV bike path on the northbound side of the highway.
- \$442 million for managed lanes on Interstate 80 and U.S. 50, running from Kidwell Road in Solano County to the US 50/I-5 interchange and I-80/West El Camino interchange in Sacramento, for a total centerline distance of about 25 miles. The type of managed lane will be based on the Managed Lane Study (a different project listing) – expressed toll lanes, high-occupancy toll (HOT) lanes, HOV lanes, and reversible lane are all “being evaluated”.

- \$312 million for construction of about 15 centerline miles of managed lanes, auxiliary lanes, and ITS elements on Interstate 5 from Sutterville Road (south of downtown Sacramento) to the Yolo County Line, north of the Sacramento International Airport. The type of lane management (e.g., HOV, HOT) is unspecified in the MTP/SCS.
- \$254.5 million for the Broadway Bridge, a new local street connection over the Sacramento River between downtown Sacramento and the neighboring City of West Sacramento. The project includes transit, bicycle, and pedestrian facilities.

Early phases of these projects show up in the TIPs:

- The 2019 and 2021 TIPs program \$1.3 million and \$6 million, respectively for engineering and right-of-way acquisition the SR 51 (Capital City) Corridor Improvements using STIP, Congestion Mitigation and Air Quality (CMAQ), and Regional Surface Transportation (RSTP) funds.
- \$1.1 million and \$4.1 million is programmed in the 2019 and 2021 TIPs, respectively, for the I-80 and U.S. 50 managed lanes through Yolo County and into the City of Sacramento. Engineering and right-of-way acquisition are programmed with federal CMAQ funds and state cash.
- The 2019 TIP programs \$3.8 million for managed lanes on I-5 from Sutterville to the Yolo County Line. The 2021 TIP splits the project into phases and programs \$7.5 million of state cash for the engineering, right-of-way, and construction of the segment between the I-5/US 50 interchange and the Sacramento River/Yolo County Line. The new phase that was split off is categorized as a freight project and adds auxiliary, acceleration, and deceleration lanes to I-5 near the Sacramento International Airport. The 2021 TIP programs \$35.8 million of

CMAQ and state Trade Corridor Program funds for engineering and right-of-way acquisition.

- \$500,000 of local, RSTP, and TIGER grant funds is programmed for engineering of the Broadway Bridge in the 2019 TIP. The City of West Sacramento is lead agency, though local match will be split between the Cities of Sacramento and West Sacramento.

Several safety and operations projects appear among the largest auto capacity expenditures in the TIPs. Just over \$100 million of SHOPP Collision Reduction funds are programmed for Segments 4 and 5 of the SR 70 Safety Improvements project, which adds a continuous two-way left turn lane and two slow-moving vehicle lanes in addition to shoulder widenings, overlays, drainage maintenance and ITS elements. And just over \$48 million of Local Transportation Funds, federal Highway Safety Improvement Program (HSIP) funds, and SHOPP Collision Reduction funds are programmed for engineering, right-of-way, and construction of the US 50 Camino Operational / Safety Improvements project. This project adds acceleration and deceleration lanes and an undercrossing for local roads.

Who are the lead agencies for auto capacity expenditures in the Sacramento region? Of the 53 lead agencies in the SACOG region, five local agencies account for 80 percent of the programmed funding for auto capacity in both the 2019 and 2021 TIPs: In 2019 they are Caltrans District 3, Sacramento County, City of Roseville, Placer County, City of Elk Grove. In 2021 they are Placer County, Sacramento County, City of Rancho Cordova, City of Roseville, and Caltrans District 3.

In total, the 2019 and 2021 TIPs each program just over \$1 billion for about 120 highway and local capacity projects. Highway capacity projects get about 45 percent of programmed funds in the 2019 TIP and 34 percent of programmed funds in the 2021 TIP. These projects include a new expressway (Capital Southeast Connector), general purpose lanes, auxiliary lanes, HOV lanes,

interchange expansions, and new interchanges. Local capacity projects get the majority of funds programmed for new auto capacity – 55 percent and 66 percent in the 2019 and 2021 TIPs, respectively. These projects include new local roads, roadway extensions, and road widenings. Only about 20 of these auto capacity projects, nearly all of them on local roads, also include facilities for active transportation.

And what are the auto capacity projects that are waiting in the “post-2040” wings of the MTP/SCS? These “project development only” projects can seek state and federal funding for their non-construction phases and get a toehold in the TIP. And in some cases, spending federal funds starts a clock for project delivery – if a lead agency does not construct the project within a certain timeframe, they must repay the federal funds. The largest auto capacity expenditures planned for post-2040 include:

- \$295 million for the “Placer Parkway”, a new four-lane connector between State Route 99 in rural Sutter County and Watt Avenue just outside of Roseville in Placer County. Only one phase is scoped in the MTP/SCS – Placer County, the lead agency states that “[i]n its full build out condition, Placer Parkway will be a limited access roadway that connects SR65 in Placer County to SR 99 in Sutter County”⁵⁰.
- \$265 million for managed lanes on SR 51 from Arden Way to the I-80 interchange, about 4.5 miles. Similar to the other managed lanes in the MTP/SCS, the type of managed lane (e.g., carpool lanes, HOT lanes, expressed toll lanes) will depend on results from the Managed Lane Study. Caltrans District 3 is the lead agency.
- \$209.3 million for Phase 2 of the Capital Southeast Connector, a new expressway in rural southeastern Sacramento County that will connect the cities of Elk Grove and Rancho

⁵⁰ Placer County Public Works 2021, <https://www.placer.ca.gov/1655/Placer-Parkway>

Cordova. Phase 1 (construction) of the Capital Southeast Connector receives \$114.8 million in the financially constrained project list of the MTP/SCS. Two final segments of Phase 1, summing to \$82 million, are included as “project development only”. Phase 2 “adds HOV lanes as needed and constructing interchanges at various locations”. In total, the Capital Southeast Connector is slated for \$406.1 million in the constrained and unconstrained lifetime of the MTP/SCS.

3.4.3. Shasta Regional Transportation Agency (SRTA)

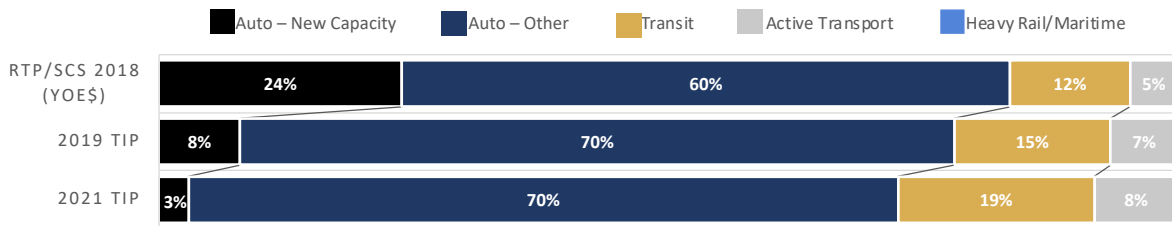
Shasta Regional Transportation Authority is one of the six “smaller” MPOs in California and was assigned a GHG target of 0% in the first round of regional target setting (that is, no increase nor decrease of GHGs per capita). In March 2018 the Air Resources Board adopted more-stringent targets, and SRTA was assigned a target reduction of 4% GHG per capita⁵¹. These more-stringent targets “were not adopted in time for consideration in the 2018 RTP update process”, thus the 2018 RTP/SCS is “based on the original 0% targets”⁵².

SRTA is one of only two MPOs in our sample that funds a smaller share of auto expenditures that is planned in the RTP/SCS. (TCAG is the other.) Nearly 85 percent of expenditures planned in the RTP/SCS are allotted for auto infrastructure; 24 percent is allotted specifically for new auto capacity. In the 2019 and 2021 TIPs, SRTA programs 8 and 0 percent for new auto capacity, respectively. A larger share of funding is programmed for transit – 15 percent in 2019 and 19 percent in 2021 – compared to the 12 percent of funds that are planned for transit in the long-range plan. See Figure 17 and Table 11. SRTA’s Planned vs. Programmed Transportation Expenditures by Mode and Project Type.

⁵¹ CARB 2021, SRTA 2018

⁵² SRTA 2018 RTP/SCS, p. 102

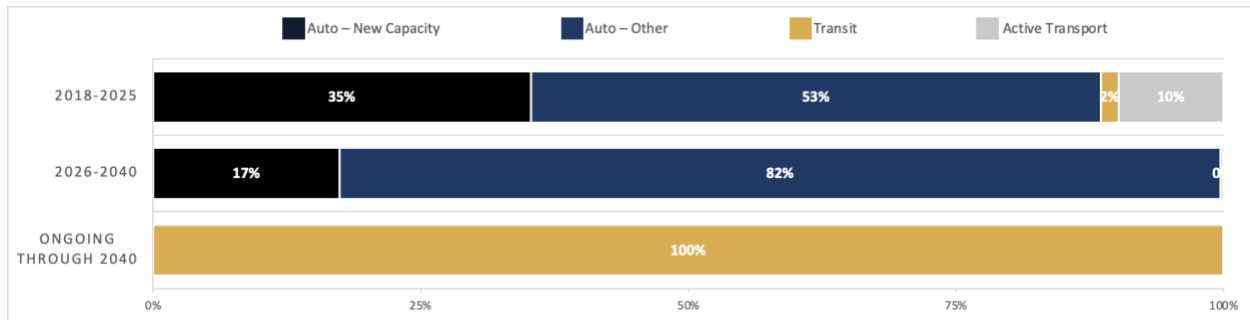
Figure 17. SRTA's Planned vs. Programmed Transportation Expenditures



Part of the relatively large variation in shares of funding is that the magnitudes of SRTA’s budgets are relatively small. The entire project list of the RTP/SCS sums to \$1.4 billion, compared to SACOG’s \$35 billion or Fresno COG’s \$6 billion. The 2019 and 2021 TIP program \$191 million and \$163 million, respectively. A single project can thus have leverage to change the relative distribution of expenditures.

There is a notable difference in transit funding between the RTP/SCS and the TIPs. A look at the phasing of investments in the plan and the project-level details helps explain the difference (Figure 18). Transit investments planned in the RTP/SCS are primarily ongoing operating assistance. The programming of that operating assistance accounts for nearly all of the transit investments programmed in the TIPs, supplemented by funds for preventative maintenance and rehabilitation, vehicle replacement, and transit capital maintenance. Most of the funds programmed for transit – about \$30 million in the 2019 and 2021 TIPs from FTA, farebox revenues, and Transportation Development Act funds – are distributed by formula to SRTA or its constituent local agencies.

Figure 18. SRTA's RTP/SCS Investments by Completion Timing



SRTA is ambitious with regards to its plans for new auto capacity. It includes about 40 auto capacity projects in the 2018 RTP/SCS, summing to \$336 million and accounting for nearly a quarter of the plan’s expenditures. And the majority of auto capacity expenditures are frontloaded into the first seven years of the plan. The largest of these auto capacity projects expands Interstate 5 from the City of Redding to Anderson to make it a continuous six-lane highway, with estimated costs of \$144 million. This "Redding to Anderson Six Lane Project" (RASL) is the one auto capacity project that shows up in the 2019 TIP, programmed with Regional Improvement Program (RIP) funds and locally generated funds. The “Fix 5 Cascade Gateway” project is also in the RTP/SCS and the one auto capacity project that appears in the 2021 TIP. The phase included in the plan constructs a five-mile auxiliary lane on Interstate 5 through the City of Redding. It is programmed in the 2021 TIP with RIP funds and state SB1 funds.

Table 11. SRTA's Planned vs. Programmed Transportation Expenditures by Mode and Project Type

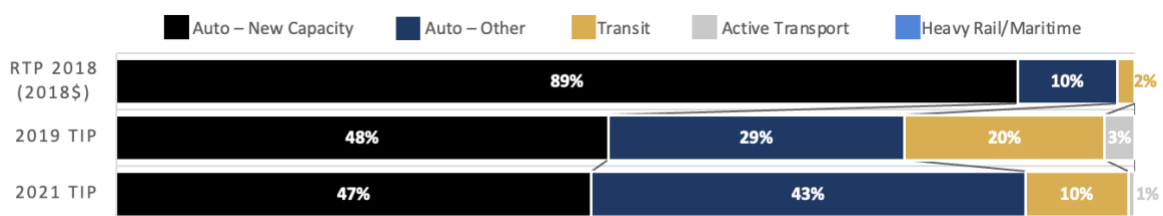
| Expenditures | RTP/SCS 2018 (YOES) | 2019 TIP | 2021 TIP |
|------------------------------|--------------------------------|-----------------------|-----------------------|
| Active Transport | 4.7% | 6.6% | 8.2% |
| New Capacity | 4.3% | 6.6% | 8.2% |
| Reconstruction | 0.5% | - | - |
| Rehabilitation & Maintenance | - | - | - |
| Operations | - | - | - |
| Plan/Study/Program | - | - | - |
| Indirect | - | - | - |
| Auto | 83.5% | 78.1% | 72.5% |
| New Capacity | 23.9% | 8.0% | 2.9% |
| Reconstruction | 23.7% | 28.5% | 16.4% |
| Rehabilitation & Maintenance | 28.0% | 41.5% | 53.2% |
| Operations | 8.0% | - | - |
| Plan/Study/Program | - | - | - |
| Indirect | - | - | - |
| Heavy Rail / Maritime | -- | - | - |
| New Capacity | - | - | - |
| Reconstruction | - | - | - |
| Rehabilitation & Maintenance | - | - | - |
| Operations | - | - | - |
| Plan/Study/Program | - | - | - |
| Indirect | - | - | - |
| Transit | 11.8% | 15.3% | 19.3% |
| New Capacity | < 0.1% | - | - |
| Reconstruction | - | - | - |
| Rehabilitation & Maintenance | 0.6% | 1.9% | 2.6% |
| Operations | 11.1% | 13.3% | 15.3% |
| Plan/Study/Program | - | - | - |
| Indirect | < 0.1% | 0.2% | 1.4% |
| Total | \$ 1,591,200,956 | \$ 191,345,000 | \$ 163,152,000 |

3.4.5. Tulare County Association of Governments (TCAG)

The constrained transportation project list in TCAG’s RTP/SCS is unlike those from the other four MPOs in this sample – it contains only automobile projects. The plan includes both a Financial Element, per federal code, and a transportation project list of financially constrained and unconstrained investments.

The Financial Element (that is, not the transportation project list) includes project-level transit investments for the first five years of the 20-year plan horizon, as well as revenue projections for dedicated transit and active transportation funds. But aside from five years of capital transit needs, and despite state and federal revenues being available transit and active modes, the project list in the RTP/SCS does not spell out specific project-level investments for transit nor active transportation. As such, auto investments make up nearly all – 99 percent – of the investments in the RTP/SCS and new auto capacity accounts for 90 percent of planned investments.

Figure 19. TCAG's Planned vs. Programmed Transportation Expenditures



But despite being virtually absent from the RTP, transit and active transportation projects account for 23 and 11 percent of expenditures in the 2019 and 2021 TIPs, respectively. If these projects are not in the RTP, then where did they come from? Most of the programmed transit projects are lump sums funded primarily with formula funds. FTA 5307, FTA 5311, and Local Transportation Funds from the Transportation Development Act are programmed for transit

operating assistance. FTA 5339 and the required local match are programmed for replacement of the transit fleet, with a mix of federal CMAQ funds. FTA 5307 funds are used for transit preventative maintenance projects. In essence, the region is using local funds and the federal formula funds available for transit to support its transit systems. The federal sources of funding ensure that transit is programmed in the TIP.

Active transportation projects also appear in the TIPs despite being absent from the RTP. They show up as grouped projects for bicycle and pedestrian facilities are programmed exclusively with state Active Transportation Program funds and federal CMAQ funds.

Non-capacity auto infrastructure also appears in the TIPs in a much greater share than it was planned. The majority of these “other” auto infrastructure funds are grouped projects for pavement resurfacing, bridge rehabilitation and preservation, and safety improvements. These are programmed with local county funds, state funds (SHOPP Roadway Preservation, SHOPP Bridge Preservation Program, Highway Bridge Program) and federal funds (Surface Transportation Block Grant Program).

There is clearly a much larger array of auto capacity projects in TCAG’s RTP. Nearly 23 percent of the plan’s expenditures are to widen 20 miles of State Route 99 from four to six lanes. Ten percent of the planned expenditures are to widen 19.5 miles of State Route 65 from two to four lanes. Over 9 percent of the plan adds or widens the on- and off-ramps at three interchanges on SR 99. Over 6 percent is to widen seven miles of SR 190 from two to four lanes and widen one of its interchanges. And dozens of other projects widen county and city roads through Tulare County and its cities. These projects are programmed in the TIPs with a mixture of STIP Regional Choice funds, SB 1 funds, federal Highway Infrastructure Funds, federal Surface Transportation Program funds, regional sales taxes, and local funds.

Table 12. TCAG's Planned vs. Programmed Transportation Expenditures by Mode and Project Type

| Expenditures | RTP 2018 (YOES) | 2019 TIP | 2021 TIP |
|------------------------------|----------------------------|-----------------------|-----------------------|
| Active Transport | - | 3.0% | 0.6% |
| New Capacity | - | 3.0% | 0.6% |
| Reconstruction | - | - | - |
| Rehabilitation & Maintenance | - | - | - |
| Operations | - | - | - |
| Plan/Study/Program | - | - | - |
| Indirect | - | - | - |
| Auto | 98.8% | 77.4% | 89.2% |
| New Capacity | 90.0% | 48.3% | 46.6% |
| Reconstruction | 5.9% | 10.4% | 9.4% |
| Rehabilitation & Maintenance | - | 18.4% | 33.2% |
| Operations | 2.9% | 0.3% | - |
| Plan/Study/Program | - | - | - |
| Indirect | - | - | - |
| Heavy Rail / Maritime | - | - | - |
| New Capacity | - | - | - |
| Reconstruction | - | - | - |
| Rehabilitation & Maintenance | - | - | - |
| Operations | - | - | - |
| Plan/Study/Program | - | - | - |
| Indirect | - | - | - |
| Transit | 1.3% | 19.6% | 10.1% |
| New Capacity | 0.5% | - | - |
| Reconstruction | - | - | - |
| Rehabilitation & Maintenance | 0.4% | 7.2% | 3.0% |
| Operations | - | 12.4% | 7.1% |
| Plan/Study/Program | - | - | - |
| Indirect | 0.3% | - | - |
| Total | \$ 2,535,809,700 | \$ 414,435,000 | \$ 640,984,000 |

3.5 Findings & Policy Recommendations

Responding to federal regulations and California law, regional TIPs include regionally significant projects consistent with the regional plan and are updated under California law every two years. By reviewing two cycles of TIPs, we are able to examine where expenditures on projects are being directed for a six-year period. This is in comparison to the 20-to-30-year period covered in the regional transportation plans.

In the largest regions – MTC, SACOG, and Fresno COG – funding for auto infrastructure and new auto capacity is programmed at shares that do not reflect the overall funding priorities nor GHG reduction goals established in the long-range transportation plans. In total dollars, SACOG alone programmed \$1.1 billion and \$1 billion for new auto capacity in its 2019 and 2021 TIPs, respectively. MTC programmed \$1.8 billion and \$1.4 billion for new auto capacity in the same timeframe. Fresno COG programmed \$274 million and \$348 million.

In all five case study regions, auto infrastructure – e.g., new capacity, road rehabilitation, operations – receives the majority of planned and programmed funds in all regions except the San Francisco Bay Area. New auto capacity – new or wider roads, new auxiliary or toll lanes, new or wider interchanges and ramps – makes up a significant share of planned and programmed funding in all regions, particularly in the Central Valley and suburban areas of the Bay Area. Indeed, new auto capacity receives the plurality of programmed funds in two of the five case regions (SACOG and TCAG).

How do these programming patterns square with RTP/SCSs that meet their GHG targets? When investments in the RTP/SCS are broken out by timeframe, many plans tend to frontload auto capacity investments and, in some cases, backload transit projects. So, expenditures in the TIPs follow fairly similar patterns to the near-term investments (in the first ten years) in the long-range RTP/SCS. In these cases, auto-heavy TIPs are technically implementing the RTP/SCS as planned.

The investments and phasing in RTP/SCSs and TIPs are impacted by their fiscal constraint. Investments must match the revenues sources that reasonably expected to be available in the timeframe that the project is programmed. Transportation funding sources and the strings attached by revenue sources thus play a key role in the nature and timing of transportation investments. The state has enacted various funding programs that aim to fund transportation that would reduce VMT and GHGs but they make up only a fraction of the portfolio of the state, federal, and local transportation funds. A regional planner commented: “The state’s special programs like ATP [Active Transportation Program] are great as carrots but they are marginal in the overall picture of transportation funds. Trying to change the course of an ocean liner like the STIP and SHOPP by poking it with a carrot is a fool’s errand. That shows up in the TIP when you see all the programmed auto capacity.”

These spending patterns have ramifications for real-world travel behavior, GHG emissions, and their impacts on climate change. RTP/SCSs must show that when modeled, the travel patterns on a weekday in 2040 (or the horizon year of the plan) meet a per-capita GHG emission target. But the timing of transportation investments is key to their impact on travel behavior, as well as on GHG emissions and their aggregation in the atmosphere. Modeling a transportation network that frontloads auto capacity projects and “turns on” a robust transit system in the final year of a 20-year plan may meet the necessary model target, but real-world people will take time to adjust travel patterns to a new transit network. And 19 years of GHGs from an auto dependent transportation network will have accumulated in the interim.

3.5.1. Policy Recommendations

Frontloading projects that add auto capacity has implications for induced VMT, GHG emissions and global warming potential, as well as ongoing maintenance costs. This pattern contravenes

California's VMT and GHG reduction goals and hinders the decreased auto dependence planned in RTP/SCSs. Recommendations for action from local and regional planning staff and decisionmakers, state agencies, and state policymakers include:

- Revise the allocation formulae of core transportation funds to align with and implement the GHG reductions envisioned in California's RTP/SCSs.
- Address the phasing of transportation investments in RTP/SCSs to prevent delay of projects that reduce VMT and GHG emissions. The overall package of projects in the RTP/SCS can meet the regional GHG target, but this analysis of investment phasing shows that auto capacity projects are planned for earlier phases and reliably programmed in TIPs. This pattern entrenches automobile dependence and its resultant GHG emissions.
- Create and reward meeting a near-term VMT and GHG reduction target. The GHG target attached to the horizon year of the long-range plan offers decades for projects to creep forward or backward and for local and regional agencies to put off bold action. And no such GHG target exists for the near-term projects in the TIP. Revised funding allocation formulae could reward regions for their performance on a near-term GHG target.
- Create prioritization and de-prioritization processes for transportation investments currently in the project pipeline. Many projects currently being programmed were proposed by lead agencies decades ago, when needs and paradigms were different. Several MPOs have frameworks for screening the projects in their long-range plans. This process could be adapted to local government plans, TIPs, and state plans.
- Create a SCS monitoring system that tracks federal, state, and locally funded transportation projects. TIPs provide the most comprehensive source of data for state and federally funded transportation projects and for locally funded projects that increase capacity. But there is a

gap in information about exempt projects funded solely with local funds – tracking these projects is key for SCS implementation.

- Require consistent and standardized project descriptions and classification. Projects in the RTP/SCS and TIP that add roadway capacity should explicitly state that they add roadway capacity, including the type of lane(s) (e.g., HOT, HOV, auxiliary) and the total lane miles. Safety, operations, and freight projects often add roadway capacity without noting it.

4 Research Design & Methods, Part 2

4.1 Sample and Methods: Who, What, Why of Highway Expansions

To explore the “who, what, and why” of highway expansion, I qualitatively explored the policy arenas of three case study highway expansion projects as well as the statewide transportation policy arena in California. I selected the three case study projects for their diversity of location, context, and project characteristics. Through in-depth interviews with key informants, I explore questions about who is influential in highway expansions, what problems policy actors and institutions are aiming to solve with highway expansions, and why they expect highway expansion to solve those problems.

4.1.1. Case Study Highway Expansion Projects

I explore three highway expansion projects that were or were recently in the planning phase. That is, these three expansion projects were currently being planned and have not been constructed to capture current conditions, policy contexts, resource distribution, and policy actors. The case study projects were selected for their diversity of location in the state, location in their respective regions, surrounding urban development patterns, and project characteristics:

- State Route 37, from Highway 101 in Marin County to Interstate 80 in Solano County.
- Interstate 80, from Kidwell Road in Solano County to Interstate 5 in downtown Sacramento (on Highway 50) and to El Camino Avenue in Sacramento County (on Interstate 80).

- Interstate 710, from Ocean Boulevard in the City of Long Beach to State Route 60 in East Los Angeles.

To collect information about the case highway expansion projects, I reviewed primary documents such as agency websites, corridor studies, corridor plans, environmental documents, project reports, and staff reports. Details of the three case study projects are summarized in Table **13** below and discussed in detail in Section 4.2.

Table 13. Summary of Case Study Highway Expansion Projects

| | State Route 37 | Interstate 80 | Interstate 710 |
|---|---|--|---|
| Location | Marin, Sonoma, & Solano Counties | Solano, Yolo, & Sacramento Counties | Los Angeles County |
| Surrounding Areas | Rural and Suburban | Rural, Suburban, and Urban | Urban |
| Corridor Length | 21 miles | 20.8 miles | 19 miles |
| Existing Lane Configuration | <p><i>US 101 to SR 121/Sears Point:</i> 7.2-mile expressway-type facility with 2 lanes in each direction.</p> <p><i>Sears Point to Mare Island:</i> 9.5-mile conventional highway with 1 lane in each direction.</p> <p><i>Mare Island to I-80:</i> 4.4-mile expressway-type facility with 2 lanes in each direction.</p> | <p><i>In Solano County:</i> 4 general purpose lanes in each direction.</p> <p><i>In Yolo County:</i> 3 general purpose lanes in each direction. 4 general purpose lanes in each direction between PM 9.0 and 9.6.</p> <p><i>In Sacramento County:</i> 3 general purpose lanes.</p> | <p><i>North of I-405:</i> 4 general purpose lanes in each direction.</p> <p><i>South of I-405:</i> 3 general purpose lanes in each direction.</p> |
| Summary of Project Description | <p><i>Interim Build:</i> Shoulder or median conversion to three or four travel lanes from Sears Point to Mare Island.</p> <p><i>Ultimate Build :</i> Construct 4 lane causeway</p> | Addition of managed lanes, auxiliary lanes, and intelligent transportation system elements. Type of lane management (HOV, HOT, express, transit only) to-be-determined. | Addition of lane(s) to the freeway mainline under one build alternative and construction of a separate four-lane freight movement corridor under one build alternative. |
| Preferred Project/ Project Alternative | <p><i>Interim:</i> TBD</p> <p><i>Ultimate:</i> 4 lane elevated expressway</p> | Add 1 tolled lane in each direction. | 5C: Widen to 5 general purpose lanes in each direction. |
| Right of Way | <p><i>Interim:</i> Expansion into wetlands and wildlife refuge.</p> <p><i>Ultimate:</i> Expansion into wetlands and wildlife refuge.</p> | Within existing right-of-way. | Expansion into surrounding communities, including displacement of 109–140 homes (436–560 people) and 157–213 businesses. |
| Project Cost | <p><i>Interim Build:</i> \$256 million to \$415 million.</p> <p><i>Ultimate Build:</i> \$6.2 billion to \$11.2 billion.</p> | \$200 million to \$300 million, depending on alternative. | \$4.63 billion to \$8.12 billion, depending on alternative and design. |

4.1.2. Interview Sample and Methods

I interviewed policy actors involved with each case study, as well as transportation policy and planning experts in California. The sampling frame included a variety of policy actors from each highway expansion project's policy arena. I aimed to interview at least one person from each of the following categories for each case:

- City and county planners and engineers
- Local transportation agency staff
- MPO staff
- DOT district staff
- DOT headquarters staff
- Local elected officials
- State elected officials
- Non-governmental organization leaders
- Transportation consultants
- Journalists
- Academics

I also included transportation experts from California's statewide transportation policy arena in the sampling frame. These key informants included leaders at California agencies responsible for regulating, planning, programming, building, operating, and maintaining the state's transportation network. Key informants also included leaders and representatives of statewide non-governmental organizations (NGOs) that advocate or lobby for business, transportation industry, labor, transportation safety, environmental, environmental justice, and social justice interests.

I identified potential interviewees through transportation plans, reports and report authorship (including staff reports), staff listings on organization websites, meeting minutes, comment letters on

reports and legislation, public comments on reports and legislation, press releases, and from other publicly available materials. In addition, I asked interviewees to recommend other policy actors involved with the case highway expansion projects and transportation experts involved with transportation and highway policy, planning, and projects. A total of 73 policy actors were identified from these purposive and snowball sampling methods. Because this study is interested in the factors that guide decision-making, the sampling frame was generally comprised of policy actors with decision-making authority such as elected officials, executive directors, directors, managers, secretaries, and principals.

I contacted potential interviewees by email or phone, gave them a brief description of the study, and invited them to participate in an hour-long interview. If the person agreed to an interview, we scheduled an appointment at a mutually agreeable time and place. Most interviews were conducted by videoconference or phone, though some interviews were held in person at public locations that were convenient for the participant. Because a majority of policy actors in the sampling frame were government employees, and government employees have strict rules about the receipt of gifts, I did not offer incentives to participate in an interview.

All interviews lasted at least an hour, with some lasting over two hours. To encourage candid discussion, I committed to keep interviewees' names and personally identifiable details anonymous. Some interviews were audio recorded if the participant verbally agreed to be recorded for notetaking purposes. In some cases, parts of the interview were audio recorded and parts were unrecorded – I paused the recording at the interviewees' request to discuss particularly sensitive topics. Audio of the recorded interviews was professionally transcribed by Rev's automated transcription service. The majority of interviews were not audio recorded and I instead took detailed notes that I cleaned and refined after each interview.

I conducted 48 interviews with a variety of policy actors in the three project-level policy arenas and California’s statewide transportation policy arena. Interviewed policy actors included local and state elected officials, local planners and engineers, leaders and staff from local transportation agencies, regional planners, leaders from regional and state agencies, leaders from DOT districts and headquarters, transportation consultants, modelers, academics, journalists, and leaders in NGOs. NGOs included advocacy organizations for the transportation industry, labor, environmental interests, environmental justice, and transportation safety. Table 14 summarizes the number of interviews completed by each category of policy actor. Five of those contacted did not reply to the interview invitation. Another four agreed to be interviewed but could not find a time to schedule one. The organizational and industry affiliations of policy actors who did not respond or schedule an interview followed similar patterns to those who participated in interviews – that is, there was no identifiable non-response bias.

Table 14. Interviews Completed

| | | | |
|-----------------------------------|---|----------------------------|--------------|
| Academics | 3 | Modelers | 3 |
| DOT Staff – District & HQ | 6 | MPO Staff | 6 |
| City & County Planners/Engineers | 2 | NGO Leaders | 7 |
| Elected Officials | 3 | State Agency Staff | 5 |
| Journalists & Media | 3 | State Government | 1 |
| Legal Experts | 2 | Transportation Consultants | 2 |
| Local Transportation Agency Staff | 5 | | |
| | | | Total |
| | | | 48 |

Interviews with the key informants were semi-structured and used an interview guide that was developed based on a review of the literature and with input from a multi-disciplinary research team. Questions were designed to be open-ended and elicit interviewees’ information about and experiences with the case highway expansion projects and the surrounding transportation policy context (see Appendix B). Interviewees were asked about their role with highway expansion

projects, transportation policy, and transportation planning. They were asked to recount the “origin story” of the highway expansion they were involved with, including which organizations and institutions were influential in its inception and in bringing the project from idea to reality. They were asked questions about the problems that motivated the highway expansion project and the goals that policy actors were aiming for. Interviewees were also asked questions about the outcomes that are anticipated from the project across a variety of factors such as congestion, VMT, air quality, and effects on the nearby communities. Each question had a number of prompts to help structure and drive the conversation if interviewees did not discuss them organically. I concluded each interview with questions about other topics they considered to be important that had not yet been covered, and about who they would recommend I interview. Importantly, the semi-structured nature of interviews was designed to allow policy actors to discuss topics that they considered to be important characteristics and considerations of highway capacity projects and the transportation policy context. Because each policy actor and case expansion project is unique, each interview followed a unique course. Some interviewees focused on the origin story of expansion projects, while some focused on the modeling and analysis of expansion projects. Others focused on the influential actors and institutions in state, regional, and local transportation policy arenas, the goals that motivate them, and their perception of alliances and factions among coalitions. Others still focused on the philosophies that they had brought and encountered while working in the transportation policy arena. I purposefully followed the lead of interviewees if their discussion fit within the topics of this study.

I drew on both policy process theory and used a grounded theory approach to analyze the interview data. I used policy process theories such as the Advocacy Coalition Framework (ACF) and the Institutional Analysis and Design (IAD) framework to formulate the research questions, interview instrument, and to approach the interview data. The ACF and IAD framework also

provided broad frameworks from which I created the higher order categories of codes, themes, and relationships. Grounded theory is an inductive approach to data analysis, in which the researcher categorizes interview and textual data into concepts, higher order categories, and relationships (Corbin and Strauss 2014). The grounded theory approach is unique in that the codes, concepts, and categories are generally generated during analysis in a process called “open coding,” rather than generated ahead of time and then coding data with a pre-formulated codebook. While researchers using this approach must be careful to “suspend preexisting theoretical expectations or biases” and allow themes to emerge from the observed data, existing theory and literature is useful to help draw the “big picture” and create higher order categories (Bhattacharjee 2012). I drew from the ACF and IAD to create four concept categories – influential actors, perceived problems, perceived solutions, and anticipated outcomes – and then open coded interview transcripts and notes. That is, I coded interviews and notes without a codebook. Most codes were descriptive: “congestion,” “goods movement,” “labor unions,” “DOT Districts.” Other codes were more analytical: “additive solutions,” “solutions based on available funding,” “labor + industry = magic sauce,” “short-term thinking.” Coding and analysis were iterative processes – I went back and searched for newer ideas and codes in transcripts and notes that I had previously coded.

4.1.2. Primary Documents & Media

In addition to interviews, I collected data about policy actor’s perception of transportation problems, solutions, and anticipated project outcomes from primary documents and media sources. Primary documents included press releases, newsletters, comment letters, informational videos, newspaper articles (e.g., policy actors’ quotes in newspapers), and board motions. Media included recorded town halls, board meetings, and webinars held about the case projects. Audio from these

dialogue-based primary data sources was professionally transcribed by Rev's online transcription service.

I coded and analyzed primary documents and transcripts of primary data using the same method as I used for the interview data, described previously. Because these primary documents and data are publicly available and were not collected by key informant interviews with the condition of anonymity, the findings I draw from these primary data are attributed to specific policy actors. In some instances, I attribute quotes from these primary data to a named actor if the identity of the individual is important to understanding the quote (e.g., US Congressman Garamendi). In most instances, I attribute quotes from these primary data to a specific position and organization (e.g., the director of Caltrans).

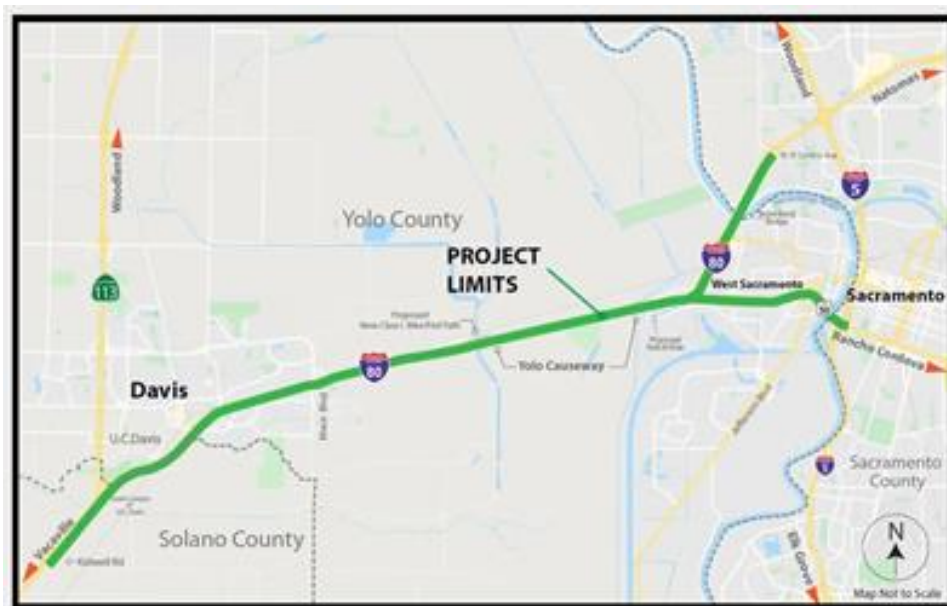
4.2 Case Highway Expansion Projects

Details of the three case study highway expansion projects are discussed below.

4.2.1. Interstate 80

The I-80 expansion project is located primarily in Yolo County, earning it the official title of “Yolo 80 Managed Lanes Project,” but the 20.8 miles of the project corridor span Solano, Yolo, and Sacramento Counties. Its western terminus is Kidwell Road (Postmile 40.7) near the rural city of Dixon. The project extends eastward through Yolo County, the City of Davis, and across the Yolo Causeway into the City of West Sacramento. The project forks to the north to continue on Interstate 80 and to the east to extend onto US Highway 50 into downtown Sacramento. The two eastern termini are on I-80 at El Camino Avenue (Postmile 1.36) and on Highway 50 at Interstate 5 (Postmile 0.617). The project location is illustrated in the figure below.

Figure 20. I-80 Project Map (Caltrans 2023)



District 3 of the California Department of Transportation (Caltrans) is the lead agency for the design, environmental review, and construction of the project. Caltrans District 3 prepared the project's "purpose and need" statement, the project alternatives, and prepared the environmental analysis for the project per NEPA and CEQA. District 3 identified the following purposes for expanding this stretch of I-80 (Caltrans 2023):

- Ease congestion and improve overall person throughput.
- Improve freeway operation on the mainline, ramps, and at system interchanges.
- Support reliable transport of goods and services throughout the region.
- Improve modality and travel time reliability.
- Provide expedited traveler information and monitoring systems.

And District 3 describes that the expansion project "is needed for the following reasons":

- Recurring congestion during the AM and PM peak periods exceeds current design capacity limiting person throughput.
- Operational inefficiencies lead to the formation of bottlenecks due to short weaving and merging areas as well as lane drops.
- Inefficient movement of goods and services impedes regional and interstate economic sustainability.
- The corridor users rely heavily on single occupancy vehicles, with limited multi-modal options such as transit, carpool, bicycle, and pedestrian facilities resulting in unreliable travel times.
- Lack of real time traveler information and coordinated traffic communication systems impedes timely response to roadway incidents resulting in secondary collisions and increased non-recurring congestion.

The project that Caltrans proposes to address these aims and needs is a set of “improvements” on 20.8 miles of the I-80 corridor between. The improvements include adding managed lanes within the existing right-of-way and adding to and modifying the intelligent transportation system (ITS) infrastructure. District 3’s project description is:

The project proposes to add managed lanes on I-80 and US 50 by a combination of lane conversion, restriping, shoulder, and median reconstruction with a concrete barrier. Drainage modifications would be required due to median reconstruction in the locations to which sheet flow currently drains. Existing Intelligent Transportation System (ITS) elements and infrastructure would be modified and new ITS elements will be added which includes ramp meters, fiber-optic conduit and cables, and overhead changeable message (CMS) signs.

District 3 developed eight project alternatives “to meet the purpose and need of the project”. One alternative is a “no build” alternative that would not result in any construction. The other seven are “build alternatives” that propose different configurations and alignments for the addition of managed lanes within the existing footprint of the highway. Two alternative propose the addition of high-occupancy vehicle (HOV) lanes, also known as carpool lanes. Two alternatives propose the addition of high-occupancy toll (HOT) lanes. One alternative would add express lanes, where every vehicle pays a toll regardless of vehicle occupancy. One alternative would add transit-only lanes. And one alternative would not build additional lanes but rather convert the current fast lanes to carpool lanes. The project alternatives are summarized in Table 15.

Table 15. Project Alternatives for Yolo 80 Managed Lanes (Source: Caltrans 2023)

| Alternative | Description |
|--------------------------------|---|
| No Build: Alternative 1 | This alternative does not address the purpose and need of the project by not making corridor improvements and relieving traffic congestion. |
| Build Alternative 2 | Add a High Occupancy Vehicle (HOV) lane in each direction for use by vehicles with two or more riders (HOV 2+). |
| Build Alternative 3 | Add a High Occupancy Toll (HOT) in each direction for use by vehicles with two or more riders (HOT 2+). |
| Build Alternative 4 | Add a HOT lane in each direction for use by vehicles with three or more riders (HOT 3+) Lane in Each Direction. |
| Build Alternative 5 | Add an Express Lane in each direction (everyone using the lane pays to use the lane, regardless of number of riders.). |
| Build Alternative 6 | Add a transit-only lane in each direction. |
| Build Alternative 7 | Repurpose the current #1 general purpose lane to HOV 2+. No new lanes would be constructed. |
| Build Alternative 8 | Add a HOV 2+ lane in each direction with I-80 connector ramp. |

Depending on the alternative, the project is estimated to cost between \$200 million and \$300 million. The federal US Department of Transportation awarded a \$85.9 million Infrastructure for Rebuilding America (INFRA) grant to Yolo County Transportation District (not to the lead agency, Caltrans) for the Yolo 80 Managed Lanes project. Funding for the remaining costs was not yet committed nor determined as of summer 2023 (YoloTD 2023).

4.2.2. I-710 Corridor Project

The Interstate 710 expansion project, called the I-710 South Corridor Project, is located along 19 miles of the southern portion of the I-710 corridor in Los Angeles County and the 19 cities and communities within it. The project’s southern terminus is Ocean Boulevard in the City of Long Beach, near the Port of Long Beach; its northern terminus is State Route 60 in East Los Angeles near the Union Pacific Railroad rail yards and the Burlington Northern Santa Fe (BNSF) Railroad rail yards. The project location is illustrated in Figure 21.

Caltrans is the lead agency under both NEPA and CEQA. Caltrans worked in cooperation with the Los Angeles County Metropolitan Transportation Authority (LA Metro), the Gateway Cities Council of Governments (Gateway Cities COG), the Southern California Association of Governments (SCAG), the Ports of Los Angeles and Long Beach, and the Interstate 5 Joint Powers Authority to propose the I-710 Corridor Project (Caltrans & LA Metro 2012). These seven agencies are collectively known as the “I-710 Funding Partners”. Caltrans and LA Metro prepared a Draft EIR/EIS in 2012, which included the project’s purpose and needs statement, and the project alternatives. In the EIR/EIS Caltrans and LA Metro identified five purposes for the I-710 expansion project – “specific objectives that Caltrans, Metro, and the I-710 Funding Partners would like to accomplish through implementation of the I-710 Corridor Project” (Caltrans and LA Metro 2012, p. 1-38). These same five purposes are listed in the 2017 RDEIR/SDEIS:

- Improve air quality and public health
- Improve traffic safety
- Modernize the freeway design
- Accommodate projected traffic volumes; and
- Address increased traffic volumes resulting from projected growth in population, employment, and economic activities related to goods movement.

Figure 21. Map of I-710 Corridor Project (Source: Caltrans and LA Metro 2012)



Caltrans and LA Metro discussed the needs for the I-710 Corridor Project in detail in the 2012 Draft EIR/EIS and in the 2017 Recirculated Draft EIR/Supplemental Draft EIS (RDEIR/SDEIS), as well as in the Second Revised Final Report of the Community Impact Assessment that was published in 2017. The project needs are slightly different between the environmental documents and the Community Impact Assessment. The 2017 Community Impact Assessment describes the need for the project more succinctly than the EIR/EIS, the former stating that “the need for the I-710 Corridor Project is summarized as follows:

- I-710 experiences high heavy-duty truck volumes, resulting in high concentrations of diesel particulate emissions within the I-710 Corridor.

- I-710 experiences accident rates, especially truck-related, that are well above the statewide average for freeways of this type.
- At many locations along I-710, the entrance and exit ramps do not meet current design standards and weaving sections within and between interchanges are of insufficient length. These deficiencies correlate with accidents and congestion.
- High volumes of both trucks and cars have led to severe traffic congestion throughout most of the day (6:00 a.m. to 7:00 p.m.) on I-710, as well as on the connecting freeways. This is projected to worsen over the next 20 years.
- Increases in population, employment, and goods movement between now and 2035 will lead to more traffic demand on I-710 and on the streets and roadways within the I-710 Corridor as a whole.”

In the EIR/EIS, Caltrans and LA Metro discuss the need for the I-710 Corridor Project in much greater detail. They identify I-710 as a “vital transportation artery” for passenger travel of nearby residents and for freight travel – I-710 links the Port of Los Angeles and Port of Long Beach with Los Angeles, Southern California, and the rest of the country. And “the I-710 Corridor experiences serious congestion and safety issues” because of increases in population, employment, goods movement, traffic volumes as well as aging infrastructure (Caltrans and LA Metro 2012, p. 1-8). Caltrans and LA Metro identify the following reasons why the I-710 Corridor Project is needed, and discuss each “need” in turn:

- Air quality: The South Coast air basin and the area surrounding the I-710 Corridor (the “Study Area”) is an “extreme ozone non-attainment area and a non-attainment area for small airborne particulate matter less than 10 and 2.5 microns (PM₁₀ and PM_{2.5}).” The EIR/EIS discusses the deleterious health effects of this air pollution – that “[e]xposure to ozone, PM₁₀, and PM_{2.5} levels above the federal health standards is associated with many adverse health effects—including decreased lung function, aggravated asthma, increased lung and heart diseases symptoms, and chronic bronchitis—that can result in increased morbidity and premature mortality.” It also discusses the relationship between highways and air pollution, in that “studies have shown that elevated levels of nitrogen dioxide (NO₂) and ultrafine

particulates (UFPs) occur very near roadways; these elevated levels are also associated with adverse health effects.” And the South Coast Air Quality Management District studied exposure to air toxics in its air basin, finding that the “highest levels of calculated cancer risk (approximately 1,200 to 2,000 in a million) in 2005 (the study analysis year), occur in the Study Area, particularly near the Ports, rail yards, and along the I-710 freeway. These studies show that diesel particulate matter (DPM) is the greatest contributor to air-quality-related cancer risk in the South Coast Air Basin and that half of the DPM is emitted by diesel trucks using the freeway and roadway systems.”

- Capacity, including freeway capacity and arterial-to-freeway connections. Caltrans and LA Metro assert that “[t]he need for the I-710 Corridor Project is based on an assessment of the existing and future transportation demand in the Study Area compared to the available capacity.” The lead agencies’ assessment of existing and future travel demand leads to the conclusion that the “I-710 Corridor currently experiences, and will continue to experience, capacity and operational problems . . . The increase in regional traffic and heavy-duty truck traffic carrying cargo containers to and from the Ports as contributed to traffic volumes that exceed the existing capacity of the I-710 Corridor.” Data presented show the existing and forecasted average weekday volumes of both passenger vehicles and heavy-duty trucks on I-710. The data show that passenger vehicle volumes on I-710 are generally forecasted to decrease between 2013 and 2035, by as much as -28% on some segments. But truck volumes, which in 2013 accounted for upwards of 66% of total vehicles, are forecasted to increase by 41% to 122% by 2035. In addition to congestion on the mainline of I-710, “congestion at local arterial intersections near the freeway ramps is also a concern.”
- Transportation demand: The EIR/EIS discusses the growth in population and goods movement in relation to the existing and forecasts levels of congestion on the I-710 corridor,

ostensibly indicating that the expansion of I-710 is needed to accommodate forecasted growth. The growth projections from SCAG's 2012 RTP estimate that the "[r]egional population is forecast [sic] to grow by 20 percent and Study Area population is forecast [sic] to grow by 10 percent from 2012 to 2035. Employment will follow a similar pattern." These growth projections from the regional plan were "the basis for the regional traffic modeling that was performed for the I-710 Corridor Project." The EIR/EIS then shows estimates of existing automobile level-of-service (LOS), a measure of automobile delay and congestion, on the I-710 corridor and future LOS on the I-710 corridor without the project. Many segments are forecasted to have LOS E or F, where F is the worst on an A to F scale and means there are "considerable delays." The discussion of transportation demand also includes discussion of goods movement on I-710 and how the Port of Long Beach and the Port of Los Angeles is "one of the largest container ports in the world". The Ports are planning to increase the capacity of their marine terminals and "forecasts anticipate growth in demand at the Ports that will increase from the handling of 14.1 million annual TEUs in 2012 reaching 41.4 million twenty-foot equivalents (TEUs) by 2035 ... The I-710 Corridor is, and is expected to remain, a primary route for trucks carrying containers to and from the Ports."

- Traffic safety: "I-710 experiences high accident rates, exceeding the State average for similar highway facilities in many locations along I-710" and that several segments "have higher fatal accident rates than the State average (ranging 75 to 200 percent higher)." The EIR/EIS hypothesizes that the "high truck volumes may account for the severity of accidents along the I-710 Corridor."
- Need for updated roadway design: The EIR/EIS stresses that I-710 is an old and outdated highway facility – "relatively unchanged from when it was originally constructed." It

discusses that it was designed in the 1950s and 60s, “before the dramatic increase in U.S. imports from Asia and the containerization of oceangoing freight, which have resulted in increased cargo traffic at POLA and POLB, and before the residential, commercial and industrial development in the region occurred over the past several decades.” Thus many design features of I-710 – weaving distances, shoulders, lane widths, variation in number of through lanes, ramp metering, pavement, and median barriers – are not consistent with Caltrans’ current design standards. Interchanges with other highways and with local roadways are also inconsistent with current design standards. Some interchanges are too close in proximity to each other, some have non-standard turning radii, and the cloverleaf-style ramps at several interchanges “limits operating speeds and capacity” compared to flyover ramps that allow for higher vehicle speeds. The result of nonstandard highway geometry is “automobiles and trucks proceeding through the intersections and ramps at low speeds and trucks taking up more than one lane, which greatly limits the capacity of the interchange as a whole.”

- Social demands and economic development: The EIR/EIS states that projected population growth in the Study Area and in Los Angeles County will “continue to place demand on the I-710 Corridor.” Additionally, “the goods movement industry is a major source of employment in the Gateway Cities Subregion [the southern end of I-710], providing thousands of direct and indirect jobs”, and that residents in the project area experience slightly higher levels of unemployment than the county- and statewide averages. Further, I-710 and its connection of the Ports with the BNSF/UP rail yards and the entirety of LA’s goods movement network “serves as a gateway for both international and domestic commerce”. Thus, Caltrans and LA Metro conclude that “highway congestion causes delays affecting personal mobility and goods movement and results in increased economic costs.”

- Modal interrelationships and system linkages: The EIR/EIS emphasizes again that “the I-710 Corridor is the principal transportation connection” between the Ports, the BNSF/UP rail yards, and warehouse and distribution centers in greater Southern California and that the BNSF and UP Railroads distribute goods throughout the country. So I-710 “serves regional, statewide, and national needs for both the general traveling public and the goods movement industry.” Figure 22 illustrates how I-710 connects to other freight modes, systems, and consumer markets.

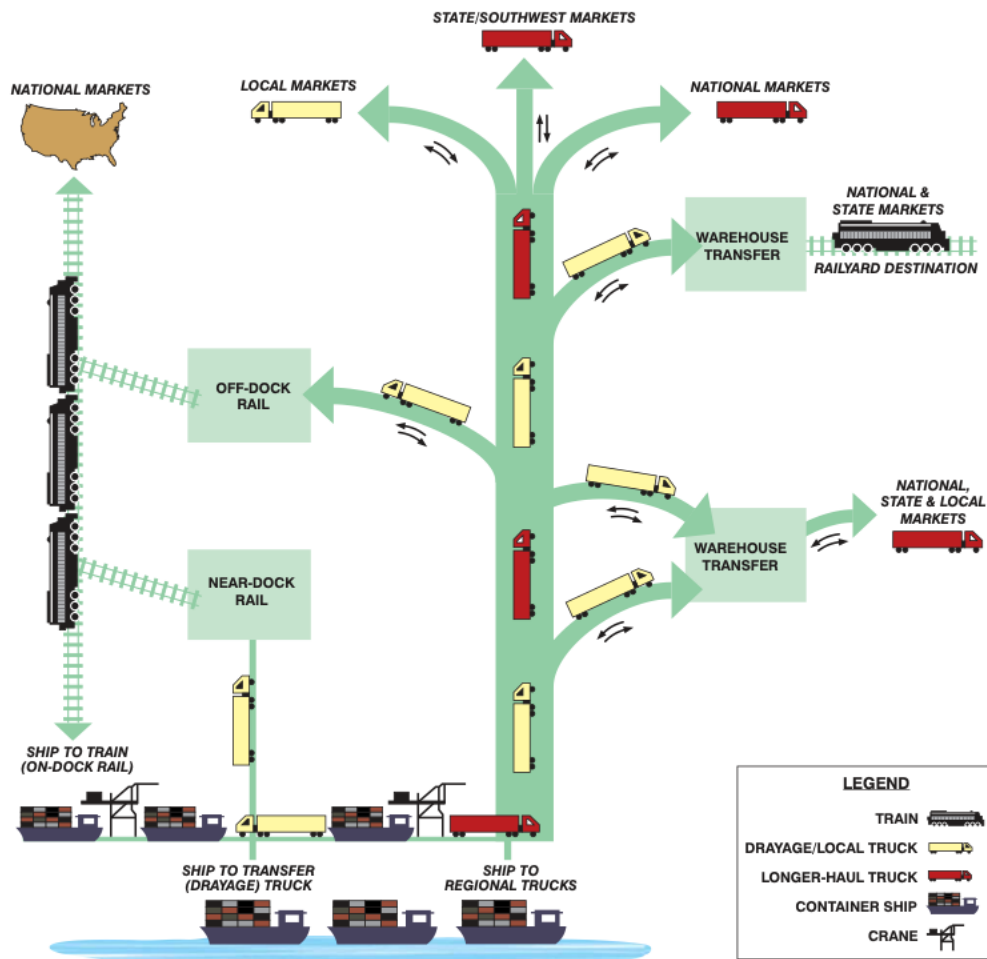


Figure 22. Illustration of Freight through the I-710 Corridor (Source: Caltrans and LA Metro 2017)

Caltrans and LA Metro proposed to “construct improvements” to I-710 between the Ocean Boulevard in Long Beach and State Route 60 to meet the defined purposes and address these needs of the corridor. In the 2017 Recirculated Draft EIR/Supplemented Draft EIS, the project is described as follows:

Construct improvements to Interstate 710 from Ocean Boulevard in the City of Long Beach to State Route 60 in East Los Angeles. The proposed project includes two build alternatives and one no build alternative. The project proposes adding lane(s) to the freeway mainline under one build alternative and construction of a separate four-lane freight movement corridor under one build alternative.

As listed in the financially constrained project list in SCAG’s 2012 RTP/SCS, the project is described as follows:

I-710 Corridor User-Fee Backed Capacity Enhancement – Widen to five mixed flow + two dedicated lanes for clean technology trucks (each direction) and interchange improvements, from Ocean Blvd. in Long Beach to the intermodal railroad yards in Commerce/Vernon.

Caltrans and LA Metro drafted an initial set of project alternatives. The full set of seven project alternatives – six build alternatives and a no build alternative – was published in separate documents, the 2009 “Alternatives Screening Analysis” and the 2009 “EIR/EIS Baseline Alternatives Analysis Report.” A subset of only five project alternatives was carried forward into environmental analysis and into the 2012 Draft EIR/EIS: Alternatives 1, 5A, 6A, 6B, and 6C. The 2017 Recirculated Draft EIR/ Supplemental Draft EIS evaluated only three project alternatives – the no build alternative and two new alternatives: Alternative 5C and Alternative 7. Alternatives 5C and 7 were similar to Alternatives 5A and 6 in the 2012 EIR/EIS but technically new to the environmental analysis process. Except for the no build alternative, Alternative 1, Caltrans and LA Metro withdrew from consideration the four build alternatives from the 2012 EIR/EIS. Table 16 summarizes the set of project alternatives that were evaluated in the 2012 Draft EIR/EIS and the 2017 Recirculated Draft

EIR/Supplemental Draft EIS. Figure 23 shows the “schematic depiction” that Caltrans and LA Metro created to help visualize the components of each alternative.

All the build alternatives for the I-710 project included widening of the footprint of the highway, called the highway “right-of-way.” Given its location in urban Los Angeles County, expanding the highway right-of-way means destroying existing homes and commercial buildings and displacing the current residents and tenants. Indeed, concern about displacement – what the environmental document calls “right-of-way impacts” – was one of the reasons that Alternatives 5A, 6A, 6B, and 6C were withdrawn from consideration (Caltrans 2017). The 2017 RDEIR/SDEIS estimated the magnitude of displacement (“relocations”), which is summarized by build alternative in Table 10 (Caltrans 2107, p. 3.3-64).

Table 16. Project Alternatives for the I-710 Corridor Project (Source: Caltrans 2012, Caltrans 2017)

| Environmental Document | Alternative Name | Summary of Alternative |
|---|---|--|
| 2012 Draft EIR/EIS | Alternative 1: No Build | Maintain the current configuration of the existing I-710 Corridor. There would be no capacity-increasing improvements to the I-710 mainline. The assumption of maximum goods movement by rail is included in Alternative 1. |
| | Alternative 5A: I-710 Widening and Modernization | Widen the I-710 mainline to a total of eight general purpose lanes south of I-405 (about 4 miles) and to ten general purpose lanes north of I-405 (about 15 miles). Modernize the design at I-405, SR 91, and most local arterial interchanges. Also includes TSM/TDM, transit, and ITS improvements. Auxiliary lanes would be added at various locations between the interchanges. |
| | Alternative 6A: I-710 Widening and Modernization plus Freight Corridor (Trucks) | Includes all the components of Alternatives 1 and 5A, widening I-710 to eight general purpose lanes south of I-405 and to ten general purpose lanes north of I-405. In addition, constructs a separated four-lane freight corridor to be used by conventional trucks. The freight corridor would be located on an elevated structure with two lanes in each direction between Ocean Blvd. and the intermodal rail yards in the cities of Vernon and Commerce. |
| | Alternative 6B: I-710 Widening and Modernization plus Freight Corridor (Zero-Emission Vehicles) | Includes all the components of and consists of the same footprint as Alternative 6A. This alternative would restrict the use of the four-lane freight corridor to zero-emission trucks (e.g., powered by electric motors with zero tailpipe emissions) rather than conventionally powered trucks (e.g., internal combustion engines). |
| | Alternative 6C: I-710 Widening and Modernization plus Tolloed Freight Corridor | Includes all the components of and consists of the same footprint as Alternatives 6A and 6B. This alternative would also toll the zero-emission trucks using the four-lane freight corridor. |
| 2017 Recirculated Draft EIR /Supplemental Draft EIS | Alternative 1: No Build | Maintain the current configuration of the existing I-710 Corridor. There would be no capacity-increasing improvements to the I-710 mainline. This alternative includes maximum utilization of existing and planned railroad capacity and advanced technologies to manage transportation systems and travel demand in the I-710 Corridor. |
| | Alternative 5C: I-710 Widening and Modernization | Widen the I-710 mainline to eight general purpose lanes from Anaheim Street to I-405 (about 3 miles) and up to ten general purpose lanes north of I-405 (about 15 miles) by adding up to one lane in each direction. Also adds two truck bypass lanes in each direction around the I-405 freeway-to-freeway interchange, and a lane buffer in each direction between Pacific Coast Highway and shoreline Drive to address safety and operational deficiencies. Also includes new auxiliary lanes. The project also includes widened and new pedestrian and bicycle-only bridges and “programmatic elements”, such as a zero-emission truck deployment program. |
| | Alternative 7: I-710 Modernization plus Freight Corridor (Zero-Emission Vehicles) | Adds two separate truck-only lanes in each direction (total of four lanes) between the Cities of Long Beach and Commerce, adjacent to the freeway, approximately 16 miles in length. Use of the freight corridor would be restricted to zero-emission/near-zero-emission trucks. Maintains the same number of general purpose lanes on I-710 but reconstructs, widens, and realigns I-710 to add auxiliary lanes and truck lane viaduct structures. |

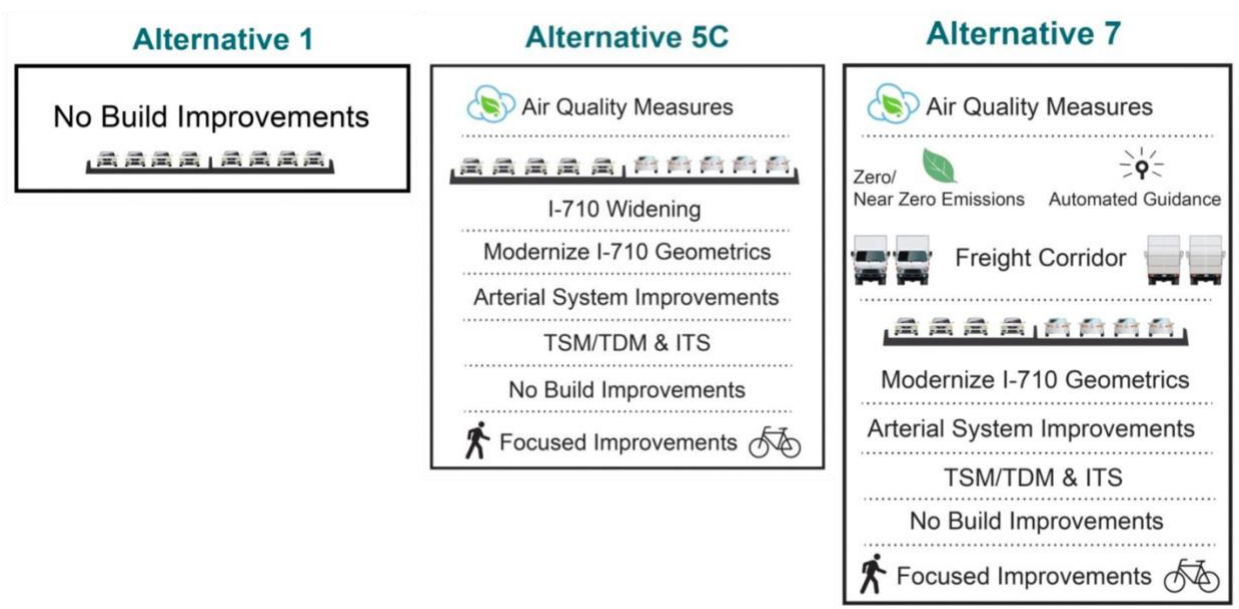


Figure 23. Illustration of I-710 Project Alternatives (Source: Caltrans 2017)

Table 17. Displacements (“Relocations”) by Build Alternatives (Source: Caltrans 2017)

| Alternative | Residential | Non-Residential | Total Displacements | Estimated Residents |
|----------------------------|-------------|-----------------|---------------------|---------------------|
| Alternative 5C Only | 109 | 158 | 267 | 436 |
| Design Option 1A | 109 | 157 | 266 | 436 |
| Design Option 2A | 109 | 161 | 270 | 436 |
| Design Option 3A | 128 | 165 | 293 | 512 |
| Alternative 7 Only | 121 | 206 | 327 | 484 |
| Design Option 1B | 136 | 206 | 342 | 544 |
| Design Option 3B | 140 | 213 | 353 | 560 |

The dollar cost of the project also varies substantially by project alternative, summarized in Table 18.

Table 18. Estimated Project Cost by Build Alternative, Dollars in Billions (Source: Caltrans 2017)

| Alternative | Right-of-Way/ Utilities | Construction | Total Cost |
|----------------------------|----------------------------|--------------|------------|
| Alternative 5C Only | \$1.08 | \$3.59 | \$4.67 |
| Design Option 1A | \$1.04 | \$3.59 | \$4.63 |
| Design Option 2A | \$1.09 | \$3.62 | \$4.71 |
| Design Option 3A | \$1.11 | \$3.69 | \$4.80 |
| Alternative 7 Only | \$1.65 | \$6.32 | \$7.97 |
| Design Option 1B | \$1.62 | \$6.33 | \$7.96 |
| Design Option 3B | \$1.68 | \$6.44 | \$8.12 |

A community-based environmental justice coalition developed, proposed, and analyzed another project alternative for I-710, called “Community Alternative 7, which they submitted in 2012 as part of their formal comment on the Draft EIR/EIS (CEHAJ 2012). Community Alternative 7 proposed to maintain the existing alignment of I-710, with no additional general-purpose lanes, and proposed the addition of an elevated four-lane facility for zero-emission freight vehicles (two lanes in each direction). It included seven elements:

- (1) No widening of general-purpose lanes
- (2) Comprehensive public transit element
- (3) Mandatory zero-emission freight corridor
- (4) Public-private partnership operations of the freight corridor system
- (5) Improvements to the LA River
- (6) Comprehensive bicycle and pedestrian element
- (7) Community benefits and enhancements.

Included in the comments and proposed alternative was “significant technical and legal input” performed by academics, consultants, and lawyers, which were commissioned by the Coalition for Environmental Health and Justice and the Natural Resources Defense Council (CEHAJ 2012).

These technical analyses evaluated the draft EIR/EIS performed by Caltrans and the environmental impacts of the coalition’s proposed alternative. They estimated that Community Alternative 7 “outperformed” the proposed Alternatives 5A, 6A, 6B, and 6C in the draft EIR/EIS “on environmental, economic, and community-impacts grounds” (CEHAJ 2012).

4.2.3. State Route 37

State Route (SR) 37 adjoins Marin, Sonoma, Napa, and Solano Counties in the northern reaches of the San Francisco Bay Area. The entire SR 37 corridor is 21 miles long and follows the northern shore of the San Pablo Bay, starting at Highway 101 in the City of Novato and extending eastward through Sonoma County and the San Pablo Bay National Wildlife Refuge to its eastern terminus at Interstate 80 in the City of Vallejo. SR 37 is an “important regional connection” in the North Bay Area between “job markets and housing within Marin, Sonoma, Napa, and Solano Counties” and provides access to “the popular wine producing regions of Napa and Sonoma Counties”, the Sonoma Raceway, Six Flags, and Mare Island (Caltrans et al. 2021). The corridor location is illustrated in Figure 24.



Figure 24. Map of SR 37 Corridor (Source: Caltrans et al. 2021)

For descriptive and planning purposes, agencies divide the SR 37 corridor into three sections, which are designated by purple, blue, and green colors and arrows in Figure 24 (Caltrans et al. 2021). These three sections are:

- Western Section – US101 in Novato to SR 121/Sears Point: From US 101 in Novato to the signalized SR 121 intersection at Sears Point, SR 37 is a four-lane expressway with 3.4 miles in Marin County and 3.9 miles in Sonoma County.

- Middle Section – SR 121/Sears Point to Mare Island in Vallejo: East of SR 121 (Sears Point), SR 37 becomes a two-lane conventional highway with a median barrier as it crosses the Napa-Sonoma marshlands from SR 121 to Mare Island with 2.3 miles in Sonoma County and 7 miles in Solano County.
- Eastern Section – Mare Island in Vallejo to I-80 Interchange: SR 37 becomes a four-lane freeway starting at Mare island, and continues 4.4 miles eastward on mostly filled roadway and structures to its termination at I-80 in Solano County.

The bayside location of SR 37 makes the roadway “extremely vulnerable to flood-related closures”, which are “expected to be exacerbated by oncoming sea-level rise” due to climate change (Caltrans 2022a). Projections show that “nearly the entire length of the corridor between the cities of Novato and Vallejo is expected to become permanently submerged as sea levels rise” (Caltrans 2022a). The SR 37 Comprehensive Multimodal Corridor Plan (2021) recounts the flood events and resultant road closures on the highway corridor. The western section experienced the most road closures from flooding in the corridor because of its “low elevation and reliance on levees to provide flood protection” (Caltrans et al. 2021). Floods closed SR 37 at Novato Creek in 2005, 2014, and in 2017 when floodwaters closed both directions for 28 days. In 2019 a levee break on the western section caused “massive flooding” and closed the highway for a week. Flooding caused the closure of the middle section of SR 37 – from Sears Point to Mare Island – in 2011 but “flood-related closures are expected to increase over the next decades with SLR [sea-level rise] and storm surge” (Caltrans et al. 2021).

Several studies have focused on the SR 37 corridor for the short-, medium-, and long-term (Caltrans et al. 2021, Caltrans 2022b). Studies have focused on resiliency to sea-level rise and on traffic congestion, such as the “State Route 37 Integrated Traffic, Infrastructure, and Sea-level rise

Analysis” led by researchers at the University of California, Davis and published in 2016 as well as the “State Route 37 Comprehensive Multimodal Corridor Plan” published by a consortium of agencies in 2021. And Caltrans District 4 led the State Route 37 Planning and Environmental Linkages Study (the “SR 37 PEL Study”), conducted in collaboration with partner agencies and published in 2022. These plans and studies resulted in two highway expansion projects coming into the project pipeline. One is the “SR 37 Sears Point to Mare Island Improvement Project,” an “interim” project between SR 121 and the Mare Island Interchange that was identified as a “priority segment for capacity enhancement to address bottlenecks that extend at either end due to lane drops between the four-lane segments” (Caltrans 2022b). This interim project would “increase highway capacity and encourage carpooling” by adding high-occupancy vehicle (HOV) lanes to the 9-mile middle section of SR 37 (Caltrans 2022b). The second project is the “Resilient 37 Project”, which would be a “substantial long-term investment” seeking to address sea-level rise and roadway flooding by reconstruct the “highway’s vertical profile” – that is, reconstructing SR 37 as an elevated highway (Caltrans 2022b). In the SR 37 PEL Study, agency partner evaluated alternatives for the Resilient 37 Project. The preferred alternative was a reconstruction of the entirety 21 miles of SR 37 as mostly an elevated causeway – “above the water level to accommodate sea-level rise and avoid flooding” – that “would be designed as an expressway with two travel lanes and a peak period shoulder running lane in each direction” (Caltrans 2022a).

What is the relationship between the “interim” and “ultimate” expansion projects? The construction of a 21-mile elevated causeway would require substantial time and funding to construct – the PEL Study estimated that the implementation of the ultimate build to be at least 15 years in the future and costs to be between an \$8 billion and \$11.2 billion. Because of the long timeline and unidentified funding sources for the ultimate expansion project, the existing SR 37 highway “must remain in place and intact until completion of any improvements that raise the highway, so that

transportation access along this corridor is not substantially interrupted during long-term construction” (Caltrans 2022b). And in the meantime, Caltrans identified “near-term projects to preserve and enhance the existing SR 37 for the period between now and then” (Caltrans 2022a). So the interim project will add capacity to the existing at-grade highway facility and after the future elevated causeway facility is constructed, the existing and newly expanded highway facility “would be relinquished and used at least in part to provide continued access to local properties” (Caltrans 2022b). Alternatively, the PEL Study proposed that the existing SR 37 roadway would be removed after construction of the ultimate project (Caltrans 2022a). In short, the interim project would expand the capacity of the existing, flood-prone alignment of SR 37 that will be consumed by sea-level rise in the coming decades. And the ultimate project would construct a new elevated and expanded roadway for SR 37, and the existing SR 37 roadway would be handed over to local governments (“relinquished”) or removed.

Interim Project

Many agencies and organizations are involved with the interim expansion project. Caltrans is the lead agency for the environmental analysis of the interim expansion project from Sears Point to Mare Island and is working in cooperation with the regional Metropolitan Transportation Commission and local transportation agencies: Sonoma County Transportation Authority, Solano Transportation Authority, and Napa Valley Transportation Authority (Caltrans 2022b). Caltrans District 4 authored the SR 37 PEL Study in partnership with Caltrans Headquarters, the Metropolitan Transportation Commission, Transportation Authority of Marin, Sonoma County Transportation Authority, Napa Valley Transportation Authority, and Solano Transportation Authority.

Caltrans District 4 was the lead agency for the CEQA and NEPA process and prepared the EIR/EIS for the interim expansion project, including the project's "purpose and need statement". A purpose and needs statement "lays out why the proposed action, with its inherent costs and environmental impacts, is being pursued" (FHWA 1990), and describes the problems, deficiencies, and needs that District 4 perceives of the SR 37 corridor. The purpose of the project is to "address the existing recurring congestion on SR 37 where the highway narrows to one lane in each direction between SR 121 and Mare Island" (Caltrans 2022b, p. 1-7). The EIR/EIS also lists the following purposes for the project:

- Improve traffic flow and peak travel times, and
- Increase vehicle occupancy (the number of people moved per vehicle).

Caltrans District 4 describes the overview of why the interim expansion project is needed:

The project is needed to address recurring congestion in the near term on SR 37, where the highway narrows to one lane in each direction between SR 37/SR 121. Presently capacity and merging constraints result in traffic queueing at the SR 37/SR 121 intersection. Current and anticipated future transportation demand contribute to the need for this project.

Caltrans District 4 then describes in detail the "congestion problems" that necessitate the interim expansion project:

- Existing Congestion and Transportation Demand: Traffic observations showed that both westbound and eastbound SR 37 experienced congestions "approaching the lane drop" near Mare Island and near SR 121, respectively. Congested conditions last for about 6 hours during AM peak in the westbound direction and about 6 hours during the PM peak in the eastbound direction, and "future traffic forecast conditions indicate that the traffic congestion would continue to worsen."

- Legislation: The EIR/EIS describes existing and proposed legislation that relates to tolling authority and HOV facilities that would allow SR 37 to be tolled.

Caltrans District 4 proposed several alternatives for the interim expansion project that would address the project's purpose and needs. One is a no build alternative, as required by environmental review laws, which assumes that no project improvements would be constructed. The six build scenarios are different variations for adding a travel lane. These alternatives are summarized in Table 19.

Table 19. Project Alternatives for SR 37 Short-Term Expansion Project (Source: Caltrans 2022b)

| Alternative | Description |
|--|--|
| No Build Alternative | No project improvements would be constructed. |
| Alternative 1: Three-Lane Contra-Flow with Moveable Median Barrier and HOV Lane | Convert the existing two-lane highway to a three-lane highway, mostly within the existing roadway prism, with a moveable median barrier separating the two directions of traffic. The moveable median barrier would create two lanes during peak period in the peak direction and one lane in the nonpeak direction. The additional lane would be a HOV lane. |
| Alternative 2: Convert Existing Outside Shoulders to HOV during Peak Periods (Part-Time Use Lane) | Convert the existing highway shoulders to add one new traffic lane in the peak direction during the peak periods. During peak hours in the peak direction, the outside shoulder would act as an HOV lane. In the nonpeak direction it would act as a shoulder. |
| Alternative 3A: Widen to Four Lanes, with Four-Foot Shoulders, No Widening at Sonoma Creek Bridge | Widen the highway to four lanes, two in each direction. All four lanes would be general purpose lanes during nonpeak hours. The inside lane would be managed as HOV lanes during peak hours. |
| Alternative 3B: Widen to Four Lanes, with Eight-Foot Shoulders, and Widen Sonoma Creek Bridge | Widen the highway to four lanes, two in each direction, like 3A. |
| Alternatives 3A and 3B, HOV Scenarios | Alternatives 3A and 3B involve starting the additional eastbound HOV lane near the vicinity of the SR 121/SR 35 intersection. Three scenarios for how the eastbound HOV lane would transition at this location: (1) Start HOV lane on the right side 0.6 mile west of SR 121, (2) start HOV lane on left side east of SR 121, (3) start HOV lane on left side 0.6 mile west of SR 121. |

The total cost of the interim project depends on the alternative but is estimated to be between \$256 million and \$415 million (Caltrans 2022b). The No Build Alternative would obviously have no construction costs. Alternative 1 would cost an estimated total of \$256 million for construction and mitigation of permanent impacts to 2 acres of wetlands and sensitive habitat, and an estimated \$2 million per year for operations and maintenance of the moveable barrier. Alternative 2 would cost an estimated \$306 million, including construction and mitigation of permanent impacts to 3.5 acres of wetlands and sensitive habitats. Alternative 3A would cost an estimated total of \$325 million, including purchase of 1.65 acres of right-of-way from the US Fish and Wildlife Service Refuge and mitigation of permanent impacts to 4.3 acres of wetlands. Alternative 3B would cost an estimated \$415 million, including purchase of 3.9 acres of right-of-way from the US Fish and Wildlife Service Refuge and mitigation of permanent impacts to 9 acres of wetlands.

Ultimate Project: “Resilient SR 37”

Many agencies and partner organizations are involved with the ultimate expansion project for SR 37, the four-lane causeway across the San Pablo Bay. The “big picture” planning effort for the ultimate project – the “Resilient SR 37 Project” – produced the SR 37 Planning and Environmental Linkages Study (the “PEL Study”) of which Caltrans District 4 was lead agency but partnered with many other agencies, organizations, and stakeholders (Caltrans 2023, Caltrans 2022a). Key partners in the Resilient SR 37 efforts were Caltrans Headquarters, the Metropolitan Transportation Commission, Transportation Authority of Marin, Sonoma County Transportation Authority, Napa Valley Transportation Authority, and Solano County Transportation Authority. The “Corridor Development Team” for the SR 37 Comprehensive Multimodal Corridor Plan included the aforementioned agencies and also the Sonoma-Marín Area Rail Transit District. Additional stakeholders in the SR 37 long-term planning efforts are the SR 37 Policy Committee, the Resilient State Route 37 Program, and the SR 37 Baylands Group. The SR 37 Policy Committee is made up of the director of Caltrans District 4, the director of MTC, and three elected officials each from the Counties of Marin, Napa, Solano, and Sonoma (Caltrans et al. 2021). The Resilient SR 37 Program includes the four county transportation agencies (Transportation Authority of Marin, etc.), the Bay Area Toll Authority, and Caltrans District 4. The SR 37 Baylands Group is made up of environmental agencies and organizations. The “core team” of the Baylands Group is the State Coastal Conservancy, Sonoma Land Trust, San Francisco Estuary Institute, San Francisco Bay Joint Venture, Ducks Unlimited, and Point Blue Conservation Science (Caltrans et al. 2021).

The SR 37 PEL Study began with developing a vision for the SR 37 corridor, which was to address “existing and future transportation needs by planning for infrastructure resilience against climate change and sea-level rise while improving route movement, reliability, adaptability, and functionality”. The PEL Study Team then developed study goals, distinct from the project’s

purpose, to help with evaluation of project alternatives. The project goals identified by the study were:

- Evaluate long-term integrated solutions that address the SR 37 highway's vulnerabilities and facilitate the restoration of the surrounding baylands.
- Improve route reliability, mobility, and connectivity across all modes and maintain public access.
- Implement nature-based solutions to enhance resilience while simultaneously facilitating natural ecosystem function where practicable.
- Achieve ancillary ecosystem benefits with the northern baylands through partnerships and collaborative planning for future conditions.

The purpose and needs identified in the SR 37 PEL Study stemmed from these vision and goals.

The six needs identified for the SR 37 corridor expounded on the vision for the highway corridor:

- Resilience to precipitation and high tide events along SR 37 is compromised and, with climate change, the corridor will become increasingly less resilient. An improved SR 37 corridor is needed to provide the transportation infrastructure with resilience to climate change and extreme events.
- The function of the SR 37 corridor as a connecting link is currently compromised when extreme weather and tide events cause intermittent closure.
- Further, the congestion and lack of travel time reliability along SR 37 compromise the ability of SR 37 to function as a connecting link.
- The corridor offers no multimodal options, such as transit or bicycle and pedestrian access, which could lessen congestion and travel time.
- SR 37 provides a work-home commute corridor for workers in Solano County, who earn below median income for the Bay Area. The corridor's transportation shortcomings are borne disproportionately by the worker population of Solano County.
- SR 37 currently provides access to multiple public and private points. However, the number, locations, and design of these public access points have contributed to traffic operational deficiencies in the corridor. The need for access is expected to worsen in the future when more vehicles are using the corridor.

And the purposes identified for the project were as follows:

- Preserving a critical regional transportation corridor that is resilient to extreme events while integrating ecological resiliency, which facilitates adaptation to sea-level rise.
- Providing reliable travel time and promoting increases in average vehicle occupancy.
- Providing safe mobility for bicyclists and pedestrians.
- Maintaining and enhancing public access, including to recreational areas.
- Providing equitable multimodal transportation solutions that improve access for, and providing meaningful benefits to, all users of SR 37, with special consideration of underserved communities.

The PEL Study Team developed many scenarios to satisfy the corridor’s needs and meet the project purpose. The study team developed eight potential project “alignments” and ten “alternatives,” which it defined as related to but not interchangeable terms. An alignment is “one-dimensional, representing only the general route on the map; it does not include any consideration of roadway width, the composition of the roadway prism, the profile of the roadway,” whereas an alternative as has an alignment and also detail about the corridor’s cross-section, profile, and connection points with adjoining roadways (Caltrans et al. 2022). The eight alignments assessed by the PEL Study Team are illustrated in Figure 25.

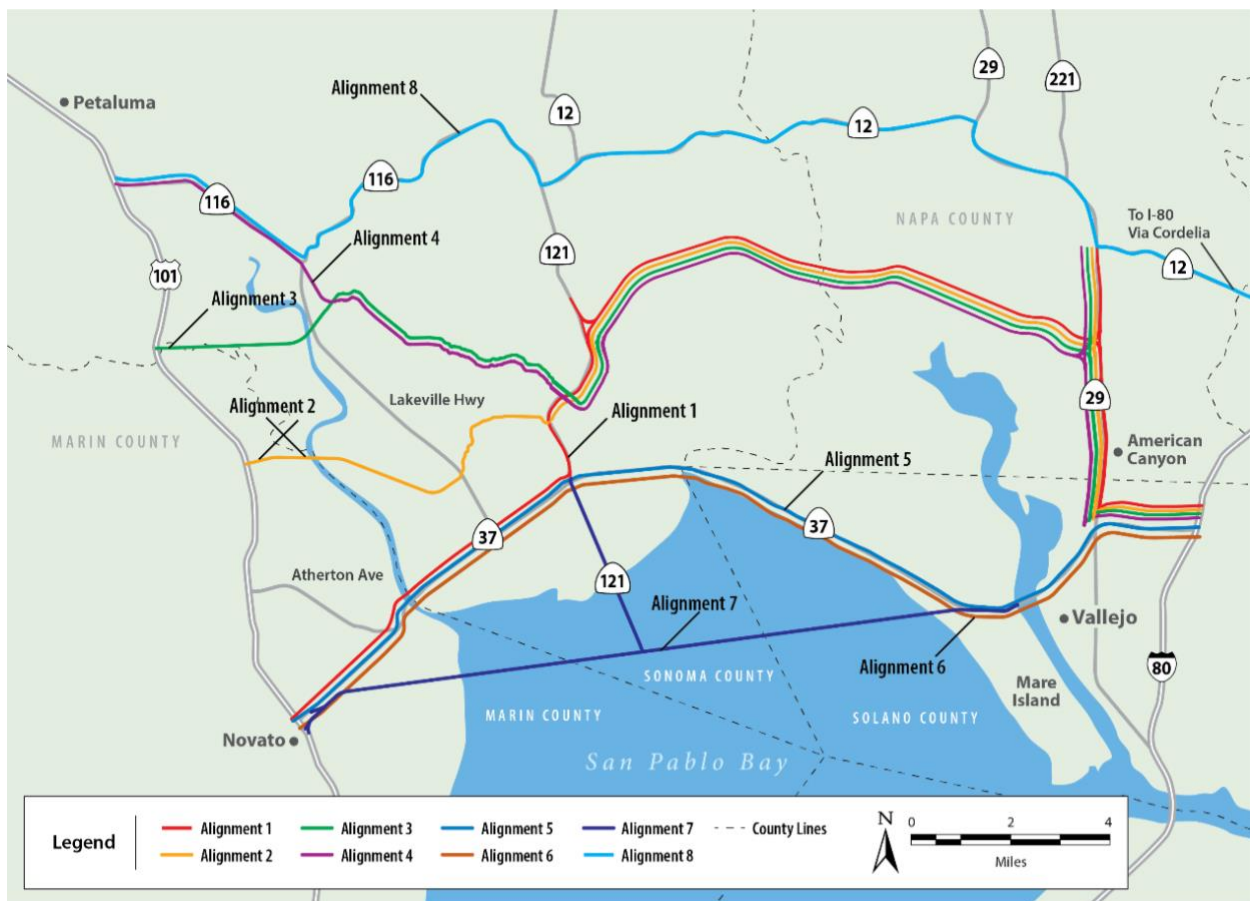


Figure 25. SR 37 Potential Alignments (Source: Caltrans 2022a)

The PEL study team developed Alignments 1, 4, 5, 6, 7, and 8 into “fully fledged alternatives” through its increasingly detailed and refined screening process and added two new alternatives – Alternatives 9 and 10. Mode alternatives considered at various stages of the study process included a floating bridge, ferry, rail, bus, a causeway, and a tunnel. Caltrans developed the specifications of the alternatives such as right-of-way width, the number of lanes, shoulder width, and general information about physically constructing the road bet (“cut and fill”). The PEL Study Team considered “four- and six-lane alternative options” for each alignment but because “six-lane scenarios in any alternative corridor would induce substantial VMT, well beyond a level that could be feasibly mitigated,” six-lane alternatives were not carried forward (Caltrans 2022a). The alternatives considered are illustrated in Figure 26.

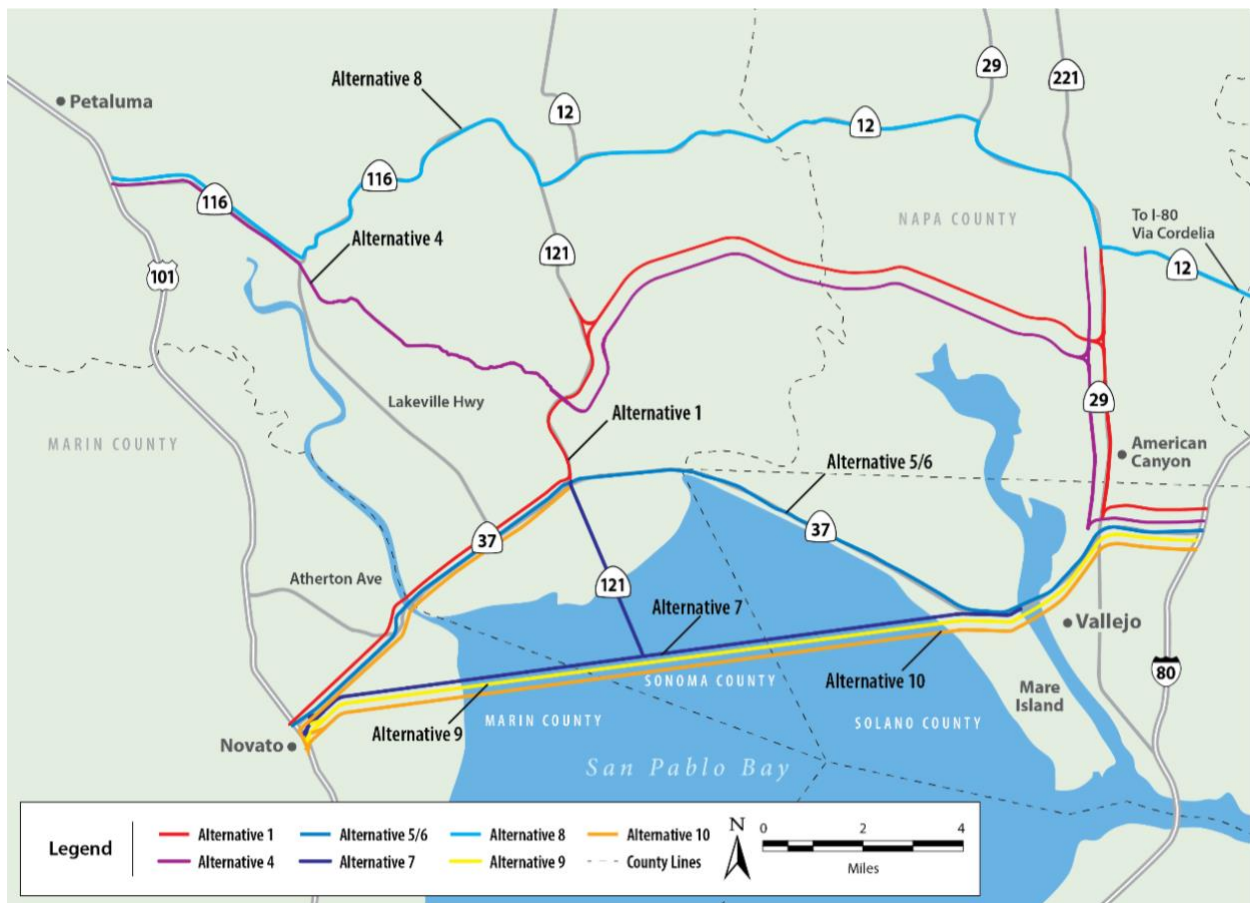


Figure 26. SR 37 Potential Alternatives (Source: Caltrans 2022a)

The PEL Study Team chose Alternative 5 as the preferred alternative for the ultimate project. Alternative 5 would follow the same alignment as the current SR 37 and be constructed primarily as a causeway, rather than an embankment. It would be designed as an expressway with two travel lanes in each direction, and also have one peak period shoulder running lane in each direction. The cross-section design of the preferred alternative is illustrated in Figure 27. The PEL Study Team found that this alternative performed the best “in terms of maintaining regional travel patterns” and that it “would not increase VMT in the long term” (Caltrans 2022a).

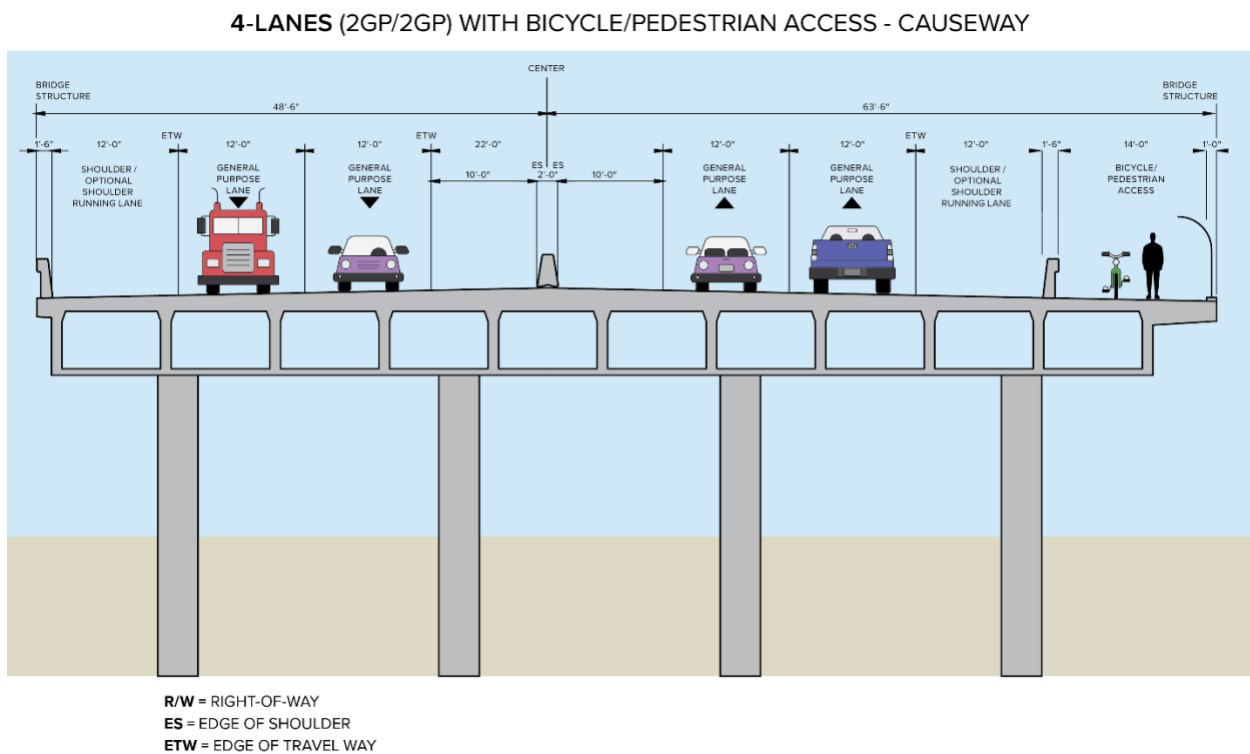


Figure 27. SR 37 Preferred Alternative Cross Section (Source: Caltrans 2022a)

Caltrans and MTC developed and evaluated the proposed alternative with a higher level of detail, which included estimating the cost of the ultimate build. The low-end cost estimate for the preferred alternative was \$6.2 billion for the entire 21-mile stretch of the corridor (in 2022 dollars) but this estimate omitted costs related to design and engineering details, height of the piers, removal of the

existing SR 37 roadway, environmental mitigation, and “constructability challenges in the bay mud” (Caltrans 2022a). The cost estimate that considered these factors put the cost for the ultimate build at \$11.2 billion in 2022 dollars. As of the publishing of the SR 37 PEL Study in fall of 2022, “Caltrans [did] not have such funding in place and [did] not anticipate that funding on this scale could be assembled in any timely manner.” The implementation of the preferred alternative is assumed to be “15 or more years in the future” because of the time required to design, conduct environmental review, sufficiently fund, and build a project as complex as the elevated causeway through the San Pablo Bay (Caltrans 2022a). Caltrans identified near-term projects on SR 37, such as expanding it from Sears Point to Mare Island, to “make it more functional and predictable for users” in the interim.

5 Who are the Powerful Players in Highway Expansion Projects?

5.1 Introduction & Research Questions

Chapter 3 demonstrates that despite transportation policy and plans that aim to reduce auto dependence, transportation spending patterns continue to prioritize infrastructure that expands automobile capacity. Why, then, do we continue to invest so much public money in new auto capacity, and particularly highway expansions? To understand why, we have to understand the “who” – who is involved and influential in the transportation policy arena. Who are the institutions, agencies, coalitions, and stakeholders that are powerful in propelling highway projects and legislation, and who are the powerful opponents? And how do they exert their influence? By understanding who is powerful in transportation policy, planning, and highway project development, we can then investigate the factors that inform and motivate their decision making.

Transportation policy research often offers recommendation about processes and outcomes that decision makers should implement, often without analysis of who those decisionmakers are or why they implement the processes and outcomes that they do (Marsden and Reardon 2017). This study empirically ascertains who is influential in transportation projects and policy that lead to highway capacity expansions, which policy actors are powerful opposition forces in highway policy arenas, and how they each exert influence.

The “iron triangle” of legislators, agency officials, and interest group leaders is often used to describe the landscape of policymaking and provides a useful starting point, but it is “well recognized as overly simplistic and unrealistic” (Weible and Sabatier 2005). Rather, a complex

network of policy actors makes up the policy arena. The landscape of policy actors also includes researchers and journalists who specialize in the policy issue, judicial officials who intervene in the policy arena, legislators from multiple levels of government (e.g., city councils, state legislatures, federal Congress), and staff from a multitude of agencies and consultancies.

The transportation and highway networks are managed within a complex institutional structure. Legislation endows government agencies with formal roles in the policy and planning process. For example, the state DOT (Caltrans) owns and operates the state highway system. Some state agencies carry out the rulemaking process, in which they develop and adopt rules, regulations, and guidelines at the direction of the state legislature. Chapter 3 describes the planning and programming responsibilities required of MPOs, as well as the MPOs' limitations because of the role of local governments in the project development process and the rules and guidelines created by state agencies such as the California Transportation Commissions and the Air Resources Board. And while these agencies follow formal rules, they also embody norms and informal practices. Many other actors are central to the policy process. State and federal legislators write the legislation that creates requirements of government agencies, as well as the legislation that creates transportation funding streams by way of taxes and fees. Local, state, and federal legislators advocate for competitive funds to be awarded to their districts. Local legislators (i.e., city councilors and county supervisors) sit on the boards of county transportation commissions, MPOs, and other governmental organizations. NGOs, community groups, and industry groups draft bills and advocate for their positions to legislatures, agencies, the media, and voters. Representatives from industry groups and academia sit on the commissions and boards of state agencies, such as the California Transportation Commission and the California Air Resources Board.

Other actors are at play at the societal level. External actors, forces, and events affect not only the highway policy arena but also many other policy arenas. Industries like automakers and oil

companies have been powerful in shaping public opinion and sociocultural values as they relate to mobility, cars, and how Americans can and should use them. Federal policies, land developers, and fiercely-local land use policy arenas created the suburbs and shaped the American mindset about how and where to live, urban lifestyles, the American dream, white flight to the suburbs, and highways that connected them (Muller 2017). Media and marketing played a role in all these external factors. Though these factors are influential to say the least, this dissertation focuses only on policy actors that are influential within the highway policy arena.

The following sections describe the findings from the key informant interviews about the policy actors, organizations, and coalitions that are influential in the case highway expansion projects and how they exert their influence. I discuss each case project in turn and then discuss the players who are influential in the statewide transportation policy arena that sits above any individual project. I categorize policy actors into 12 major groups, summarized in Table 20.

Table 20. Influential Policy Actors

| Category | Examples |
|---|--|
| Local Government Agencies | County transportation authorities, cities, counties. |
| Regional Government Agencies | Metropolitan planning organizations (MPOs), Councils of Government (COGs), air districts |
| State Department of Transportation (DOT) | Caltrans Headquarters |
| State DOT Districts | Regional Caltrans Districts 1 – 12 |
| State Government Agencies | Air Resources Board (ARB), California State Transportation Agency (CalSTA), California Transportation Commission (CTC) |
| Federal Government Agencies | US Environmental Protection Agency (EPA), Federal Highway Administration (FHWA), US Department of Transportation (USDOT) |
| Private Consultants | Transportation planning and modeling consultants, environmental consultants |
| Non-Governmental Organizations (NGOs) | Industry (including union) groups, community-based organizations, advocacy organizations |
| Elected Officials | US Congressmembers, California State Senators & Assemblymembers, city councilors, county supervisors, governors |
| Media | Journalists, reporters, members of the press |
| Researchers | Faculty, academics, researchers |
| The Public | Residents, voters, constituents |

5.2 A “Rube Goldberg Machine” of Transportation Governance

Nearly all interviewees talked directly about or alluded to the complex array of institutions and policy actors that influence the transportation system, and the problem that such complexity causes when trying to make changes to the process and outcomes of transportation policymaking. The complexity of this environment requires analysis at every level of government and of the many specialized mechanisms – transportation finance, guidelines, local and state ballot measures – that play a role in the transportation policy process and policy outcomes.

A Caltrans official talked about how the “governance of transportation is so incredibly complex and entrenched” and likened it to a Rube Goldberg Machine, a contraption that is intentionally designed to perform simple tasks in an unnecessarily complicated way. Another interviewee who has

held positions at multiple state agencies took this analogy a step further, saying that any single process of the transportation governance system so convoluted and complex, and that there are many processes, that “it’s like a Rube Goldberg machine of Rube Goldberg machines.” The transportation governance system is “absurdly complicated,” they said. Another representative, from an MPO, said that “you really have to go way upstream” and cross disciplinary boundaries to understand the full cast of characters and forcing mechanisms in the transportation system. California has been the “poster child” for the dominant paradigm of America’s post-World War II transportation and land use systems, and they offered “all kinds of reasons” for why that is the case: “the love of the automobile, white flight into the suburbs, low gas prices, and a political system that really rewards rich people who have influence on public policy makers.” A state-level representative said,

The structure of how we do transportation is absurdly complicated... Big pieces of the overall transportation apparatus are irrelevant, and I would say that a majority of it is that way, or they are relevant but there is not a lever to grab to make change. And then the parts where the action is, that do determine what happens on the ground, are so specialized and complex that hardly anybody understands them.

A DOT representative also used the Rube Goldberg machine metaphor:

The governance of transportation is so incredibly complex and entrenched that it makes it really hard to do anything new or innovative. So everyone goes to the old tools, to the old consultants, to the old funding streams, to the old everything because it's such a Rube Goldberg machine. Some of it is not even bad intent, right? Some of it is just people – people who say “This is just what I do, and I can't do anything else.” So any kind of change is just incredibly hard.

The complexity and polycentric nature of the transportation governance system has important implications. Many people, even policy actors in the transportation field, do not understand “where the action is” nor where the “levers” are to make change. In fact, there are some areas of the

transportation governance system that “have no levers to grab to make change.” This makes the system resistant to change and entrenches the status quo, or “inertial” as one official described it.

5.3 Who’s in the driver’s seat and who’s along for the ride? The Cases of I-80, I-710, and SR 37

Interviewees discussed the network of policy actors including government agencies, elected officials, constituents, journalists, academics, advocacy organizations, industry groups, and community-based groups in each of the case projects at different points in the projects’ timelines and with different levels of influence. The influence of different policy actors tended to ebb and flow throughout different stages of the project. Certain policy actors were particularly influential in the inception of projects, while others were influential in bringing the project from an idea to a “living project.” Others still were influential in slowing or cancelling the expansion project, as was the case for the expansion of Interstate 710 ultimately being cancelled. And the constellation of powerful players was different for each case study. A summary of policy actors that were influential in each case is in Table 21.

Table 21. Influential Policy Actors by Case

| Policy Actors | I-80 | I-710 | SR 37 |
|--|-------------|--------------|--------------|
| Local Government Agencies | | | |
| Cities & Counties | X | | X |
| County Transportation Authorities | X | X | X |
| Regional Government Agencies | | | |
| MPO | X | | X |
| COGs | | X | |
| State DOT Headquarters | | X | |
| State DOT Districts | X | | |
| State Government Agencies | | | X |
| Federal Government Agencies | X | X | |
| Consultants | | X | |
| NGOs | | | |
| Industry Groups | | X | X |
| Community-Based Organizations | | X | |
| Advocacy Organizations | | X | X |
| Elected Officials | | | |
| Local | X | X | X |
| State | | | X |
| Federal | X | | X |
| Media | | X | |
| Researchers | | | X |
| The Public | X | | |

5.3.1. Yolo I-80 Managed Lanes

The influential players involved with the I-80 expansion project were a constellation of the DOT district, a local transportation authority, the MPO, and elected officials. Residents of surrounding cities and communities also came into play by influencing their city councilors and county supervisors, as did the US DOT by granting the funds to kick-start the project.

Caltrans District 3

Every interviewee with knowledge of the I-80 expansion project said that Caltrans District 3 was a central actor or champion of the project. “The district is obviously a major supporter,” said an MPO official. Caltrans District 3 had long envisioned an expansion project on to stretch of I-80 because

of “the bottleneck issue” on each side of the Yolo Causeway – a 3-mile elevated section of I-80 between the Cities of Davis and West Sacramento. Longstanding DOT and MPO officials shared that some version of adding a lane to the Yolo Causeway had been in the regional transportation plans that predated their tenures, so for at least two decades. Being included in SACOG’s MTP/SCS project list made the project eligible to compete for certain types of funding, but being in the MTP project list did not mean that Caltrans District 3 saw it as an official *project*. “Adding another lane on 80, that was an idea. When a project is in the planning phase, listed in an MTP/SCS, District 3 doesn’t consider that a project,” a DOT official explained. It becomes a real live project “when there’s a whiff of funding – that is when a project proceeds forward. If there’s no funding, then it just stays as an idea.”

Caltrans District 3 was pursuing a “whiff of funding” to bring the I-80 project to life for years. Several DOT and local agency officials recalled that District 3 had been unsuccessful in several attempts to secure state or federal grants, including three rounds of the federal Infrastructure for Rebuilding America (INFRA) Grant. For the fourth attempt in 2019, District 3 approached the Yolo County Transportation District (YCTD) and “asked for help,” as an elected official on the YCTD board put it:

Our Caltrans District 3 team approached Yolo County Transportation District about two, three years ago and asked for our help. District 3 had been unsuccessful in bringing forward a funding proposal to address the congestion issues on Interstate 80. They wanted us to help them. We, Yolo County Transportation District, submitted an application for an INFRA Grant to the United States Department of Transportation. We put the application together. Caltrans did most of the writing, but we submitted it.

District 3’s lack of success was because of changes in policy and priorities at Caltrans Headquarters such that Caltrans Headquarters would not prioritize District 3’s I-80 expansion project for federal funds, interviewees said. So District 3 tapped Yolo County Transportation District to partner with

them on the project and be the lead applicant on the federal INFRA Grant application (US DOT 2019). YCTD did agree to partner on the INFRA grant via a board vote, but interviewees said that this was a strategy for Caltrans District 3 to circumvent an unsupportive Caltrans Headquarters by technically making the grant application locally led. Indeed, a DOT official said that this project came about from “local support” rather than being put forward by the district. But the terms of the partnership were perhaps in name more than in form, according to one policy actor, in that District 3 wrote the entirety of the grant application and sent it to YCTD with enough time for the latter to change the letterhead and submit it. An interviewee said this was a strategy of “rogue districts” when Caltrans Headquarters does not prioritize a project that they want to build:

Caltrans Headquarters would not prioritize this as a project for federal funding. So that’s why the federal grant application didn’t come from Caltrans, it came from Yolo County Transportation District. And this is a thing that happens where districts – rogue districts – if Caltrans Headquarters is not supportive of or prioritizing a project that they want to build, they find a local partner to apply for grant funds. So my understanding is that Caltrans District 3 wrote the grant application and then YCTD submitted it with its name on it. The YCTD board did have to approve going after this money. But my understanding is that the grant application was sent to YCTD staff by Caltrans six hours before the deadline. And then YCTD staff just put it on letterhead and sent it.

This fourth attempt at the INFRA Grant was successful, and USDOT awarded \$86 million to YCTD in 2021. This \$86 million of federal funds was the first large influx of funding toward the overall project, estimated to cost between \$200 million and \$300 million (Caltrans 2023).

Elected Officials & Constituents

Elected officials were influential in this project successfully receiving the federal INFRA Grant. Local elected officials on “the YCTD board did lobby members of Congress in order to get that funding approved,” said an interviewee. A local elected official concurred and expounded:

Several of us, including me, made calls and tried to do a little advocacy to try to elevate the awareness of this project and its significance for our region and its significance as a part of the corridor – the transportation and mobility corridor – between the Sacramento Capital Region and the Bay Area.

Federal elected officials also used their influence to propel the project. US Congressman Garamendi is the US Representative for this segment of I-80 and is a member of the House Committee on Transportation and Infrastructure. He is also a member of the Subcommittee on Highways and Transit and the Subcommittee on Coast Guard and Maritime Transportation. Garamendi's committee and subcommittee assignments could explain his sway on this project, as well as his optimism that this highway expansion project would "...directly benefit the critical east-west movement of goods in northern California from the Port of Oakland and San Francisco Bay Area to the Port of West Sacramento and greater Sacramento region" (Garamendi 2021). Garamendi wrote a letter to US DOT Secretary Buttigieg "in strong support of the Yolo County Transportation District and the California Department of Transportation District 3's application for the Interstate 80 corridor improvement project" (Garamendi 2021). In a press release Congressman Garamendi said that he had "spent years advocating for this project alongside state and local partners" (Garamendi 2021).

Why did local elected officials use their political capital to influence a project on the interstate highway? It was a matter of congestion on the interstate leading drivers to re-route through their local communities and causing local congestion, they said. "This has become a project of local interest because it impacts local roads. It's predominantly residents of the City of Davis and City of West Sacramento who are most impacted by the cut through traffic." Traffic congestion on city streets was an issue that "blew up big time" in the City of Davis, said a local transportation planner. The cut through traffic and resultant congestion lead to angry city residents and constituents, who contacted city staffs and local elected officials to voice their concerns, who then escalated it to

Caltrans and the MPO. Residents pressured their city council members and county supervisors to do something about the congestion on city streets. “So it’s very much a local priority in that sense,” said a local transportation official.

Yolo County Transportation District

Because it was the recipient of the federal INFRA Grant, Yolo County Transportation District had control of the federal grant funding and thus was an influential policy actor in the project. YCTD used this influence to advocate for the new highway lanes to specifically be tolled lanes (YCTD 2022). The INFRA Grant application only specified that the new highway capacity would be “managed lanes” (US DOT 2021) but “to Caltrans, ‘managed’ means managed – HOV, reversible, some other form of management. ‘Managed’ does not necessarily mean ‘priced’ to Caltrans.” In a letter to Caltrans District 3, YCDT specifically requested that the project description be revised (and that District 3 reissue the Notice of Preparation it had released to start the CEQA process) such that it “explicitly referenced a tolled facility as the preferred alternative, with toll revenues used to support increased bus frequency and span of service.” YCDT also requested that the project description be “written broadly enough to consider ... a multi-laned facility” – that is, a facility that would toll not only the new lane but also some or all of the existing highway lanes. YCTD drew on analysis by Caltrans and academic research of induced travel to support these requests, stating that “substantial evidence currently exists for a better-defined project description that assumes tolling” in part because “peer-reviewed literature and real-world case studies illustrate that carpool lanes are just as VMT-inducing as general purpose lanes.”

Multiple policy actors discussed the differing interests between District 3 and YCTD, as well as the unique level of influence of a local transportation authority in District 3, causing tension in the I-80 policy arena. Yolo County Transportation District is interested in and advocating for a pricing

strategy as part of the managed lanes. An elected official suspected that YCTD is the local agency that “is probably the most eager and open to pricing in the Sacramento region.” YCTD is also the transit provider for Yolo County and is best known for operating Yolobus, its bus system, so its interests include improving transit service:

Yolo County wants to increase transit, improve the bike way and make it actually multi-modal. I think their preferred alternative is a tolling alternative, where you price the lanes – whether it’s adding a new one, looking at conversions, or even all lane tolling and make the corridor actually function effectively, and then run a lot more transit on it.

District 3 is “not interested in pricing.” It put up “some vague resistance” against YCTD’s pricing proposals, and YCTD struggled to get District 3 to include the mention of tolling in the project description. Rather, District 3 is “very much interested in big widening projects,” according to a DOT player – “they want to rebuild the whole interchange at 80 and 50 and do some managed lane flyover craziness.” They suggested that for the district, “it’s all about the biggest possible project and it’s sort of about making the corridor work better, but the preferred alternative is likely an HOV-2.” HOV lanes would “do nothing other than add a lot more traffic,” they said, citing the academic research about induced travel. A transportation expert described it more bluntly: “District 3 doesn’t want to push tolled lanes until HQ makes them. They’re not going to be the ones that push tolling.”

But District 3 does not control the federal grant funds. Control of the federal funds gives YCTD some leverage over District 3 in the design of the project. This is an unusual position for District 3, interviewees said. In some Caltrans districts – District 4 in the Bay Area, example – local agencies take the lead on design and environmental review and the district is the lead agency only for construction. But this is rarely the case for District 3, which an interviewee said is “old school and

does everything themselves.” One policy actor said that the tension created by these differing interests and power dynamics created an “interesting push-pull.” Another policy actor commented that it had “not been a smooth partnership with Caltrans.” Multiple policy actors described it as creating “a game of chicken” between District 3 and YCTD. Said one state-level actor,

They just have such different interests, so the district is playing a game of chicken and saying ‘This is your project, Yolo County. We don’t really care what it looks like’ but also trying to convince Yolo County to back off on the pricing options. But Yolo County controls the federal dollars. So it’s complicated.

A local-level actor said something similar:

There is a deadline for using the federal funds. So I worry that District 3, when they realize that they can’t win, they just drag their feet. And that they’re just going to play chicken with those funds and no project gets built. And then it’s a situation of if we would rather have no project get built, or will YCTD back down and let Caltrans build what they want.

Policy actors noted that it would be very unpopular for federal grant money to go unspent, particularly among the elected officials who advocated for those funds and for the project. And it would be very unpopular to do nothing on that stretch of highway.

SACOG

As the MPO for the region, SACOG had influence in the I-80 project. SACOG is a funding agency, and it awarded \$4 million – “a small amount of the total need” – to the I-80 project for pre-construction work through its 2021 Regional Funding Round (SACOG 2021). So SACOG is a “funding partner,” and “when SACOG gets behind a project, it will help project sponsors secure other grants to complete the funding package for the project,” an MPO official said. SACOG being on-board increases the competitiveness of the project when applying for other grants. SACOG was also interested in this project in part because of its proposal to include managed lanes, and “when

SACOG says managed lanes, it means priced lanes.” SACOG has a network of express lanes in its MTP/SCS but none have been implemented, so SACOG was “definitely pushing for pricing.”

5.3.2. State Route 37

There had long been ideas to expand the one-lane sections of SR 37, but the convening of stakeholders around the State Route 37 projects as they are known today first started with an academic study in 2011 (Shilling et al. 2016). Researchers at the University of California, Davis were applying for a Strategic Highway Research Program 2 (SHRP2) grant and looking for a highway corridor that was experiencing significant impacts from climate change that could offer a case study about how to incorporate ecological considerations into transportation planning and projects. SR 37 offered a case study in adaptive transportation planning in the context of sea-level rise (Shilling et al. 2016).

Researchers

The researchers convened about 200 stakeholders between 2011 and 2016 to discuss issues facing the corridor. Interviewees who were involved with these early meetings said that the stakeholders were “pretty equally concerned about traffic congestion and the marshes” that surround the SR 37 roadbed. At that point Caltrans had not yet started planning for climate change adaptation and sea-level rise impacts – “sea-level rise was still kind of controversial then,” remembered an academic – so letting a university do this planning work with federal grant funds was a low-risk way for Caltrans to gain important information about climate risks to the highway corridor. In fact, “Caltrans District 4 was resistant at first,” said an interviewee – “Senior-level staff and district executives were on-board, but staff engineers were not. They said, “That’s not our job. Sea-level rise isn’t going to

happen this century anyway.” During this first phase academics designed and studied five scenarios for SR 37: no expansion, an expanded footprint on the same alignment, a causeway with two alignment options over the marshlands, a strategic realignment out of the marshlands and wetlands, and a tunnel under the San Pablo Bay (Shilling et al. 2016).

Caltrans Headquarters funded the second phase of the academic work on SR 37 (UC Davis Road Ecology Center n.d.), which started in about 2013. Phase II continued the stakeholder engagement process and focused on the impacts of sea-level rise and storm surge on the highway facility, levees and berms, and the marsh. Caltrans District 4 wrote the scope for this phase of research, interviewees said, and the scope included analysis of only two scenarios – both of which were on the existing SR 37 alignment and thus excluded analysis of a no build scenario and a strategic realignment. Interviewees commented that this limited scope was intentional – that District 4 was less supportive of the strategic realignment scenario and used the scope of work to “tailor the outcomes” of academic research. The San Francisco Estuary Institute and UC Davis collaborated to conduct a third phase of research after the Caltrans-funded phase had finished, and they focused on the strategic realignment scenario.

Elected Officials

Elected officials were involved “early and often” with this project, interviewees said. Members of US Congress, state legislators, city councilors, and county supervisors all sent staff or personally attended the stakeholder engagement meetings. “This was the first big sea-level rise project for transportation, so they wanted to keep their finger on the pulse of it,” an interviewee thought. And legislative staff became increasingly senior throughout the lifespan of the project – the staff present went from junior staff to legislative directors to sometimes the elected official themselves.

Conservation Organizations

The SR 37 corridor transects the San Pablo Bay National Wildlife Refuge and tidal marshlands, and environmental agencies, environmental conservation organizations, and ecological restoration groups were involved with the SR 37 project beginning with the early meetings. These organizations – State Coastal Conservancy, Sonoma Land Trust, San Francisco Estuary Institute, San Francisco Bay Joint Venture, Ducks Unlimited, Point Blue Conservation Science, and others – created an informal coalition that became known as the “Baylands Group” (Caltrans et al. 2021). This group formed to have “a bit of a united front” in advocating for the value of the marsh habitat and explaining the “opportunity and threats” that would come with rebuilding SR 37. It authored white papers and position papers to educate other policy actors about ecological concepts such as hydrologic connectivity, wildlife corridor connectivity, sediment flows, and subsidence. It also created guiding principles for ecological concerns, many of which were incorporated into the studies and plans for SR 37.

Members of the Baylands Group thought that it had been effective in creating an understanding that the San Pablo Bay and marshlands were an important ecological area. Other interviewees, however, said that although the environmental regulatory agencies – the Coastal Conservancy, California Fish and Wildlife, EPA, et cetera – were supportive of the strategic realignment alternative to avoid any further damage to the marshes, they were hesitant to propose it because they were concerned that Caltrans was opposed to it. An interviewee discussed how this created a self-fulfilling prophecy – the environmental agencies limited their own influence because of “assumed institutional inertia” within Caltrans.

County Transportation Authorities, Local Governments, & Industry Groups

The UC Davis-led study “wrapped up without a clear path forward,” an NGO official said, but it had also created conversation, coordination, and momentum among a coalition of local transportation agencies. A local transportation agency official remembered that “stakeholders were saying ‘Okay, you stirred the pot. What’s next?’” Stakeholders wanted to use the momentum to continue working on the corridor, and local transportation agencies particularly – especially Sonoma County Transportation Authority and Solano Transportation Authority – wanted to continue planning efforts after the academia-led work had finished. The influence of a local agency in a highway expansion project was not an anomaly, according to a DOT official who noted that “a high percentage of highway projects are brought about by local governments and agencies.”

Sea-level rise and resiliency were key motivations for the local transportation agencies to continuing work on the corridor, and so was economic vitality. “Really, the end goal is economic vitality,” said a local transportation agency official, who explained that Highway 37 is the gateway to wine country and that its eastern terminus is the City of Vallejo and Solano County, one of the fastest growing counties in the Bay Area. “Solano County is a pro-growth county – it wants the revenue of growth. They need the highway infrastructure to do that.” Another transportation agency official seconded the influence of Solano County and its growth interests: “Solano County and Vallejo have grand plans for their growth and housing units, and Highway 37 plays a role big time in realizing those growth goals.” Indeed, the SR 37 Planning and Environmental Linkages Study (2022) shows parts of Mare Island and Vallejo as priority development areas in MTC’s Plan Bay Area 2050 (p. 4-15). A DOT official said that these power dynamics between developers, local elected officials, and highway policy arenas are common throughout California: “A lot of the reason that these local governments are putting forward these highway capacity projects goes back to the political pressures of developers wanting to increase auto access so they can develop.” The director of an NGO

emphasized the power of developers in transportation policy and highway projects: “The power that the development community has at the local level surpasses anything that anyone has at the state level.”

The Sonoma Raceway, located near Sears Point, was also influential in the SR 37 project. The Sonoma Raceway had plans to offer more events – concerts and entertainment, things besides auto races – and it “wants highway capacity for those events to happen.” Representatives from the Sonoma Raceway (called the Sears Point Raceway and Infineon Raceway at various times in its recent history) attended stakeholder meetings from the beginning of the academic research efforts in 2011 (UC Davis Road Ecology Center 2011).

Solano Transportation Authority initiated a Highway 37 Policy Committee, which first met in 2015 (SCTA 2015), to take the early academic and planning endeavor further. The Policy Committee included elected officials from the four North Bay counties – Marin, Sonoma, Napa, and Solano – as well as staff from Caltrans District 4 and the Metropolitan Transportation Commission (MTC, the MPO for the Bay Area). The four counties “chipped in funds” for planning documents, which were used to conceive of projects for each of the three segments of the highway corridor. The priority project that emerged from this planning effort was on Segment B, the middle section from Sears Point to Mare Island, which a local transportation agency official said was a project that was “more about congestion management” and expanding capacity for events at the Sonoma Raceway.

Metropolitan Transportation Commission & Elected Officials

The MPO for the San Francisco Bay Area, Metropolitan Transportation Commission (MTC), took over project management and administration of the Segment B interim project and thus became an influential actor in that it now led the project. An NGO official thought that MTC had become involved to be a neutral party among the four counties, who were disagreeing about which highway

segment was a priority and how to deliver the projects. A local transportation agency official opined that MTC “saw Segment B as aligning with their goals – manage congestion, manage mobility, housing growth planning, regional transportation management.” “And it was great for Sonoma and Solano Counties,” they continued, because MTC has “deep pockets and are a big, influential partner.” MTC is also the tolling authority for the bridges in the Bay Area, and MTC likely saw opportunity to toll SR 37. One policy actor said that MTC took a “background leadership role, meaning they’re making things happen but trying to make it look like other people are doing it.” But the perspective that MTC was indeed propelling the project was widespread among interviewees. A DOT official said that MTC was “driving” the SR 37 interim and ultimate projects:

MTC is driving the Highway 37 project now. In the short term MTC wants to widen it to four lanes with a toll, like a toll bridge where everyone pays. But the ultimate project, which they’re already working on, is essentially a bridge from Vallejo to Novato.

Another transportation official seconded this, saying that MTC is driving design and implementation of the interim project and that the Caltrans district is “100 percent along for the ride.” MTC is even leading construction: “Some regions are stronger on the implementation end – they can implement their own projects and just ask Caltrans to give them an encroachment permit ... MTC is going to build and implement it. They don’t want Caltrans involved in the design. They just want Caltrans to be responsible for maintaining the pavement once it’s done. And keeping it from flooding.”

In fact, the Sears Point-to-Mare Island segment is not the priority segment for the DOT – Caltrans and the district were more concerned with the western segment that had experienced more flooding events and flood-related closures: “Flooding on the western segment is really the issue – that’s the biggest operational headache for District 4. But all the politics are focused on widening the two-lane portion in the middle.” A state agency official recalled that it was precisely Caltrans’ lack of

prioritization of the SR 37 corridor that had motivated the four North Bay counties to take the initiative in planning these projects:

It was an initiative of the four counties because Caltrans was saying, ‘Well, yes, Highway 37 is going to need to be rebuilt, but it’s not our priority. We see it happening in about 80 years.’ And everyone was like, ‘What? We need to use that road and it’s flooding all the time.’ And so the locals started planning. Then I think there was some disagreement among the four counties about priorities, and they pulled in MTC to be neutral across the four counties.

Interviewees discussed not being able to quite grasp the dynamics of power and influence surrounding the SR 37 projects. Interviewees talked about a Solano County supervisor with board positions on the Solano Transportation Authority and MTC who had seemingly been the most influential policy actor driving the project and had built a coalition in its support. One interviewee said:

What I can tell from people who understand the dynamics is that there’s literally one MTC board member, a Solano County supervisor, one individual who is single-handedly pushing the project. And he’s gotten other people behind it because obviously Sonoma County is also a huge proponent, and all those North Bay counties are now on-board. But from what I understand MTC is all-in because of one board member, which just doesn’t make sense to me, to spend all that money.

Another official echoed this: “I just don’t understand this one, and there seems to be enough politics and momentum and force of will behind it from MTC. But it is mind-blowing to me that we are going to do that project – just the interim project – but then the long-term project to rebuild the whole thing over not that much more time.” Another official said that this project has “such complex dynamics” and surmised that “it’s not just about solving the one-hour that 5,000 people sit in traffic a day – there’s got to be something else here.”

Environmental Agencies & Institutes

Interviewees discussed the influence and strategy of the environmental groups throughout the project. MTC had worked collaboratively with ecological organizations like the Coastal Conservancy and San Francisco Estuary Institute to design the ultimate project. “Environmental technical input could be given early on, instead of waiting until the engineers came up with a plan and then having the environmental experts react to it,” an NGO official commended – MTC and environmental groups “were working together, exchanging ideas, learning from each other.” Other interviewees alluded to the environmental organizations selling out, of sorts. They said that when it became clear that a project was going to happen, it also became clear that there would be a windfall of environmental mitigation funds for marsh conservation programs. One interviewee thought that environmental organizations were navigating a prisoner’s dilemma, and “they took the cynical view that they were going to lose” – the highway was going to happen through the marsh anyway, and the project would generate mitigation dollars that they would be able to take advantage of so long as they continued collaborating with the project proponents. “The Baylands Group never pushes that hard,” said another interviewee, hypothesizing that they “want to stay in the game enough to get mitigation money.” “If you are too aggressive,” they philosophized, “you won’t get invited to the table.” Another interviewee viewed the strategy of the Baylands Group differently, as science-based “problem solvers” interested in this process creating an outcome that works for everyone. And they were cognizant of the ecological impacts that would occur anywhere that a highway was routed – at times the Baylands group proposed moving the alignment out of the marshlands and routing it further inland, but “then someone would always say something like ‘Well, that’s super valuable oak woodland habitat that’s rare in this area.’ So people wouldn’t like that alignment either.”

The Baylands Group supported the ultimate project of rebuilding SR 37 as a multi-modal causeway on its current alignment. Elevating the highway out of the Baylands and removing the

existing SR 37 infrastructure would “restore hydrologic connection and expand restoration opportunities in adapting to sea-level rise,” which would “achieve the desired and necessary environmental and flood risk management benefits” (Baylands 2022). They did not take a position on the capacity expansion element of the interim or ultimate project – “the Sierra Club has been raising concerns that by adding more lanes, you’re inevitably going to create more vehicle miles traveled and more greenhouse gas emissions. That’s not our area of expertise; we’re more ecology and habitat oriented,” explained a Baylands member. But well into the project lifespan the Baylands Group opposed the interim project, to the chagrin of local and regional transportation agencies and “even though they were very active in the early project conception phase.” The environmental groups were concerned that the extensive corridor planning work and studies, like the PEL Study, were not reflected in the interim project. In fact, they saw the interim project and its widened berm creating ecological damage and not adapting the corridor to sea-level rise, the antithesis to their goals for the ultimate project. One group member was skeptical that the ecological goals of the ultimate project would be realized if agencies spent nearly half a billion dollars on an interim project: “If you spend that much money, are you really going to tear it out and build something new? No, you’re just going to keep building.” So the Baylands Group exchanged letters with Caltrans and drafted a position paper in 2022 that supported an “accelerated planning and construction of a SR 37 multi-modal, multi-benefit ultimate project on a pile-supported causeway ... along with wetland restoration.” The Baylands Group recommended that any interim projects should be “low-cost, low-impact fixes or serve as initial phases of the ultimate project” (Baylands Group 2022). That is, they opposed the interim project as it was designed.

Elected Officials: Raising Questions

Local, state, and federal elected officials were also influential with their advocacy and leverage with funding. Elected officials started raising concerns and asking questions about the interim project. MTC officials met with US Congressman Jared Huffman in DC to advocate for funding for a package of transportation projects, and he offered support for all but the SR 37 interim project. One policy actor thought that the politicians were “getting whispered to by the environmentalists” – that the environmental groups were influencing the elected officials in their funding decisions. Another policy actor said that elected official’s concerns were a matter of executing the ultimate project, with its restoration and sea-level rise benefits, while transportation agencies were in “this rare moment where we actually have a lot of money” for transportation infrastructure and climate resilience from federal and state sources. “[Congressman Huffman] was wondering, ‘Well, why are you doing this? I get that there’s traffic congestion, but we have sea-level rise happening, and we have money right now. This is such a rare opportunity, why don’t we move the ultimate project?’” Local elected officials have raised similar concerns and questions as the federal legislator. Interviewees mentioned county supervisors from Marin and Sonoma Counties and a city councilor from Novato, though different policy actors perceived local electeds to have different levels of opposition to the interim project. A local transportation agency official said that elected officials were “starting to oppose the interim project,” thinking that agencies should only work on the long-term solution. Another policy actors said that federal, state, and local elected officials were not voicing outright opposition to the interim project but rather “just asking questions, or if there is there a better way to do it?”

5.3.3. Interstate 710

The network of influential policy actors in the case of the Interstate 710 South Corridor is unique from the other two case studies in that it had an organized opposition coalition and attention from

multiple media outlets. Planning for what became the Interstate 710 South Corridor Project started in 1999 with the “I-710 Major Corridor Study” (LA Metro 2018). The project was led by LA Metro, the local transportation commission for Los Angeles County, in one of the early instances in which Caltrans handed over highway planning to a local agency, and LA Metro was influential throughout the course of the project’s lifespan. Industry groups were instrumental in the inception of the project, community groups and private consultants were key in the planning and community engagement phase, and environmental justice groups were instrumental in the expansion element of the project ultimately being cancelled. The environmental justice coalition and its two decades of advocacy, which was amplified by consistent press coverage in local and state news outlets, effectively influenced local elected officials when it came time to motion and vote on the project. But a few interviewees said that community groups and EJ advocates were perhaps most influential as constituents who could help or hinder electoral success rather than changing minds and beliefs. Regardless, interviewees said the project had lost much of its political support by the time that the US Environmental Protection Agency (EPA), by enforcing the Clean Air Act, was the final “nail in the coffin” for expanding I-710 as originally envisioned.

Freight & Industry Groups

Nearly all interviewees with knowledge of the I-70 project identified the ports, railroads, freight industry, and the Gateway Cities Council of Governments as being key actors in the conception of the I-710 expansion project. I-710 is “the key link” between the Port of Long Beach and the Port of Los Angeles – which together were the third busiest container port in the world in 2003 – and the consumer markets in LA County and the rest of the country (LA Metro 2003a). Goods movement trucks accounted for 45 to 60 percent of vehicles on I-710, freight coming through the ports was rapidly increasing, and freight traffic was expected to “grow substantially” because of expansions at

the ports (LA Metro 2003b). An academic recalled that while government agencies were key in working on freight planning, “the real players were the ports and the railroads – they were building for an anticipated growth in cargo. So they started planning for widening the freeway.” A journalist echoed this more emphatically: “The ports, the ports, the ports! They were a big motivator for widening 710. The projections of freight and port traffic were really high, so widening the highway was the proposed fix.”

Other sectors of the freight industry were also powerful supporters of the I-710 project. “The major supporters of the I-710 project are both of the ports and the trucking industry,” stated an MPO official. “The ports, goods movement, and the rail industry are *huge* powerful constituents,” said a local elected official – they explained: “the rail industry is a huge proponent of freeway widening because trucks from the port take goods to the rail yards.”

More cargo through the ports also means more jobs in the freight industry, so unions were also influential proponents of expanding I-70. “There are a lot of people employed at the ports,” noted a journalist – “the longshoremen want more freight coming through the ports, and they see more freeway space as necessary to send more stuff through the port.” The longshoremen’s union is “really politically powerful,” commented an academic. An NGO leader also recounted that “there had been advocacy from the ports and freight industry, organizations that were promoting the expansion of freight operations. Their advocacy motivated the regional planning agency to bring this corridor to the attention of the California legislature as a major freight and economic concern for the state.”

The ports and freight industry also had powerful allies in a handful of adjacent industries, which also supported the I-710 Corridor Project throughout its lifespan. “There is a cluster of economic interests. Port activity has a huge economic impact in the region, and 400,000 jobs are associated with trade,” an academic noted – “So it is not just the port authorities who have interest in it. Cities,

big retailers, the maritime shipping association, the longshoreman union – they care about ports because of the jobs and economic impacts associated with it.” A local transportation agency official also described this big tent of industries and economic interests that had been an influential proponent of the I-710 Corridor Project. “Freight includes private industry, the ports, the chambers of commerce. They say that if we don’t do something about 710, we won’t be competitive. That goods will go elsewhere, and we’ll lose out.” They were somewhat skeptical of that claim, saying it “doesn’t seem quite right, or only partially true,” but the influence of the ports, freight, and industry groups was still powerful enough to launch two decades of project planning.

LA Metro and Caltrans District 7

Both LA Metro and Caltrans District 7 were intimately involved in the I-710 South Corridor Project but interviewees emphasized that LA Metro was in the lead. “LA Metro did the heavy lifting on this project,” explained a DOT official. LA Metro was the “funder and facilitator” of the project, developed the alternatives, and did most of the public outreach.

If it’s a relay race, LA Metro started it with the first leg. Caltrans District 7 did the second and third leg because it was responsible for environmental, funding, and design. Then LA Metro would bring it home with the fourth leg.

Another DOT official characterized this relationship a bit differently but essentially described the same power dynamics: “The 710 South project has long been a Metro project. I think in LA, Metro is *usually* in the driver’s seat and District 7 is just along for the ride.” An MPO official agreed: “D7 seems to let LA Metro be in the driver’s seat with highway projects.”

Policy actors emphasized the political power that LA Metro has compared to other county transportation agencies, and how LA Metro uses that power. A DOT official said that “when LA

Metro has seen the D7 as not supporting them, they've sometimes just gone straight to the federal government. They have the firepower to do that.”

LA Metro had a designated highway division up until 2021, at which point the agency reorganized and put its highway program into the Multimodal Integrated Planning department. Metro's reorganization was reflective of a transportation-wide paradigm shift, said a local transportation authority official, “from a technocratic, car-centric approach based purely on the demand and supply of transportation” to a new paradigm that “takes multimodal transportation seriously” and where Metro “should provide the best alternatives to driving.” A local transportation authority official said that the context that led to LA Metro cancelling I-710 is “a microcosm of the greater paradigm shift in transportation” – the underlying assumptions have changed, the constellation of players has changed, and the politics have changed.

SCAG & Councils of Government

The Southern California Association of Governments, the MPO for the Los Angeles basin and nearly all of Southern California, generally stayed out of the scrum around the I-710 project. “SCAG wasn't much involved,” an academic recounted. “They stayed in the balcony seats.” A regional official explained:

SCAG is supportive of a freight solution for the 710 corridor, but it did not weigh in on the particular solution. It took the position of “something needs to be done, you figure out what it should be” and didn't weigh in much – they let it be fought out at the county commission.

The SCAG region is unique in that there are multiple councils of government (COGs) within the jurisdictional boundary of the single MPO. For example, the Gateway Cities COG, the South Bay Cities COG, and the Western Riverside COG are sub-regional COGs within the SCAG region.

Interviewees mentioned that these COGs were the regional agencies that were more influential in the I-710 policy arena than SCAG. Interviewees said that COGs were “key” in transportation policy arenas in Southern California and Los Angeles Basin. Several mentioned the Gateway Cities Council of Government specifically, which is a governmental organization that coordinates transportation planning, housing, air quality, and economic development between 27 cities and three LA County supervisor districts along the I-710 corridor, as well as with the Port of Long Beach (GCCOG 2023). The Gateway Cities COG was one of the seven agencies that were “I-710 Funding Partners” and had been a powerful proponent of the I-710 project throughout its life course, said several policy actors. This was to expected, said a journalist, who called the Gateway Cities COG a “super pro-freeway rubberstamp that gives the façade of ‘representing the community’.”

Environmental Justice Advocates & Community Groups

Environmental justice (EJ) advocates and community groups were central in the I-710 policy arena. Communities along the I-710 corridor and near the two rail yards in east Los Angeles had started working together in the late-1990s because of health and air pollution concerns. There had been a “flashpoint of kids dealing with asthma” and a cancer cluster had been identified in Commerce, a city located between I-710, I-5, the Union Pacific rail yard, and the BNSF rail yard, so the community had been working with public health experts to investigate the causes of the communities’ health problems.

Community groups became environmental justice advocates and then transportation advocates “by necessity,” said an NGO leader. Academics and air quality agencies had recently published a series of studies that linked diesel exhaust from freight trucks and rail to health and risks and cancer, some of which focused specifically on the I-710 corridor and the communities that surround it (e.g., Krieger et al. 1998, Zhu et al. 2002, Mahmood and Pham 2007), which led to the corridor being

named the “diesel death zone” and “cancer alley.” Community groups realized that they “lived right between two rail yards and a big freeway with the heaviest truck travel in the US” – major sources of carcinogens and other air pollutants – and thus were investigating ways to reduce air pollution.

“Then right around that time, the community got a notice that there was a proposal to expand I-710 to carry three times the truck traffic,” an NGO leader said, so community groups “became involved with the I-710 project in a need-to-survive basis.”

Community groups and environmental groups formed a coalition that was central in the I-710 policy arena from nearly the beginning. The Coalition for Environmental Health and Justice (CEHAJ) was “in the thick of it” since 2001 and was comprised of organizations such as East Yard Communities for Environmental Justice (EYCEJ), EarthJustice, Communities for a Better Environment, Coalition for a Safe Environment, and Natural Resource Defense Council.

The Coalition for Environmental Health and Justice are at the center of this story about I-710 ultimately being cancelled. CEHAJ fought in the trenches for decades about the community impacts of expanding 710, and for a bunch of other EJ problems.

Community members were “adamantly opposed” to the project, which in the beginning was scoped to double the width of the highway and take hundreds of properties, homes, and businesses to do so. CEHAJ made clear demands of any project that would be built: stay within the existing right-of-way so that there would be no displacement, zero increase in emissions, and hire locally to build the project. Some EJ groups – including East Yards and NRDC – were “very effective” in their advocacy, an academic recalled.

Members of the EJ coalition showed up to the early I-710 meetings held by LA Metro and the Gateway Cities COG “that were technically public meetings but clearly not intended to be attended by any member of the public,” an NGO leader remembered – “when we showed up with a few community members, they asked what we were doing there.” But CEHAJ and member

organizations were persistent throughout the planning and analysis process that proceeded through the 2000s and early 2010s. Coalition members recounted attending three meetings a week for 10 years straight, which “led to burnout, obviously – the community engagement process felt like it was used to wear us down– but there were also victories.” They successfully advocated for the first health impact assessment of a transportation project. They drew on academics, public health experts, transportation experts, and legal experts to create and analyze a project alternative – “Community Alternative 7” – that met their original demands and proposed it to LA Metro (CEHAJ 2012). They successfully lobbied a California State Senator to sponsor a bill that would have required LA Metro to consider Community Alternative 7, which was passed by the California legislature, but then-Governor Jerry Brown vetoed it (SB 811, 2013). The coalition was also prepared and had intent to file lawsuits “if needed.”

Some interviewees alluded to the environmental justice groups being unrealistic or too demanding in their positions on the projects. In the early years of the project, the environmental justice coalition pushed for the project to include a clean freight corridor. “The only project they would accept was a project for electric trucks. Electric trucks didn’t even exist in the early 2000s,” commented an academic. An NGO leader echoed these facts, that the environmental justice coalition demanded that any project would have no air quality impacts and create no new emissions, and that these coalitions were early pioneers in pushing for cleaner freight. But they had had a more optimistic view of the potential for innovation in policy and technology: “This was 2004. We had just sent a robot to Mars. We could figure out how to build a freeway that doesn’t kill people.” They said that clean freight was “totally off the planners’ radar” in those days – “the planners said, ‘What do you think this is, the Jetsons?’” A local transportation authority official grappled with the demands made and positions taken by the environmental justice coalition in the I-710 project, at the same time understanding of their environmental burdens, somewhat frustrated, and empathetic:

“The community-based organizations have decades of experience getting harmed by freight. They have to fight for their communities, I suppose. But I’ve never seen them compromise – I’ve only seen them push – and solutions require compromise. Maybe that’s just how they operate, or how they survive.”

Elected Officials & Constituents

The elected officials on the LA Metro Board were the policy actors who cast votes on the I-170 project and were thus highly influential in both propelling the project and also cancelling it. The LA Metro Board approved funding for the initial corridor plans and studies in the late 1990s and early 2000s. In March 2018 the LA Metro Board unanimously voted – per the recommendation of LA Metro staff – to adopt Alternative 5C as the locally preferred alternative but in a package of extensive motions, approved only moving forward on “early action items” and required staff to “return to the board upon completion of the aforementioned directive to seek further consideration and authorization related to implementing the balance of improvements in Alternative 5C” (LA Metro 2018). That is, they delayed implementation of the expansion component of the I-710 project. In 2022 they approved on consent the No Build alternative, and voted for a motion that officially “adopt[ed] as Board policy that capacity expansion freeway widening [sic] will no longer be in the project” (LA Metro 2022).

What motivated the elected officials on the board to vote for the No Build? “The no-build decision was a political decision,” said a regional planning official, explaining that there was a progressive board member who built a coalition with other electeds and perhaps the mayor of LA. “It was not based on planning and engineering. It was as political as it can get,” they continued. Like the case of I-80, some of the local elected officials were voting with their constituents in mind. Interviewees alluded to some elected officials who shared beliefs and interests with their

constituents, and others who were interested in delivering for results based on their constituents' interests. In the case of one LA County Supervisor, redistricting in 2021 significantly changed their constituency near the end of the I-710 project. District 4 lost the "wealthy beach cities" in West LA and gained "heavily Latino communities including South Gate, Huntington Park and Lynwood" that border the I-710 corridor to the west (Cosgrove 2021). These communities were opposed to widening 710. A local government official asserted that the county supervisor changed their position on the I-710 project as a result of having these new constituents. "It was not an evolution of policy priorities but rather a change of who their voters were," they said – "constituency and what the voters want are what drive elected officials' actions." Another policy actor commented that elected officials changed positions throughout the final years of the I-710 project: "the same people who said in 2018 that we needed to widen the highway for the port traffic said in 2021 that we needed to think about the environmental health of nearby communities."

Of particular concern to constituents and thus elected officials was the displacement of residents and businesses for the highway widening, several interviewees discussed. Indeed, several offered that it was the most influential factor in elected officials' decision making and opposition to highway expansion, not just the I-710 Corridor Project but in general. "The displacement piece of highway widenings is the core piece of electeds resisting and opposing highway projects," said an elected official. "Tearing down homes is where Southern California electeds draw the line. Even pro-freeway electeds say no to demolishing homes," said a journalist. A transportation expert opined that the "displacement argument against freeways holds more purchase than the climate change argument," not just in California but around the US. "Displacement – especially when it is in the hundreds of people or homes – puts faces and residents and constituents to the project. It makes it harder to argue that this project isn't like the terrible projects of the past that plowed down homes in

Black and Latino neighborhoods.” As an academic put it: “No politician wanted to be responsible for tearing down someone’s home.”

US Environmental Protection Agency

In May 2022 the board of LA Metro voted to adopt the “No Build” alternative, effectively cancelling the project that its staff had been working on for more than 20 years. Why did LA Metro cancel its own project? Nearly every interviewee who discussed the I-710 project discussed the US EPA as the final major player. The project had been losing political support for a long time and its “costs had really blown up,” but interviewees agreed that the air quality analysis for the project is what ultimately called the question about the project’s future. That is, EPA itself did not cancel the project but it effectively forced the hand of LA Metro.

The federal EPA plays a formal role in the transportation policy arena by way of the Clean Air Act. The federal EPA sets national ambient air quality standards and makes designations about air basins attaining their air quality standards – that is, if air basins are in or out of air quality “attainment.” The South Coast Air Quality Management District, whose jurisdiction covers the I-710 corridor (and four counties in Southern California), is severely out of attainment for several criteria pollutants. As an environmental law expert put it: “Particulate matter is a big deal in the 710 corridor – it’s called the ‘Diesel Death Zone’” The EPA has authority to require lead agencies to analyze their federally funded “projects of air quality concern.” And because the 710’s Air Basin is in non-attainment of federal air quality standards, EPA requires lead agencies to show that their project will not make certain air pollutants worse.

EPA exchanged a series of letters with LA Metro and Caltrans about the air quality analysis of the I-710 Corridor Project, which is the exchange that the CTC commissioner asked the director of Caltrans about at the May 2021 meeting. To finalize the environmental review documents, the

federal Clean Air Act and National Environmental Policy Act required LA Metro to analyze potential impacts to air quality of the I-710 Corridor Project. LA Metro and Caltrans District 7 essentially claimed that the I-710 Corridor Project would not have air quality impacts because of the Clean Truck Program that was an “integral, operational element” that was anticipated to reduce diesel truck volumes and diesel emissions (Washington and Bulinski 2019). LA Metro and Caltrans District 7 thus sought to designate the I-710 Corridor Project as “Not a Project of Air Quality Concern” and requested EPA’s support of that approach. Removing the status of the I-710 Corridor Project as a “Project of Air Quality Concern” would also remove the need for lead agencies to conduct a quantitative “hot-spot analysis” of particulate matter. EPA replied in March 2021 to Metro and Caltrans’ request that “asked the EPA to consider a variation from project level conformity analysis processes and requirements” (Adams 2021). EPA included a dozen pages of technical response that “describes why EPA does not agree that (1) the I-710 Clean Truck Program renders the I-710 project as a project that is not of air quality concern and (2) that the project does not need a PM hot-spot analysis.” EPA supported using zero-emission trucks on the I-710 corridor but found “significant issues with this proposal that are in conflict with the Clean Air Act and the transportation conformity regulation” and concluded that “a PM hot-spot analysis is necessary for the project’s transportation conformity determination” (Adams 2021).

An air quality legal expert summarized this exchange. They said that essentially, “LA Metro tried to get out of air quality conformity requirements. LA Metro wrote to EPA saying that there would be no air quality impacts because it was only expanding for an electric truck lane. And EPA wrote back essentially saying ‘Um, no – you have to do conformity analysis.’”

Several interviewees from local, regional, and state agencies explained the influential role of the federal EPA in the 710 project via its enforcement of the Clean Air Act. A state agency official remarked that “the death knell of 710 was the quantitative hot spot analysis. EPA killed it with its

letter to LA Metro. So, the Clean Air Act killed 710, which was enforced by the federal EPA.” A local agency official said that “the EPA came out and clearly said, ‘no, we don’t buy your story that the Clean Truck Program would be enough to mitigate the impacts of widening the freeway. For a while they were hearing us out, but then they said ‘no.’”

Other interviewees offered a finer-grained version of events saying that the federal EPA did not technically “kill” the I-710 project, but that the EPA’s enforcement of the Clean Air Act and the air quality conformity process effectively made it impossible for LA Metro to pursue the I-710 project as planned. One interviewee described how EPA enforcing the air quality conformity process led to LA Metro, the project sponsor, realizing that the project would be difficult to implement because of its air quality impacts.

EPA poked a bunch of holes in LA Metro’s analysis and said, ‘study this, study this, and also study this.’ And LA Metro essentially said, ‘We can’t study this because this isn’t going to pass muster.’ Basically, the letter from the EPA did not do anything to kill the project – the letter said, ‘we would like further analysis because you missed a few things in your NEPA document.’ Which made it clear to the project sponsor that the pathway was going to be hard.

An environmental law expert concurred, stating that the communication between EPA and LA Metro had “no legal weight,” but rather led LA Metro to realize that the project would be unworkable with the Clean Air Act’s requirements to analyze particulate matter and mitigate the air quality impacts:

It was an unusual process. LA Metro had no legal reason to send that letter – they sent it preemptively. EPA also did not have to send a letter back. It could have just waited for Metro’s project permit application to come through. But they sent a letter back. There is no legal weight to these letters. They are purely communication. But LA Metro must have known the project could never pass an air quality hot spot analysis.

Indeed, a DOT official said as much: “There was no way that the project could pass the air quality analysis required by the federal EPA. EPA wasn’t going to approve the environmental analysis,

which threw a big wrench into the process. Metro was thinking about if they should adopt a statement of overriding considerations. They weren't sure what to do." An academic said that "the project proponents were out of options at that point. LA Metro basically said 'we're going to have to change what we're doing. This isn't working.'"

Some interviewees said that it was Caltrans Headquarters withdrawing its support of the project that led to the project's end, but that the EPA's air quality determination politically allowed Caltrans to in fact withdraw its support. "Practically, the air quality determination from the federal EPA gave Caltrans Headquarters an excuse to kill it." And a local elected official discussed how Caltrans and the EPA withdrawing their support influenced LA Metro Board members to oppose the project. Four members of the board authored a motion to oppose the expansion part of the I-710 project, and for "elected officials to take this sort of unprecedented stance was really powerful" (LA Metro 2022).

Interviewees from various local, regional, and state government agencies said that the Interstate 710 project "died of its own weight." One interviewee said that "the project was a pipedream" because there was neither sufficient funding nor air quality mitigation for the project in its entirety. One said that "the project was too big to succeed. It was set up to fail." Another interviewee commented that "710 was losing political support long ago. EPA's rule was just the nail in the coffin."

A few interviewees commented about the role of federal politics in the outcome of 710, and how the change in presidential administrations in 2020 was a factor in EPA's actions. LA Metro, Caltrans, and the federal EPA had had ongoing communications since at least 2017, when EPA commented on the supplemental Draft EIR/EIS as a cooperating agency under NEPA. EPA exchanged several letters with Caltrans and LA Metro between 2018 and 2021 – during both the Trump and Biden administrations – about the I-710 Corridor Project, project-level air quality

conformity, the proposed Clean Truck Program, and LA Metro’s conclusion that the I-710 project was not a project of air quality concern. An interviewee described these few years:

There were always some ‘administrative’ things that seemed to be stalling the environmental document, but it wasn’t clear what they were or what was going on ... What eventually came out was a document from the federal EPA, and the EPA said that the EIR/EIS didn’t conform to the Clean Air Act. I think LA Metro thought they would get a quick pass through the federal EPA and FHWA certification during the Trump administration.

A state government official seconded this hypothesis about LA Metro’s timing of its air quality analysis during a Trump administration that was lenient with enforcement of environmental regulations. The Biden administration was elected in November 2020 and nearly immediately reviewed the air quality documentation and “knew there were problems.” A state agency official echoed the influence of the presidential administration on EPA’s actions in the I-710 policy arena: “EPA’s letter only got sent because there was a Democrat in the White House. There’s that saying, ‘all politics are local.’ But highway politics are also federal.”

5.4 Local Control: County Transportation Authorities, Self-Help Counties, & Local Elected Officials

Across each of the three case studies, only two categories of policy actors were noted as influential: county transportation authorities and local elected officials. Interviewees discussed in detail how local agencies – cities, counties, and particularly county transportation authorities – have been key actors driving highway expansion projects in these cases and across the state. Interviewees noted that county transportation authorities were especially powerful in counties that had enacted local sales tax measures to fund transportation, called “self-help” counties, of which there are 25 in California (SHCC 2023). Local elected officials, elected to city councils and county boards voters, sit on the boards of county transportation authorities. For instance, the boards of LA Metro, Solano

Transportation Authority, and Yolo County Transportation District are comprised of city councilmembers and county supervisors from local governments within their respective jurisdictions. In these board positions, local elected officials can exercise greater influence in highway policy arenas as was demonstrated in the cases of I-80, I-710, and SR 37.

5.4.1. County Transportation Authorities & Local Governments

Interviewees discussed how county transportation authorities exert influence in the highway policy arena in a few ways. They plan and operate the transportation systems in their jurisdictions, and their plans feed the “pipeline” of transportation and highway projects that appear in RTPs and thus can receive funding. And this pipeline of projects created by county transportation authorities often includes projects proposed for the state highway system, even though highways are under the jurisdiction of Caltrans. Interviewees discussed how in some counties in California, county transportation authorities are the primary creators of that pipeline. A DOT official discussed how this was the case in Los Angeles County, where LA Metro is the county transportation authority, and how the pipeline reflects the philosophy and beliefs that imbued the transportation authority when projects were conceived:

The pipeline of projects is really about ways to solve congestion. Mobility, vehicle throughput was the lens of the agencies at the time that these projects were born. Congestion relief was the lens through which the pipeline was created. LA Metro is the regional transportation planning authority for LA County. It creates that pipeline of projects.

County transportation authorities also take lead roles in seeking funding for and delivering projects, as was the case with the expansion projects on I-80, I-710, and SR 37. For example,

Caltrans District 3 nominated the project to expand I-80 in Yolo County, but it approached the Yolo County Transportation District and presented at a board meeting. So “the board had the opportunity to say, ‘Do we want to do this or not?’ At a conceptual level, they said yes.” Local transportation authorities driving highway expansion projects is common, according to interviewees.

A DOT official said that “a high percentage of highway projects – maybe not the majority, but a very large percentage – are developed by locals on the state highway system.” DOT and MPO officials rattled off numerous highway capacity and interchange expansion projects that were being led or sponsored by county transportation authorities around the state, often by counties “that haven’t come along with the state plan of reigning in highway capacity and VMT, or GHGs for that matter.” An NGO official agreed with this assessment that local governments were behind in their beliefs and information compared to others in transportation policy arena, and noted that many of California’s local governments have auto-dependent built environments that necessitate car use. And local governments want to build for that auto demand: “I work with many local governments. Those folks are old school. They still just want to build stuff. They are going to need cars for decades to come and they want to build for them.” A few interviewees mentioned LA Metro and Orange County Transportation Authority as prime examples of county transportation authorities that drive and accelerate highway expansion projects. An interviewee discussed several interchange expansions sponsored by local municipalities that were forecasted to create congestion – “operational problems” – on the highway itself because the planned spacing was less than one mile apart, against Caltrans’ own design standards.⁵³ They discussed the cascading effects that these interchanges would cause – short merges, congestion, addition of auxiliary lanes, displacement of homes because of the

⁵³ Caltrans Highway Design Manual. Chapter 500 Traffic Interchanges. 501.3 Spacing. “The minimum interchange spacing shall be one mile in urban areas, two miles outside of urban areas, and two miles between freeway-to- freeway interchanges and other interchanges. The minimum interchange spacing on Interstates outside of urban areas shall be three miles.”

expanded right-of-way – and how the DOT District and operations staff did not or could not push back on the local governments proposing the projects, even though they were on DOT right-of-way and would require DOT permits:

These two interchange projects, both sponsored by local municipalities. One was exactly a mile from the closest interchange and the other one was right in the middle of two interchanges that were 2.2 miles apart. They were packing in these interchanges so close to each other that they were causing weaving problems, so then the cars were going too slowly, so then they had to add a bunch of auxiliary lanes. Sorry, folks who live here – you’re going to have to move. But *where* are the Caltrans operations people? The ops people are asleep at the switch because why is the Caltrans District even letting them think about this? They should have just said “no.”

5.4.2. Self-Help Counties & “Promises Made, Promises Kept”

The local government agencies with the most influence in highway policy arenas are “self-help” counties – counties in which voters have approved a ballot measure that increases the local sales tax rate to fund transportation projects and programs. Of California’s 58 counties, 25 are self-help counties (SHCC 2023). Interviewees discussed how county transportation authorities are influential in planning highway expansion projects, but self-help counties can also finance their own highway expansion projects. That is, transportation sales tax measures allow counties to take “transportation financing into their own hands” (Wachs et al. 2020), giving them unparalleled power to deliver highway expansion projects.

Locally generated transportation funding has become increasingly important over the last few decades as federal and state transportation funds have waned (Agrawal et al. 2021). Sales tax measures are the single largest source of transportation funding in California, generating nearly \$7 billion – 22 percent – of total transportation spending in the state (Gahbauer et al 2021). Local governments use sales tax revenues to fund their transportation maintenance costs, projects, and

transit operations, and they also leverage them as local match for state and federal funds. In that capacity the funds generated by sales tax measures can catalyze far bigger projects, which usually rely on multiple different funding sources (Sciara and Handy 2017). When transportation sales tax measures go to the ballot, they must include a publicly available expenditure plan that details how the tax revenues would be spent for the duration of the tax (often 20 years or so). These voter-approved expenditure plans are what the Self-Help County Coalition calls “the key to keeping our promise with the voters” – that is, that projects in a sales tax measure’s expenditure plan are “promised” to the voters and it is incumbent on a county to keep its promises. This philosophy gives rise to the oft-cited motto “promises made, promises kept” among self-help counties.

Essentially all policy actors agreed that self-help counties and transportation sales tax measures were very powerful in the highway policy arena, in bringing about highway projects, and in the persistence of highway expansion projects in the project pipeline. “Sales tax measures are hugely influential in the infusion of highway projects,” said an MPO official. A local transportation authority official discussed two major sales tax measures in their jurisdiction that included a wide array of transportation projects – highway expansion, transit capital and operations, bike facilities, et cetera. They said that the goal of the county transportation authority was to advance the projects in those sales tax measures, regardless of what types of projects there were. “Whether they are bike lanes or highway projects, our interest is to have an investment plan so we can make improvements to the transportation system,” they said. They discussed the case of I-710, and that “voters voted to make improvements on the 710 to relieve congestion.” They noted that there was disagreement about what voters’ intention was when they voted for to relieve congestion on I-710. They opined that the opinion among “daily drivers” is that congestion relief means expanding the highway, not expanding the transit system:

Voters voted to make improvements on the 710 to relieve congestion. There is controversy around what the voter intent was. Some are challenging Metro when they propose doing anything else besides highway capacity. If you're a daily driver on the 710 and you see "congestion relief" on the ballot, what do you think will happen? You think the highway is going to get bigger. You're not going to think it's a new rail line.

A DOT official echoed this notion. They discussed how the local elected officials, transportation authorities, and interest groups who create the expenditure plans include highway expansion projects to appeal to the voting public, based on the perception is that voters believe that expanding highway capacity will fix traffic congestion problems. So sales tax measures include highway projects because that is what they expect to be successful at the ballot box. Then the county transportation authorities see those expenditure plans and highway projects as "locked in" – if they did not deliver those projects, then they will lose the faith of the voters and jeopardize future tax measures.

When they put these sales tax measures together, even the better ones have to throw a bunch of highway stuff in there just to get people who think that way to vote for them. And then they're locked in and say "We've got to deliver this, or people will never vote for another one."

Policy actors had wildly diverging views on transportation sales tax measures and how self-help counties exert their influence. In one camp were policy actors who discussed the critical funding gap that sales tax measures fill, and the duty of county transportation authorities to deliver those projects for the voters. The Self-Help County Coalition states that transportation sales tax measures "provide a reliable and stable stream" of transportation funding, "injecting billions each year into essential transportation programs and projects" that are approved directly by voters (SHCC n.d.). They also allow the public to "fully understand where their local transportation dollars go" and are subject to "extensive accountability measures" (SHCC n.d.). A DOT official discussed how many of these sales tax measures were passed before more-recent climate policy and legislation aimed at reducing VMT.

These counties, especially self-help counties with high levels of automobile dependence, “feel slighted by the changing lens of state transportation policy” that is questioning their projects and expenditure plans. Policy actors in this camp also discussed that residents voting to tax themselves for transportation projects was the quintessence of democracy. And because transportation sales taxes are a “special” tax and have historically required a two-thirds supermajority to pass (Agrawal et al. 2021), some policy actors were especially resolute in their beliefs that sales tax measures were the self-determination of voters and local governments to govern their transportation systems. “The locals say, ‘let us democratically govern our own transportation systems.’ And if 66 percent of voters in a local jurisdiction vote for something, then they should be able to build it,” said an NGO official.

Policy actors in the other camp adamantly disagreed with this belief system. They discussed how most voters did not read nor know what specific projects were included in expenditure plans, so self-help counties keeping “promises” of highway expansion projects was misguided. “People vote on it, but do they really know what they’re voting for? Only wonky people like you and me really look into the project lists of these measures,” an academic informed me. The DOT official quoted above noted that voters trusted the transportation experts who crafted the measure to make decisions that were in the best interest of the public – even if voters did read the expenditure plan, most of them are not experts in the technocratic field of transportation planning.

Many policy actors discussed how sales tax measures allowed local interests to subvert state and regional policy goals. Self-help counties reliably oppose state legislation that would affect how they can spend transportation sales tax revenue, interviewees noted. An MPO official discussed the local power brokers who have influence on sales tax expenditure plans and have no interest in regional VMT targets in an RTP/SCS, nor in the state’s climate targets – engineers, practitioners, and public works directors who are “used to deciding where huge amounts of money go and getting to be at ribbon-cuttings.” “County sales taxes are the last bastion of the old school public works director’s

cabal,” they said. A policy actor who had held many positions in the transportation arena discussed how “a lot of people like to blame Caltrans” for highway expansion, but that highway expansion projects and the pressure to build them comes from counties and particularly from counties with sales tax measures. An MPO official echoed this: “the project list in the RTP has traditionally been completely bottom-up from the county transportation authorities,” and the MPO was the “stapler.” This is the “wrong way” for the transportation planning process to function, one said, if the transportation sector is to meet bold state goals for climate and environmental justice:

Everything is set up to go the wrong way if we want to solve to big problems and hit state goals. Everything comes from the county level – especially the counties with transportation sales tax measures – to the MPOs, to Caltrans, to the CTC. A lot of people like to blame Caltrans but a lot of what they do is because of pressure from counties and MPOs. Then CTC funds these fucked up projects.

Policy actors also talked about how ballot measures attract interest groups and allow them to exert influence in the highway policy arena. Several interviewees from state and regional government agencies talked about a coalition of labor and building industry interests groups that was essentially sponsoring a transportation sales tax measure that was on the ballot in Sacramento County in 2022. The expenditure plan of the measure, Measure A, would have provided “public funding for highway-centered projects” – specifically, it included “many roadway capacity expansion projects, including multiple new highway interchanges, segments of the Capital Southeast Connector highway, among others” (Cliff 2022). State and regional government officials discussed the interest groups that were involved with putting Measure A on the ballot:

Labor and the building industry are a big player at the state level and at the local level, too. In Sacramento County, that’s basically who is sponsoring the transportation sales tax measure – the “citizen’s initiative.” It is the California Alliance for Jobs, who is kind of the lead funder working with developers in the region.

You have to weigh the inside power players who, unless you're in a smaller, left-ish urban area, are going to be big business and big labor – in California in particular, big labor – and suburban developers. Measure A in Sacramento County is the perfect example. If you look at their FPPC filings, labor and developers have a ton of money there.

Labor and developers did in fact have “a ton of money” in the Measure A campaign. The one ballot measure committee created to support Measure A was called “Yes on Measure A – A Committee for a Better Sacramento, sponsored by labor and construction organizations.” The California Alliance for Jobs, a “labor/management partnership for the heavy construction industry”, sponsored the ballot measure committee and contributed \$1.1 million – over 25 percent – of the \$4.1 million raised by the Yes on Measure A committee (Sacramento County 2022). The next largest donor was a regional chapter of a labor union that contributed \$300,000. Other major contributors included labor and trade unions, construction companies, engineering firms, and land developers (Sacramento County 2022).

Finally, several policy actors spoke about what method of transportation planning best attains the tenants of the democratic process. Transportation legislation, regional transportation plans, and Sustainable Communities Strategies were created by democratically elected policymakers and democratically led transportation planning processes. Sales tax measures create a populist ballot-box transportation planning process, they contended, not a democratic one. An MPO official said that within US governments, agencies are supposed to be the topical experts for the government's decisions. “The way that government agencies work is that you hire people who have expertise and the legislature and judiciary, who know nothing about the topic, defer to the experts that the government has hired. We rely on experts to know things about the issues that we're grappling with,” they said. They noted recent trends around the US to limit the regulatory role of agencies, particularly when it comes to climate change, and cited the 2022 US Supreme Court case that limited the US EPA in its ability to limit carbon emissions from power plants. And Justice Elena Kagan's

dissent spoke to the crux of the problem with transportation sales tax measures, they thought, when she said that “all of us rely in our daily lives, on people with greater expertise and experience. Those people are found in agencies. Congress looks to them to make specific judgments about how to achieve its more general objectives. And it does so especially, though by no means exclusively, when an issue has a scientific or technical dimension” (United States Supreme Court 2022). They continued: “So do you want any brains in this decision about the next 20 years of transportation projects, or just decide it by populism? Even if people understand the projects, they might not understand the effects of them.”

An academic also questioned the notion that transportation sales tax measures represent the pinnacle of democratic transportation planning. They thought that transportation planning by ballot measure was a “mistake” because they can run counter to the primary work of transportation planning agencies – the regional transportation plan – as well as counter to major legislation like the Clean Air Act. Those, too, are promises “but [local agencies] never seem concerned about not keeping those promises”:

Allowing sales tax measures was the biggest mistake the state legislature made. It came in the wake of Proposition 13 when they were worried about local tax revenues, so they created the avenue for local option sales taxes, but there were no rules about them. Nothing that said that projects in the sales tax measures have to be compliant with the RTP. And then people vote on it, but do they really know what they’re voting for? Only wonky people like you and me really look into the project lists of these measures. And then the local agencies use the “promises made, promises kept” line to say that they have to build all the projects in the measure because the people voted. But what about the promise they made to not kill people with air pollution? Or the promise to follow the Clean Air Act? Which were created democratically, by the way. But they never seem concerned about not keeping those promises.

5.4.3. Local Elected Officials

Local elected officials who sit on the boards of county transportation authorities and MPOs have a range of priorities when they vote on or advocate for highway expansion projects. A main priority is serving their constituents and delivering what they believe their constituents want. A DOT official called this “bread and butter constituent work” on the part of local elected officials – “they support highway projects to appease their constituents who are stuck in traffic and are mad about it.” Most elected officials are not transportation experts nor topical experts in perhaps any policy area. Policy theory tells us that policymakers are boundedly rational and only able to pay attention to, understand, and therefore seek to control a small portion of their responsibilities (Simon 1955). So, many elected officials genuinely believe that increasing highway capacity will fix the congestion problems that their constituents are mad about, and they want to “deliver for constituents.” An elected official’s representative, in fact, described that this was the case:

Electeds don’t have any sense of the short-lived nature of congestion relief. In fact, most elected officials don’t understand most of what they do. Most of their time is spent dialing for dollars or shaking hands at events. There are very few public officials who are steeped in one policy area, let alone any policy area, so they take cues from loud and influential voices in their district. Constituency and what the voters want are what drive the electeds’ actions. They want to deliver for constituents, and they want their constituents to be happy and see that they’re working for them. It’s really very simple.

A few interviewees talked about the concept of the “pork barrel politics” in the highway policy arena. A highway expansion project one way that elected officials can bring state and federal funding – “pork” – back to their districts and constituents. It lets elected officials demonstrate their political acumen and influence, and that their district is one of state or federal importance, interviewees said. An MPO official recalled a local official advocating for a new beltway highway that would run to their city – “every other region in the country has a beltway; why can’t we have one, too?”

Some elected officials have more transportation expertise or are driven by climate or equity goals in their decision making. These elected officials are often who enact aspirational policy or plans that chart a course for multimodal accessibility or climate action, such as SB 375. But if they have desires to be reelected, then they have to keep tabs on public opinion and maintain a relationship with their constituents, said an academic: “When you’re a leader, you want to be a step ahead of the populace but not so far ahead that you turn around to find out that no one is following you.” This kind of politician-constituent relationship influences the kinds of decisions and policy that elected officials make, and ties their decision making to their perception of public opinion. Desire to run for higher or different offices also plays a role in elected officials’ decisions and policy agenda. California has a professionalized legislature where “people make a career of being elected” – they move from city councils to state assembly, to state senate, to US congress, return as mayor, et cetera. “They don’t want to alienate anyone that would inhibit them from that career as a politician, which influences the kinds of policy decisions and plans that elected officials make.”

Interviewees talked about the influence that land developers have on the transportation decisions of local elected officials. Increasing highway capacity and thus automobile accessibility increases the value of adjacent land, its appeal to developers, and the likelihood that it will be developed, explained an MPO official. A DOT official seconded this: “A lot of the reason that these local governments are putting forward these highway capacity projects goes back to the political pressures of developers wanting to increase auto access so they can develop.” And an industry group official noted that “the power that the development community has at the local level surpasses anything that anyone has at the state level.”

Other interviewees discussed how local elected officials have “pet” projects that drive their beliefs and actions on highway expansion projects in their district, oftentimes having differing beliefs about the impacts or outcomes of their pet project compared to highway expansion generally.

Multiple policy actors discussed that expanding SR 37 was a pet project of a county supervisor in Solano, who was interested in increasing highway capacity to facilitate housing growth and had influence with the county transportation authority and the MPO. A transportation expert discussed elected officials' reaction to a 2022 state bill that would have prohibited highway expansion projects in disadvantaged communities, AB 1778, and how it looked like "the bill just messed with their heads." Local (and state) elected officials "had pet projects in their jurisdictions that they'd advocated for for a long time, and they didn't see why they should cancel them." They commented on diverging beliefs when it came to their individual project and highway building as a concept: "They have this idea that 'my project is special and different. Of course, I think bulldozing Black neighborhoods in the 60s was bad. Of course, I think climate change is bad. But this project in my district is different than all the rest.'" Elected officials claimed that legislation like AB 1778 was the state imposing a "one-size-fits-all" solution for a problem that they believed should be controlled locally in order to account for local context, which was an often-used refrain about state-level policy that would change or restrict local actions to solve statewide problems.

An MPO modeler discussed how they had experienced this prioritization of pet projects and the suspension of information and beliefs when analyzing projects for the regional transportation plan. Local elected officials "loved modeling and analysis up until its results didn't support what they wanted to do," they said, and the officials selectively used technical analysis and information when it was expedient:

I sometimes thought of my position like being at a big fancy banquet and someone calls you over once in a while and says, "You're my number boy and I need a number. A nice juicy number. Just the right number." And what they want is the number that supports their political needs or the project that already has funding.

And an MPO official talked about how they viewed the role of the executive of a regional agency in light of "understanding full well that every local elected official had their own pet project." Their

strategy was to ensure that local elected officials understood that their pet projects were one of many in a region that relied on collective action to meet enforceable air quality standards:

I told the board that I knew they all had pet projects, but it was our job as the MPO make sure that they didn't lose federal transportation funds by violating the Clean Air Act. Because the worst thing for all of you, collectively and politically, is if you lost transportation dollars for the whole region putting us out of conformity.

Interviewees discussed that ground breakings and ribbon cuttings on big transportation projects like highways are appealing to local elected officials because they are demonstrations that they are working on problems for their constituents. Newspapers and press releases often show the photographs of gleeful local elected officials “breaking ground” on highway expansion projects with shovels spray-painted gold (e.g., Bay Area Metro 2022, Jarone 2023) or at ribbon-cutting ceremonies. For elected officials who are not versed in travel behavior theory, these events are valuable for their reelection campaigns:

Local electeds have people coming at them from every angle – police, housing, water, transportation. They don't have time to become experts on transportation issues, but the easy answer that this heavy lobbying brings is ‘just keep at it – add capacity’. And then they get to go out and cut the ribbon and be heroes for a day when traffic speeds up for a few hours.

And ground-breaking and ribbon-cutting events are fun: “The most fun part of being an elected official is a giant set of novelty scissors! So why would they do anything that would limit their ability to use them?”

5.5 Caltrans & Caltrans Districts

Policy actors of course discussed the influence of Caltrans, as the state department of transportation, in the highway policy arena. Many interviewees said that Caltrans is a key driver of highway

expansion projects, and many cited its history as the Department of Highways before it became a broader Department of Transportation (Caltrans 2023c). But opinions differed about the magnitude of Caltrans' influence on highway expansion projects. Caltrans officials tended to state that local agencies – county transportation commissions, self-help counties, some MPOs – were the primary drivers of highway projects. Officials from local agencies and MPOs said the opposite, that nearly all highway projects were led by Caltrans.

One reason for this difference of opinion may come from Caltrans' governance structure. Most people refer to a blanket “Caltrans,” but there are two distinctly different levels of the department of transportation – Caltrans Headquarters and Caltrans Districts. Caltrans Headquarters is located in Sacramento and houses the state-level appointees and staff. Headquarters staff work on statewide policy and programs and work with projects all over the state. Caltrans Districts are regional offices of the DOT, with 12 districts covering the entirety of the state. District staff work on projects and programs only in their district's jurisdiction. The district for the greater Sacramento region, for example, is District 3. The district for Los Angeles and Ventura Counties is District 7. As an MPO official described the agency structure, “There's Caltrans, but Caltrans has little fiefdoms all over the state – the districts. And the districts are all very different from each other. They're good and bad at different things.”

Multiple interviewees emphasized that the district structure creates heterogeneity between different parts of the states because philosophies, norms, practices, personnel, and relationships differ by district. This leads to the array of districts having varying levels of influence on highway projects. “Every district is so different,” said an MPO official, “and who is driving highway projects oftentimes depends on personal relationships. [Former director of SANDAG] Gary Gallegos was a district man – he was the director of District 11 for a decade before he went to the MPO – so SANDAG had a really close relationship with the Caltrans district. District 7 seems to let LA Metro

be in the driver's seat." The case studies showed this heterogeneity. District 3 drove the I-80 project in Yolo County, including it in the RTPs for decades and essentially writing the grant application that won it funding. The I-710 Corridor Project was initiated and led by LA Metro, the county transportation authority. On SR 37, the county transportation commissions initiated the interim expansion project before handing leadership to the MPO.

Interviewees said that a similarity among Caltrans districts is that they ally more closely with local and regional agencies than with Caltrans Headquarters. Districts defer to county and regional agencies, the latter of which often conceive of highway expansion projects and approach Caltrans to help them find funding or with construction. "Traditionally with Caltrans, locals show up with a bag of money, tell us what they want, and they're the customer – Caltrans just delivers," said a DOT official.

Another DOT official echoed this: "The districts all defer to the local and regional agencies." They continued, detailing how county transportation authorities and MPOs have traditionally been responsible for transportation planning while Caltrans districts have operated as "basically, a construction company," where the number of projects it builds is the measure of its success. Caltrans districts have historically lacked planning expertise, impacting both their technical capacity but also their culture and values:

Leadership in the districts for the most part are engineers who have grown up either managing projects, delivering projects, or on the operations and maintenance side. There are not that many folks in leadership on the district executive teams who even understand planning. They probably couldn't tell you about SB 375.

Caltrans has therefore not asserted itself in the planning and evaluation of projects on the state highway system. It has left planning and analysis to county transportation authorities and MPOs:

What's common among the districts is that the regions have for many years done all the planning work. [Caltrans] districts just defers to regions to do planning. And by regions, I mean the MPOs or the self-help entities – the latter obviously initiate

a lot of projects. And the problem is compounded by the fact that the districts have always been deferential to the locals and regions, and then headquarters is deferential to the districts. So, there's basically not really been any assertion at Caltrans of, 'Is this a good project?' Caltrans has operated for decades as, basically a construction company. More projects are good projects.

Other interviewees said that Caltrans districts lead nearly all the highway projects. "Most of the project ideas on the Caltrans-owned and operated roads are going to come out of the district," said an MPO official. A city agency official asserted that "the Caltrans district is in the driver's seat with all the state network projects. Locals are informed as needed. Caltrans lets us know that if there's dust, here's the highway construction project that it's coming from. Caltrans districts give these projects life and inform the city that they'll be happening."

Others still discussed a more nuanced process of collaboration between county transportation authorities, MPOs, and Caltrans in driving highway expansions. A DOT official described this sort of collaborative process – used in the I-710 expansion project, for example – as a relay race, where the county transportation authority starts with the first leg that conceives of and launches a project. The district then runs the second and third legs when it takes the lead for funding, design, and environmental review. Then the county transportation authority "brings it home" with the fourth leg. "The district wants to improve the highway network," they said, "but the district can't do that without the support of the county transportation authority."

A DOT official discussed that while local transportation authorities and MPOs often conceive of highway expansion projects, Caltrans often propels them forward. "The push comes from Caltrans, for sure," they said – "The push can absolutely come from Caltrans, because of this drive to build projects." They too discussed how every district operates differently, but described a distribution of power in which local and regional agencies collaborate with Caltrans districts. Some local and regional agencies have the capacity to build their own projects, so they lead even the implementation of highway projects. But other local and regional agencies rely on Caltrans districts

to implement their highway capacity projects, so the district and sometimes Headquarters become project implementation partners. In that role, policy actors in Caltrans districts and Headquarters become advocates for the project:

Once a project is conceived by a region or county it gets into a regional plan, it becomes this concept. And I can think of many examples of this. Then there is this collaborative work that happens with Caltrans in the districts to say, “okay, we need to figure out a funding plan and figure out how this project would get delivered.” And different regions do it a little bit differently. Some regions are much stronger on the implementation end. They can implement their own projects. So they say, “Caltrans, we just need you to give us an encroachment permit and we will build this and basically own this project, even though it’s on your system.”

They continued...

But some will count on Caltrans to implement the project. So we are not just at the table to oversee, but we’re actually an implementing partner. So we own more of the work. We always do the environmental document, I think. We own the design work and PID work and all that. So at some point the districts get very engaged in moving the project forward. And I think the bigger the project the more potential, some engineers get to do some interesting design work.

And so then the projects really get legs and go from there. And often Caltrans will be heavily involved. It’s primarily the districts, but there are some folks at Headquarters who become advocates for these projects, too, like in pursuing funding. Whether it’s going after grant dollars, trying to fund something through the ITIP, which Caltrans controls, looking for ways to bring SHOPP dollars to the table so that we can do major rehabilitation at the same time that we’re adding a new lane.

Ultimately, they explained that there are many ways that districts are involved with delivering highway capacity projects.

The case of I-80 is an illustration of a partnership between the district and a local transportation authority to deliver a highway expansion project. The district conceived of the project but the local authority voted to apply for its funding and put its name on the application. Then the district worked on project design and environmental review. However, that funding arrangement was because Caltrans Headquarters would not prioritize the I-80 expansion project to get federal

funding, so the district perhaps used the local agency as the federal grant applicant because the latter was outside of the Caltrans chain of command.

5.5.1. “Things are changing.”

Interviewees from the local, regional, and state levels were clear that influence had started shifting between Caltrans Headquarters and Caltrans districts over the last several years. Policy actors talked about state legislation and executive orders from the Governor that had brought about changes in Caltrans Headquarters’ practices and regulatory procedures, and changes in personnel that had brought about some degree of institutional change from within Headquarters itself. The Climate Action Plan for Transportation Infrastructure (CAPTI) was one policy lever that interviewees discussed that had empowered Caltrans Headquarters to more critically evaluate expansion projects on the state highway network. In 2021 the California State Transportation Agency (CalSTA) – a cabinet-level transportation agency – published CAPTI as a result of Executive Order 1919, which directed CalSTA to “leverage discretionary state transportation funds to reduce GHG emissions in the transportation sector and adapt to climate change” (CalSTA 2023). And because CalSTA oversees Caltrans and is responsible for helping to implement the gubernatorial administration’s priorities within the state departments, CalSTA has become more deeply involved with Caltrans’ project delivery pipeline – from programming and funding to planning to delivery. CalSTA now reviews programming decisions that are made at the state level, reviewing the suite of projects that is put forth for funding by Caltrans. This suite can include projects that are nominated for funding that Caltrans controls directly, projects that are nominated for competitive funding at the CTC, projects that Caltrans is co-sponsoring for federal funding applications, and projects for which Caltrans is writing a support letter for federal grant applications. So CalSTA, empowered by CAPTI by way of

the governor, has new influence over the flow of dollars transportation projects and thus in the highway policy arena.

For some policy actors, like self-help counties with highway expansions in their expenditure plans, these changes caused consternation. For others, these changes in procedure were clear improvements to the transportation governance process that empowered Caltrans to enact guidance and better align its actions with state climate and social equity goals. Said one DOT official:

Things at Caltrans *are* changing. I think CAPTI empowers us; I think our own strategic plan empowers us. We're starting to build in processes to say, "Hey, wait a second, we don't want this interchange on the system." Even if the locals are entirely funding this with sales tax dollars, this is not an "improvement" to the state highway system based on state goals. So, we are just starting to change. We're putting that in our guidance. We're starting to assess projects, especially new ones that are coming into the pipeline, because those are the easiest to say 'no' to. And we're starting to push back. And even the idea that we would do that is terrifying, especially to the self-help counties because of their whole 'promises made, promises kept' mantra.

Policy actors also discussed state legislation that had changed the power dynamics between Caltrans Headquarters and Caltrans districts. The implementation of Senate Bill 743, which changed the environmental review process to require analysis and mitigation of induced VMT from transportation projects like highway expansions, was another policy lever that had changed how highway expansion projects move through the planning and delivery process. First, districts are usually responsible for environmental review and documentation, but SB 743 changed how environmental review of highway projects was carried out. A DOT official said that VMT analysis and mitigation required per SB 743 means that "any project that increases capacity or any project that induces travel, increases vehicle miles traveled and greenhouse gas, is becoming really, really difficult." And second, implementation of SB 743 has also brought about changes in Caltrans

Headquarters' involvement in the environmental review process. A DOT official explained the new procedures:

Every project that adds capacity now has to go to Caltrans Headquarters and have a conversation about VMT outcomes and mitigation. Anything that adds capacity, and then there's this dance about "Well, is this for the capacity, or operations, or safety?" But if it's got new lanes, or a new interchange, or an interchange that allows more cars to go through at any given time, it's capacity.

And any highway expansion project that does not fully mitigate the VMT induced from the increased capacity is required to be discussed with the director of Caltrans, and the director must approve the project moving forward:

If you're about to release your environmental document and it doesn't have full mitigation of the VMT, then you have to go talk to Headquarters about it. Headquarters prepares a document that explains what's going on, and it goes to the Caltrans director for discussion. The director has to approve it moving forward. So if a project doesn't mitigate all of its VMT, it has to go to the director's desk.

The director's involvement with the environmental review process was a new process that started in the spring of 2022, a DOT official explained: "Traditionally with Caltrans, locals show up with a bag of money, tell us what they want, and they're the customer – Caltrans just delivers. So, this is all new – to try to be discerning about what we build."

The I-710 project was a high-profile and unprecedented case of the Caltrans director weighing in at the project level. Caltrans Headquarters had just issued a strong statement about equity when journalists reported on the US EPA raising air quality and environmental justice concerns with the project. The US DOT had just issued strong statements about displacement from highway projects and the Federal Highway Administration had launched a civil rights investigation into a highway expansion project in Texas (Debenedetto 2021). Then the Caltrans director went out on a limb to pause the project based on issues that federal agencies had identified with the project's environmental review documents, but that "limb" of the director's involvement in the

environmental process has now been institutionalized in Caltrans procedure. Interviewees discussed how Caltrans Headquarters has since taken a closer look at other large highway expansion projects that are in the planning stages or pipeline, looking at “adding scope or revising scope”. Several interviewees used the term “reimagining” to describe what was happening with highway expansions in the pipeline. Essentially, Caltrans Headquarters is pushing the districts to “take another look” at highway expansion projects in terms of needs, benefits, and the project scope.

This type of institutional change has been “bumpy,” a few policy actors explained. The relationship between CalSTA, Caltrans, and project sponsors has changed significantly between the recent gubernatorial administrations. CalSTA and Caltrans were traditionally “stewards” of highway projects, “no questions asked.” Caltrans and CalSTA are now seen more as regulatory agencies – “not to the level of a CARB regulatory agency, but playing more of an oversight role.” That shift from partner to regulator is perhaps causing more angst among project sponsors than the state’s actual policy changes, some interviewees thought. But interviewees noted that Caltrans districts often have strong partnerships with local and regional agencies around highway expansion projects, so districts themselves are shifting from a paradigm where the state-level priorities were “just about getting money out the door to them” to state-level priorities that are based in outcomes.

In many cases, state transportation policy goals have changed more quickly than – or diverged from – local transportation policy goals. Districts are more engaged with local and regional agencies and the public than Headquarters is, and some district staff described their role as one of customer and constituent service: “we have to meet the needs of our customers.” And sometimes the customers know what they want, one district official said: “sometimes locals know what they want and they don’t want transit and bikeways – they want highway capacity.” When state policy goals diverge from local policy goals, the districts are put in the middle: “Sometimes the state policy direction doesn’t lead to a clear local solution and districts are right in the middle of that rub.”

Another cause of friction is that local and regional agencies are the entities that often initiate highway projects – not Caltrans nor Caltrans districts. So Headquarters is essentially asking its districts to approach their local implementation partners and ask them to reimagine their projects.

In a lot of cases, if the districts are not the ones who initiated the project, they don't really understand what the purpose of the project is, or the planning work that's been done, or the data used to justify the project. It actually puts them in a really hard spot – to go back to their partner who initiated the project and thinks that there is a benefit and say, "We don't like this project. We need to work together to come up with something else." That has been very bumpy.

This is particularly challenging because Caltrans has historically been the builder of the highway system, not the planner, so local and regional agencies lack trust in Caltrans' planning know-how. Caltrans districts, especially, lack transportation planning and modeling expertise compared to MPOs and county transportation authorities and thus have trouble credibly challenging them on project concepts and analysis:

In a lot of cases, the districts are way out of their depth. The planning work, the sophistication, and modeling capacity that a lot of MPOs have far exceeds the district's expertise. So when the districts go back and say, "Well, we don't think this project is delivering good freight benefits." And the MPO says, "What do you know?" So challenging MPOs on their idea for a project is really hard, when you've been so crippled as an agency in terms of even being able to do planning work.

In some cases, Caltrans districts will use state and Headquarters policy as cover when approaching local and regional partners about "reimagining" their highway expansion projects to avoid upsetting their allies. Districts point back to the seat of policy in Sacramento and tell local and regional agencies, "well, Headquarters doesn't think this is a good project, and they actually make the calls on which projects we move forward for funding, and they think that this is not a good project from XYZ perspective." While this gives the districts political and relational cover, it also somewhat "undermines" the coalition that Headquarters expects to have with its districts – "it's not really the

district carrying the message, they're just saying this is what is coming from Sacramento. But that's better than these projects just blindly moving forward and nobody questioning them.”

5.6 Rank and File Staff

Policy actors across all case studies and in the statewide policy arena emphasized the influence of agency staff planners and engineers – what policy theorists would call “street-level bureaucrats” (Lipsky 2010) – at local, regional, and state transportation agencies. Several interviewees talked about the influence of staff in the persistence of highway expansion projects. Transportation agency staff have worked on some highway expansion projects for years or decades, during which time their decisions, established routines, and created procedures to manage uncertainties and work pressures “essentially become the public policies they carry out” (Lipsky 1993). Many staff have operated with a belief system that they are doing good work and serving the public. A local transportation agency representative clearly explained that this was their philosophy, that they had a duty to solve problems for their constituents: “There is a current congestion problem. To ignore the congestion problem would be against my job duties. The project will positively affect congestion, and my job is to invest public dollars to solve transportation problems. Commuters are our constituents.”

Cancelling a highway project, re-prioritizing funding, or reorganizing an agency to reflect a new transportation paradigm requires change not just to agency work programs but also change to deeply held beliefs. Policy process theory says such change can be “akin to religious conversion” (Sabatier 1988). Transportation agency staff – and humans, in general – are thus resistant to this sort of change to their information and belief systems:

We can't underestimate the power of bureaucrats in the persistence of these highway projects. There are staff at Caltrans and LA Metro who have worked on these projects for years. “Now you're telling me that the last 20 years I've spent on

this project was actually a waste?” People want to feel like they are doing good work – the work of the people! And not just that they’re doing good work but that their work wasn’t a waste. A highway project gets cancelled after 20-something years and it’s not just ‘poof, it’s gone’ but that it’s gone, and you were perpetuating racism and burning up the planet for the last 20 years.

Interviewees discussed a somewhat recent shift in paradigm in California’s transportation policy arena, from the car-centric “predict and provide” paradigm that was the status quo for decades to a multimodal paradigm that integrates land use, environmental policy, and social justice. This paradigm shift is forcing a change of the core policy beliefs of the transportation field and is unsurprisingly being met with an array of responses, everything from enthusiasm to calls for secession from California. Some transportation policy actors have been “steeped” in this paradigm of an integrated view of the transportation field, but this was not the predominant worldview for the transportation policy arena until recently. Some argue that it is still not the predominant worldview but is being forced upon them by state agencies and the state legislature. Further, the auto-centric worldview is still institutionalized and supported by other parts of the transportation institution, such as the transportation funding mechanisms:

Although some people are steeped in this land use-transportation integration world, that’s not what the transportation world has been, and it’s obviously not still. And so for decades, the worldview of people responsible for the transportation sector was “We are a serving utility. We are not social engineers. It’s not our job to plan land use and where the houses go and all that. It’s our job to – wherever other people decide that should happen, we need to make that work.” In my opinion, to some extent that was an excuse to just not have to bite the bullet. But to some extent they really believe their own bullshit. And that was, and still is, supported largely by a mechanism for funding transportation which is very automobile oriented.

Several interviewees discussed the tenacity of the status quo transportation paradigm and the problem it poses for reaching the state’s policy goals related to mitigating climate change and

furthering social justice. A state agency official discussed that the uptake of the new paradigm is heterogeneous among local, regional, and state agency staff:

This status quo thinking, it's the fundamental problem. The idea that 'we've always built our communities around the car, we've always been trying to fix congestion,' it infects everything. Some people at Caltrans have a new paradigm but some legacy staff still have the status quo mindset. Same with MPOs – some MPO planners are better than others.

An MPO official said that the “big question is how to get local governments, regional agencies, and Caltrans districts to plan for this multimodal vision.” Their answer was that “we need leaders”:

A big question is how to get local governments, regional agencies, and Caltrans districts to plan for a multimodal vision. We need leaders. We need a [former SACOG director] Mike McKeever in every region. They need to stand for what's right; not what will help them politically. We need leaders who believe that we can get people from A to B without relying on the car and are willing to invest and advocate for multimodal solutions to make that happen.

A few interviewees talked about the influence of high-level bureaucrats and how “the real power brokers are a step below electeds – the city managers, public works directors, chiefs of staff, fire marshals.” These are staff that are not quite “street-level,” nor are they elected. There are conversations and coordination among the city manager offices, department heads, and city councilors offices that staff and the public are “not privy to” but are “where the horse-trading happens.” One interviewee discussed a local elected official being lobbied for months by their chief of staff to oppose a highway expansion project in their jurisdiction, which they said influenced the elected official's legislative actions and despite their “natural inclination to expand freeways.”

5.7 Influence in the State Transportation Policy Arena

Interviewees discussed the influential actors in the statewide policy arena, who are somewhat different than the policy arenas that surround individual highway expansions. These are actors who build coalitions of interest groups, lobby agency officials and legislators in the statehouse, as well as create public interest campaigns. Transportation funding is a major output of the statewide transportation policy arena, so actors and coalitions in the statewide arena are particularly concerned with generating, allocation, and regulating funding for transportation projects.

5.7.1. Labor and Building Trades Organizations: “The Magic Sauce in Transportation”

Interviewees involved with statewide transportation policy arena repeatedly emphasized the political influence of the labor and building trade union organizations at the federal, state, and local levels. They are particularly influential at the state level because the California legislature – the State Assembly and Senate – has a supermajority of Democrats for whom labor and trade unions are crucial for electoral resources. The *Los Angeles Times* noted that “the building and construction trades are among the most influential lobbies within the Democratic Party coalition that controls all statewide elected offices and more than two-thirds of lawmakers in both houses of the Legislature” (Dillon et al. 2022). An elected official said that “labor is a massive player” in highway projects. A government official stressed that labor and trades organizations are “all-powerful in the statehouse.” An MPO official said that “labor has been the magic sauce in transportation policy because in California, we’re a strong labor state and all the Democrats need labor campaign contributions to win.” They noted that this was the case for Democrats at every level of government.

Labor and trades organizations advocate for state legislation that align with their overall platform, which is to create jobs for their members. “Labor unions are concerned about jobs,” said an NGO official. This interest makes them a powerful advocate with legislators and politicians in the

statehouse for funding streams that fund transportation and highway projects, such as Senate Bill (SB) 1, the Road Repair and Accountability Act, in 2017. SB 1 increased statewide fuel taxes to generate about \$5.4 billion annually for projects on roads, highways, and bridges (Caltrans 2023). Labor and trades organizations were central in its passage and in defeating the ballot measure in 2028 that would have repealed it (Proposition 6). Indeed, labor and trades organizations were major contributors to the “No on Prop 6” campaign (California FPPC 2022).

Because of the financial and political capital that labor and trades organizations spent to generate funding to build the pipeline of transportation projects, they are also powerful advocates against legislation and policy that could truncate that list of transportation projects. Labor and trade organizations were the “biggest hurdle” for AB 1778 in 2022 – a bill to prohibit highway expansions in disadvantaged communities like those surrounding the I-710 corridor – which ultimately died in the Senate Transportation Committee (Dillon et al. 2022). A state agency official described the monetary influence that the labor and trade unions expended to generate the funds for transportation and highway projects:

The Trades so aggressively fight for the highway projects from SB1 because they *bought* it. They spent millions of dollars to get it passed. Those projects are all jobs to them.

Policy actors also talked about the influence of labor and trades organizations on the general public and public opinion. Narratives about “crumbling” roads and bridges, the Infrastructure Report Card that perpetually gives California’s roads a failing grade, and solving congestion by expanding highway capacity are prevalent in transportation planning and policy discussions because they are propelled by labor and trades organizations, said a state agency official:

We do this finger-pointing in the transportation space around “Oh, which agency is responsible? Who?” But who’s drumming up the public support and the public

opinion on transportation issues? And a lot of it is labor. For the sake of wanting to build for the sake of building.

5.7.2. Building and Construction Industry Organizations

Officials discussed the influence of the building and construction industry at every level of government and particularly in the transportation arena. This coalition includes homebuilders and land developers, construction and engineering companies, and construction materials companies (e.g., aggregate and concrete producers) and is “very strong and very well-organized,” according to interviewees. An NGO official said that “the power that the development community has at the local level surpasses anything that anyone has at the state level,” but that the development industry also has relationships with other powerful interests in the statehouse. An MPO official talked about a beltway that is proposed and being constructed on the outskirts of exurban and rural Sacramento County:

The proponents of the Southeast Connector are the big land developers in the southeast part of Sacramento County – Cordova Hills, the South of Highway 50 folks. They are very good at messaging to electeds. They say ‘this will build your tax base, your residents will love you for reducing congestion, and here’s a big check for your reelection campaign.’ This coalition is very powerful and very well-organized.

This power and coordination extends from the local level into the state transportation policy arena through both the building industry’s own advocacy and the advocacy of local governments. Local government officials, in turn, become an influential coalition at the state level to maintain local control of their transportation agenda and funds. Local governments and local transportation agencies made promises of transportation and highway infrastructure to their constituents and to the building industry, the latter of which “wants to develop into the hinterlands” but needs highway capacity to do so.

The building industry is a “big player” in the transportation policy arena in part because it is a big player in the housing policy arena. “The building industry and Building Industry Association are big players in transportation planning and projects. They’re the building industry, so they want to build,” noted an MPO official. So it is a powerful voice of support for transportation policy that would promote – or induce – land development, and is a powerful advocate in transportation policy arenas when it identifies legislation that could help or hinder its ability to build. The building industry was powerful in opposing transportation bills like AB 2438 and AB 1778 because of their impact on the housing policy arena. The California Building Industry Association said that AB 1778 – the bill to prohibit highway expansions in disadvantaged communities like the I-710 corridor – was a “housing killer” because “many new housing projects are required to pay for or build freeway expansion or interchange improvements as a condition of approval – particularly if they are located within 10 miles of a freeway. AB 1778 would kill housing projects by prohibiting those improvements and associated permits” (CBIA 2022).

The power of the building industry in the housing policy arena also impacts how elected officials operate and legislate in the transportation policy arena. Housing affordability and housing supply are highly salient issues among California residents and elected officials. Politicians looking to further a pro-housing policy agenda want to stay in the good graces of the building industry because they are an important ally in housing policy. This desire, in turn, impacts how politicians legislate in the transportation policy arena – lawmakers may use transportation and highway policy to build a stronger alliance, or at least not sever ties, with the building industry because of their influence in housing policy.

5.7.3. The “Road Building Faction”: Labor, Building Trades, and the Building Industry

The labor and building trades coalition and the building industry coalition are individually powerful, but these two interest groups have formed a coalition to create a powerful bipartisan alliance in the transportation policy arenas at every level of government. An MPO official described this alliance as “the road building faction.” Another MPO official described how the road building faction creates a bipartisan alliance that is powerful enough to block legislation that would push progress in the transportation policy arena:

You have industry, which is the sprawl developers, the sand and gravel people – you know, the Teicherts [a construction and materials company]. And they take care of the Republicans. And labor takes care of the Democrats. That’s the magic of an organization like the Alliance for Jobs. If you look at their board, it’s the blending of those two powerful forces. They create that bipartisan alliance. And because they cover both the Democratic and what’s left of the Republican side of state politics, they can block progressive legislation.

This coalition – made up of organizations like Transportation California, California Alliance for Jobs, the Building Industry Association, labor and trades organizations, the construction industry, construction materials companies – has had significant political success in securing transportation funding. It played a leadership role in passing SB 1 – which generated an unprecedented stream of funding for the pipeline of transportation and highway projects – and was a major opponent of the SB 1 repeal effort in 2018, Proposition 6. Proposition 6, a measure on the 2018 California ballot that would have “eliminate[d] recently enacted road repair and transportation funding by repealing revenues dedicated for those purposes,” attracted about \$52 million in total contributions. The opponents to Proposition 6 contributed about \$46.8 million – 90% of total contributions – with about \$42.9 million in contributions from a single political action committee called “No on Prop 6: Stop the Attack on Bridge & Road Safety, Sponsored by Business, Labor, Local Governments, and

Transportation Advocates” (California Secretary of State 2023). The largest contributors to this committee were the California Alliance for Jobs (an organization “representing over 2,000 heavy construction companies and 80,000 union construction workers” [California Alliance for Jobs 2023]), the State Building and Construction Trades Council of California, Southern California Partnership for Jobs (an organization representing “2,750 contractors 90,000 union working in all 12 Southern California Counties” [Rebuild SoCal Partnership 2023]) as well as laborers unions, carpenters unions, construction materials companies (e.g., aggregate and concrete producers), and construction companies (California FPPC 2022).

The labor, trades, and industry coalition also exerts its power on other transportation-related legislation. It “rabidly opposed” AB 1778 in 2022, ensuring the bill did not make it out of committee. Most members of this coalition opposed AB 2348 but the bill’s authors amended it enough that one key actor – Transportation California – eventually took a neutral position. This was pivotal in AB 1248’s legislative success, interviewees recounted.

Transportation California is one of the most “notorious” organizations in the labor and industry coalition. It is funded by the building and construction industry but has board members from throughout this coalition (e.g., carpenters union, laborers, construction companies, operating engineers, aggregate producers), thus representing the spectrum of powerful labor and industry interests. “They include some of the trades but not all of the trades, so it’s not a clean-cut kind of labor coalition. It pulls from various pieces of labor and industry, but the thing they have in common is that they like building roads. They’re basically the road builders – that’s who the coalition is.” Interviewees discussed Transportation California’s influence in state transportation legislation and rulemaking, particularly about how they are “super important” to have as an ally – or, at least, not be an opponent. Why? “Because they are labor. Industry. Building materials.” a state government official said simply.

5.8 Discussion

Previous research has demonstrated the complex policymaking environment and decentralized network of policy actors involved with governance of the transportation system. This investigation of policy actors influential in highway expansion projects confirms these previous findings – the network of transportation policy actors is indeed quite complex, and the system of transportation governance is polycentric. That is, there are many decision centers that each have separate authority and no single center has a monopoly over the outcomes or rules (Ostrom 1972). But it also identifies several relatively straightforward themes about influence and power in highway policy arenas.

One is that highway policy arenas contain policy actors at every level of government so understanding power and influence in highway expansion projects requires analysis at every level of government. Policy analysts and policy process research often use either a “top-down” or “bottom-up” approach when evaluating the implementation and context of policy (Sabatier 1986, Matland 1995). The “top-downers” start with a policy decision, statute, or legislation and examine the “extent to which its legally mandated objectives were achieved over time and why,” while the “bottom-uppers” start by analyzing the array of policy actors who “interact at the operational level on a particular problem or issue” (Sabatier 1986).

I show here that because of the polycentricity of power in the highway policy arena, it is necessary to employ both a top-down and bottom-up approach to understand the context in which highway projects are implemented. Policy actors at the local level are paramount, but policy actors in central positions exert important influence by allocating resources, incentives, and attention (Matland 1995).

Each case study project required going far “upstream” of the project to see that US congressmembers were involved with the flow of money to highway expansion projects and that

federal agencies, empowered by the Clean Air Act (Congressional Research Service 2015), were involved with the environmental analysis and permitting of highway expansion projects. Tracing the process farther upstream to the federal level also brought into view the interest groups that lobbied and contributed financial resources to federal legislators, which in turn may influence how active a federal legislator is in highway policy arenas. Attention and money – in the form of government funding and also campaign dollars – are crucial resources in the highway policy arena.

Each case project also required looking downstream to the decentralized array local transportation authorities, cities, and counties. Local authority was incredibly powerful in highway policy arenas. Local control had increased as local agencies created their own mechanisms to finance transportation. They were indeed able to set their own “transportation destinies” (Goldman & Wachs 2013) – setting their own transportation agendas, paying for it, and by lobbying MPOs and the state and federal legislatures to keep their agenda intact. Local elected officials were key players in setting and implementing these agendas. The examination of the local level also showed the influence of industry groups, particularly land developers and powerful businesses, on local elected officials and sales tax measures. It also showed the influence of community-based organizations and voters on elected officials. The community-based organizations and voters influenced local electeds to advocate for highway expansion in the case of I-80, and to ultimately advocate against highway expansion in the case of I-710.

Analysis showed the role of street-level bureaucrats in highway expansion projects. The influence of “street-level bureaucrats in highway policy arenas introduced individual and institutional practices and norms that are developed to navigate the transportation landscape and its array of oftentimes incompatible signals from other government entities, interest groups, and constituents.

In each case, the involvement of state-level agencies required close examination. Caltrans itself has a “highly decentralized organization” (Deakin 2021), where the locus of decision making is

oftentimes in district offices, so capturing the influence of the DOT in highway projects requires understanding the role of both Headquarters and the relevant district. It also requires understanding the relationship between Caltrans Headquarters and districts – Headquarters tends to defer to districts, and districts tend to have closer alliances with local transportation authorities than with Headquarters. And the state-level view brings into clear focus the power of the state politicians and legislators, as well as the interest groups that influence these statewide elected officials. The lawmakers and powerful coalitions in the statehouse control state transportation funding and what it can be spent on, and money is a valuable resource in the highway policy arena.

Second, analysis of influence and power in highway expansions must include actors beyond those in government. Transportation policy research often focuses on the governmental agencies and institutions involved in the planning, provision, management, and regulation of the transportation system, but some of the most influential policy actors are in fact not government actors. The case studies of I-80, I-710, and SR 37, as well as the findings surrounding the statewide transportation policy arena, show the immense influence of industry groups in conceiving and driving highway expansion projects. “Following the money” is useful for identifying the patterns of transportation projects that are planned and funded, as I explored in Chapter 3. But highways do not build themselves – labor, trades, and industry groups build highways – so following the money is also useful in identifying who has an economic stake in large public works projects and thus who is influential in perpetuating them. An important finding, too, was that very few people mentioned environmental, environmental justice, or sustainable transportation advocacy groups as being influential in the state level of the highway policy arena. There were a few notable exceptions in the cases where advocacy groups had been lead sponsors of state legislation or had technical staff that could “sit at the table with agencies as fellow technocrats” – organizations such as ClimatePlan, NRDC, and Streets for All. Large environmental groups like NRDC and EarthJustice were able to

exert influence at the project level through litigation, which was brought up in the case of the I-710 expansion project.

Third, there was clear heterogeneity in the policy arenas around each case project. Every highway expansion project has a unique social, political, economic, and environmental context and thus a different constellation of influential policy actors. So understanding the powerful players involved with an individual highway expansion project likely requires investigating the policy arena of the project itself. This is particularly important to understand actors' positions because the same category of policy actor can play significantly different roles in different cases. In the I-80 case, the DOT district wrote the federal INFRA Grant application and led design of the highway expansion; in the SR 37 case, the DOT district is along for the ride with the county transportation authorities and MPO. In the I-710 case, decades of advocacy by environmental justice groups stalled project delivery until federal and state agencies eventually revoked their support. In the SR 37 case, the environmental conservation groups had no opinion on the expansion of highway capacity so long as the highway was elevated out of the marshlands of the federal wildlife refuge that it bisects. In the I-80 case, there were no organized advocacy groups in the policy arena.

However, this study also showed that there is a consistent cast of powerful players who influence the flow of funding to highway expansion projects, both in the state legislature and with local transportation sales tax measures. A slate of powerful of industry groups – labor and trades organizations, the building industry, freight interests, et cetera – undergirds the individual and collective highway policy arenas throughout the state through its influence of transportation funding. And funding is incredibly powerful in transportation. A “whiff” of funding can give life to the myriad highway expansion projects that populate the project lists regional transportation plans that are sometimes personally shepherded by local elected officials. Currently, the “money all points towards building freeways.” That is, the majority of state and federal transportation funding is

allocated toward automobile infrastructure with distribution schema that better reflect historical claims and dealmaking than current policy objectives (Sciara and Lee 2018).

When interviewees discussed strategies to align California’s portfolio of transportation projects with its climate goals and the increasingly urgent climate crisis deadlines, every one of them discussed shifting transportation funding rather than changing which actors and institutions were influential in the highway policy arena and how. This was in part because there is so much variation in local and regional implementation of state climate goals and in highway policy arenas, even in relatively progressive geographies as shown in the case studies. Funding incentivizes policies, said a local transportation official – rather than shifting influence and power, policy actors emphasized shifting dollars. “There is a state vision and direction to plan for climate mitigation but implementation is heterogeneous – some places get it but others are not on the same page. So we have to link all funding to this vision. *All funding*,” emphasized an MPO official. Another policy actor said that getting to that vision will require “a few key changes mainly around funding,” including strong guardrails for spending local, state, and federal transportation dollars and heavy incentives for desired projects. “There are billions of dollars going towards highway capacity projects in the pipeline. Even without changing any institutions, if we were able to shift those dollars towards other projects that those entities can do within their jurisdiction, the changes we need could potentially happen,” offered a state agency official – “but those are political decisions, and I’m not trying to diminish just how challenging that would be.” Political and challenging, indeed, because many of the highway capacity projects in the pipeline have influential advocates in the state legislature, who would vote on such a bill. And because the most influential coalition in the state legislature has invested significant financial and political resources to create and fund that pipeline and have an economic interest in building those billions of dollars of highway capacity projects.

6 What Problems are We Trying to Solve with New Highway Capacity?

6.1 Introduction & Research Questions

This chapter explores the problems that motivate transportation policy actors to work on and advocate for highway expansion projects. That is, what problems are actors trying to solve with highway expansion? And what are the priority problems of the most influential actors? To answer these questions I explore the factors that motivate highway expansion projects for the policy actors who are directly and indirectly involved with three large highway expansion projects that are or were proposed in California. I also consult project documentation – purpose and need statements, environmental analyses as available, and other agency documents.

Interviewees and documents identified myriad problems that motivate highway expansions. Some were problems that interviewees personally perceived as necessitating additional highway capacity, and others were problems that interviewees perceived others to see as problems motivating them to advocate for adding highway capacity. That is, interviewees offered information about their own institutions' beliefs and speculated about the problems that other policy actors and institutions perceive. Problems that motivate highway expansions ranged from crash safety to public health to efficient project delivery to state- and national economic vitality. One overarching theme was that transportation projects are often the “default solution” for a range of social problems, such as lack of employment access and housing unaffordability. Four key motivations were nearly ubiquitous across the policy actors interviewed and perceived by them to be paramount with respect to political power: congestion, job creation, freight, and land development. I discuss each of these motivations

in turn and examine the relative importance of each to the different categories of policy actors and their coalitions.

6.2 For Every Problem, a Transportation Solution

Policy actors pursue transportation policy and projects as a solution to a wide variety of social and policy problems. That is, policy actors use and expect transportation policy and projects to solve problems related to land use, housing unaffordability and segregation, employment access, air quality, and more. “Transportation is often the default solution to solve any social problem,” said an interviewee from academia, “We don’t try to mix income levels in cities, we provide public transit; we don’t try to locate jobs in certain neighborhoods, we use transportation infrastructure to take people to jobs.” Several other interviewees echoed this sentiment and added their viewpoints on the reasons why transportation is the “default solution” to problems from a wide array of policy arenas. A state agency representative said that it is partially a matter of authority and control: “A lot of it comes down to what the government has direct influence over in terms of what it can spend public dollars on. It’s transportation, and it’s water... It’s not housing, it’s not land use. Basically, it’s just transportation and water.” Another state agency representative discussed in detail the reasons why people in elected office focus on transportation as a solution for many of the problems that their constituents face:

Transportation is a thing that we fund locally, so we have some local control over it and we put a lot of our hopes and dreams into the transportation system. But it’s not necessarily going to solve the problems that people need solving. People are coming from a place of real problems – perceived lack of investment, lack of jobs, unmaintained infrastructure. They have to deal with stuff in life and have to go sit in a traffic jam. You can try to talk to them about induced travel and housing densities and colocation of destinations, but they just need to get around their lives. They don’t have other options. There are not many things for local electeds to deliver for their constituents, so they focus on transportation.

And local, state, and federal “electeds,” i.e. elected officials, “want to deliver for constituents,” emphasized a representative from a county supervisor’s office – “they want their constituents to see that they’re working for them.”

So although highway expansion projects do not solve the foundational policy problems – e.g., separated land uses, auto-centric communities, housing unaffordability and segregation, lack of local jobs, or air pollution – they do offer a concrete and immediate avenue for elected officials to demonstrate that they are working for their constituents. Highway expansion projects offer government-led and government-funded projects that elected officials can influence through their positions on transportation commissions, MPO boards, and in legislative committees. And elected officials can make progress on them on the relatively short-term timeframe in which many operate between election cycles. These types of projects offer elected officials the hope of electoral success. A former MPO director put it simply: “Politicians don’t like long-term solutions. They like short-term solutions. They have to have short-term solutions, and it has to be something obvious, and it has to be what people have done before. Adding housing is too abstract and too long-term of a solution.”

Interviewees discussed how policy actors do not just pursue transportation solutions, but how they specifically pursue highway expansion projects as a solution to a wide variety of problems on the state highway network. A state agency representative talked about the “toolbox” of solutions that policy actors use solve transportation-related problems – whether they be safety or congestion or air quality problems – and how highway widening has essentially been the first or only tool in the metaphorical toolbox:

Highway widenings have often been the first tool in the toolbox for whatever problem we want to solve. Is it a safety problem? Is it a congestion problem? Is it a freight movement problem? Is it an air quality problem? Even for air quality. Historically, the goal was to reduce vehicle idling, to create free flow traffic. ‘We’re doing this highway widening for air quality’, they’d say. There are purpose and need

statements in highway widening projects that have been built where the only purpose and need is to improve air quality. That is why we're doing the widening. So, it's been the first tool, and sometimes the only tool, in the toolbox to do anything.

Another interviewee echoed this perspective almost verbatim when discussing the I-80 expansion project, except with reference to a metaphorical “book of tricks” rather than a toolbox. Caltrans District 3 was championing the highway expansion project on I-80 because it had studied the corridor and found problems on the facility – congestion, short on-ramps, the confluence of two highways (I-80 and US 50) in its jurisdiction – and its “book of tricks” for these kinds of problems has generally been to add highway capacity:

The district's championing of the highway capacity project on 80 comes strictly from the fact that they identified a problem on the system and they're going to go to their book of tricks to fix it, which is typically to add capacity. That's changing now, but typically the book of tricks is one trick deep.

6.3 Congestion, Congestion, Congestion

The policy actors interviewed nearly universally agreed that congestion is one of the most politically and professionally motivating factors in any of California's multitude of policy arenas, transportation and otherwise. Local agency and DOT staff agreed that congestion and congestion bottlenecks are the biggest drivers of highway expansion projects on the state highway system, and that any analysis or “unpacking” of the causes of bottlenecks to solve them holistically is rare. Interviewees discussed how congestion is regarded essentially as a universal evil, akin to societal ills like hunger, and how the perception of it as a key transportation problem provided a rare point of agreement across party lines: the urban-rural divide, Northern and Southern California, coastal and inland areas, and sociodemographic spectrums. A state agency representative offered this visual: “At the beginning of

La La Land everyone is on a highway overpass and they all get out and start dancing. That's not the world we live in. There's nothing beautiful or romantic about congestion.”

Rather, congestion was viewed as a problem to be fixed, managed, or worked on, even among interviewees who thought that congestion is unsolvable. Congestion and attempting to relieve congestion were driving factors in each of the three case study projects and is also a motivating factor for policy actors in California's statewide transportation policy arena.

6.3.1. Congestion in the Yolo I-80 Case

Policy actors involved with the Yolo I-80 Managed Lanes case talked about congestion on the interstate and on local streets and roads as the key factor that propelled the project. “Congestion is the main goal of the Interstate 80 project. It would reduce congestion,” said an MPO representative.

Several elected officials involved with the I-80 expansion project repeated this notion that the highway expansion project “will be used to reduce congestion on Interstate 80” (Garamendi 2021). US Congressman John Garamendi, a Yolo County supervisor, the Vice Mayor of Davis, and the director of Caltrans District 3 announced the award of the federal INFRA Grant for the I-80 project in an interview on Fox 40 News. “We've got a real serious problem on Interstate 80,” said the congressman. The Yolo County supervisor, when asked to describe the problem on I-80, said that the interstate looked like “a big parking lot where cars are just lined up and buses can't move.” With the project, he said, “we're looking at greenhouse gas emission reductions, better flow of traffic, better flow of goods from the Bay Area into Sacramento. Sacramento is the capitol of the nation's largest state – we've *got* to have ease of movement. And with this project, thanks to Congressman Garamendi and [Caltrans District 3 Director] Mr. Benipal, we're going to be able to make a difference here.” The City of Davis Vice Mayor described the I-80 expansion project as a “game

changer” for City of Davis, the county, and the region, “bringing needed relief” (Garamendi 2021) to the congestion issues on the highway:

It used to just be on the weekends that there were issues on the causeway and the backups. No, no, no – not anymore, as people well know. Almost every day of the week there can be major, major backups. The causeway just does not have the capacity that it needs in the 21st century. This [project] is going to be an absolute game changer for our region.

A local elected official described their work on the I-80 being motivated by “the challenges of Interstate 80, especially the bottleneck points on either side of the causeway across the Yolo Bypass.” These challenges include the highway design and alignment with the convergence of Interstate 80 and Highway 50 at the West Sacramento end, lane expansions and then lane drops at the Solano County end, and ultimately “just a whole bunch of merging and congestion.” This segment of I-80 is “just a nightmare for everybody,” they said.

I-80 in Yolo County “has congestion at all times because there are too many travel demand markets in that little stretch of road,” explained a former MPO official – “commute traffic, Tahoe traffic, freight, cross-country trips.” The “Tahoe traffic” drew attention from constituents and policy actors because congestion is outside of expected peak times – on weekends when Bay Area residents drive to and home from the Lake Tahoe area for weekend vacations. But an interviewee from a local transportation agency discussed the spread of congested times and the nuances of vehicle flows on I-80 around the Yolo Causeway beyond the weekend Tahoe traffic, and particularly the prevalence of weekday congestion:

If you look at the congestion on the I-80 corridor – yes, there’s the weekend Tahoe traffic for sure. But then there is also the daily commute traffic going the other way, westbound, which is grinding and is not wealthy people. It’s people who are priced out of the Bay Area who are still commuting to jobs in the Bay Area. In terms of the volumes on the causeway, it’s now more people going westbound in the mornings and eastbound in the evenings than vice versa. Whereas it used to be people going to downtown Sacramento from Davis, right? From Davis and other

points to the west. And now it's the opposite because so many people who are living in the SACOG region are commuting to jobs in the Bay Area.

Congestion on this section of I-80 has been seen as a problem for decades. An MPO official said that a project to expand I-80 over the Yolo Causeway has been in the agency's regional transportation plans for at least two decades, remembering that it was included in SACOG's 2004 Blueprint because it is "one of the region's top bottlenecks." As one interviewee described the origin story of the I-80 project, stating that one study showed that substandard on-ramp lengths were the cause of the "real congestion choke point" rather than the number of lanes on the mainline:

Caltrans District 3 determined that there were not enough through lanes on the Causeway. However, the last I recall from a real study behind it, the real congestion choke point comes from a very, very short acceleration lane at Chiles Road right there at the [Yolo] Fruit Stand. About 10 years ago Caltrans did a study and counted the cars coming from Chiles and merging onto eastbound I-80 at that ramp in front of the fruit stand. I remember it was something like one car every two or three minutes is all it took to cause a breakdown in vehicle flows because the short on-ramp makes people merge immediately. They don't have time to get up to freeway speeds, and it was breaking down the system.

A local agency official also mentioned the bottleneck on I-80 as the key driver of the expansion project. "At a high-level, what was the rationale for doing this? It's the bottleneck thing." At a meeting of the Yolo County Transportation District board of directors (YCTD 2023), a local elected official serving as the board chair discussed his concern for the environmental impacts of expanding the highway but that he was trying to "eliminate a rather terrible bottleneck," one that he viewed in the context of the entire interstate system. The board chair perceived the I-80 expansion project in Yolo more as "closing a gap" on the highway than an expansion project:

If you're not an environmentalist these days then you're not paying attention, as they say. But with respect to the issue of the fourth lane, I look at this in the context of an interstate freeway that basically goes from Mexico to Canada, but starting at the Carquinez Bridge and going to north of Roseville, is at least four lanes in my knowledge everywhere but between Davis and Sacramento. So it isn't so much that we're working hard at this to create more vehicle miles traveled, it's

that we're trying to eliminate a rather terrible bottleneck and inconveniences thousands of people all the time.

Interviewees discussed the “ripple effects” of that bottleneck on cut-through traffic and local congestion, where drivers divert off the interstate to avoid congestion on the highway. The congestion on the interstate system has caused drivers and wayfinding apps to look for parallel routes on local roads, several interviewees said:

You have these choke points in West Sacramento and Davis that lead to cut through traffic that's beastly at times, spilling all the way to Woodland because there are so few routes across the causeway. So it has these ripple effects. I think the desire to widen the highway has been there for quite some time because of the bottleneck situation and the local congestion that that causes. Especially with Waze and all the apps that lead people onto county roads and local roads.

People trying to avoid congestion on the interstate caused congestion on local streets and roads in Davis and Yolo County, which created a local constituency of people angry with congestion. “Advocacy for this project in its early form was because of all the typical stuff – congestion relief for the commuters, but really the neighborhood impacts of the cut-through traffic,” said a local agency official – “the cut-through traffic drew in the constituency of Davisites and local residents. Even progressives hate traffic.”

In fact, cut through traffic and the resultant local congestion hit a flashpoint among Davisites in the late-2010s when the City of Davis started construction of a road diet and Class IV bikeway on Mace Boulevard that coincided with a confluence of factors: the end of the recession, growth in the Sacramento and Bay Area regions, an increase in super commuters on I-80, Caltrans changing the timing of its ramp meters, and an uptake of navigation apps like Waze and Google Maps that diverted people onto city streets to avoid congestion on the highway. “We started having significant congestion problems that had never been an issue before,” a local transportation planner told me, and Davis residents quickly vocalized their concerns with the congestion problems and put them on

the city's radar. "They were pissed off, man. I was in front of 300 people yelling and screaming at me at a public meeting. It was a firestorm – everyone was like, 'What the hell is going on? The city needs to explain things.'" And "that was when I-80 became an issue for the city," they said. The Public Works department conducted traffic counts to assess where the local congestion was coming from and found out that "the vast majority of cars coming through Mace Boulevard were not local trips, but rather coming through the city to bypass the traffic on 80." The city became "really interested in I-80" and specifically why people were diverting off the highway and causing congestion on city streets. A local transportation planner noted that the city "doesn't care about congestion unless it spills over into cities. We just have no real stake in that. It doesn't affect us until it starts spilling over into our streets." But the traffic congestion did spill over into city streets, and so now "there is pressure coming from the city to do something about 80." A DOT official commented that that pressure – or at least interest and support – from a local government to Caltrans District 3 was a factor that transformed the idea of adding lanes to I-80 as listed in the regional transportation plan's project list into an "actual project" going through the preliminary engineering and environmental documentation phases.

6.3.2. Congestion in the SR 37 Case

Policy actors discussed the inception of the long-term project on SR 37 and how it started as a roundtable of academics and agencies brainstorming the impacts of sea-level rise and the resiliency of transportation infrastructure. But the interim project on SR 37, expanding highway capacity from Sears Point to Mare Island, does not include climate resiliency components – it "is more about congestion management," said a local transportation agency official. Indeed, the Metropolitan Transportation Commission states that it is working with agency partners "to make State Route 37 more resilient against chronic traffic congestion, flooding and sea-level rise in order to preserve vital

connections between jobs and homes” (2023). “The road is challenged by the issues of congestion, flooding, and sea-level rise,” says MTC (2023) – “traffic flow is pinched by a 10-mile bottleneck from Sears Point to Mare Island routinely adding 30 minutes to morning commute times and 80 minutes to the evening commute.”

Policy actors also talk about congestion on State Route 37 in the context of the projects planned for the corridor. In the annual “Highway 37 Town Hall,” a representative from MTC refers to the interim project as the “Congestion Relief Project.” Senator Bill Dodd recalled that “studies of Highway 37 started with traffic congestion analyses, but now it’s expanded to sea-level rise and transit,” having a seemingly different perception of the purpose of the early UC Davis study that launched planning efforts on the corridor. State Senator Mike McGuire noted that SR 37 is “over capacity with mind-numbing morning and evening commutes.” But there is good news, the senator said: “The good news is that help is on the way. State and local leaders are working together like never before, mobilizing to be able to create a safer, more reliable Highway 37” through the short- and long-term highway projects.

The director of Caltrans District 4 was also part of the Highway 37 Town Hall and discussed the “interim traffic congestion relief project.” The SR 37 corridor experiences “severe traffic congestion,” she said – “peak period traffic delays and backups that occur in both directions during commute periods, as well as during weekends, holidays, and special events.” The interim project would “improve traffic flow and peak travel times and increase vehicle occupancy between Mare Island and State Route 121.”

Policy actors discussed the prioritization of the congestion problem and a \$250 million to \$400 million interim project aimed at congestion relief on a highway that is forecasted to be under water in a matter of years because of sea-level rise. A local transportation agency official explained the rationale for the interim expansion project in simple: “There is a current congestion problem. To

ignore the congestion problem would be against my job duties. The interim project will positively affect congestion, and my job is to invest public dollars to solve transportation problems.” The executive director of the Sonoma County Transportation Authority (SCTA) also spoke to this in the Highway 37 Town Hall. “Our whole theory has been people are hurting, right? People are hurting out there on the corridor, stuck in traffic. Even in the pandemic, traffic is bad,” she said, “We have got to provide that interim project in order to get people some relief.” The interim project will move ahead while the local transportation agencies, MTC, Caltrans, and elected officials develop the ultimate project. The interim expansion project is “a quick fix that’s going to last for the next decade or so, and then we’re going to do the long-term project,” said the director of SCTA. The urgency of congestion problem and addressing it was echoed by a local transportation agency official:

The idea with the interim project was that something needs to happen now. We don’t know when money for the ultimate project will be available, or when sea levels will rise. But elected officials agree that a congestion relief project is needed now, before those unknowns are resolved.

A transportation expert echoed the fact that congestion was the most salient and urgent problem driving the interim project to expand Highway 37, even though the project – and, in fact, the highway itself – would be short-lived:

Project proponents say, ‘We need congestion relief now.’ There’s work towards pricing it and whatnot, but they say ‘We need widening today, even if it’s going to be underwater in 2040, and we’ll deal with a long-term solution then. We’ll work on a long-term solution, but this congestion can’t last.’

6.3.3. Congestion in the I-710 Case

Congestion was one of three of the major problems that policy actors discussed as motivating the I-710 Corridor Project, the other two being freight and air quality. But these three problems were nearly always discussed as a trio – congestion, freight, and air quality issues were inextricably linked

and together were cited as the main drivers to expand I-710. A local transportation agency official described the threefold problem on I-710: “It’s the main goods movement corridor out of LA County. There is recurring and incident-based congestion from the convergence of freight and commuter traffic. And there’s an air pollution problem because upwards of 30 percent of vehicles on I-701 are trucks. A super high percentage of trucks.” An MPO official characterized the problems as similarly interconnected: “Freight is a huge issue right now ... Freight is a problem because of the congestion it causes. Trucks sit in and create congestion and are terrible for air quality.” They continued with a discussion of the relationship between these problems and highway capacity, specifically with freight forecasted to increase in the region even with the I-710 Corridor Project being cancelled: “Capacity projects are really essential for freight. Even with the 710 coming out of the regional transportation plan, the freight projections are the same and trucks will be moving slower, so we might have more air quality conformity problems.”

A state agency official discussed the motivating factors of urban highway expansion projects like the one on I-710 as a “mix of frustration with congestion” and the “fallacies” that policy actors – particularly freight interests – sell to the public about fixing congested by adding highway capacity:

In more urbanized areas – with the 710, for example – what ends up driving those highway expansion projects is a mix of frustration with congestion and the ability to sell the general public on the fallacies of how you can solve congestion, and a lot of it is driven by freight interests. Freight interests use that narrative to the public that this expansion project is beneficial for them because it will help get them out of congestion, but it’s really about improving freight travel time. And so you get a bit of a mixed bag there. And then you add the fact that historically we’ve neglected to consider the air quality impacts to disadvantaged communities that these go through, or the displacement impacts.

Policy actors were very clear that frustration with congestion is a key problem that motivates the landscape of transportation policy and projects in the Los Angeles Basin, beyond any one expansion project. “Congestion is *the* political and transportation problem of import to local electeds. It’s the

ubiquitous problem,” said an interviewee from a local elected official’s office in Southern California. An elected official from Southern California said this was also true for both local- and state-level elected officials: “At city councils and in the state legislature, transportation policy is usually just about moving cars as fast as possible. Issues such as climate, public health, equity, and traffic safety should be considered together and in transportation policy way more often. Transportation policy too often doesn’t acknowledge its impacts across policy areas.” A DOT official discussed how the political salience of congestion – and the lack of salience of other transportation-related policy problems – shaped the pipeline of transportation projects:

The pipeline of projects is really about ways to solve congestion. Mobility, vehicle throughput was the lens of the agencies at the time that these projects were born. Congestion relief was the lens through which the pipeline was created. Things that weren’t considered when the pipeline was created were accessibility, induced demand, and impacts of the community.

A local transportation agency official also talked about the lens, or “paradigm,” with which transportation planning and projects were traditionally conducted in Southern California and Los Angeles. “The transportation paradigm was a technocratic approach to planning, based purely on the demand and supply of transportation. It was a very singularly focused, car centric approach to planning. The underlying assumption was “This is LA. People are going to drive, so we need to plan for cars.”

Policy actors in Los Angeles also talked about Measure M – the “Los Angeles County Traffic Improvement Plan” – a ballot measure that was passed by 71% of voters in 2016 to enact a half-cent sales tax for projects to “ease traffic, repair local streets and sidewalks, expand public transportation, earthquake retrofit bridges and subsidize transit fares for students, seniors and persons with disabilities” (LA Metro 2023). The first of the ordinance’s “core goals” is to “improve freeway traffic flow, reduce bottlenecks and ease traffic congestion” (County of Los Angeles 2016). Policy actors

differed in their perception of what voters expected when they voted for Measure M and its promise to ease traffic congestion. A DOT official said that voters did cast their votes, but that they trusted the transportation experts to analyze and choose projects that would address transportation problems:

Voters voted on this tax measure, but voters really trusted the transportation experts to think about and put forward the projects that are needed. LA Metro is the regional transportation planning authority for LA County – it has responsibility to create that pipeline of projects for the measure, and things that weren't considered when that measure was created were things like accessibility, induced demand, and the impacts on the community.

A local transportation agency official had a different opinion about voters' expectations for congestion relief:

Voters voted to make improvements on the 710 to relieve congestion. There is controversy around what the voter intent was. Some are challenging Metro when they propose doing anything else besides highway capacity. If you're a daily driver on the 710 and you see congestion relief on the ballot, what do you think will happen? You think the highway is going to get bigger. You're not going to think it's a new rail line.

6.3.4. The Political Power of Congestion

Interviewees discussed reasons why congestion is so politically powerful and motivating throughout the state. In part, most people in California drive cars and thus become part of the driving constituency. A former MPO executive noted that “mode share is still so auto-dominated that congestion is a bipartisan issue, even in cities.” As the data show, 82 percent of workers in California commuted by automobile in 2020 and of the workers who traveled to work (i.e., excluding the 11.4 percent who worked from home), 90 percent drove to work (US Census 2020). A state agency representative put it more simply: “No one likes congestion!”

Some interviewees cited the notion of congestion causing travel unreliability and wasted time, which they saw as a problem particularly when communities lack transportation options besides driving. A state agency official urged that “congestion is a real thing that causes real problems. It makes you late for school, causes fights with your partner – everyone has real examples of what they haven’t been able to do or were late for.” A local elected official echoed this sentiment as motivation for expanding the capacity on Interstate 80: “Why is this project important to the locals? Each one of us can tell you stories of people who haven’t been able to move from place to place or buses that are running empty, because people can’t rely on the bus getting there any faster than driving in their own car.” An interviewee from academia explained that “the political motivation of congestion comes from this idea of wasted time. When there’s a lack of reliability and a lack of choices, that’s problematic. I think it’s a valid concern. Lack of reliability becomes part of the problem people have with congestion.”

Interviewees shed light on the powerful coalitions and policy actors that think that congestion is a problem: local elected officials, the voters who elect them, land developers, and Caltrans districts.

In Southern California there is a lot of driving. So there’s a big push for electeds to “do something” to make driving easier. To “solve” congestion. Their response is to add another lane at a gazillion dollar cost to solve congestion.

A representative from a local elected office discussed how driving is so ubiquitous that it becomes an unquestioned and dominant social norm, even among people who do not personally drive. They called this paradigm “auto supremacy” and it is essentially equivalent to the phenomenon that Walker et al. (2022) label “motornormativity,” where cultural assumptions about cars lead individuals and policymakers to demonstrate unconscious bias in their decisions about driving and auto transportation. Motornormativity occurs due to “shared, largely unconscious assumptions about how travel is, and must continue to be, primarily a car-based activity” (Walker et

al. 2022). This policy actor discussed how the paradigm and bias of auto supremacy is infused into elected officials' beliefs and decision-making, even among officials who are pro-transit:

Supremacy of driving is baked into decisionmaker's mind. Every decisionmaker is an auto supremacist. It's a terrible term but it's apt because even if you don't drive, driving is still the ubiquitous status quo. Even the electeds who are transit proponents still focus on congestion on the auto network. And so congestion is *the* political and transportation problem of import to local electeds. It is the ubiquitous problem. And they believe that if we just build another lane, it will make it better. Electeds don't have any sense of the short-lived nature of congestion relief.

6.3.5. The Psychological Factors of Congestion

But why exactly is congestion a problem that justifies such large sums of public investment? What makes it such a tenacious and deeply held belief across so many powerful policy actors? Research shows that travel has a significant effect on subjective well-being – moods are lower when commuting by car, in part because of the stress of congestion and unpredictability (Chatterjee et al. 2019). Many interviewees spoke about psychological factors that put congestion “in the category of things that are immensely frustrating to your core,” as a state agency official described it.

Several interviewees discussed frustration with congestion in terms of travel time budgets and expectations – how long certain trips “should” take and people's emotional responses when actual travel times are beyond one's time budget or are unreliable. A travel modeler explained that “people have their mental time budget for how long it takes to get from A to B. If it takes five times longer and they don't see a big crash – it was just people tapping their brakes too much – boy, are they angry.” Another interviewee voiced stronger emotions about unreliable travel times: “I know that it can take me 20 minutes to get from Santa Monica to downtown LA but if it takes me twice or three times that, it makes me lose my mind because it ‘shouldn't’ take that long. This should take me 20 minutes but then it takes an hour and it's absolutely enraging.”

Several interviewees discussed the psychological impacts of congestion and travel time unreliability in the context of lack of travel options. “We’ve all driven these roads when they are not congested so we know what it feels like to get there quickly,” said a state agency official, “We shouldn’t discount the psychological impact of sitting in congestion when we don’t have another choice.” An MPO director asserted that “if we have choices then congestion becomes irrelevant. Congestion is only bad when you have limited choices, which is only true in this nation.”

Congestion conflicts with what a transportation expert called the “any-any-any-any-any model” of the American transportation psyche. “If I have to describe the philosophy for American consumption of travel, at least on the roadway side, people want to be able to drive any size vehicle, any time of day, to any destination, without any passengers, and without any tolls or pricing. That is our American model.” Congestion conflicts with this philosophy of driving offering the ultimate freedom of movement, which is “widely assumed to be a basic right of the modern age” (Ladd 2012). A state agency official also alluded to the American model of transportation provision, consumption, and the freedom afforded by driving, including the fact that people feel like they have some level of control over their local transportation network through their role as voters: “We’ve been sold this story of freedom and our options, which alters our expectations. But congestion doesn’t let me achieve what I want. We perceive that we have some control over it – control and leverage over the system, even. We think that someone should control the system and have the levers to pull to fix it. So our frustration isn’t with ourselves or each other, necessarily – our frustration is with the system suppliers.”

Congestion disrupts not only people’s days and routines but also their identity. Congestion is a characteristic collective action problem – a situation in which “rational, self-interested individuals will not act to achieve their common or group interests” (Olson 1965). In aggregate, the many individually rational decisions to drive on a particular highway segment conflict with the interests of

the group. An MPO director discussed the factors of the collective action problem of congestion that make it so aggravating, particularly in the way that congestion conflicts with the notion of “power” that the automobile industry sells to the public:

Congestion is the ice pick between the eyes for people. People feel powerless about it while they’re all sitting in big powerful vehicles that were sold to them as a contraption to make them feel powerful. They may intellectually realize that they contribute to that congestion a tiny bit, but their aggravation quickly overshadows that realization. They suddenly lose all control – they become victims of the mass phenomenon – and it makes them mad. With something like a delay at the airport, there’s someone to blame. But congestion is a tragedy of the commons with a very short tipping point. It doesn’t slowly build up over time. It just suddenly goes to hell, and then it suddenly goes back to normal with seemingly no cause. It just clears up and people are mystified or angry.

A state agency official talked about what happens when constituents are angry about congestion that seemingly arises with no cause but stems from the separation of land uses, a mismatch of housing and jobs, and housing unaffordability:

You know what happens when you get a bottleneck that has nothing to do with transportation? You have angry constituents who call their legislative representative about sitting in the bottleneck. A lot of ridiculous legislation comes from people who think they understand transportation are just like, ‘We’re going to widen this road. Here’s \$800 million.’ The classic example is the Centennial Corridor in Kern County – they put in a brand-new freeway in the middle of Bakersfield and do you know how they did it? One hundred percent politics. The director of Kern COG went to high school with Congressman Kevin McCarthy. \$400 million magically fell from the sky for that project. We were like, ‘what the hell?’

An academic discussed the American symbolism of the automobile as fun, fast, and reflecting a person’s identity, and how that symbolism is an important factor in the persistence of congestion-driven highway expansion projects considering California’s policy recent attempts to legislate, plan, and build a less auto-dependent transportation network. Despite the urgency of climate change, highway expansion projects to provide short-term congestion relief still make up a significant share of the project pipeline. They discussed this lack of urgency and disconnect between goals and

actions as a problem that in fact dates back millennia, but has present day implications for transportation and its myriad impacts:

In the year 300 Saint Augustine said ‘Lord, make me pure but not today.’ It means that I want to be virtuous but let me finish having fun first. It’s something that many of us can understand. Fun is the Beach Boys, driving fast cars, Lucy and Ricardo driving across the Golden Gate Bridge. Fun in the sun in your car. Congestion is seen as a universal evil because it collides with this image of cars as fun, cars as status symbols, cars signaling who you are and what you care about. Sitting in congestion squashes that fun.

6.3.6. “Bad congestion is just hustle and bustle.”

Interviewees discussed how congestion can be viewed as a positive externality of other conditions, such as a healthy economy or a city with activities. An academic recounted an experience of expressing a positive or even ambivalent view of congestion was almost akin to heresy among fellow transportation engineers: “I made a comment once – I was quoted in an ITE article, actually – that what some people consider bad congestion is just hustle and bustle in a city. Boy, did I get creamed for that one.”

Several policy actors weighed in with their view of congestion being symbolic of positive conditions in the regional economy. “Congestion is a sign of a healthy economy,” said one MPO official. But they explained why that positive perception is so quickly dismissed among policy actors. Another MPO official put it this way:

I could view congestion as a good thing. As a sign of good economic conditions, good connectivity, et cetera. But the bad connotation is because the whole country makes their living by driving from A to B. So congestion means that people are using up time or arriving late because they have to drive. It’s a known fact that you can never get rid of congestion. You can manage it, but you can’t get rid of it. If we have choices then congestion becomes irrelevant. Congestion is only bad when you have limited choices, which is only true in this nation.

Interviewees opined that congestion maintains its bad connotation because the American transportation system generally fails to give people convenient choices besides the automobile. Thus, driving is a requisite for most Americans to reach jobs, schools, healthcare, and other activities that are necessary to make and maintain a living, and traffic congestion imperils their ability to do so.

6.3.7. Air Pollution as a Congestion Problem

Many interviewees from many different parts of the transportation policy arena discussed air pollution and greenhouse gas emissions as key policy problems, and congestion as a cause of them. That is, they viewed congestion as a major problem because of its contribution to air pollution and climate change, which they believed to be major problems.

Air quality and emissions modeling is a key part of regional transportation planning process. Planners, modelers, and other policy actors emphasized how vehicle speeds are a factor in vehicle emissions per mile. A state agency official said that “speed matters in the formation of emissions because it goes directly to the efficiency of the vehicle itself. So you get a tipping point where congestion is so bad that it is better to relieve congestion for GHG and criteria pollutants than to let the congestion stand.” The relationship between vehicle speed, vehicle efficiency, and criteria air emissions is illustrated in an emission curve, they said, which is a graph that charts emissions per mile with vehicle speed; “So in some cases, yes – it is true that relieving congestion would improve air quality. In many, that is not true.”

MPO officials often talked about congestion and air quality, as MPOs are responsible for air quality conformity analysis of their RTPs and TIPs. “Emissions curves are really sensitive to vehicle speeds,” as an MPO official put it. Transportation plans and projects thus seek to optimize for vehicle speeds where air pollution emissions per mile are lowest, around 55 miles per hour. In fact, an MPO representative stated that “you don’t achieve emissions reductions just through lowering

VMT in a plan. It's about speed bins. The 45 to 55 mile an hour threshold – if vehicle speeds are below that, they have higher emissions.” So highway expansions like the Interstate 80 project can still be a part of the plan's air pollution and GHG emission reduction strategy, they said, because it is “designed for some congestion relief”:

You don't achieve greenhouse gas reductions just through lowering VMT in a plan. It's about speed bins. So that 45 to 55 mile an hour threshold – if you're below that, you've got higher greenhouse gas emissions and sometimes other emissions. The Interstate 80 project is designed for some congestion relief. It's not a VMT reduction project.

Indeed, an elected official cited this logic as motivation for the expansion of Interstate 80 in Yolo County. They said that the “smooth movement” of vehicles and improved air quality were goals of the project and that they believed that reducing congestion would improve air quality:

The efficient, smooth movement of goods and people is a goal. Reduced air quality degradation is a goal. I think that simply moving people at a more even pace will reduce air pollution and greenhouse gas emissions.

Policy actors and primary documents for the I-710 expansion also discussed congestion as a cause for air quality problems in the nearby communities. The first of the five “purposes” for the I-710 expansion project was “improve air quality & public health” (Caltrans & LA Metro 2017). A case study of the planning process of the I-710 Corridor Project, authored by the Federal Highway Administration, stated that “poor air quality, a direct result of congestion, was a predominant issue” that motivated the expansion project (FHWA n.d.). A policy actor at an MPO discussed the impact of cancelling goods movement projects like the I-710 project – that is, highway expansion projects – stating that not expanding the highways would potentially slow vehicle speeds, which would increase emissions. Thus the projects would have “reduced particulate matter and probably would have been a net benefit.” they hypothesized, except for the displacement that they would have caused:

A couple of the big goods movement – that is, highway – investments that were in the RTP have gone away. One is I-710 South. Taking this would of the plan probably won't make much difference on meeting SB 375's VMT targets but no project there might impact speeds, which impact emissions. Emissions curves are really sensitive to speed. The plan might be measured to increase air pollution with no project on the 710. Theoretically the project would have reduced particulate matter and probably would have been a net benefit, but it would have had right-of-way takings.

6.3.8. Housing Affordability as a Congestion Problem

Interviewees from several different parts of the policy arena and different levels of government discussed that what many actors were calling and treating as a congestion problem was in fact a housing affordability problem. As housing markets in central urban areas had become more expensive, households in search of more affordable housing had to locate far away from their jobs, schools, and other destinations. These more distant locations provide fewer multimodal transportation options, are often far off of the established rapid transit and commuter rail networks, and require these less affluent households to drive between employment centers and the further flung areas with affordable housing. These socio-spatial residential patterns and resultant commute patterns are what cause the peak hour congestion that concerns so many transportation policy actors, these interviewees argued.

Policy actors generally agreed upon this logic, many of whom referred to the “jobs/housing balance” or the “jobs/housing match” to describe this relationship between the co-location of homes and employment. This precise logic was used by local and regional transportation agencies when justifying the need for the SR 37 project, which connects Solano County in the far eastern part of the San Francisco Bay Area with the famously affluent Marin County in the north Bay Area. The SR 37 project website hosted by the Sonoma County Transportation Authority stated that “the

jobs/housing imbalance” that was a consequence of the Bay Area’s unaffordable housing markets was “one cause of congestion Bay Area wide, and specifically for SR 37”:

Traffic Forecast: Growing housing demand in the North Bay counties has produced a housing market that a high percentage of household cannot afford. Consequently, many have to live far away from their jobs. This jobs/housing imbalance is one cause of congestion Bay Area wide, and specifically for SR 37. Average Annual Daily Trips are projected to increase from 45,000 in 2013 to 58,000 by 2040.

A state-level representative commented on this justification for highway expansion – and particularly expanding SR 37 – and how it fails to address the actual problem, which is housing policy that leads to housing unaffordability and housing segregation. Identifying the problem as congestion leads policy actors to believe that their measure of “success” is better transportation connections between poor neighborhoods and high-paying jobs. The actual measure of success, they said, should be “desegregating our neighborhoods through our policy so that those poor people can have upward economic mobility ... can live in those neighborhoods near their jobs, and they don’t have to commute so far”:

The narrative around SR 37 is ‘We’re helping the poor people get to jobs better. It’s amazing, we’ve saved them 20 seconds of their lives.’ But here’s the problem: we’re not actually connecting transportation and housing in that discussion. Because part of the solution is the notion that someone can live anywhere that they choose. We assume that we don’t have segregation in our neighborhoods any longer – we assume we have solved that problem. We haven’t. And so we write these plans and it is considered success when we’re connecting the poor communities to the high paying jobs with wider highways, not when we’re desegregating our neighborhoods through our policy so that those poor people can have upward economic mobility. So that they can live in those neighborhoods near their jobs, and they don’t have to commute so far.

Other interviewees discussed the need to view the transportation, housing, and land use policy arenas holistically rather than as discrete siloes. The narrow view of the transportation arena as

separate from these other, inextricably linked policy arenas leads policy actors to misidentify problems and potential solutions. An NGO representative recalled,

In a CTC meeting I heard a labor union advocate for highway widening because people of color live far away from their jobs, so they need expanded highway capacity to be able to drive there with less congestion. So this highway project was an ‘equity project.’ When I heard it, I thought ‘You guys are so crafty! How evil and masterful is this argument.’ But it shows the siloing of issues in transportation. Devoid of everything else – sure, it makes sense. But when you think about this holistically, you’re saying that people of color can’t afford to live in the places they work or that they don’t have jobs in their communities, so they have to drive really far to reach their employment opportunities. The solutions to that include creating jobs in communities of color or creating housing that’s affordable near those jobs.

A local agency official stated:

I don’t think that we can separate the idea of solving congestion from the housing affordability conversation. Because as long as we are banishing poor people to exurban areas with poor transit, then we can’t ignore the social equity implications of doubling down on the BART system, which is increasingly just serving affluent elite who have the option of living in the Bay Area. And not investing in options for people who now cannot afford to live in the Bay, but still have to work there.

6.4 Highway Building for Building’s Sake

Another central theme that emerged was about powerful actors, agencies, and coalitions that are keen to build highway capacity projects for the sake of building projects. Caltrans was a division of highways before it was a transportation department responsible for modes, as many policy actors relayed. Though the DOT’s institutional culture is changing, policy actors said, its practices and prioritization of highway projects still reflect its “history is as a highway builder.”

Policy actors also discussed the powerful coalitions in California for whom highway expansion projects represent employment opportunities. Highways are large, publicly funded capital projects and for labor and trades organizations and the building industry, the value of highway expansion

projects was discussed in terms of the number of jobs that are involved in building them. As one state agency official put it: “labor interests basically just view these highways projects as job creators.” Another policy actor pointed out that every agenda of the California Transportation Commission reports the “total jobs created” in addition to dollar amounts in its quarterly summary of “Financial Matters.” The signs posted on highways alongside SB 1-funded construction projects inform driver that these projects are “your tax dollars at work rebuilding California.”

Interviewees also discussed how these large capital projects offered prestigious career-building opportunities for public- and private-sector transportation engineers, planners, travel modelers, and project managers to develop and demonstrate their professional capabilities and connections. To these policy actors, career goals may impel their work on highway projects. An interviewee involved with the State Route 37 expansion exclaimed that “careers are made by this project!” and recounted the number of staff who had been promoted up the ranks of their agencies, firms, and organizations throughout the lifespan of the myriad SR 37 studies, plans, and projects.

6.4.1. “We just want to build more projects.”

Interviewees discussed that there are powerful institutions and policy actors that are eager to build highway projects, chief among them being the California Department of Transportation (Caltrans) and its districts. Several DOT officials recounted that Caltrans started as the highway building arm of the state government: “Caltrans, historically, we were a division of highways. Then we became a transportation department technically focused on all modes, but our history is as a highway builder,” said a DOT official. Several interviewees mentioned highway projects being driven by a “culture of building” within Caltrans Headquarters and especially within Caltrans districts, as well as a departmental budget structure that requires building highway projects to justify the preservation of

staff positions, budget, and resources. A DOT official talked about Caltrans' history as essentially a publicly funded construction company with a primary goal of building projects:

Caltrans has operated for decades as basically a construction company where more projects are good projects. It doesn't matter if there's actually a benefit long-term, or if it's sustainable or equitable or any of that stuff. We just want to build more projects. And there have been a long line of chief engineers that operated that way. So, most folks at Caltrans have been trained to not question whether adding a new interchange, or adding a new lane, or whatever it is, is actually going to do anything good.

An MPO representative gave their view, relating it to the budget that each district has to pay for the staff who were hired into their highway building "empire." This creates path dependence:

Every district has a budget. That budget pays for project managers. It pays for engineers. They built an empire of building highways and interchanges and employ thousands of people statewide. So if you're not building, how do you justify the budget for all the engineers and the planners and the project managers that you have hired strictly for building? Just built into the district system there is a need to build, to maintain your staff and spend your budget. So when you identify a problem, you want to build to fix that problem. I think it really boils down to a culture of building and a system that has been built around that.

An MPO official put it simply: "Caltrans' stance has traditionally been that any project that ends in construction is a good project, and any project that doesn't is a bad one." And a DOT official put it somewhat philosophically: "The whole 'less is more' thing – that is not a part of Caltrans' ethos. These are people who got into it because they want to build stuff."

6.4.2. Highway Projects as Jobs Creators

A key theme is that highway projects – large, publicly-funded capital projects – are advocated for by some powerful policy actors and coalitions because of the jobs that are created by their construction. Many interviewees emphasized that the labor and trade unions and the construction industry largely view the pipeline of highway projects in terms of jobs. When asked what motivates labor and trade

unions in the transportation policy arena, an NGO official put it simply: “Labor is interested in jobs. Labor is trying to employ people. And it’s a way to the middle class – take young people, train them, give them living-wage jobs with health benefits and a pension.” So the primary “problem” that labor, trades, and the building industry is trying to solve with highway capacity projects is not a problem with the transportation network per se, though this coalition does discuss the poor state of the state’s infrastructure and its role in quality-of-life. Rather, the key problem that motivates labor, trades, and building industry organizations is creating jobs from public works projects.

Interviewees discussed how the prospect of construction jobs motivates this powerful coalition of labor, trades, and the construction industry to advocate for state legislation and funding streams that fund highway projects, such as Senate Bill 1 (2017). SB 1, the Road Repair and Accountability Act of 2017, increased the fuel excise taxes in California and generates about \$5.4 billion annually for projects on roads, highways, and bridges (Caltrans 2023). Several interviewees said that the influential Transportation California – a non-governmental organization that represents and is funded by “what we think of as ‘industry’ in transportation, the builders and construction companies” – was central in the multi-year effort to pass SB 1. The labor and trades unions were also central. A state agency official explained that construction jobs are what motivated the labor and trade unions’ advocacy for SB1 and against a 2018 attempt to repeal it at the ballot box (Proposition 6):

The Trades so aggressively fight for the highway projects from SB1 because they *bought* it. They spent millions of dollars to get it passed. Those projects are all jobs to them.

Indeed Proposition 6, a measure on the 2018 California ballot that would have “eliminate[d] recently enacted road repair and transportation funding by repealing revenues dedicated for those purposes”, attracted about \$52 million in total contributions. The opponents to Proposition 6

contributed about \$46.8 million – 90% of total contributions – with about \$42.9 million in contributions from a single political action committee called “No on Prop 6: Stop the Attack on Bridge & Road Safety, Sponsored by Business, Labor, Local Governments, and Transportation Advocates” (California Secretary of State 2023). The largest contributors to this committee were the California Alliance for Jobs (an organization “representing over 2,000 heavy construction companies and 80,000 union construction workers” [California Alliance for Jobs 2023]), the State Building and Construction Trades Council of California, Southern California Partnership for Jobs (an organization representing “2,750 contractors 90,000 union working in all 12 Southern California Counties” [Rebuild SoCal Partnership 2023]) as well as laborers unions, carpenters unions, construction materials companies (e.g., aggregate and concrete producers), and construction companies (California FPPC 2022). What motivated these millions of dollars in contributions to preserve the gas tax? In a 2018 interview the president of an infrastructure design firm said that they contributed to oppose Proposition 6 because California’s poor road conditions were dangerous for drivers, but also commented that “if transportation projects are delayed or canceled – tens of thousands of jobs – in addition to engineers, architects, construction workers, and concrete pourers – will be eliminated” (McGreevy 2018). The director of the California State Council of Laborers was also “deeply concerned about the potential job loss should Prop. 6 succeed at the ballot box” (McGreevy 2018). Proposition 6 failed at the ballot box with about 43% of voters in favor and 57% opposed (California Secretary of State 2018).

Labor, trade, and industry groups were also key opponents to a 2022 bill (AB 1778) that would have prohibited highway expansion projects in communities with high levels of poverty and air pollution (Dillon et al. 2022). The State Building and Construction Trades Council of California stated in its opposition letter (Smith 2022) that these types of projects provide economic benefits for its hundreds of thousands of members – in the way of construction jobs and apprenticeships:

The SBCTC represents nearly 500,000 working men and women in the construction industry, including 73,000 enrolled in our state-of-the-art apprenticeship programs around the state. Three-quarters of our apprentices are people of color; one in five come from foster care, emancipated youth, or the criminal justice system. The economic benefits these types of projects provide include thousands of construction worker jobs that offer wages and benefits that provide a middle-class livelihood to construction workers. These projects also provide job sites for our 73,000 apprentices to learn their craft and journey through their apprenticeship programs.

A state government official viewed their motivation in more blunt terms: “All these organizations – Transportation California, the Building Industry Association, the Orange County Transportation Authority, all the regulars – they really hated 1778. They said it would take away all their money and all their projects.” Another interviewee explained that opposition from labor and trades organizations stemmed from the fact that “the Trades’ philosophy is that building is good. They don’t want anything that could truncate the list of projects that they could potentially build.” Several interviewees from various government agencies echoed this view when discussing the policy efforts to chip away pipeline of highway projects and the opposition on the basis of jobs:

We have labor interests who basically just view these projects as job creators and can’t see another path forward for job creation in the transportation space and have a notion of ‘we need to build for the sake of building.’

Following the money is useful when trying to figure out what positions people take. You have the road builders and developers and unions who just see this stuff as product. Do they care about true congestion relief or the climate? Maybe, but probably not that much.

A state agency official discussed how labor, trades, and construction industry groups in fact advocate for positions that would increase the list of projects that they could work on, not just with the initial capital project but also the long-term maintenance of that new infrastructure. The outlay of new highway capacity increases the government’s maintenance burden of its infrastructure, which industry groups already report as being in “poor to mediocre” shape (ASCE 2023). Proponents of fiscal responsibility suggest a “fix-it-first” approach – maintain highways and infrastructure before

adding new capacity. But interest groups that are interested in transportation infrastructure for their job creation have a “general disincentive of fiscal responsibility,” an interviewee commented, because creating a greater maintenance burden through expanding highway capacity “could be good, because it means we’ll have to go spend more and it makes more jobs to maintain it.” They went on:

A major consequence of capacity expansion projects is added long term maintenance for the state. Some folks basically said, “That that’s not an issue. We’ll just raise more revenue.” It does create an interesting dynamic where there’s a general disincentive of fiscal responsibility when it comes to job creation around this stuff. Where creating more maintenance burden for the state could be good, because it means we’ll have to go spend more and it makes more jobs to maintain it.

The notion of highway projects as job creators has also motivated this powerful coalition to advocate at the local level. Interviewees discussed how labor, trades, and construction interest groups advocate for specific highway projects as well as for local-option transportation sales tax measures, such as Measure A in Sacramento County. A local elected representative discussed the involvement and interests of labor and trades unions in the Interstate 710 expansion project, which was in planning phases for decades before ultimately being cancelled in 2021:

Labor is a massive player. Labor was a big in the fight around 710 because building highways is what they know as jobs for their union members. So was the Building and Trades Council. Construction of bridges and roads are core to their business.

Some Caltrans districts act as implementation partners with the counties or regions that conceive of highway expansion projects. When this is the case, Caltrans districts (and sometimes Caltrans Headquarters) become very engaged in creating funding plans, pursuing grant dollars, or doing project design work – “and the bigger the project, the more potential that some engineers get to do some interesting design work. So then the projects really get legs and go from there.”

Given the political power of the labor, trades, and industry coalition in the transportation policy arena, several policy actors raised questions about this coalition’s advocacy for highway projects when multimodal transportation infrastructure can both create design and construction jobs and align with California’s climate policy and social equity goals. That is, why does this coalition advocate against shifting funds away from highway projects when they could ostensibly build multimodal infrastructure that has fewer environmental and social externalities? A representative from a transportation advocacy group expressed their frustration:

[Labor unions] have the view of “oh, our members stay employed by widening highways. If we don’t widen highways, you’re going to cost jobs. Forget the climate, who cares. It’s just all about our members’ jobs.” And it’s just so shortsighted. If we expanded rail lines, there’d be a lot of jobs building rail lines. If we expanded BRT, we would need systems and construction for that. Active transportation needs construction. Maintenance needs construction on highways. This idea that if we stop expanding highways, we’re going to lose all these jobs I think is really just absurd. And we can use their talents differently in a way that doesn’t burn the planet and destroy homes.

Several interviewees discussed the factors that motivate this coalition’s advocacy for highway expansion funding and projects. One factor is the bias in the transportation field to be additive – its beliefs, norms, and institutions are biased toward creating new things atop the existing system rather than removing, redirecting, or managing the system differently. This philosophy was discussed in the physical sense of transportation projects being overwhelmingly additive to the existing transportation network. It was also discussed in the legislative, fiscal, and project pipeline sense. For example, a DOT official spoke about local agencies trying to solve operational problems between “tightly packed” interchanges by adding auxiliary lanes, rather than removing an interchange. An NGO official talked about accretion of transportation goals and funding – “if we say that transportation spending needs to be more aligned with climate goals, people always say ‘okay, we’ll

create a new funding program.’ Funding is always additive, when sometimes we need to redirect and divert funding.”

Interviewees discussed how the coalition of labor, trades, and building industries also follows this additive philosophy in its advocacy for transportation funding and infrastructure. A state agency official said this coalition generally takes the stance of “sure – we can build transit and active transportation infrastructure, too” – the “too” meaning in addition to road and highway projects that are core to their existing business model. Indeed, the State Building Construction and Trades Council of California (“the Trades”) “wielded significant clout” in its advocacy for California’s high-speed rail (Vartabedian 2021). And labor, trade, and building industry organizations – Transportation California, California Alliance for Jobs, Rebuild SoCal Partnership, longshoreman unions, et cetera – joined with transit organizations to advocate for transit funding in the California budget to avoid the “fiscal cliff” that transit was facing in 2023 (Pimentel et al. 2023). When talking about aligning local transportation projects with state climate policy, an NGO official described their advocacy approach: “We need to put more money toward transit so that it’s as convenient as driving. How do we collectively change that value proposition? Don’t talk about ‘or.’ Let’s talk about ‘and.’” The Trades also demonstrated the additive philosophy in an opposition letter commenting on AB 2438, a bill that would have aligned the state’s transportation funding with the Climate Action Plan for Transportation Infrastructure (CAPTI).

The state needs to bring new resources to bear on [transit, rail, active transportation, and infill infrastructure] and incentivize housing development to make alternative forms of transit a reality rather than watering down existing transportation programs and moving the state away from investing in roadway capacity.

Ideology and beliefs are also factors that motivates the advocacy of some actors in the labor, trades, and building coalition for highway construction. An interviewee explained that highway

expansion projects and multimodal transportation projects are not fungible to some policy actors in this coalition – that is, some prefer building highways over transit infrastructure – nor do they believe that the state government should be legislating for local transportation planning and projects.

A representative from the labor, trades, and construction industry explained:

Labor unions are concerned about jobs, but some folks in labor do care about the type of projects they're building. Ideology does come into play when talking about spending \$5 billion to build highways versus transit stations or bike paths. Some wonder why the State of California is telling us that we can no longer build roads. Why the State of California is telling us that we have to take transit now. Within industry – the contractors, industry, regional governments – they do not like the state down approach. They want the state to give them a goal and leave them alone with how to figure it out.

This ideological divide is also illustrated in the State Building and Construction Trades Council's letter opposing AB 2438, in which the Trades opined that “stifling job providing and traffic gridlock-easing highway construction projects on the premise that California's landmark climate change efforts are not working is shortsighted” (Smith 2022). Here the Trades indicate their belief that the transportation policy arena is unrelated to the state's climate policy arena, and that highway policy is not a potential strategy for achieving California's climate goals.

A third factor is that people and companies in the transportation industry have specialized training and capital, and that many are trained and capitalized to build heavy construction projects. The California Alliance for Jobs, for example, represents “2,000 heavy construction companies” (CAJ 2023), and the United Contractors represents “heavy civil engineering contractors” (UCON 2023). A labor, trades, and industry representative explained the specialized trades within the transportation industry – tradespeople, operating engineers, highway engineers, planners, consultants – and their varying interest and ability to diversify the types of projects they work on:

The transportation industry is capitalized to build heavy industry projects. Labor organizations in certain areas, certain regions are more open to and better able to

build a diversity of projects, not just highways. They can pivot more easily. Usually this is the case in more urban areas.

Despite the challenges it presents, several interviewees expressed the importance of forging coalitions between climate-oriented policy actors, equity-oriented policy actors, and the labor, trades, and industry coalition. An interviewee from an environmental NGO acknowledged the need for the environmental coalition to find common ground with labor unions for policy efforts to achieve VMT reduction goals. A labor, trades, and industry representative stressed the need for their labor, trades, and industry coalition to align with transportation equity goals, but that it will be for these different transportation coalitions to find common ground, because of their sometimes vastly different ideologies, policy goals, as well as “grandstanding” among these coalitions:

We have to bring industry, labor, and the trades along for the ride in transportation equity and goals. Labor is trying to employ people. And it’s a way into the middle class – take young people, train them, give them living wage jobs with health benefits and a pension. And communities are advocating against injustices and to bring resources to disadvantaged communities. How do we get labor and equity people in the room together? How do we get labor to see that building a transit station is as profitable as building a highway? It’s so difficult to get any of these parties to the table with each other. You have to get a contractor who thinks all projects should be wider highways and a policymaker like Friedman who thinks that we should stop all highway widenings, and get them to a place where they can put their ideology and grandstanding aside and find common ground.

A state agency official discussed how this type of coalition building between labor organizations, environmental justice organizations, and sustainable transportation groups is akin to – and indeed is a subset of – the broader just transition framework, a framework of priorities and strategies developed by trade unions that aim to “secure the future the future and livelihoods of workers and their communities in the transition to a low-carbon economy” (International Trade Union Confederation n.d.). They talked about how the state’s policy goals for equitable and low-carbon

transportation systems will create a net increase in jobs for labor and trades, but that a “breakdown happens” in the transportation policy arena because the jobs created by building transit and active transportation infrastructure will be distributed differently among the various labor and trades sectors than jobs are currently. Those sectors are represented by different unions (e.g., ironworkers versus electrical workers versus cement masons), and those individual unions have bargained and reached agreements among themselves about the number and distribution of transportation jobs. Changing the magnitude of different types of transportation infrastructure, such as fewer highway expansions and more rail stations, disrupts these standing agreements that have been made about “who gets what share of the pie” of transportation jobs and thus disrupts the unions’ agreement of “here is what we build”:

The nut we need to crack is, how do you think about the broader just transition movement around climate and labor? What is the transportation infrastructure version of that? And how do you break down the internal dynamics of labor where a lot of what we’re talking about is still going to result in job creation. But it will be different jobs for different people represented by different unions doing different types of trades. And that's where the breakdown happens. I think part of the current approach in labor is about not wanting to break the status quo of who gets what share of the pie, basically amongst themselves. And that translates to who gets what share of the pie, and here is what we build.

6.4.3. Highway Building as Career Building

In addition to highway projects creating immediate labor and professional services contracts, interviewees also talked about the long-run career benefits of working on high-profile infrastructure projects like highway expansions. Transportation professionals list projects on their resumes as career achievements, and highway capacity projects, often the largest types of projects in terms cost and complexity, often demonstrate promotion up the ranks of the transportation profession. This

was described not only for highway engineers and highway project managers but also for staff at environmental and conservation groups who negotiate mitigation measures from these highway capacity projects (e.g., the Baylands Group who is involved with the Highway 37 expansion project):

Careers are made by this project! Even for the Baylands Group people. The planner from Caltrans has risen the ranks and is now the director of environmental planning for District 4. The Highway 37 project staff at Solano Transportation Authority used to be junior staff and is now the director. The person at the Transportation Authority of Marin used to be junior staff and is now the transportation director. Then senior people ultimately retire and go work for the consulting firms.

Large dollar-value projects were symbols of career advancement and professional pride. A transportation engineer turned highway project manager described the arc of their career toward working on increasingly larger projects starting with local streetscape and bike infrastructure projects, then moving to highway operations and ultimately highway expansion projects:

I started with small projects – \$5, \$10, \$15 million projects. Then I guess I gained people’s trust. Now I’m tackling some of the big projects. If you sum them all, I’m managing about three-quarters of a billion dollars of projects. And I love what I do. It brings me a lot of pride.

Transportation consultants in the private industry – planners, modelers, engineers, public engagement specialists, et cetera – also make their living from contracts to consult on large capital projects like highway expansions. Representatives from academia, advocacy groups, and state agencies all commented on consultants’ financial interests being inextricably tied to a pipeline of complex and costly projects, using the Highway 37 and Interstate 710 expansion projects as examples. A DOT official discussed how much of the work in transportation planning and the transportation policy arena had been “outsourced” to private industry – “all those functions around policy, planning, and discernment” are conducted by consultants hired by public agencies, which

puts policy actors with a financial interest in planning, designing, and building large highway projects into central roles in the policy arena.

All those functions around policy, planning, and discernment – just general judgement – have been outsourced to consultants. Consultants want to keep working, so they want to tell you what people with money want to hear and make it work – they want to get to ‘yes’. It doesn’t help a consultant to kill a project that would pay them.

A DOT official discussed this dynamic of private industry perpetuating highway projects within the case of SR 37. Policy actors are focusing on the immediate congestion problem with the interim expansion project in the face of the highway’s medium-term obsolescence due to sea-level rise, but are likely worsening congestion and GHG emissions in the long-term because expanding the highway will induce more vehicle travel. Long-run return of congestion will be a problem to solve later, and “but that’s good if I’m a roadbuilder because it means they’ll be back for more contracts.” This relationship between private and public agencies in the highway policy arena creates a “moral hazard” and they likened this relationship to the military industrial complex, calling it the “highway industrial complex.”

The involvement of private consultants can be problematic in other ways. An interviewee mentioned the potential conflict of interest inherent to having private consultant teams estimating the cost of highway projects and employing private consultant teams to work on the projects:

[A consulting firm] developed the cost estimate for the Highway 37 expansion based on Caltrans’ concept. Why is the cost estimate so high? Consultants make that cost estimates a high as possible because they’re going to bid on it.

An NGO leader discussed consultants drawing out of the planning process for I-710, to the chagrin of advocates and stakeholders involved with the project. Advocates, stakeholders, and community members “wanted to reach closure in the process” because “the “goal for EJ advocates was not to prolong the project indefinitely, it was to have positive outcomes for the community.”

The Interstate 710 project team wanted to reach closure in the process to keep it moving along. The project team would get upset and annoyed with more process. The consultants would not get upset – they actually said they were happy with the process going along for another 6 months or year. Why would they want their contract to end? The consultants liked unfinished business and wanted to prolong the project.

The community had proposed a project alternative – Community Alternative 7 – that it wanted to move forward. “Delaying the process was delaying Community Alternative 7, and all the good things that were in it,” the NGO official said.

6.4.4. Building to Fill Gaps & Complete a Vision

A related motivation to build highway capacity projects was to complete the highway network as it was originally planned, and to fill the remaining “gaps” in that original vision, rather than to solve an identified problem. In 1957 the California legislature required the then-Division of Highways to create a statewide highway plan, and the result was the visionary 1959 *California Freeway System* plan (Brown 2002). This plan became the “*raison d'être*” for the Division of Highways in the following decades. Interviewees discussed the lingering effects of plans like this one on the imagination of highway expansion proponents – some of the current highway expansion projects aim to solve the problem that the original plan for a highway has yet to be “realized.” A state transportation representative discussed expansion projects planned on Highway 99 in the Central Valley that aim to “fill in the gaps and complete the system”:

You look at old documents, project books, and purpose and needs statements of these projects, and the ones outside of the most urbanized areas, something like the [State Route] 99, the purpose and need of the capacity expansion projects on the 99 are to fill in the gaps and complete the system. And so it's not even necessarily trying to solve a transportation problem. It's that there was a document, once upon a time, that envisioned this as an eight-lane corridor up and down the valley. And we're only at four lanes in parts and six at others. So we're not done. The post-World War II vision of that highway hasn't been realized.

And a proponent for Highway 99 expansion projects discussed it in precisely the same terms:

The Highway 99 corridor in Tulare County – there are a bunch of sections that go from two lanes to three lanes to two lanes. This project is a gap closure to build the highway as it was originally planned. It is a freight and safety proposition, to make it three lanes all the way through.

Interviewees discussed the philosophy of “gap closure” and “completing the system” more broadly. This philosophy uses a pipeline of projects borne of a significantly different era of transportation policy, technology, social values, environmental conditions, and fiscal circumstances. It “relies on experts from the 1950s – those experts aren’t even alive anymore!” exclaimed an MPO official. “It is using a playbook or fountain of knowledge from when some people started their careers, but that was very different time,” said another. A state agency official said this philosophy showed a lack of reflection within the transportation policy arena about the “pathways” it has taken, the purpose of the highway system, and “when we know we’re done”:

Highway capacity projects that are currently in the pipeline are a result of a one tool approach for every issue we’re solving. And I don’t think we’ve ever taken a step back and reflected on the pathways that we’ve taken since the 1950s and what the purpose of the system was, and when we know we’re done.

An MPO official discussed the challenge but necessity for the transportation field to reflect on its past plans, pathways, and analyses – the necessity of “having mental flexibility to reconceptualize a problem after you thought you knew what the answer was.” That mental flexibility is “core” to the new paradigm of transportation planning that integrates land use, social justice, and environmental goals, they said.

6.5 Freight & Goods Movement

Many interviewees discussed freight and goods movement as major problem that motivates many highway capacity projects. Planners, modelers, agency and elected officials, and transportation industry leaders explained the details of problems that impact and are caused by freight, and it was clear that freight and goods movement problems are inextricably linked with other policy problems like economic development, congestion, air quality, and traffic safety. Freight creates congestion on highway corridors that have large volumes of trucks that operate at lower speeds, and the majority of heavy-duty trucks have diesel engines that create air pollution problems for the surrounding communities. Heavy duty trucks also create safety problems on roadways. “Truck safety and crashes are big problems,” said a local transportation authority official. “Those collisions are almost always fatal.”

Every interviewee involved with Interstate 710 mentioned that it is one of the most important freight corridors in the country and that freight creates and experiences major problems. An MPO official stressed that “freight is a huge issue right now. All the challenges we’ve had with the supply chain and stuff not getting off ships and to all the warehouses in the Inland Empire.” A local transportation agency official said that “710 needs improvement – no one can deny that. Safety improvement, operational improvement...” The expansion element of the I-710 project was cancelled but interviewees grappled with how to address the problems impacting and created by freight. An academic noted that the status quo situation has deleterious pollution and health impacts on the frontline communities, but that the ports have billions of dollars of infrastructure invested in their facilities so “they’re not going anywhere.” There is “no good alternative from a community perspective” but planners needed to find the “least bad solution” to accommodate and manage the freight trucks and their externalities. An MPO official said that “it was the right decision not to expand 710, but they still have to deal with the goods movement problems.” They continued: “From

a planning and engineering standpoint, it was a good decision because the latent demand that would have refilled the highway as soon as the new capacity was built,” and discussed how it would be necessary find ways to manage freight traffic and add capacity to the transportation system “without pouring a cubic foot of concrete.”

Interviewees also mentioned freight issues driving the expansion of other highway corridors around the state. The draw for the High Desert Corridor in Southern California was in part “goods movement demand that wanted to get around the LA region,” said an MPO official. Congressman Garamendi stated that the addition of managed lanes to I-80 would “improve agricultural and manufactured goods movement to the Port of Oakland, Port of West Sacramento, the San Francisco Bay Area, and the greater Sacramento region” when he announced it had won an INFRA Grant.

Several transportation planning officials talked about how the freight industries have been successful at pushing their interests and attaining carve-outs in policies and plans that aim to reduce transportation GHG and air pollutant emissions. “Elected officials say we can’t curtail freight,” said a state agency official – “It’s an economic issue, and no one wants to limit the number of trucks on the road. Look at SB 375! The VMT targets are only for passenger vehicles. Heavy duty trucks are not the biggest source of GHG emissions, but they cause a ton of air pollution.” An MPO official also talked about the political popularity of projects to enhance freight and goods movement, alluding to a soft spot they hold for everyone except the residents who bear the burdens of their pollution: “Goods movement projects are like mother and apple pie – everyone loves them, except for the communities who have to live near them.” An academic commented that transportation policy actors need to consider the global scale of the freight policy arena and think about the problem and solutions in a commensurately large scale:

You're serving all of western North American through this corridor in Los Angeles. The Panama Canal allowing the passage of larger ships might route them to other ports that are closer to their final destinations. Should we maybe say that there shouldn't be as much cargo going through the Ports of LA and Long Beach? You'd really hit a nerve saying that.

6.6 Land Development

A fourth theme that emerged was the building and expansion of highways to spur or accommodate the development of adjacent land, what interviewees said was a major driver among policy actors from local governments and from the labor, trades, and building industry groups. This traces back to the concept of accessibility and travel speeds. Expanding highway capacity increases accessibility to those parcels by increasing auto mobility – vehicle speeds increases, at least for a while, which shortens travel times to these further-out areas (Handy 2005). Increased vehicle access to these areas makes them more attractive for development, as is demonstrated in the induced travel literature with increased highway capacity changing land use patterns in the long run (e.g., Cervero 2003).

This relationship between highway capacity and land development is no surprise to land developers, who advocate for highway expansion for the purpose of developing the land around the highways. Local governments have land use authority in California, so much of developers' advocacy is directed at local-level policy actors – city councilors and county supervisors – who in turn become advocates for highway expansion themselves. “A lot of the reason that these local governments are putting forward these capacity projects goes back to the political pressures of developers wanting to increase auto access so they can develop,” a DOT official explained.

Land development was a motivating factor in the SR 37 policy arena according to multiple interviewees. At the eastern end of the corridor, Solano County wanted to spur housing development and its local elected officials avidly pursued expanding SR 37 to facilitate that growth.

“Solano County and Vallejo have grand plans for their growth and housing units, and Highway 37 plays a role big time in realizing those growth goals,” explained a local transportation official.

“Solano County is a pro-growth county and one of the fastest growing counties in the Bay Area. It wants the revenue of growth. They need the highway infrastructure to do that,” said another local transportation official.

Policy actors familiar with the Sacramento region discussed what some called a “poster child” for a growth-inducing highway project, a new beltway through rural and exurban areas that would connect two suburban cities. The Capital Southeast Connector, as it is called, “is driven by the development community and the potential profits for the developers,” stated an NGO official. A state agency official described its proponents as “developers who want to build in the hinterlands.” A regional actor echoed this, that land developers are the primary proponents of the Connector and that they have successfully lobbied local elected officials with promises that the highway will increase their tax base – by spurring land development – and promises of financial resources:

The Southeast Connector is a new beltway proposed in the region. Its proponents are the big land developers in the southeast part of Sacramento County – the Cordova Hills, South of Highway 50 folks. They are extremely good at messaging to electeds. They say, ‘this will build your tax base, your residents will love you for reducing congestion, and here’s a big check for your reelection campaign.’ This coalition is very strong and very well-organized.

The probable land development impacts of the Southeast Connector are what have led other policy actors to advocate against it, or at least slowing it. The sprawl induced by highway expansion is a problem to some actors, such as the MPO and state agencies charged with SB 375 implementation. The MPO “slow walked” the development of the Southeast Connector in a few of its RTPs – it included segments of the highway at either end of the corridor but excluded the middle segment from the RTP. “The challenge with the Connector, and other bypasses proposed elsewhere in the region, is often not the facility itself, not even the VMT that it might induce in the short term. It is

the land use impact. A lot of it boils down to the land use impact,” said an MPO official. A modeler described the potential “impacts” from the sprawl induced by the Southeast Connector more bluntly: “It would blow up the MTP. And it would probably blow up air quality conformity.”

Policy actors also discussed the land development effects of highway expansion in the case of expanding I-80, but in a very different light. The I-80 corridor runs through some of the central areas of the Sacramento region, so development of land along some of its alignment would be considered infill growth at the regional scale. Thus the growth induced by expanding I-80 was not problematic for actors and institutions with VMT and GHG reduction goals. The MPO did not raise the same objections to the I-80 expansion project as it did to the Southeast Connector – in fact, the MPO is a funding partner for the I-80 project. Some of the adjacent land is protected wetland, which stymies development, and some of the adjacent jurisdictions – the City of Davis and unincorporated Yolo County – have tight growth restrictions, so policy actors anticipated that induced growth would be “mild” there. But policy actors discussed the desire to induce growth in areas like Davis and West Sacramento; the growth inducing impacts of expanding I-80 were embraced both by local elected officials and regional planners. “Actually West Sacramento has a drive to grow,” said an elected official, “It’s in their general plan that the area along I-80 is their urban core. And that’s where growth should happen.” Cities like Davis and West Sacramento are where the RTP plans for higher growth because at the regional level, they are considered infill areas. “As a region, we want to induce or direct growth to areas like Davis and West Sacramento. That growth is going to go somewhere in the region, and we don’t want it going to the Southeast Connector area.”

7 Why do Policy Actors Believe that Highway Expansions are the Solution?

7.1 Introduction & Research Questions

In previous chapters, I explored the “who” and the “what” of highway expansions. I mapped a network of the power players in highway policy arenas and investigated what problems impel influential policy actors to pursue highway capacity projects. This chapter explores the “why.” Why do policy actors believe that highway expansion will solve their problem? Why do they pursue highway expansions for problems such as congestion, goods movement, and air quality? What outcomes do they expect from highway expansion projects? The range of beliefs about outcomes helps reveal why some actors pursue and others highway expansions as solutions to policy problems.

Policy actors discussed several specific outcomes that they anticipated from highway expansions. Nearly every interviewee discussed expected outcomes for congestion, which was unsurprising as it was the policy problem that most policy actors discussed as the highest priority in highway policy arenas. Beliefs varied about the effect of expanding highway capacity on congestion problems, with policy actors discussing project location, characteristics, and timeframe as key factors in their thinking about outcomes.

Second, many policy actors had beliefs about the outcomes for VMT. All interviewees discussed induced VMT in some way – no interviewees were outright induced travel “deniers” – though interviewees discussed other policy actors who they perceived to be induced travel deniers. But many grappled with induced VMT and how its principles applied to particular projects. Beliefs about the nuance, estimation, and magnitude of induced travel differed significantly among policy actors,

as did beliefs about if and how to apply and prioritize information about induced travel. Beliefs about induced travel and the outcomes for VMT tied directly to the individual's beliefs about outcomes for congestion.

Third, policy actors had wildly divergent beliefs about the outcomes for environmental justice and transportation equity. These beliefs, too, depended on actors' beliefs around congestion relief and induced VMT. Some emphatically believed that highway expansion would improve environmental justice by reducing overall emissions of air pollutants and GHGs. Some believed that highway expansion would improve transportation equity by decreasing congested commutes for poor people priced out of unaffordable housing markets. Others emphatically believed the opposite, that highway expansion in communities already burdened with high levels of air pollution was “environmental racism” and that expanding highways between affordable housing markets and high-wage labor markets was tantamount to housing segregation.

And fourth, policy actors had strong opinions about displacement from highway projects. No policy actors were advocates of displacement per se, but some thought it was “atrocious” for people to live so close to highways. This belief propelled a rationale for giving people money to move away from highways, at least when funds were available as mitigation dollars when those highways were being expanded. Other policy actors discussed approach as de facto displacement.

7.2 Outcomes for Congestion

Nearly every policy actor who was involved with a highway expansion project had an opinion about what would happen with traffic congestion on the highway corridor and in some cases in the surrounding communities. Some believed that the highway expansion project they were involved in would reduce congestion. Other policy actors believed that highway expansion would reduce congestion but that any congestion relief would be short-lived.

Policy actors varied in the baseline or counterfactual to which they compared a highway expansion. Some believed that congestion on the highway would increase no matter what, even in a “no project” scenario. This shaped their beliefs about the outcome for long-term congestion and how they evaluated the benefits of the project.

Policy actors also varied in how they prioritized the short-term congestion relief created by highway capacity expansion compared to the project costs and the return of congested conditions in the medium- and long-term from induced VMT. To some, the short-term congestion relief was worth the cost of the project even if it only lasted for a few years, so they were supportive of expanding a highway even if the congestion relief would be short-lived. Long-run induced VMT was a lower-priority problem that they would solve later. The interim project in the SR 37 case demonstrated this short-term thinking and prioritization in highway decision making.

7.2.1. “Big alleviation in congestion”

Nearly everyone had an opinion or citation about how highway expansion would affect congestion outcomes. Some policy actors claimed that the highway expansion project they were involved with would reduce congestion, and some thought they would “reduce congestion significantly.” Elected officials from all levels of government, local transportation authority officials, and DOT district officials were especially optimistic about highway expansions leading to reduced congestion. These are also the policy actors who were most often identified as the drivers of highway expansion projects, as I described in Chapter 4.

Some interviewees offered their own beliefs about highway expansions reducing congestion. For example, a DOT official stated as fact their belief that the highway expansion project they were working on would bring about a “big alleviation in congestion” in the first five to ten years after the project. Elected officials also spoke about their own beliefs that the highway expansion they were

supporting would reduce congestion. Some interviewees spoke about others' beliefs about congestion outcomes. MPO officials often spoke about the congestion beliefs of their member jurisdictions, and some spoke about the congestion beliefs of the general public. For example, an MPO official said that "everyone thinks that expanding freeways will fix congestion," even though their personal beliefs drastically differed. Interviewee quotes about highway expansion projects reducing congestion are summarized in the table below.

Table 22. Congestion Reduction Quotes

| Policy Actor Category | Quote/Statement |
|---------------------------------------|--|
| Elected Officials | "I think it'll reduce congestion significantly..." |
| | "...federal grant funding for the proposed project will significantly reduce congestion on the freeway..." |
| | "...we can keep pushing and make sure that we do everything possible to get these projects in the ground and alleviate the congestion, for sure." |
| | "The options that we presented today, not only represent an opportunity to deliver congestion relief, reduced travel times and increased vehicle occupancy, which are incredibly needed..." |
| DOT Official | "This project will benefit the entire region by reducing congestion" |
| | "In the intermediate, the next five or ten years, there's going to be a big alleviation in congestion. We'll reduce cut-through traffic through local agencies and other stuff. It's going to reduce all that stuff significantly. It's not a silver bullet. It's not going to make peak hour level of service LOS A, but it's going to have major impacts on operations." |
| Interest group | "[This] project is an interim traffic congestion relief project with changes to improve traffic flow and peak travel times..." |
| Local Transportation Authority | "...traffic gridlock-easing highway construction projects ..." |
| | "This project will positively affect congestion." |
| MPO Officials | "This project will ease congestion..." |
| | "Congestion is the main goal of the Interstate 80 project. It would reduce congestion." |
| | "Some of our counties have one measure of success and it is congestion. Their one goal is stamping out congestion by building more capacity." |
| | "Who supports expanding freeways? Everyone who drives because everyone thinks that expanding freeways will fix congestion." |
| | "No project on I-710 South might slow down vehicle speeds." |

Some policy actors discussed the nuances of HOT lanes and toll lanes and their outcomes for congestion. They discussed how tolling the new highway capacity could allow for those lanes to be priced at a level to optimize vehicle speeds such that that the tolled lanes stay uncongested. Essentially, pricing is a strategy to manage demand on highways and can thus be used to reduce congestion. Some seemed to conflate the concepts of demand management and highway capacity expansion, and some operated with the assumption that only new highway capacity could be priced.

Policy actors in the I-80 case discussed several ways that tolling would affect congestion and lead to longer-lived congestion relief in the priced lanes. One mechanism was the pricing scheme itself – a dynamic price per mile that would optimize vehicle volumes and vehicle speeds. Another mechanism was allowing buses to travel in the tolled lanes, which would improve transit operations and transit travel times and hopefully induce would-be drivers to choose transit, thereby “tak[ing] cars off the roads.” The third mechanism was through investment of the toll revenues in VMT mitigation strategies, such as transit-oriented development, with the aim of attenuating VMT generation entirely. An elected official described these pathways that they believed would “reduce congestion significantly”:

I think the project will reduce congestion significantly because the dynamic managed lane will allow for moment-to-moment adjustments to respond to whatever congestion is at play. That’s one way. The idea if we can include facilities that are designed to enhance the operation of transit in the same corridor, then we can take cars off the roads. If we can use the pricing strategy revenues to invest in the development of neighborhoods near transit, then we can perhaps reduce the number of commuters that otherwise would’ve been on the highways.

An MPO official discussed a “package” of project elements for I-80 that they believed would reduce congestion that included new priced capacity, as well as strategies to manage auto travel demand like improved transit and bicycle facilities. “I’m mostly convinced that the capacity project is the right path [for I-80], but within certain constraints,” they said. Those constraints: “Price the additional

capacity, upgrade the bike access, give transit an advantage. The outcome of that package is that it would reduce congestion.”

Several policy actors discussed that pricing is essentially the most effective way to manage demand and thus reduce congestion. One interviewee referenced the travel demand modeling that had been done for the I-80 project, which showed that an untolled carpool lane “fails on opening day.” But “if you do a HOT lane, you can sort of manage congestion so that it works, right?” A local actor was more certain, stating that “HOT lanes are, frankly, a more effective form of congestion relief.” An MPO official was vehement in their beliefs about pricing highways, and how pricing – “politically unpopular but ... necessary” – could provide the congestion reduction benefits that had long been sought by expanding highways “without pouring a cubic foot of concrete”:

From my perspective, the era of expanding highways is over. But we are going to need to add capacity to our transportation system. Anyone who says that we can stop expanding highways but not add capacity to our system is fooling you. We can add a substantial amount of capacity to the transportation system without pouring a cubic foot of concrete and that is through pricing. Pricing is politically unpopular but it is necessary. You can have the best transportation system in the world but if it is not priced right, it will fail.

7.2.2. “Highway expansion might reduce congestion, but it would be short-lived.”

Many interviewees were emphatic that any reductions in congestion would be short lived. They said that highway expansion projects would perhaps ease congestion initially but that congestion would return in the medium or long term, in five or ten years. Many of these policy actors referenced the academic literature about VMT being induced in part by the initial decrease in congestion and commensurate increase in travel speeds, drawing on scientific evidence to inform their beliefs.

The majority of these policy actors made comments to the tune of “we can’t build our way out of congestion.” Most were not proponents for highway expansion to address congestion problems,

and some were not proponents of highway expansion at all. But interestingly, even some of the interviewees who believed that a particular highway expansion project would reduce congestion also made some type of comment that “we cannot build our way out of congestion.” Or, interviewees at least indicated that they were aware of this line of thinking, even if they did not believe that it applied to their relevant highway expansion project. An MPO official presented this line of thinking about the I-80 expansion project. They said that the project would reduce congestion, at least in the new lanes if they were indeed tolled, but also believed that “congestion is not solvable” by “doubling down on cars.” A summary of these quotes is in the table below.

Table 23. “We Can’t Build Our Way Out of Congestion” Quotes

| Policy Actor Category | Quote/Statement |
|---------------------------------------|---|
| Elected Official | “This idea of you can’t build your way out of traffic congestion. I think we all accept that on some level, but when you have something as broken as Interstate 80 is right now, we’re not talking about even trying to build enough lanes...” |
| NGO | “I don’t advocate that we should be expanding our way out of congestion. We’re not going to be solving congestion with more and more lane miles.” |
| MPO | “We’re not going to build our way out of congestion. We don’t need to build our highways for when everyone’s on the road at the same time. Like how we shouldn’t build parking lots for the week before Christmas.” |
| | “Congestion is not solvable. I think the “solution” to congestion is just more options. I don’t think you solve congestion by doubling down on cars and capacity. I don’t think it’s possible. I think it’s fleeting. Even when it’s the right decision, it’s still temporary.” |
| | “It’s a known fact that you can never get rid of congestion. You can manage it. But you can’t get rid of it.” |
| | “The people who support expanding 710 are the people who don’t believe in climate change. They believe we can build our way out of congestion.” |
| Local Transportation Authority | “People are beginning to realize that we can’t build our way out of congestion. That we need other ways to increase person throughput without expanding our highways.” |
| | “We’re not actually going to solve congestion by widening our highways.” “As planners, I think we understand that you can’t actually solve congestion, and the last 70 years have shown us that, right? That you can’t build your way out of congestion.” |

7.2.3. “You can’t actually solve congestion.”

Some of these interviewees took the idea of congestion being unsolvable with highway capacity a step further, saying that congestion was essentially not solvable at all. There are solutions to congestion, but congestion cannot be eliminated, they said. As an MPO official put it: “It’s a known fact that you can never get rid of congestion. You can manage it. But you can’t get rid of it.” These interviewees discussed that the de facto “solution” to congestion is to give people more transportation options to avoid it. “The ‘solution’ to congestion is just more options,” said one MPO official. “If we invest properly in things like rail and active modes, then people have choices that allows them to avoid congestion. If we have choices, congestion becomes irrelevant,” said another MPO official. A local transportation actor concurred:

As planners, I think we understand that you can’t actually solve congestion, and the last 70 years have shown us that. That you can’t build your way out of congestion. I think that solving congestion, I mean... We have to give people options, but hopefully the options that we’re giving them are broader than the options we’ve given them in the past. You can sort of solve the ‘congestion problem’ by giving people a way to avoid it. If they have options.

They also stressed the importance of housing options and housing affordability being in the conversation about transportation options and congestion management, because residential location shapes the transportation options that a person has. That is, they believed that solutions and outcomes for congestion were inextricably linked and dependent on affordable housing options:

I don’t think that we can separate the idea of solving congestion from the housing affordability conversation. Because as long as we are banishing poor people to exurban areas with poor transit, then we can’t ignore the social equity implications of doubling down on the BART system, which is increasingly just serving affluent elite who have the option of living in the Bay Area. And not investing in options for people who now cannot afford to live in the Bay, but still have to work there.

7.2.4. “Congestion will get even worse if we don’t expand the highway.”

Another set of beliefs around congestion outcomes was related to the counterfactual question: what would happen with congestion if there was no highway expansion project? The policy actors who raised this theme generally thought that vehicle volumes would increase over the long term regardless of the expansion project and, *ceteris paribus*, congestion would inevitably worsen on the highway. This was anticipated to be the case in the I-80, I-710, and SR 37 cases. The policy actors who launched and were involved with the I-710 project used precisely this rationale – the ports were planning to increase cargo volume and freight traffic on I-710 was forecasted to increase. The EIR/EIS for the I-710 Corridor Project described that “increases in population, employment, and goods movement between now and 2035 will lead to more traffic on the I-710 freeway and on the streets and roadways within the Study Area as a whole.” Models showed that the congestion problem would inevitably worsen, so expanding the highway provided policy actors with a solution that they believed would at least attenuate the worsening congestion problem.

This rationale was also used by policy actors in the I-80 policy arena, though the sources of the future increased vehicle volumes were ambiguous. Policy actors pointed to travel demand models indicating increased vehicle volumes and congestion, but not what factors – population growth, employment growth, freight, longer trips – were driving the increased travel demand. A DOT official explained what they anticipated would happen with congestion on the I-80 corridor – first a “big alleviation in congestion” as a result of the expansion project, but that we “both know that traffic is going to increase” in 10 years, and “as traffic volumes increase, so will traffic congestion.” But they viewed the increase in vehicles volumes to be an exogenous factor to the expanded highway capacity – “it’s not that if we constrain it to three lanes, traffic is *not* going to increase.” Congestion would be “exacerbated” over the next 10 years by forces external to the expansion

project, they thought, and expanding the highway may provide “some alleviation” from this seemingly inevitable problem.

In the intermediate, the next 5 or 10 years, there’s going to be a big alleviation in congestion. We’ll reduce cut-through traffic through local agencies. In 10 years, as a person of operations, you and I both know that traffic is going to increase. As traffic volumes increase, so will traffic congestion. So it’s not that if we constrain it to three lanes, traffic is *not* going to increase. If we don’t do the project in the next 10 years, the congestion is just going to exacerbate. If we do the project, we may have some alleviation.

A local transportation agency official discussed this rationale in more detail. They posed the counterfactual question – “congestion might rebound to where it was, but what happens if you don’t do anything?” – and explained the benefits they perceived from the highway expansion project even if congestion returned to pre-project levels. They alluded to the concept of latent travel demand – unexpressed or unrealized demand for travel – and that that latent demand seemingly must go somewhere, and transportation planners would need to accommodate it. They also discussed that even if increased vehicle volumes returned the highway to pre-project congestion levels, the expanded capacity would provide a net benefit because “more people [are] getting a better level of service or travel time than they would have if we did no capacity expansion.” That is, drivers today deal with congestion, and expanding the highway would allow more drivers to deal with the same level of congestion in the future – a net win, in their evaluation, but not without “externalities that we want to avoid”:

I think that what sometimes does get missed in that conversation is that, yes, congestion might rebound to where it was, but what happens if you don’t do anything? Where does that demand go, right? And then how do you accommodate the demand for that travel? So congestion might eventually be the same as where it was, but you’re having more people getting a better level of service or travel time than they would have if we did no capacity expansion, all other factors being equal, not thinking about induced demand during other times of the day and all the other pieces that we know are sort of externalities that we want to avoid.

A city transportation official summed up the perceived benefits of this rationale simply. “The reality is you do get that short-term relief, plus what would’ve happened to the corridor if you didn’t do anything?” they asked.

7.2.5. “The short-term congestion relief is worth it.”

Finally, a key theme was about policy actors’ priorities of short- versus long-term outcomes, and particularly the prioritization of short-term congestion relief. It is not so much that highway expansions are proposed by policy actors who believe that they will have long-term congestion benefits, interviewees said – rather, the proponents of highway expansions are more often policy actors who understand that the congestion benefits will be short-lived but believe that expanding highways is worth it for the short-term congestion relief.

Many interviewees brought up the SR 37 interim project as the ideal case study to illustrate the prioritization of short-term outcomes in the highway policy arena. Because the Highway 37 corridor is estimated to be not just re-congested but physically underwater due to sea-level rise by 2040, this case sidesteps debates about the appropriate counterfactual and quibbles about the magnitude of the induced travel effect. This case shows that even though the highway will be underwater in less than 20 years, actors see the investment as justified by what they believe will be the near-term reduction in congestion. A state agency representative emphasized that this this degree of prioritization of near-term outcomes is very different than how some characterize the decision-making process around highway expansion projects. Decisions to expand highways are often driven by short-term priorities and outcomes. they said, not by disbelief or lack of understanding of the research and information about induced travel. They recounted that policy actors driving the interim expansion project on SR 37 contended that short-term solutions were urgent, necessary, and worth the cost of

the project, and that permanent inundation by 2040 was a long-term problem that they would deal with separately:

If you follow Highway 37, the interim project to solve congestion is going to be underwater in 10 years. Project proponents say, 'We need congestion relief now.' There's work towards pricing it and whatnot, but they say 'We need widening today, even if it's going to be underwater in 2040, and we'll deal with a long-term solution then. We'll work on a long-term solution, but this congestion can't last.' That leads to discounting of induced travel, because it doesn't have to be about belief or not belief in it. If you still think that the short-term congestion relief is worth the cost of the project, then that's a whole other set of problems – but yes, 'I'm willing to spend millions of dollars for just a few years of relief on this corridor, because we *don't* have the alternatives, and people *are* sitting in their cars, and we need to do something about that.' Local agencies are focused on, 'What do I need to do right now?' And it shuts the door for that long-term conversation."

This decision-making calculus of "we'll work on a long-term solution, but this congestion can't last" leads policy actors to discount long-term outcomes, a state official said. They discount not just induced travel and the return of congestion in the long run, but even the decommissioning of the entire highway corridor after an estimated 10 years of use. With this calculus "the short-term congestion relief is worth the cost of the project," which is "a whole other set of problems," they said. "Local agencies are focused on, 'What do I need to do right now?'" such that long-term outcomes are just not salient in the highway policy arena. Another interviewee echoed how short-term outcomes around congestion relief on SR 37 seemingly provided enough motivation for the highway expansion project that policy actors and the general public were willing to spend \$400 million on it, despite the fact that it has a particularly short useful life. "What a boondoggle," they exclaimed:

That short-term motivation is strong enough that people seem to not care about these bigger dynamics. Or just think it's so out of the control of transportation, that there isn't another option. And so it's, "well, we did the best we could." Even

though we know that the outcomes that we're driving towards are going to be very short-term. State Route 37 is probably a perfect example of this. What a boondoggle to spend \$400 million on a project that best case scenario is going to be open for 10 years until it's underwater half the year. It already floods. It floods today. And it's going to take 10 years to build the Interim Project, and then in 10 more years it's going to be underwater all the time, probably.

Actors discussed other examples of short-term outcomes taking priority over the long-term vision of reducing environmental and social impacts of the transportation sector. Some emphasized that among some policy actors, prioritizing short-term outcomes comes from a drive to meet “concrete needs” for people facing “real problems,” not from a lack of care about long-term outcomes. “People are coming from a place of real problems – perceived lack of investment, lack of jobs, unmaintained infrastructure – and people don't have options,” a state agency official argued. “They have to deal with stuff in life and have to go sit in a traffic jam to do so. You can try to talk to them about induced travel, and housing densities, and colocation of destinations, but they just need to get around their lives. They don't have other options.” And because local officials have so few policy levers that they can directly use to deliver solutions for their constituents, they said, local policy actors focus on transportation projects like highway expansions to deliver congestion relief, even if it is short-lived.

7.3 Outcomes for VMT and Induced Travel

In an interview with a local radio journalist, Hasan Ikhata, the director of the San Diego Association of Governments and former the director of SCAG, was asked point blank if he believes that widening freeways reduces congestion (Bowen 2023). His response: “No. Maybe for a while,

but latent demand will kick in. I don't think we're going to solve all our problems by keep widening our freeways. Period.”

In that response Ikhata is drawing on the empirically observed phenomenon of induced travel, discussed in Chapter 1, in which expanding highway capacity leads to faster vehicle speeds and reduced travel times in the short-term (“for a while”) and spatial redistribution of homes, jobs, and land development in the medium- and long-term. These in turn lead to increased vehicle travel in the medium- and long-term (e.g., Cervero 2003, Duranton and Turner 2011). That is, the increased supply of highway capacity allows latent demand for vehicle travel to materialize into actual vehicle travel. When this latent demand “kicks in” and induces new vehicle travel, the increased vehicle travel “counteracts the effectiveness of highway capacity expansion as a strategy for reducing traffic congestion” within 5 to 10 years (Handy 2015). So no, Ikhata opined – we will not solve congestion problems by widening freeways because widening freeways induced VMT.

Nearly all interviewees discussed induced travel and various parts of its causal chain described above. Interviewees varied in their understanding of induced travel, as well as in their interpretation about how the laws of induced travel applied to a particular project. This led to heterogeneity of beliefs about induced travel, particularly around toll and high-occupancy toll (HOT) lanes. Policy actors also discussed their perception of *others'* understanding and application of induced travel, particularly others who they perceived to be “induced travel deniers.”

Policy actors' beliefs about VMT and induced travel were related to their beliefs about congestion outcomes. Policy actors who believed that highway expansions would fix congestion problems generally did not expect that a particular highway expansion project would induce VMT, by virtue of its location or characteristics. This was particularly the case for the addition of toll and HOT lanes. Some policy actors believed that induced travel would materialize in accordance with empirical evidence – those actors were dubious that highway expansion would reduce congestion in

the long run. Others still recognized that reducing congestion would induce VMT but only some policy actors considered that to be a dissuading factor for highway expansion. In some cases, policy actors described the benefits of induced travel in a certain corridor or area – that is, for some players induced travel was a feature and not a bug. This was particularly the case with the growth-inducing effects of expanding highway capacity.

I discuss these diverging beliefs about induced travel and outcomes for VMT in turn, though some interviewees were incredulous that there was still any discussion to be had about highway expansions inducing VMT: “I can’t believe we’re still arguing about induced travel! This was a conversation when I was grad student,” exclaimed a professor emeritus.

7.3.1. What will happen with VMT?

Some policy actors spoke with certainty that VMT would increase as a result of highway expansion. These actors generally based their beliefs on the scientific research about the elasticity of travel demand and induced travel. Other policy actors spoke about potential changes in VMT on a case-to-case basis, often saying that they could not speculate about outcomes for particular project or expansion projects generally without conducting or seeing analysis. These actors usually based their beliefs on information from travel demand modeling and analysis.

In the first camp were often policy actors from state agencies, some MPOs, academics, and some NGOs. A regional actor asserted that “there is no such thing as a highway expansion that is part of reducing VMT as a regional package.” A DOT player discussed a congested corridor that a district wanted to expand with carpool lanes – “which is going to do nothing other than add a lot more traffic.” Very few policy actors involved with the I-710 project discussed VMT outcomes, but some did mention that the project was cancelled in part because it did not align with state policy goals to reduce VMT. That is, the expanded general-purpose capacity would increase VMT. Many of

these interviewees spoke implicitly about highway expansion projects increasing VMT, rather than discussing the VMT outcomes directly. They went directly to discussion about the extent of VMT mitigation that would be required for a highway expansion project, or the strategies that were being discussed to mitigate VMT from the project, or about the climate change impacts that highway expansion projects would generate. To this camp, the increase in VMT stemming from highway expansions was treated a given.

In the other camp – actors who debated the potential changes in VMT from individual highway expansion projects – were primarily local agency, MPO, and DOT district officials. They often cited travel demand model results. An MPO official, for example, stated that “the Interstate 80 project will increase VMT ... We tested it with our travel demand model.” An MPO official thought that if the expansion project on I-80 was an unpriced HOV lane, then VMT would increase on the highway corridor but that there would likely be a corresponding decrease in VMT on parallel corridors. That is, the adding of unpriced highway capacity would impel drivers to reroute onto the interstate instead of taking side streets to avoid the congestion on the highway. They would be “speculating” about the overall change in VMT, though – the decrease in VMT on parallel routes could offset the increase in VMT on the highway itself, they thought. A local transportation agency representative noted that the outcomes for VMT and congestion created a challenge of priorities: “Even though you’re reducing congestion, that might actually mean you increase VMT,” a local agency representative said, noting that this creates “an odd confluence of priorities here – do you want to reduce congestion, or do you want to reduce VMT?”

Some policy actors thought that any changes in VMT from highway expansion would be marginal, if at all, and some thought that highway expansion would decrease VMT. Almost all of these policy actors based their beliefs on forecasts from travel demand forecasting models. A DOT district official discussed modeling results for a highway expansion and said that “the regional model

showed that we are actually reducing VMT, because we are eliminating cut-through traffic and all the diverted trips.” These actors believed that highway capacity projects could in fact be part of a regional package of transportation projects that reduced VMT. They looked to other transportation policy strategies, such as pricing, to achieve VMT reduction outcomes rather than limiting highway expansion. “Is stopping highway system expansion going to be our solution for VMT reduction? I don’t think so,” an MPO official said, “Our numbers and modeling don’t bear that out.” Another regional actor discussed further:

The actual VMT impact of highway expansions is so minimal because the highway system is so extensive already. Adding a marginal number of lanes here won’t tip the scales in nearly the same way as, say, a pricing policy. When SCAG models the impacts of the highway expansion projects, their effect on VMT is so minimal. So SCAG put its political and organizational might behind pricing as a VMT reduction strategy.

Finally, some policy actors were ambivalent about using VMT as a measure of outcomes and some relatively influential policy actors were adamant that VMT should not be a measure of project outcomes at all. An MPO official thought that VMT as a performance measure obfuscated the transportation planning process, and made it unnecessarily ambiguous. VMT was too “ethereal,” too far removed from material outcomes like land use patterns and transit service, and required technical methods that many transportation planners do not even understand:

All these inputs and model assumptions and off-model adjustments to come up with a plan that meets a particular performance metric. That performance metric is not even very good for this region because it’s only passenger VMT. It’s a super complicated process that’s run through a model that nobody understands and impossible to talk about in a way that anyone understands. We should plan for the outcomes we want rather than plan to meet these ethereal targets like VMT. Outcomes should focus way more on land use and growth patterns.

An elected official said that they had heard “smart people start to question” VMT as the primary performance measure of import. “It is a measure, but is it the best measure?”

I'm hearing smart people start to question worship at the idol of VMT. It is a measure, but is it the best measure? You want to have a balanced scorecard, not a single measure, so what is it we're looking for? If we have VMT increase, but we have greenhouse gas emission reduction because of greater efficiency of the vehicles, then that might be an interesting thing to look at.

Policy actors from the building industry had even stronger views about VMT as a performance measure. The Building Industry Association of Southern California created an advocacy video in 2020 that equated measuring VMT to a car tax, saying that “VMT is not the way” (BIASC 2020). It told viewers that measuring VMT would turn an uncongested drive on Highway 101 in Marin County into a light rail ride through the high rises of a central city, using imagery of Tokyo (BIASC 2020). In 2020 a coalition of building industry and business organizations opposed implementation of the already-passed state law that required transportation and land development projects to measure and mitigate any increases in VMT. Their rationale rested in on the global pandemic in 2020, but also because they were “concerned that the new VMT requirements will add significant cost, complexity, and liability to construction projects” and that it was likely that “much-needed housing and roadway projects will be the most impacted” (Labros et al. 2020). A state agency representative talked about recent policymaking and institutional efforts in California that seek to reduce VMT, and how some building industry groups see VMT as a new “bogeyman” in California policy. This sort of fundamental shift in the transportation policy arena, to outcome-based decision-making aiming to decrease auto dependence and climate impacts, is in fact “viewed as scary” to many people. Those people include powerful actors in the legislature as well as among the public, and do not necessarily follow party lines. It is seen as threatening to how the building industry has done business, the influence that they have traditionally had in local politics, and to the idealized suburban lifestyle that became nearly synonymous with California, several interviewees discussed. “It’s not small change. It’s like the bogeyman, moving to this kind of future.”

7.3.2. What will happen with induced travel?

Some policy actors were certain that highway expansion projects would induce travel. These actors generally based their beliefs on the theoretical and empirical research about the elasticity of travel demand and induced travel and talked through the economics or various causal pathways of induced travel. Interviewee quotes about highway expansion projects inducing travel are summarized in the table below.

Table 24. Induced Travel Reduction Quotes

| Policy Actor Category | Quote/Statement |
|---------------------------------------|--|
| DOT Official | Capacity by itself is not an effective solution to congestion. That's been proven. Any spare capacity will be utilized. |
| | LA Metro has a large, diverse portfolio of transportation projects that includes lots of transit and bike and pedestrian projects. But that portfolio also has a lot of highway capacity projects that will induce travel. |
| | Planning done by Caltrans districts was done with Highway Concept Reports, historically. The goal of those reports were to increase LOS, but obviously that has just induced travel. |
| Consultants | At a regional scale, induced travel is largely about accessibility. You're going to get land use growth in the areas with new access. |
| Local Transportation Authority | Additional highway lanes are not going to address congestion in the meta sense. As we know, induced travel. We're not actually going to solve congestion by widening our highways. |
| MPO Officials | The no-build decision for 710 was as political as it gets. But from a planning and engineering standpoint, it is a good decision because of the latent travel demand that would have refilled the highway as soon as the new capacity was built. |
| | Clearly the Causeway project is demand inducing. It's demand inducing for the entire Bay Area to the rest of the country. SACOG is just in the way. The reason the causeway has congestion at all times is because there are too many demand markets in that one little stretch of road. |
| NGO | If new highway capacity induces more travel, then you might have just as many idling cars in a few years and the air quality will still be bad. We saw that with the Sepulveda Pass on I-405. It was a huge expansion project and traffic was immediately worse than it was before. |

These actors who discussed induced travel through a lens of travel behavior also generally talked about the effects of induced travel from not just the traditional example of adding a general-purpose lane-mile to the mainline of a highway, but also about how other types of capacity and transportation projects that improve travel speeds, times, comfort, or impedance can have travel inducing effects. “If you get the operations worked out, you actually facilitate more driving,” said a DOT official. Interviewees especially emphasized the travel inducing effects of priced lanes. A state official explained:

They want to use tolling to mitigate induced VMT, but that’s not really going to work behaviorally. Pricing lanes for operations and revenue generation will actually induce more VMT because it speeds up traffic and thus decreases travel times.

A DOT actor weighed in:

If we add a priced lane, the induced travel effect could actually be greater because it will have free-flow conditions. So you may have even higher throughput than you do on general-purpose lanes.

A consultant added detail about the price of tolled lanes:

Tolling and pricing has some effect on people’s choices, but toll prices have to be a lot higher than they are. Tolls are rarely set at a price for VMT management. Prices are usually to optimize operations.

Other policy actors were uncertain about the induced travel effects of highway expansion, at least on a project level. A DOT district official expressed beliefs that they should not expand highways that would facilitate longer commutes, as that would induce VMT, but offered other reasons for highway travel that they believed should be considered as valid reasons to expand highways, such as evacuation and goods movement.

The district is very aware that they shouldn’t widen highways that will facilitate commute trips. That will lead to people moving further out of town, absolutely.

But there are other reasons for highway travel, too – tourism, evacuation routes, goods movement, et cetera. Those are key safety and equity concerns.

Several policy actors who were dubious of the induced travel effects of highway expansion all asked a version of the same question: “Are we inducing travel or accommodating travel?” One interviewee recalled a conversation with the then-director of Caltrans in the mid-2010s in which the director asserted that “we don’t induce travel, we accommodate it.” A DOT actor brought this up about a rural goods movement route:

There is a state highway that is a truck route from the coast to I-5 in the Central Valley. It goes through a very rural rangeland area. There is a four-mile section where it is not four lanes – it’s the hilliest segment and people get stuck behind trucks, causing safety problems. If we expand that section, are we inducing travel or accommodating travel?

A state actor discussed how this argument is used in communities with heavy truck traffic and warehouse facilities:

Areas in the Inland Empire have truck traffic impacting local communities, where trucks are siphoning off the freeways onto local streets. And in some cases it is because the interchanges are not well suited for goods movement trucks, so they take an earlier one. And in some cases it is because warehouses are popping up all over. And transportation authorities say that they cannot control where warehouses open – land use is the city’s or county’s jurisdiction – so they just need to accommodate the truck traffic.

A DOT player discussed how the recent implementation of statewide policy, SB 743, had brought about discussion and a better understanding of induced travel within Caltrans. Actors from within the DOT working on SB 743 implementation had fairly successfully “dispelled the belief” among Caltrans staff that adding highway lanes solves congestion, at least in the simple case of adding a lane to a congested freeway in an urban area. What was still less understood, they said, is the induced travel effect from other forms of capacity expansions that are less clear-cut than the tradition general-purpose lane added to the mainline of an urban highway. DOT staff are still

grappling with understanding the induced travel effects from projects that add tolled capacity, auxiliary lanes, interchanges, turn lanes, on- or off-ramps, et cetera. They also grapple with projects in non-urban contexts, they said. For example, DOT staff have not yet understood the travel inducing effects of projects in rural areas, safety projects, or truck lanes (Deakin et al. 2020).

Many interviewees discussed the public's perception of and beliefs about induced travel, and most assumed that the general public did not understand or perhaps even care about the induced travel from highway expansions. They propose that this lack of understanding leads to the public and constituents pushing their elected officials and local transportation agencies for highway expansion projects to reduce congestion. As DOT player said,

One reason these local governments are putting forward these capacity projects is random people feeling like they're stuck in traffic, and one of the problems I think we face is that the bad answer is easy to see, that widening the road is easy to understand. The rebound effect might take a while and not be so obvious. And it doesn't take that long to explain induced travel, but it's not as easy to explain as widening a road.

An MPO official asserted:

Who supports expanding freeways? Everyone who drives because everyone thinks that expanding freeways will fix congestion.

An NGO representative hypothesized:

The public doesn't spend their day thinking about this stuff. If you're talking to someone who's just trying to get home or trying to get to work or trying to get their kids or whatever, and they're stuck in traffic on the freeway and you read that Metro is trying to add capacity to the freeway, I think the average person would say, "Great. I want to get home sooner. I want to pick up my kids sooner, et cetera."

7.3.3. Induced Travel Coming in HOT Lanes

The greatest difference in opinions about induced travel was around the travel inducing effects of priced lanes. Multiple interviewees discussed that some policy actors believe that toll and HOT lanes produce distinctly different outcomes than general purpose lanes. Policy actors see tolled lanes as “exceptional,” they said, believing that they will increase transportation options and will not induce VMT despite research that “tells us precisely the opposite.” One noted a significant “progressive selling point” around priced lanes as an effective tool for minimizing induced travel. The exceptionalism of HOT lanes is “sold” both to and by elected officials, said an academic:

I've heard from so many people, 'You know, we're giving people choices by building HOT lanes.' They have a whole line about how HOT lanes are good and won't induce travel. And I say, 'Okay great, so the people who are already in carpools will move into the HOT lanes and open up new capacity in the general purpose lanes, right?' And they start to get fussy and flustered. They ask where I'm going with this. It really happens a lot with HOT lanes. It's because they've sold them as exceptionalism. For some reason charging a price to use the highway makes it exceptional, even though economics and behavioral science tells us precisely the opposite. Sometimes it's sold to elected officials, and sometimes it's sold by elected officials.

Indeed, an elected official involved with the Yolo 80 Managed Lanes Project made a very similar argument about the addition of HOT lanes to I-80. HOT lanes would be “something different in kind, not scale,” they said, and would elicit different travel behaviors than general purpose lanes. Thus they did not anticipate the induced travel effects that researchers had observed when highway capacity had been increased elsewhere. And they discussed their optimism regarding the outcomes for VMT, congestion and air quality:

I know you're probably having conversations with people about how if you add lanes, you just simply increase throughput and that means that you encourage development in sprawling places. The idea that you can't build your way out of congestion. I think we all accept that on some level, but when you've got something as broken as Interstate 80 is right now, we're not talking about even trying to build enough lanes. What point would that be? We don't want to build to

build twice as many lanes that people just drive on the same way as they have. We want to have something different in kind, not scale.

They continued...

[What happens with VMT] is a matter of what you compare it to, because if we compare it to current conditions, that's one thing. If the baseline is what we can expect 10 years from now, then I think it would be more interesting and probably more relevant. I think that the idea of using our facility better might mean that there's a short-term increase in VMT. That could happen, but is that... I truly don't think that in the five to 10 year and longer horizon, that it's going to see an increase in VMT because I think that what is going to happen is that the facility will encourage greater efficiency of mode use and lower numbers of single-occupancy vehicles.

A DOT official discussed that this notion of priced lanes as an exception to the rules of induced travel is also pervasive among Caltrans and Caltrans district staff:

We looked at the induced travel research that measured general purpose and HOV lanes. It was very easy for people to just be dismissive and say, 'Oh, well that just doesn't apply if we price it.' So we think priced lanes are better, and we just make broad assumptions about what 'better' means. I don't think there is a lot of sophistication in how people really understand *how* adding a priced lane is going to function better.

They noted that this line of thinking was the opposite of what travel behavior theory would conclude: "If we're adding a priced lane then the induced travel effect actually could be greater, because you're going to price it to have free-flow conditions. So you might actually have even higher throughput than you do on your general purpose lanes." A DOT official put it simply: "When you get the operations worked out, you actually facilitate more driving." They explained the travel behavior theory that supported their proposition: "Pricing lanes to optimize operations will actually induce more VMT because it speeds up traffic and thus decreases travel times."

A local agency official talked about the results of the modeling and analysis that had been conducted for the I-80 project. The model results indicated that the pricing component of a HOT

lane would result in better outcomes for congestion when compared to an untolled carpool lane, the latter of which “fails on opening day.” With HOT lanes, however, the pricing scheme would alleviate congestion but increase VMT. This scenario created a dilemma for highway proponents who are aiming to reduce congestion but also need to analyze and mitigate induced VMT for the project’s environmental review process. The project scenario that performed the best for both congestion and VMT included two HOT lanes in each direction, which they believed would induce more carpooling and attenuate the induced travel effect. But this scenario would be a “tough nut to crack” because it would require the unprecedented conversion of a general-purpose lane to a toll lane, which has never been done in California. This policy actor thought it was unlikely that the local and regional agencies would have the political “fortitude to push that hard at the state level” to convert general purpose lanes to HOT lanes, despite its better performance for VMT and congestion.

A regional agency player also discussed the travel demand modeling results of adding HOT lanes to I-80, agreeing that the new tolled lanes would increase VMT. But they believed that the increased VMT would be due to drivers taking a longer route to avoid the toll, not due to operational improvements generating new vehicle trips and the rearrangement of land uses. They said this rerouting effect was true of any tolled lane project they modeled where there was a parallel untolled route:

The Interstate 80 project will increase VMT. If it’s priced, I think VMT will increase because people... Well, we tested it with our travel demand model. We priced it and we tested it. What we found is that a likely response is that people will drive around it. They will take alternative paths even if that adds VMT. That was universally true of any project where we priced a lane and there was a free option – people took an alternative route to avoid the toll.

A DOT official discussed the travel demand modeling results of adding HOT lanes to I-80. They said that the travel demand model results showed that the project would in fact reduce VMT, because drivers who were currently using side streets or a less-congested but much longer parallel route would re-route onto I-80. “The regional model showed that we are actually reducing VMT, because we are eliminating cut-through traffic and all the diverted trips,” they told me. But they also analyzed the I-80 project with the NCST Induced Travel Calculator, which is an online tool based on the empirical induced travel research – “it showed that we would be increasing VMT by around half a million VMT per day.” Which VMT estimate did they trust? “I have a lot more respect for SACOG’s regional model. It is a very sophisticated model.” However, the DOT was still looking for VMT mitigation measures and strategies for the environmental review process of the highway expansion project. Ostensibly, other influential actors did not trust the analysis showing that the highway expansion would reduce VMT.

Finally, a transportation expert also discussed the travel modeling analysis of HOT lanes on I-80. They discussed the various modeling approaches and scenarios that had been used to analyze the project, including scenarios to estimate long-term changes in VMT that included land use changes and used dynamic traffic assignment. Caltrans rejected these scenarios that showed long-term increases in VMT in favor of scenarios that used static traffic assignment, which showed that VMT would decrease with the highway expansion project because people would re-route off of a longer, parallel route through Woodland and back onto I-80. Caltrans “liked” the model run using static assignment because it gave quantitative support for the expansion project. Comparisons of dynamic versus static assignment are well-documented in academic literature – generally, static assignment fails to account for the tendency of people to change their departure time as a result of travel time. But in reality, “way more people would change their departure time before they would go all the way around through Woodland.”

7.3.4. Induced Travel Denial

Interviewees discussed the various contours of induced travel denial, in which policy actors deny the existence of the induced travel effect or stir up doubt about the magnitude or application of its effects in ways that often contradict the scientific consensus. Interviewees said that the induced travel dialogue in California's transportation policy arena varied by region and by community within regions.

Ideas about induced travel are different in different parts of the region. In places like Orange County where the land use is mostly built out, they get it about induced travel. But in places on the urban fringes where there is still physical space to develop – they say they need highway capacity to meet their mobility goals.

Most, but not all, were past the stage of denying the occurrence of induced travel outright. But while outright denial had subsided in recent years, other forms of denial had emerged. Some discussed how the stages of induced travel denial had striking similarities to the stages of climate change denial, which are generally: (1) denying the occurrence of the phenomenon outright, (2) accepting the occurrence of the phenomenon but doubting its impacts, (3) doubting its causes, (4) doubting that the causes and effects are significant, (5) doubting that the effects are negative, and (6) finally accepting the fact that the effects are negative but doubting that anything can be done about them, or assuming that “a technological fix is bound to come along when we really need it” (Mann 2012).

Most thought that it was now in the stages of doubting the causes, effects, and significance of the effects of induced travel. Interviewees alluded to many policy actors being in the final stage with their assumption that a technological fix – electric vehicles – would simply obviate the induced travel problem.

“I just don’t believe it.”

While most transportation policy actors were beyond the stage of outright denial, interviewees said that there are some who still deny that expanding highway capacity induced new travel. A policy actor who had held multiple positions in state agencies discussed working with people who “just don’t believe it.” The interviewee would offer research and academic studies – “I put a pile of 20 induced travel studies on a desk and someone from Caltrans just said ‘I don’t agree with the studies.’ That was that.”

Other interviewees discussed the belief that expanding highways accommodates travel, rather than induces it. This too demonstrated induced travel denial, some thought.

The director of Caltrans at the time said that we don’t induce travel, we accommodate it. This was 2014 or 2015. And my response was what my response still is today: ‘That’s not what the academic literature says. That’s not what science says, to be more basic about it.’ There are arguments that induced travel just doesn’t exist coming from high-level – the highest-level, in this case – professionals in state transportation 15 or 20 years into the quantitative literature on this topic, and decades into the literature generally.

This line of thinking about accommodating travel, rather than inducing it, came up frequently around freight. “Are there going to be more trucks if we expand the highways?” several people asked. Freight, the ports, and the railroads were hard industries to work with, so some people in the transportation arena believed that accommodating freight travel and its impacts was their only option.

The “Obfuscatory Technocratic Approach”

Interviewees said that the vast majority of induced travel denial in highway policy arenas took the form of debate around the causes of induced VMT and the magnitude of effects for a particular project. Travel demand models play a central role here – highly complex statistical models that are

often referred to as a “black box” and require specialized training and days to run. Some interviewees talked about how the highly technical and opaque travel demand modeling can – or is used to – sow doubt about the causes of induced travel and the magnitude its effects. “There are the people who say, ‘Yes, we’re accounting for induced travel in our models.’ It’s an obfuscatory technocratic approach to induced VMT denial, because even the most sophisticated travel demand models do not account for the full range of induced travel.”

Because travel demand modeling is so specialized, there are relatively few people who can understand – let alone challenge – the validity of the modeling methods or results. MPOs and consultants have traditionally been the center of modeling prowess, and interviewees talked about the sometimes-comical level of modeling jargon that is often indecipherable even to other transportation experts. A transportation expert discussed travel modeling that was done for the SR 37 expansion project, which showed that pricing would not just eliminate the induced travel effect but also reduce overall VMT. “I don’t know if I believe it, but it would take unpacking the entire MTC model to try to challenge them about it.” Such a challenge was technically and politically impossible.

Modelers discussed the promises and perils of travel demand models in estimating induced VMT. They explained how models are more robust and sophisticated now than they were a few decades ago and better reflect how people and society actually behave, but that models’ increased robustness had led some people to overestimate their capabilities. “It’s always a warning bell when someone thinks that the model can provide all the answers,” a former modeling director said. And even the most sophisticated travel demand models fail to capture the full slate of induced travel effects (Milam et al. 2017, Marshall 2018). An MPO modeler laid out the behavioral problem that policy actors believe a model can answer when they say that “the model accounts for induced travel” from highway expansion:

One of the byproducts of new roadway capacity is where developers invest in projects and at what scale. That's not a large number problem. It's very much a small number problem. There aren't that many developers in any given region. To get it right you have to get the right answer, at the right scale, and the right timeframe. Part of the answer is the state of their finances, how friendly they are with their bankers, the financiers' willingness to lend. Some of those developers are gamblers – they're not rational. Then there's the reorganization of households by those new projects. And we're trying to reflect that behavioral problem in a mathematical model.

Some thought that the discourse about induced travel had improved significantly since the empirical research on induced travel had gained momentum in the last few decades. But some of the crucial findings from this canon of empirical research on induced travel – like the feedback loops to long-term land use change described above – are still missing from even the most advanced travel demand models. Many held up SACOG's activity-based model, SACSIM, as one of the best in the world. But "land use patterns are an input to SACSIM – if a new freeway goes in, the model can't show you where new development would be induced." This leads to travel demand models generally underestimating – sometimes significantly – the induced travel from highway expansions (Volker, Lee & Handy 2020).

But it has led some interviewees to believe that the empirical research – and the NCST Induced Travel Calculator that is based on that empirical research – "over-projects" the induced VMT effect. Every interviewee who commented on the NCST Induced Calculator thought that their particular highway expansion project had unique characteristics that would lead it to induce lower VMT than what the NCST Induced Travel Calculator estimated, which uses an elasticity of travel demand that was measured across all metropolitan areas in the US (Volker & Handy 2022). The only highway project that interviewees thought would have a similar elasticity of travel demand to a national average was the Southeast Connector, a new beltway in rural and exurban Sacramento County that would facilitate enough sprawl to "blow up" the GHG and air quality targets in MTP/SCS. Many

said that this new debate about the particularities of the causes and effects of induced travel was the new frontier of induced travel denial – “if every project is the exception to the rule, then there is no rule,” said a state agency official.

Some policy actors – even self-described technical people – did not have a good grasp of the empirical research about induced travel, the related NCST Induced Travel Calculator, and how its findings compared to what is captured in travel demand models. They worried about what the empirical research and NCST calculator accounted for – diverted trips? pass by trips? parallel routes? what geography? – which are all questions that are answered in the studies’ methods sections. Modelers were also skeptical about the relevance of the elasticities measured in academic studies to their particular application – a project, their region, or a future timeframe. Essentially, they accepted the induced travel phenomenon in the grand scheme, but many were skeptical that the science was correct in how induced travel effects would play out locally. Because travel demand modelers are specialized experts in the transportation policy arena, their skepticism about an esoteric economic principle held clout and could diffuse throughout the highway policy arenas.

Disturbing a Worldview

A more nuanced expression of induced travel denial was the determination of engineers and transportation planners to identify and solve problems and their resistance to changing the nature and variables of the “transportation problem” to incorporate the reality of induced travel.

Transportation engineers and planners have traditionally spent their careers under the philosophy of providing mobility and reducing congestion, with a relatively narrow focus on what factors they can and should address. An MPO official emphasized this philosophy:

For decades, the worldview of people responsible for the transportation sector was ‘We are a serving utility. We are not social engineers. It’s not our job to plan land use and where the houses go and all that. It’s our job to – wherever other people decide that should happen – we need to make that work.’

The phenomenon of induced travel “disturbs the worldview” of transportation engineers because it complicates what they thought was a straightforward optimization problem in which they could exert their expertise and influence. They resist changing their professional practices to reflect induced travel because they “don’t want to be bothered with messy things like people”:

Induced travel is counter to why practitioners became engineers to begin with. They became an engineer to find a problem, with a formula, and a solution, end of story. Induced travel is disturbing to their worldview in some fundamental way. It disturbs their identity and ego. Engineers don’t want to be bothered with messy things like people. They’re used to deciding where huge amounts of money go and getting to be at ribbon cuttings. Unfortunately, it’s not much more complicated than that.

Though this characterization elicits echoes of Robert Moses and his nefarious highway building practices, interviewees emphasized that these practitioners are not “incompetent, evil, or irrational,” in the words of Ostrom (2015). Transportation policy actors have been working to solve congestion, which has been the key problem among transportation institutions in California for over a century (Ladd 2012). As one interviewee said, “People want to feel like they are doing good work – the work of the people! And not just that they’re doing good work but that their work wasn’t a waste.” Incorporating induced travel into their professional beliefs would require people to acknowledge that their career spent expanding highways to reduce congestion was perhaps for naught. So professional inertia leads to the continuation of a work program that denies the contours of induced travel, because accepting induced travel would contravene policy actors’ perceptions of their careers and their identities:

Along with the induced VMT denial approach, there are the people who say, ‘So we’re not even going to try to fix congestion?’ These people have been devoting their lives to congestion relief – they think they are doing good. They’ve convinced themselves and avoided looking deeper into it, perhaps. But they legitimately and honestly think they are fighting for the public good in their professional lives. And the public good is protecting the “health” of the state highway system, which is measured as unhealthy if it’s congested. So there is professional identity and inertia at play, because accepting induced travel would contravene their perception of their entire career and their perception of themselves, ultimately.

A state agency representative discussed how the professional inertia to solve for mobility, travel speeds, and congestion was particularly strong among highway engineers at the DOT. These engineers can intellectually understand and believe in induced travel, but the goal of the transportation has been to improve mobility, speeds, and congestion for so long that they simply “cannot in their right mind willingly let delay increase.”

There’s an interesting cultural dynamic in transportation, where transportation people work toward the goal of mobility. And now there are others who’ve come into the transportation space who have other goals. The concept of meeting these other goals almost turns off some of the folks who’ve been working in the transportation industry for a long time, because they view it as disempowering transportation as an end in and of itself. They think that our goal should be about making transportation move: travel speed is a goal, delay reduction is a goal. And even if they believe in induced travel, how do they move away from the fact that they cannot in their right mind willingly let delay increase on this corridor for the next 15 years. They cannot let that happen – they have to find a way to solve it.

But they also discussed how to break open this conversation with engineers who are entrenched in solving mobility and congestion problems. It is by speaking their “language” of throughput and optimization, but changing the variable they optimize to reflect the broader set of goals that have emerged since transportation has integrated with the land use, housing, and environmental policy arenas:

For that conversation, what is more helpful is to speak their language. Keep the conversation about throughput, but about person throughput. And start thinking about how we manage the system differently. This is where I think there are more openings, when it's still not about VMT. It's still probably going to increase VMT. But the engineers start to ask questions like, "Can I price it? Can I move higher occupancies through it? Can I give transit priority on it? Can I put price managed lanes on my corridor?" And this brings the transportation-minded people who are thinking about mobility and free flow traffic back on-board again. You make it an optimization problem again, but you just change what the variable is.

7.3.5. Induced Travel: "A long-term problem, not today's problem"

But while some proponents of highway expansion deny or disregard the travel inducing impacts of increasing capacity, interviewees emphasized that most of the highway expansion proponents did indeed understand and recognize that their project would induce VMT but that it was simply not a high priority in their decision making. The congestion problems were urgent, and the short-term benefits of expanding capacity outweighed the longer-term issues created by induced travel.

In some cases, you see a complete induced travel denial, or just not caring about induced travel. But in a lot more places you see people just saying, "That's a longer-term issue. I need this expansion project now."

In fact, policy actors rarely expressed arguments against the long-term vision to reduce the climate and air quality impacts of transportation. Many were in alignment, at least in theory. But in places with congestion or truck traffic on local streets, that long-term vision was not the urgent problem that policy actors prioritized. "Yes, the transportation system needs to clean up, but we need wider roads today, and then we will deal with induced VMT later. That's not the reality that we need to deal with right now. Induced travel is a long-term problem, not today's problem." Policy actors were optimistic about what solutions might exist when the corridor eventually re-congested with induced vehicle travel: "If this re-congests, perhaps by then we will have clean freight and we can build a freight-only lane. But that is for 10 years from now." An MPO official noted that as a species,

humans “heavily discount the future.” So if a highway expansion creates five or ten years of congestion-free travel – “that sounds fantastic.” But they emphasized that transportation professionals, and especially long-range transportation planners, have a duty to think about and value outcomes in the long run.

For some policy actors, particularly the influential players in labor and building industries, induced travel could even be a benefit. As one interviewee observed, “Some people welcome induced travel because it means they will have another congestion project to work on in 5 to 10 years.”

7.4 Outcomes for Environmental Justice and Equity

Transportation policy actors talked about the outcomes of highway expansion projects with respect to environmental justice and equity. Policy actors from every part of the policy arena and every part of the state discussed the history of highway building, the fact that highways were constructed predominantly in neighborhoods of color (Loukaitou-Sideris et al. 2023), and that people of color and low-income groups continue to be segregated in neighborhoods in closer proximity to highways (Mahajan 2023, Morello-Frosch and Jesdale 2006).

A state agency official discussed how the historical and present context of highways and their surrounding communities must be considered in transportation infrastructure and highway projects, given the construction of highways through communities of color and the continued segregation of neighborhoods:

When talking about any highway project we *have to* talk about structural racism in transportation and transportation infrastructure. California, like most states, built highways through Black and minority neighborhoods. But California never actually desegregated residentially so most any of the projects that expand highways are going to be in communities of color. The impacts will be in Black and Brown communities.

A local transportation agency leader indeed talked about this when discussing the I-80 expansion project. The eastern end of the I-80 expansion project transects the City of West Sacramento, the majority of which is designated by the state of California as a “disadvantaged community” – a community with high levels of environmental, health, and economic burden (CalEPA 2022).

West Sacramento, like a lot of historically Black communities, has been disproportionately impacted by infrastructure historically – freeways, interchanges, the port, rail, all of it. And these communities still continue to suffer from those impacts, and so you can’t do a project like this and just ignore that. Equity is not just forward looking; equity also has to be retrospective when you’re talking about places like West Sacramento and, frankly, everywhere that freeways were built.

An MPO official also discussed the impacts of highways on surrounding communities historically and presently, the importance of considering the equity of outcomes from transportation investments, and how mechanisms in the transportation planning process – like Title VI analysis – fail to protect communities from the impacts of highway projects:

Transportation infrastructure has been purposely and unintentionally weaponized many, many times in our history and I don’t think it’s quite over yet. It can have a massive negative impact so as we’re building out the transportation system, we have to take equity into consideration. I don’t think that’s what we have done historically – the Title VI analysis type of thing. That really just looks at if you’re investing in geographies that are considered ‘environmental justice’, or ‘sensitive’, or ‘vulnerable’, or whatever the nomenclature is at the time. But what if that investment is a highway through the middle of a community? That’s how many of us MPOs have done it historically – looking at ‘investments in’ – but investments in a location just because it meets some criteria for environmental justice is not equity.

An NGO leader talked about how discussions of environmental justice did not happen at the beginning of the I-710 South Corridor Project in the early 2000s. They recalled that transportation

agency staff disregarded comments from community members and advocates about the environmental justice impacts of the highway expansion project: “People would talk about the environmental justice impacts to the community around I-710 and the planners’ response was, ‘What are you talking about? This is a highway project – it has nothing to do with public health and the environment.’ The transportation engineers, planners, people involved seemed to have no interest in the outcomes for public health, the community, sustainability.” But to residents and coalitions in the “diesel death zone”, I-710 and the proposed expansion project would have deleterious outcomes for public health. “There was a term that came about organically from our community members and coalition – ‘Stop Killing Us’. That is not a slogan that was crafted, it was real,” they said. An academic discussed air quality research that had been conducted in the I-710 corridor and the “disastrous” outcomes and health risks from particulate matter for the surrounding communities. They voiced their disbelief that transportation agencies were even considered expanding I-710 given the health and air quality outcomes that the highway created in the surrounding communities:

I-710 is such an environmental justice disaster. It’s really hurting people. Folks at USC and UCLA⁵⁴ modeled the ozone and fine particulates that slosh back and forth on that highway, which is going right through communities of color. There are tons of ultrafine particles on that corridor, which are particularly dangerous because they can cross the blood-brain barrier. It’s killing people. No doubt that it’s killing people. I can’t tell you how outrageous I think it is that they were even considering widening that highway.

Some transportation agencies in the I-710 South Corridor Project policy arena did ultimately take note of the residents’ and coalitions’ public health concerns and the environmental justice outcomes of the project. An MPO official noted that expanding I-710 would have had “very big environmental justice impacts”, and that the large environmental justice impacts was precisely what

⁵⁴ Zhu et al. 2002

made this particular highway expansion project so controversial. “710 is not the only place where this fight around a highway expansion is happening,” they said, “but it is big because the 710 project has very big environmental justice impacts. The community surrounding 710 is the poorest there is, so environmental justice and social justice issues surrounding it abound.”

Transportation policy actors made several specific propositions about the relationship between expanding highway capacity and outcomes for environmental justice and equity. There was a frequently cited set of beliefs among policy actors that highway expansion projects improve outcomes for environmental justice and equity, and they used three logical pathways to reach these conclusions. The first was that highway expansion projects reduce congestion and thus reduce air pollution for the communities near highways – which are predominately low-income communities of color – and so highway expansions ostensibly further environmental justice. The second logical pathway was that highway expansions reduce congestion for people who are priced out of housing markets near their jobs, and their shortened commute times furthers transportation equity. The third was that the highway would be expanded with tolled lanes, and the toll revenues could be spent on “equity projects” such as transit, bike infrastructure, and affordable infill housing. Some policy actors adamantly opposed these beliefs, stating that highway expansion projects neither increased environmental justice nor equitable outcomes.

7.4.1. Highway Expansion & Environmental Justice

The first proposition was that highway expansion projects reduce congestion problems and increase vehicle operating speeds on highways, which disproportionately transect communities of color and “disadvantaged communities” (CalEPA 2022, Morello-Frosch and Jesdale 2006). Research has shown and transportation planning practices assume that a vehicle operating at free-flow speeds generate fewer emissions per mile driven than a vehicle in stop-and-go congested conditions – that is,

emissions rate vary by vehicle speed and are lowest around 50 miles per hour (e.g., Barth et al. 2000, CARB 2021b). Policy actors believed that highway expansion projects would decrease congestion and overall air pollution, and would thus improve air quality in disadvantaged communities. They use this logic to justify highway expansion projects as “sustainable,” as was the case with the Interstate 80 and 710 projects, and as a win for environmental justice. A DOT official said this justification is “a common one” for highway expansion projects:

There is a big range of justifications for expansion projects, but they all lead to the same solution. They’re very opportunistic, too, in terms of how they justify expansion projects. It seems the issue du jour is climate resiliency, then they talk about evacuation, then the supply chain because they’re going after freight money. Or equity even – they use equity in this. It’s like ‘oh my god, how does this improve equity?’ It’s very creative thinking, but we hear it often. The logic they use is that because there is congestion in a disadvantaged community, we need to relieve the congestion so that the air quality problems won’t be bottled up in that community. So the project will improve emissions and equity, they say. That’s a common one.

Several interviewees indeed traced this logical pathway almost exactly when describing why they believed that highway expansion was a solution to air quality and environmental justice problems. A local elected official involved with the I-80 expansion project asserted that “simply moving traffic at a more even pace will reduce air pollution and greenhouse gas emissions, especially in areas where we are concerned about environmental justice.” They mentioned the myriad affordable housing developments that are adjacent to I-80 as well as the City of West Sacramento, which is designated as a “disadvantaged community” by the State of California. Air pollution is being “pumped into the neighborhoods” along I-80 causing “air quality degradation that will simply increase if the project doesn’t happen.” They said:

I think that simply moving traffic at a more even pace will reduce air pollution and greenhouse gas emissions, especially in areas where we are concerned about environmental justice. Currently, this freeway is – It’s people stopped, and even while they’re stopped, they’re producing greenhouse gas emissions that are being pumped into the neighborhoods – Solano Park, the New Harmony Housing Project in South Davis, the Affordable Housing Project, all of the West Sacramento

neighborhoods, schools, businesses located along these areas are all experiencing air quality degradation that will simply increase if the project doesn't happen or some other approach doesn't get implemented.

An MPO official essentially used this same logic when hypothesizing about the air quality outcomes they anticipate for communities surrounding I-80 and the expansion project. The I-80 expansion “could have a net benefit” for pollution burden, they thought, because they believed it would have congestion relief impacts on the highway corridor and especially for the goods movement trucks:

The residents who currently live in the surrounding neighborhood, they're not getting a new freeway. It's an existing freeway that's congested. I don't think it's likely that you'll get more existing residents exposed to more highway lanes or necessarily even more traffic, especially if you get traffic out of their community that are avoiding the highway because it's congested so they're taking surface roads. There will be a new lane, but it's on an existing highway. I don't really know because I don't live next to the highway, but how big of an impact is the additional lane if you're already living next to a highway? I can't imagine it's highly noticeable. With the exception of – and this is one of the reasons for the project – hopefully getting traffic off of the surface streets. It might reduce traffic on the roads that you utilize as a resident and shift them over to the highway. If VMT increases it could increase local pollution burden – but it's congested right now so you have trucks at idle, which is not great for your pollution burden. So the project could have a net benefit.

The 2017 Community Impact Assessment and the 2017 Recirculated Draft Environmental Impact Report/Environmental Impact Statement for the I-710 Corridor Project also asserted that expanding the highway will create beneficial outcomes for environmental justice. The Community Impact Assessment included an environmental justice analysis, which “examined the potential effects of the I-710 Corridor Project No Build and build alternatives on minority and low-income groups within the I-710 corridor study area, as well as sensitive [air quality] receptors.” The CIA concluded that “as might be expected with a large and complex freeway project, some disproportionate adverse impacts were identified” but that those impacts were “confined to a few aspects of the project ... air quality, noise, intersection impacts, parks and recreation, and

community cohesion.” The CIA and the Recirculated DEIR/DEIS – they relied on the same EJ analysis – also found that “overall, the project will have many beneficial effects on the surrounding communities and the I-710 corridor users when compared with current conditions.” These beneficial effects include “improvements in emissions levels, air quality, and health risk.” (But oddly – given the “beneficial effects” for nearby communities – the air quality analysis in the 2017 Recirculated DEIR/DEIS produced mixed results for air quality impacts. Compared to the no build scenario, the two build scenarios would increase particulate matter emissions in the project area while mobile source air toxics and criteria air pollutants would decrease. Public health risks, like cancer risk, would decrease in some places and increase in others.)

But some policy actors were skeptical of this proposition that expanding highway capacity produces positive outcomes for air quality and thus environmental justice. The director of a transportation industry NGO noted that this logic fails to account for the fact that new highway capacity induces vehicle travel and the return of congested conditions, which would ultimately create worse air quality on highway corridors. They noted that this had been the case when transportation agencies expanded I-405 in Los Angeles, and induced travel caused the highway to congest on opening day:

I have questions about the idea that highway expansion improves air quality. Idling cars create air quality problems, and these highways are mostly in environmental justice communities, so if you have congestion causing air pollution you get bad air quality in EJ communities. This is bad for those communities. But if new highway capacity induces more travel, then you might have just as many idling cars in a few years and the air quality will still be bad. We saw that with the Sepulveda Pass on I-405. It was a huge expansion project and traffic was immediately worse than it was before.

Some policy actors were in complete disagreement with this proposition, stating that the people of color and low-income communities near highways would be burdened with worsened air pollution for the mobility benefits of highway users. A local transportation agency official commented on this

scenario playing out in West Sacramento from the I-80 expansion: “We are generating benefits for so many people through this project but at the detriment of the people who live adjacent to it. They’re going to have more air pollution.” The executive director of East Yards Communities for Environmental Justice, an influential coalition in stopping the I-710 expansion project, voiced their beliefs about the project outcomes more directly in an interview with the *Los Angeles Times*: “This project is environmental racism. It’s a very clear depiction of that” (Dillon 2021).

This proposition of highway expansions improving environmental justice was debated by powerful policy actors and coalitions in the statewide transportation policy arena. A California state legislator authored a 2022 bill that would have prohibited the use of state funds or personnel time on highway expansion projects in communities with high levels of poverty and air pollution, essentially prohibiting highway expansion projects in these communities, as well as prohibited freeway projects to cause any kind of displacement (AB 1778, 2022). The Assembly Floor bill analysis outlines several factors that motivated Assemblymember Cristina Garcia to author AB 1778, all relating to environmental justice and health outcomes of highway projects: that when the interstate highway system was built “urban planners disproportionately, and sometimes purposefully, routed freeways through neighborhoods where people of color lived or used these freeways to create boundary lines between white and Black communities”; that research shows that “racial-ethnic minorities in the United States are exposed to disproportionately high levels of ambient fine particulate air pollution (PM_{2.5}), the largest environmental cause of human mortality” (Tessum et al. 2021); and that research shows that “African American, Latino, and Asian Californians are exposed to more PM_{2.5} pollution from cars, trucks, and buses than white Californians” (Reichmuth 2019). In the bill’s “author’s statement” the assemblymember expounded on these environmental justice outcomes and how they relate to her transportation policymaking in her district in southeastern Los Angeles County. She stated that highway expansion projects are “sold as a means to reduce

congestion” despite research showing that additional capacity induces more driving and thus does little to reduce congestion (e.g., Duranton and Turner 2011, Anderson et al. 2021, Handy 2015).

Using state funds and resources to expand highways in low-income and communities of color “is outrageous and feels criminal,” the legislator opined:

Freeway expansion projects are sold as a means to reduce congestion, however research shows us that they increase congestion by encouraging more driving, thus increasing harmful emission. Data also shows that these projects also tend to displace low-income communities and communities of color who are already housing insecure. It is outrageous and feels criminal to use state resources to choke and displace communities like mine when the data and research clearly show that this practice is just another example of the systemic racism that is normalized in our policies and practices. Departments, agencies, and officials like to use words like equity, now is the chance to put action behind this word to ensure communities like mine are at the forefront of these decisions, policies, and practices. We can no longer allow state dollars to fund expansion projects that kill us faster and displace us from our homes in the middle of a housing crisis.

Many organizations supported AB 1778. Natural Resources Defense Council said that AB 1778 would “halt some of the most egregious planned freeways, turning the state away from a legacy of neighborhood destruction and displacement caused by transportation infrastructure projects,” citing a *Los Angeles Times* investigation that found that highway expansions continue to displace residents and disproportionately displace Black and Latino residents (Rubin 2022, Dillon and Poston 2021). A coalition of environmental justice and air quality NGOs – Leadership Counsel for Justice and Accountability, Center for Community Action and Environmental Justice, Central California Environmental Justice Network, Central Valley Air Quality Coalition, ClimatePlan, et cetera – also supported AB 1778. Their support letter stated that California’s poorest households are disproportionately exposed to ultrafine particulate matter and that research shows that “widening freeways actually leads to increased car trips, traffic, and pollution.” A bill like 1778 would put “communities that are overburdened by tailpipe pollution and are housing burdened at the forefront of the discussion for any project dealing with freeway widening.”

Several powerful policy actors opposed AB 1778, disagreeing with the assemblyperson’s perception of outcomes of highway expansion projects. Chief among the opponents were the powerful labor and trades organizations, such as the State Building and Construction Trades Council of California (AB 1778, 2022; Dillon et al. 2022). In its AB 1778 opposition letter, the State Building and Construction Trades Council of California posits that traffic congestion causes air pollution and that this bill would stymie projects that would improve air quality: “it is the very highway dollars that this bill would limit that would alleviate freight corridor and traffic congestion that causes the poor air quality” (Smith 2022a). This letter mentions a “recently stopped \$6 million interstate widening project in LA County” – the cancelled I-710 South Corridor Project – that “would have solved some of the very issues the author has raised with her bill.” Interviewees noted that this bill was aimed almost directly at stopping expansion projects like the I-710 South Corridor Project, but the Trades asserted that “this legislation ... does not provide reasonable and attainable solutions to meet the author’s intent of protecting communities from the impacts of poverty and pollution.” The American Council of Engineering Companies also opposed the bill and was quoted in the Assembly’s legislative analysis:

While we understand your desire to provide some relief to communities experiencing California’s worst air quality – frequently communities in and/or near our state’s most heavily utilized freeway systems – AB 1778 would deprive these same communities of badly needed state highway dollars that could be used to alleviate the very congestion and freight corridor issues that contribute the poor air quality experienced in these communities.

7.4.2. Highway Expansion & Transportation Equity

The second proposition also involved the belief that highway expansion projects reduce congestion problems, and also assumed that people who are commuting on congested highways are low-income people traveling from homes in relatively affordable housing markets to jobs in places with

unaffordable housing markets. Thus, they believed that highway expansion projects would be disproportionately beneficial to the poor by shortening their commute times and therefore the highway expansion project was an “equity project.”

This proposition emerged throughout the state, but policy actors had widely varying views about its validity. The Metropolitan Transportation Commission, an agency that interviewees said equity is a key driver of the SR 37 expansion project, stated that the highway project demonstrates “a commitment to equity” because the corridor connects the “comparatively affordable housing” in Solano County with jobs in ostensibly unaffordable Marin and Sonoma Counties (MTC 2023). A video that MTC made about “The Future of Highway 37” stated that 40 percent of trips on SR 37 are taken by people in lower-income households, and explained how housing unaffordability and lack of job access makes SR 37 a “critical” connection for Bay Area residents:

Highway 37 is a critical piece of the Bay Area mobility puzzle. The 21-mile corridor connects Solano County cities, and some of the most affordable housing in the Bay Area, with jobs in Marin and Sonoma Counties. Yet the road is challenged the issues of congestion, flooding, and sea-level rise ... A commitment to equity requires a reliable connection between the comparatively affordable housing in cities like Vallejo, Fairfield, and American Canyon and job markets to the west.

State Senator Bill Dodd expounded on this in the Highway 37 Town Hall. He summarized vehicle flows on SR 37, stating that travel behavior data show that about half of drivers on SR 37 originate in Solano County and a quarter originate in the City of Vallejo, on the eastern end of SR 37. “This isn’t a mystery,” he said. “There’s cheaper housing in Solano and better paying jobs in Marin and Sonoma.” Dodd explained that this demonstrated the link between the housing and transportation policy arenas – “this is why building more houses closer to higher paying jobs is a key part of transportation planning,” he said – but then explained other problems with the highway corridor that justify the project such as evacuation, flooding, and providing bus service. Another state senator at the town hall, Mike McGuire, pressed that “this is an equity issue, right? We have a lot of

employees that are coming into Marin and Sonoma that are working service-based jobs that are sitting in mind numbing commutes. This should be a 25 minute to half hour commute. Coming out of Solano into Marin and Sonoma, it's 80 minutes. Going out of Marin and Sonoma back into Solano, it's 100 minutes. It's ridiculous. But that's why we also need to focus on public transit.”

Labor and trades organizations also use this logic in their advocacy in the statehouse and at the project level. The State Building and Construction Trades Council of California used this proposition in its opposition of AB 1778, stating that the bill would instead effect harmful outcomes for low-income residents living near highways because it would hurt their commute times (Dillon et al. 2022). The State Building and Construction Trades Council also used this proposition in its opposition to a state bill that would require state's transportation funds to align with the state's climate goals, specifically with the Climate Action Plan for Transportation Infrastructure, which consequently would have limited highway expansion projects (AB 2438, 2022). In its opposition letter the Trades stated that “thousands of our members not only work and earn middle-class wages and benefits on highway infrastructure projects, but also must drive to and from their jobsites often far from where they live and are already spending countless hours on those commutes” (Smith 2022).

Several interviewees had strong beliefs and choice words about the logical argument that highway expansion projects demonstrate equity because they speed up commutes of people priced out of expensive housing markets. An academic opined, “Oh, that's crap.” A state agency official unambiguously said “It's bullshit. It's absolutely bullshit.” An NGO leader exclaimed “how evil and masterful” this argument was. These policy actors expounded on how this logical argument silos transportation as a policy issue unrelated to other policy arenas, such as housing policy, and truncates the role that land use, jobs, housing, and housing segregation plays in travel demand. An NGO leader explained how this proposition of a “highway project as an equity project” is logically

appealing but only when considered in isolation of the upstream causes of people of color having long, auto-dependent commutes. They offered their “holistic” view of the policy landscape:

In a CTC meeting I heard a labor union advocate for highway widening because people of color live far away from their jobs, so they need expanded highway capacity to be able to drive there with less congestion. So this highway project was an equity project. When I heard it, I thought ‘You guys are so crafty! How evil and masterful is this argument.’ But it shows the siloing of issues in transportation. Devoid of everything else – sure, it makes sense. But when you think about this holistically, you’re saying that people of color can’t afford to live in the places they work or that they don’t have jobs in their communities, so they have to drive really far to reach their employment opportunities. The solutions to that include creating jobs in communities of color or creating housing that’s affordable near those jobs.

A state agency official discussed the narrative of highway expansions as equity projects used by MTC and other agencies around SR 37. They said that it fails to connect recognize the connection of transportation and housing, and explained how it reflects the assumption among planners and policymakers that we have “solved that problem” of housing and neighborhood segregation. They also discussed how these omissions and assumptions influence what planners and policymakers consider “success” – a successful outcome is when transportation projects connect poor communities to job centers, rather than when housing policy desegregates neighborhoods and increases job access for communities of color:

The narrative around SR 37 is ‘We’re helping the poor people get to jobs better. It’s amazing, we’ve saved them 20 seconds of their lives.’ But here’s the problem: we’re not actually connecting transportation and housing in that discussion. Because part of the solution is the notion that someone can live anywhere that they choose. We assume that we don’t have segregation in our neighborhoods any longer – we assume we have solved that problem. We haven’t. And so we write these plans and it is considered success when we’re connecting the poor communities to the high paying jobs with wider highways, not when we’re desegregating our neighborhoods through our policy so that those poor people can have upward economic mobility. So that they can live in those neighborhoods near their jobs, and they don’t have to commute so far.

A state agency official suggested why planners and policymakers assume that we have solved the problem of housing and neighborhood segregation, or at least why the narrative is perpetuated, and how that assumption ties to transportation planning and projects. Policy like the Fair Housing Act and institutions like the U.S. Department of Housing and Urban Development (HUD) represent policy progress in housing and civil rights and they offer a “false narrative” that all but the boldest policy actors can hide behind. That leaves the policy problem of segregated housing and land uses to be sorted out by the transportation policy arena and, ultimately, highway projects:

There is this false belief that because we have HUD and because we had the Fair Housing Act and things that have come forward over the last six decades and we have solved that problem. ‘It’s magical! We don’t have that anymore. There’s no de facto segregation in America! It’s amazing!’ We all know that’s not true, but it’s easy for politicians to hide behind that false narrative. And it’s acceptable to hide behind that false narrative because no one is bold enough to say that America is still segregated. But until we start owning that reality, how this conversation gets dealt with is through transportation funding programs and the types of questions we ask about projects.

7.3.3. Toll Lanes, VMT, and Equity

A third proposition was about expanding highways with tolled lanes or high-occupancy toll (HOT) lanes, rather than untolled general purpose lanes. Some policy actors believed that tolling would both alleviate congestion and avoid induced travel, leading to better outcomes for air quality, VMT, and GHG emissions than adding general purpose lane. Some policy actors said that the new managed lanes would be essential for improving bus and transit service on the corridor. And the revenues generated from the tolls would be spent on “equity projects” such as transit, bike infrastructure, and affordable infill housing. The outcomes from the additional toll lanes would further equity, policy actors averred.

In the SR 37 and I-80 cases, policy actors discussed HOT lanes as a way to improve bus services, and better bus service would serve people who rely on transit. The SR 37 corridor had no bus service, and buses on I-80 currently used general purpose highway lanes and were stuck in the same congested conditions as drivers of passenger vehicles. But buses would be able to use the new HOT lanes. In the Highway 37 Town Hall State Senator Bill Dodd said that “we know that we need public transit along this corridor because right now there is literally none. We need to add a third lane to allow bus or shuttle service.” But MTC asserted in the “Future of Highway 37” video that “Highway 37 can be a viable route for future transit service only if buses can avoid congestion.” The director of Caltrans District 4 agreed with this: “There’s no bus service available on this corridor ... and it’s infeasible for transit operators to implement reliable services due to the severe traffic congestion.” Outcomes for transit influenced the project alternatives, she said: “All three alternatives have a common theme that is an additional lane will be designed as an HOV lane which is critical to incentivize the use of carpools and for transit operators to start implementing bus services.” The director of the Sonoma County Transportation Authority agreed:

Senator Dodd mentioned earlier the fact that housing costs in Sonoma and Marin are such that we don't have adequate housing supply to meet the jobs that are in Sonoma and Marin, and therefore we have this commute in the corridor. We have got to provide that interim project in order to get people some relief, whether it's by providing transit, we can't have transit if we don't add that additional lane

Policy actors involved the I-80 managed lanes case also discussed the project’s benefits for transit. The Yolo Transit District, a key player in the project through its control of federal grant funds, states that the project was designed to “prioritize transit” to achieve the goal of increasing transit ridership and transit mode share: “Unlike conventional freeway widenings, this project is designed to minimize harmful climate emissions. The new lane will be adaptively managed to

prioritize transit and carpools. Technology upgrades will detect transit vehicles entering the freeway and give them priority” (YoloTD 2023). An elected official involved with the I-80 project discussed how the managed lane element of the project is designed to enhance transit operations and encourage transit use – currently buses are “bogged down in the same congestion individual vehicles are,” which leads to “buses that are running empty because people can’t rely on the bus getting there any faster than driving their own car.” A local agency leader also discussed the role of managed lanes in improving transit operations, and how that lane “management” must be tolling if policy actors are expecting positive outcomes for transit:

Caltrans own traffic analysis shows that a carpool lane is going to fail basically the day it opens. But if you have a lane managed with a toll, then you can manage the volumes of traffic to keep it free flowing so that there’s always a free-flowing option for those who are willing to pay, and therefore a free-flowing option for transit as well. Because the transit bus sits in traffic, too. So tolling improves reliability and decreases travel times for transit.

“Then you have the revenue. And the revenue, then, is a whole other discussion. What do you do with the revenue?” Policy actors grappled with the how to spend the revenues generated from toll lanes. Some saw the investment of toll revenues as an opportunity to creating equity, while others saw investment of toll revenues more as a funding source for mitigating harms created by the highway that disproportionately impact peoples of color. A local elected official wanted to use toll revenue for more than just maintenance of the highway, as is commonly proposed. Their vision included using toll revenue “to maintain the facility, and to invest in greenhouse gas reduction strategies at the local level, and to invest in environmental justice concerns.” A transit agency leader noted that transit operations are the “hardest thing to fund” and that tolling could not only improve travel times and reliability for transit riders, but also create a much-needed steady source of revenue for transit operations. “That ongoing source of revenue stream, if it’s used well, can essentially

partially mitigate some of the negative impacts of the freeway widening, both in terms of transit but also investments in disadvantaged communities – active transportation improvements, that sort of a thing.” A local transportation agency representative contended that any tolling strategy and investment of toll revenues must consider and mitigate the historical and present harms that highways caused for Black communities and communities of color:

An important piece of this has to be looking at how toll revenues are used, how you design a tolling system, providing low-income discounts, and then using toll revenue to mitigate impacts. Whether it's looking at the ways that freeways bisect communities, looking at localized air quality impacts, active transportation, better access to transit, all of those kinds of impacts. A disproportionate amount of revenue should be spent mitigating those impacts, because we are generating benefits for so many people through this project but at the detriment of the people who live adjacent to it. They're going to have more air pollution. There's a concern about the equity of tolling, but there is a way in which it can be a source of funding for righting some historical wrongs.

Several policy actors from around the state discussed the revenues generated by tolled or HOT highway lanes and the opportunity to invest them in multimodal projects changed the calculus of policy actors when they evaluate the benefits and outcomes of expansion projects. Multiple interviewees commented on tolling alleviating guilt of policy actors involved with highway expansion projects. “This idea that tolled highways are equity projects if the toll revenues are spent on transit – it's a great talking point, isn't it? It's the salve that makes people feel less guilty about doing capacity projects that they know they shouldn't be doing,” said a local elected representative. A local agency official seconded this notion:

Tolled lanes are a way for a progressive community like Davis or West Sacramento to feel like they're not just widening the freeway and contributing to the problem. It's a way to say ‘well yes, we're widening the freeway because we want the traffic relief, but we're doing it in a way that's going to make it multimodal because we're going to use the toll revenue to invest in transit.

A local transportation agency official discussed the nuances of how policy actors evaluate project outcomes, to what baseline a new tolled or HOT lane is compared, the status quo or counterfactual that policy actors assume to be most likely. They discussed how these influence the calculus of outcomes:

Moving towards pricing on the highways is a way to try to discourage driving and then use the toll revenue to actually make transit a more viable option than it is. I mean, currently buses run on the corridor once an hour. It's just not that much. If they were running every 15 minutes, it might be a more reasonable. Especially if they had guaranteed travel times because they're not going to sit in traffic, it makes it a much more attractive option. Time will tell, but I think there's an argument that tolling does work to make transit a more viable option that it is. At least it works better than carpool lanes. And even if it does induce just as much travel as general purpose lanes, you're at least capturing money from that induced travel for VMT mitigation. So it begs the question: is not project better than an increase in capacity and an increase in transit service. That's the fundamental question. And then whether or not you think that the capacity expansion is inevitable.

They continued, stating that there is an option would offer a different pathway than navigating between the "lesser of the evils": "Because there is another option, right? It's to convert a lane. To price an existing lane. And then you have the same outcomes for transit without inducing new travel ... At a certain point we've got to cross the Rubicon of converting existing lanes to toll lanes."

A few policy actors discussed a key problem with the proposition that toll, express, and HOT lanes can mitigate environmental justice problems and inequitable outcomes with the toll revenues that they generate. Revenues are often dedicated to several different categories of funding, often to first pay for the capital costs of building the new lanes and to maintain the facility. The remaining funds are dedicated to the projects that would improve transit and mitigate environmental justice impacts. A DOT official said that this raises challenges, because "it is not very well understood that the capital costs of adding a lane are so great that you're never really going to end up with enough revenue to work with, to really fund and operate robust transit. And you're not actually going to

provide enough revenue to fund that other stuff that you say is the real reason that you're pricing lanes." A local elected official talked about this scenario playing out in Los Angeles:

LA Metro built a bunch of express lanes and they are often held up as a demonstration project for successful express lanes. But where this becomes an overdone soufflé that starts to collapse on itself is – LA Metro is expanding its priced lanes and borrowing from future toll revenues to build out new parts of the network. That is eating away at the funds that are available for the "equity" projects, like transit service. So there is less and less money available for the projects that were "promised" to be funded with the toll revenues, such as transit. This is perhaps going to cause problems in its demonstration of successful express lanes. But unfortunately people don't want to take unpopular positions that are the smarter positions, which I think would be converting existing lanes to express lanes rather than building additional capacity.

Another DOT official talked about the "pittance" of toll revenues that LA Metro has actually put towards transit:

In some places around the state, they want to take the HOT lane toll revenues and put them into transit, then count that towards VMT mitigation. But usually that's a pittance. LA Metro has some access toll revenue funds that goes into transit. It's something like \$8 million a year over however many years. It's nothing in the grand scheme of things compared to the impacts that VMT creates on the highway facilities.

A local transportation agency leader discussed this scenario playing out in the Bay Area: "In the Bay Area they're still in the phase where they're using their toll revenues to pay off their construction loans. So they're not actually putting a lot of money into transit improvements."

Why does this proposition have such teeth in Caltrans and with local transportation agencies? A DOT player hypothesized that it goes back to a few issues discussed previously: the vague notion among transportation agencies that priced lanes are better than regular lanes with "broad assumptions about what 'better' means," and desire among Caltrans and its districts to build more projects. So they postulated that adding priced lanes "is not so much for a beneficial outcome or trying to reduce induced demand. It's more just the idea that a priced lane is better than a regular

lane. Caltrans is trying to build more projects, and this is a new way to build projects.” And, they said, Caltrans districts are good at “latching onto the arguments that they hear and then extrapolating it, applying it to this other thing.” So HOT lanes are a way that districts can expand highways and justify them a narrative based in the present policy window that emphasizes equity, environmental justice, and minimizing induced VMT – “priced lanes are a way that Caltrans districts can do what they want to do – which is build projects – and they can say, “This will also help equity.””

8 Conclusions

The advent of the highway irrevocably changed the physical, social, political, and institutional landscape in California. Automobility continues to dominate the thinking and priorities of the public and the transportation field, and the highways built to facilitate it offer unprecedented mobility benefits but also create massive burdens that disproportionately impact historically marginalized communities. The governance landscape has evolved to address the problems caused by highways and automobility, which range from residential displacement to toxic air pollution to global climate change. Various agencies, actors, and legislative bodies in California have signaled that these are important policy problems and have taken action to address them, but highway expansion has continued across the state.

This mixed-methods dissertation explored the governance landscape and political context of highway expansion. I sought to answer four questions about the institutional and political factors that surround highway expansion projects: (1) what kinds of transportation projects are in the “pipeline” in regional transportation plans, and how do these planned projects compare to actual transportation investments, (2) who the powerful players in highway expansion projects are and how they exert influence, (3) what problems policy actors are trying to solve with highway capacity expansion, and (4) why policy actors think that highway expansion is a solution to those problems. In essence, I asked what transportation infrastructure we fund, and why highway expansion receives such a large amount of funding.

In this final chapter, I summarize the findings from the previous chapters and discuss the implications for transportation governance and policymaking.

8.1 Summary of Key Findings

This mixed-methods dissertation used two approaches to lay out answers to those questions. I used a detailed project-level analysis to examine and compare the regional transportation plans and transportation funding – “programming” – for five metropolitan regions in California. I then conducted 48 in-depth interviews with key informants that shed light on the contours of the highway policy arena surrounding three case study highway expansion projects as well as statewide. This work provided clear answers to the research questions.

8.1.1. To what degree do transportation investments align with regional transportation plans?

Transportation expenditures programmed for the next five years in MPOs’ transportation improvement programs (TIPs), near-term transportation spending plans, were generally more auto-centric than the investments planned in MPOs’ long-range regional transportation plans. Auto infrastructure (e.g., new capacity, road rehabilitation, operations) received the majority of planned and programmed funds in all regions except the San Francisco Bay Area. In the three largest MPOs in the sample, TIPs put larger share of funding towards auto projects than their respective RTPs, and put a smaller share of funding towards transit projects than their respective RTPs. New auto capacity (e.g., new or expanded highways, new or wider local roads) made up a significant share of planned and programmed funding in all regions, particularly in the Central Valley and suburban areas of the Bay Area. In fact, new auto capacity received the plurality of programmed funds in two of the five case regions. These results demonstrate that some MPOs had ambitious multimodal

project lists for the long-term that were not being fully realized in the near-term. Spending patterns in most regions frontload auto infrastructure by putting a majority share of the funding toward road and highway expansions, which bakes in auto-oriented land development and travel demand and undermines the GHG reduction goals of the regional plan. It also undermines the multimodal investments that will ostensibly be made in the future. Spending on new auto capacity is frontloaded even in regions, such as MTC, that planned to distribute the shares of funding more evenly between modes.

This analysis also peeled back many layers of the technocratic regional transportation planning and programming process, requiring knowledge of transportation planning, finance, and engineering jargon to sort through and categorize thousands of projects to enable comparison across time and agencies. Its results showed significant variation in how different MPOs in the state do business, the practice of “washing” or stretching funds for unstated purposes, and pervasive opacity in the descriptions of projects in the pipeline that obscures scrutiny of project impacts and benefits, oftentimes up to the point that they are built. For example, this analysis found many projects described only as “pavement maintenance” that in fact widened the physical footprint of highways, using funds from the highway operations and safety program and the categorical exemption from CEQA for maintenance of an existing facility. One of these was a Caltrans District 3 project, programmed with \$343 million of SHOPP funds (SACOG 2018), on the exact route of the I-80 expansion project in Yolo County that I investigate in latter chapters (Caltrans 2023, CEQAnet 2021). Examples like this show that neither the accounting process nor the highway maintenance process are clear-cut, with maintenance dollars perhaps literally paving the way for later highway expansion projects without disclosing that intent or its environmental impacts and the public.

These results invite the question that I seek to answer in Chapters 5, 6 and 7: Why does California continue to spend this significant amount of transportation dollars to expand highways?

8.1.2. Who are the powerful players in highway policy arenas and how do they exert influence?

The case studies demonstrated that local players are particularly powerful in the highway policy arena through their influence on the project pipeline. Local officials use power endowed by their positions on the boards of county transportation commissions and metropolitan policy organizations to advance their highways expansion projects in their jurisdictions. DOT districts also impel highway expansion, with technical work and helping with funding acquisition, and often have stronger alliances with local authorities than with Caltrans Headquarters. All three case study projects were pushed forward by a permutation of influential actors from local transportation authorities, DOT districts, and MPOs. In some cases, actors with economic interests – e.g., building and freight industry groups – spurred local, district, and regional actors to advance highway expansion projects from an idea to “real live” project.

State-level agencies were generally secondary in the highway expansion projects. In one case, a local transportation authority and a Caltrans district essentially sidestepped Caltrans Headquarters to secure federal grant funding for the highway expansion project. In another, Caltrans Headquarters was the agency that put the “nail” in the metaphorical coffin of a long-planned expansion project. In the third, the local agencies and MPO are leading the project even through the design and construction stages. The irony of local agencies and the MPO propelling the interim highway expansion project and ultimately a new elevated highway through a wildlife refuge in the San Francisco Bay Area, the birthplace of the freeway revolts, is not lost on people who know the history of American transportation institutions.

Players who influence transportation funding are also powerful in the highway policy arena. This category includes state and federal legislators and the interest groups that influence them. The

coalition of labor, trades, and building industry groups are central to understanding the landscape of state and federal transportation policy and funding. It is a powerful pro-infrastructure coalition in the California statehouse, which makes it a powerful pro-highway coalition.

8.1.3. What are the key problems that policy actors are trying to solve with highway capacity expansion?

Congestion was a key motivation in each of the three case study projects as well as a motivating factor in California's statewide transportation policy arena. Congestion was universally viewed as an urgent and salient problem that should be fixed, managed, or at least worked on, including among interviewees who thought that congestion is unsolvable. Even congestion relief projects that would have short-lived benefits, either because of induced travel or sea-level rise, were worth the political and fiscal costs. Many other problems were folded into a congestion problem – air pollution was congestion problems, housing unaffordability was a congestion problem, and so on.

Economic interests like land development and goods movement were also central in the storyline of highway expansions. Land development was a major motivation for highway expansion in the case of SR 37, as well as numerous other highway projects that interviewees mentioned. The increased auto accessibility that highway expansion projects would produce motivates the advocacy of the building industry and developers, who exert their influence with local and state elected officials and with the voting public through transportation sales tax measures.

At the state level, the coalition of labor, trades, and building industry organizations has successfully made construction job creation a primary factor in transportation decision-making. Highway projects and the transportation dollars that fund them are a main pillar of their business models.

8.1.4. Why do policy actors think that highway expansion is a solution to those problems?

Actors pinned many hopes to highway expansion projects. Proponents expected highways to reduce congestion problems, at least temporarily, and as a result to reduce air pollution, social inequities, and environmental justice burdens. Some expected highway expansion to reduce VMT, particularly if the new highway capacity was priced. The phenomenon of induced travel from highway expansion is understood in different ways and still debated in California's highway policy arena, though the focus of debate is shifting from the question of "if" toward the question of how much. A battle over forecasting methods and applying the empirical research to specific projects has ensued.

But many actors see through the short-term congestion reduction benefits of highway expansion and focus instead on the damage caused by highway building paradigm. Some highlight the outcomes of continuing housing destruction and displacement, a future congestion problem bigger than they started with, a climate emergency, and an environmental justice disaster.

8.2 Implications for Institutions and Policy Change

Many of the problems that transportation policy actors aim to address are collective action problems. The outcomes for an individual depend not only on their own decisions but also the decisions of others. Traffic congestion is a textbook example: roadway space is a common-pool resource that is depleted by others' use of it. Air pollution is another one: pollutant emissions degrade air quality for all. Climate change is a global collective action problem to which transportation is a major contributor: greenhouse gas emissions deplete the global climate commons. Global efforts are often necessary for long-term success against such problems, but "many problems conceptualized as 'global problems' are the cumulative result of actions taken by individuals,

families, small groups, private firms, and local, regional, and national governments” (Ostrom 2010). This means that many institutions at many different scales can – and must – contribute to solving a global collective action problem. California has taken state-level action to compel the transportation sector to contribute to solving air quality and climate change problems, and the state’s air resources agency has stated that reducing VMT is an “indispensable” solution to California’s climate, equity, and air quality problems (CARB 2022). But solving this problem runs directly into institutional trouble: solving collective action problems requires institutions whose boundaries match the scale of the problems faced (Ostrom 2008). As I show here, the transportation policy arena is highly decentralized and its most influential players are not focused on solving climate change.

Influence and control in California’s highway policy arena largely rests at the local level. With local influence on highway projects and, in many cases, locally controlled funding, these institutions can set the agenda for the highways in their jurisdictions. They can choose what transportation problems to solve and, as I show here, the salient and urgent transportation policy problems for local institutions were near-term and nearby: congestion relief, land development, and managing freight traffic. Even the return of congestion in the long-term following a highway expansion was “a tomorrow problem, not a today problem,” so climate change, an even longer-term and larger-scale problem, was certainly not at the top of their transportation policy agenda. This was the case even among actors who believed that climate change is an urgent problem that society and governments should address.

There is a mismatch between the scale of influential institutions and the problems they are trying to solve. The local- and district-level institutions that are powerful in creating the pipeline of highway projects and, in some cases, funding them are not focused on the state’s identified climate change problem. State-level institutions that have identified climate change as a problem are not the most influential actors in the highway policy arena. This mismatch perpetuates highway expansion

despite the near certainty that continued highway expansion impedes the state’s efforts to reduce greenhouse gas emissions, improve air quality, and further equity.

These findings, viewed through the lens of policy theory, indicate a few possible routes for attenuating highway expansion: (1) shift influence in the highway policy arena away from local actors toward state actors; (2) shift the beliefs and information of influential actors so that they understand that transportation projects and highway expansions will not provide the outcomes that they are looking for in the longer term, and thus are not a solution to every problem, (3) shift the problem that influential actors are trying to solve away from congestion reduction toward climate change and other burdens caused by highways;; and (4) shift the evaluation of outcomes away from a near-term timeframe toward a longer timeframe to avoid short-term fixes with essentially permanent infrastructure that lead the transportation policy arena in the wrong direction for making action on climate, air quality, and equity. The figure below, as noted in Chapter 1, illustrates how making any one of these shifts could change the potential solution that actors consider, from highway expansions to solutions that create accessibility benefits and reduce social and environmental burdens.

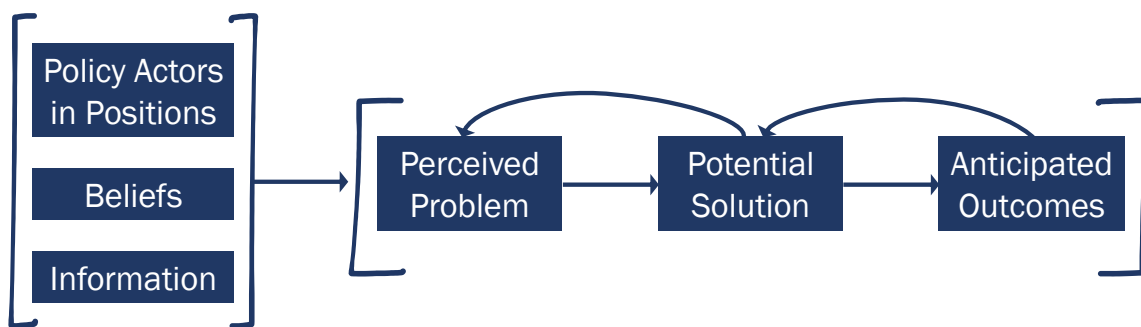


Figure 28. A conceptual framework for policy change (adapted from Sabatier 1988 and Ostrom 1990)

How to make these shifts is a challenge in itself. Policy theory is explicit that major policy change is indeed “very difficult,” but these theories were developed to explain and offer solutions to

wicked problems like highway infrastructure provision, air pollution, and climate change (Sabatier and Weible 2007). A policy arena with debate over problem perception, salience of various problems, public opinion, the proper locus of government authority, and incomplete implementation of legally required goals has many predecessors from which it can learn (Sabatier 1988).

These findings also show possible pathways. Beliefs and information about transportation problems like congestion, air quality, and induced travel are already shifting in the highway policy arena and among the public. Equity and environmental justice were key problems among actors throughout the highway arena, though beliefs about potential solutions were oftentimes nascent. Actors from all parts of the arena acknowledged induced travel, if only conceptually or to debate the coefficients estimated in the canon of empirical research. Public opinion plays a large role in the beliefs and actions of elected officials and rank-and-file agency staff, evidenced by actors who strived to deliver benefits for their constituents and those who believed that “everyone thinks that expanding highways will fix congestion.” But that is perhaps not the opinion of the public. Polling showed that only 23 percent of a nationally representative sample thought that expanding roads and highways would decrease congestion and 63 percent thought that widening highways was a waste of taxpayer money because it “creates more traffic” (SGA et al. 2023). This shows that the public grasps the feedback loops of highway expansion decisions better than actors thought, which offers promise for coalition building around highway expansion and structural changes to transportation governance systems. The case of I-710 shows that such a coalition can be powerful at the project scale. If public opinion in California is similar to the US, it could also be a powerful coalition at the state-level.

The influence in the highway policy arena has also begun to shift to actors in different levels of government and in different parts of the highway policy arena. State and federal actors played an

influential part in the dramatic end to the I-710 expansion project. The Clean Air Act offers a pathway to regulate air pollution and emissions from highway expansions in California's most polluted areas. State legislative change now requires local- and district-level agencies to evaluate highway expansions for their induced travel outcomes and mitigate its impacts, regardless of the beliefs and information of the local- and district-level actors who are propelling the project.

Procedural change in Caltrans Headquarters has required dialogue between district-level project sponsors and the DOT director about new highway capacity that cannot mitigate the VMT induced by the project. State-level agencies control other levers in the project delivery pipeline, such as issuing permits for projects on the state highway system.

Transportation funding is a powerful lever that can shift what solutions – that is, transportation projects – emerge from the pipeline. State legislative and agency actions have aimed to reform transportation funding to address the climate and environmental justice problems that state-level institutions have identified as key problems. The same state-level institutions that enacted AB 32 and SB 375 could legislate that addressing the problem of climate change is in fact a priority for the spending of state transportation dollars – that state funding cannot be spent on transportation projects that induce climate change, like highway expansions. A bill doing just that, AB 2438, faced opposition from powerful actors but ultimately passed through the legislature. So that coalition can indeed be built and such an approach offers promise. State legislation can also influence the spending of transportation sales tax dollars such that they align with the promises made in the Clean Air Act, Climate Change Scoping Plan, and regional transportation plans. Federal transportation funding is still a critical resource that propels highway expansion projects, as shown in the case of I-80. But that case also shows that DOT districts can exert influence to act and pursue federal funding independently of Caltrans Headquarters and for highway projects that are incongruous with

Headquarters' and state priorities. Further institutional change within the state DOT and its districts is certainly a necessary shift.

All of these routes would be long, bumpy, and immensely challenging given the complex landscape of transportation governance I illustrated in this dissertation. But highway building has brought about dramatic change to California's transportation institutions before, and California has many institutions that are adept at building roads through treacherous terrain.

References

Plans and Programming Documents Cited

Fresno Council of Governments (Fresno COG). 2018. Regional Transportation Plan Sustainable Community Strategy 2018-2042. <https://www.fresnocog.org/project/regional-transportation-plan-rtp>

Fresno Council of Governments (Fresno COG). 2019 Federal Transportation Improvement Program (FTIP). <https://www.fresnocog.org/project/federal-transportation-improvement-program-ftip>

Fresno Council of Governments (Fresno COG). 2021 Federal Transportation Improvement Program (FTIP). <https://www.fresnocog.org/project/federal-transportation-improvement-program-ftip>

Metropolitan Transportation Commission (MTC). 2017. Final Plan Bay Area 2040. <https://www.planbayarea.org/plan-bay-area-2040>

Metropolitan Transportation Commission (MTC). 2017. Plan Bay Area 2040 Project List. <http://projects.planbayarea.org>

Metropolitan Transportation Commission (MTC). 2019 Transportation Improvement Program (TIP). <https://mtc.ca.gov/funding/transportation-improvement-program/2019-tip>

Metropolitan Transportation Commission (MTC). 2021 Transportation Improvement Program (TIP). <https://mtc.ca.gov/funding/transportation-improvement-program/2021-tip>

Sacramento Area Council of Governments (SACOG). 2019. 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS). <https://www.sacog.org/2020-metropolitan-transportation-plansustainable-communities-strategy>

Sacramento Area Council of Governments (SACOG). 2018. 2019 Metropolitan Transportation Improvement Program (MTIP). https://www.sacog.org/sites/main/files/file-attachments/final_2019_mtip_10-1-2018_0.pdf?1619141938

Sacramento Area Council of Governments (SACOG). 2020. 2021 Metropolitan Transportation Improvement Program (MTIP). <https://www.sacog.org/sites/main/files/file-attachments/sacog2124mtip.pdf?1614287398>

Shasta Regional Transportation Agency (SRTA). 2018 Regional Transportation Plan & Sustainable Communities Strategy. <https://www.srta.ca.gov/300/2018-RTP>

Shasta Regional Transportation Agency (SRTA). 2019 Federal Transportation Improvement Program (FTIP). <https://www.srta.ca.gov/DocumentCenter/View/4209/Final-Shasta-2019-FTIP--6-19-2018>

Shasta Regional Transportation Agency (SRTA). 2021 Federal Transportation Improvement Program (FTIP). https://www.srta.ca.gov/DocumentCenter/View/5696/2021-Shasta-Final-FTIP_02-23-2021-Incl-Appendix-K

Tulare County Association of Governments (TCAG). 2018. Regional Transportation Plan 2018. <https://tularecog.org/tcag/planning/rtp/rtp-20181/>

Tulare County Association of Governments (TCAG). 2019. 2019 Federal Transportation Improvement Program. <https://tularecog.org/sites/tcag/assets/File/TCAG%202019%20FTIP.pdf>

Tulare County Association of Governments (TCAG). 2021. 2021 Federal Transportation Improvement Program. <https://tularecog.org/sites/tcag/assets/File/Final%202021%20FTIP.pdf>

General References

Adams, Elizabeth. 2021. “Letter to Tony Tavares and Phillip Washington, 25 March 2021”. <https://lede-admin.la.streetsblog.org/wp-content/uploads/sites/50/2021/05/I-710-Conformity-Technical-Response-by-EPA-3-25-2021.pdf>

Agrawal, A.W., K.Y, Lee, & S. Alexander. 2021. How do California’s Local Governments Fund Surface Transportation? A Guide to Revenue Sources. Report 21-32. San Jose, CA: Mineta Transportation Institute. DOI: 10.31979/mti.2021.1938A

Aldy, Joseph, M. Auffhammer, M. Cropper, A. Fraas, R. Morgenstern. 2022. Looking Back at 50 Years of the Clean Air Act. *Journal of Economics Literature*. 60(1):179-232.

Altshuler, A. (2019). *The City Planning Process: A Political Analysis*. United States: Cornell University Press.

Anderson, M., L. Davis, & L. Safavi. 2021. Estimating Induced Travel from Capacity Expansions on Congested Corridors. California Air Resources Board and California Environmental Protection Agency <https://ww2.arb.ca.gov/sites/default/files/2021-04/18RD022.pdf>

Assembly Bill No. 1778. California State Assembly. 2021-2022. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB1778

- Avila, Eric. 2014. L.A.'s Invisible Freeway Revolt: The Cultural Politics of Fighting Freeways. *Journal of Urban History*. 40(5): 831-842.
- Barbour, E. and Teitz, M.B., 2009. Blueprint planning in California: An experiment in regional planning for sustainable development. *Toward sustainable communities: Transition and transformations in environmental policy*, pp.171-200.
- Barth, M., F. An, T. Younglove, G. Scora, C. Levine, et al. 2000. The development of a comprehensive modal emissions model. National Cooperative Highway Research Program, Web-Only Document 122. https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w122.pdf
- Bay Area Metro. 2022. "MTC funding helps I-80 Solano Express Lanes break ground." 16 May 2022. *The Bay Link*. <https://blog.bayareametro.gov/posts/mtc-funding-helps-i-80-solano-express-lanes-break-ground>
- Baylands Group. 2022. "Baylands Group SR 37 Position Paper – July 2022". https://scc.ca.gov/files/2022/07/Baylands-Group-SR-37-Position-Paper_July-2022.pdf
- Berman, P., 1978. The study of macro-and micro-implementation. *Public policy*, 26(2), pp.157-184.
- Bhattacharjee, A. 2012. Social Science Research: Principles, Methods, and Practices. Textbooks Collection, 3. http://scholarcommons.usf.edu/oa_textbooks/3
- Boehmer, T.K., Foster, S.L., Henry, J.R., Woghiren-Akinnifesi, E.L., Yip, F.Y. and Centers for Disease Control and Prevention (CDC). 2013. Residential proximity to major highways-United States, 2010. *MMWR supplements*, 62(3), pp.46-50.
- Bowen, Andrew. 2023. "Bonus: Hasan Ikhrata" [audio file]. 25 July 2023. <https://www.kpbs.org/podcasts/freeway-exit/bonus-hasan-ikhrata>
- Brown, J., 2002. Statewide transportation planning: Lessons from California. <https://escholarship.org/uc/item/5j13w0bq>
- Brown, J.R., Morris, E.A. and Taylor, B.D., 2009. Planning for cars in cities: Planners, engineers, and freeways in the 20th century. *Journal of the American Planning Association*, 75(2), pp.161-177.
- Building Industry Association Southern California. 2020. "What Is VMT?" [video file]. 14 June 2020. <https://www.youtube.com/watch?v=DkZ-F5W0Wxg>
- Bullard, R.D., Johnson, G.S. and Torres, A.O. eds., 2004. *Highway robbery: Transportation racism & new routes to equity*. South End Press.
- Cairney, P. 2013. "Policy Concepts in 1000 Words: the Advocacy Coalition Framework". <https://paulcairney.wordpress.com/2013/10/30/policy-concepts-in-1000-words-the-advocacy-coalition-framework/>

California Air Resources Board. November 2018. 2018 Progress Report. California’s Sustainable Communities and Climate Protection Act. https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report_SB150_112618_02_Report.pdf

California Air Resources Board. 2021. SB 375 Regional Plan Climate Targets. <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets>

California Air Resources Board. 2021b. EMFAC 2021 Handbook for Project-Level Analysis. https://ww2.arb.ca.gov/sites/default/files/2021-06/emfac2021_volume_2_pl_handbook_ada.pdf

California Air Resources Board. 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

California Air Resources Board. 2023. “Summary: Diesel Particulate Matter Health Impacts”. <https://ww2.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts>

California Building Industry Association. 2022. “2022 Housing Killers and Creators”. <https://cbia.org/2022-housing-killers-and-creators-archives/#1642206141529-b05ed1ad-2b23>

California Department of Transportation. 2020. Transportation Funding in California 2020. Division of Transportation Planning: Transportation Economics Branch. <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/transportation-economics/transportation-funding-booklet/2020-final-transportation-funding-a11y.pdf>

California Department of Transportation. 2021. 2021 Federal Statewide Transportation Improvement Program (FSTIP). <https://dot.ca.gov/-/media/dot-media/programs/financial-programming/documents/2021-fstip-041621-final.pdf>

California Department of Transportation. 2022a. State Route 37 Corridor Planning and Environmental Linkages Study. <https://dot.ca.gov/-/media/dot-media/district-4/documents/37-corridor-projects/pel-study/sr37-pel-study-dec2022-ada-a11y.pdf>

California Department of Transportation. 2022b. State Route 37 Sears Point to Mare Island Improvement Project Draft Environmental Impact Report/Environmental Assessment. <https://dot.ca.gov/-/media/dot-media/district-4/documents/37-corridor-projects/sr37-draft-eir-ea-1q7600-sears-pt-mare-island-proj-voll-a11y.pdf>

California Department of Transportation. 2023. Senate Bill 1 (SB1). <https://dot.ca.gov/programs/sb1>

California Department of Transportation. 2023. “SR 37 Corridor Projects, The Big Picture”. <https://dot.ca.gov/caltrans-near-me/district-4/d4-projects/d4-37-corridor-projects/37-big-picture>

California Department of Transportation (Caltrans). 2023c. “Caltrans History – 1890s”. <https://dot.ca.gov/programs/public-affairs/caltrans-history/1890s>

California Department of Transportation (Caltrans). 2023. “Yolo I-80 Pavement Rehab Project”. <https://dot.ca.gov/caltrans-near-me/district-3/d3-projects/d3-yolo--i-80-pavement-rehab-project>

California Department of Transportation and Los Angeles County Metropolitan Transportation Authority. 2012. I-710 Corridor Project Draft Environmental Impact Report/Draft Environmental Impact Statement. <https://libraryarchives.metro.net/DPGTL/eirs/i-710-corridor-project>

California Department of Transportation and Los Angeles County Metropolitan Transportation Authority. 2017. I-710 Corridor Project Recirculated Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement and Section 4(f) Evaluation. <https://libraryarchives.metro.net/DPGTL/eirs/i-710-corridor-project>

California Department of Transportation, Metropolitan Transportation Commission, Transportation Authority of Marin, Sonoma County Transportation Authority, Solano Transportation Authority, Napa Valley Transportation Authority. 2021. “State Route 37 Comprehensive Multimodal Corridor Plan”. https://scta.ca.gov/wp-content/uploads/2021/10/SR_37_CMCP_Final.pdf

California Fair Political Practices Commission. 2022. “November 2018 General Election Top Contributor Lists”. <https://www.fppc.ca.gov/transparency/top-contributors/nov-18-gen.html>

California Proposition 6. 2018. “Voter Approval for Future Gas and Vehicle Taxes and 2017 Tax Repeal Initiative”. [https://ballotpedia.org/California_Proposition_6,_Voter_Approval_for_Future_Gas_and_Vehicle_Taxes_and_2017_Tax_Repeal_Initiative_\(2018\)](https://ballotpedia.org/California_Proposition_6,_Voter_Approval_for_Future_Gas_and_Vehicle_Taxes_and_2017_Tax_Repeal_Initiative_(2018))

California Secretary of State. 2018. “Statement of Vote: November 6, 2018 | General Election”. <https://elections.cdn.sos.ca.gov/sov/2018-general/sov/2018-complete-sov.pdf>

California Secretary of State. 2023. “2018 Ballot Measure Contribution Totals”. <https://www.sos.ca.gov/campaign-lobbying/cal-access-resources/measure-contributions/2018-ballot-measure-contribution-totals/17-0033-eliminates-recently-enacted-road-repair-and-transportation-funding-repealing-revenues-dedicated-those-purposes-requires>

California State Transportation Agency (CalSTA). 2023. Climate Action Plan for Transportation Infrastructure (CAPTI). <https://calsta.ca.gov/subject-areas/climate-action-plan>
California Transportation Commission. 2017. Regional Transportation Plan Guidelines for Metropolitan Planning Organizations. <https://catc.ca.gov/-/media/ctc-media/documents/rtp-2017-guidelines-mpos-011817-a11y.pdf>

California Transportation Commission. 2018. State Transportation Improvement Program Guidelines. <https://catc.ca.gov/-/media/ctc-media/documents/programs/stip/2022-stip/2022-stip-guidelines-adopted-aug-2021-a11y.pdf>

California Transportation Commission. 2020. State Highway Operation and Protection Program Guidelines. <https://catc.ca.gov/-/media/ctc-media/documents/programs/shopp/guidelines/23-4-4-a11y.pdf>

- California Transportation Commission. 2021. "California Transportation Commission Meeting 5/12/21 1 of 3" [video file]. <https://www.youtube.com/watch?v=Bmr7tL1P9pg>
- CEQAnet. 2021. Yolo Pavement Rehab. 03-4F650. <https://ceqanet.opr.ca.gov/2021010297/2>
- Cervero, R. 2002. Induced Travel Demand: Research Design, Empirical Evidence, and Normative Policies. *Journal of Planning Literature*, 17(1), 3–20. <https://doi.org/10.1177/088122017001001>
- Cervero, R., 2003. Road expansion, urban growth, and induced travel: A path analysis. *Journal of the American Planning Association*, 69(2), pp.145-163.
- Cervero, R., & Hansen, M. 2002. Induced Travel Demand and Induced Road Investment: A Simultaneous Equation Analysis. *Journal of Transport Economics and Policy*, 36(3), 469-490. <https://www.jstor.org/stable/20053915>
- Chatterjee, K., S. Chng, Ben Clark, Adrian Davis, Jonas De Vos, Dick Ettema, Susan Handy, Adam Martin & Louise Reardon. 2020. Commuting and wellbeing: a critical overview of the literature with implications for policy and future research, *Transport Reviews*, 40:1, 5-34, DOI: [10.1080/01441647.2019.1649317](https://doi.org/10.1080/01441647.2019.1649317)
- Cliff, S. 2022. "Letter to Bobbie Singh-Allen, Sacramento Transportation Authority, October 10, 2022". California Air Resources Board.
- Coalition for Environmental Health and Justice (CEHAJ). 2012. "I-710 Expansion Comments". <https://eycej.org/wp-content/uploads/2021/09/CEHAJs-DEIR-comments-regarding-the-CA7-1.pdf>
- Congressional Research Service. 2015. Transportation Conformity Under the Clean Air Act. <https://crsreports.congress.gov/product/pdf/R/R44050/2>
- Cosgrove, J. 2021. "Commission finalizes L.A. County supervisors map, creating a second majority-Latino district". *Los Angeles Times*. 15 December 2021. <https://www.latimes.com/california/story/2021-12-15/la-county-supervisors-redistricting-map-finalized>
- Corbin, J. and Strauss, A. 2014. *Basics of qualitative research: Techniques and procedures for developing grounded theory* (4th ed.). Sage Publications, Inc.
- County of Los Angeles, California. 2016. Proposed Ordinance #16-01 "Measure M". <https://www.metro.net/about/measure-m/>
- Deakin, E. 2006. Social Impacts of the Interstate Highway System. *UC Berkeley: University of California Transportation Center*. Retrieved from <https://escholarship.org/uc/item/21c261vg>
- Deakin, E., Dock, F., Garry, G., Handy, S., McNally, M., Sall, E., Skabardonis, A., Walker, J. and Rheinhardt, K., 2020. Calculating and Forecasting Induced Vehicle-Miles of Travel Resulting from Highway Projects: Findings and Recommendations from an Expert Panel.

Deakin, E. 2021. A Brief History of Transportation Policies and Institutions. UC Berkeley Institute of Transportation Studies. <https://escholarship.org/uc/item/2fs5w7jp>

Deakin, E., Chow, C.H., Son, D., Handy, S., Barbour, E., Lee, A., Rodriguez, E., Gahbauer, J., Coutin, T., Matute, J. and Rios Gutierrez, A., 2021. Evaluation of California State and Regional Transportation Plans and Their Prospects for Attaining State Goals. <https://escholarship.org/uc/item/50j4b4r8>

Debenedetto, P. 2021. “Federal Highway Administration Asks Texas To Halt I-45 Expansion, As Harris County Sues TxDOT”. 11 March 2021. Houston Public Media. <https://www.houstonpublicmedia.org/articles/news/transportation/2021/03/11/393410/federal-highway-administration-asks-texas-to-halt-i-45-expansion-as-harris-county-sues-txdot>

Dillon, L. 2021. “710 Freeway is a key link in the U.S. economy, but pollution and evictions doom its expansion”. *Los Angeles Times*. 22 May 2021. <https://www.latimes.com/california/story/2021-05-22/710-freeway-expansion-stalls>

Dillon, L., B. Poston, et al. 2021. “Freeways force out residents in communities of color – again”. *Los Angeles Times*. 11 November 2021. <https://www.latimes.com/projects/us-freeway-highway-expansion-black-latino-communities>

Dillon, L., B. Poston, and R. Uranga. 2022. “A bid to stop freeway expansions in California hits a roadblock: Organized labor”. *Los Angeles Times*. 6 May 2022. <https://www.latimes.com/homeless-housing/story/2022-05-06/freeway-expansions-california-organized-labor>

Downs, A., 1962. The law of peak-hour expressway congestion. *Traffic Quarterly*, 16(3).

Duranton, G. and M.A. Turner. 2011. The fundamental law of road congestion: Evidence from US cities. *American Economic Review*, 101(6), p. 2616-52.

Downs, A., 1970. Uncompensated nonconstruction costs which urban highways and urban renewal impose upon residential households. In *The Analysis of Public Output* (pp. 69-113). NBER.

Eno Center for Transportation. December 2014. How We Pay for Transportation: The Life and Death of the Highway Trust Fund. <https://www.enotrans.org/wp-content/uploads/2015/09/Highway-Trust-Fund.pdf>

Executive Order No. 12898. 1994. Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations. <https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf>

Fang, K., & Thigpen, C. (2017). Transportation Policy at the Ballot Box. *Transportation Research Record*, 2605(1), 92–98. <https://doi.org/10.3141/2605-09>

Federal Highway Administration. No Date. “California I 710: Nationally important, Community initiated, and Redirected”. <https://fhwaapps.fhwa.dot.gov/planworkst/Reference/CaseStudy/5>

Federal Highway Administration. 2008. “Notice of Intent – Environmental Impact Statement: Los Angeles County, California”. 73 FR 49234. 8 August 2008. <https://www.federalregister.gov/d/E8-19247>

Federal Highway Administration (FHWA). 2022. Uniform Act Statistics. https://www.fhwa.dot.gov/real_estate/uniform_act/stats/

Fishback, P., Rose, J., Snowden, K.A. and Storrs, T., 2022. New evidence on redlining by federal housing programs in the 1930s. *Journal of Urban Economics*, p.103462.

Fox 40 News. 2021 June 30. “Fox 40 GOOD NEWS: The U.S. Department of Transportation has awarded an \$86 million grant to improve and expand 17 miles of the Interstate 80 and U.S. Highway 50”. [Video file]. <https://www.facebook.com/repgramendi/videos/833097660650163/>

Gahbauer, J., Matute, J., Coutin, T.S., Rios Gutierrez, A. and N. Rios Gutierrez. 2021. *Examination of Key Transportation Funding Programs in California and Their Context*. University of California Institute of Transportation Studies. <https://escholarship.org/uc/item/1n10d2gc>

Garshick E, Laden F, Hart JE, Rosner B, Smith TJ, Dockery DW, and Speizer F. 2004. Lung cancer in railroad workers exposed to diesel exhaust. *Environmental Health Perspectives*.s 112:1539–1543.

Garshick E, Laden F, Hart JE, Rosner B, Davis ME, Eisen EA, Smith TJ. 2008. Lung cancer and vehicle exhaust in trucking industry workers. *Environmental Health Perspectives*. 116:1327-32.

Gunier, R.B., Hertz, A., Von Behren, J. and Reynolds, P., 2003. Traffic density in California: socioeconomic and ethnic differences among potentially exposed children. *Journal of Exposure Science & Environmental Epidemiology*, 13(3), pp.240-246.

Goldman, T. and Wachs, M. 2003. A quiet revolution in transportation finance: The rise of local option transportation taxes.. *Transportation Quarterly*, 57(1): 19–32.

Handy, S., 2005. Smart growth and the transportation-land use connection: What does the research tell us?. *International regional science review*, 28(2), pp.146-167.

Handy, S. 2015. Increasing Highway Capacity Unlikely to Relieve Traffic Congestion. National Center for Sustainable Transportation. <https://ncst.ucdavis.edu/research-product/increasing-highway-capacity-unlikely-relieve-traffic-congestion>

Handy, S. and Boarnet, M.G., 2014. Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions. http://www.arb.ca.gov/cc/sb375/policies/hwycapacity/highway_capacity_brief.pdf

Hansen, M., & Huang, Y. (1997). Road Supply and Traffic in California Urban Areas. *Transportation Research Part A*, 31(3), 205-218. [https://doi.org/10.1016/S0965-8564\(96\)00019-5](https://doi.org/10.1016/S0965-8564(96)00019-5)

Henry, A.D., 2011. Ideology, power, and the structure of policy networks. *Policy Studies Journal*, 39(3), pp.361-383.

Houston, D., J. Wu, P. Ong & A. Winer. 2004. Structural Disparities of Urban Traffic in Southern California: Implications for Vehicle-Related Air Pollution Exposure in Minority and High-Poverty Neighborhoods, *Journal of Urban Affairs*, 26:5, 565-592, DOI: 10.1111/j.0735-2166.2004.00215.x

Houston, D., Krudysz, M. and Winer, A., 2008. Diesel truck traffic in low-income and minority communities adjacent to ports: environmental justice implications of near-roadway land use conflicts. *Transportation Research Record*, 2067(1), pp.38-46.

H.R.12135 - 87th Congress (1961-1962): Federal-Aid Highway Act of 1962, H.R.12135, 87th Cong. (1962), <https://www.congress.gov/bill/87th-congress/house-bill/12135>.

Hymel, K. (2019). If You Build It, They Will Drive: Measuring Induced Demand for Vehicle Travel in Urban Areas. *Transport Policy*, 76: 57-66. <https://doi.org/10.1016/j.tranpol.2018.12.006>

Jarone, M. 2023. "Fifth lane coming to Interstate 80 in Roseville and Rocklin. How long will construction take?" 2 August 2023. *The Sacramento Bee*.
<https://www.sacbee.com/community/roseville-placer/article277895158.html>

Jenkins-Smith, H.C. and Sabatier, P.A., 1993. *The study of public policy processes* (pp. 135-142). Sudbury, MA: Jones and Barlett Publishers, Inc.

Jenkins-Smith, H.C., Nohrstedt, D., Weible, C.M. and Ingold, K., 2018. The advocacy coalition framework: An overview of the research program. *Theories of the policy process*, 4, pp.135-171.

Kahneman, D. 2003. Maps of bounded rationality: Psychology for behavioral economics. *American economic review*, 93(5), pp.1449-1475.

Karner, A.A., Eisinger, D.S. and Niemeier, D.A., 2010. Near-roadway air quality: synthesizing the findings from real-world data. *Environmental science & technology*, 44(14), pp.5334-5344.

Kim, J.J., Smorodinsky, S., Lipsett, M., Singer, B.C., Hodgson, A.T. and Ostro, B., 2004. Traffic-related air pollution near busy roads: the East Bay Children's Respiratory Health Study. *American journal of respiratory and critical care medicine*, 170(5), pp.520-526.

Krieger, R. 1998. "Report to the Air Resources Board on the Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant."
https://ww2.arb.ca.gov/sites/default/files/classic/toxics/dieseltac/part_a.pdf?_ga=2.170343008.1594849109.1690912838-1957288001.1685472643

Ladd, B., 2012. "You can't build your way out of congestion."—Or can you? A Century of Highway Plans and Induced Traffic. *disP-The Planning Review*, 48(3), pp.16-23

Labros, R. et al. 2020. "Letter to Governor Gavin Newsom June 25, 2020".
<https://gwire.com/2020/06/29/vmt-opponents-say-plan-is-a-tax-on-new-home-buyers-who-drive/>

- Lee, A.E. and Handy, S.L., 2018. Leaving level-of-service behind: The implications of a shift to VMT impact metrics. *Research in Transportation Business & Management*, 29, pp.14-25
- Lee, R.W. and C.R. Rivasplata. 2001. “Metropolitan transportation planning in the 1990s: comparisons and contrasts in New Zealand, Chile and California”. *Transport Policy* 8:47-61.
- Lipsky, M. and Hill, M., 1993. “Street-level bureaucracy: An introduction.” *The policy process: A reader*, pp.381-385.
- Lipsky, M., 2010. *Street-level bureaucracy: Dilemmas of the individual in public service*. Russell Sage Foundation.
- Los Angeles County Metropolitan Transportation Authority. 2003a. “January 2003 Board Meeting – Item 12 Revised. Subject: Status of Alternatives Strategy Screening Process – I-710 Major Corridor Study”. https://boardarchives.metro.net/Items/2003/01_January/11007358.pdf
- Los Angeles County Metropolitan Transportation Authority. 2003b. “Revised Item # 31. Motion by Director Molina.” https://boardarchives.metro.net/Items/2003/05_May/11007138.pdf
- Los Angeles County Metropolitan Transportation Authority. 2018. “File # 2017-0849. Subject: I-710 South EIR/EIS Project”. <https://boardagendas.metro.net/board-report/2017-0849/>
- Los Angeles County Metropolitan Transportation Authority. 2022. “Regular Board Meeting May 26, 2022”. <https://boardagendas.metro.net/event/regular-board-meeting-baabdfbd02a4/>
- Los Angeles County Metropolitan Transportation Authority. 2023. “Measure M”. <https://www.metro.net/about/measure-m/>
- Loukaitou-Sideris, A., Handy, S.L., Ong, P.M., Barajas, J.M., Wasserman, J.L., Pech, C., Sanchez, J.C.G., Ramirez, A.F., Jain, A., Proussaloglou, E. and Nguyen, A., 2023. *The Implications of Freeway Siting in California: Four Case Studies on the Effects of Freeways on Neighborhoods of Color* (No. PSR-20-40). National Center for Sustainable Transportation (NCSST)(UTC).
- Mahmood, A. and C. Pham. 2007. Health Risk Assessment for the Four Commerce Railyards. https://ww2.arb.ca.gov/sites/default/files/classic/railyard/hra/4com_hra.pdf?_ga=2.160952701.1594849109.1690912838-1957288001.1685472643
- Mann, M.E., 2012. *The hockey stick and the climate wars: Dispatches from the front lines*. Columbia University Press.
- Marsden, G. and L. Reardon. 2017. Questions of governance: Rethinking the study of transportation policy. *Transportation Research Part A: Policy and Practice*, 101, pp.238-251.
- Marshall, N.L., 2018. Forecasting the impossible: The status quo of estimating traffic flows with static traffic assignment and the future of dynamic traffic assignment. *Research in Transportation Business & Management*, 29, pp.85-92.

- Matland, R.E., 1995. Synthesizing the implementation literature: The ambiguity-conflict model of policy implementation. *Journal of public administration research and theory*, 5(2), pp.145-174.
- McGreevy, Patrick. 2018. “Construction industry and labor groups are plowing millions into campaign to defeat Proposition 6”. *Los Angeles Times*. 22 October 2018. <https://www.latimes.com/politics/la-pol-ca-proposition-6-campaign-contributions-20181022-story.html>
- Melo, P. C., Graham, D. J. & Canavan, S. (2012). Effects of Road Investments on Economic Output and Induced Travel Demand: Evidence for Urbanized Areas in the United States. *Transportation Research Record: Journal of the Transportation Research Board*, 2297: 163– 171. doi: 10.3141/2297-20
- Metropolitan Transportation Commission. 2018. Plan Bay Area 2040: Amendment. March 2018. https://mtc.ca.gov/sites/default/files/Plan%20Amendment_Final_March2018.pdf
- Metropolitan Transportation Commission. 2020. Plan Bay Area 2040: Amendment. May 2020. https://mtc.ca.gov/sites/default/files/Final%20PBA%202040%20Amendment_I-680%20Amendment.pdf
- Metropolitan Transportation Commission (MTC). 2021. 2021 TIP Investment Analysis. https://mtc.ca.gov/sites/default/files/Investment_Analysis_2021_Final_TIP.pdf
- Metropolitan Transportation Commission (MTC). 2023. “State Route 37”. <https://mtc.ca.gov/planning/resilience/state-route-37>
- Milam, R.T., Birnbaum, M., Ganson, C., Handy, S. and Walters, J., 2017. Closing the induced vehicle travel gap between research and practice. *Transportation research record*, 2653(1), pp.10-16.
- Mitchell, d. 2006. Earl Warren’s Fight for California’s Freeways: Setting a Path for the Nation. *Southern California Quarterly*. 88(2), p. 205-238. <https://www.jstor.org/stable/41172311>
- Morello-Frosch, R., Pastor, M. and Sadd, J., 2001. Environmental justice and Southern California’s “riskscape” the distribution of air toxics exposures and health risks among diverse communities. *Urban Affairs Review*, 36(4), pp.551-578.
- Morris, E., Brown, J. and Taylor, B., 2016. Negotiating a financial package for freeways: How California’s Collier–Burns Highway Act helped pave the way for the era of the American interstate highway. *Transportation Research Record*, 2552(1), pp.16-22.
- Muller, P. 2017. “Transportation and Urban Form: Stages in the Spatial Evolution of the American Metropolis”. In Giuliano, G, & Hanson, S (eds) 2017, *The Geography of Urban Transportation*, Guilford Publications, New York.
- Newcomb, R. 1954. “Memorandum from [Highway Consultant] Robinson Newcomb to the Council of Economic Advisors. 23 August 1954”. In *Eisenhower Documents*, *supra* note 12, at 539

- NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters. 2023. <https://www.ncei.noaa.gov/access/billions/>, DOI: [10.25921/stkw-7w73](https://doi.org/10.25921/stkw-7w73)
- Noland, R. B., & Cowart, W. A. (2000). Analysis of Metropolitan Highway Capacity and the Growth in Vehicle Miles of Travel. *Transportation*, 27: 363-390. <https://doi.org/10.1023/A:1005288826997>
- Ostrom, Vincent. 1972. "Polycentricity." Workshop Working Paper Series, Workshop in Political Theory and Policy Analysis, Presented at the Annual Meeting of the American Political Science Association, September 5–9.
- Ostrom, Elinor. 2007. "Institutional Rational Choice." *Theories of the Policy Process*. 2nd Edition. Routledge.
- Ostrom, Elinor. 2008. Polycentric Systems as One Approach for Solving Collective-Action Problems. <https://ssrn.com/abstract=1304697> or <http://dx.doi.org/10.2139/ssrn.1304697>
- Ostrom, E., Cox, M. and Schlager, E., 2014. An assessment of the institutional analysis and development framework and introduction of the social-ecological framework: In Sabatier, PA, & Weible, CM (Eds., 2014). *Theories of the policy process*. Westview Press.
- Ostrom, Elinor. 2015. *Governing the Commons: The evolution of institutions for collective action*. Cambridge University Press.
- Pastor Jr, M., Morello-Frosch, R. and Sadd, J.L., 2005. The air is always cleaner on the other side: Race, space, and ambient air toxics exposures in California. *Journal of urban affairs*, 27(2), pp.127-148.
- Pimentel, M. et al. 2023. "Letter to Governor Gavin Newsom June 23, 2023". State of California. <https://twitter.com/CalTransit/status/1672340494263939073?s=20>
- Quattrone, G.A. and Tversky, A., 1988. Contrasting rational and psychological analyses of political choice. *American Political Science Review*, 82(3), pp.719-736.
- Reichmuth, David. 2019. Inequitable Exposure to Air Pollution from Vehicles in California. Cambridge, MA: Union of Concerned Scientists. <https://www.ucsusa.org/resources/inequitable-exposure-air-pollution-vehicles-california-2019>
- Rubin, C. 2021. "Two California Bills Would Put Climate in the Fast Lane". Natural Resources Defense Council. 24 May 2021. <https://www.nrdc.org/bio/carter-rubin/two-california-bills-would-put-climate-fast-lane>
- Rose, M. H., Mohl, R. 2012. *Interstate: Highway Politics and Policy Since 1939*. United States: University of Tennessee Press.
- Rowangould, G. 2013. A census of the US near-roadway population: Public health and environmental justice considerations. *Transportation Research Part D: Transport and Environment*, 25. pp. 59-67. <https://doi.org/10.1016/j.trd.2013.08.003>.

Sabatier, P.A. 1988. An advocacy coalition framework of policy change and the role of policy-oriented learning therein. *Policy sciences*, 21(2-3), pp.129-168.

Sabatier, P.A. 1998. The advocacy coalition framework: revisions and relevance for Europe. *Journal of European public policy*, 5(1), pp.98-130.

Sabatier, P., S. Hunter, and S. McLaughlin. 1987. The devil shift: Perceptions and misperceptions of opponents. *Western Political Quarterly*, 40(3), pp.449-476.

Sabatier, P.A. and Jenkins-Smith, H.C. 1993. Policy change over a decade or more. *The nation's health*, pp.143-174.

Sabatier, P. and C. Weible. 2007. "The Advocacy Coalition Framework: Innovations and Clarifications." *Theories of the Policy Process*. 2nd Edition. Routledge.

Sacramento Area Council of Governments. 2019. Amendment #11 to the 2019-22 MTIP. https://www.sacog.org/sites/main/files/file-attachments/draft_mtip_amend_19-11_8-14-19_1_0.pdf?1619135052

Sacramento Area Council of Governments. 2021. "2021 SACOG Funding Round Staff Recommendation Item # 21-1715, Attachment B". <https://sacog.primegov.com/portal/item?id=1640>

Sacramento County. 2023. Public Portal for Campaign Finance Disclosure. Viewing filings made by Yes on Measure A - Committee for a Better Sacramento, sponsored by labor and construction organizations. <https://public.netfile.com/pub2/AllFilingsByFiler.aspx?id=201692212>

Schwartz, G.T., 1975. Urban freeways and the interstate system. *Southern California Law Review*, 49(3), p.406-513. <https://heinonline.org/HOL/P?h=hein.journals/scal49&i=422>

Sciara, G.C. 2020. "Implementing regional smart growth without regional authority: The limits of information for nudging land use". *Cities*, 103. <https://doi.org/10.1016/j.cities.2020.102661>

Sciara, G.C. and S. Handy. 2017. Regional transportation planning. *The Geography of Urban Transportation*, Eds. Susan Hanson and Genevieve Giuliano. pp.139-163.

Sciara, G.C. & A.E. Lee. 2018. "Allocating Transportation Revenues to Support Climate Policies in California and Beyond". *The California Journal of Politics & Policy* 10(1). DOI: 10.5070/P2cjpg10139474

Self-Help County Coalition (SHCC). 2023. "About Us." <http://selfhelpcounties.org/#about>

Senate Bill No. 1. California State Senate. 2017-2018. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB1

Senate Bill No. 45. California State Senate. 1996-1997. http://www.leginfo.ca.gov/pub/97-98/bill/sen/sb_0001-0050/sb_45_bill_19970224_amended_sen.html

Senate Bill No. 375. California State Senate. 2007-2008.

https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=200720080SB375

Seo, Sarah, 2019. *Policing the open road: How cars transformed American freedom*. Harvard University Press.

Shilling, F., J. Vandever, K. May, et al. 2015. State Route 37 Integrated Traffic, Infrastructure and Sea-level rise Analysis. Task 1 Technical Memorandum: Sea-level rise Assessment.

https://valuation.ucdavis.edu/files/upload/resource/Phase_II_SR_37_Stewardship_FinalReport_Task%201_Inundation_Modeling.pdf

Shilling, F. M., J. Vandever, K. May, I. Gerhard, R. Bregoff. 2016. Adaptive planning for transportation corridors threatened by sea-level rise. *Transportation Research Record: Journal of the Transportation Research Board*, 2599(1), 9–16.

Simon, H.A. 1955. A behavioral model of rational choice. *The Quarterly Journal of Economics*, pp.99-118.

Smart Growth America & Hattaway Communications. 2023. American Attitudes on Transportation Spending: Survey Findings Report. <https://smartgrowthamerica.org/wp-content/uploads/2023/07/FINAL-June-2023-Full-Survey-Data-for-release-1.pdf>

Smith, J. 2022a. “Letter to State Senator Lena Gonzalez June 8, 2022”. California State Senate.

Smith, J. 2022. “Letter to State Senator Anthony Portantino July 26, 2022”. California State Senate.

Sonoma County Transportation Authority. 2015. “Highway 37”.

<https://scta.ca.gov/projects/highway37/>

Steenland, K., J. Deddens, L. Stayner. 1998. Diesel exhaust and lung cancer in the trucking industry: Exposure-response analyses and risk assessment. *American Journal of Industrial Medicine*. 34(3).

[https://doi.org/10.1002/\(SICI\)1097-0274\(199809\)34:3%3C220::AID-AJIM3%3E3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0274(199809)34:3%3C220::AID-AJIM3%3E3.0.CO;2-Z)

Tax Policy Center (Urban Institute & Brookings Institution). 2020. “What is the Highway Trust Fund, and how is it financed?” Chapter in The Tax Policy Center’s Briefing Book. Washington, DC.

<https://www.taxpolicycenter.org/briefing-book>

Tessum, C., D. Paolella, S. Chambliss, et al. 2021. PM2.5 pollutants disproportionately and systemically affect people of color in the United States. *Science Advances*. 7.

DOI:10.1126/sciadv.abf4491

Tian, N., Xue, J. and Barzyk, T.M., 2013. Evaluating socioeconomic and racial differences in traffic-related metrics in the United States using a GIS approach. *Journal of exposure science & environmental epidemiology*, 23(2), pp.215-222.

US Congressman John Garamendi. 2021. “Letter to Secretary Pete Buttigieg 17 March 2021”.

<https://garamendi.house.gov/sites/evo-subsites/garamendi-evo.house.gov/files/20210317%20CJG%20support%20Yolo%20I-80%20INFRA%20grant.pdf>

US Congressman John Garamendi. 2021, June 30. \$86 Million Federal Grant Announced to Improve I-80 Corridor in Yolo County [Press release]. <https://garamendi.house.gov/media/press-releases/86-million-federal-grant-announced-improve-i-80-corridor-yolo-county>

United States Department of Transportation. 2019. “FY 2019 INFRA Project Applications”. <https://www.transportation.gov/buildamerica/sites/buildamerica.dot.gov/files/2019-08/infra-2019-application-list.pdf>

United States Department of Transportation. 2021. “FY 2021 INFRA Proposed Project Selections”. <https://www.transportation.gov/buildamerica/sites/buildamerica.dot.gov/files/2021-06/FY-2021-INFRA-Proposed-Project-Selections-v2.pdf>

United States, Supreme Court. *West Virginia et al. v. US Environmental Protection Agency*. No. 20–1530. 30 June 2022. (Kagan, E., dissenting). https://www.supremecourt.gov/opinions/21pdf/20-1530_n758.pdf

University of California Davis Road Ecology Center. N.d. “State Route 37 Integrated Traffic, Infrastructure and Sea-level rise Analysis”. <https://roadecology.ucdavis.edu/research/projects/state-route-37-integrated-traffic-infrastructure-and-sea-level-rise-analysis>

University of California Davis Road Ecology Center. 2011. “Highway 37 Stewardship Study: Stakeholder Meeting (#2) Notes May 24, 2011”. <https://hwy37.ucdavis.edu/sites/g/files/dgvnsk13111/files/media/documents/MTG2-5242011-meeting-notes.pdf>

Valley Transportation Authority. 2021. State Route 17 Corridor Congestion Relief Project. <https://www.vta.org/projects/state-route-17-corridor-congestion-relief-project>

Vartabedian, R. 2021. “Unions are the powerhouse behind California’s troubled bullet train. A big test awaits”. *Los Angeles Times*. <https://www.latimes.com/california/story/2021-06-09/labor-unions-power-california-high-speed-rail-decisions>

Volker, J.M., & Handy, S. L. 2022. Updating the Induced Travel Calculator. *UC Davis: National Center for Sustainable Transportation*. <http://dx.doi.org/10.7922/G2P55KTX> Retrieved from <https://escholarship.org/uc/item/1hh9b9mf>

Volker, J.M., Lee, A.E. and Handy, S.L., 2020. Induced vehicle travel in the environmental review process. *Transportation Research Record*, 2674(7), pp.468-479.

Wachs, M., Lederman, J., Marks, J., King, H., and T. Guy. 2020. Balancing accountability and flexibility in California’s local option sales taxes. UCLA Institute of Transportation Studies. No. PSR-18-33 TO-012. 2020. <https://www.its.ucla.edu/publication/balancing-accountability-and-flexibility-in-californias-local-option-sales-taxes>

Walker I, Tapp A, Davis A. Motornomativity: How Social Norms Hide a Major Public Health Hazard. PsyArXiv; 2022. DOI: 10.31234/osf.io/egnmj.

Washington, P. and J. Bulinski. 2019. "Letter to Elizabeth Adams, Director, EPA Region 9 Air and Radiation Division. 29 October 2019."

Weible, C.M., 2007. An advocacy coalition framework approach to stakeholder analysis: Understanding the political context of California marine protected area policy. *Journal of public administration research and theory*, 17(1), pp.95-117.

White, R.H., Anderson, S., Booth, J.F., Braich, G., Draeger, C., Fei, C., Harley, C.D., Henderson, S.B., Jakob, M., Lau, C.A. and Mareshet Admasu, L., 2023. The unprecedented Pacific Northwest heatwave of June 2021. *Nature Communications*, 14(1), p.727.

Yolo County Transportation District. 2022. "Board Communication: Yolo 80 Managed Lanes MOU and Funding Application." <https://yolotd.org/wp-content/uploads/2023/02/6.-Oct-2022-Staff-Report-80-Managed-Lanes.pdf>

Yolo County Transportation District. 2023. "Letter to Caltrans District 3 Director Amarjeet Benipal, 4 May 2022".

Yolo County Transportation District. 2023. "Yolo 80 Managed Lanes Project". <https://yolotd.org/planning-projects/freeway-roads/>

Zhu, Y., W. Hinds, S. Kim, S. Shen, C. Sioutas. 2002a. Study of ultrafine particles near a major highway with heavy-duty diesel traffic. *Atmospheric Environment*. 36(27). P. 4323-4335.

Zhu, Y., Hinds, W.C., Kim, S. and Sioutas, C., 2002b. Concentration and size distribution of ultrafine particles near a major highway. *Journal of the air & waste management association*, 52(9), pp.1032-1042.

Appendix

A. Table of Abbreviations

| Abbreviation | Definition |
|---------------------|--|
| AB | Assembly Bill |
| ACF | Advocacy Coalition Framework |
| CARB | California Air Resources Board |
| CalSTA | California State Transportation Agency |
| Caltrans | California Department of Transportation |
| CEQA | California Environmental Quality Act |
| COG | Council of Governments |
| CTC | California Transportation Commission |
| DOT | Department of Transportation |
| EPA | Environmental Protection Agency |
| FHWA | Federal Highway Administration |
| GHG | Greenhouse gas |
| HOT | High-Occupancy Toll |
| MPO | Metropolitan Planning Organization |
| MTC | Metropolitan Transportation Commission |
| NEPA | National Environmental Policy Act |
| NGO | Non-governmental organization |
| RTP | Regional Transportation Plan |
| SACOG | Sacramento Area Council of Governments |
| SB | Senate Bill |
| SCAG | Southern California Association of Governments |
| SCS | Sustainable Communities Strategy |
| SHOPP | State Highway Operation and Protection Program |
| SR | State Route |
| SRTA | Shasta Regional Transportation Agency |
| STIP | State Transportation Improvement Program |
| TCAG | Tulare County Association of Governments |
| TIP | Transportation Improvement Program |
| VMT | Vehicle Miles Traveled |

B. Interview Instrument

Introductory Chit-Chat

I'm studying transportation policy and projects throughout the state, particularly projects that will expand highways and roadways. Projects like the addition of managed lanes to Interstate 80 in Yolo County, I-710 South in Los Angeles, and State Route 37 through the San Pablo Bay.

Project Specific Questions

1. I'm curious about the [I-80 managed lanes / lower I-710 / Highway 37] project that you have been involved with. Can you tell me about how this project came about? Its origin story, of sorts.
2. What has been your role with the project?
3. What are you aiming for with this project? That is, what are the key problems that you're expecting it to fix?
 - a. If mentioned: Why is congestion such an important problem to solve?
4. And what are the outcomes that you are expecting from this project?
 - a. What do you expect will be its effect on congestion? How so?
 - b. What do you expect will happen with congestion in the long run?
 - c. What do you expect will be its effects on air quality and GHG emissions?
 - i. Can you walk me through the steps to get to [mentioned outcome]?
 - d. What do you expect will be its effect on VMT?

- e. What will be its effect on nearby communities?
 - i. What about in the long term?
 - ii. Why do you think so?
- 5. Who has been particularly involved in the project?
- 6. What are they aiming for with this project? What are their reasons for advocating for/against this project?
- 7. Thinking about how transportation projects fit with broader policies and goals...
 - a. How should transportation planning/projects fit into policy solutions for climate change?
 - b. How about environmental justice – how should transportation planning/policy prioritize environmental justice outcomes?
- 8. Is there anything else you would like to add?
- 9. Who would you recommend I talk to about this project/topic?

Questions for Statewide Policy Actors

- 1. Can you tell me how highway expansion projects generally come about? The origin story, of sorts. Feel free to talk about any project or projects that you're most familiar with.
- 2. What is your role in these kinds of projects?
- 3. What are you/people aiming for with these projects? That is, what are the key problems that you/people are aiming to fix?
 - a. If mentioned: Why is congestion such an important problem to solve?
- 4. What are the expected outcomes of these projects?
 - a. What will be the effects on congestion? How so?

- b. Congestion in the long run?
 - c. Air quality and GHG emissions?
 - i. Can you walk me through the steps to get to [mentioned outcome]?
 - d. Effects on nearby communities?
 - i. What about in the long term?
 - ii. Why do you think so?
5. Who is particularly involved in these kinds of projects?
 6. What are they aiming for with these projects? What are their reasons for advocating for/against projects like this?
 7. Thinking about how transportation policy and projects fit with broader policy and goals...
 - a. How should transportation policy/planning/projects fit into policy solutions for climate change?
 - b. How about environmental justice – how should transportation policy/planning/projects fit into environmental justice outcomes?
 8. Is there anything else you would like to add?
 9. Who else would you recommend I talk to about this?