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UNIVERSITY OF CALIFORNIA Los Angeles

REFORMING THE FREEWAY DIVIDE TO CLOSE GAPS AND RECONNECT COMMUNITIES

A Historical Analysis of Freeways in the United States and Applied Case Studies on Freeway Interventionism in the County of Los Angeles

A comprehensive project submitted in partial satisfaction of the requirements for the degree Master of Urban & Regional Planning

By Hudson D. Sesay Handel

Client: City Fabrick

Advisor: Jacob L. Wasserman, ITS

Disclaimer

This report was prepared in partial fulfillment of the requirements for the Master in Urban and Regional Planning degree in the Department of Urban Planning at the University of California, Los Angeles. It was prepared at the direction of the Department and City Fabrick as a planning client. The views expressed herein are those of the authors and not necessarily those of the Department, the UCLA Luskin School of Public Affairs, UCLA as a whole, or the client.

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Sincerely, Hudson This Page Intentionally Left Blank

Comprehensive Client Project

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Abstract

This paper explores the enduring impact of freeway construction on urban neighborhoods and communities, focusing on Los Angeles. The legacy of freeways in Los Angeles, often and purposefully constructed through marginalized communities during the mid-20th century for the benefit of white suburbanites, is reflected in significant social, economic, and environmental symptoms today. This paper also examines de-freeway methods to reconnect these divided communities, assessing their need and effectiveness through data analysis and case studies.

The case studies presented in this paper offer a diverse range of solutions. They include the capping of I-5 for Freeway Park in Seattle, the tunneling of the Central Artery for Boston's Big Dig, the activation of I-5 underpasses for Chicano Park in San Diego, and the creation of the Ricardo Lara embankment park along the I-105 freeway in Lynnwood. These examples provide valuable insights into the processes, challenges, and successes of de-freeway and community reconnection efforts, showcasing the adaptability of these solutions in different urban contexts.

The paper introduces three design proposals for freeway sites across six communities in Los Angeles. These proposals are guided by urban reformation around freeways and incorporating urban design principles prioritizing social equity, environmental sustainability, and economic revitalization for the most vulnerable and impacted communities. The proposed designs aim to restore community cohesion and foster resilient urban ecosystems.

This study contributes to the ongoing discourse on sustainable urban transformation and the reclamation of public spaces for community benefit by providing a comprehensive analysis of historical impacts and contemporary solutions. The paper's findings should help inform and guide urban planning and policy advocates and professionals inspired by the reconnecting communities movement, underscoring the need for innovative approaches to mending bifurcated and ecologically disadvantaged communities.

INTRODUCTION & BACKGROUND

Problem Statement

Freeways in the United States carry a legacy of urban disinvestment and suburban sprawl, environmental racism, displacement, community severance, and racial segregation.

Today's planners can address this historical malpractice through freeway reform and by building connectors that bridge the divide between neighborhoods and communities. I found this paper on a desire to amend past failures in city planning by highlighting and promoting methods for reconnecting communities disadvantaged by freeways.

Although transportation infrastructure-adjacent, I have analyzed and applied this work through a lens of equitable place-based capital improvement design. This paper examines the freeway development era in the U.S. from the 1930s to the 1960s, its impact on the urban and environmental landscapes and communities, the freeway revolts, and the potential for and implications of gentrification in contemporary new-urbanist redevelopment and remedial planning. I also delve into de-freeway design typologies, with the idea that certain forms of freeway infrastructure offer different opportunities for reconnecting communities across freeways.

Hypothesis

The notion that freeways are not just infrastructure but also landmarks of racist urban planning has gained widespread acceptance in academia, environmental justice, urban planning, and government. From local elected officials to federal policymakers, there is a growing recognition of the harm and disruption that the federal highway program and ongoing freeway expansion have inflicted on poor and minority communities across the

United States. The County of Los Angeles, with its numerous multi-lane freeways, stands as a stark testament to the decisions of highway engineers and planners and the influence of the oil and auto industries that shaped these landscapes. Extensive academic research has shed light on these legacies, underscoring their significance.

While this paper integrates that research, I decided to take a further step and investigate the potential and application of de-freeway in Los Angeles, as there are opportunities for a diverse and achievable range of interventions that prioritize people and communities over automobiles. The latter parts of this paper prospect three case studies across three freeway sites bordering six communities where de-freeway and spatial reformation is possible.

Theoretical Framework

Transportation is essential to our daily lives, shaping our ability to access opportunities and participate fully in society. However, for many individuals and groups, limitations in transportation options can lead to social exclusion, restricting their access to essential services and opportunities.

Social exclusion results from the socio-economic and environmental impacts of urban transportation infrastructure and systems. It can marginalize individuals and groups, hindering their access to societal and educational opportunities, employment, and healthcare (Luz & Portugal, 2022). When individuals cannot participate fully in society due to factors beyond their control, such as limited transportation options and mitigating built environments, they experience social exclusion. Social *inclusion* thus relies on improving

societal participation for disadvantaged individuals and necessitates removing or bypassing barriers to societal engagement (Luz & Portugal, 2022).

The Capabilities Approach (C.A.) (Amartya Sen. 2011) underscores that a person's well-being should be based on real opportunities to act on and aspire to their desires. Mobility, within C.A., entails being physically, socially, and financially capable of moving within and interacting with society. Accessibility as a human capability is an individual's potential to engage in various out-of-home activities, encompassing the ability to move through space and translate resources (such as public services and amenities) into activity participation (Luz & Portugal, 2022). This approach integrates land-use components, considering their interaction with transportation systems to enhance people's capabilities (Anciaes et al., 2016). Resources, activities, and well-being form a reinforcing cycle in this framework.

Transportation disadvantage is a barrier to social inclusion that speaks to difficulties faced in timely travel. These transportation-related obstacles include governance issues and exposure to negative externalities such as accidents, closures, and traffic delays.

Transportation poverty signifies inadequate transportation and substandard urban and environmental conditions supportive of personal mobility. Transportation-related Social Exclusion (TRSE) indicates limited accessibility to opportunities, services, and social networks because of inadequate mobility options in an urban setting – such as Los Angeles – that emphasizes the automobile, thus hindering individuals from participating in economic, political, and social life (Luz & Portugal, 2022).

TRSE encompasses the following categories (Luz & Portugal, 2022))

| Exclusion From Facilities | The state of our transportation network means critical opportunities such as employment, healthcare, schools, shops, or leisure services are difficult to access. This limits our upward mobility and potential and significantly impacts our quality of life, making it a personal struggle for many. |
|---------------------------------------|---|
| Geographic Exclusion | Our ability to access transportation services is limited by our residential location or an inadequate transportation system's inability to connect to the desired destinations. The distance covered and the transportation network's connectivity can constrain individuals' capabilities, while elements of the city's physical structure, such as street and sidewalk connectivity, distancing between places, and bicycle path infrastructure, also impact accessibility. |
| Time-Based Exclusion | This includes bus and metro frequency, frequent delays, or obstacles to an individual's time that limit our travel windows and capability. The consequence is more time spent accessing transportation, waiting for it, and traveling. Depending on transit service frequency, network design, the number of transfers, operational speed, and first/last-mile distances, this can restrict access to various activities. This can lead to "Time poverty," where significant time consumed by travel leaves little room for other essential activities. |
| Fear-Based Exclusion | Avoiding certain places due to fear of crime or prejudice. Things such as the quality and safety of the chosen transportation mode, visible security at stations, and the courtesy of service providers contribute to our perceptions of transit options. Additionally, perceptions of the built environment based on neighborhood aesthetics, lighting, and available signage can impact our ease of access. A lack of either of these may compromise safety and discourage us from using a method of transit. |
| Economic Exclusion | The financial burden of transportation can be a significant barrier, preventing access to essential activities in our local communities. Poverty and unemployment, exacerbated by transportation costs, not only limit individual mobility but also hinder societal participation. |
| Social Position-Based Exclusion | The inability to move in public spaces due to restrictions based on one's social position (i.e., gender, race, nationality, age, religion). Young people can also be limited because of safety concerns regarding unaccompanied travel. Safe, equitable transit options allow the opportunities and services some enjoy to be appreciated by those with unequal mobility capability. |

Minimum accessibility requirements should be established to meet the entire population's needs, ensuring that individuals are not denied participation in society. Planners should seek to understand how accessibility measures align with increased travel and activity participation. This approach, grounded in the C.A. framework, offers a pragmatic means of inclusive transport planning, prioritizing accessibility needs and social rights.

Scope Limitations of this Paper

The execution of the applied case studies would not meet real-world requirements for actual feasibility. More time, expertise, and resources would be required to conduct a full-fledged feasibility and design study for each site. Further research along the lines of this paper should bolster the information presented and fill gaps in the areas of feasibility studies, community engagement, and vision planning. Further research might explore housing and homelessness regarding the reconnecting communities and de-freeway movements or analyze the international perspective to gain insight into best practices across different physical and social geographies.

LITERATURE REVIEW

Freeway Planning in the United States

Under President Dwight D. Eisenhower, and propelled by the Federal Highway Act of 1956 and substantial federal funding (subsidizing 90% of capital costs), the U.S. interstate highway program heralded a new era of connectivity in America (Loukaitou-Sideris, Handy, Ong, et al., 2023). It constructed nearly 43,000 miles of highways – a testament to one of history's most significant public works projects. However, by the late 1970s, the funding dried up, and the program's flaws, particularly its social and racial implications, came to light, leading to the end of large-scale new freeway construction in the early 1980s (Loukaitou-Sideris, Handy, Ong, et al., 2023).

Even during its active period, the highway modernization program was not without its detractors. Criticism extended to planning authors who lamented environmental costs, loss of open space, residential destruction, civic opposition, racialized politics targeting minority neighborhoods, and the disproportionate impact on poor and Black victims (Loukaitou-Sideris, Handy, Ong, et al., 2023). With its adoption of a mammoth 12,241-mile freeway plan in 1959, California played a pivotal role in shaping the trajectory and standards of highway planning nationwide.

Unlike many other states' highway systems, California's highways did not require tolls and were thus coined "freeways." Initially, these freeways were hailed as a triumph, celebrated for their role in "democratizing" transportation and enabling people to transcend their immediate geography on their terms. They were not just a solution to city traffic congestion but were also seen by planners and engineers as a near-permanent fix to all

transportation issues at the time. Freeways were touted to reduce the rate of traffic injuries, facilitate the movement of goods, increase access to more jobs and services, and alleviate vehicle operation costs, fuel consumption, and tire wear.



Despite this cooperative attitude, cities faced competing visions from city planners and transportation engineers in developing highways. The planners prioritized the integration of highways into the larger built environment, focusing on assessing the social and land-use impacts (Loukaitou-Sideris, Handy, Ong et al., 2023). They emphasized the need to consider these factors when planning highway projects. However, engineers like the Automobile Club of California prioritized traffic flow, speed, and driving efficiency. Highway developers viewed highways as an amenity for motorists rather than part of the city's social fabric and used traffic surveys to promote their agenda (Automobile Club of Southern California Traffic Survey, 1937).

During the 1920s and 1930s, Los Angeles expanded its territory and population due to internal migration and economic drivers including oil drilling, the birth of aviation and film industries, business speculation, and the automobile; a growth facilitated by William Mullholand's Water System of aquaducts reservoirs and dams routing water form Owen's

Valley. Los Angeles' Arroyo Seco Parkway, coined "the first Freeway of the West," opened in 1940 and initiated a new roadway-based transportation network (Loukaitou-Sideris & Gottlieb, 2005). In the subsequent decades, regional planning reports such as the traffic surveys outlined a vision for the city's transportation network, prioritizing efficient regional interconnectedness over preserving existing neighborhoods.

While an expansive streetcar system assisted its growth, freeway construction promoted Los Angeles' development to new heights. The rise of the automobile was not only driven by the defense industry, policymakers, civic leaders, and prospective land developers who considered the private car the epitome of modernity, but also wealthy residents who could afford them as luxury (Loukaitou-Sideris, Handy, Ong et al., 2023). Despite having an extensive system in the **Pacific Electric Railway Company** in the first half of the 20th century, the demise of streetcars resulted from policy choices favoring oil, automobile subsidies, roads, and sprawl.



The original vision for Los Angeles freeways sought a denser network of more minor highways. Instead, the Californai Bureau of Highways (1895), which later would become the California Department of Highways (1972), focused on designing superhighways to secure more federal funding. It limited the densest part of the first proposed network to downtown Los Angeles, with five interchanges — the superhighway design aimed to simplify commuting for workers living miles away (Bethel, 2021). Despite celebrations of the suburban lifestyle — particularly during the post-war G.I Bill era flush with new homes, cars, and appliances — this version of the American Dream was determined along racial lines, primarily benefiting white middle-class workers. The freeway system, integral to suburbanism, cut through poor neighborhoods, perpetuating social disparities rooted in historical racial segregation, poverty concentration, and resource starvation (Sides, 2006).

Discriminatory practices in selecting routes saw decision-makers targeting neighborhoods of color while sparing wealthier, predominantly white areas. Chosen routes traversed lower-value homes, aligning with cost-based and blight-clearance criteria, which resulted from past housing discrimination such as racial covenants and the Home Owners' Loan Corporation (HOLC) obstructive redlining maps (Loukaitou-Sideris, Handy, Ong, et al., 2023). The maps, which were inherently racist and isolated black communities, was a practice of discouraging investment in and denying mortgages to people in neighborhoods using a grading system of letters and colors; As were green and Ds were red, where white neighborhoods received A and B grades while Black and Brown neighborhoods received C and D grades (Mapping Inequality).

Influential voices from white residents shaped the routing decisions, while residents of color, lacking representation and financial backing, remained unheard (Loukaitou-Sideris,

Handy, Ong, et al., 2023). The oil boom throughout Los Angeles County, the increase in car ownership, the promotion of real estate development, and federal mortgage subsidies resulted in the growth of single-family housing in distant suburbs.

Great For Some, Detrimental For Others

The freeway expansion era coincided with a turbulent period in U.S. race relations. Notably, the Civil Rights Movement ended *de jure* racism, with victories in courts prohibiting racial segregation, allowing interracial marriage, and alleviating racial restrictions (Loukaitou-Sideris, Handy, Ong et al., 2023). Despite the end of *de jure* racism, housing discrimination persisted. Los Angeles County played a significant role in racial restructuring, experiencing urban unrest and protests by Black and Latino/a Angelenos along the way and leading to a recomposition of the region's populace (Avila, 2014).

Freeways were crucial in reshaping urban form, often routed through neighborhoods labeled as blighted and targeted for "slum clearance" as part of urban renewal policies. Their planning and construction relied on a racialized spatial hierarchy, reinforced by redlining practices, and contributed to the racial wealth gap. Housing destruction, particularly for low-income and Black families, was a consequence of highway projects (Fotsch, 1999). The interests of white, working and middle classes led to the development of affluent suburbs, shopping malls, and residential neighborhoods, resulting in the demolition of nearly 330,000 housing units across the U.S. from 1957 to 1969, primarily affecting Black families (Mohl, 2000). The Interstate Highway System transformed metropolitan areas but disproportionately benefited white communities, exacerbating social and racial inequities.



The destruction that freeways inflicted was justified by planners, developers, and policy makers under the pretext of increased access and mobility freedom, shortening distances to work, educational, and recreational activities. However, they also served as a cordon/barrier to separate certain neighborhoods of color from white neighborhoods, and allowed suburbanites to bypass those communities to and from the urban core (Loukaitou-Sideris, Handy, Ong et al., 2023). The resulting "transit apartheid" dictated mobility based on race and class, creating a class and racial divide that deepened over the years and persists still. The construction of freeways in Los Angeles impacted local businesses, ushered relocation of people and money, and reformed economically mixed communities into low-income communities predominantly of color. Contemporary mixed-use and mixed-income development is an attempt at rectifying this.

Freeway projects, in their facilitation of "white flight," contributed to the decline and fracturing of urban centers in numerous cities across the US (Avila, 2014). State and federal housing programs and loans did not prioritize displaced families, especially Black families. Economic transportation benefits favored white individuals, as highway-centric development undermined transit systems and created barriers for transit-dependent

populations of color in the city. The departure of wealthier residents was not just a loss of diversity but also a loss of tax revenue, leading to the neglect of remaining residents and businesses. White families enjoyed spatial and economic access, while low-income and communities of color suffered adverse economic and environmental consequences (Shepard and Sonn, 1997). Today's disproportionate tax bases, struggling school districts, and community disinvestment are lingering symptoms of this.

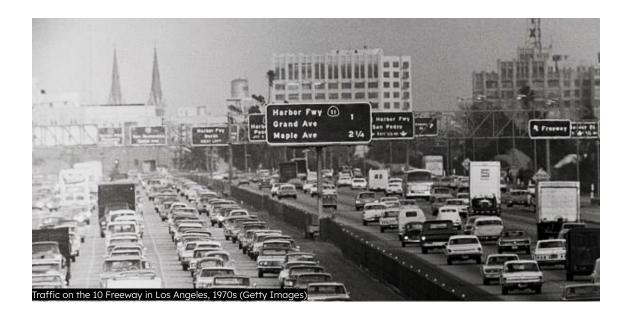




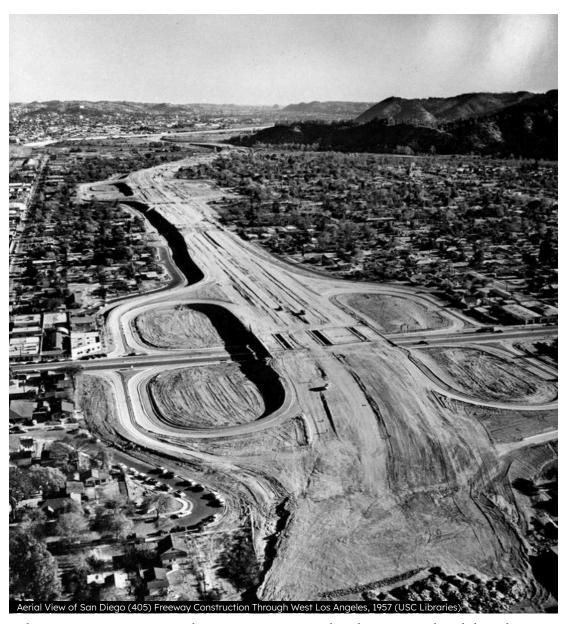
The Freeway's Environmental Consequences

The environmental and health impacts of freeways directly affect nearby schools, parks, and residences and have long spurred concerns about residents' well-being. For example, the concentration of seven freeways in a 16-square-mile area in primarily industrial East Los Angeles created one of the country's most polluted environments (Estrada, 2005). During the 1940s and 1950s, freeway engineers and planners took advantage of areas where effective community resistance to land acquisition was weakest. Disproportionate levels of asthma in communities of color reflect this, as residents are subjected to higher concentrations of air pollutants than in predominantly white neighborhoods (Nardone et al., 2020). The pervasiveness of asthma and other respiratory and cardiovascular diseases and higher risks of cancer among residents across metropolitan California is a product of

redlining, urban renewal, land use policies, and freeways that undermined the physical environments and economic opportunities of these neighborhoods.



Transportation infrastructure development in California has resulted in severe local impacts, including ecological destruction, housing removal, displacement, air and noise pollution, segregation, and a surplus of underutilized parking lots. The environmental justice movement of the 1980s spotlighted pollution, its sources, and its impact on low-income communities and communities of color (Loukaitou-Sideris, Handy, Ong et al., 2023). Decades after the onset of the U.S. Interstate Program, President Clinton wrote Executive Order 12898 on environmental justice (1994), directing federal agencies to recognize and mitigate the adverse health and ecological impacts disproportionately inflicted on low-income communities of color.



Urban-centric environmental issues are not immediately associated with broader ecological discourse. Instead, they are often related to civil rights work or community organizing. Environmental racism, an increasingly recurring issue in Los Angeles and urban contexts across the U.S., mirrors the patterns seen in employment or housing racism. Consciously or otherwise, decision-makers disproportionately impact the poorest, least educated, and underrepresented populations when planning transportation routes.

The path of least resistance, chosen for its convenience, undermines the socio-economic fabric and perpetuates the harm these marginalized communities have experienced by planners (Loukaitou-Sideris, Handy, Ong, et al., 2023).



Pushback Against Freeways: The Freeway Revolts

Most planning surveys in California assumed the automobile to be the prime mode of transportation and movement, with congestion as an automatic call for more freeways (Los Angeles Metropolitan Area Traffic Survey, 1937 & Brodsly, 1981; Avila, 2004; and Estrada, 2005). However, opposition to freeway expansion and suburban sprawl grew as working-class people of color from urban neighborhoods in the 1960s protested and vocalized the disruptive effects of freeways. The Freeway Revolt movement kicked off in San Francisco in the early 1960s. Protests took place against a series of proposed freeway routes such as I-280 through the heart of San Francisco and extensions such as the Central Freeway (a section of which would later collapse from the 1989 Loma Prieta earthquake and become The Embarcadero in 2002) (Loukaitou-Sideris, Handy, Ong et al., 2023),

(Pacific Historical Review, 1999). San Franciscans, like other cities' residents, protested to save neighborhoods, public spaces like The Panhandle, and access to the water front.

The opposition to freeways during the 1950s and 1960s brought together a diverse, multicultural front that organized demonstrations, albeit often unsuccessfully, to save their neighborhoods (Avila, 2004; Sides, 2006). Still, increasing resistance diminished political backing for additional highway taxes and fees in the 1960s and 1970s. This opposition led to a drastic 95 percent drop in freeway miles constructed in California from 1966 to 1978, reducing from 341 miles to 17 miles (Taylor, 2000).

The 1970s marked a significant shift in urban planning with the rise of the freeway teardown movement – in tandem with the oil crisis. Driven by community groups, several cities began considering alternatives to replace expressways. This movement, which sought compensation and restoration for the destruction caused by highways, demonstrated the potential for community-driven change in urban planning (Avila, 2014). However, it's important to note that the success of these movements was often limited to communities with access to resources and political leverage, and redevelopment could trigger real estate speculation.

The 1980s experienced a surge in homeowner and neighborhood activism across the cities and suburbs of Southern California. Concerns over slow growth, preservation, and local control precipitated a rise in movements, challenging the encroachment of highways, airports, pollution, and high-density development on communities and open spaces (Lin, 2019). Angry residents, homeowner associations, and preservation groups engaged in social movement tactics, such as picketing at sites of land-use conflicts and collective

protesting at public hearings (Loh & Hayes, 1993). These actions aimed to draw attention to the threats facing their communities and exert pressure on politicians and public agencies.

Northeast Los Angeles, home to inner-ring suburban neighborhoods from the early 20th century, transformed as automobiles and freeways spurred the growth of outer-ring suburban neighborhoods. Commercial boulevards experienced a decline in retail and pedestrian life, leading to vacant properties and struggling businesses. In the 1980s, developers capitalized on undervalued properties in older neighborhoods, prompting concerns over the changing urban landscape (Lin, 2019).



The decade witnessed the emergence of influential organizations that left a lasting legacy in the fight for preservation and community empowerment (Lin, 2019). These included the Eagle Rock Association, Eagle Rock Community Preservation and Revitalization Corporation, Highland Park Heritage Trust, and Friends of the Southwest Museum Coalition. Led by women, these organizations successfully carved out political space for neighborhood participation in the community planning process (Lin, 2019). Their efforts

not only preserved the character of these neighborhoods but also empowered the communities, leaving a lasting impact on urban development (Martinez, 2015).

Community destruction, notably through housing displacement, entails a ripple effect where essential services evaporate along with residences. Drug stores, laundromats, healthcare providers, supermarkets, and other vital neighborhood amenities vanish, disrupting the very foundation of community life (Loh & Hayes, 1993). In the absence of opportunities for work and education, underserved communities demonstrate remarkable resilience, resorting to various forms of organization and civil struggle, from lawsuits to stand-in protests, newsletters, flyers, and forums (Loh & Hayes, 1993). If deemed necessary, organizing groups assert constitutional rights claims to the fullest extent possible, emphasizing the unwavering determination of communities facing systemic challenges.

Citizens learned to navigate urban planning and public policies, deploying tools like historic-cultural monument nominations, land-use ordinances, community-specific plans, historic preservation overlay zones, design review boards, and preservation coalitions (Loh & Hayes, 1993). Nonetheless, planners should be mindful of these processes being used by a few residents with the privilege of time, resources, and political or social clout in a community to slow and block projects that may actually benefit the whole.

Freeway Removal in the U.S. vs. Internationally

Financial concerns have been a key motive behind dismantling freeways in the United States, in addition to pressure from urban communities. For instance, the Embarcadero Freeway in San Francisco, which began construction in the 1950s, was halted due to its incompleted condition, high costs, and public outcry. The city eventually replaced it with a

boulevard (Pacific Historical Review, 1999). Similarly, Portland's Harbor Drive was replaced with a waterfront park. Now approaching the end of their expected lifespan, freeways across the country require substantial funding to renovate, repair, or reconstruct them (F. Khalaj et al., 2020). These circumstances have sparked a debate on the limited lifespan of these structures – that demanded significant public investment in their construction – and their use and significance today, a debate fueled by a cycle of freeway expansions and induced demand. Freeway removal tends to be considered a viable option only once freeways reach their life span limit or are worn beyond repair.

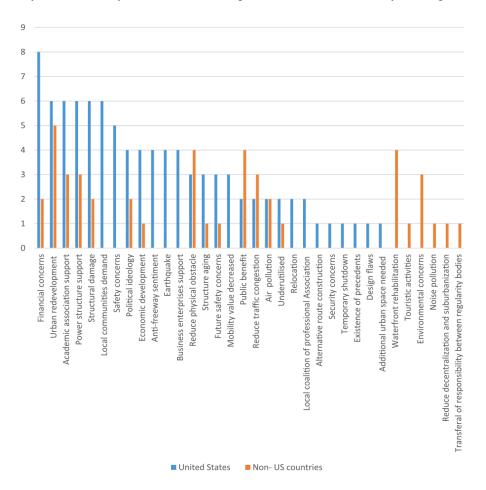


Figure 1.0 | Reasons for freeway removal in the United States versus other countries. The numbers on the vertical axis indicate the number of projects. (Sourced from F. Khalaj et al., 2020)

Thomas Kuhn, founder of the "paradigm shift" concept (1996), posited that "a professional community needs to go through a "perceptual" or "gestalt" transition, at the completion of which the profession is redirected and has adopted different norms, methods, and goals. In the case of urban freeways, a paradigm shift is "not only desirable but necessary in the present time of climate breakdown... freeways have no place inside cities and cities must be for people rather than cars" (F. Khalaj et al, 2020). While many expressed anti-freeway sentiment during protests in the 1970s, more people today choose to live in more walkable urban environments and forgo personal car dependency altogether – in part because the millennial generation is achieving certain milestones later in life than older generations due to a less forgiving economic landscape (PewResearchCenter).

This shift has significant environmental implications, as it aids in reducing air and noise pollution, contributing to public health and slowing global warming. In addition, global climate change mitigation organizations, such as Extinction Rebellion, are targeting car-related impacts such as automobile infrastructure growth and fossil fuel consumption (Circella, Tiedeman et al., 2016). The balance of factors also depends on an era's political and economic landscapes.



Surface boulevards often replace freeways following removals in the United States, promoting commercial spaces or other public amenities. Reflective of its dependency, car-centered infrastructure often replaces the freeway, albeit increasingly with more mind to pedestrians. However, reallocating space from cars for pedestrian and cyclist use can be challenging, especially in densely populated areas. It requires careful planning, public support, and cooperation from various stakeholders. In less mobility-forward cases, a highway will be built elsewhere or hidden, as in the case of Boston's Big Dig underground central highway. Urban centers in the United States do not currently prioritize reallocating space from cars to pedestrian and cyclist use.

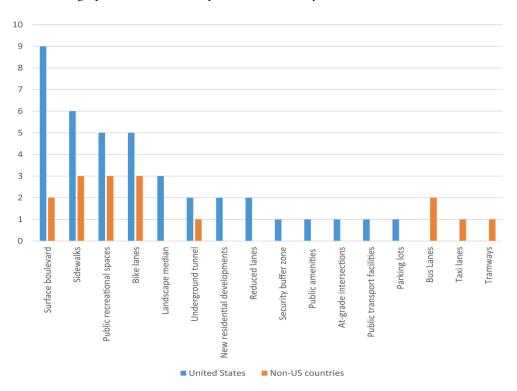


Figure 2.0 | Substitute projects in the United States versus other countries. (Sourced from F. Khalaj et al., 2020)

In contrast, international cities have often replaced freeways with parks, sidewalks, bike paths, and public transportation lanes. For example, Seoul, South Korea, removed a

significant downtown freeway and restored a preexisting stream into a linear walking river park called Cheonggyecheon. Outside the U.S., urban placemaking and beautification are more commonly linked as incentives for removing car-centric infrastructure (F. Khalaj et al, 2020). It is also important to acknowledge that in the European context, cities were long built and populated before automobiles, resulting in more pedestrian-oriented urban forms and adoption of public transit as standard. These differences highlight America's reliance on cars and personal transportation. It may take several decades for transportation planners, politicians, policymakers, and communities to adopt new norms, methods, and goals. The transfer and diffusion of international policy and practice, such as the boulevards in Paris or the superblocks in Barcelona, may influence U.S. freeway removal initiatives in the future.



Repurposing strategies, known as 'adaptive reuse planning,' are a more readily available option for cities and aim to repurpose existing underutilized or no longer needed infrastructure. This typically happens when structures become unnecessary or have fulfilled their intended purposes (Congress For New Urbanism, 2023. For example, the

High Line in New York City was once an elevated railway track and is now a renowned linear park. Cities across the U.S. are implementing policies to create human-scale and active transportation spaces, but these still coexist with freeways (Congress For New Urbanism, 2023). Adaptive planning is desirable, given its flexibility and potential to transform underutilized spaces into community assets.



These new approaches have led to positive outcomes, such as creating pedestrian and bicycle networks, revamping districts into mixed-use, enhancing waterfronts, and cultivating cultural events. Significantly, these developments have also improved communities' health, social, and environmental conditions (Mokhtarian, Salomon & E. Singer, 2015). Notably, in Los Angeles, there has been a reduction in air and noise pollution since the thick smog of the 80s, resulting in a healthier environment and increased physical activity – a testament to the positive impact of public health-oriented land use planning (The Trust for Public Land 2009).

The Issue of Gentrification in Urban Reform

Los Angeles, renowned in its past for its expansive freeways and the allure of the automobile era, is gradually transforming. The focus is shifting to the surface boulevards and avenues, which are increasingly found with mixed-use developments and an eye for public spaces that cater to people instead of the automobile. This shift, however, has its challenges. The specter of gentrification and the resulting displacement of communities are issues that demand attention.

Gentrification, a pervasive force in Los Angeles County, is not without its complexities. While economic investment in underserved communities is crucial for uplifting populations and creating economically viable neighborhoods, it must be accompanied by community-driven and led initiatives to combat the gentrifying stage of reinvestment Los Angeles has undergone since the turn of the century (Lin, 2019). These initiatives recognize the power of local knowledge and participation and are key to cultivating and driving inclusive urban landscapes. However, this transformation often comes at a cost, with the displacement and relocation of existing residents and widening socio-economic disparities across racial, cultural, and class lines (NCRC, 2022). This is not to place all the blame on individual home buyers. A general lack of housing supply across all tax brackets in Los Angeles forces more well-off renters and buyers to rent and buy and increase costs below their bracket, creating a domino of increased prices.

"Social space" in the context of gentrification addresses public domains such as parks, streets, squares, and quasi-public areas of commerce and leisure such as shops, restaurants, and cafes. While financial exclusion is a definitive limiting barrier, more subtle forms include "cultural and identity exclusion." Existing residents frequently

perceive newly established retail spaces as unwelcoming or hostile due to the symbolic language and aesthetic codes utilized (NCRC, 2022). Consequently, their sense of place and belonging is challenged. Shifts in the aesthetic and unwritten performative codes of neighborhood spaces mitigate individuals' ability to comfortably participate in everyday life, effectively rendering them as "outsiders" who do not fit within the new regime.

The existing economies and social fabric suffer disruption and dislocation through reconstructed social spaces, which can be seen as a form of localized urban colonization. Participation in these new social spaces requires more flexible leisure time, rendering them less accessible to individuals employed in labor or service industries and those constrained by institutional or societal regulations (i.e., the impoverished and unhoused) (De Oliver, 2016). This inaccessibility underscores the importance of cultivating an "aesthetics of belonging," which honors a place's unique cultures, social and ethical engagements, and practices.

Art and its spaces of cultural consumption, from indoor spaces to outdoor murals and sculptures, can elevate or pose challenges for communities. On the one hand, it can revitalize neighborhoods by bolstering cultural expression and fostering engagement and regeneration (Lin, 2015). It serves as a medium through which local artists and residents can empower by showcasing their histories and combating the blight of disinvestment through beautification (Visconti, 2010). However, this infusion of art and vibrancy often attract external attention from visitors who are potentially prospective residents and speculative investors and developers. This influx can eventually lead to the displacement of local artists as living costs swell. Additionally, commissioned projects and art-washing

can dilute authenticity, co-opt, and exacerbate gentrification pressures by boosting desirability while appealing to a white, young, and middle-class crowd (Visconti, 2010). Art remains integral to the social experience, residing from shared dialogue, engagement, and action. Changes to a place's aesthetics undermine the existing inhabitants' sense of belonging. This is evident in the history of protests in neighborhoods like Boyle Heights, where the influx of the art world triggered a backlash from residents who felt their sense of place was threatened (Lin, 2019). Perhaps paradoxically, many artists and art institutions align themselves with progressive politics of inclusivity and challenging normative practices and regimes (Lin, 2019). While the art is often touted as a positive contributor to neighborhood revitalization, it can inadvertently drive the case for disbelonging when implemented disingenuously and co-opted, and the community is protected from the external forces that come with it.

Environmental initiatives and green infrastructure projects hold potential for positive change but can also contribute to "greenwashing" in the same way transportation projects contribute to transit gentrification. Despite aims to foster sustainability and green urbanism, proponents must acknowledge that these works can bring unintended consequences on low-income neighborhoods (Loughran, 2016). While they're intended to address and improve environmental and health concerns, it is compulsory to address the displacement of residents due to boosted property value and the return of the white middle class, which subsequently hikes rent (Lin, 2019).

Today, public green spaces are envisioned as locations where people of diverse backgrounds, races, incomes, and interests can mingle, transcending the barriers imposed by the city grid. However, the historical trajectory of park projects reveals a troubling

pattern of class segregation (Betsky, 2022). Parks were initially reserved for the privileged, symbolizing leisure and recreation. They were then stigmatized as havens of crime and poverty in urban centers as the affluent abandoned cities and the remaining communities claimed those spaces — Westlake's MacArthur Park is an example of this evolution (Gardea, 2015)

Park projects have since become economic development tools that also work to address public health and global warming. These open spaces aim to provide welcoming environments while minimizing strain on precious natural green spaces (Betsky, 2022). Woven into the urban fabric, these new parks provide spaces for respite, shelter, and social gathering. These parks inadvertently contribute to the appreciable rise in real estate values, ultimately pricing out working-class people, or as it's termed today, "green gentrification" (Betsky, 2022).

Additionally, green infrastructure such as rain gardens, pocket parks, and green alleys speak to a quality of life and cost of living typically associated with higher-income and tax-base communities (Loughran, 2016). Without anti-displacement and community economic development protections and strategies, the surrounding residential and commercial community is vulnerable to displacement.

Unfortunately, community development projects often face resistance due to residents distrusting municipal and private interests in underserved neighborhoods. Implementing economic and social anti-displacement strategies can effectively address the challenges of gentrification and foster more just, resilient, equal-opportunity cities (Ermagun, 2023).

Comprehensive Client Project

METHODOLOGY

Research Aim and Objectives

This paper aims to highlight the history of freeway development, analyze de-freeway potential, present an argument for de-freeway efforts in Los Angeles, and apply them to real-world sites predicated on need by analyzing a composite of regional environmental and socio-economic data.

Research Method

The study used aggregated quantitative indicators from data sites such as CalEnviroscreen, California Tree Equity Score, and Park Needs Assessment to demonstrate impact and priority need in across the County of Los Angeles. I used qualitative research via news articles and a direct interview with People For Mobility Justice, a nonprofit organization centered on mobility justice in low-income communities of color in Los Angeles. Their insight and knowledge of this paper's themes, via real-world applications and community work, helped further inform my lens of analysis and final proposals. I also visited each study area, gaining a contextual and spatial understanding of the sites. Existing case studies were chosen per their significance in the greater context of the de-freeway movement and their applicability to themes raised in this paper.

Data Analysis

Analyzing aggregated data maps, aerial site studies, demographic data, and comparative studies helped inform project siting and design decisions. The existing case studies offered referential, pre-existing example material that aided my understanding of the origins and application of the de-freeway movement.

DE-FREEWAY TYPOLOGIES

Freeway Capping

Freeway capping, also known as a freeway lid, involves covering a segment of an existing freeway or highway with a concrete deck to establish a platform over a roadway. This approach can be employed for various purposes, including developing parks, residential or commercial properties, recreational areas, or other public uses. Freeway capping projects are typically initiated in urban areas where available land is limited, and there is a demand for repurposing the space above the freeway for public use. By implementing such caps, cities can foster neighborhood connectivity, introduce new developments, augment green spaces, and alleviate some of the adverse effects of highways, such as separation, noise, and heat island effects. The realization of these projects generally relies on a combination of state and federal financial support. Engageing and educating the community throughout — from advocacy to participatory planning, to stewardship — is essential.



The General Process

A comprehensive feasibility study done by the lead contractor firm is a prerequisite when considering the potential for any capital improvement project. This study aims to evaluate the practicality of a proposal by examining traffic volume in the vicinity of the proposed cap location, addressing engineering challenges related to the existing infrastructure and geographical considerations, conducting an environmental impact assessment through a CEQA ecological impact report, and assessing the economic viability of the project.

Furthermore, a thorough analysis of the local neighborhood and ongoing community engagement is crucial for understanding the specific needs and concerns of the area.

Upon confirming feasibility, collaboration among planners, engineers, and architects will begin to design the cap and its uses. This process considers load-bearing capacity, drainage, access points, aesthetics, and environmental considerations. Concurrently, plans for maintenance, operations, and management, as well as administrative leadership, should be formulated to ensure the sustained functionality of the cap. Obtaining permits and approvals from relevant government agencies are also required to guarantee compliance with zoning regulations, building codes, environmental prerequisites, and other legal considerations. This approach establishes the capas as a structure and a functional and sustainable addition to the urban landscape.

Freeway capping presents its own set of challenges. Before commencing construction, the freeway and its adjacent infrastructure must be fortified to uphold and support the cap's weight. This may necessitate reinforcing bridge supports, erecting additional columns or piers, or implementing other measures to ensure the stability of the freeway underneath the cap. In addition to structural support and reinforcement, engineering must redistribute and cleanse exhaust fumes within the enclosed area to prevent any intensifying effect and mitigate the fumes' dispersions into the air above the cap.

In the subsequent phase of construction, the deck or lid is installed over the freeway. This involves pouring concrete or assembling precast sections to establish the platform atop the previously constructed structural support. Access points such as stairways, elevators, and ramps are also built to connect the cap to the surrounding area. Once the cap is in

place, landscaping, public amenities, recreational facilities, industrial, housing, or commercial development can be integrated and tailored to the specific community or community they intend to serve. Construction of structures is dependent on load capacity.

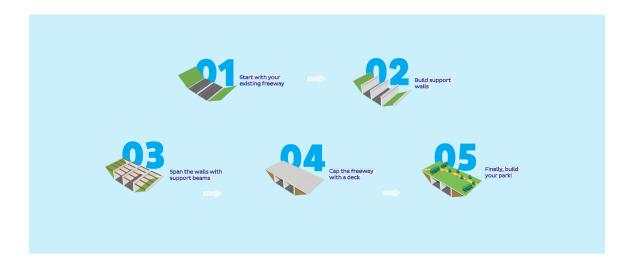


Figure 3.0 | Steps to building a freeway cap park (Graphical elements sourced and reworked from Space 134)

- 1. Start with your existing below-grade section
- 2. Build support walls
- 3. Span the walls with support beams
- 4. Cap the freeway with a deck
- 5. Build your park and amenities

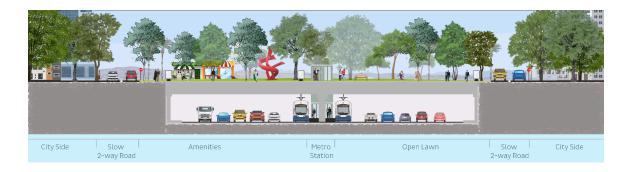


Figure 3.1 | Cross Section of a cap park over a 10-lane freeway with light rail tracks and station (Inspired by Space 134)

| Benefits | | Challenges | |
|--|--|---------------|--|
| Land Reclamation | Freeway capping allows for the reclamation of valuable urban land previously occupied by the freeway, creating opportunities for development or public use. | Cost | The engineering and construction involved are highly complex, + caps require structural reinforcement. Ongoing maintenance and management to ensure safety and functionality can incur additional costs for municipalities or property owners. |
| Improved Urban Environment | Mitigated freeway noise and surface air pollution by redirecting via tunnel ventilation system, improved neighborhood-scale connectivity and walkability, minimized visual blight, + environmental benefits such as reduced urban heat island effect, access to green space, reduced vehicle travel, and habitat restoration or protection (e.g., land bridges). | Disruptions | Construction disrupts surrounding traffic flows and commutes via road closures, increasing traffic. It can also negatively impact businesses if located in a commercial district. These lead to inconvenience, increased congestion, and potential economic slowdowns. |
| Community Benefits | Space gained for parks, recreational areas, and community facilities. | Limited Scope | They are typically limited to specific sections of freeways. They may not be feasible or practical in all locations due to traffic volume, engineering constraints, or lack of community support. |
| Increased Property Values | Businesses and properties adjacent to freeway caps can experience increased traffic and value due to improved aesthetic appeal, reduced noise and pollution, and more foot traffic (Trust for Public Land). | | |
| Improved Transportation Infrastructure | Caps can be integrated with other transportation and mobility projects to provide opportunities for enhanced connectivity and multimodal transportation networks. | | |

Table 1.0 | Benefits & Challenges Of Freeway Capping

Underpass Activation

Freeway activation transforms underutilized or neglected spaces beneath, above, and around freeways or highways into neighborhood-scale areas for public use. Often perceived as dead zones or eyesores, these spaces can be reimagined to serve various purposes, such as parks, pedestrian walkways, recreational facilities, public art installations, or commercial spaces. Freeway activation aims to revitalize underutilized urban areas, enhance connectivity and cultural production, and improve the overall urban environment. Municipal funding typically meets the needs for underpass projects. However, the diverse applications of these projects result in variations in their scale, implementation, and associated expenses.



The General Process

Similar to a feasibility study, though less rigorous, projects begin with assessing the underpass area to determine its potential for activation. This assessment considers location, accessibility, safety, drainage, surrounding land use, community needs, and economic feasibility. The role of stakeholder engagement, which includes input from residents, businesses, government agencies, and community organizations, is essential. A cooperative approach ensures the activation project reflects the community's needs and visions.

Once the potential for activation is determined and stakeholders reach a consensus, the design and development phase begins. This involves a collaboration between architects, urban designers, landscape architects, and other necessary specialists to create a vision for the underpass and project area. Design considerations may include landscaping, paving,

lighting, signage installation, pedestrian pathways creation, amenities such as benches or playground equipment, and any other improvements outlined by the project partners in the design plan.

Depending on the project's lead, jurisdiction, and scope, obtaining permits and approvals from relevant government agencies may be necessary to guarantee progress through each project phase. This process ensures compliance with zoning regulations, building codes, environmental requirements, and other legal considerations. Community approval via engagement and education throughout the project duration is also required.

The underpass activation project can begin construction once all necessary approvals are obtained. If a series of underpass activations are undertaken and budgeting allows, the design team and developers can first do a pilot to assess the applicability of the chosen design features and the ability of the project to meet its goals. Upon completion of construction, development teams should organize programming activities such as events or workshops to encourage community participation and usage of the space. Regular maintenance and monitoring are important to ensure the continued success and sustainability of the activation project over time, informing future projects and programming of the same mold.

A few US examples include (click to follow link):

- 1. Underground at Ink Block, Boston (8-acre underpass into active urban park)
- 2. Chicano Park, San Diego (Underpass park known for its grand Chicano murals)
- 3. I-5 Colonnade, Seattle (Underpass park for urban mountain biking skills)
- 4. The Underline, Miami (10-mile urban trail and linear park)

| Benefits | | Challenges | |
|---------------------------|--|--------------------------|--|
| Urban Revitalization | Underpass activation projects can transform neglected or blighted areas into vibrant, attractive, productive spaces that enhance the overall aesthetics and appeal of the urban environment via adding greenery and landscaping, murals and other forms of public art, improving lighting, and, depending on the underpass type, installing recreational opportunities such as skateparks, outdoor public gyms, and community gardens. | Cost | Given their relatively small spatial impact, underpass activation projects can become exceedingly expensive to design, develop, and maintain, requiring investment in infrastructure improvements, amenities, programming, and ongoing maintenance. |
| Environmental Benefits | Newly introduced green infrastructure elements can help manage stormwater and reduce urban flooding, improving driving safety and protecting vehicles and nearby properties from water damage. If applied extensively, added green spaces can help mitigate the urban heat island effect and offer pedestrians a cool space during high-heat days. | Logistical Challenges | Limited access due to street use (especially if it is a high-traffic flow route), constraints from existing infrastructure, utility conflicts, or regulatory hurdles can complicate the planning and implementation process. In addition, adaptability to changing needs and demographics may present challenges over time. |
| Community Benefits | Activated underpasses can serve as pedestrian-friendly connections between neighborhoods, parks, commercial areas, and public transit hubs, promoting walkability, cycling, and alternative modes of transportation. Strategic measures such as improved lighting, thoughtful landscaping, and engaging programming are aesthetically pleasing and enhance safety and security, reducing the risk of crime and making the space more comfortable and usable, particularly during evening hours. Commercial activities such as pop-up shops, markets, and community events can stimulate local economies as they have the potential to attract visitors, businesses, and investment to surrounding areas. | Community Opposition | If an underpass activation project is in a mainly residential area, NIMBYism may play a role as residents might oppose changes. Not all community members may support if concerns arise about construction disruption, increased foot traffic, noise, or changes in the neighborhood's character and potential displacement of existing users. |

Table 2.0 | Benefits & Challenges Of Freeway Underpass Activation

Freeway Removal

Freeway removal, also termed freeway decommissioning, involves dismantling or tunneling of existing freeways or highway infrastructure in urban areas when similar routes exist with other freeways. This approach intends to rectify historical planning that prioritized automobile-centric development over community cohesion, public health, and the environment. Removal projects typically encompass rerouting traffic, reclaiming land, and reimagining the urban landscape to take advantage of newly acquired space for commercial, institutional, industrial, or public use. Financing will require state and federal funding, but local government funds, private investments, and grants can also be targeted to fund a project from start to finish.



The General Process

The initial assessment of freeway removal projects should encompass the following key components:

- 1. A comprehensive traffic impact analysis to ascertain the potential implications of freeway removal on the surrounding transportation network.
- 2. Environmental impact studies encompassing air quality, noise, water quality, habitat disturbance, historic preservation, and other pertinent factors.
- 3. Economic assessments to evaluate the costs of removal and potential benefits, including land redevelopment opportunities and improvements in urban connectivity.

Following feasibility studies, design, and planning phases, deconstruction will commence in a phased approach to minimize disruption, likely involving traffic reroutes and the gradual dismantling of freeway structures and lanes. Material accrued from deconstruction

should be managed and recycled wherever possible to ensure proper waste management disposal.

Preparation of the site for redevelopment will involve clearing debris, leveling the land, and addressing necessary environmental remediation as determined during the planning phases and under the California Environmental Quality Act (CEQA). Subsequently, the construction of new infrastructures, such as streets, utilities, structures, and public spaces, may commence, aligning with the project's vision plan. The development of parks, pedestrian pathways, mobility hubs, and other public amenities should ensue.

To ensure long-term viability, a plan for ongoing maintenance of new infrastructure and public spaces must be established. Continuous monitoring and evaluation of the freeway removal's impacts on traffic, environmental quality, and community well-being should be conducted to assess its effects on traffic flow, air quality, public health, economic development, social equity, and other pertinent factors. Stakeholder feedback and ongoing data analysis will inform adjustments to applicable transportation policies, land use planning, and urban design strategies in the area. Community engagement, facilitated through public meetings, surveys, and workshops, should be prioritized to gather input, address concerns, and ensure stakeholder involvement throughout the project.

A few International examples include (click to follow link):

- 1. Cheonggye Freeway, Seoul Boston (5.6 miles of urban greenbelt following a creek)
- 2. Utrecht's Canal Ring, Netherlands (Revitalized river canal after highway removal)
- 3. Rheinufer Promenade, Düsseldorf (Freeway tunneling and riverside walk project)
- 4. River Seine Waterfront Park, Paris (2-mile waterfront park along River Seine in Paris)

| Benefits | | Challenges | |
|---------------------------------------|--|----------------|--|
| Urban Revitalization | Freeway removal projects can transform neglected or blighted areas into vibrant, productive spaces that enhance the urban environment's overall vitality. Depending on the project's vision and scope, various implementations can be done, ranging from civil, governmental, commercial, or industrial. The key is that a previously limited and single-use space is turned into a productive one. | Costs | Removal projects are the most expensive de-freeway capital improvement projects. Costs to plan, design, develop, and maintain can surpass \$billions. They also require the greatest political support, requiring local, state, and federal agency backing, making it difficult to get off the ground. |
| Environmental Benefits | On a baseline, decreased vehicle emissions and noise pollution improve air quality and overall environmental health. The use case of the newly recovered land determines the specific environmental benefits. Developing a shopping mall will yield fewer benefits than developing LEED-certified housing lots and constructing a park or a greenbelt. | Implementation | Removing a major freeway can cause significant temporary traffic disruptions and congestion, and navigating complex regulatory environments can delay projects and increase costs. This is especially true if the initial planning and permitting process takes years and public office changes over, either strengthening or weakening support for a project. |
| Community and Mobility Benefits | Introducing new public spaces should yield social interaction and community engagement, increase physical activity, and reduce pollution, contributing to improved public health. Removing freeways reconnects neighborhoods and, depending on the use case, can make cities more pedestrian and cyclist-friendly. Opportunities also exist for expanding and integrating public transportation systems, reducing car dependency and congestion. | Environmental | The deconstruction and construction phases can temporarily increase localized pollution and waste runoff without adequate mitigation and disrupt local ecosystems. Managing the waste generated from deconstruction can pose environmental challenges, locally and regionally. |

Table 3.0 | Benefits & Challenges Of Freeway Removal/Tunneling

Highways to Boulevards

Converting a highway into a boulevard involves transforming a stretch of freeway, typically an underutilized or end section, into a more multi-modal urban boulevard. This aims to reclaim space, enhance mobility, revitalize surrounding neighborhoods, and promote a more sustainable and livable urban environment around the chosen site. It differs from removals in that conversions remain tied to transportation infrastructure, while removals offer a clean slate. Converting highways to boulevards can, but do not always involve road dieting, adding pedestrian crossings, bike lanes, walkable green space, and amenities, and implementing traffic calming measures such as speed humps, pedestrian-activated stop lights, daylighting, bulb-outs, and raised protective medians to create a more welcoming and accessible streetscape. State funds may cover a project depending on the size and scope; however, bigger projects should source federal funding.



The General Process

A project should commence with a comprehensive assessment of the existing highway corridor and surrounding zoning and land uses to identify opportunities and constraints and determine if conversion or removal is the best option. The assessment includes analyzing traffic patterns, utilities, land use patterns, pedestrian and cyclist needs, safety concerns, community preferences, and other factors. Based on the assessment findings and stakeholder input, conceptual designs are developed to illustrate potential changes to the highway corridor. This may include options for lane reductions, intersection improvements, pedestrian and cyclist facilities, landscaping, public amenities, and other features, and is partly informed by community stakeholders.

Traffic analysis and modeling are conducted to assess the potential impacts of the proposed changes on traffic flow, congestion, travel times, emergency response, and safety. This involves using computer simulations to predict how traffic will move through the new boulevard, considering the number of lanes, traffic lights, and pedestrian crossings. The aim is to identify strategies to optimize traffic operations, accommodate existing and future travel demand, and ensure that the converted boulevard functions effectively for all users. Environmental review processes are also undertaken to assess the proposed conversion's potential environmental impacts and obtain necessary permits and approvals from regulatory agencies. This may include studies on air quality, noise, water quality, habitat disturbance, historic preservation, and other factors.

Once conceptual designs are finalized and necessary approvals are obtained, a meticulous and detailed design plan is developed for the conversion project. This involves close coordination with engineers, landscape architects, urban designers, and other appropriate professionals to address technical requirements, constructability issues, and aesthetic considerations. Implementation is carefully managed to minimize disruption to existing traffic and surrounding communities, often in phases. After the conversion is completed and the boulevard is open to the public, extensive monitoring and evaluation are undertaken to assess the project's impacts and successes.

A few US examples include (click to follow link):

- 1. Mckinley Boulevard, Milwaukee (Redevelopment zone and riverwalk)
- 2. Mandela Parkway, Oakland (Revitalization project after 1989 Loma Prieta Earthquake)
- 3. Harbor Drive, Portland (37-acre Waterfront Park and Boulevard)
- 4. The Embarcadero, San Francisco (multi-use waterfront Boulevard)

| Benefits | | Challenges | |
|---|---|----------------|--|
| Urban Revitalization, Community and Mobility Benefits | Transforming highways into boulevards can revitalize surrounding neighborhoods, attract investment, support local businesses, and create public spaces that promote social interaction and community engagement. They do this in part by promoting multi-modal transportation options by reallocating dedicated space for pedestrians, cyclists, public transit, and vehicles, improving access and connectivity. | Costs | Conversion projects are among the more expensive de-freeway projects. Costs to plan, design and develop rise into the hundreds of millions. They also require political support, making it challenging to get off the ground, even if a proposal has been designed. |
| Environmental Benefits | Boulevard conversions can reduce air and noise pollution, mitigate heat island effects by introducing green space and urban vegetation, and promote sustainable transportation modes, contributing to environmental sustainability. | Implementation | Projects may result in increased congestion, longer travel times, and delays for motorists, especially during peak periods. They may also divert traffic onto alternative routes, potentially affecting surrounding neighborhoods, businesses, and transportation networks, requiring the mitigation of unintended consequences. |
| | | Environmental | Like removals, the deconstruction and construction phases can temporarily increase localized pollution and without adequate mitigation and disrupt local ecosystems. Managing the waste generated from deconstruction can pose environmental challenges, locally and regionally. Land use changes may also bring unforeseen impacts. |

Table 4.0 | Benefits & Challenges Of Highways To Boulevard Conversions

Embankment Parks

Embankments, or linear parks, represent distinctive green spaces adjacent to freeway embankments or walls, and elevated structures such as railway viaducts, bridges, or waterfronts. These parks take advantage of underutilized or abandoned infrastructure and offer urban communities recreational, environmental, and social benefits. Characterized as linear corridors, they align with the path of existing infrastructure and incorporate amenities such as walking and biking trails, playgrounds, seating areas, gardens, and public art installations. Embankment parks provide a unique opportunity to reclaim urban space, enhance connectivity, and foster sustainability in densely populated areas.

Municipal funding typically meets the needs of embankment projects. However, the diverse applications of these projects result in variations in their scale, implementation, and associated expenses.



The General Process

Embankment or linear park development entails thoroughly evaluating the current infrastructure and the surrounding urban environment. This aids in identifying potential sites, often neglected or underutilized, for a park. The assessment encompasses structural integrity, accessibility, land ownership, environmental conditions, and community needs. Because parks are generally limited to being a public good as opposed to commercial or other good, input from residents and community members should form the backbone of the planning process.

After identifying the potential site, the design phase engages landscape architects, engineers, urban designers, and other pertinent professionals to formulate conceptual designs for the embankment park. Design considerations encompass the layout of walking and biking trails, integration of vegetation and greenery, placement of furniture and amenities, accessibility features, lighting, wayfinding, and safety measures. The objective is to create a visually appealing, functional, and safe park for the community.

Before construction commences, the existing infrastructure is assessed to ensure its capacity to support the additional weight and usage associated with the embankment park. Retrofitting or reinforcement measures will differ from site to site depending on its form and placement. A street-level freeway side embankment will have different requirements than an abandoned suspended track (i.e., the Highline). An environmental review will be required to evaluate the potential implications of the embankment park project on the surrounding environment, considering air quality, noise, water quality, habitat disturbance, historic preservation, and other variables specific to the site. Before construction, requisite permits and approvals from regulatory agencies should be secured. The construction of the embankment park will include the elements and amenities outlined in the design phase, and activities should be coordinated to minimize disturbances to surrounding neighborhoods and transportation networks.

A few US examples include (click to follow link):

- 1. Ricardo Lara Park, Lynnwood (City-contracted linear park along I-105 Freeway)
- 2. The High Line, New York (Adaptive reuse linear park on an old railway)
- 3. The 606, Chicago (Elevated park and walk & ride trail)

| Benefits | | Challenges | |
|---|---|----------------|--|
| Urban Revitalization, Community and Mobility Benefits | Embankment/linear parks make good use of otherwise underused or neglected (and often small or narrow) spaces and infrastructure. Because they're an outdoor public good promoting physical activity, they can foster social interaction and community engagement. These parks are public spaces that evoke an idea of a vector and, therefore, encourage a sense of movement. | Costs | The diverse applications of these projects result in variations in their scale, implementation, and associated expenses, requiring varied levels of engagement with public officials. |
| Environmental Benefits | In addition to simply providing more access to green and open spaces, these parks are excellent for implementing nature-based-solutions for flooding, run-off pollution, heat mitigation, ground water retention, and other environmental issues. | Implementation | Depending on the configuration of the site and infrastructure chosen, implementation can be more or less difficult if the site accommodates construction or requires adaptation. Maintenance can also be demanding depending on the scale of operations and the frequency in visitors and/or programming. |

Table 4.0 | Benefits & Challenges Of Embankment/Linear Parks

In addition to technical and logistical considerations, the successful implementation of a freeway capping project necessitates significant political will and support. Each of these typologies requires some level of political backing, whether it's a neighborhood underpass activation that needs the support of residents or a comprehensive capping project to serve a region that requires city, state, or federal government buy-in. Securing the backing of local, regional, and state governmental entities is essential for navigating the regulatory landscape and obtaining the necessary funding and resources. Political stakeholders are critical in advocating for the project, garnering public support, and aligning the initiative with broader urban planning and development goals.

De-Freeway Typology Tables

Uses & Cost

| Typology | Uses | Cost |
|----------------------|---|--------------|
| Freeway Cap/Lid | Parks Open Space Recreation Housing Arts & Culture Commercial | \$\$\$\$ |
| Underpass Activation | Parks Public Space Recreation Arts & Culture | \$ |
| Highway to Boulevard | Commercial Public Space Arts & Culture Housing | \$\$\$ |
| Embankment Park | Parks Recreation Public Space Arts & Culture | \$ \$ |
| Freeway Removal | Recreation Arts & Culture Commercial Housing Parks Open Space | \$\$\$\$\$ |

Table 6.0 | Uses & Cost

Social Benefits

| Social Benefit | Freeway Cap/Lid | Underpass Activation | Highway to Boulevard | Embankment Park | Freeway Removal |
|----------------------------------|--------------------|-------------------------|-------------------------|--------------------|--------------------|
| Land Reclamation | Х | | | Х | Х |
| Public Space | X | Х | Х | Х | Х |
| Enhanced Connectivity | Х | Х | Х | | Х |
| Improved Pedestrian Safety | Х | Х | | | Х |
| Heightened Sociability | Х | Х | Х | Х | Х |
| Enhanced Aesthetics | Х | Х | Х | Х | Х |
| Promotes Active Mobility | Х | Х | Х | Х | Х |
| Revitalized Urban Space | | Х | | | |
| Cultural Production | Х | Х | Х | | Х |
| Total Count | 8 | 8 | 6 | 5 | 8 |

Table 6.1 | Social Benefits Score

Economic Benefits

| Economic Benefit | Freeway Cap/Lid | Underpass Activation | Highway to Boulevard | Embankment Park | Freeway Removal |
|---|--------------------|-------------------------|-------------------------|--------------------|--------------------|
| Increased Property Values | Х | | Х | Х | Х |
| Economic Stimulation | Х | Х | Х | | Х |
| Job Creation | X | X | X | Х | Х |
| Development Opportunities | Х | | Х | | Х |
| Revenue Generation | Х | | | | Х |
| Tourism & Cultural Exchange | Х | Х | Х | | Х |
| Long-term Infrastructure Cost Savings | | | Х | Х | х |
| Total Count | 6 | 3 | 6 | 2 | 7 |

Table 6.2 | Economic Benefits Score (Economic benefits determined on the basis of introducing new commercial opportunities otherwise nonexistent with the presence of a freeway + the residuals of tourism (i.e. chicano park's impact on the Barrio Logan neighborhood)).

Environmental Benefits

| Economic Benefit | Freeway Cap/Lid | Underpass Activation | Highway to Boulevard | Embankment Park | Freeway Removal |
|----------------------------|--------------------|-------------------------|-------------------------|--------------------|--------------------|
| Urban Greening | X | | Х | Х | Х |
| Reduced Noise Pollution | Х | | X | | Х |
| Air Quality Improvement | X* | | Х | X* | Х |
| Stormwater Management | Х | X* | Х | Х | Х |
| Heat Island Mitigation | Х | | Х | Х | Х |
| Carbon Sequestration | Х | | | Х | Х |
| Habitat Creation | Х | X* | | Х | Х |
| Reduced C02 Emissions | | | Х | | Х |
| Total Count | 7 | 2 | 6 | 6 | 8 |

Table 6.3 | Environmental Benefits Score. Asterisk suggests dependent on implementation*

| Kind | Total Points | Cost |
|----------------------|--------------|------------|
| Freeway Removal | 23 | \$\$\$\$\$ |
| Freeway Cap/Lid | 21 | \$\$\$\$ |
| Highway to Boulevard | 18 | \$\$\$ |
| Embankment Park | 13 | \$\$ |
| Underpass Activation | 13 | \$ |

Table 6.4 | Total Points Ranking

Total Points Ranking

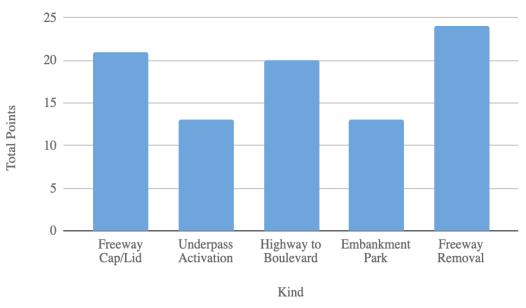


Figure 4.0 | Total Points Ranking Graph

RECONNECTING COMMUNITIES FUNDING

Guidelines are quoted directly for accuracy, for use by practitioners exploring funding options.

The Reconnecting Communities Pilot Program

"The U.S. Department of Transportation (USDOT) Reconnecting Communities Pilot Program is the first-ever Federal program dedicated to reconnecting communities previously cut off from economic opportunities by transportation planning and infrastructure. U.S. Transportation Secretary Pete Buttigieg announced the first grant awards for FY22, amounting to \$185 million, allocated across 45 communities (CalTrans.gov)."

"Funding is spread across five years and into three buckets: Planning & Technical Assistance (\$50M each year) and Capital Construction (\$145M, \$148M, \$150M, \$152M, \$155M) to restore community connectivity. For the first round of funding, 6 Capital Construction Grants and 39 Planning Grants were awarded (CalTrans.gov)."

Year Adopted « 2023

Total Budget « \$1Billion across 5 years

| Fiscal Year | 2022 | 2023 | 2024 | 2025 | 2026 | 5-Year Total |
|---------------------------------|--------|--------|--------|--------|--------|-----------------|
| Planning & Technical Assistance | \$50M | \$50M | \$50M | \$50M | \$50M | \$250M |
| Capital Construction | \$145M | \$148M | \$150M | \$152M | \$155M | \$750M |
| Total Authorized Amount | \$195M | \$198M | \$200M | \$202M | \$205M | \$1,000M |

Table 7.0 | RCPP Funding Distribution over 5-Year Period

The program was created to:

- 1. Prioritize disadvantaged communities
- 2. Improve access to daily needs such as jobs, education, healthcare, food, and recreation
- 3. Foster equitable development and restoration
- 4. Reconnect communities by removing, retrofitting, or mitigating highways or other transportation facilities that create barriers to community connectivity, including mobility, access, or economic development.

Three Grant Types Available

Regional Partnership Grants

"These provide funds for planning activities to support future construction projects and allow innovative community planning to address localized transportation challenges (CalTrans.gov)."

Projects may address

- 1. Planning to restore community connectivity
- 2. Community/public engagement
- 3. Assessing the environmental impacts of transportation in underserved communities (i.e., air quality, greenhouse gas emissions, extreme heat hotspots, gaps in tree canopy coverage, or flood-prone transportation infrastructure)
- 4. Developing local anti-displacement policies and community benefits agreements.

Planning Grant

"This incentive program encourages stronger partnerships between local governments, Tribal governments, MPOs/RPOs, State DOTs, and non-profit, private, and community partners to tackle persistent equitable access and mobility challenges and greenhouse gas emissions reductions. Applicants must consist of a partnership between two or more eligible agencies (CalTrans.gov)."

Capital Construction Grant

"To fund both reconnecting-focused projects and smaller projects focused on reducing environmental harm and improving access in disadvantaged communities. Projects may address (Reconnecting Communities Pilot Program, 2023)."

- 1. A dividing facility
- 2. Mitigating a "burdening" facility (a source of air pollution, noise, stormwater, or other burden)
- 3. Improving access and building or improving Complete Streets.

The Bipartisan Infrastructure Deal

"The Bipartisan Infrastructure Deal (BID), also known as the Infrastructure Investment and Jobs Act, was passed by Congress on November 6th, 2021. The Act is meant to usher in an era of rebuilding America's infrastructure wholesale. In addition to \$326 billion in funding to repair roads, bridges, rails, and major capital improvement projects, it aims to expand clean drinking water access (\$55 billion) and high-speed internet access (\$65 billion), tackle the climate crisis, advance environmental justice, and invest in historically disinvested communities."

"Other sectors include public transit (\$89.9 billion over the next five years), airports and ports (\$42 billion), passenger rail (\$66 Billion), electric vehicle charging network (\$7.5 billion), power infrastructure (\$65 billion), climate change resiliency (\$50 billion) and pollution abatement (\$21 billion). The country is slated to see more than \$1 trillion in transportation and infrastructure spending between 2022 and 2031. The implementation guidebook can be found **here** for state, local, tribal, territorial governments, and other partners (WhiteHouse.gov)."

Year Initiated « 2021

Total Budget « \$1 Trillion across 10 years.

Applicable BID Grant Opportunities For Reconnecting Communities Projects

Congestion Mitigation and Air Quality Improvement Program

Federal Agency « Department of Transportation

Bureau of Account « Federal Highway Administration

Funding Amount « \$13,200,000,000

Period of availability «4-year

Funding mechanism « Formula Grant

New program « No. Existing Program with Changed Eligibilities

Recipients « States (including the District of Columbia)

Description

"The Bipartisan Infrastructure Law continues the Congestion Mitigation and Air Quality Improvement Program to provide a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now compliant (maintenance areas) (WhiteHouse.gov)."

Eligible Uses

"Transportation projects that reduce congestion and mobile source emissions in areas designated nonattainment or maintenance for ozone, carbon monoxide, and particulate matter by the Environmental Protection Agency (WhiteHouse.gov)."

Federal Cost Share Requirement

Typically, 80% is Federal, and 20% is non-federal (for interstate projects, 90% is Federal, and 10% is non-federal). Waivers are available in some circumstances.

Local and Regional Project Assistance Grants (RAISE)

Federal Agency « Department of Transportation

Bureau of Account « Office of the Secretary

Funding Amount « \$7,500,000,000

Period of availability « 4-year

Funding mechanism « Competitive Grant

New program « No. Existing Program with Changed Eligibilities

Recipients « "(A) A State; (B) the District of Columbia; (C) any territory or possession of the U.S.; (D) a unit of local government; (E) a public agency or publicly chartered authority established by 1 or more States; (E) a special purpose district or public authority with a transportation function, including a port authority; (F) a single or consortium of Tribal governments; (G) a partnership between Amtrak and 1 or more entities described in (A) through (F); and (H) a group of entities described in (A) through (G). (WhiteHouse.gov)."

Description

"The RAISE program provides supplemental funding for grants to the State and local entities listed above on a competitive basis for projects with a significant local/regional impact (WhiteHouse.gov)."

Eligible Uses

"Projects eligible under RAISE include—a highway or bridge project eligible for assistance under title 23, United States Code; a public transportation project eligible for assistance under chapter 53 of title 49, United States Code; a passenger rail or freight rail transportation project eligible for assistance under title 49, United States Code; a port infrastructure investment, including inland port infrastructure and a land port-of-entry; the surface transportation components of certain eligible airport projects; a project for investment in a surface transportation facility located on Tribal land, the title or maintenance responsibility of which is vested in the Federal Government; a project to replace or rehabilitate a culvert or prevent stormwater runoff to improve habitat for aquatic species; and any other surface transportation infrastructure project that the Secretary considers to be necessary to advance the goal of the program (WhiteHouse.gov)."

Federal Cost Share Requirement

"Grant can provide up to 60% of the total project cost. Total Federal funding is up to 80% of the total project cost. Waivers are not available (WhiteHouse.gov)."

National Infrastructure Project Assistance (Megaprojects)

Federal Agency « Department of Transportation

Bureau of Account « Office of the Secretary

Funding Amount « \$5,000,000,000

Period of availability « Available until expended

Funding mechanism « Competitive Grant

New program « No. Existing Program with Changed Eligibilities

Recipients « "(A) A State or a group of States; (B) a metropolitan planning organization; (C) a unit of local government; (D) a political subdivision of a State; (E) a special purpose district or public authority with a transportation function, including a port authority; (F) a Tribal government or a consortium of Tribal governments; (G) a partnership between Amtrak and 1 or more entities described in subparagraphs (A) through (F); and (H) a group of entities described in any of subparagraphs (A) through (G) (WhiteHouse.gov)."

Description

"The National Infrastructure Project Assistance Program will support large, complex projects that are difficult to fund by other means and likely to generate national or regional economic, mobility, or safety benefits (WhiteHouse.gov)."

Eligible Uses

"Projects eligible under the Mega program include: 1) a highway or bridge project carried out on the National Multimodal Freight Network; the National Highway Freight Network; or the National Highway System; 2) a freight intermodal (including public ports) or freight rail project that provides a public benefit; 3) a railway-highway grade separation or elimination project; 4) an intercity passenger rail project; and 5) public transportation

projects that are eligible for Federal Transit Administration funding of title 49, United States Code, and are part of a project described above (WhiteHouse.gov)."

Federal Cost Share Requirement

75% Federal / 25% non-Federal for New Compacts; 50% Federal / 50% non-Federal for Existing Compacts. Waivers are not available.

Congestion Relief Program

Federal Agency « Department of Transportation

Bureau of Account « Federal Highway Administration

Funding Amount « \$250,000,000

Period of availability « 4-year

Funding mechanism « Competitive Grant

New program « Yes

Recipients « State, Metropolitan Planning Organization, city, or municipality.

Description

"Advance innovative, integrated, and multimodal solutions to reduce congestion and the related economic and environmental costs in the most congested metropolitan areas with an urbanized population of 1 million+ (WhiteHouse.gov)."

Eligible Uses

"Planning, design, implementation, and construction activities to achieve the program goals, including deployment and operation of integrated congestion management systems, systems that implement or enforce high occupancy vehicle toll lanes or pricing strategies, or mobility services; and incentive programs that encourage carpooling, non-highway

travel during peak periods, or travel during non-peak periods. Subject to certain requirements and approval by the Secretary provides for tolling on the Interstate System as part of a project carried out with a grant under the program (WhiteHouse.gov)."

Federal Cost Share Requirement

80% Federal / 20% non-Federal. Waivers are not available.

The Justice 40 Initiative

"The Justice40 Initiative includes Presidential Executive Orders 14008 (Tackling the Climate Crisis at Home and Abroad, 2021) and 14096 (Revitalizing Our Nation's Commitment to Environmental Justice for All, 2023) – The initiative is a Federal goal of allocating 40% of the overall benefits of certain Federal climate, clean energy, affordable and sustainable housing, and other investments to disadvantaged communities marginalized by underinvestment and overburdened by pollution – Investments include clean energy and energy efficiency, climate change resiliency, clean public transit, affordable and sustainable housing, training and workforce development, remediation and reduction of legacy pollution, and critical clean water and wastewater infrastructure development (WhiteHouse.gov)."

"A "Justice40 covered program" is a federal government program that falls within the scope of the Justice40 Initiative because it includes investments that can benefit disadvantaged communities across one or more of the following seven areas. Covered Federal investments include any grant or procurement spending, financing, staffing costs, or direct spending or benefits to individuals for a covered program in a Justice40 category (WhiteHouse.gov)."

Los Angeles Department of Transportation (LADOT) Livable Streets

LADOT Livable Streets is not a funding source but instead, an online hub of programs and resources aimed at highlighting and supporting safe, great streets for all in collaboration with the city (mayor and city council, Department of Public Works, Department of Cultural Affairs), community partners, and appointed committees and commissions including the Transportation Commission, Pedestrian Advisory Committee, and Bicycle Advisory Committee, who all advise the mayor of LA and City Council Members.

Programming and projects include Vision Zero, Active Transportation, Safe Routes to School, Safe Routes for Seniors, People St, Play Streets, Great Streets, and Open Streets. The Livable Streets website offers maps and data related to their projects (LADOTLiveableStreets).

LADOT Long Beach-East Los Angeles Corridor Investment Plan

"The Long Beach-East Los Angeles (LB-ELA) Corridor Mobility Investment Plan represents a collaborative initiative by Metro and community stakeholders to tackle long-standing issues related to mobility, safety, health, environmental, social, and economic concerns along Interstate 710 (I-710). This community-focused Investment Plan was approved by the Metro Board in 2024. It was built through the collaboration of a Task Force and Community Leadership Committee (CLC) composed of residents living in the project area. The CLC made recommendations to the Task Force, which then voted and made recommendations to the Metro Board. CLC and Task Force members regularly attended themed Working Group meetings to discuss content in more detail (Metro)."

"The Investment Plan dedicates an initial \$743 million in seed funding for the Corridor, sourced from locally approved sales tax Measures R and M. This foundational investment is intended to leverage over \$4 billion for community-oriented, regionally significant multimodal projects throughout the LB-ELA Corridor communities. The \$4 billion investments will catalyze a long-term vision, addressing more than \$17 billion in transportation needs identified in this historically underfunded Corridor. This process prioritizes the involvement of communities historically harmed and disproportionately affected by the freeway's negative impacts (Metro)."

Year Adopted « 2024

Total Budget « \$743 million in seed funding, \$4 billion expected total.

Future Southern CA Regional Reconnecting Communities Initiatives

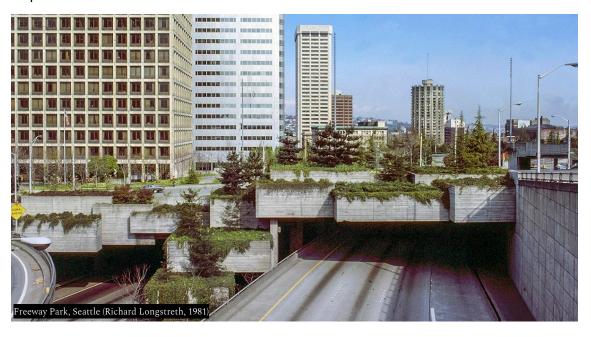
| Jurisdiction | Highway | Project Type | Project Name |
|-------------------------|----------------|--------------|--|
| Pasadena | Interstate 710 | Removal | SR 710 Northern Stub Relinquishment |
| Santa Monica | Interstate 10 | Cap | Part of the Gateway Master Plan |
| Downtown Los Angeles | Interstate 101 | Cap | Park 101 |
| Hollywood | Interstate 101 | Cap | Hollywood Central Park |
| Glendale | Interstate 134 | Cap | Space 134 |
| Ventura | Interstate 101 | Cap | US 101 Capping Study |
| Long Beach | Interstate 710 | Boulevard | Shoreline Drive |
| Long Beach | State Route 47 | Removal | The Green TI (Terminal Island Freeway) |
| S.C.A.G. | Regional | Study | Highways to Boulevards Regional Study |

Table 8.0 | Future SoCal Reconnecting Communities Initiatives
Congress For New Urbanism **repository of "Freeway Fighting Projects"** across the United States (2022).

EXISTING STUDIES

Freeway Park | Seattle, Washington

Cap Park



Freeway Park, located between 6th and 9th Avenues in downtown Seattle, Washington, is an urban cap park and designated Seattle landmark (2022) renowned for its innovative design and transformative impact on the cityscape. It is Seattle's most prominent downtown public space, geographically located between and reconnecting the First Hill neighborhood to the east and Seattle's financial center to the west (Seattle.gov).

Spanning over 5.0 acres, the park was completed on July 4, 1976, atop a lid covering a portion of Interstate 5, effectively reconnecting neighborhoods separated by the freeway. Seattle Parks and Recreation manages the park, ensuring its upkeep and maintenance. The park continues to be a popular destination for residents, office workers, shoppers, and other Seattleites and visitors, offering a unique blend of nature and urban environment. In

1982, the park was expanded to include several blocks of First Hill, introducing a pedestrian stairway and ramp, and saw renovations in 2008 following the

A New Vision for Freeway Park Report in 2005 (Project For Public Spaces).

Historical Context

Freeway Park was officially opened to the public in July 1976, making it the earliest freeway-lid park in the World (It was listed on the National Register of Historic Places on December 19, 2019). Jim Ellis, a long-time civic leader, led the effort to create the park, a part of his broader vision to provide recreational and public facilities, preserve farmlands, and create green open spaces from the 1950s through the 90s. The idea for the open space sprouted early, with city, county, and state representatives discussing a lid over that portion of the I-5 in the 1960s.

The park's design was led by Lawrence Halprin, a renowned landscape architect known for his innovative approach to urban spaces, in collaboration with the architectural firm of Angela Danadjieva and Lawrence Halprin & Associates Landscape Architects. The Seattle Parks Commission sought Halprin's assistance in designing a park along the edge of the new I-5. Halprin's design was a pioneering example of freeway-lid parks, a concept that has since been adopted in many cities around the world ((The Cultural Landscape Foundation). Halprin pushed the ideas in his book Freeways (1966) into the Seattle cityscape by proposing an extensive park landscape that would minimize the impact of the freeway by building over it.

The Parks Commission was sold on the idea, and his proposal was bundled into the county-wide open space bond measures called Forward Thrust. These bond propositions

were voted for by King County voters between 1968 and 1970, as well as county, state, and federal offices. In 1969, approved local funds were combined with state, federal, and private monies to allow the park's creation to move forward (Seattle.gov).











From left to right | article on Park Plan, Jim Ellis, article on approval, Powell Barnett Park, Lawrence Halprin

Design Features

Freeway Park is a labyrinth of brutalist architectural forms, fountains, plazas, and footpaths. While no dedicated recreational facilities exist, its distinct spaces are adaptable and allow for large gatherings or undisturbed solitude. Freeway Park incorporates terraced landscapes that descend gradually from street level to lower garden areas within the Park. The numerous water features, including cascading waterfalls, reflecting pools, and meandering streams, all moving 9,500 gallons (initially 28,000) per minute over 30-foot-tall formed concrete blocks, are designed to not only mask the noise from the adjacent freeway but also to create a calming environment for park users (The Cultural Landscape Foundation).

Visitors encounter various sculptures and artworks throughout the Park, including pieces by prominent artists such as the late George Tsutakawa and his son Gerard Tsutakawa, adding cultural significance to the space. Freeway Park also includes a network of pedestrian bridges and pathways traversing the landscape, providing connectivity between different areas and facilitating ease of movement and relocation. The park underwent a landscape renovation in 2010, highlighting the diverse canopy of adult trees, sunlit grassy plazas, and varied annual seasonal blooms (Freeway Park Association).





Social Impact

Freeway Park, a unique gathering place, annually hosts many community events, performances, and cultural activities. Its distinctive feature is the portion covering Interstate 5, reuniting neighborhoods previously divided by the freeway. This aimed to foster social cohesion among Seattle residents. The park is also home to the Freeway Park Association (FPA), a consortium of community supporters and caretakers, which oversees and coordinates gatherings and events held at the park (Freeway Park Association).

The Freeway Park Association is a testament to the power of community-driven initiatives. It started in 1994 as a small group of invested neighbors with a vision to revitalize their aging neighborhood park. FPA is now managed by a coalition of dedicated community members, volunteers, volunteer board members, and organizers. This

coalition, representative of residents from the neighboring First Hill and Downtown communities, is backed by various partners who provide programming, funding, and outreach. The longstanding partnership between Seattle Parks & Rec and the FPA, spanning 30 years, exemplifies the success of a community-driven model (Freeway Park Association).

Investing in the community is not just about the intangible benefits of social cohesion and cultural enrichment. It can also be a smart financial move. The Trust for Public Land suggests that proximity to urban parks like Freeway Park can boost nearby property values by up to 20% (2009). This significant increase in property values contributes to the overall economic vitality of the surrounding neighborhoods, making it a win-win situation for all.





Costs

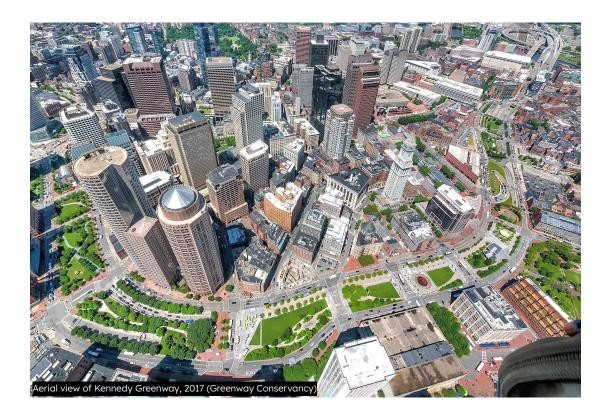
Over the years, the park has undergone several projects, including renovations to enhance accessibility, infrastructure, and visitor amenities. Most recently, Seattle Parks and Recreation has been allocated \$10 million for Freeway Park's capital enhancements and activation efforts between 2019 and 2025. \$750,000 is allocated for park activation, and \$9,250,000 is dedicated to capital improvements, covering construction costs (approximately \$6 million), design, project management, permitting, sales tax, and contingencies (Seattle.gov).

The initial scope of capital improvements is based on the Finding Freeway Park Concept Report, prepared by the Freeway Park Association. This funding stems from the Washington State Convention Center's contribution to the City as part of a significant public benefit agreement linked to its expansion initiative. Spearheaded by Seattle Parks & Recreation in collaboration with landscape architect Walker Macy, the ensuing capital project promises to rejuvenate the park's aging infrastructure and preserve its historic architecture.

Comprehensive Client Project

The Big Dig | Boston

Highway Removal & Tunneling



The Big Dig, officially known as the Central Artery/Tunnel Project, was one of the most ambitious and complex infrastructure projects in United States history. Spanning over two decades, from the late 1980s to the early 2000s, the project aimed to ameliorate traffic congestion, improve transportation efficiency, and revitalize the urban landscape of Boston, Massachusetts. Removing the freeway reduced traffic and enhanced mobility in one of America's oldest and most congested major cities, building a framework for continued growth in Massachusetts and New England. It achieved this with a state-of-the-art underground highway and the construction of two new bridges over the Charles River. It also extended I-90 to Boston's Logan International Airport and Route 1A.

This project would create over 300 acres of open space land while reconnecting downtown Boston to its waterfront (Mass.gov)

Historical Context

The Big Dig idea originated in the mid-20th century as Boston grappled with severe traffic congestion and deteriorating infrastructure along the Central Artery (I-93). This elevated highway bisected the city's downtown area. The Central Artery, inaugurated in 1959, accommodated about 75,000 vehicles daily. However, by the early 1990s, its traffic volume soared to over 200,000 vehicles per day, rendering it one of the most congested highways in the nation (Congress for New Urbanism (CNU)). This surge in traffic led to dramatically extended commutes and an accident rate four times the national average (Mass.gov). The problem extended to the tunnels connecting downtown Boston with East Boston and Logan Airport, exacerbating congestion.

Without significant improvements, projections indicated that by 2010, traffic on the Central Artery would come to a standstill for several hours daily. Such gridlocks contributed to increased accident rates, wasted fuel, and delayed deliveries, incurring an estimated annual cost of \$500 million for motorists (Mass.gov). The implications of the old Central Artery extended beyond traffic issues. Its construction led to the displacement of 20,000 residents and severed the North End and Waterfront neighborhoods from downtown, hindering their economic integration with the city (CNU). The Big Dig project was about solving immediate problems and shaping the future of Boston, making it a more livable and connected city.

When planning for the CA/T Project began in 1982, Congress approved federal funding, and the project's scope was established in April 1987, following extensive environmental impact studies, engineering assessments, and public consultations to determine its feasibility and scope (Mass.gov). Construction began in September 1991 with a bypass road through South Boston that would reroute truck traffic off neighborhood streets. The same year, a third tunnel to cross Boston Harbor also began, and its completion would be the first significant milestone in the tunnel's opening. Named for baseball legend Ted Williams, most of its completion occurred on January 13, 2006. Three milestone openings took place in 2003, including the I-90 Connector, I-93 Northbound, and I-93 Southbound.





Design Features

The project consisted of two major components. The first involved replacing the six-lane elevated highway with an underground expressway beneath the existing road. This new expressway concluded at its northern end with a 14-lane, two-bridge crossing over the Charles River. After the underground highway opened to traffic, the crumbling elevated artery was demolished and, in its place, open space (Mass.gov). The Central Artery/Tunnel Project, overseen by various entities, including the Massachusetts Highway Department and later the Massachusetts Turnpike Authority (MTA), transformed Boston's landscape. It established over 45 parks and prominent public spaces, undertaking significant

shoreline restorations along the Charles River Basin, Rumney Marsh, Spectacle Island, and the Fort Point Channel. Spectacle Island, now a sprawling 100-acre park with scenic pathways, has been under the care of Boston's Department of Conservation and Recreation since 2006 (Mass.gov).

The project's legacy includes the creation of the Rose Kennedy Greenway, stretching from Chinatown through the Wharf District and North End, managed by the non-profit Rose Fitzgerald Kennedy Greenway Conservancy since 2004. A newly developed tree-lined boulevard in downtown Boston facilitates access to the Greenway, featuring miles of sidewalks, nearly 900 trees, and numerous plazas (Mass.gov). The initiative also revitalized parks and landscapes along the Charles River Basin and East Boston.

The second component involved extending I-90 (the Massachusetts Turnpike) south of downtown Boston. Today, this extension travels through a tunnel beneath South Boston and Boston Harbor, leading directly to Logan Airport. The first link in this new connection - the Ted Williams Tunnel under the harbor - finished in December 1995. The Big Dig also integrated improvements to public transit infrastructure, including extending the Massachusetts Bay Transportation Authority (MBTA) Silver Line bus rapid transit system and constructing new commuter rail stations. One major criticism is that the train system failed to link North and South Station by running trains through the tunnel, despite the proposal to do so. There are recent proposals to address this lack of a connection (North South rail Link).

Challenges and Economics

The Big Dig faced controversy and numerous engineering challenges. It was plagued by significant cost overruns and delays, with the final cost far exceeding initial estimates and the original timeline extended by several years. Engineering was a monumental undertaking involving placing a 7.8-mile stretch of highway underground, including 161 lane miles, roughly half of it in tunnels. Enormous amounts of concrete, equivalent to covering 2,350 acres one foot thick, were used alongside excavating over 16 million cubic yards of soil. Notably, the project featured the construction of the Leonard P. Zakim Bunker Hill Bridge, the widest cable-stayed hybrid bridge in the world, with an innovative asymmetrical design (Mass.gov).

Four major highway interchanges were incorporated into the project, facilitating connections with the existing regional highway system. These interchanges were routed to Logan Airport, Boston's southern waterfront and convention center area, Storrow Drive, the Tobin Bridge, and the new tunneled highway. The complex southern interchange, rebuilt on six levels, links the underground Central Artery with the Turnpike extension through South Boston, accommodating 28 routes, including High Occupancy Vehicle lanes and access to Logan Airport (APPEL.NASA).



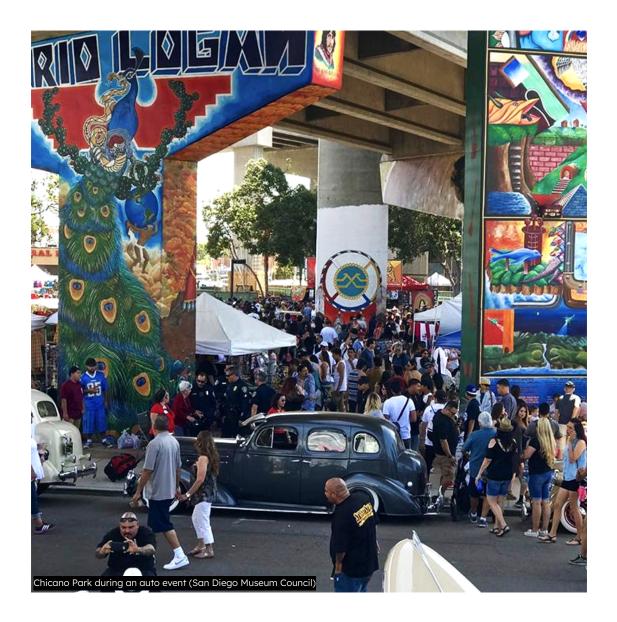
The Big Dig project's total cost exceeded \$15 billion, making it one of the most expensive public works projects in American history. The project was primarily funded through federal, state, and local government appropriations, toll revenue bonds, and public-private partnerships (APPEL.NASA). Comparisons to other monumental projects, such as the Panama Canal, the English Channel Tunnel (the "Chunnel"), and the Trans-Alaska Pipeline, highlight the unique challenges faced by the Central Artery Project. Unlike its predecessors, the Central Artery Project had to be executed in the heart of Boston without disrupting the city's operations (Mass.gov). Throughout construction, maintaining traffic capacity and community access remained a priority, with over a quarter of the project's budget dedicated to efforts to mitigate disruptions.

Impact and Results

The Big Dig reduced traffic congestion and travel times along the Central Artery corridor, improving commuter mobility and freight transportation through Boston. The total time vehicles spent on project highways dropped 62% between 1995 and 2003, saving travelers about \$168 million yearly in time and money, a significant economic benefit (Mass.gov). Residents' commute times from the I-90/I-93 interchange to Logan Airport have decreased between 42% and 74%. Additionally, there has been a 12% decrease in carbon monoxide levels across the city (Mass.gov). The project has also reconnected previously separated neighborhoods. Clay and dirt from the project replaced landfills all over New England, further contributing to environmental conservation. Despite improvements, the Big Dig remains a controversial project due to faulty construction, which saw 26 tons of concrete paneling collapse in the chunnel in 2006, crushing a driver in her car, an incident seen as unacceptable in the face of the project's ballooned costs and delays (NTSB.gov).

Chicano Park | San Diego

Underpass Activation



Chicano Park, located in Logan Heights, symbolizes cultural pride and is the geographic heart of the Barrio Logan neighborhood of San Diego, the oldest community of Mexican Americans in the US. The park has long represented community resilience for the Chicano and Mexican-American residents. The 7-acre park is renowned for its vibrant murals – among the biggest Chicano murals in the world with over 100 paintings –

sculptures, gardens, picnic tables, and playgrounds (SanDiego.org). The murals depict the struggles, aspirations, and heritage of the Chicano movement. In recent years, efforts have been made to extend this cultural vibrancy beyond the park's boundaries, including activating the underpasses adjacent to the park.



Historical Context

The park's history dates back to the 20th century when the neighborhood was a thriving middle-class community. However, during World War II, the area lost its beach to the Navy and defense industries, a similar fate experienced by beach towns such as Long Beach (SanDiego.org). Exacerbating community loss, the 1960s brought the construction of the I-5 freeway, resulting in the demolition of homes and dividing the neighborhood. Residents were promised compensation in land to be turned into a long-desired park under the Coronado Bridge (CA Mexico center).

However, after extended silence from city officials, residents learned in late April 1970 that the City's promise had been rescinded and a California Highway Patrol station would instead occupy that land. This spurred swift community action, led by the Chicano Park Steering Committee, with hundreds, including families, showing up to protest and halt construction by creating a human chain around bulldozing equipment (San Diego.org). The protesting party occupied the site for 12 days, alerting city and government officials and bringing them to the negotiating table. Negotiations would continue for months, with arguments over land ownership and land use at the forefront (San Diego.org).



Community persistence won, and the formation of Chicano Park was signed into law in 1971, with mural painting beginning two years later. Salvador Torres, a local artist, had the idea of turning the area into a canvas for murals, and he, along with several other artists and artist collectives like Congresso de Artistas, continued to direct the ever-growing mural landscape. Chicano Park's story is a testament to community action and sacrifice, exemplifying the accomplishments that unified communities can achieve (CA Mexico Center). Through the decades, the Chicano Park Steering Committee has become a caretaker and an unofficial governing body of the park. San Diego's Department of

Recreation and Parks regularly deferred to the steering committee for event permission and ultimately decided to pass on permitting responsibilities to the committee itself (FPA).



Restoration Efforts

Chicano Park saw the restoration of about 24 murals between 2011 and 2012. Restorations were accomplished with federal funding, and various awards were recognized for the revitalized project. The underpasses were upgraded with improved lighting, pedestrian pathways, and landscaping to create a safer and more inviting environment for pedestrians and cyclists (SanDiego.org). LED lighting fixtures were strategically installed to highlight the artwork and enhance the aesthetic appeal of the underpasses at night in an attempt to match their daytime presence.

The underpasses serve as venues for cultural events, performances, and educational programs celebrating Chicano art, music, and heritage. The still-existing Chicano Park Steering Committee hosts an annual Chicano Park Day celebration that has occurred for

over 50 years with cultural performances and activities. These events attract visitors from across San Diego and abroad, contributing to the liveliness of the Barrio Logan neighborhood. Community members were actively involved in the planning and design process through public meetings, workshops, and consultations, with their input helping to shape the vision for the underpass activation (CA Mexico Center). The long-anticipated Chicano Park Museum officially opened in 2022 following six years of meticulous planning. The museum celebrates the park and its many contributing artists and operates as a community center and headquarters for the nonprofit organization Turning Wheel Project (Chicano Park Museum).

Ricardo Lara Park | Lynnwood

Embankment Park



SWA describes Ricardo Lara Park as a 'vibrant city park and a remarkable example of landscape infrastructure. It showcases how thoughtful landscaping can revitalize a once-divided area and transform it into a unifying space, offering environmental and recreational benefits to the community." The park received the 2021 Excellence in Urban Design Award from the American Society of Landscape Architects (ASLA).

Design Features

The park reclaimed over five acres of vacant land along an I-105 embankment. Through collaboration with the City of Lynwood and the non-profit organization 'From Lot to Spot,' SWA turned the embankment into a mile-long park. The design team was assigned

the task of incorporating input from the community and creating a space that caters to a range of needs of local stakeholders. Organizing a series of community workshops organized by the City, ideas for the new park emerged, such as a pedestrian walkway, an exercise station, a children's play area, and a dog park (ASLA).

To instill a sense of ownership from the outset, public meetings were held to encourage community contributions to the park's overall design. At one meeting, participants were invited to participate in an artistic exercise involving the creation of abstract colored paper collages depicting animals (ASLA). These designs were later integrated into the mosaic tiles placed into the picnic tables and benches – serving as a reminder of the design process and providing vibrancy and identity to the park and neighborhood.



A park section is dedicated to a community garden with 20 raised beds and two shared tool sheds available for rent. The garden promotes hands-on learning, healthy eating, and community bonding through gardening activities. Aside from beautifying a previously abandoned area and promoting local food access, the park provides opportunities for exercise and recreation. Fitness stations in the park support various exercise programs, play structures, public artworks, and other amenities that encourage healthy living and community interaction.



Ricardo Lara Park is located near the LA River bike path and is a local gateway to regional recreational networks. It reconnects neighborhoods on both sides of the freeway, offering a continuous path for walking and jogging and safe underpass linkages (ASLA).

Additionally, strategically placed basins and bioswales help manage runoff from the adjacent Caltrans embankment, serving as a flood prevention measure and an effective way to filter polluted freeway runoff before it reaches the water table (SWA).

To mitigate noise and air pollution from the freeway, a 10-foot-tall sound wall runs along the park's length, while softscape interventions help reduce heat island effects. By planting over 300 trees across the park, canopy coverage has increased to 48%, providing shade for features like benches and berms (ASLA). The diverse plant community in the park buffers heat from surrounding streets, making it a more inviting destination, particularly during the summer months.

Comprehensive Client Project

APPLIED CASE STUDIES

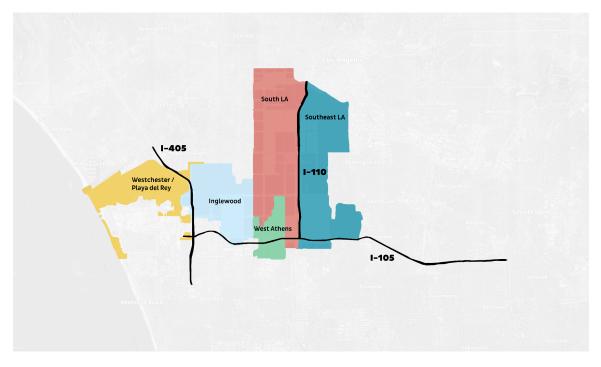
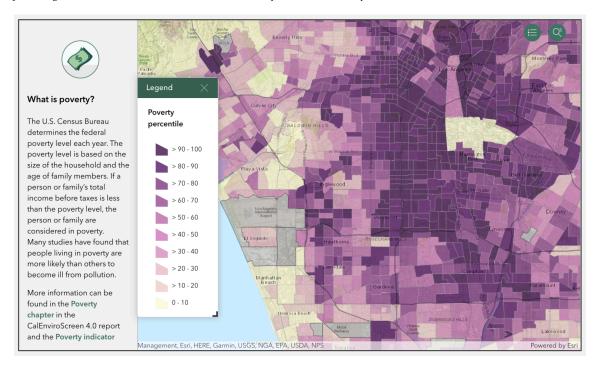


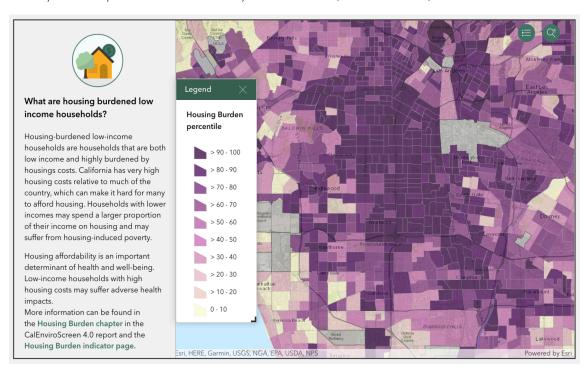
Figure 5.0 | Case Study Freeways & Communities

In this section, I delve into three real-world design case studies along the I-405, I-105, and I-110 freeways, spanning six communities. While there are numerous proposed and forthcoming projects in the SCAG (Southern California Association of Governments) region aimed at de-freeway and reconnecting, only a handful are planned for Los Angeles, of which are concentrated in more prosperous neighborhoods such as Santa Monica, Downtown Los Angeles, and Pasadena. This section aims to draw attention to the areas with the greatest need to promote equity in some of the most affected communities in Los Angeles. These studies were designed to provoke thought among planners and decision-makers regarding future initiatives rather than serving as fully-fledged actionable development plans.

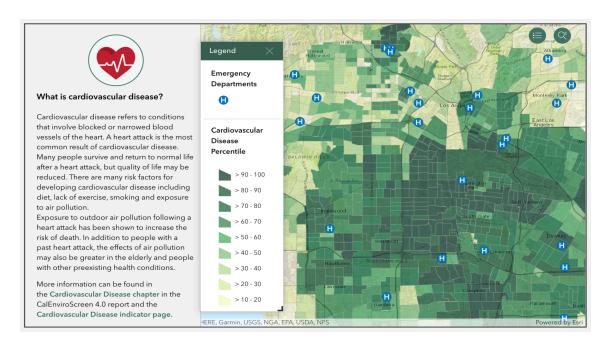
The first phase involved identifying needs by examining the areas most affected by the legacy of freeway planning and the environmental and social consequences of freeway transit.



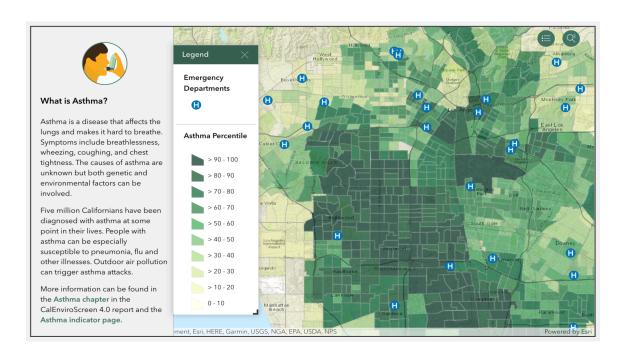
Overlay of Poverty Percentiles in LA County Census Tracts. (CalEnviroScreen)



Overlay of Housing Burden Percentiles in LA County Census Tracts. (CalEnviroScreen)



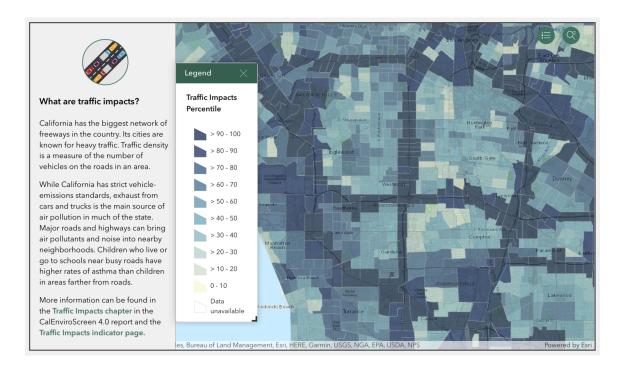
Overlay of Cardiovascular Disease Percentiles in LA County Census Tracts. (CalEnviroScreen)



Overlay of Asthma Percentiles in LA County Census Tracts. (CalEnviroScreen)



Overlay of Deisel Particulate Matter Percentiles in LA County Census Tracts. (CalEnviroScreen)



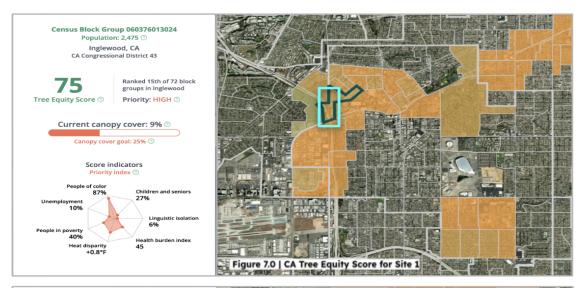
Overlay of Traffic Percentiles in LA County Census Tracts. (CalEnviroScreen)

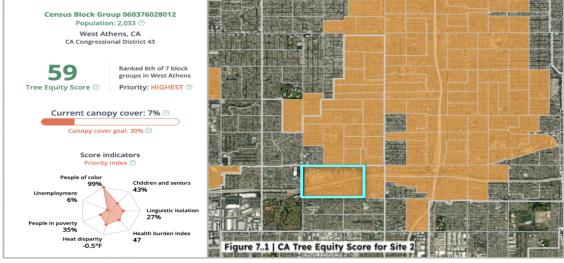


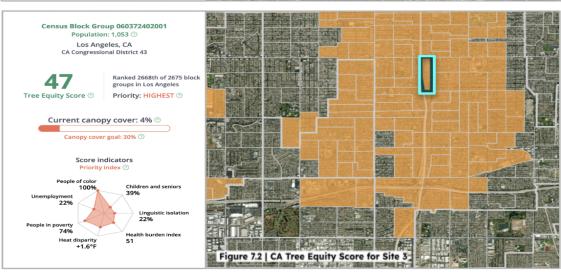
Figure 6.0 | GIS composite of <u>CalEnviroScreen</u>. Darker areas represent high-impact & need | Variables include Asthma, Cardiovascular, Diesel Particulate Matter, Pollution Burden, Poverty, Traffic Burden



Figure 6.1 | GIS composite of <u>CA Tree Equity Score</u> variables. Darker areas represent high-impact & need | Variables include Poverty, Unemployment, Heat Disparity, Health Burden, Children & Seniors











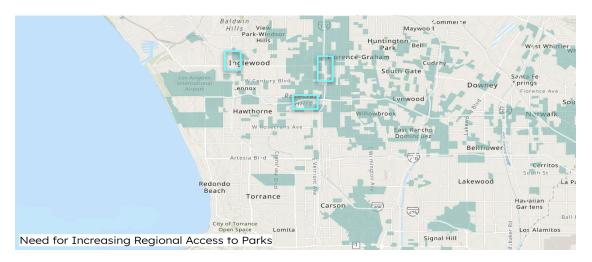


Figure 8.0 | CA Park Needs Assessment for LA Region illustrating population burden, environmental burden, and need for increased access to parks.

Site One | I-405

Westchester - Playa del Rey & Inglewood

Community Profiles

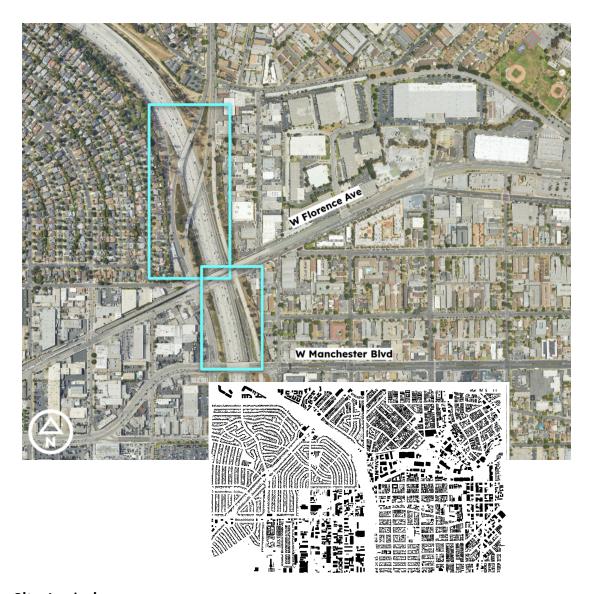
Westchester, 11 sq. miles situated near the coast of the Los Angeles Basin, was primarily an agricultural area in the early 20th century. During the 1930s, it underwent a rapid transformation into a residential neighborhood, largely influenced by the burgeoning aerospace industry and the development of what is now known as Los Angeles International Airport (LAX), previously named Mines Field (LACityPlanning.gov). Westchester currently accommodates a community of approximately 50,000 residents, making it not an insignificant neighborhood within the larger context of Los Angeles. The area boasts steady homeownership, with roughly half the housing stock comprising detached single-family homes constructed in the post-war era. Additionally, the community benefits from commercial districts and businesses along two major Los Angeles thoroughfares, Lincoln and Sepulveda Boulevards, and Manchester Avenue.

Inglewood, California, was founded on February 14, 1908. Initially inhabited by the Tongva people, the area became part of the Spanish Empire in the late 18th century and was incorporated into the Rancho Aguaje de la Centinela after Mexican independence. The railroad's arrival in the 1880s spurred growth, and the city gained prominence in the mid-20th century, particularly during the aviation boom of World War II, which brought significant economic growth and population expansion like other cities such as Westchester and Long Beach (Othering & Belonging Institute).

Inglewood has a population of approximately 107,762, with a significant African American community and a growing Latino/a contingent. In the early 20th century, it was predominantly a white community and, like many cities in America at the time, practiced racial segregation. The mid-20th century saw significant demographic changes, particularly during the Great Migration when African Americans moved west, landing in Inglewood seeking better opportunities while escaping the Jim Crow South (Othering & Belonging Insitute). Racial tensions and efforts toward integration marked the 1960s and 1970s as the Civil Rights Movement ushered in a new era in American cities. By the 1980s and 1990s, Inglewood had become a majority African American city.

Historically dependent on agriculture and aviation, the city has diversified its economic base. The construction of the Hollywood Park Racetrack in 1938 and, later, the Forum in 1967 positioned Inglewood as a hub for entertainment and sports in the Los Angeles region. In recent years, the development of the SoFi Stadium (2020), home of the LA Rams, has further bolstered the local economy via substantial investments and hosting sports and entertainment events (CityofInglewood.gov). Ongoing redevelopment projects such as Intuit Dome (future home of the Clippers) and hotel and housing developments aim to enhance commercial and residential infrastructure, fostering further economic growth in addition to gentrification and displacement.

See full demographic data here:



Site Analysis

Site one addresses a stretch of the 405 Freeway between the Westchester neighborhood and the western edge of the City of Inglewood. While the impacted region covers a large area, I specifically focused on this stretch of highway due to its high-opportunity potential for serving the region as a whole. My survey considered factors such as the freeway grading, distance between overpasses, surrounding land use (primarily residential with an industrial and commercial corridor along Florence and Manchester Avenues), and the potential for activity compared to other less dynamic stretches. Additionally, the black and

white figure-ground map highlights the spatial disturbance caused by the 405 Freeway and its impact on the surrounding land, structures, livelihoods, families, and lives it destroyed when it was built.

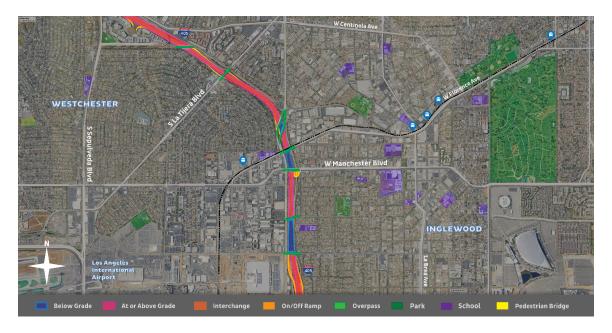


Figure 9.0 | Regional Study / Freeway Site Analysis

I continued my analysis with a regional study. The top figure highlights the 405's built form, such as where it runs below (blue) and above (red) grade, its overpasses (8 counts), on and off ramps (9 counts), and pedestrian footbridges, if present. Understanding the freeway's structure informs us of what projects are feasible. In this case, most of the stretch shown is either at or above grade. There are three below-grade sections, which would allow for building caps. Also shown are LA Metro's K line track, stations along Florence Ave, and key arterial streets.

The study places significant emphasis on the landscape of the park (5 counts) and school (13 counts), as they are not just physical spaces but also key indicators of the resources available in a community. This is especially important when considering families with

children, crucial stakeholders in any public use project. A more extensive site study might include a series of analyses essential for a project of this scale. These include economic development potential, other public facilities, topography, soil and geology, cultural resources, growth projections and development trends, disaster preparedness, and displacement prevention. These analyses provide a distinctive perspective contributing to our overall understanding and support informed decision-making.

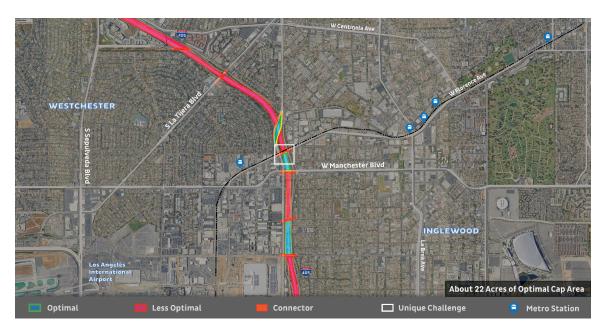


Figure 9.1 | Freeway Grading Optimality Analysis

The analysis in the second figure emphasizes the optimal locations for constructing a cap over the 405. The optimal sections in teal are identical to the below-grade sections shown before. The structural significance of these optimal sections is underscored by factors such as the spacing and elevation of connectors, the depth of the freeway trough, and the overall freeway width. Other influential factors include but are not limited to the existence and prevalence of utility systems, geotechnical conditions, street grid, and public transit. Although these factors are crucial considerations for construction feasibility, it is

important to note that this list is not exhaustive and primarily focuses on construction-related aspects. For a more comprehensive assessment of feasibility factors, readers are encouraged to refer to the typologies section of this paper.

At this specific site, three optimal sections were identified, with the top two being deemed the most favorable, presenting an opportunity for two project-connected ventures. A distinctive challenge and opportunity presented by this site is highlighted by the white outlined square. While the existence of the K-Line track adds another layer of complexity, the proximity of the Westchester/Veterans Station and the convergence of three arterial streets, La Cienega Boulevard and Florence and Manchester Avenues, suggest that establishing a transit hub at this location could be a viable option. This, in turn, opens up the potential for a transit-oriented development initiative, which could potentially ignite the interest of urban development and community stakeholders, especially considering the site's proximity to LAX airport and Sofi Stadium, both of which are within a mile of the location.

Site Proposal

The proposal for this site consists of two freeway caps, taking advantage of four overpass connectors at Florence Ave. The first is a 3.5-acre cap park between the bisected La Cienega Boulevard, featuring walking paths, large shade trees, a lawn for leisure and recreation, and a hedge buffer. While not shown due to scale, road dieting and the integration of complete-streets pedestrianization would go into effect along La Cienega to significantly slow traffic and improve safety – particularly with the presence of an off-ramp left of the park. Other amenities could include a garden, public art, a dog park, picnic tables, workout stations, and informational signage about the adjacent

communities. Amenities would, in part, be at the discretion of community stakeholders and determined via extensive engagement.

The second cap is a 6.5-acre mixed-use, transit-oriented development serving as a regional hub for transit and micro-mobility while offering housing, commercial and recreational opportunities, and a community center. The surrounding grid would implement complete streets design as part of LADOT's Vision Zero, and site amenities could include a micro-mobility hub, protective bus shelters, a community gym, and co-work spaces. The site would implement green infrastructure, and structures would be LEED-certified. Specific funding and incentives are available for TODs and mixed-income housing developments with The Los Angeles County Development Authority (LACDA), City of LA TOC Density Bonuses, City of LA Municipal Bond Financing, HOME Investment Partnerships Programs, and CA TOD Development Loans.

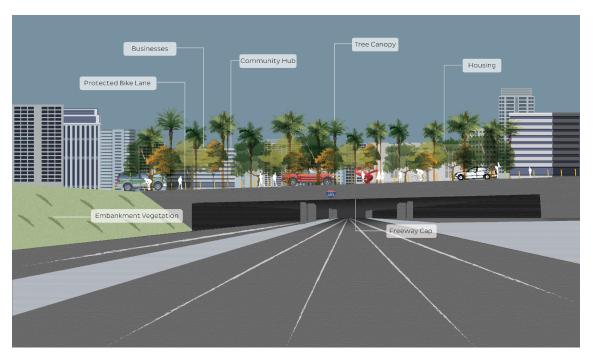


Figure 10.0 | Northbound section rendering of the mixed-use T.O.D. cap



Figure 11.0 | Plan-view rendering of the two site proposals

Site Two | I-105

West Athens/ Westmont

Community Profiles

West Athens/Westmont is one greater community bisected by the 105 freeway. The area is about the same population size as Westchester/Playa del Rey but more than half the size, at 3.2 sq. miles. These unincorporated LA County neighborhoods have a combined population of about 41,000 and are located immediately north and south of the 105 near the 110/105 interchange. The demographic makeup is almost evenly split between Black and Latino/a, with 50% between the ages of 25 and 64 and 39% 24 years old or younger. It's a community of lesser means, with 11% of the population unemployed and 17% of families experiencing poverty (Census.gov). Several schools and Los Angeles Southwest Community College are present. A few green spaces exist, though one is a golf course, and the others are small. The area has been fraught with gang and police-related violence since the 1990s, symptoms of a history of structural racism and entrenched poverty in the greater South Los Angeles region. Community organizations such as The West Athens Westmont Task Force play a key role in programming and services (WAWTaskForce).

However, in 2016, the **Connect Southwest LA specific plan** was adopted by the LA County Board of Supervisors to usher investment into Westmont and West Athens (LA County Planning). Visions include residential housing development, increased commercial space, and mixed-use zoning, with the Western Avenue and Vermont Avenue corridors receiving most of the growth. West Athens received its own TOD-specific plan to take advantage of Metro's C Line Vermont Station, which sits atop the median along the 105 freeway.

See full demographic data here:



Site Analysis

Site two explores a stretch of the 105 Freeway between the Westmont neighborhood just north and West Athens just south. I focused on this stretch of highway due to its relatively uncomplicated form and the lack of parks and green space. It is also a residential area, meaning any project would likely serve locals first, and the existence of the Vermont Station highlighted an opportunity just as the K-Line station in Site 1 does (this is evident by its focus in the West Athens TOD specific plan). Coupled with the Connect Southwest LA specific plan, a de-freeway project could be incorporated and contribute to regional service, becoming a landmark. Like Site 1, my survey considered factors such as the freeway grading, distance between overpasses, surrounding land use and user base, and the potential for activity.



Figure 12.0 | 105 Regional Study / Freeway Site Analysis

The regional study continued the analysis. The top figure highlights the more meandered form of the 105, illustrating the below (blue) and above (red) grades, its overpasses (9 counts) – among which one hosts the C Line Vermont Station – and on and off ramps (10 counts), and one pedestrian footbridge a little east of Prairie Ave. About half of the stretch shown is either below grade, with a single section north of Hawthorne Airport above at or above grade and the 110 interchanges to the east. The presence of six relatively evenly distributed connectors (overpasses) above the below-grade section would allow for freeway capping, with the potential for multiple.

Of note in this region is the dense expanse of concrete and lack of green spaces (three and a massive public golf course). This again reflects the (lack of) resources available in a community. However, there are several schools (9), and the age demographics reflect a relatively younger population of families with children. Civil outreach and engagement

would be especially important in a more vulnerable residential community such as this compared to the industrial and commercial regions of Site 1.



Figure 12.1 | 105 Freeway Grading Optimality Analysis

Three optimal sections were identified. The less optimal designation for the section between the optimal is due to the distances between connectors and uneven topography north of the golf course. The two adjoined optimal sections present an opportunity for two connected caps, making one large cap. Just like Site 1's K Line, the C Line station adds a layer of complexity and an opportunity to work with – especially considering the future specific plan development, potentially becoming a regional destination. LA County Zoning parcels also designate this area as an opportunity zone (shown in Appendix 2.0).





Figures 13.0 & 13.1 | Plan view of 105 cap locations and plan view rendering of a cap park

The proposal for this site consists of three potential freeway caps, taking advantage of the six overpass connectors at Van Ness and Normandie Avenues, Wilton Place, Western, Normandie and Budlong Aves, and Vermont Avenue. The first location would be 12.5 acres, the second 12 acres, and the third 11 acres. In consideration of the site analysis and

the specific plan goals, these caps would be open green spaces to fill the gap of that public good.

The second figure exhibits the second location – a rendering of what one of these open spaces might potentially be, featuring a mostly open lawn area for recreation, leisure, and events, along with walking paths, large shade tree canopies, a community hub, sports facilities, water features, and a learning center. Additionally, protected bike lanes, road dieting, and the integration of complete-streets pedestrianization would go into effect along Normandie and Budlong Avenues to slow traffic and improve safety. Plenty of other amenities could be included at the discretion of community stakeholders via extensive outreach and engagement. It should be noted that each cap could feature a different but complementary use since the potential sites are in close proximity to each other.



Figure 14.0 | Section rendering of the 105 cap park looking east at Normandie Ave

Site Three | I-105

South Los Angeles & South East Los Angeles

Community Profiles

South Central Los Angeles has come to be known as South LA and South East Los

Angeles due to negative connotations with its original name. The region spans several

communities and has a deep history influenced by migration patterns, urban growth and
degrowth, and socio-economic transformations. Like other poor communities today, South

LA began flourishing in the early 20th century due to the Pacific Electric streetcar

system's expansion and the arrival of white middle-class residents. However, the area saw

a significant demographic shift post-World War II (USC Lusk). African American families

emigrated to South Central in the 1940s and 1950s as part of the great migration, but also

from within Los Angeles, as they were forced to relocate due to racial covenants and
discriminatory housing and economic practices elsewhere in the city despite limited

housing options (USC Lusk). Wartime industries were also a draw. Despite facing systemic

barriers and economic hardships, South Central became a hub of African American

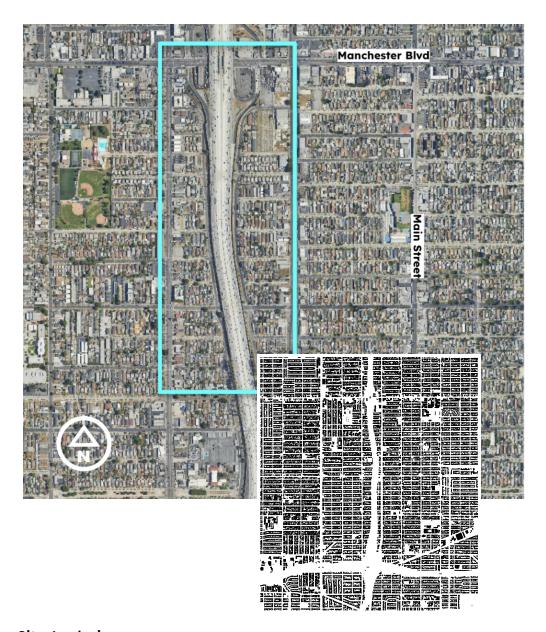
culture and commerce.

The latter half of the 20th century brought profound changes to the community. The Watts Riots in 1965 and the Rodney King Riots in 1992 laid bare racial tensions and economic disparities, bringing national attention to issues like police brutality, poverty, and institutional neglect and disinvestment in South Central (PBS SoCal, 2017). Interstate construction of the 110 and I-10 through the heart of West Adams and other urban planning decisions, coupled with economic shifts like the crack cocaine economy, further impacted the socio-economic and built landscape of South Central (PBS SoCal, 2017).

Despite persistent challenges, recent years have witnessed promising strides toward revitalization and economic progress. However, gentrification and displacement threaten the cultural fabric of South Central. The rise in property values, absence of rent control, numerous condo projects, Metro's growth, USC's prominence, and the Los Angeles Rams' relocation to neighboring Inglewood fuel gentrification challenges (USC Lusk). Over recent decades, this traditionally African-American community has also shifted towards a more Latino/a demographic composition. These changes have prompted local community organizations like Community Coalition, LA Tenants Union, South Central Dreamers, Strategic Actions for a Just Economy, and United Neighbors to resist development and advocate for residents' rights across issues (PBS SoCal, 2017).

Despite the rebranding, South LA/South Central's residents remain some of the most impacted and vulnerable across Los Angeles. From an urban planner and civil servant perspective, it is imperative to highlight the challenges South LA's built environment is plagued with and apply innovative solutions to ameliorate the effects of those challenges in collaboration with community residents and leaders.

See full demographic data here (South LA & South East LA):



Site Analysis

Site three looks into a stretch of the 110 Freeway between the South LA and Southeast LA (SELA) neighborhoods just west and east of the interstate. The 110 posed a different challenge due to its built form, which remains unchanged throughout except for a complex multi-level area just south of the I-10 near downtown that caters to the E Line (stopping at USC). Aside from a short segment, the freeway remains above grade, maintaining a width of 10-14 lanes along its stretch. This form limits de-freeway opportunities, leaving

interventions for street-level. Even still, the configuration of the adjacent streets and the most residential land use narrowed the scope further, with any major capital improvement projects requiring immense political and funding support and likely community disruption and opposition. The clearest option presented was to explore working with underpasses (of which there are six between Manchester Blvd and the 110/105 interchange) and embankments.



Figure 15.0 | 110 Regional Study / Freeway Site Analysis

A freeway grading analysis was deemed unnecessary for the third site, as the regional study indicates that the entire stretch is elevated above grade. While the highlighted challenge focuses on one underpass, it is worth noting that all six underpasses (of which three are shown) in the southern segment of the 110 present opportunities for activation. Since the data analysis emphasized the 110 corridor as a priority area, interventions can be implemented throughout the freeway north of the 110/105 interchange.

Another significant observation is the scarcity of green spaces in the vicinity, with only two recreation centers featuring baseball fields and no actual parks or open green areas available. This lack of green space is particularly concerning in a residential area with families and several schools nearby. Additionally, navigating across the imposing structure of the 110 freeway can be daunting for pedestrians and cyclists, further underscoring the need for improved infrastructure and access in the area.

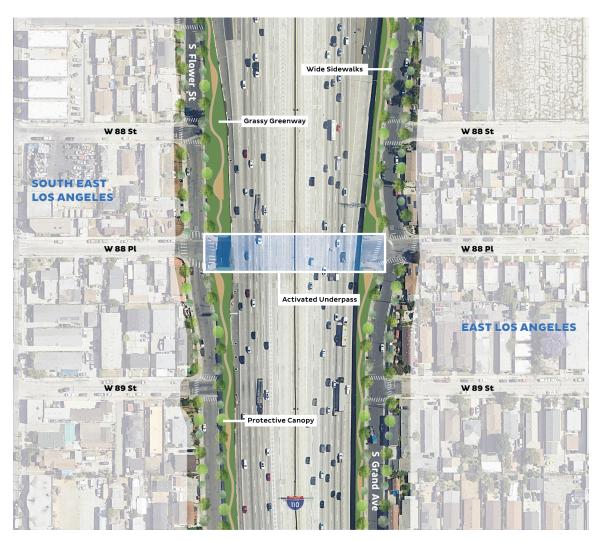


Figure 16.0 | 110 Planview rendering of proposal site

To address the aforementioned challenges, the plan for Site 3 involves implementing an embankment park that mirrors the design of Ricardo Lara Park, situated on both sides of the 110, wherever possible. The proposal also includes activating the various freeway underpasses at intersecting streets. Figure 16.0 shows how this concept would manifest, depicting a view of the proposed design just south of Manchester Blvd, between Grand and Flower.

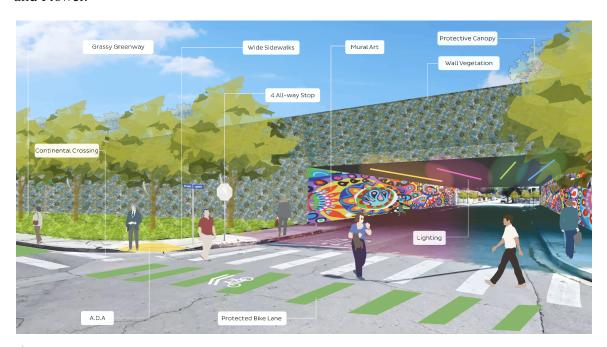


Figure 17.0 | Rendering of embankment and underpass activation. Looking west from Grand & 88th

To elaborate on the proposed changes to 88th Street, this rendering showcases a transformation of the underpass into a vibrant and dynamic space. By incorporating colored LED lighting and engaging murals, the underpass and others implementing these measures would be reimagined as inviting and visually stimulating areas that enhance the street's and surrounding neighborhoods' overall aesthetic appeal. This beautifies the space and creates a more welcoming environment for pedestrians and cyclists.

The introduction of painted and protected bike lanes along both sides of the 110 freeway promotes cycling as a viable and safe mode of transportation. This encourages sustainable mobility and prioritizes cyclists' safety by providing designated pathways separated from vehicular traffic. This addition, along with creating a more walkable environment, enhances the connectivity of the street network and promotes active transportation to reduce congestion and improve air quality.

Additionally, activating the embankment with a protective tree canopy, wall vegetation, and green infrastructure elevates the area's visual appeal and contributes to a more environmentally friendly urban landscape. The introduction of greenery helps to mitigate the urban heat island effect that freeways exacerbate, combat air quality depletion from the freeway, and buffer noise, creating a more pleasant and comfortable outdoor space for community members to experience.



Figure 17.1 | Rendering of embankment activation. Looking south from Grand & 88th

This corridor is part of LADOT's High-Injury Network, which evaluates road networks across Los Angeles County based on pedestrian-vehicle collisions. The network ranges from South LA beyond the 110 / 105 interchange to San Fernando in the Valley. Their website, LADOT Liveable Streets, provides a map, quantitative counts of collisions and deaths, mobility plan overlays, and Vision Zero projects to reduce collisions and increase pedestrian safety. This proposal falls within this corridor and the scope of some Livable Streets projects, including Vision Zero and Safe Routes to School, highlighting support for such a proposal that aims to achieve the same outcomes (LADOT Livable Streets).

Conclusion

The impact of the freeway's legacy continues to eat away at communities and the environment, demanding planners' and policymakers' attention and courageous decision-making if our urban centers are to reverse course and become accommodating, nurturing, and sustainable. The story of freeways and the shift in attitude around freeways and pedestrianization reflect that city leaders and planners see their hand in the long-term implications of urban reformation for future generations.

The sites selected for this paper and their respective proposals illustrate the varied applications in de-freeway typology and use cases available to planners and city officials. All three differ in their application and scope but follow the principles of community needs-based planning and design, which reflect the where, the who, and the what questions that should be pillared for every planning project. Site 1 tells us that freeway caps can be utilized for more than one use in a varied zoning area between two neighborhoods spanning separate municipalities. Caps are not limited to parks; they can also provide or increase services in areas with limited available land.

Site 2 is an emphasis on park-need and equitable access to open green spaces for communities desperately lacking them. It also reflects the need for planners and policymakers to target socio-economically vulnerable neighborhoods, particularly when the existing built form is conducive to relatively straightforward (in concept) interventions. I previously selected a section of the I-105 east of the 110 and 105 interchanges adjacent to Nickerson Gardens and Imperial Courts housing complexes. However, due to the complex system of on and off-ramps, the adjacent Imperial Highway, and a number of industrial

facilities situated right next to the freeway, I reassessed the site's feasibility and weighed the impact an intervention would have against its challenges. I ultimately concluded that the chosen site was more feasible.

Site 3 illustrates that interventions to reconnect communities are not limited to capital improvement projects. They can also enact change in the built and social environments through street-level, pedestrian-scale planning and design. When there is minimal space and the existing built environment enforces scope limits, it is important for planners and city leaders to work with, rather than against, their limitations to find solutions. Site 3 also highlights the ability to conglomerate efforts and partnerships to maximize effective change by acknowledging the existence of reconnecting communities-adjacent programs such as Liveable Streets and leveraging their momentum and organizational apparatus.

The measures and interventions outlined in these proposals, while tied with significant hurdles and unable to resolve all the disparities and obstacles identified in the paper, would contribute to the range of efforts, particularly those related to mobility and connectivity, aiming to transform the built and social landscape of Los Angeles. The increasing number of planning examples prioritizing pedestrians in cities across the US and globally are a testament to the transformative power of people-centered planning in the face of a fast-paced, car-centric lifestyle. There is evidence that this works when there are great minds with funding. Moreover, it is a question of political courage and will to make these projects the norm rather than the exception.

Our cities should be vibrant centers of curiosity and social interaction, not isolated and desolate concrete grids that, at best, discourage and, at worst, prevent us from accessing

opportunities for personal and communal growth. Dismantling and rebuilding these barriers would greatly enhance the urban experience and foster greater sense of unity. The movements to de-freeway and reconnect communities are significant strides in this direction.

Still, questions remain of planners and proponents advocating for these shifts in planning practice. Considering the health implications, how justified and realistic is it to expect people to spend time above and around freeways, notably in the same communities that are denied access to adequate healthcare? If contemporary planning movements such as de-freeway, reconnecting communities, and new urbanism aim to eliminate the need for individual automobile use, with an encompassing goal of facilitating 'the 15-minute walkable city', why commit time and resources to the cause of the problem instead of fighting to remove it altogether? My work does not explore the complete removal of the selected freeways, but there is a potential future where that option is provided.

There is also the question of who is advocated for in the discourse on connectivity and the creation of public space. Homelessness is at a crisis point across the US, particularly in Los Angeles, with many people seeking shelter in public spaces such as parks and transportation spaces such as stations and in the shadows of street and freeway networks. The crisis speaks to many issues, but what role do advocates of open community spaces play in addressing homelessness? Are transient populations under the same umbrella as other vulnerable groups, or are they othered and obfuscated from the collaborative planning process?

The most important and possibly difficult question is: Understanding that neighborhood investment is often the precursor to gentrification, how do we, as planners, facilitate community healing and connectivity beyond commercial visions and prevent further harm to the neighborhoods we're trying to repair?

Bibliography

"1. boulevards, gentrification, and Urban culture." Taking Back the Boulevard, 2020, pp. 17–55, https://doi.org/10.18574/nyu/9781479809806.003.0002.

"2. the stages of neighborhood transition." Taking Back the Boulevard, 2020, pp. 56–91, https://doi.org/10.18574/nyu/9781479809806.003.0003.

"4. neighborhood activism and slow growth." Taking Back the Boulevard, 2020, pp. 124–167, https://doi.org/10.18574/nyu/9781479809806.003.0005.

Anciaes, Paulo Rui, et al. "Community severance: Where is it found and at what cost?" Transport Reviews, vol. 36, no. 3, 2015, pp. 293–317, https://doi.org/10.1080/01441647.2015.1077286.

Anguelovski, Isabelle. "From toxic sites to parks as (green) lulus? New inequity, privilege, gentrification, and exclusion challenges for urban environmental justice." Journal of Planning Literature, vol. 31, no. 1, 23 Oct. 2015, pp. 23–36, https://doi.org/10.1177/0885412215610491.

Audirac, Ivonne. "Accessing transit as universal design." Journal of Planning Literature, vol. 23, no. 1, 3 June 2008, pp. 4–16, https://doi.org/10.1177/0885412208318558.

Automobile Club of Southern California. "Traffic Survey, Los Angeles Metropolitan Area Brochure, 1937." Traffic Survey, Los Angeles Metropolitan Area Brochure, 1937 | California Revealed, californiarevealed.org/do/0abd6c5f-f6bc-4cd5-9f3a-928bd901350d. Created 1937, California--History, Local, 94 Pages

Basu, Nandita, et al. "A systematic review of the factors associated with pedestrian route choice." Transport Reviews, vol. 42, no. 5, 2021, pp. 672–694, https://doi.org/10.1080/01441647.2021.2000064.

Berg, Nate. "Take the parkway to the freeway to the Automated Roadway." Boom, vol. 6, no. 1, 2016, pp. 45–50, https://doi.org/10.1525/boom.2016.6.1.45.

Bickford, Adam, and Douglas S. Massey. "Segregation in the second ghetto: Racial and ethnic segregation in American public housing, 1977." Social Forces, vol. 69, no. 4, 1991, p. 1011, https://doi.org/10.2307/2579300.

"The Big Dig: Project Background." Mass.Gov, www.mass.gov/info-details/the-big-dig-project-background.

Bild, Edda, et al. "Considering sound in planning and designing public spaces." Journal of Planning Literature, vol. 31, no. 4, 20 Aug. 2016, pp. 419–434, https://doi.org/10.1177/0885412216662001.

Brand, Anna Livia, and Charles Miller. "Tomorrow I'll be at the table: Black Geographies and Urban Planning: A Review of Literature." Journal of Planning Literature, vol. 35, no. 4, 2020, pp. 460–474, https://doi.org/10.1177/0885412220928575.

Bruce, and Donald Appleyard. "Tools, rules, and techniques: Planning, engineering, and design approaches to creating complete and Livable Streets and neighborhoods." Livable Streets 2.0, 2021, pp. 379–455, https://doi.org/10.1016/b978-0-12-816028-2.00020-4.

Capital Project - Freeway Park Association, www.freewayparkassociation.org/improvementproject/.

"Case Studies." 5, 22 Sept. 2022, lidi5.org/case-studies/.

Case Study: Klyde Warren Park, www.cnu.org/sites/default/files/Spokane Case Study 4 - Dallas.pdf.

Cervero, Robert. "Transport Infrastructure and Global Competitiveness: Balancing mobility and livability." The ANNALS of the American Academy of Political and Social Science, vol. 626, no. 1, 26 Oct. 2009, pp. 210–225, https://doi.org/10.1177/0002716209344171.

"Community Health in the I-710 Corridor." Neighborhood Data for Social Change, la.myneighborhooddata.org/2019/09/community-health-in-the-710-corridor/.

"Conquering Roads (1937) Chevrolet, Highways, General Motors." YouTube, YouTube, 12 June 2022, www.youtube.com/watch?v=rwjMQDQyxDg.

Cp&dr. Freeway Caps May Reshape California Urban Areas, 22 July 2017, www.cp-dr.com/articles/20170722 _1.

Crisman, Jonathan. "7. art and the aesthetics of cultural gentrification: The cases of Boyle Heights and Little Tokyo in Los Angeles." Aesthetics of Gentrification, 2021, pp. 137–154, https://doi.org/10.1515/9789048551170-008.

De Oliver, Miguel. "Gentrification as the appropriation of therapeutic 'diversity': A model and case study of the multicultural amenity of Contemporary Urban Renewal." Urban Studies, vol. 53, no. 6, 2015, pp. 1299–1316, https://doi.org/10.1177/0042098015576314.

De Vos, Jonas, et al. "Determinants and effects of perceived walkability: A literature review, conceptual model and Research Agenda." Transport Reviews, vol. 43, no. 2, 2022, pp. 303–324, https://doi.org/10.1080/01441647.2022.2101072.

Dumbaugh, Eric, and Michael King. "Engineering livable streets: A thematic review of advancements in urban street design." Journal of Planning Literature, vol. 33, no. 4, 5 Aug. 2018, pp. 451–465, https://doi.org/10.1177/0885412218783471.

East Yard Communities for Environmental Justice, eycej.org/index.php/about/collaboratives-and-coalitions/.

Estrada, Gilbert. "If you build it, they will move: The Los Angeles freeway system and the displacement of Mexican East Los Angeles, 1944-1972." Southern California Quarterly, vol. 87, no. 3, 2005, pp. 287–315, https://doi.org/10.2307/41172272.

Farhat, Ramzi. "Discourse, institutional identities, and intractable planning disputes: The case of interstate i-710." Urban Studies, vol. 52, no. 9, 9 July 2014, pp. 1722–1739, https://doi.org/10.1177/0042098014541159.

"Freeway Fighters Network Map Landing Page - Freeway-Fighters." Freeway, 17 Oct. 2023, freeway-fighters.org/.

"Freeway Park." The Landscape Architecture of Lawrence Halprin (The Cultural Landscape Foundation), www.tclf.org/sites/default/files/microsites/halprinlegacy/freeway-park.html.

"Freeway Park: Past, Present, and Future?" TCLF, 10 Oct. 2006, www.tclf.org/content/freeway-park-past-present-and-future.

"From Fitness Zones® to the Medical Mile." Trust for Public Land, 26 Oct. 2022, www.tpl.org/resource/fitness-zones-to-medical-mile.

Gentrification, Displacement, and the Role of Public ..., www.urbandisplacement.org/wp-content/uploads/2021/08/gentrification.pdf.

Gardea, Jose A. MacArthur Park. Arcadia Publishing, 2015.

Goodwin, H. Marshall. "Right-of-Way Controversies in Recent California Highway-Freeway Construction." Southern California Quarterly, vol. 56, no. 1, 1974, pp. 61–105. JSTOR, https://doi.org/10.2307/41170516.

Harnik, Peter, and John L. Crompton. "Measuring the total economic value of a park system to a community." Managing Leisure, vol. 19, no. 3, 21 Feb. 2014, pp. 188–211, https://doi.org/10.1080/13606719.2014.885713.

Hebbert, Michael. "Re-enclosure of the urban picturesque: green-space transformations in postmodern urbanism." Town Planning Review, vol. 79, no. 1, Jan. 2008, pp. 31–59, https://doi.org/10.3828/tpr.79.1.4.

"High Injury Network." SoCal Transportation Safety Resource Hub, transportation-safety-scag.hub.arcgis.com/pages/high-injury-network.

"History of Oil in Los Angeles." S T A N D - L.A., www.stand.la/history-of-oil-in-los-angeles.html.

Issel, William. "Land values, human values, and the preservation of the city's treasured appearance': Environmentalism, politics, and the San Francisco freeway revolt." Pacific Historical Review, vol. 68, no. 4, 1999, pp. 611–646, https://doi.org/10.2307/4492372.

"Justice & the Interstates: The Racist Truth about Urban Highways." Boom California, 19 Apr. 2023, boomcalifornia.org/2023/04/19/justice-and-the-interstates-the-racist-truth-about-urban-highways/.

Kern, Leslie. "Rhythms of gentrification: Eventfulness and slow violence in a happening neighborhood." Cultural Geographies, vol. 23, no. 3, 2016, pp. 441–457, https://doi.org/10.1177/1474474015591489.

Khalaj, Fahimeh, et al. "Why are cities removing their freeways? A systematic review of the literature." Transport Reviews, vol. 40, no. 5, 2020, pp. 557–580, https://doi.org/10.1080/01441647.2020.1743919.

Kim, Sooyoung, et al. "Cost-effectiveness of capping freeways for use as parks: The New York Cross-Bronx expressway case study." American Journal of Public Health, vol. 108, no. 3, Mar. 2018, pp. 379–384, https://doi.org/10.2105/ajph.2017.304243.

"Ladot." LADOT Livable Streets, ladotlivablestreets.org/projects/south-figueroa.

Li, David, and Alireza Ermagun. "Gentrification Dynamics in Urban Planning: Analyzing the Effects of Freeway Caps on Gentrification (Manuscript Draft)." TRB Annual Meeting, 1 Aug. 2023, pp. 1–12.

Loh, Penn, and Chappell Hayes. "Freeways, Communities, and Environmental Justice: Oakland's Clean Air Alternative Coalition Fights Environmental Racism: An Interview with Eco-justice Hero Chappell Hayes." Race, Poverty & the Environment, vol. 4, no. 2, 1993, pp. 41–42. Population & Immigration.

Loughran, Kevin. "Imbricated spaces." Sociological Theory, vol. 34, no. 4, 2016, pp. 311–334, https://doi.org/10.1177/0735275116679192.

Loukaitou-Sideris, Anastasia, et al. "The Implications of Freeway Siting in California: Four Case Studies on the Effects of Freeways on Neighborhoods of Color." eScholarship, University of California, 19 Apr. 2023, escholarship.org/uc/item/7mj2b24q.

Luz, Gregorio, and Licinio Da Silva Portugal. Understanding Transport-Related Social Exclusion through the Lens of Capabilities Approach, 2022, https://doi.org/10.31219/osf.io/4d3uy.

"Mapping Inequality." Digital Scholarship Lab, dsl.richmond.edu/panorama/redlining/data/CA-LosAngeles#cityData.

Masters, Nathan. "Before the 'Carmageddon': A Photographic Look at the Construction of 5 SoCal Freeways." PBS SoCal, 21 June 2022,

www.pbssocal.org/shows/lost-la/before-the-carmaged don-a-photographic-look-at-the-construction-of-5-socal-freeways.

Masters, Nathan. "Creating the Santa Monica Freeway." PBS SoCal, 19 Apr. 2018, www.pbssocal.org/shows/departures/creating-the-santa-monica-freeway.

Mayer, Lauren. "Freeways without Futures 2023." CNU, 11 Apr. 2023, www.cnu.org/highways-boulevards/freeways-without-futures/2023.

"Michael Van Valkenburgh Associates Inc." Michael Van Valkenburgh Associates Inc, www.mvvainc.com/projects/the-606.

Millard-Ball, Adam, et al. "Dividing highways: Barrier effects and environmental justice in California." Journal of Planning Education and Research, 7 May 2024, https://doi.org/10.1177/0739456x241247330.

Patterson, Regan F., and Robert A. Harley. "Effects of freeway rerouting and boulevard replacement on air pollution exposure and neighborhood attributes." International Journal of Environmental Research and Public Health, vol. 16, no. 21, 2019, p. 4072, https://doi.org/10.3390/ijerph16214072.

Patterson, Regan F., and Robert A. Harley. "Effects of freeway rerouting and boulevard replacement on air pollution exposure and neighborhood attributes." International Journal of Environmental Research and Public Health, vol. 16, no. 21, 23 Oct. 2019, p. 4072, https://doi.org/10.3390/ijerph16214072.

"Proven Safety Countermeasures." Proven Safety Countermeasures | FHWA, highways.dot.gov/safety/proven-safety-countermeasures.

"Reconnecting Communities and Neighborhoods Grant Program." U.S. Department of Transportation, www.transportation.gov/grants/rcnprogram/about-rcp.

"Reconnecting Communities: Highways to Boulevards Program." California Grants Portal, 24 July 2023, www.grants.ca.gov/grants/reconnecting-communities-highways-to-boulevards-program/.

"Repairing the Rift: Ricardo Lara Linear Park: ASLA 2021 Professional Awards." Repairing the Rift: Ricardo Lara Linear Park | ASLA 2021 Professional Awards, www.asla.org/2021awards/2716.html.

Riquier, Andrea. "Tear down This Road: Cities Start to Remove Highways That Divide and Disadvantage Communities." ImpactAlpha, 9 Apr. 2024, impactalpha.com/tear-down-this-road-cities-start-to-remove-highways-that-divide-and-disadvanta ge-communities/.

Sanchez, George J. "Generations of segregation." New World Cities, 2019, pp. 210–241, https://doi.org/10.5149/northcarolina/9781469648750.003.0007.

Slotterback, Carissa Shively. "Public involvement in transportation project planning and design." Journal of Architectural and Planning Research, vol. 27, no. 2, 2010, pp. 144–162, http://www.jstor.org/stable/43030901.

"South Los Angeles Community Plan." South Los Angeles Community Plan | Los Angeles City Planning, planning.lacity.gov/plans-policies/community-plan-area/south-los-angeles.

"Southeast Los Angeles Community Plan." Southeast Los Angeles Community Plan | Los Angeles City Planning, planning.lacity.gov/plans-policies/community-plan-area/southeast-los-angeles.

"Southern California Association of Governments Selects Arup to Conduct Landmark Highways to Boulevards Study." Arup, 18 Jan. 2024,

www.arup.com/news-and-events/scag-selects-arup-to-conduct-highways-to-boulevards-study.

The Space for Class? On Class Analysis in the Study of Gentrification ..., www.semanticscholar.org/paper/The-Space-for-class-On-class-Analysis-in-the-Study-Bridge/95750 d18a8eef45456d637bb87760d6a2b71e98c.

Swanwick, Carys, et al. "Nature, role and value of green space in towns and cities: An overview." Built Environment, vol. 29, no. 2, 2003, pp. 94–106, https://doi.org/10.2148/benv.29.2.94.54467.

Wasserman, Jacob L., et al. "The road, home: Challenges of and responses to homelessness in state transportation environments." Transportation Research Interdisciplinary Perspectives, vol. 21, Sept. 2023, p. 100890, https://doi.org/10.1016/j.trip.2023.100890.

"West Athens-Westmont." LA County Planning, 14 Apr. 2023, planning.lacounty.gov/long-range-planning/metro-area-plan/communities/west-athens-westmont/.

Westchester-Playa Del Rey - Los Angeles City Planning, planning.lacity.gov/odocument/c44a78b7-ba48-4b37-b783-34de9620fb63/w-pdr_timeline.pdf.

Zuk, Miriam, et al. "Gentrification, displacement, and the role of Public Investment." Journal of Planning Literature, vol. 33, no. 1, 2017, pp. 31–44, https://doi.org/10.1177/0885412217716439.

Appendices

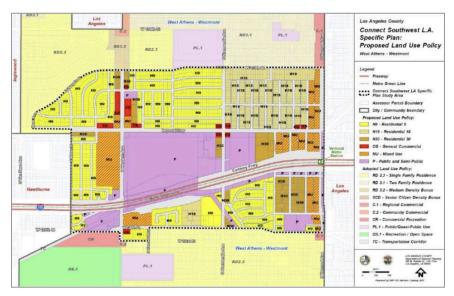


Appendix 1.0 | Zoning map of 405 Site 1 (Property Shark)



Appendix 2.0 | Zoning map of 105 Site 2, with Opportunity Zone designation (Property Shark)

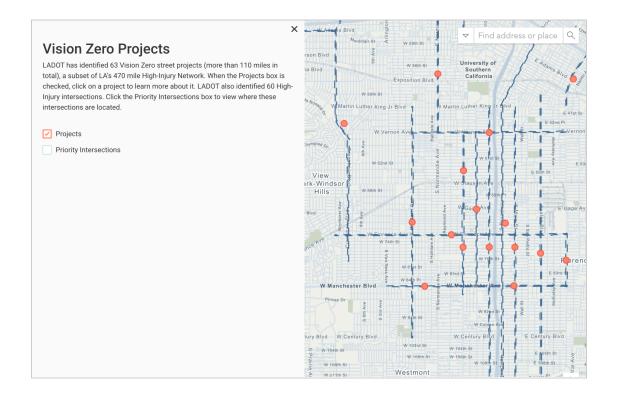




Appendix 4.0 | Proposed Land use map of Connect Southwest LA Specific Plan (LA County Planning)



Appendix 5.0 | Proposed vision plan map of Connect Southwest LA Specific Plan (LA County Planning)



Appendix 6.0 | Diagram illustrating the South LA region's LADOT Vision Zero street projects. (Liveable Streets)

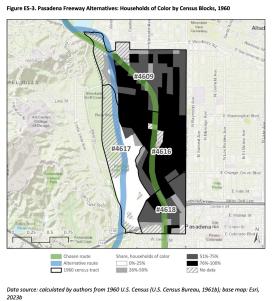
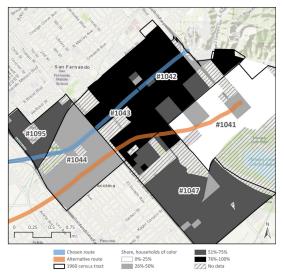




Figure ES-5. Pacoima Freeway Alternatives: Households of Color by Census Blocks, 1960



Appendix 7.0 | Two Diagrams illustrating freeway routing through communities of color in CA Cities (Sourced from "The Implications of Freeway Siting in California", Loukaitou-Sideris et al, 2023)

Definition of Terms

A

Arterial Roads - Major roads designed to deliver traffic from collector roads to freeways or expressways and between urban centers at the highest level of service possible.

Accessibility - The ease of access to various services, amenities, and destinations within a city, often measured by the availability of transportation options and the proximity of essential services.

Adaptive Reuse - The process of repurposing old buildings for new uses while retaining their historic features.

Active Transportation – Non-motorized forms of transportation, such as walking, cycling, and using a wheelchair, which provide physical activity and reduce reliance on cars.

B

Bypass - A road or highway that avoids or "bypasses" a built-up area, town, or other obstruction to allow through traffic to flow freely without interference from local traffic.

Brownfield - A property whose use may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant, often requiring remediation before redevelopment.

Buffer Zone - An area of land used to separate different uses, such as a strip of green space between a residential area and a commercial area to reduce noise, pollution, and other impacts.

Bikeway - A road, path, or way specifically designated for bicycle travel, which may be shared

with other modes of transport or exclusive to cyclists.

Biodiversity Corridors - Designated areas that connect fragmented habitats, allowing wildlife to move between them and promoting genetic diversity.

Blight - The visual, physical, and social condition of an area that exhibits significant signs of neglect, decay, or decline.

C

Car Dependency – A situation where a city or region is structured in such a way that owning and using a car is necessary to access essential services and activities.

Community - A group of people living in the same place or having a particular characteristic in common, often interacting and forming social relationships based on shared values and interests.

Connectivity - The degree to which streets or areas are interconnected, allowing for easy movement and access within an urban environment.

Civic Engagement - The participation of citizens in the political process, including involvement in decision-making, planning, and community activities.

Cluster Development - A type of development in which buildings are grouped together on a portion of the land, allowing the remaining land to be used for recreation, agriculture, or conservation.

Complete Streets – A transportation policy and design approach that requires streets to be planned, designed, operated, and maintained to enable safe, convenient, and comfortable travel and access for users of all ages and abilities, regardless of their mode of transportation.

Central Business District (CBD) – A city's commercial and business center, often characterized by a high density of offices, retail stores, and cultural institutions.

Cohousing - A type of intentional community composed of private homes supplemented by shared facilities. The community is planned, owned, and managed by the residents.

Carbon Footprint - The total amount of greenhouse gasses produced to directly and indirectly support human activities, usually expressed in equivalent tons of carbon dioxide (CO2).

California Environmental Quality Act (CEQA)

is a statute that requires state and local agencies in California to identify and mitigate the environmental impacts of their actions to the greatest extent feasible.

D

De-Freeway – a concept that involves removing or modifying freeways to improve urban environments, transportation options, and city livability. This is often done by converting freeways into surface streets, boulevards, parks, or other pedestrian-friendly spaces.

Displacement - The forced movement of people from their homes, typically due to urban development projects like freeway construction.

Demographic Transition – A model that describes population change over time, typically transitioning from high birth and death rates to lower birth and death rates as a country develops.

Density Bonus - A zoning tool that allows developers to build more units or taller buildings than normally allowed in exchange for providing public benefits, such as affordable housing or green space.

Density – The number of people, dwellings, or units per unit of land area, often used to measure the intensity of land use in urban planning.

Design Standards – are criteria and guidelines used to ensure that new development and redevelopment have consistent, high-quality designs.

Decentralization – The redistribution of population and industry from urban centers to outlying areas.

Downzoning - The process of rezoning an area to reduce the density of development or the intensity of land use.

E

Environmental Racism - Practices that disproportionately expose communities of color and low-income communities to environmental hazards.

Environmental Justice - The fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, concerning the development, implementation, and enforcement of environmental laws, regulations, and policies.

Environmental Remediation – The process of removing pollution or contaminants from environmental media such as soil, groundwater, sediment, or surface water to protect human health and the environment.

Eminent Domain - The power of the government to take private property for public use, with compensation to the owner, often used for infrastructure projects like highways and public buildings.

Exurb - A district outside a city, especially a prosperous area beyond the suburbs.

Ecodistrict - A neighborhood or district with a commitment to sustainable development and ecological practices, often incorporating green buildings, renewable energy, and other environmental initiatives.

Exclusionary Zoning – Zoning laws that effectively exclude certain types of housing and, by extension, certain groups of people, often low-income or minority populations, from a community.

F

Freeway Design - The process of planning and creating freeway systems, focusing on traffic flow, safety, and environmental impact.

Food Desert - An area, especially one with low-income residents, that has limited access to affordable and nutritious food.

Feasibility Study – Assessment conducted to determine a proposed project's practicality and viability, including technical, economic, legal, and scheduling considerations.

Œ

Gentrification - A process of neighborhood change characterized by the influx of higher-income residents into a previously lower-income area, often leading to displacement of original residents.

Grid Plan - A type of city plan in which streets run at right angles to each other, forming a grid.

Green Space - Areas of vegetation, parks, and other natural landscapes within urban environments that provide recreational opportunities and environmental benefits.

Greenbelt – A ring of parks, agriculture, or other types of open space maintained around a city to limit urban sprawl.

Н

Historic Preservation – The practice of preserving, conserving, and protecting buildings, objects, landscapes, or other artifacts of historical significance.

Highway Trust Fund – A U.S. federal fund that finances the construction and maintenance of the nation's highways and mass transit systems, primarily funded by federal fuel taxes.

Healthy Cities - Urban areas designed with health and well-being as central components, emphasizing clean air, safe water, and access to recreational spaces and healthcare services.

Ι

Infrastructure – The fundamental facilities and systems serving a city, including transportation and communication systems, power plants, and schools.

Infill Development - The development of vacant or underused parcels within largely developed urban areas.

Inclusionary Zoning - Policies that require a given share of new construction to be affordable for people with low to moderate incomes.

Infrastructure Financing – Mechanisms and strategies used to fund the development and maintenance of essential infrastructure, such as transportation systems, utilities, and public facilities.

Impact Assessment - A process of identifying the future consequences of a current or proposed action, often used to evaluate a development

project's environmental, social, and economic impacts.

Induced Demand – The phenomenon where increasing the supply of a good (e.g., roads) makes people want to consume more of that good.

J

Joint Development - A strategy where public and private entities collaborate to develop land or infrastructure projects, sharing costs and benefits.

L

Land Use - The management and modification of natural or wilderness into built environments such as settlements and semi-natural habitats such as arable fields, pastures, and managed woods.

Land Trust - A nonprofit organization that acquires and holds land for the benefit of a community, often to preserve open space, affordable housing, or agricultural land.

Livability - The quality of life experienced by residents in an urban area, influenced by factors such as housing, transportation, environment, and social inclusion.

LEED (Leadership in Energy and Environmental Design) – A certification program recognizing best-in-class building strategies and practices for green building and sustainability.

M

Mobility - The ability to move freely and easily within an urban environment, typically referring to the ease of transportation.

Micro-Mobility – A category of transportation that includes small, lightweight vehicles operating at speeds typically below 25 km/h (15 mph), such as bicycles, e-bikes, electric scooters, and skateboards.

Mobility Hub - A location where different modes of transportation—such as walking, biking,

transit, and shared mobility services—are integrated to facilitate seamless travel within a city.

Mixed-Use Development - A development that combines residential, commercial, cultural, institutional, or industrial uses, where those functions are physically and functionally integrated, providing a walkable community.

Mixed-Income Development - A development that includes housing units for various income levels, typically to promote social integration and economic diversity.

N

Noise Pollution - Harmful or annoying noise levels, such as traffic, industrial activity, or recreational activities.

Net-Zero Energy Building – A building that produces as much energy as it consumes over the course of a year, often through a combination of energy efficiency and renewable energy technologies.

New Urbanism - An urban design movement promoting walkable neighborhoods containing various housing and job types, often emphasizing sustainability and community-oriented design.

Neotraditionalism - An urban planning approach that emphasizes traditional community design principles such as walkability, mixed-use development, and human-scale environments.

NIMBY (Not In My Backyard) - A term used to describe opposition by residents to a proposal for a new development because it is close to them, often reflecting a desire to maintain the status quo.

O

Overlay Zone - A zoning district applied over one or more previously established zoning

districts, establishing additional or stricter standards and criteria for covered properties.

P

Parklet - A small public park created in former on-street parking spaces or other underutilized urban areas.

Pedestrian-Friendly – A design approach that prioritizes the needs and safety of pedestrians, often through features like wide sidewalks, crosswalks, pedestrian signals, and traffic calming measures.

Public Participation - The process of involving the public in decision-making activities, often through public hearings, surveys, and other methods to gather input and ensure community needs and preferences are considered.

Public Amenities - Facilities and services provided for public use and benefit, such as parks, playgrounds, community centers, and transportation systems.

Placemaking - A collaborative process by which public spaces are planned, designed, and managed to create quality places where people want to live, work, play, and learn.

Participatory Planning - A process involving all stakeholders, including the community, in the planning and decision-making process.

R

Retrofit - The addition of new technology or features to older systems, often used to update buildings or infrastructure to meet modern standards.

Road Pricing - A strategy to reduce traffic congestion by charging users a fee to drive in certain areas, especially during peak times.

Public Realm - Spaces within urban environments that are open and accessible to all, including streets, parks, and public squares.

Place-Making – A multi-faceted approach to the planning, design, and management of public spaces that promotes people's health, happiness, and well-being.

Racist Planning - Urban planning practices that intentionally or unintentionally discriminate against certain racial groups, leading to segregation, unequal access to resources, and other inequities.

Racial Covenants – Legal agreements that prohibit a particular group of people's purchase, lease, or occupation of property, often used to exclude Black individuals and other minorities.

Redlining – A discriminatory practice in which services (such as banking, insurance, and access to jobs) are denied to residents of certain areas based on their race or ethnicity.

Resilience – The capacity of an urban system to absorb disturbance and reorganize while undergoing change to retain essentially the same function, structure, and feedback.

Regenerative Design - A process-oriented systems theory-based approach to design that seeks to restore, renew, or revitalize sources of energy and materials, creating sustainable systems that integrate the needs of society with the integrity of nature.

Reconnecting Neighborhoods - The initiative to repair and restore connections within communities divided by physical infrastructure, aiming to improve social cohesion and access to amenities.

Road Diet - A transportation planning technique where the number of travel lanes and/or the

effective width of the road is reduced to achieve systemic improvements.

S

Spatial Justice – The fair and equitable distribution of public services and amenities and the avoidance of disproportionate environmental burdens on marginalized communities.

Smart Growth - An urban planning and transportation theory that concentrates growth in the center of a city to avoid urban sprawl, advocates for compact, transit-oriented, walkable, bicycle-friendly land use, including neighborhood schools and mixed-use development with a range of housing choices.

Segregation - The enforced separation of different racial or socioeconomic groups daily, including housing, education, and employment.

Sprawl - The spread of development over a large area, often characterized by low-density residential housing, single-use zoning, and increased reliance on automobiles.

Sustainability – Development that meets the needs of the present without compromising the ability of future generations to meet their own needs, often emphasizing environmental, economic, and social balance.

Setback - The distance a building or other structure is set back from a street or road, a river or other stream, a shore or flood plain, or any other place that needs protection.

Superblocks – Urban planning model that restricts car traffic in certain areas to improve walkability and reduce pollution.

Smart City - An urban area that uses electronic data collection sensors to supply information to manage assets and resources efficiently.

Shared Space - An urban design approach where pedestrians, cyclists, and vehicles share the same space without traditional traffic controls like signals or signs.

Social Equity - The fair and just distribution of resources and opportunities within a community, ensuring all residents have access to the benefits of urban development.

Social Exclusion - The process by which certain individuals or groups are systematically disadvantaged and prevented from participating fully in societal, economic, and political life due to factors like limited transportation options.

Т

Traffic Calming - Design measures and strategies to reduce vehicle speeds and improve safety for pedestrians and cyclists.

Transportation Poverty – A condition characterized by inadequate transportation options and poor urban and environmental conditions that do not support personal mobility.

Traffic Calming Devices - Physical design and other measures used on roadways to slow down or reduce traffic to improve safety for pedestrians and cyclists.

Transit Desert - An area with limited or no access to public transportation, often affecting lower-income and minority populations disproportionately.

Transit apartheid – A system where access to transportation is divided along racial or socio-economic lines, leading to inequality in mobility and access to opportunities.

Traffic Congestion - A condition on road networks that occurs as use increases and is characterized by slower speeds, longer trip times, and increased vehicular queueing.

Traffic Impact Analysis - A study that assesses the effects of new development on the transportation network, often required as part of the planning approval process.

Transit-Oriented Development (TOD) – A type of urban development that maximizes the amount of residential, business, and leisure space within walking distance of public transport, promoting sustainable and efficient use of space.

Tactical Urbanism - A city and citizen-led approach to neighborhood building using short-term, low-cost, and scalable interventions to catalyze long-term change.

U

Urban Heat Island - An urban area that is significantly warmer than its surrounding rural areas due to human activities, often exacerbated by the extensive use of concrete and asphalt.

Urban Renewal - Programs of land redevelopment in areas of moderate to high-density urban land use, often aiming to clear out blighted areas to pave the way for more upscale housing, businesses, and amenities.

Urban Agriculture - Cultivating, processing, and distributing food in or around urban areas.

Urban Canyon - A street or pathway bordered by tall buildings on both sides, which can create unique microclimates and wind patterns.

Urban Sprawl - The uncontrolled expansion of urban areas into rural land, often characterized by low-density residential development and high reliance on automobiles.



Value Capture – A financing method where increases in private land values generated by public infrastructure investments are "captured" to fund the infrastructure.

Vision Zero - A multi-national road traffic safety project that aims to achieve a highway system with no fatalities or serious injuries in road traffic.

Vertical Mixed-Use – A type of development that combines different uses within a single building or set of buildings, often with commercial spaces on the lower floors and residential units above.

W

Water-Sensitive Urban Design (WSUD) – An approach to urban planning and design that integrates the urban water cycle into the built environment, including stormwater, groundwater, and wastewater management.

Wayfinding - How people orient themselves in physical space and navigate from place to place, often supported by signage and maps.

Walkability – A measure of how friendly an area is to walking, often considering factors such as footpaths, safety, comfort, and connectivity.

Walkshed - The area within walking distance of a specific location, often used in planning pedestrian access to public transportation or amenities.

Z

Zoning - The process of dividing a municipality into districts (zones) and regulating the uses and developments permissible in each zone to promote orderly growth and protect public health, safety, and welfare.

Zoning Ordinance – A law defining how property in specific geographic zones can be used, specifying allowable land uses, densities, building heights, and other regulations.