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MTI MINETA TRANSPORTATION INSTITUTE

Housing and Mobility Toolkit for San Mateo County

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with
Bruce Appleyard, PhD, Mark Garrett, PhD, Shannon McDonald, Maaza Mekuria, PhD, Udeme Ndon, PhD, Anurag Pande, PhD, and Eric Peterson

In memory of Joseph Kott, PhD (1947 - 2019)

MINETA TRANSPORTATION INSTITUTE

LEAD UNIVERSITY OF

Mineta Consortium for Transportation Mobility

Founded in 1991, the Mineta Transportation Institute (MTI), an organized research and training unit in partnership with the Lucas College and Graduate School of Business at San José State University (SJSU), increases mobility for all by improving the safety, efficiency, accessibility, and convenience of our nation's transportation system. Through research, education, workforce development, and technology transfer, we help create a connected world. MTI leads the four-university Mineta Consortium for Transportation Mobility, a Tier 1 University Transportation Center funded by the U.S. Department of Transportation's Office of the Assistant Secretary for Research and Technology (OST-R), the California Department of Transportation (Caltrans), and by private grants and donations.

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HOUSING AND MOBILITY TOOLKIT FOR SAN MATEO COUNTY

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Since the end of the Great Recession, San Mateo County has attracted new workers at a record rate without building anywhere near enough housing. This jobs-housing imbalance drives the cost of housing up and forces many moderate and lower-income employees and their families out of the County. A lack of access to quality affordable housing in the County and the entire Bay Area along with limited transportation options means that an increased number of employees drive in and out of the County every workday. The resultant congestion, gridlock, and long commutes along with other negative environmental, social, and economic impacts create a major concern for communities in the County and beyond. Clearly, this problem has two distinct but interrelated dimensions: housing development and transportation planning. A select group of Mineta Transportation Institute (MTI) Research Associates worked closely with representatives from the San Mateo County Home for All initiative to help address this challenge by developing a toolkit of successful case studies with a holistic approach to housing development and transportation planning.

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IN MEMORY OF JOSEPH KOTT, PhD (1947 - 2019)

Read more about Joseph Kott's career in the About the Authors section.

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EXECUTIVE SUMMARY

Since the end of the Great Recession, San Mateo County has attracted new workers at a record rate without building anywhere near enough housing. This jobs-housing imbalance drives the cost of housing up and forces many moderate and lower-income employees and their families out of the County. A lack of access to quality affordable housing in the County and the entire Bay Area along with limited transportation options means that an increased number of employees drive in and out of the County every workday. The resultant congestion, gridlock, and long commutes along with other negative environmental, social, and economic impacts create a major concern for communities in the County and beyond. Clearly, this problem has two distinct but interrelated dimensions: housing development and transportation planning. A select group of Mineta Transportation Institute (MTI) Research Associates worked closely with representatives from the San Mateo County Home for All initiative to help address this challenge by developing a toolkit of successful case studies with a holistic approach to housing development and transportation planning.

The following toolkit identifies fourteen case studies of innovative approaches, best practices, and recognized successes in five major areas:

1. **Parking:** Appropriate parking standards, strategic parking management, and sharing parking facilities along with incentives for alternative travel options (e.g. bicycling, walking, ridesharing, and public transit), which in turn can reduce housing and land costs while providing better opportunities for local businesses.

2. **Commute alternative incentives:** Innovative plans and programs can be designed to accommodate and support alternatives to solo driving such as walking, bicycling, on demand mobility services (e.g. Lyft and Uber), public transit, and telecommuting.

3. **Travel evaluation metrics:** New projects can be evaluated based on their contribution to Vehicle Miles Traveled (VMT) as opposed to Level of Service (LOS). This will shift the focus from accommodating the demand for vehicular travel to reducing the need for such travel by various interventions such as Transportation Demand Management (TDM), reduced parking requirements, mixed land uses, and the development of more walkable, bikeable, and transit friendly neighborhoods.

4. **Community planning:** Developing inclusionary housing measures requires greater cooperation between communities in the entire region to support balanced development and ensure that the housing and transportation needs of all communities including vulnerable populations are met.

5. **Development design:** Alternatives to the traditional Euclidean zoning and subdivision practice, such as Neotraditional Town Planning (NTP), TODs, smart growth, green development, transect planning and form-based codes and LEED certification, can promote more sustainable, resilient and livable communities in contrast to the ubiquitous postwar single-family housing developments.

To develop the toolkit, the MTI research team conducted an extensive review of innovative efforts undertaken in San Mateo County and elsewhere to harmonize housing development and transportation planning. The team used an iterative approach of incorporating feedback from the stakeholders to compile, select, analyze, and evaluate case studies in each of the identified five areas. From the initial list of case studies compiled by the MTI team, the Home for All group selected fourteen case studies that depicted various dimensions of the problem and its appropriate solutions. The draft toolkit was peer reviewed by two academics and a practitioner, in addition to review by the County staff and other stakeholders. The toolkit was launched at the countywide workshop in May 2018.

I. INTRODUCTION

Since the end of the Great Recession, San Mateo County has attracted new workers at a record rate without building anywhere near enough housing. This jobs-housing imbalance drives the cost of housing up and forces many moderate and lower-income employees and their families out of the County. A lack of access to quality affordable housing in the County and the entire Bay Area along with limited transportation options means that an increased number of employees drive in and out of the County every workday. The resultant congestion, gridlock, and long commutes along with other negative environmental, social, and economic impacts create a major concern for communities in the County and beyond. Clearly, this problem has two distinct but interrelated dimensions: housing development and transportation planning. A select group of Mineta Transportation Institute (MTI) Research Associates worked closely with representatives from the San Mateo County Home for All initiative to help address this challenge by developing a toolkit of successful case studies with a holistic approach to housing development and transportation planning.

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The Pasadena and Oakland case studies describe the benefits of shifting the paradigm for motor vehicle traffic evaluation of new development from a focus on the number of motor vehicle trips at traffic peak hour within the environs of a proposed project, to evaluating overall motor vehicle use measured in vehicle miles of travel throughout the day. This approach gives communities a framework for understanding the transportation and environmental effects of motor vehicle travel assignable to new developments. Once these effects are accounted for, the next step is to reduce projected motor vehicle travel ascribed to proposed projects.

The City and County of San Francisco case study shows how to require reduction in projected motor vehicle use while also giving project developers the choice of ways to do so. The San Diego Encanto Transit-Oriented Development (TOD), the City of San Mateo Rail Corridor TOD, the Richmond TOD, and the Mountain View El Camino Precise Plan illuminate best practices in reducing motor vehicle use by integrating land use with public transportation within walkable neighborhoods. By planning convenient access to alternatives to private motor vehicle travel, these efforts create practical travel choices for new residents. The wide array of rail and public transportation services available to many San Mateo County Communities, including those offered by Caltrain, BART, SamTrans, and other public transit providers, make these case studies particularly pertinent.

The King County case study illustrates how communities can right-size parking supply requirements for new housing development. One size fits all parking requirements do not suit all project locations, either in King County or within San Mateo County. Flexibility in these requirements—along with parking supply and demand management efforts—can reduce housing development costs and encourage use of alternatives to the private motor vehicles, while also protecting neighborhoods from spillover parking impacts.

The National City, San Diego, and Pasadena case studies are exemplary in stakeholder engagement to find public policy solutions to concerns about new housing development. No solutions are effective and sustainable without the active participation of the community, residents, and businesspeople alike. Community outreach and engagement contribute to solutions that best fit community circumstances and aspirations. Empowering stakeholders, building mutual trust, and fostering public understanding of the issues related to housing development create solutions that last.

These case studies are intended to inspire. Since San Mateo County is a diverse place, the case study solutions will need to be adapted through a community participation process

to fit the needs of each community. As illustrated in this set of case studies, however, other communities within and beyond San Mateo County have been successful in crafting solutions to concerns about new housing proposals. San Mateo County can apply and extend these examples in its own search for solutions to housing and transportation needs.

II. CITY OF PASADENA, CA: VMT FOR TRANSPORTATION IMPACT ANALYSIS

1. OVERVIEW OF PROJECT

The 2015 update of the City of Pasadena General Plan envisions “a community where people can circulate without cars”, based on “an integrated and multimodal transportation system that provides choices and accessibility for everyone living and working in the city”. The conventional traffic impact analysis of new development estimates that motor vehicle level of service (LOS), a measure of projected delay likely to be experienced by motorists, was inadequate to serve these purposes. Instead the City changed course, becoming the first city in California to implement the provisions of SB 743, a landmark piece of legislation that shifts emphasis of transportation impact analysis away from LOS and toward vehicle miles of travel (VMT) projected for proposed development projects, which is a more direct measure of transportation impact of development. Prior to making this shift, Pasadena staff conducted an extensive stakeholder outreach and education effort over a five-year period, including workshops for decision makers (Bagheri: see 6. Additional Resources). The result is an exemplary outreach process and a sophisticated set of procedures for evaluating the transportation impact of proposed new development.

The City of Pasadena Transportation Impact Review Current Practice and Guidelines and Guidelines for Transportation Review of Projects are the result of this effort. Each document provides guidance on reviewing the likely effects of land development projects on the City’s multimodal transportation system, and on livability and mobility for all stakeholders within the City. Pasadena uses a transportation simulation and forecasting computer model to analyze potential transportation and land use changes. This multi-modal travel model is focused on the local context without the one-size fits all rules that are used in many communities. This local context includes proximity to a multimodal travel corridor, bus stops and Gold Line light rail passenger stations, designated bikeways, busy pedestrian intersections, and “sensitive” land uses such schools, senior citizen facilities, hospitals, etc., within a Transit-Oriented District, or along a Suggested Route to School.

There are established thresholds for each type of project proposal that would trigger a different level of review. The primary measures used to identify these different review levels are the number of housing units for residential use and the gross floor area for commercial developments. Using these measures, the City determines if a project location warrants special consideration to exempt or impose a review based on VMT and transportation demand management (TDM). VMT-based thresholds from the California Environmental Quality Act (CEQA) are incorporated into the development review with additional Pasadena-specific measures. These thresholds represent allowable limits to projected increases in motor vehicle travel due to new development projects. The use of VMT, rather than how much additional motor vehicles delay a new land development would cause motorists on nearby streets, is a direct measure of increased motor vehicle travel compared to hypothetical seconds of delay to an average motorist.

The transportation impact guidelines are applicable to projects of all sizes, from five residential units and commercial developments of 1,500 square feet or more to Projects of Communitywide Significance with 100 or more residential units residential or mixed-use projects of 50 residential units or more and at least 25,000 sq. feet of commercial space. Much more extensive analysis is done in the case of Projects of Communitywide Significance. This enhanced analysis addresses VMT and vehicle trips per capita, pedestrian accessibility, bicycle and transit facilities, and street segments and intersections in the project's environs. The notable aspects of Pasadena's Transportation Impact Review process are its context sensitivity, neighbor/stakeholder engagement, and the tailoring of solutions that meet community objectives. These objectives include increasing mobility, reducing motor vehicle congestion, and lowering the environmental impacts of travel. Solutions to the challenges of each project are crafted through consultation and collaboration among residents, developers, and City staff.

The City of Pasadena is located within Los Angeles County, about 10 miles from the center of City of Los Angeles. Pasadena is like Palo Alto, CA, in its socioeconomic characteristics, land area and land use, and the presence of large educational institutions and technology firms. Pasadena's Multimodal Travel Corridors and Transit-Oriented Districts are displayed in the two figures below.

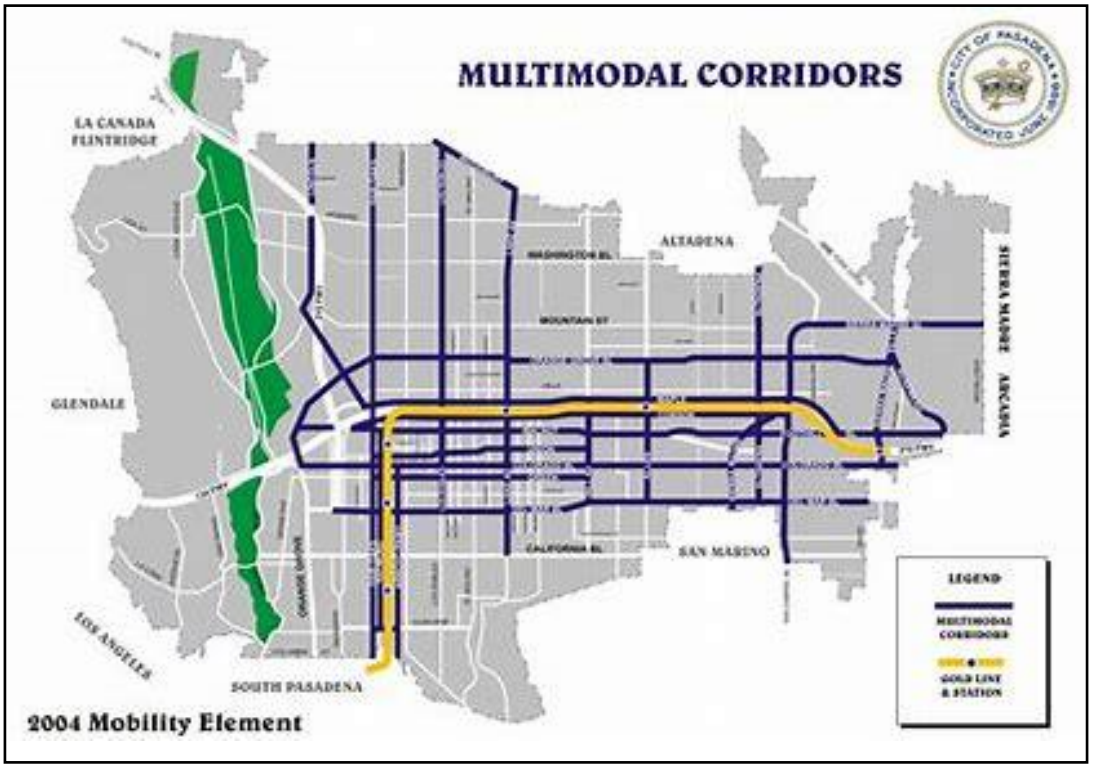


Figure 1. Pasadena Mobility Corridors

Source: City of Pasadena.

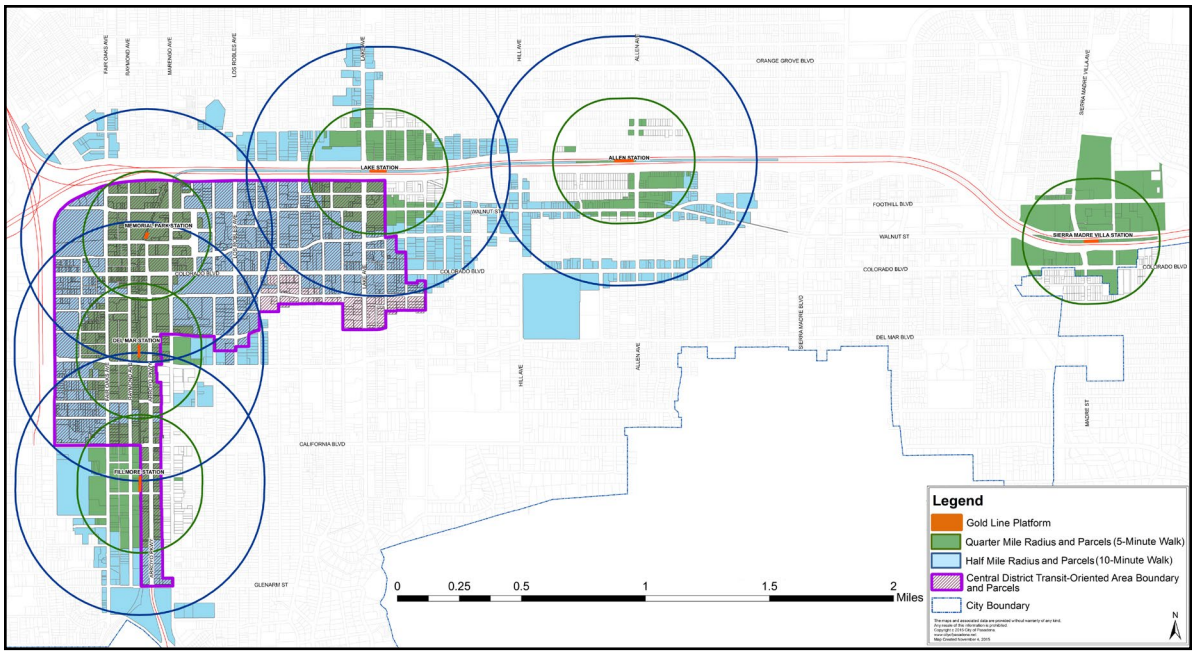


Figure 2. Transit Oriented Districts

Source: City of Pasadena.

2. POLICIES AND ORDINANCES CONTRIBUTING TO PROJECT SUCCESS

The City of Pasadena has a suite of policies and ordinances that support and enable a shift in transportation impact analysis away from LOS and toward VMT. The City's Trip Reduction Ordinance mandates developer provision of TDM plans, programs, and facilities that may include public transit subsidies, vanpools, alternative work hours, paid parking for employees, reduced parking costs for vanpools and carpools, bicycle parking, bikeway linkages, public transit facilities, and an employee TDM coordinator. The City of Pasadena Traffic Reduction and Transportation Improvement Fees provide funds from new development and redevelopment projects for investments in the city's pedestrian and bicycle networks and increased service on the Pasadena Transit System bus routes. The Pasadena General Plan Land Use and Mobility Elements encourages transit-oriented and pedestrian-friendly growth, guides the management of multimodal travel corridors, encourages non-auto travel, supports community livability, in addition to protecting neighborhoods from the impacts of automobile use. Pasadena's Complete Streets Program implements AB 1358 within the city to better accommodate pedestrians and bicyclists on city streets as well as to preserve community livability.

3. OUTCOMES OF THE PROJECT

The City of Pasadena is at the forefront of public engagement, as it explicitly involves neighborhood stakeholders in the process of development review. The impacted community participates in discussing the TDM measures and helps craft solutions to the challenges posed by the proposed development project.

Pasadena has established a sophisticated, context-sensitive (unique transportation

solutions for each development site) program for analysis of transportation impacts of new development, including the first use of VMT as a key metric in development review under the California Environmental Quality Act and SB 743. Pasadena's ambitious approach to sustainable transportation planning includes multi-modal levels of service analysis (MMLOS), complete streets, traffic calming, transportation demand management, and accessibility enhancement of public transit, bicycling, and walking. This approach carries out Pasadena's land use and transportation policy in plans, projects, programs, and development reviews. With reductions in VMT, there is also a reduction or mitigation of environmental impacts, including traffic congestion, traffic safety, air pollution, and greenhouse gas emissions.

4. METRICS USED TO MEASURE SUCCESS

Pasadena's transportation impact analysis metrics are robust and diversified. These metrics include vehicle miles per capita, vehicle trips per capita, proximity and quality of the bicycle network (measured as population and jobs within a quarter-mile of one of three types of bicycle facilities), proximity and quality of the transit network (measured as population and jobs within a quarter-mile of one of three types of transit services), and pedestrian accessibility (i.e. number of land use types accessible to Pasadena residents and employees within a five-minute walk in a given transportation analysis zone).

These impact indicators are intended to measure the quality of bicycling, walking, and public transit access provided to Pasadena residents and employees, as well as to encourage reductions in solo-occupant automobile travel. The focus on multi-modal travel and transportation demand management metrics that can be quantified and monitored gives Pasadena officials and community a set of instruments that aid in achieving targets for sustainable mobility.

5. CHALLENGES AND LESSONS LEARNED

The City of Pasadena has been deliberate in its outreach to stakeholders, including residents, developers, and policy-makers. There were five years of outreach and deliberation prior to re-structuring the City's transportation impact analysis policy and procedures. Problems, issues, and objectives were discussed in this public process. Pasadena has also invested resources and time in developing sophisticated analytical tools and staff capability to use these tools effectively. The Pasadena Travel Demand Forecasting (TDF) model enables city staff to estimate local transportation impacts relatively easily. The combination of public engagement, a context-sensitive approach, sophisticated tools, and a highly capable staff has given Pasadena the basis for success in reforming the transportation impact analysis of new development and redevelopment. The emphasis on community livability and sustainable mobility gives Pasadena's transportation policy both clarity and purpose. The attractive quality for San Mateo County is that Pasadena's review process is uniquely context-sensitive and enables community participation, while also providing an effective and constructive development review process. The VMT reduction objective as well as the CEQA-based thresholds encourage Travel Demand Management (TDM) practices that fit local conditions. These practices include innovative parking policies and increased connectivity of active transportation modes by providing enhanced infrastructure

for walking and biking. The result is that sustainable mobility solutions will provide greater opportunities for the development of affordable housing at higher residential development densities in some locations that would not have been possible previously.

6. ADDITIONAL RESOURCES

- (1) Mike Bagheri, Transportation Manager, City of Pasadena.
- Pasadena Zoning Code: https://ww5.cityofpasadena.net/planning/planning-division/current-planning-and-zoning/ Accessed on June 24, 2018.
- TDF Model: https://ww5.cityofpasadena.net/transportation/wp-content/uploads/sites/6/2015/12/2362_Model_Development_Report_FINAL.pdf
- Pasadena Multi-Modal Level of Service Approach: http://sustain.scag.ca.gov/Documents/Revising_LOS_in_Pasadena-Mike_Bagheri.pdf
- Pasadena Transportation Impact Analysis Current Practice & Guidelines: https://ww5.cityofpasadena.net/transportation/wp-content/uploads/sites/6/2015/12/Current-Practice-and-Guidelines.pdf

III. CITY OF SAN MATEO RAIL CORRIDOR TOD PLAN: REDEVELOPING UNDERUTILIZED AREAS AND IMPROVING ACCESS THROUGH TOD

1. OVERVIEW OF PROJECT

In 2005, the City of San Mateo adopted its Rail Corridor Transit Oriented Development Plan to guide development around the intersection of Highway 101 and SR 92, stretching from 16th Avenue to the Belmont border. The intent was to redevelop an underutilized urban area into a thriving new community with pedestrian-friendly, environmentally convenient and attractive access to transit, high quality public and private development, and memorable and inviting public open spaces through compact development along the Caltrain corridor running through the City. The plan was shaped through a collaborative planning process with input from a Citizen Advisory Committee representing local landowners, residents, businesses, and City and public agencies staff committed to creating world-class transit-oriented development. The plan contained transit-supportive policies, land uses, development densities, height standards, and design guidelines.

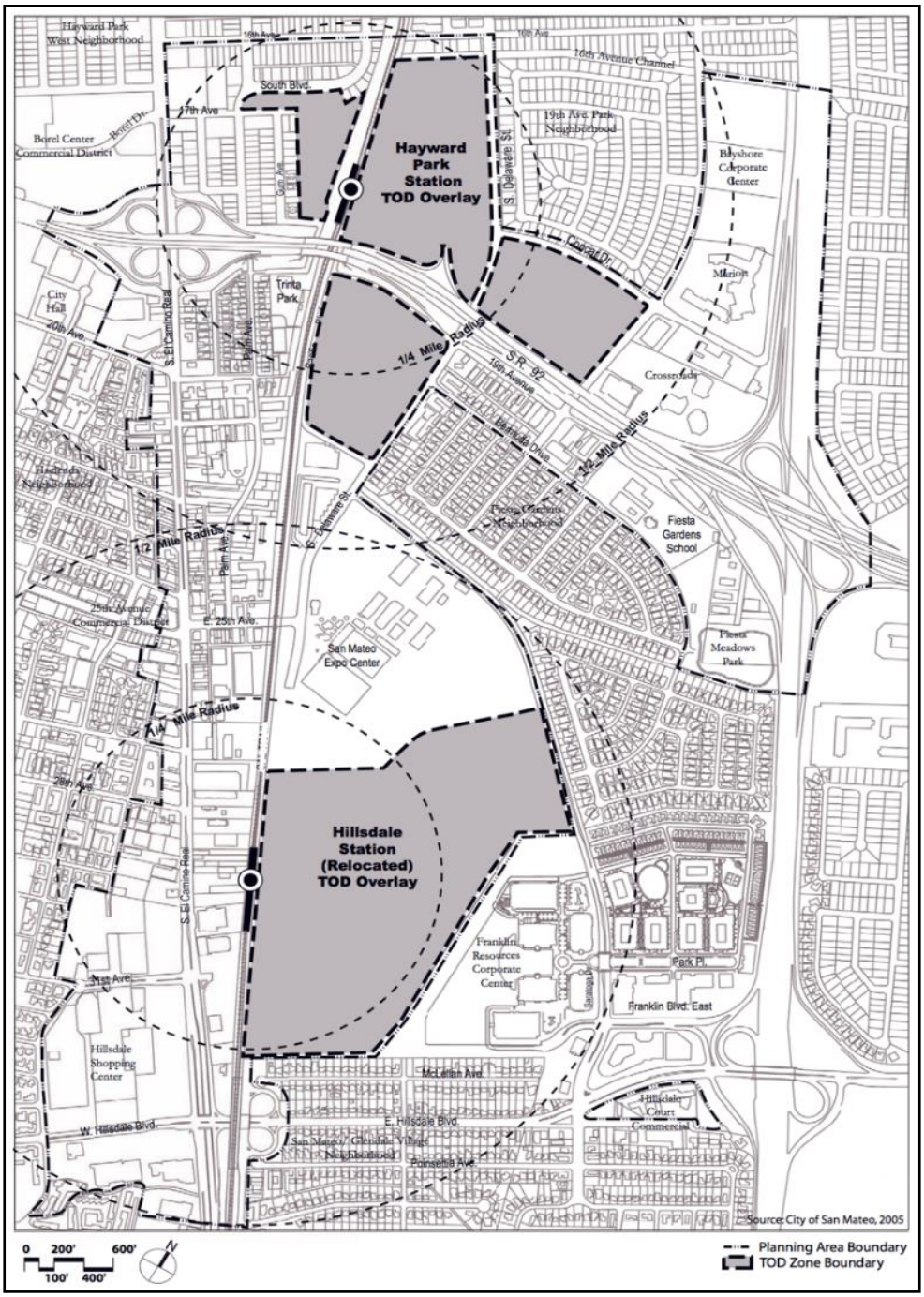


Figure 3. General Plan Transit-Oriented Development Designations

Source: https://www.cityofsanmateo.org/DocumentCenter/View/1810/05_land_use?bidId=

The Corridor Plan called for improved pedestrian, bicycle, shuttle and vehicle access by creating direct connections to transit stations and other transportation facilities and local destinations. It also sought to create opportunities for land use changes that would be compatible with and add value to surrounding neighborhoods, also enhancing local economic development. A key goal was to achieve an overall reduction in new vehicle trips of at least 25% corridor-wide compared to non-TOD projects that do not benefit from proximity to transit, shuttle services, internal trips, or specific trip reduction strategies (Policy 7.17).

Two special TODs were established within the Corridor Plan area, i.e. a half-mile surrounding the Hayward Park and Hillsdale Caltrain stations. The goal was to create opportunities for higher density affordable and market rate housing and office spaces by improving access to these two stations for pedestrians, bicycles, autos, and buses, while providing retail uses and additional local parks that would serve the neighborhood. The Hayward Park and Hillsdale developments represent models for other San Mateo communities looking to redevelop large underutilized commercial properties around train stations. Each TOD is governed by a specific plan that regulates local development.

2. PLACE-TYPE

- **Demographics:** With a population of 103,959, San Mateo is one of the largest cities along the Peninsula.[1] According to the 2010 U.S. Census, the racial makeup comprises of 46.8% white, 2.4% African-American, 18.9% Asian, 2.1% Pacific Islander, and 0.5% Native American. 26.6% identified as Hispanic or Latino.

- **Transit:** The Hayward Caltrain station is a limited and local station stop located about 1.25 miles north of the current Hillsdale station. Before being redeveloped, the adjacent area contained big box commercial sites housing K-Mart and Michael's. The Hillsdale station is currently located at the southern end of the former Bay Meadows racetrack, which closed itself in order to make way for transit-oriented development. In addition to limited and local service, it is a stop for Caltrain's express Baby Bullet train service. The station is served by several SamTrans bus routes.

- **Transportation:** Delaware Street, a four lane north-south road that runs between both stations, is an important link between local neighborhoods and SR 92, and it contains some single and multi-family homes, but its primarily commercial and public character previously created an unpleasant experience for pedestrians.

3. POLICIES AND ORDINANCES CONTRIBUTING TO PROJECT SUCCESS

The Peninsula Joint Powers Board, which operates Caltrain, has partnered with the City of San Mateo on a $190 million project to elevate the tracks south of SR 92, eliminating the at-grade crossing at 25th Avenue and relocating the Hillsdale Station to a new Transit Center between grade-separated crossings at 28th and 31st Avenues, adjacent to the Bay Meadows development.[2] These changes will provide better pedestrian and vehicular access to both sites, also helping to create a sense of place for the community.

The Hillsdale Station TOD plan envisioned the relocated station as the heart of a vibrant mixed-use district, with circulation system improvements to accommodate bicycles, shuttles, taxis, automobile drop-off and pick-up, and park-and-ride commuters. The plan encouraged development of residential and employment uses at transit-supportive densities, as well as the creation of highly pedestrian-friendly environments.

The Hayward Park TOD is intended to be a neighborhood transit center with some offices,

[1] 2016 American Community Survey.
[2] New tech tenant for Bay Meadows development, The Daily Journal, January 12, 2018. https://www.smdailyjournal.com/news/local/new-tech-tenant-for-bay-meadows-development/article_1b14dc6a-f75d-11e7-bc8c-c351098876c3.html.

retail shops and services, and access for buses and shuttles, and for passengers who walk there from adjacent neighborhoods. The planned density is less than Hillsdale, since it is not an express stop. More intense development is permitted near the station (50 du/ac and a 55-foot height limit) with residential buildings that surround the station obliged to remain mindful of the scale and character of the area's well-established neighborhoods. A total of 231 units are currently occupied; the Station Park Green project (described below) is under construction. A 935-unit mixed use Concar Village development (72 units for very low income) with 35,000 square feet of retail, which has been proposed for the existing Concar Shopping Center.[3]

A redesigned and extended Delaware Street serves as the area's "Main Street," offering an alternative to El Camino Real for local travel and providing convenient access from both station areas, as well as from the San Mateo County Expo Center, to State Route (SR) 92. The city has a voter-initiated inclusionary housing ordinance that applies to both rental and ownership units.

All projects within the Corridor Plan area must establish a "trip budget" cap, limiting the total amount of traffic generated by the project, with lower thresholds for those located closest to transit. If the cap is exceeded, more aggressive trip reduction measures must be implemented, including parking permit systems.

4. OUTCOMES OF PROJECT

Two major developments have taken shape on former commercial sites within the Hillsdale and Hayward Park TODs.

Bay Meadows Phase II is a private 83-acre transit-oriented mixed-use commercial development adjacent to the Hillsdale Caltrain station. The development is one of the largest of its kind on the northern Peninsula and lies within a short distance of the intersection of two major freeways (SR 92, US 101) and El Camino Real. Developer Wilson Meany Sullivan and Stockbridge Capital Group, together with a team of planners and architects, developed the Plan for the adaptive reuse of the former site of the Bay Meadows Racetrack, next to the county fairgrounds, which historically had a seasonal Caltrain platform stop (similar to Stanford Stadium in football season).

The Bay Meadows master plan accommodates 1.25 million square feet of office use, 1,250 multi-family residential units (15% affordable), and 150,000 square feet of retail space, along with 15 acres of public parks and 3 acres of open space provided as community benefits. Office development is in five buildings between the tracks and Delaware Street. Immediately east is a neighborhood-serving shopping street with multi-family housing located beyond the street around a linear park.[4] As of summer 2018, the project is about two-thirds finished. Most of the residential areas and public open spaces have been completed, and nearly 1,600 residents have moved in to Bay Meadows. The office component and Delaware Street retail locations are currently under construction. Current plans call for 942,000 square feet of office space located in five Class A buildings

[3] Major mixed-use housing proposed for San Mateo, Daily Journal, December 19, 2017. https://www.smdailyjournal.com/news/local/major-mixed-use-housing-proposed-for-san-mateo/article_d9171ca4-e476-11e7-be8a-77367bc1a1a4.html

[4] Bay Meadows Refines Transit Oriented Development, California Planning and Development Report, March 29, 2012

on an 11-acre site along South Delaware St. near Hillsdale Station. Station 4, the first to open, is occupied by SurveyMonkey, Zoura, and Ten-X, while Stations 3 and 2 have been completed.[5] Plans are underway for construction of Station 1, a three-story building with 184,205 square feet of proposed office space and 448 underground parking spaces, and Station 5, with 185,661 square feet of proposed office space and 749 parking spaces. These numbers represent a slight reduction in parking requirements from 2.75 to 2.6 spaces per 1,000 square feet of office space.[6]

Station Park Green is a 12-acre mixed-use project next to the Hayward Park Station that is currently under development by Essex on the site of a former shopping center containing a K-mart and Michael's stores which were demolished in 2017. Station Park Green was planned as a model transit-oriented village.

The Station Park Green Specific Plan was adopted in 2011 and updated in 2014. The project covers 9 blocks and is approved for 599 condos (up to 90 BMR), 80,000 square feet of community-serving retail shops and restaurants, and two acres of open space, including a one-acre park. The park extends into the residential blocks through a network of pathways and smaller residential courtyards and gardens. The residential project provides bike storage, vehicle charging stations, a clubhouse, and a community room. The project has a net density of 50 units per acre, fewer than 1.5 parking spaces per unit on average (excluding spaces shared with commercial uses on site), and one carshare pod on-site plus free carshare memberships to all eligible residents for at least 40 years.

5. INDICATORS OF PROJECT SUCCESS

Traffic estimates for the Hillsdale Station Area Plan, which used standard trip generation rates modified to reflect the Plan's transit-orientation and relocation of the existing station, showed that the more compact development would result in only marginal increases in new trips with project buildout. The analysis also showed that proposed TDM measures would further reduce commercial trips by 3% and residential trips by 1%, which would achieve the required 25% vehicle trip reduction target within the Rail Corridor Plan area over conventional development.[7] According to a planner for the City of San Mateo, many of the Bay Meadows residents regularly use alternatives to driving, and "more than half bike or use Caltrain on a regular basis."[8] A survey of Bay Meadows residents showed that 41% ride Caltrain daily and 53% ride it weekly, while 73% ride it at least once during the month—an increase over a similar survey in 2015, when 25% took Caltrain on a weekly basis and 50% rode it at least once a month.[9] The 2017 Annual Report of the San Mateo Rail Corridor Transportation Management Agency showed that automobile trips decreased

[5] Bay Meadows, San Mateo,Next Office Building to Break Ground http://baymeadows.com/2017/05/19/next-office-building-to-break-ground/

[6] Updated Bay Meadows Plans Call for Doubling of Planned Additional Office Space at Two New Developments, The Registry, January 31, 2018. http://news.theregistrysf.com/updated-bay-meadows-plans-call-doubling-planned-additional-office-space-two-new-developments/

[7] Hillsdale Station Area Plan, Traffic Impact Analysis, November 2010. https://www.cityofsanmateo.org/DocumentCenter/View/8057/Traffic-Impact-Analysis?bidId=

[8] Updated Bay Meadows Plans Call for Doubling of Planned Additional Office Space at Two New Developments, The Registry, January 31, 2018. http://news.theregistrysf.com/updated-bay-meadows-plans-call-doubling-planned-additional-office-space-two-new-developments/

[9] The time has come for transit-oriented development, Peninsula Moves!, February 11, 2015. https://peninsulamoves.org/2015/02/11/the-time-has-come-for-transit-oriented-development/

by 2%, while pedestrian and bicycle trips increased by 37% and 47%, respectively, over the previous year. These were the highest overall pedestrian figures and the second highest overall bicycle figures out of all the years the agency has collected data. Most projects were meeting their short-term trip cap, and the overall trip generation volume for the neighborhood is well below the threshold that would require a full neighborhood traffic monitoring plan.[10]

The Bay Meadows project received support from the Greenbelt Alliance, TransForm's GreenTRIP program, the Sierra Club, the San Mateo Economic Development Association, and the San Mateo Chamber of Commerce. It has also been well-received by residents.[11]

The National Resource Defense Council (NRDC) called Station Park Green a "stunning plan" for transit-oriented development. It is the second project in the nation that has earned a gold certification under the LEED for Neighborhood Development program founded by the US Green Building Council. The project scored high in four key LEED ND categories:

- Location and design reduce vehicle miles travelled,
- Jobs and services accessible by foot/public transit,
- Buildings follow green infrastructure practices, and
- Public areas include parks and green space.[12]

Station Park Green has been awarded Full GreenTRIP Certification based on the following criteria:

- Future residents at Station Park Green are projected to drive only 29 miles/household/day, which is 42% less than the Bay Area regional average of 50 miles/household/day due to the project's density, location, and proximity to jobs, services, and transit.
- The project provides no more than 1.5 parking spaces per unit by providing 839 parking spaces for 599 units.
- The developer committed to offering free carshare membership to all eligible residents and providing a carshare pod on-site.[13]

[10] 2017 Annual Report San Mateo Rail Corridor Transportation Management Agency. https://www.slideshare.net/alevin/san-mateo-annual-tma-report.
[11] The time has come for transit-oriented development, Peninsula Moves!, February 11, 2015. https://peninsulamoves,org/2015/02/11/the-time-has-come-for-transit-oriented-development/.
[12] New development: Station Park Green in San Mateo, Essex, January 6, 2016. https://www.essexapartmenthomes.com/essex-blog/new-development-station-park-green-san-mateo
[13] http://www.transformca.org/GreenTRIP/san-mateo/station-park-green

6. CHALLENGES AND LESSONS LEARNED

There were three main concerns expressed by the community in developing the Rail Corridor plan and the two TOD specific plans. These included traffic impacts, parking, and effects on schools and parks. Traffic concerns were addressed by establishing trip caps for all developments, with monitoring occurred through the Transportation Management Agency. The City required developers to provide adequate parking (generally 1 stall per bedroom, 2 per townhouse), with additional spaces available for purchase by the tenants. Since many of the units are considered luxury housing, the developers felt obliged to provide more than a minimum of residential parking despite the proximity to transit, a point which illuminates the difficulties in reducing parking requirements even where it can be justified. Finally, the developers agreed to provide the City with land for public parks and open space, which demonstrates the importance of including community benefits in planning successful TODs.[14] Even so, some neighboring residents still believe that more could be done to alleviate regional traffic congestion.[15]

While trip targets have been met overall, the affordable housing projects have had more trouble meeting their goals. According to city officials, this is because low income residents are less likely to use commuter rails to reach their jobs and other travel destinations. The city is working with these projects to offer alternatives to reduce automobile trips and increase other modes of travel.[16] This illustrates a special challenge in developing TODs to ensure that all residents have transit options available that are appropriate to their needs.

7. ADDITIONAL RESOURCES

- Bay Meadows Specific Plan: https://www.cityofsanmateo.org/DocumentCenter/View/5815/Exhibit-C---Bay-Meadows-Specific-Plan-Amendment?bidId=

- Bay Meadows Phase II Design Guidelines and Development Standards: https://www.cityofsanmateo.org/3250/Bay-Meadows-Phase-II-Design-Guidelines

- Hillsdale Station Area Plan Traffic Impact Analysis: https://www.cityofsanmateo.org/DocumentCenter/View/8057/Traffic-Impact-Analysis?bidId=

- San Mateo Rail Corridor Transportation Agency 2017 Annual Report

[14] Telephone interview with D. Forsell, Principal Planner/Zoning Administrator, City of San Mateo, June 21, 2018.

[15] More office space proposed at Bay Meadows developments, The Daily Journal, Nov 11, 2017, https://www.smdaily-journal.com/news/local/more-office-space-proposed-at-bay-meadows-developments/article_4e511a36-c6a6-11e7-87b6-437756a7f175.html

[16] 2017 Annual Report San Mateo Rail Corridor Transportation Management Agency. https://www.slideshare.net/al-evin/san-mateo-annual-tma-report.

IV. CITY OF SAN MATEO: TRANSPORTATION DEMAND MANAGEMENT (TDM)

1. OVERVIEW OF PROJECT

A number of transit-oriented development (TOD) projects are in various stages of design and construction in the City of San Mateo as part of the Rail Corridor Transit Oriented Development Plan. The Plan, adopted in 2005, guides the development of an array of projects in a large area around two Caltrain commuter rail stations that are now designed as the civic hubs in the City (see adjacent map on following page).

This case study describes the transportation demand management TDM) strategies being implemented in the context of the San Mateo Caltrain rail corridor. TDM measures are integrated into the Rail Corridor Plan to support a 25% motor vehicle trip reduction (fewer trips by private motor vehicles) within the TOD areas even as new development is occurring. TDM measures and commute alternatives being implemented within the City of San Mateo Rail Corridor include:

- Non-residential market-rate parking permit systems (allowing purchasers to park in a designated area or neighborhood) and parking cash-out programs (giving employees a cash payment if they forgo a free parking space).
- Market-rate residential parking charges/prices.
- Transit pass subsidy for employees or residents.
- On-site car-share programs (e.g. Zipcar or other car rental services).
- Residential permit parking (allowing residents to park on their street or in their neighborhood).
- Preferential high occupancy vehicle (HOV—e.g., vanpool vehicles) parking and carpool promotion and coordination.
- Bicycle parking, commuter facilities including locker rooms and showers (for the convenience of commuters who bicycle or walk to work) and promotional programs.
- Participation in the Guaranteed Ride Home Program (providing subsidized taxi or other transportation home in the event that employees who did not drive in to work need to get home in the event of an emergency), compressed work week (e.g. four 10-hour work days a week) flex time (the option to start and/or leave work at a time when traffic is less congested), or telecommuting (working at home) options.

The above measures reduce the need for additional motor vehicle parking, hence reduce housing development costs and/or reduce the impact of new development on traffic congestion.

The San Mateo Downtown Area Plan approved in 2009 encourages walkable and transit-oriented development around the three Caltrain commuter rail stations in the City of San Mateo (downtown San Mateo, Hillsdale, and Hayward Park), setting a standard that is being applied to multiple projects around these Caltrain stations. The San Mateo Downtown Specific Plan is currently being updated.

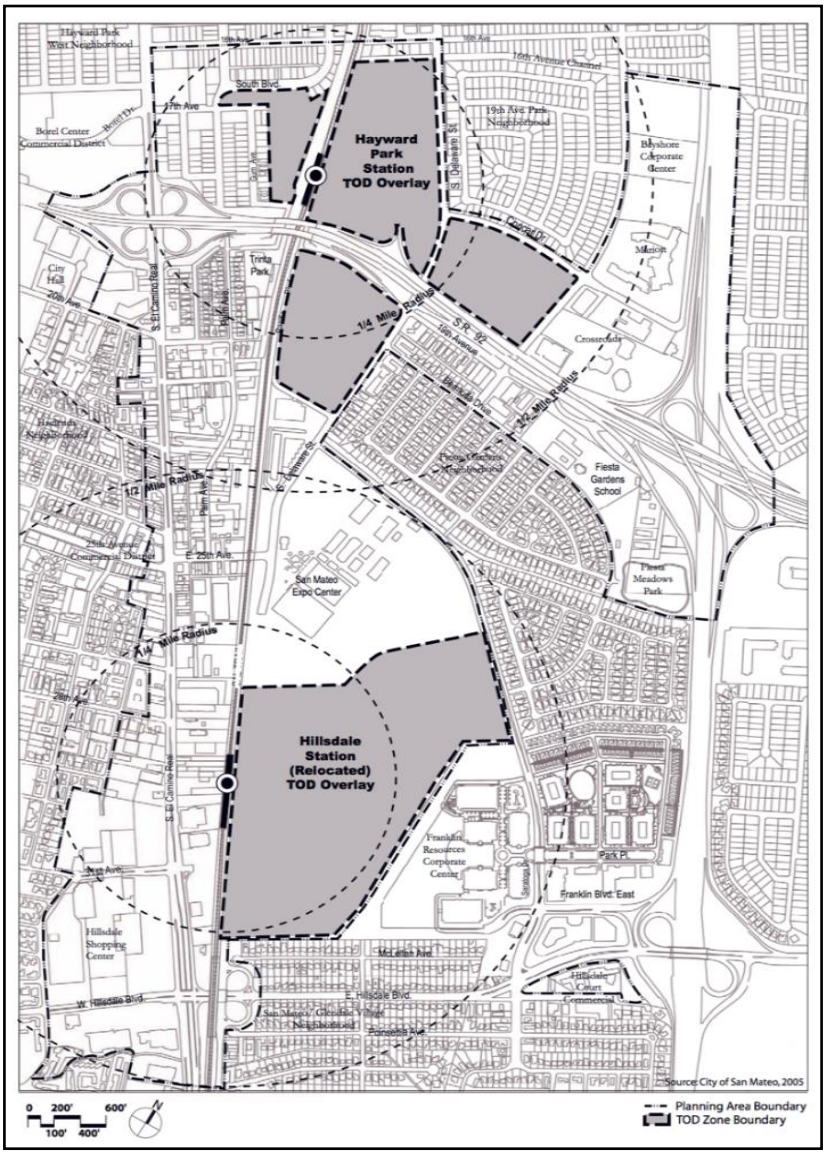


Figure 4. General Plan Transit-Oriented Development Designations

Source: https://www.cityofsanmateo.org/DocumentCenter/View/5151/Station-Park-Green---Attachment-2

2. POLICIES AND ORDINANCES THAT CONTRIBUTED TO PROJECT SUCCESS

The City of San Mateo Community Participation Plan encourages involvement by all groups in housing and community development activities. The Participation Plan (follow the link provided in the preceding sentence) details these community involvement efforts. The City also works closely with the San Mateo County transportation demand management agency, which created Commute.org, to manage transportation demand.[17] The framework for the TDM program includes:

- Establishment of a corridor-wide motor vehicle trip-reduction goal.
- Establishment of a Transportation Management Association (TMA) with membership requirements. TMAs are organizations in which employers work together to reduce employee motor vehicle trips.
- Requirement for single-occupant vehicle trip reduction goals for individual projects.
- Definition of a range of TDM measures to achieve trip reduction goals by 25%.
- Requirements for ongoing monitoring to ensure compliance, and the actions to be taken for non-compliance. The ongoing compliance monitoring involves annual reporting of employee commuting patterns.

In support of the TDM efforts, the City of San Mateo has launched the Connect San Mateo program, a partnership with Commute.org and SamTrans, to offer residents and commuters an interactive and user-friendly website to explore the alternative transportation options available within the City of San Mateo.

Zoning code provisions support TDM efforts in the City of San Mateo that in turn enable development of affordable multifamily housing. The City's zoning code allows for more intense development, with a maximum building height of 55'. However, that height can be 75' in designated areas if a public benefit is involved. A public benefit can include transit supportive policies, mixed land uses, higher development densities, and design guidelines. This flexibility in the zoning code helps reduce automobile travel demand from new development, thus reduces parking costs and other transportation impacts.

During each project's entitlement phase, short-term and long-term trip reduction goals are defined by the City. Short-term goals are based on the varying status of completed and occupied projects within the corridor area, and the associated TDM measures in place at the time of project occupancy. Long-term trip reduction goals are based on the full buildout of the corridor area development, and the associated TDM measures coordinated and established through the TMA. This process helps ensure that housing development is carefully coordinated in both the short-term and the long-term with transportation demand management efforts.

[17] https://commute.org/aboutus

The City of San Mateo's Below Market Rate (BMR) Inclusionary Program addresses inclusionary housing by requiring developers of new housing to provide a certain percentage of the units within projects of 11 or more units to be affordable to very low, low, or moderate-income residents. Details on the income categories are included on the BMR Program web site, the link to which is in the previous sentence. The program requirements for ownership and rental units are provided below:

- 15% of ownership units will be affordable to moderate-income families, or
- 10% of ownership units will be affordable to low-income families.
- 15% of rental units will be affordable to low-income families.
- 10% of rental units will be affordable to very low-income families.

3. OUTCOMES OF THE PROJECT

The City of San Mateo TDM strategies are still in the early stages of implementation. From 2016 to 2017, motor vehicle volumes have fallen by 2%, and pedestrian and bicycle trip volumes have increased by 37% and 47% respectively within the Rail Corridor Plan area.[18] An important policy element of the TDM plan is the accountability mechanism built to monitor transportation outcomes in new developments. The goal of the TDM program is to achieve an overall reduction in new vehicle trips of at least 25%. Trip reduction will be measured against available trip generation for traditional projects that do not benefit from the TOD.[19]

Furthermore, two tax-credit subsidized projects have been built that are entirely constituted of affordable housing units. The BMR inclusionary program has been an effective tool to provide a mix of affordable units spread throughout the community. In the Rail Corridor Plan area, 1,712 units have been approved and are built or under construction. Approximately 400 (23%) of these are affordable units due to the inclusionary requirements or financial assistance from the City.[20]

4. INDICATORS OF SUCCESS

Traffic data is collected in the peak commuter travel period of 4PM to 6PM at 17 intersections. These traffic data include vehicular turning movement volumes, pedestrian traffic, and bicycle traffic. The PM peak period trip generation counts are also collected at project driveways within the Rail Corridor Plan areas that have been completed and occupied.[21] This provides targeted information on travel patterns for specific projects. Trip counts are conducted annually to check actual trip generation against the established thresholds. Although the zoning code is flexible and includes development incentives, the small size of parcels and overall height limits may act as disincentives for parties interested in private redevelopment potential.

[18] https://www.dropbox.com/s/ndqiojevi8h5roq/sanmateo-annualtmareport-180413233810.pdf?dl=0
[19] https://www.cityofsanmateo.org/DocumentCenter/View/1812/07_imp – pp. 7–13.
[20] S. Council, personal communication, May 31, 2018.
[21] L. Patterson, personal communication, May 30, 2018. 2017 Annual Report San Mateo Rail Corridor, Transportation Management Agency, January 20

5. CHALLENGES AND LESSONS LEARNED

Although the zoning code is flexible and includes development incentives, the small size of parcels and overall height limits may act as disincentives for parties interested in private redevelopment potential. Employer TDM strategies tend to be the most effective means of reducing peak period automobile trips and promoting transit usage. Trip reduction is more difficult in the context of residential projects because residents may want to own a car even if they do not drive to work every day.

The annual monitoring process is what has made the project successful to date in implementing trip reduction standards. This has been done by requiring the annual touchpoint and check-in on progress and adherence to requirements. Developers or project owners are required to report annually on how well the project is doing in meeting vehicle trips reduction targets. This builds in accountability. Additionally, the TDM plan identified early on that these requirements needed "teeth" to be truly successful, which led to the establishment of a process by which projects and developments would be held accountable for their trip reduction efficacy.

6. ADDITIONAL RESOURCES

- Below Market Rate (BMR) Inclusionary Program: https://www.cityofsanmateo.org/1095/Below-Market-Inclusionary-Program

  https://commute.org/

- https://www.cityofsanmateo.org/DocumentCenter/View/48863/Community-Participation-Plan

- https://www.census.gov/quickfacts/fact/table/sanmateocitycalifornia/PST045216

- https://www.census.gov/quickfacts/fact/table/sanmateocitycalifornia/PST045216

- Rail Corridor Transit Oriented Development Plan: https://www.cityofsanmateo.org/1112/Rail-Corridor-Transit-Oriented-Dev-Plan

- San Mateo Downtown Area Plan: https://www.cityofsanmateo.org/1894/Final-Downtown-Area-Plan

V. EAST PALO ALTO RAVENSWOOD / 4 CORNERS TOD SPECIFIC PLAN: REVITALIZING ESTABLISHED NEIGHBORHOODS

1. OVERVIEW OF PROJECT

East Palo Alto is a diverse and economically disadvantaged city in the southeast portion of the San Francisco Peninsula, approximately 30 miles southeast of San Francisco and 18 miles northwest of San Jose. To address housing and job concerns, the City prepared a transit-oriented development (TOD) Specific Plan for the Ravenswood / 4 Corners redevelopment area in 2013 and recently completed its Vista 2035 General Plan Update. The Specific Plan includes architectural and design standards for new development, redevelopment, and streetscape improvements in the Ravenswood / 4 Corners TOD Plan area. It outlines how the area can be transformed into thriving development districts that provide housing, employment opportunities, parks and open spaces, and public services including an expanded health clinic, library service, and a new community center and school.

Figure 5. East Palo Alto Ravenswood / 4 Corners Land Use Map

Source: http://www.ci.east-palo-alto.ca.us/DocumentCenter/View/2750

The 350-acre Specific Plan Area is in the northeast portion of the City, west of the San Francisco Bay. It is generally bounded on the west by University Avenue; on the north by the Dumbarton Rail line; and on the south by Weeks Street. The area contains three subareas: University Village, 4 Corners, and Ravenswood. University Village is a single-

family neighborhood immediately north of Bay Road and east of University Avenue. Homes in this area are generally single-story, with very few two-story homes. Local retail businesses are most heavily concentrated in the 4 Corners area at the intersection of University Avenue and Bay Road. One corner of this area is a large vacant lot—the site of a demolished shopping center. The eastern Ravenswood area contains a variety of industrial buildings and many vacant properties.

The Specific Plan promotes compact, mixed-use development with housing concentrated around job centers and along two major transportation corridors: Bay Road and University Avenue. The Plan area is served by two SamTrans bus routes and the Dumbarton Express Shuttle provides service between Palo Alto and the Union City BART Station. The Palo Alto Caltrain station is located about four miles to the southwest of the Plan Area.

Mixed-use and high-density residential development is encouraged in the Ravenswood and University Corner/Bay Road areas to ensure that a minimum of 25% of these areas are devoted to residential uses so that the area becomes a new “downtown” for East Palo Alto. Overall, the Plan provides for 19 single-family dwelling units, 816 multi-family dwelling units, 1.2 million square feet of office development, 112,400 square feet of retail uses, 351,820 square feet of research and development (R&D) / industrial space, 61,000 square feet of community and civic uses, and 30 acres of parks and trails.

2. PLACE / TYPE

1. **Demographics:** According to the 2010 United States Census, East Palo Alto had a population of 28,155, of which 6.2% was white, 16.7% African American, 3.8% Asian, 7.5% Pacific Islander, and 38.0% other. 64.5% of the population identified as Hispanic or Latino.

2. **Economy:** The City of East Palo Alto has significantly lower median incomes, higher unemployment rates, higher poverty rates, and far fewer jobs than surrounding jurisdictions. As of 2010, there are 0.21 jobs for each employed resident in East Palo Alto. About 31% of households in the Specific Plan Area and East Palo Alto have annual incomes of less than $35,000, which provides a potential market for retail goods and services targeting lower- and middle-income family households. Most of the working residents in the Plan Area are employed outside of the community and commute by automobile, due in part to the lack of convenient and affordable transit options.

3. **Housing:** The Specific Plan Area has experienced much higher rates of growth in existing and new family households than the rest of the City since 1990. It also has a relatively high homeownership rate. In 2009, 62% of area households owned their homes, compared to 44% of East Palo Alto households overall.

4. **Transit:** SamTrans operates a variety of bus routes that connect East Palo Alto to Palo Alto, Menlo Park, Redwood City, the Palo Alto Caltrain station, and other destinations. The Dumbarton Express Shuttle provides service between Palo Alto and the Union City BART Station.

3. POLICIES AND ORDINANCES THAT CONTRIBUTED TO PROJECT SUCCESS

The Plan offers a community vision for new residential and employment opportunities in the Ravenswood and 4 Corners areas and brings public transit alternatives to East Palo Alto to increase residents' access to jobs, shopping, and other services while reducing their dependence on automobile travel. It aims to improve the quality of life for residents, reduce unemployment, improve the housing/jobs imbalance, and provide new revenue for municipal services.

A. Community Outreach: The Plan Concept was created through a collaborative process that incorporated feedback from existing community organizations and reached out to underrepresented groups through 15 public meetings and three interactive public workshops with community members, property owners, business groups, and city leadership. The city also assembled a Community Advisory Committee (CAC) that met over a year long period to review the draft Plan and make recommendations to the City. This process resulted in three community goals:

1. Preserve and enhance public views.

2. Improve circulation north of Bay Road.

3. Set the Bay Road as the activity spine and "heart" of East Palo Alto.

The CAC met five times to develop three distinct land use and circulation alternatives for the Plan Area, which were then refined into a single Community Preferred Alternative by mixing and matching elements from the other alternatives.

B. Land Use: A mix of new employment generating R&D and industrial uses will be located primarily in the central and southern portions of Ravenswood to help reduce East Palo Alto's chronically high unemployment rate, which was 19.2% at the time the Plan was being developed. New mixed-use development is planned at 4 Corners and along Bay Road with ground-floor shops to enliven the street and create a "downtown" feeling for pedestrians. The Plan contains detailed development standards (Ch. 6) for building height, setback and floor area, as well as requirements for landscaping and parking, to create active and safe pedestrian environments. Neighborhood parks and plazas along Bay Road will give people a place to relax as they make their way to Cooley Landing. Light industrial uses are proposed along Demeter Street between University Village and the general industrial uses in Ravenswood, and along Weeks Street to separate multi-family residential areas from general industrial uses to the north.

C. Housing: The TOD Plan provides for up to 825 residential units consisting of multifamily development including townhouses, duplexes, four-plexes, and a wide range of multi-family apartments along with some single-family residential development on small lots. Although no new housing is proposed for University Village, the Specific Plan includes focused improvements such as a linear park with play areas and community gardens.

D. Urban Design: The Plan includes streetscape standards and design guidelines (Ch. 7) focused on achieving a walkable downtown that becomes a destination for residents and visitors alike. Public plazas will provide focal points and gathering places for Ravenswood and 4 Corners. Bay Road connects the 4 Corners area to Ravenswood and Cooley Landing and serves as a focal point for the Plan area as well as providing a cohesive downtown for East Palo Alto. The policies in the Plan promote mixed-use buildings with residential and office uses either adjacent to or above ground floor commercial storefronts along the street to foster pedestrian activity, safety, visual interest, and a sense of community. The Plan directs apartments and other housing to this area to provide activity into the nighttime hours and create increased safety by ensuring "eyes on the street", as well as providing a strong customer base for local retail uses. Areas are designated for light industrial uses to provide a buffer between the Ravenswood Employment Center and adjacent residential areas.

E. Streets: The Plan establishes policies to support:

1. Traffic-calming measures, including traffic circles at intersections, as well as bulb-outs that constrict the travel way at certain locations.

2. A cohesive system of pedestrian connections and trails to link activity nodes, parks, and open spaces together.

3. New pedestrian routes that also provide multi-use paths for bicyclists.

The Plan is expected to generate an additional 2,900 vehicle trips in the AM and PM periods each day at build-out. The Plan's Circulation Element (Ch. 8) identifies road and intersection improvements to accommodate this growth.

F. Transit: A commuter rail transit station is envisioned along a potential future Dumbarton Rail passenger line just north of the Plan Area, which could make office uses more viable and provide better access for current and future East Palo Alto residents. As an alternative, a bus rapid transit (BRT) stop connecting to the East Bay across the Dumbarton Bridge could be developed. The Specific Plan allows and encourages more intensive residential and other development to provide a customer base to support expanded transit services, either rail or bus rapid transit (BRT).

G. Parking Standards: The Specific Plan sets minimum parking standards that are intended to be "right-sized" to provide adequate but not excessive parking. Shared, unbundled, and tandem parking is encouraged to reduce parking requirements for individual projects, and public parking on streets immediately fronting projects can count towards office, retail, and residential visitor parking requirements. The configuration, location, and landscaping of surface parking lots is regulated to ensure attractive, pedestrian-friendly streets, open spaces, and trails. Parking structures along Bay Road must provide active ground-floor uses. On-street parking on public streets is encouraged to alleviate short-term parking needs and provide a buffer between pedestrians and vehicle traffic.

4. OUTCOMES OF THE PROJECT

Despite earlier redevelopment efforts, the Ravenswood / 4 Corners area saw little change before the adoption of the Specific Plan. There were and still are many vacant properties in the area that could be developed to provide new employment opportunities and additional housing near transit to meet the needs of the City's growing lower- and middle-income family households.

The Ravenswood / 4 Corners Plan is a key component of the City's 2016 General Plan Update, which received the 2017 Award of Merit for Comprehensive Planning for a Small City by the Northern California Chapter of the American Planning Association. It is projected to account for about one-third of citywide projected new housing units and retail space, all the proposed new industrial space, and about 60% of proposed new office space. Key transportation policies in the new General Plan include:

1. A Vision Zero policy, which places safety first and foremost.

2. Supportive policies and plans for traffic calming, bicycle and pedestrian networks.

3. Transit-priority streets; new bicycle and pedestrian-friendly street types.

4. Reformed performance measures that prioritize safety over roadway widening.

The city is relying on pedestrian, bicycle, and transit facilities and services outlined in the Ravenswood / 4 Corners Specific Plan to reduce the vehicle trips that may be generated by buildout under the new General Plan.[22] These include closing gaps in the sidewalk network, upgrading pedestrian crossings (pavement, striping, refuge areas), new multi-purpose trails (bike and pedestrian), new traffic signals, promoting shared and tandem parking and unbundling parking. The General Plan also includes parking management policies, such as shared parking and residential parking permits designed to alleviate curb parking shortages without relying on excessive minimum parking requirements.[23] The city is also updating its bicycle plan to achieve a more balanced transportation system and reduce the need for automobile trips.

To mitigate any potential housing loss from new development, the City requires projects requesting a density bonus to replace any existing affordable rental dwelling units.

[22] East Palo Alto General Plan Update Draft EIR, Ch. 4.14. http://www.cityofepa.org/DocumentCenter/View/2633
[23] http://nelsonnygaard.com/east-palo-alto-general-plan-update-is-honored/

5. INDICATORS OF PROJECT SUCCESS

The city had a development agreement for a 115-unit residential project with 20% affordable (below market rate) units and 16,000 square feet of retail space in the 4 Corners area.[24] A 1.4 million-square-foot office development has also been approved at 2020 Bay Road with five eight-story office towers and a nine-story parking structure with two levels of underground parking. The project could add 4,500 to 5,600 jobs to the City in technology, biotechnology, research and development and health care, according to the developer.[25] A new health clinic has opened and a primary school has also been proposed.

In 2017, the City reached an agreement with Menlo Park to work together to prepare reciprocal traffic studies for projects that may have significant impacts on both cities, and to require developers to conduct separate housing-needs assessments to address potential residential displacement and any additional low-income housing demands that may be created by the service needs of residents in new housing developments, such as restaurants and schools. Other cities in the county may consider similar arrangements to jointly address shared issues stemming from regional growth and development.[26]

6. CHALLENGES / LESSONS LEARNED

Development of the Specific Pan took place over several years, during which community involvement was key. According to the City Planning Manager, the participation of local advocates for higher densities and more transit options in the planning process described above, was vital to helping the community overcome concerns over possible gentrification, and loss of local businesses. He notes that the presence of many different points of view allowed for a full airing of public opinions and helped achieve consensus.[27] Unlike other nearby cities, East Palo Alto's major concern is generating new employment to address its jobs–housing imbalance. Thus, the City's planning is focused on attracting new business, while providing new housing choices—both ownership and rental units—for lower-income families experiencing overcrowding.

Another challenge is that although the Specific Plan and the new General Plan support reducing the need for parking, the current lack of direct rail connections (BART, CALTRAIN, MUNI, VTA) within the City makes it harder to justify reducing the City's already low parking requirements for new developments.[28]

[24] http://www.ci.east-palo-alto.ca.us/ArchiveCenter/ViewFile/Item/297
[25] In East Palo Alto, plans emerge to build 'up', Palo Alto On Line, https://www.paloaltoonline.com/news/2017/04/28/in-east-palo-alto-plans-emerge-to-build-up
[26] Menlo Park settles development-related lawsuit with East Palo Alto, The Almanac, December 7, 2017.
[27] Telephone interview with G. Persicone, Planning Manager, City of East Palo Alto, June 18, 2018.
[28] Telephone interview with G. Persicone, Planning Manager, City of East Palo Alto, June 18, 2018.

In addition, there are challenges with providing water connections for new developments. In 2012, the City, which relies solely on water from the Hetch Hetchy project and local groundwater supplies, evaluated a groundwater management plan during the California drought. In November 2015, the East Palo Alto City Council adopted a Groundwater Management Plan to address the water shortage for new developments. The city is currently under a water restriction moratorium pursuant to state legislation (AB 1739, SB 1168, and SB 1319) known as the Sustainable Groundwater Management Act (SGMA).[29]

Lastly, like many cities considering denser mixed-use developments, the City's zoning code has needed updating in order to better accommodate new projects and establish appropriate building standards for larger structures near single story residential land uses. This effort also addresses the proposed 1.4 million square foot office development and other future development in the commercial/industrial areas to increase building heights and floor area ratios (FAR).[30]

7. ADDITIONAL RESOURCES

- East Palo Alto General Plan Update: http://www.circlepoint.com/projects/city-of-east-palo-alto-general-plan-public-outreach-and-program-eir/

  http://nelsonnygaard.com/east-palo-alto-general-plan-update-is-honored/

- Vista 2035 General Plan Update documents: https://www.ci.east-palo-alto.ca.us/index.aspx?NID=455

- Ravenswood/4 Corners Specific Plan: https://www.ci.east-palo-alto.ca.us/Archive/ViewFile/Item/125

- General Plan Update Environmental Impact Report: https://www.ci.east-palo-alto.ca.us/DocumentCenter/View/2633

- Groundwater Management Plan: http://www.ci.east-palo-alto.ca.us/documentcenter/view/2222

- Ravenswood/Four Corners Specific Plan: http://www.ci.east-palo-alto.ca.us/index.aspx?nid=620

[29] City of East Palo Alto Ordinance 991 Water Management Plan Accessed June 17, 2018. http://www.ci.east-palo-alto.ca.us/documentcenter/view/2222

[30] Telephone interview with Michelle Markiewicz, Assistant Planner, City of East Palo Alto, June 19, 2018.

VI. KING COUNTY, WA: RIGHT SIZE PARKING

1. OVERVIEW OF PROJECT

King County Metro's innovative, data-driven research and outreach effort focuses on helping local jurisdictions and developers balance parking supply and demand for multi-family housing. The link between affordable housing and reducing parking requirements is key to removing barriers to affordable housing development.

The King County Right Size Parking (RSP) project, funded by a three-year grant from the Federal Highway Administration's Value Pricing Pilot Program, assembled local information on multi-family residential parking demand to guide parking supply and management decisions in the future, and has provided incentives for jurisdictions and developers to manage and reduce parking supply through a range of tools. The objectives of the project were to:

- Support economic development by reducing barriers to building mixed-use, multi-family residential developments in urban centers near transit infrastructure.
- Reduce housing costs as well as household monthly expenditures, allowing a wider market demographic to participate in the urban infill housing market.
- Encourage transit use, rideshare, bicycling and walking.
- Reduce vehicle miles traveled (VMT) and greenhouse gases (GHG) emissions.

The image below (Figure 6) shows the project's online Multi-Family Residential Parking Calculator.

Figure 6. Multi-Family Residential Parking Calculator

Source: King County Metro.

According to 2017 U.S. Census data, King County, WA has 2,188,649 residents and grew 13.3% in the last year. Sixty-eight per cent of the population is white, 18% Asian, and 10% Latino or Hispanic. Fifty-seven percent of the housing is owner-occupied, and its median value is $407,400.00. The median gross rent is $1,273.00. The median household income is $78,800 a year. It is the most populous county in Washington and the 13th largest in the United States. The RSP project focused on multi-family development projects in the central business district (CBD) and urban and suburban locations. Research for RSP surveyed over 200 multi-family buildings in the Seattle region to determine actual parking usage between the peak hours of midnight to 5 AM.

2. POLICIES AND ORDINANCES CONTRIBUTING TO PROJECT SUCCESS

The main goal for Right Size Parking (RSP) is to inform parking requirements in zoning ordinances so that supply meets the actual parking demand in the local context. At present, many local zoning ordinance parking requirements in King County and nationally do not reflect actual parking demand. Research on multi-family residential parking in King County, WA, highlights the parking oversupply: surveyed buildings provided about 1.4 stalls per unit, but each residential unit only used about 1 stall.[31]

3. OUTCOMES OF THE PROJECT

RSP research found on average that more than 40% of parking spaces went unused, often in walkable locations with nearly shops, stores, and restaurants and ready access to frequent public transit services. The report of research findings noted that construction of parking in multi-family projects costs roughly $20,000 to $40,000 per stall, which in turn impacts rental prices. Based on this research, the RSP Project produced a Technical

[31] Mapping the Subtle Science of Parking Demand, Citylab, April 26, 2013. https://www.citylab.com/transportation/2013/04/mapping-subtle-science-parking-demand/5402/

Policy Memorandum summarizing known barriers and potential solutions for RSP, a Right Size Parking Model Code that supports housing affordability and neighborhood walkability based on the RSP Project data, a Multi-family Parking Strategies Toolkit to help developers and property managers to better manage parking supply in multifamily buildings, a Parking Requirements and Utilization Gap Analysis that identifies misaligned parking requirements, and an RSP web-based calculator which provides context-sensitive information on parking demand.

RSP Calculator

Current suburban parking generation figures based on typical suburban locations, such as those found in the Institute of Transportation Engineers (ITE) Parking Generation Manual,[32] do not account for factors that may influence parking demand in places with more compact development, mixed uses, multi-modal transportation options, and more diverse multi-family housing.[33] Based on project research and statistical modelling, the interactive RSP Calculator treats parking as a separate item in the multi-family housing cost estimation to predict the real cost of parking based on the actual needs for that specific project. The project created a statistical regression model which incorporated seven variables—five pertaining to the property or the development characteristics of affordable housing and two measuring access—to explain the observed number of vehicles per occupied residential unit.

The RSP Calculator was developed by King County Metro, the transportation authority for the County, with support from the Center for Neighborhood Technology and the Urban Land Institute Northwest. It can estimate parking usage for different types of multifamily developments based on building type, location, unit and parking pricing, and proximity to transit and job locations. To highlight the importance of parking price and the presence of affordable units on parking utilization, the tool automatically calculates and displays parking utilization estimates for (1) parking pricing bundled with or unbundled from rent, and (2) 100% affordable units or no affordable units. It also provides information about cost, greenhouse gas (GHG) emissions, and estimated vehicle miles traveled (VMT) by residents. Users can also input custom variables to generate other scenarios. As a tool, the approach of the RSP Calculator is especially suited to San Mateo County because it provides local communities with more information on actual parking demand to support greater flexibility to apply local context-based parking requirements.

[32] Institute of Transportation Engineers. Parking Generation Manual, 4th ed. (Washington, DC: 2010).
[33] Donald Shupe. The High Cost of Free Parking (Chicago: Planners Press 2011).

Parking Model Code

The RSP Mode Code project encourages local jurisdictions to match their parking supply to the actual demand. The model parking code is comprised of two approaches: market-based and context-based. In the market-based approach, there are no minimum parking requirements; rather, the market determines the amount of parking. This approach most effectively matches parking supply with parking demand so that developers are not forced to build more parking than is needed. The Code contains suggested mitigations like parking management, residential permits, shared parking revenues, and other measures to reduce neighborhood impacts.

With the context-based approach, minimums are set based on the unique context and characteristics of a given project. The process has two steps. First, a generalized place type and associated base parking minimum is assigned. The proposed types are urban core, mixed-use center, and suburban commercial/residential neighborhood. Second, a series of adjustments are applied to that base minimum to account for specific building and contextual features, such as housing unit type, resident characteristics, transportation alternatives, off-street parking management, and parking stall substitutions. The model code also recommends parking maximums based on project type and location.

4. METRICS USED TO MEASURE SUCCESS

Four cities were selected for a pilot test of the calculator to consider potential policy changes to their parking requirements such as reduced minimum parking standards, parking pricing modifications, and innovative parking management. The project also selected an affordable housing provider, a community-based civil rights organization and housing provider, and an emergency services center to test innovative Transportation Demand Management (TDM) strategies, including parking pricing and incentives. The results are presented in the RSP Final Report.

The City of Kirkland used the RSP Calculator to establish a baseline parking requirement. With this information, staff drafted new parking requirements for multi-family zoning districts within the City, which were then modified based on additional parking information and policy direction from City officials. The amount of parking oversupply in individual buildings ranged from 14% to 173%. The average observed parking ratio was 1.20 parking spaces used per unit—significantly lower than the City's minimum general parking requirements, which were anywhere from 120 per cent to over 160 per cent above the RSP calculations, depending on the area.[34] The City had required 1.7 spaces per dwelling unit and up to 0.5 spaces per unit for guest parking. These requirements were changed to 1.2 stalls/studio, 1.3 stalls/one-bedroom, 1.6 stalls/two-bedroom, and 1.8 stalls/three-bedroom, with an additional 10% of the total required for guest parking.[35]

[34] RSP Kirkland Pilot Project Technical Memo. http://www.kirklandwa.gov/Assets/Boards+and+Commissions/Boards+and+Commissions+PDFs/Transportation+Commission/Right+Size+Parking+Memo+for+Transportation+Commission.pdf

[35] http://www.kirklandreporter.com/news/kirkland-city-council-adopts-ordinance-for-multi-family-residential-developments/

5. CHALLENGES AND LESSONS LEARNED

The key lesson is that parking and transit are directly related to affordable housing; this work identifies how more affordable housing can be built if parking is "right-sized" based upon current data. Having robust, accurate data from the local jurisdiction is crucial to developing the calculator. King County focused on multi-family housing and collected data in the middle of the night from multi-family projects to ensure accuracy. King County has now updated the calculator due to the substantial growth in the county which has continued to change due to this growth.

King County has added a variable with a new module that will connect supply with cost and use so that parking supply and price optimization are identified in the goal of "right sized parking". Users can now adjust the parking supply to create this outcome.[36] The key policy implication from the RSP project is that there is generally an oversupply of parking, and that reducing parking requirements encourages greater transit use and enables more frequent transit service. Higher transit use and fewer motor vehicle trips translates into lower Vehicle Miles Traveled (VMT) and reduced greenhouse gases. Conversely, lower or no minimum parking requirements can help stimulate transit service by allowing for higher density development, which is needed to support frequent transit service.

Despite data demonstrating that parking is typically overbuilt, localities may still face resistance to reform. When the City of Kirkwood considered amending their parking requirements, the effort faced local opposition. Parking reform can also make infill development easier on smaller lots and in historic areas where space is limited, which could provide opportunities for additional housing in San Mateo County. The data from the King County Metro study supports eliminating or greatly reducing parking requirements, especially in transit-rich areas, and establishing maximum limits, as well as encouraging shared parking, or providing in-lieu alternatives such as supplying residents with transit passes or adopting parking benefit districts where revenues collected from on-street parking charges are returned to the local community. These measures serve to address objections from residents that they are being harmed by spillover parking. One major challenge is educating developers and lenders about actual parking needs, since many still believe that they must supply additional parking on site in order to market their projects to prospective residents.

6. ADDITIONAL RESOURCES

- L. Young: Managing Director, Urban Analytics; Center for Neighborhood Technology, personal communication, June 26, 2018.
- RSP Final Report, August 2015. http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/rsp-final-report-8-2015.pdf
- RSP Web Calculator: http://rightsizeparking.org/

[36] D. Rowe: Senior Transportation Planner; Connecting to Transit Program Manager, personal communication, June 26, 2018) (L. Young: Managing Director, Urban Analytics Center for Neighborhood Technology, personal communication, June 26, 2018

VII. MOUNTAIN VIEW, CA: APPLYING TOD PRINCIPLES TO REVITALIZE LINEAR TRANSPORTATION CORRIDORS

1. OVERVIEW OF PROJECT

The City of Mountain View El Camino Real Precise Plan covers 287 acres and extends the entire 3.9-mile length of El Camino Real in the City, including some adjacent parcels. The Precise Plan, adopted on November 17, 2014, implements the City's 2030 General Plan vision for the El Camino Real Corridor as a revitalized grand boulevard connecting Mountain View to diverse neighborhoods. The Plan's focused development strategy, consisting of Village Centers, Neighborhood Corners, Medium Intensity Corridors, and Low Intensity Corridors, establishes guidelines for new development and recommendations for potential street improvements that provide a roadmap for transforming the corridor into a truly multi-modal transportation facility with new housing for diverse incomes and demographics. The approach accommodates higher densities at transit nodes while protecting adjacent residential areas.

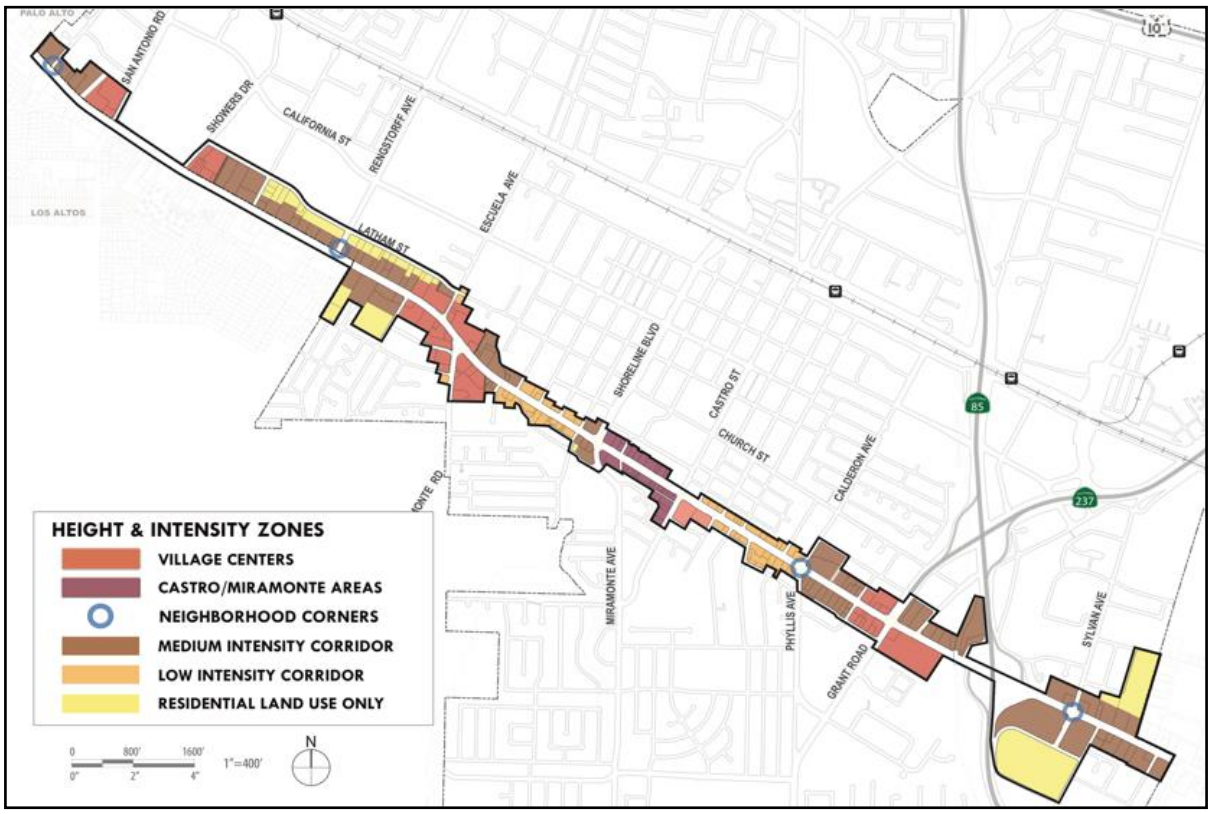


Figure 7. Corridor Character Areas

Source: https://www.mountainview.gov/civicax/filebank/blobdload.aspx?BlobID=15251

2. PLACE-TYPE

- **Demographics:** The 2010 United States Census reported that Mountain View had a population of 74,066. Demographic data showed the population was 44.1% non-Hispanic white, 2% African-American, 26% Asian/Pacific Islander, and 22% Hispanic or Latino (of any race).

- **Transportation:** El Camino Real is a key regional transportation corridor connecting Mountain View with Sunnyvale to the southeast and Palo Alto and Los Altos to the northwest. The portion within the City is lined primarily with one- and two-story "strip"-style commercial businesses, many of which are aging or do not conform to current zoning. Most of the properties are bordered at the rear by residential neighborhoods.

- **Housing:** Some residential infill developments have been approved and have broken ground at several large sites along the corridor. There are still many small properties, however, that are difficult to redevelop due to various economic and physical constraints.

- **Transit:** Two heavily patronized bus lines (VTA Route 22 and the 522 Rapid Bus) serve the length of the corridor while crossing several other bus lines that connect to two Caltrain stations (San Antonio and downtown Mountain View), other transit centers, bus lines, and independent shuttle routes.

The Precise Plan supports the Grand Boulevard Initiative (GBI), a collaboration between 19 cities, counties, and local and regional agencies which has brought regional stakeholders together to develop a new vision for the street from Daly City to San Jose to support people-friendly places with a focus on safety, sustainability, and high-quality development. The vision of the GBI is for El Camino Real to achieve its full potential as a place for residents to work, live, shop, and play, creating links between communities that promote walking and transit. This Precise Plan can serve as a model for cities in San Mateo County, either along El Camino Real or with similar linear transit corridors.[37]

3. POLICIES AND ORDINANCES CONTRIBUTING TO PROJECT SUCCESS

The Precise Plan aims to create a more livable community along the boulevard through policies and standards that promote a "tiered" development approach, which concentrates higher density activities at specific locations with improved transit access to reduce automobile traffic and encourage walking and bicycling.

A. Community Outreach: A coalition of local organizations representing over a thousand Mountain View community members with interest and expertise in transportation, land use, housing, and environmental protection participated in the development of the El Camino Real Precise Plan. They were particularly concerned with improving active transportation (walking, bicycling) along the corridor to access the housing and other facilities being proposed.

[37] https://grandboulevard.net/about/grand-boulevard-initiative.

B. Land Use: The Plan provides for a diverse mix of commercial and residential developments and public improvements. Special standards are provided to permit development on small lots and incentivize higher development intensities on larger lots. A broad range of allowed uses, such as rowhouses and other moderate to higher density residential uses, are encouraged in part by giving flexibility for changes in use and parking requirements. Larger developments must provide benefits to the community, such as affordable housing, parks and public space, pedestrian and bicycle improvements, or shared parking. A maximum of 3 stories and floor area ratio (FAR) of 1.35 can be built by right throughout the plan area, but this can be increased up to 6 stories and 2.3 FAR if significant community benefits are provided (these include: affordable housing; bicycle and pedestrian amenities; parks; and public parking facilities).

C. Housing: Higher density housing for a range of incomes and life stages is encouraged along the corridor. Low income, moderate income, and senior units will be built wherever possible through City subsidies, inclusionary requirements on new condominiums and row houses, and impact fees (or units in lieu) on residential and nonresidential development.

D. Urban Design. The Precise Plan focuses the most intensive development and public improvements at key transportation intersections—designated Village Centers—with pedestrian amenities that include mid-block cut-throughs, pedestrian-scaled street lighting, wider sidewalks, street furniture, crossing enhancements, and bus stop improvements. These centers will be located near existing retail destinations and major transit stops, and they will contain neighborhood retail uses, public spaces, and strong connections to surrounding neighborhoods. Standards support ground-floor, community-serving retail and services close to the street that increase pedestrian activity and create opportunities for the emergence of vibrant public spaces. Building standards for height, intensity, and setbacks are designed to protect adjacent residential areas.

Less intense development will occur at Neighborhood Corners located at smaller retail cross streets providing small shops, services, and other active ground floor uses within a short walk or bike ride from nearby neighborhoods. They will serve as gathering spaces with community facilities and improvements to increase pedestrian comfort and access from adjacent neighborhoods. A mix of residential and non-residential uses will be located between Village Centers and Neighborhood Corners. Medium Intensity Corridor Areas are adjacent to medium-density residential neighborhoods or non-residential areas with setback and open area requirements more appropriate to larger developments. Low Intensity Corridor Areas, with buildings limited to three stories set close to the street, are located adjacent to existing single-family neighborhoods.

E. Streets: Pedestrian-oriented enhancements include wider sidewalks and buffers from the roadway, more comfortable and additional crossings, lighting, and more landscaping and tree canopy provisions. Pedestrian and bicycle connections will be provided to adjacent neighborhoods and across El Camino Real. Curb bulb-outs to increase pedestrian safety and improve visibility will be constructed in Village Centers and Neighborhood Corners—particularly at bus stop locations. The plan also includes buffered bike lanes and bike parking on the boulevard to give access to activity centers.

F. Transit: Village Centers will be priority locations for new or relocated transit stops for high-speed/high-frequency buses or private shuttle services. Transit will have signal prioritization, and bus queue jump lanes may be provided through the conversion of existing right turn lanes.

H. Transportation Demand Management (TDM): All new office development of at least 15,000 square feet must provide a TDM plan resulting in specified levels of trip reductions. Other developments must have a TDM plan with trip reductions consistent with the percentage for new employment-generating development in the City's Greenhouse Gas Reduction Program. Residents and/or employees must be provided with transit subsidies or enrolled in VTA's Eco-Pass program. All these developments must report their annual performance to the City and join a Transportation Management Association (TMA) that provides transportation-related services.

G. Parking Standards: The plan calls for eventual removal of on-street parking along El Camino Real to improve vehicle flow and bicycle access. Residential parking requirements along the street were lowered to one space per bedroom. Certain commercial projects may qualify for reduced parking standards with a parking plan or if special conditions apply, such as parking for uses with different peak periods, access to Rapid Bus service, or a TDM program.

4. OUTCOMES OF THE PROJECT

The City of Mountain View is preparing a Streetscape Plan for El Camino Real in accordance with the Precise Plan that will provide location-specific design guidelines to improve the interface between all modes of transportation. It will include public improvement design standards to create a more pedestrian-, bicycle-, and transit-friendly boulevard environment that identifies the corridor as a welcoming destination. These standards will help to visually define the character of El Camino Real as a unique "neighborhood" within the City of Mountain View.[38] In keeping with the vision of the 2030 General Plan that supports increased transit use, bicycling and walking, Mountain View is also preparing a Multimodal Improvement Plan (MIP). The MIP complies with VTA's Congestion Management Program (CMP) that will help reduce vehicle miles traveled (VMT) and greenhouse gases (GHG) by giving the City greater flexibility to increase system-wide mobility and address vehicle congestion by means other than street-widening or other traffic-inducing road capacity improvements.[39]

5. INDICATORS OF PROJECT SUCCESS

The El Camino Real Precise Plan environmental review did not identify any significant impact to traffic and transportation from the build-out of the Precise Plan area. The coalition, led by SVBC, noted that the Plan "offers the opportunity to create a more vibrant and accessible El Camino Real corridor for all" with a "long-term vision that strengthens the economy and enhances the quality of life" for all City residents.[40] They noted that the Plan includes more than 1,500 new homes, identifies affordable housing as a priority community

[38] https://www.mountainview.gov/depts/pw/transport/gettingaround/el_camino_real_streetscape_plan.asp
[39] http://www.infortio.com/TJKM/mountain-view-multimodal-improvement-plan/
[40] https://bikesiliconvalley.org/wp-content/uploads/El-Camino-Real-Precise-Plan-Comment-Letter-1.pdf

benefit, and calls for high-quality pedestrian and bike amenities and infrastructure.[41] The Santa Clara Valley Transportation Authority supports the El Camino Real Precise Plan as "one of the best opportunities to accommodate the City's future growth" and identifies denser development as "critical to making transit and auto travel work efficiently."[42]

Overall, the City has approved about 1,400 new housing units in the corridor, including about 125 affordable units, some built during development of the Precise Plan, which helped guide future policies. Several new residential projects have been approved under the Precise Plan which are currently under construction or have been completed. These include:

- 2700 El Camino Real: 211 residential mixed use development (11 very low income units) with 2,000 square feet of ground floor commercial space and underground parking to replace an existing motel and vacant restaurant buildings, including a 20% State Density Bonus with development waivers allowing up to 2.2 FAR.[43] The developer is providing a public bike path to give children a safe route to school and paying $35 per month for each tenant into the City's transportation fund.[44] [approved June 27, 2017]

- 1701 West El Camino Real, Eagle Park Apartments: a 67-unit studio and one-bedroom affordable housing complex for the area's low income veterans and households developed by Palo Alto Housing (PAH), within walking distance of groceries, pharmacies, restaurants, and public transit. The project received $8 million in City development funds and additional support from the County of Santa Clara, U.S. Bancorp, State Department of Housing and Community Development, Veterans Housing and Homelessness Prevention Program, California Housing Finance Agency, California Department of Veterans Affairs, and Google.[45] [approved June 21, 2016; under construction]

- 801 West El Camino Real: 164 Apartment Units (5 below market rate) on a 2.39-acre project site with 11,000 square feet of retail, a public plaza, and underground parking for residents.[46] The developer agreed to provide space in the new building for most of the existing stores on site.[47] [approved December 9, 2014; main building already constructed]

- 2268 W El Camino Real, Lennar Multi Family Communities: a 204-unit residential apartment project with underground parking and four single-story commercial structures along El Camino Real and Latham Street to replace the 21,026 square foot Olive Tree Shopping Center on a 2.6-acre project site. [approved February 28, 2017]

41 https://bikesiliconvalley.org/wp-content/uploads/El-Camino-Real-Precise-Plan-Comment-Letter-1.pdf
42 Mountain View Paves the Way for a More Livable El Camino Real, 1/6/2015, http://www.vta.org/News-and-Media/Connect-with-VTA/Mountain-View-Paves-the-Way-for-a-More-Livable-El-Camino-Real#.WyiYZKdKjIU
43 https://www.mountainview.gov/civicax/filebank/blobdload.aspx?BlobID=26502
44 https://www.mercurynews.com/2017/06/29/211-apartment-development-approved-by-mountain-view-council/
45 https://patch.com/california/mountainview/groundbreaking-held-silicon-valley-affordable-housing-community
46 https://www.mountainview.gov/depts/comdev/preservation/homebuying/futureprojs/default.asp
47 http://davidjpowers.com/?project=801-el-camino-real-west-mixed-use

6. CHALLENGES AND LESSONS LEARNED

The El Camino Real Precise Plan represents a unique application of the TOD concept to a linear auto-oriented transportation corridor. Instead of concentrating development around a single transit station, it creates a series of tiered developments within the corridor focused around transit and pedestrian activity centers, with higher intensity in Village Centers, where there are transit stops, neighborhood-serving retail at other intersections, as well as additional higher-density housing and some mixed uses provided in between with appropriate transitions to protect adjoining residential areas.

The General Plan update process helped to build community and Council support for increased housing in the corridor as part of a citywide commitment to addressing housing needs, as well as to providing greater access to regional jobs. The El Camino Real Precise Plan was an opportunity to implement that vision. The community was very interested in active transportation and affordable housing, though residents were also concerned about the potential loss of local retail. There were several key components to help meeting those concerns. Under the Plan, the City encourages housing all residents along the street, including infill housing (such as row houses on smaller lots), but provides for higher densities to support commercial development at key intersections. Another key component was the City's community benefits program, which provides clear and predictable standards for what the community wants to see in the corridor. Finally, the Plan provides high-quality bike lanes on the boulevard (in place of on-street parking) and on adjacent streets, bike facilities at Village Centers and Neighborhood Corners, and safe transitions to neighborhoods to turn El Camino Real into a true urban street that serves pedestrians, bicycles, and public transit.[48] These lessons can all be applied to other underutilized transit corridors in San Mateo County and beyond.

7. ADDITIONAL RESOURCES

- El Camino Real Precise Plan (November 2014): https://www.mountainview.gov/civicax/filebank/blobdload.aspx?BlobID=15251
- Grand Boulevard Initiative: https://grandboulevard.net/

[48] Telephone interview with E. Anderson, Fire & Environmental Protection Department, City of Mountain View, June 25, 2018.

VIII. NATIONAL CITY, CA: STRATEGIES FOR ENSURING BROAD PUBLIC INPUT

1. OVERVIEW OF PROJECT

In 2005, National City launched a public outreach initiative intended to redevelop a portion of the City known as Westside. Over the next five years, the City government held at least four public workshops intended to receive input, explore issues and build community consensus on a planning framework and eventual adoption of a specific plan that identifies the requirements and guides the development of, among other features, the Paradise Creek Affordable Housing Project, a 201-unit project on the east side of Paradise Creek. Historically, this area of National City was occupied by brownfields, warehouses, car repair businesses, and a few modest older small homes. Because of the comprehensive and transparent nature of the public outreach effort, and the community benefits that are anticipated from this project, this project has received national recognition as well as nearly $10 million in construction grants from the California Greenhouse Gas Reduction Fund. The grants support affordable housing located near transit stations. The development also received an EPA sustainable communities grant to help mitigate site pollution.

The Paradise Creek project is located within walking distance of light rail and multiple bus route stops, hence qualifying as a transit-oriented development. Further, local residents were given priority for the new units, limiting the project's displacement of locals.

2. PLACE-TYPE

The Westside Infill Transit Oriented Development (WI-TOD), also known as the Paradise Creek Affordable Housing Project, is a proposed 201-unit affordable housing development on the east side of Paradise Creek, as well as the expansion of Paradise Creek Educational Park on the west side of the creek. The proposed project is based on a concept that was developed through a neighborhood and stakeholder design participation process and incorporated into the Westside Specific Plan, adopted in 2010. The proposed project design was developed with continuing public input and participation through four well-attended stakeholder and community meetings, as well as three hearings before the City Council that included Spanish translated materials and a live Spanish/English interpretation.

Figure 8. Paradise Creek Affordable Housing Project

Source: http://chworks.org/wp-content/uploads/Paradise_creek_birdseye.jpg

The project site is approximately 13 acres in size and is generally located south of 19th Street, west of Hoover Avenue, north of 22nd Street, and east of Harding Avenue. The site consists of four parcels owned by the City and includes the National City Public Works Yard, the former Sun Diego Bus Charters maintenance facility, Paradise Creek, and Paradise Creek Educational Park. The site also includes portions of adjacent public rights-of-way that are generally undeveloped.

Located five miles south of downtown San Diego, National City is considered a disadvantaged community. National City has started to link health, quality of life, and economic opportunity to community design. The 2006 Westside Specific Plan includes public transit, a public park, biking and walking paths, and affordable housing, with the intent to reduce incompatible land uses and remediate vacant land with pollution. Updated with a Comprehensive Land Use Update in 2012, National City reiterated the importance of healthy neighborhood planning by focusing on health equity.[49]

[49] https://www.dropbox.com/sh/d6bqkmg350yj7zy/AAAYinZ_fSeeio-9mLtlq6Bka/Application/Attachments/B%20Project%20Area%20Map?dl=0&preview=Project+Area+Map.pdf

3. POLICIES AND ORDINANCES CONTRIBUTING TO PROJECT SUCCESS

The Westside Specific Plan was adopted in March 2010 for the Westside neighborhood, also known as Old Town. The area originally developed as a single-family residential neighborhood; however, most of the area was re-zoned as Light Manufacturing-Residential (MLR) after World War II to encourage economic development. The MLR zone continued to allow single-family residential uses, which has additionally facilitating the development of automotive, manufacturing, and industrial uses that were incompatible with the remaining residential uses. The Westside Specific Plan addresses the incompatibility of uses through new land use zones and development standards.

The Westside Specific Plan includes residential and mixed-use zones that substantially increase the allowable residential density compared to the previous MLR zone. The specific plan allows for single-family residential at a density of over 17 units per acre on a minimum lot size of 2,500 square feet. Mixed-use zones allow maximum residential densities of 24, 45, and 60 dwelling units per acre.

Residential development consistent with the land use regulations of the Westside Specific Plan and corresponding development standards of the Land Use Code are permitted by right and do not require discretionary review and approval. An Environmental Impact Report was prepared for the Westside Specific Plan and considered the build-out of the area; consequently, no additional environmental review is required for development that is consistent with the Specific Plan.

An Environmental Impact Report (EIR) pursuant to CEQA provides an analysis of the potential impacts of this Specific Plan and recommends appropriate mitigation measures as policies and features of the Plan.

The Westside Specific Plan assesses the implications of an assumed program of residential, commercial, office, and mixed-use development. When specific development proposals are submitted to the City for property within the Specific Plan area, the City will determine whether the environmental effects of the proposed project are addressed in the Project EIR. If the City finds that the proposed project would not result in any additional environmental impacts that were considered in the EIR, new environmental analysis would not be required.

4. OUTCOMES OF PROJECT

The Westside Precise Plan and the subsequently created Paradise Creek Affordable Housing development received significant, and in some ways unique, recognition for the amount of effort expended in seeking and responding to community stakeholders, including support from the California cap and trade-funded Affordable Housing and Sustainable Communities grant program. Additionally, in 2015, The National City joined the Beacon Program and was recognized for implementing sustainability best practices. The Beacon Program provides support and recognition to Californian cities and counties that work to reduce greenhouse gas emissions, save energy, and adopt policies and programs that promote sustainability. The Institute for Local Government and the Statewide Energy Efficiency Collaborative sponsor the Beacon Program.[50]

The Westside Specific Plan established principles, programs, and standards for land use, development, and public improvements for the Westside area. The plan was the result of a collaborative effort by the community, interested and concerned groups, and business owners to revitalize the area and improve quality of life for its residents. A series of community workshops evolved over a three-year period beginning in 2005. During this time, the community collaborated on and agreed to a central vision and four guiding principles:

1. Respect and encourage single-family homes and small residential development.

2. Improve environmental health conditions for residents in the area.

3. Limit uses adjacent to Paradise Creek to restoration, passive recreation, and open space.

4. Enhance pedestrian safety and promote the walkability of the community.

As noted in the first chapter of the Westside Specific Plan:

> The vision and guiding principles together serve as the framework for the development goals, programs, and standards established in [this] Specific Plan … Achieving this vision involves returning residential-turned industrial properties to homes. The addition of markets, schools, churches, and open spaces will enrich the neighborhood. Paradise Creek, through habitat restoration, the educational park, and compatible land uses on adjacent properties, will become an important source of neighborhood pride and enjoyment.

[50] www.ca-ilg.org/engagement

5. INDICATORS OF SUCCESS

In addition to the awards and recognitions received, the Paradise Creek project has been seriously oversubscribed by those in the community as well as those outside the community who wish to live in the community. According to the City housing office, there is a waiting list of over 3,000 who wish for a unit in the 201-unit development. To ensure that the residents of the community, especially those who were displaced in the project's development, had access to the project's affordable housing units, the National City Council adopted an ordinance giving first priority to those already living in National City.

6. CHALLENGES AND LESSONS LEARNED

The promise of Paradise Creek was in the environmental and health impacts the project would have. By clearing brownfields (32 million pounds of hazardous substances and 870,000 cubic feet of toxic or hazardous gases), developing open spaces for recreation and other community uses (addressing an asthma hospitalization rate for children ages 17 and under that is 50% higher than the rates for San Diego County), reducing both industrial and auto emissions, and encouraging the use of public transportation, the project was able to win broad community support and grants funded by the state's cap and trade program. On this latter point, however, the project still has not met its promise. In large part, according to community leaders, the problem is not the project's nearness to public transit. It is that the public transit does not go where residents need to go. A reassessment of transit services and routes are in order.

Late in the planning stage of this project, there was significant controversy over efforts to reduce the parking ratio of cars to units. Proponents of the project sought to reduce the ratio, but because of decisions previously made and the fact of the project's prime location near a transit center, the cost of reducing the ratio was fiscally unacceptable, and the public opposition was strong. In the end, the cost of moving water and sewer lines and the inability of public transportation to move people to where they need to be, stymied efforts to reduce the parking/housing unit ratio.

7. ADDITIONAL RESOURCES

- http://www.westerncity.com/Western-City/March-2016/Planning-for-Healthy-and-Sustainable-Cities-National-City-Offers-a-Model/
- http://www.sandiegouniontribune.com/business/growth-development/sdut-grants-chula-national-growth-pollution-2015jul01-story.html
- https://www.voiceofsandiego.org/topics/land-use/national-city-development-walkable-close-transit-still-tons-parking/
- https://www.voiceofsandiego.org/topics/land-use/how-national-city-is-fighting-resident-displacement/

- http://www.kpbs.org/news/2010/may/28/national-city-launches-major-make-over/
- https://www.voiceofsandiego.org/topics/land-use/sandag-asks-state-to-loosen-the-purse-strings-for-transit-focused-housing/
- https://www.dropbox.com/sh/d6bqkmg350yj7zy/AAA20aovHvmQI-Slh9zcN0k7a?dl=0
- http://www.nationalcityca.gov/about-us/current-plans-projects-programs/westside-specific-plan
- www.paradisecreekliving.com
- www.sandiegouniontribune.com/communities/south-county/sd-se-paradise-creek-0427-story.pdf
- Carlos Aguirre, Acting Director of Housing and Economic Development, City of National City Housing and Economic Development Department

IX. OAKLAND, CA: TRANSPORTATION IMPACT REVIEW BASED ON VEHICLE MILES OF TRAVEL (VMT)

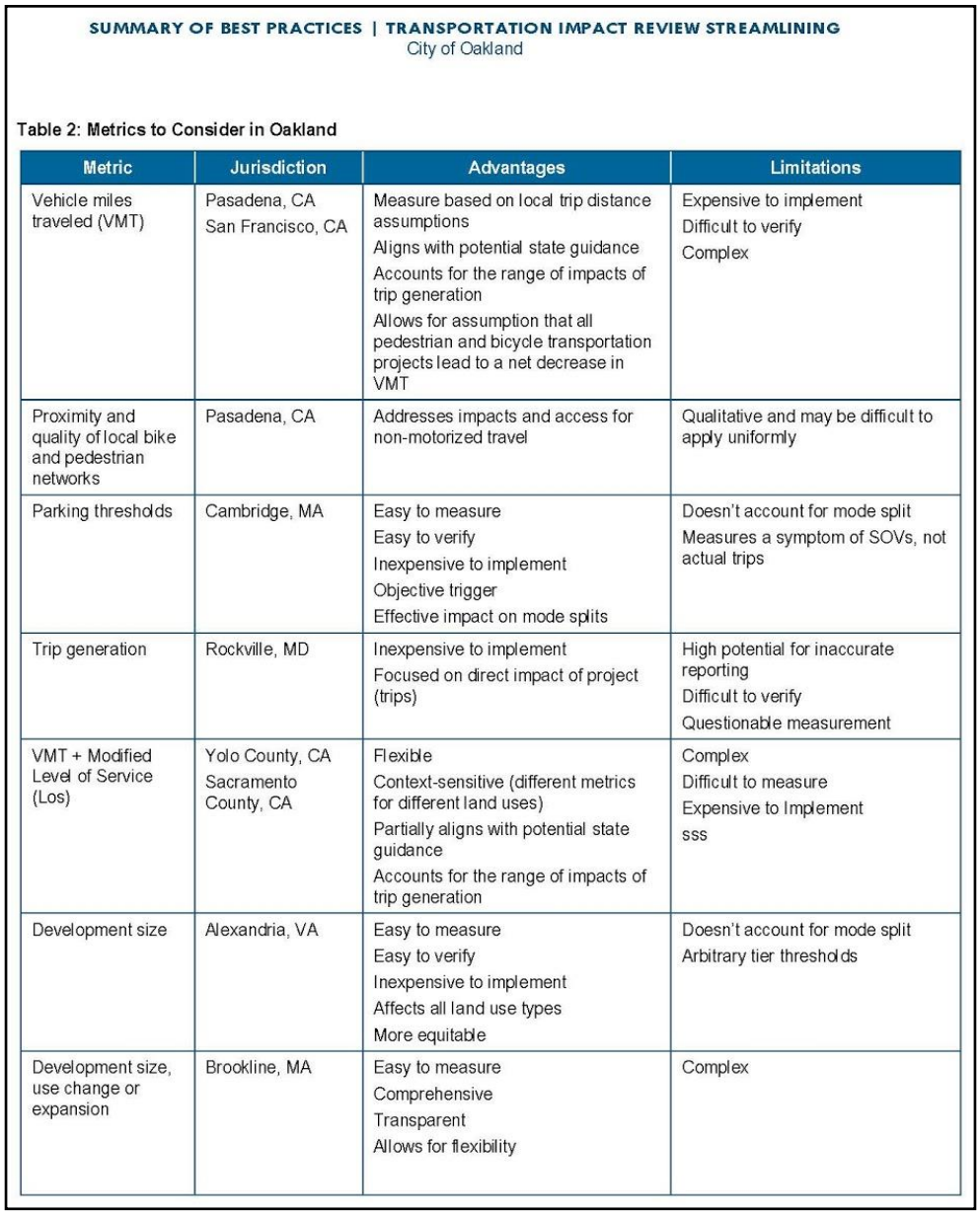
1. OVERVIEW OF THE PROJECT

The City of Oakland has developed a new Transportation Strategic Plan based upon a vision for the City and how the Oakland Department of Transportation serves it in four key areas: equity, safety, sound infrastructure, and responsible governance. The City of Oakland Modernizing Transportation Impact Review Project—a key aspect of this Plan—was created in response to the requirements of SB 743 to address transportation impacts measured in vehicle miles of Travel (VMT) instead of merely focusing on motor vehicle delay as measured in Level of Service (LOS). VMT provides a more accurate understanding of land development impacts on highways, public transit systems, and bicycle and pedestrian conditions. It is simpler to calculate and measures regional impacts instead of just local impacts. The goal is to minimize the need for new road and parking capacity and impacts on community livability associated with increased motor vehicle use. An important objective is to minimize parking requirements for new development, particularly within a half-mile of public transit stations, and to create parking maximums for new development downtown or eliminate parking requirements entirely. Another outcome could be to restore streets converted to one-way to two-way operation and reduce requirements for unnecessarily wide traffic lanes to support more vibrant, walkable communities.

Oakland is the seventh largest city in California, with a diverse population of 412,040 as of 2016. The median age is 36.2, and the median household income is $51,863. Oakland has the fourth largest airport in California, a port, and is served by BART, AMTRAK, AC transit, multiple highways, ferries, and new mobility options. By the end of 2017, over 160 bikeway miles and 9,900 bike parking spaces had been constructed. According to the U.S. Census Bureau's 2011 American Community Survey, Oakland came in 7th place out of the 100 largest cities in the nation by percentage of people choosing to commute by bike in 2011.[51] The city has 50 distinct neighborhoods that range from downtown Oakland with a city skyline to low-rise neighborhoods of single-family and small multi-family housing units. Oakland has been rated the 9th most walkable city in America.[52]

On April 14, 2017, The City of Oakland issued Transportation Impact Review Guidelines that incorporated guidance on using VMT as a key metric in transportation impact analysis of new land development. This guidance conforms with the CEQA Update and Technical Advisory issued by the California Governor's Office of Planning and Research. The City of Oakland considered a variety of metrics in revising its transportation impact review process (see Figure 9 below). VMT was chosen to align with state policy in accord with SB 743 and as a robust indicator of transportation impacts.

[51] Let Us Count the Ways" (PDF). "I (Bike) Oakland" newsletter (22 ed.): 8. Winter 2018.
[52] https://www.walkscore.com/cities-and-neighborhoods/



SUMMARY OF BEST PRACTICES | TRANSPORTATION IMPACT REVIEW STREAMLINING
City of Oakland

Table 2: Metrics to Consider in Oakland

Metric	Jurisdiction	Advantages	Limitations
Vehicle miles traveled (VMT)	Pasadena, CA San Francisco, CA	Measure based on local trip distance assumptions Aligns with potential state guidance Accounts for the range of impacts of trip generation Allows for assumption that all pedestrian and bicycle transportation projects lead to a net decrease in VMT	Expensive to implement Difficult to verify Complex
Proximity and quality of local bike and pedestrian networks	Pasadena, CA	Addresses impacts and access for non-motorized travel	Qualitative and may be difficult to apply uniformly
Parking thresholds	Cambridge, MA	Easy to measure Easy to verify Inexpensive to implement Objective trigger Effective impact on mode splits	Doesn't account for mode split Measures a symptom of SOVs, not actual trips
Trip generation	Rockville, MD	Inexpensive to implement Focused on direct impact of project (trips)	High potential for inaccurate reporting Difficult to verify Questionable measurement
VMT + Modified Level of Service (Los)	Yolo County, CA Sacramento County, CA	Flexible Context-sensitive (different metrics for different land uses) Partially aligns with potential state guidance Accounts for the range of impacts of trip generation	Complex Difficult to measure Expensive to Implement sss
Development size	Alexandria, VA	Easy to measure Easy to verify Inexpensive to implement Affects all land use types More equitable	Doesn't account for mode split Arbitrary tier thresholds
Development size, use change or expansion	Brookline, MA	Easy to measure Comprehensive Transparent Allows for flexibility	Complex

Figure 9. Summary of Best Practices

Source: Nelson/Nygard Consulting Associates Inc.

2. POLICIES AND ORDINANCES CONTRIBUTING TO PROJECT SUCCESS

Cities in California will have until January 2020 to comply with SB 743. Using VMT as a transportation impact analysis metric will promote the development of multimodal transportation networks, a diversity of land uses, and the reduction of greenhouse gas emissions. The Office of Planning and Research has selected VMT as a replacement measure for average increase in motor vehicle delay, or level of service (LOS), not only because use of VMT supports the explicit goals of SB 743, but also because agencies should already be familiar with this metric. Several cities, including Pasadena and San Francisco, have already implemented the changes. Oakland was able to review the strategies that these two California cities have developed to create a VMT-based transportation impact analysis program specific to the City. This approach will address

GHG emission reduction goals; align transportation analysis under CEQA with other state goals for planning, environmental protection, and human health; simplify the development process; allow more local discretion in transportation planning; and align with the local and regional urban infill land development policies.

The City of Oakland proposed new parking requirements as of 2015. Parking requirements are reduced in mixed housing types, off-street parking, and in major travel corridors. The charts below show how parking is expected to be reduced due to the VMT approach.

Parking Requirements in the RM (Mixed Housing Type Residential) Zones

Zone	Existing Spaces Required	Proposed Spaces Required
RM-1	1.5 per unit	1.0 per unit
RM-2	1.5 except 1.0 for small lots (less than 4,000 sq. ft. or 45 ft. in width)	1.0 per unit
RM-3 and	1.0 per unit	1.0 per unit
RM-4		(no change)

Reduction in Parking Requirements on Major Corridors

Strategy	Reduction
Car Sharing	10%
Transit Passes	10%
Unbundled Parking	15%
Within .5 mile of BART or BRT* (Market Rate Housing)	20%
Within .5 mile of BART or BRT* (Affordable Housing)	50%
Other Affordable Housing	20%

*Bus rapid transit

3. OUTCOMES OF THE PROJECT

The overall goals of these policies are to achieve an effective, sustainable, multi-modal transportation system for the City. These include furthering the City's Complete Streets Policy, which affirms that the City will provide streets that are safe and convenient for all users of the roadway. The term "all users" pertains to pedestrians, bicyclists, motorists, persons with disabilities, users and operators of public transit, seniors, children, and movers of commercial goods. Therefore, transportation impact mitigations stipulated as conditions of project approval such as wider sidewalks, new bus shelters, intersection re-designs to enhance pedestrian and bicycle safety, and new bicycle network linkages further this multi-modal vision. Since the revised transportation impact analysis was implemented just last year, data that can be used to evaluate the effects of this change is not yet available.

4. METRICS USED TO MEASURE SUCCESS

For typical transportation impact analyses of proposed land development, the latest edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual should be used to determine the base trip generation for the proposed land uses. Appropriate ITE land use

codes and rates should be applied and justified. The guidelines in the ITE Trip Generation Handbook for the selection of regression equations versus weighted average rates should be used. Data will be presented in a summary table showing peak hour trip generation by land use for each study period (e.g., AM, PM, mid-day), trip generation rates, and the variable used to calculate trip generation for each land use. If ITE regression equations are used to calculate trips, the equations used should also be presented. Local trip generation surveys may be substituted for ITE trip generation rates in special circumstances where ITE Trip Generation does not adequately reflect the proposed development. Specific parameters developed for Oakland can be found in the .pdf reports listed in the Additional Resources section below.

5. CHALLENGES AND LESSONS LEARNED

The VMT approach was created when it became apparent that the LOS approach used in the CEQA guidelines detracted from efforts to create higher quality walkable development that supports enhanced transportation choices for those who live, work, and travel in Oakland. Oakland staff and elected officials reached out to residents, employers, and developers in efforts to reform transportation impact analysis. The results are a compromise-based approach addressing stakeholder concerns.

Analysis of this plan will reveal the extent to which the use of the VMT metric rather than LOS in CEQA analysis will yield the anticipated results. If the reduction in motor vehicle miles of travel generated by new development is as successful as expected, the City of Oakland's use of this new methodology can serve as a model for other cities in California and for the nation.

6. ADDITIONAL RESOURCES

- Let Us Count the Ways (PDF). "I (Bike) Oakland" newsletter (22 ed.): 8. Winter 2018.
- J. Tumlin, Nelson]Nygaard Consulting Associates, former City of Oakland Interim Director of Transportation
- Ryan Russo, Oakland Director of Transportation: http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak063581.pdf

  http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak060949.pdf
- City of Oakland (2011). Oakland Parking Update: http://www2.oaklandnet.com/oakcal1/groups/ceda/documents/report/oak030996.pdf
- City of Oakland (2015). Update of Oakland's Off-Street Parking Regulations (10-29-15): http://http://www2oaklandnet.com/oakcal1/groups/ceda/documents/image/oak055663.pdf
- City of Oakland (2016). Oakland: Smart + Equitable City: http://cms.dot.gov/sites/dot.gov/files/docs/CA%20Oakland.pdf

X. REDWOOD CITY DOWNTOWN PRECISE PLAN: A COMMUNITY REMAKING ITSELF

1. OVERVIEW OF PROJECT

The Redwood City Downtown Precise Plan (DTPP) was created to revive the heart of Redwood City. It covers 183 acres within the City's historic center including two historic residential neighborhoods. Most of the Precise Plan area lies within a quarter-mile radius of the Caltrain station—an ideal size for a walkable district, about ten minutes from end to end. The Plan encourages compact, transit-accessible, pedestrian-oriented housing and mixed-use development conveniently located near public transportation, employment, shopping, recreation, and other community facilities. It acts as a detailed zoning and design code that regulates land use and development within the downtown area and guides private and public investment actions in support of downtown growth. The key aspects of the Plan include:

1. A more compact development pattern.

2. Taller buildings set closer to each other and to the sidewalks.

3. A greater mixture of uses and activities.

4. More pedestrian activity.

The Plan makes pedestrians a priority by creating a comfortable, walkable urban environment in the downtown area through a network of inviting public places and street frontages. Fifteen percent of the Plan's maximum allowable residential development is reserved for affordable housing. On May 23, 2016, the Redwood City Council adopted a resolution to reserve at least 15% of maximum allowable residential development for affordable housing.[53]

[53] The Redwood City Downtown Precise Plan http://documents.redwoodcity.org/PublicWeblink/DocView.aspx?dbid=0&id=114451&page=5&cr=1

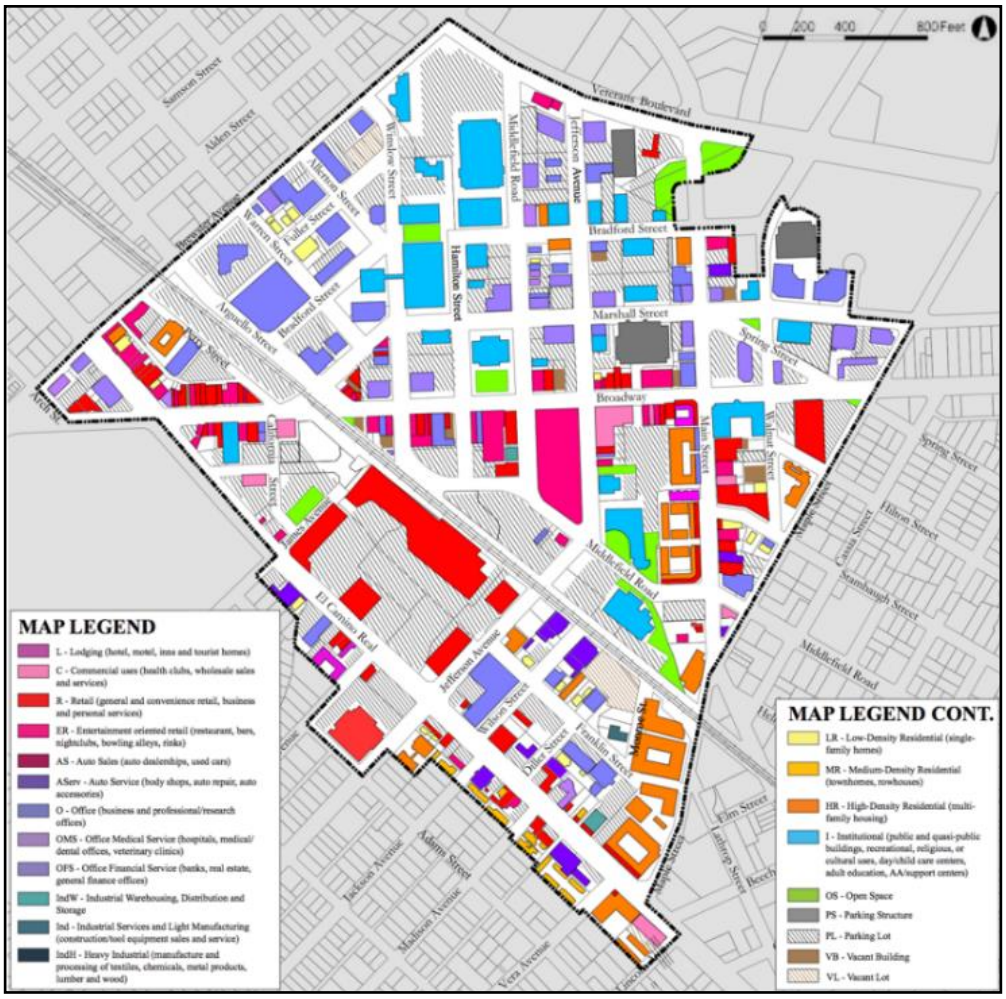


Figure 10. Redwood City Downtown: Existing Land Use Conditions

Source: http://www.redwoodcity.org/home/showdocument?id=10001

2. PLACE-TYPE

- Downtown Redwood City is a mix of commercial/retail, office, industrial, residential, institutional and parking uses, located between Highway 101 and El Camino Real. Urban development is concentrated along Broadway from El Camino Real to Walnut Street and from Broadway South on Main Street to Middlefield Road.

- Prior to the Plan, there was little in the way of market-rate housing in a few mixed developments downtown—only about 800 housing units, 169 of which would qualify as affordable. Three redevelopment projects built between 1997 and 2009, totaling 353 units, set the standard for future housing in the downtown area:

  - City Center Plaza (81 affordable units);

  - Franklin Street Apartments (30 affordable units and ground floor retail); and

  - Villa Montgomery (58 affordable units and ground floor retail).

- The Caltrain station provides bullet, limited, and local service. The SamTrans Bus Terminal is located adjacent to the station.

3. POLICIES AND ORDINANCES THAT CONTRIBUTED TO SUCCESS

By utilizing opportunities for infill and redevelopment, and focusing on the strengths of the district, the DTPP authorizes 2,500 market rate and 375 affordable housing units, and up to 400,000 square feet of net new non-residential development. The Plan integrates transit services—including the SamTrans bus terminal—into the street and pedestrian network. The strategies for achieving this vision include:

1. Provide a range of entertainment, shopping and cultural offerings like those found in San Francisco or San Jose.

2. Leverage the strong regional demand for housing as the primary engine of revitalization.

3. Offer sufficient development intensities to properties in downtown for developers to construct homes, offices, and hotels without City subsidy.

4. Redevelop properties between Broadway and Sequoia Station to link the train station and Courthouse Square to create an exciting gateway into the historic downtown.

5. Better integrate the railroad into downtown by removing the barrier effect between the northeast side and southwest side of downtown created by the tracks.

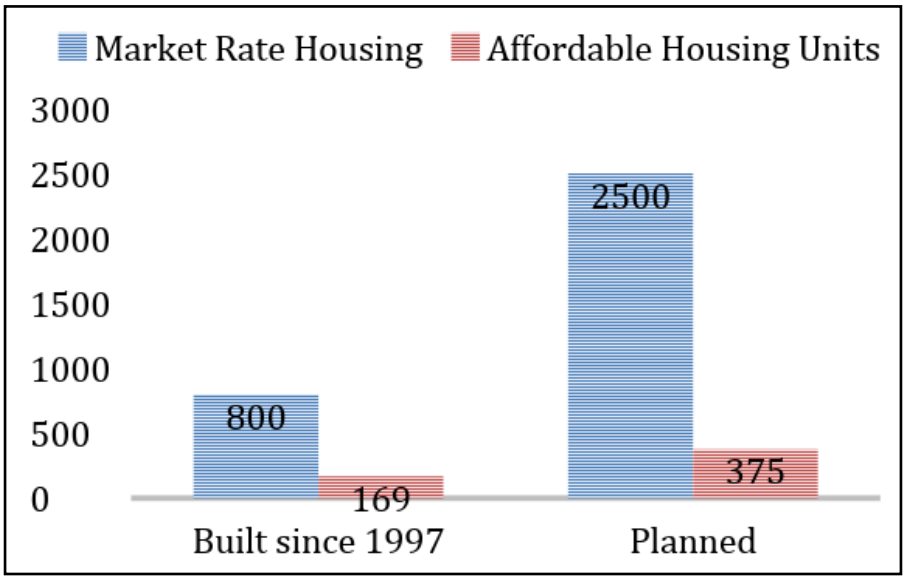


Figure 11. Built and Planned Housing by Type

Source: The Redwood City Planning Department

To achieve these goals, the Plan contains detailed regulations covering: historic resources; land use; building height; frontage; placement; façade composition; architectural character and landscaping; signage; and parking. Highlights of these regulations include the following.

A. Housing: The Plan authorizes up to 2,500 additional market rate and 375 affordable housing units for households earning no more than 80 percent of the area median income. The City has adopted policies and programs such as impact fees and incentives to promote the development and preservation of affordable housing.

B. Urban Design: The design elements of the Plan involve a network of public open spaces, pedestrian circulation improvements, street realignment and block reconfigurations, and streetscape and building frontage enhancements in order to integrate the downtown area into a unified and connected pedestrian-oriented district. The Plan makes the Caltrain station the center of the revitalized district connected to Broadway, Courthouse Square, El Camino Real, and adjacent neighborhoods. The City, collaborating with Caltrain and SamTrans will reconfigure the area to better integrate the facility with its changing surroundings and ensure connectivity from all parts of the plan area to its center. In the future, the tracks may be grade separated to restore the downtown street grid providing short walking trips to both stations and permit more development, maximizing the number of people living close by.

C. Streets: The Plan adopts a “Complete Streets” approach to street design to meet the need of all users, including bicyclists, public transportation riders, and pedestrians of all ages and abilities, as well as motorists. It includes street improvements such as pedestrian bulb-outs and continental (also known as “ladder” or “zebra-striped”) crosswalks and new street connections within the Sequoia Station Shopping Center and new, frequent intersections to improve the downtown’s interconnected, fine-grained street grid. The Plan sets new standards for sidewalk widths, street trees, way-finding signage and lighting scaled for people rather than cars, to increase pedestrian comfort and safety. Other improvements include marked bikeways and bike lanes, and other traffic calming measures.

D. Building Standards: The Plan encourages the tallest buildings to be placed in the downtown core, and adjacent to the station area while limiting heights around key public open spaces and historic structures to maintain the character of these streets. The Plan requires active building frontages lined with windows, awnings, signage, stoops, and other sources of visibility and activity to promote pedestrian safety and comfort.

E. Parking Standards: The City’s progressive parking policy adjusts downtown parking rates by monitoring supply and demand to provide “just enough” parking and creates a “park-once and walk” district to minimize cruising. The Plan establishes parking capacity requirements, authorizes in-lieu fees for new development, and sets reduced parking requirements for historic resources. It also regulates the types and design of parking facilities, including surface parking, parking structures, and underground parking. Parking garages or lots adjacent to sidewalks should be designed to conceal parking in the center of the block or underground.

4. OUTCOMES OF THE PROJECT

A. Public reception: The DTPP Planning process was launched in 1998 and was subject to many town hall and city council meetings and hearings as well as community outreach through mailings, signage, surveys, and public statements by the City government and in coordination with various community groups. The Plan appeared to be finalized in 2007, but due to litigation under the California Environmental Quality Act, actual adoption of the Plan did not occur until 2011. Subsequently, the Plan has been amended twice, most recently in 2017. While use of the public spaces within the Plan's boundaries appears to be quite positive, there are still a few landowners within the district who have not signaled their willingness to support the Plan's goals.

B. Housing: The City has approved construction of 480 units in the Greystar project between El Camino Real and the Caltrain tracks. An additional 487 units have been proposed, including 35 affordable units. Another 250 units (50 affordable for very low-income tenants with an annual household income of 50% or less of the area median income) adjacent to the tracks were approved along with an additional 463-unit project built in the northern part of the downtown. A 117-unit residential development for very low-income seniors has also been approved.

Recent City-conducted residential housing surveys show that downtown residential developments and offices have more walking, biking, and transit use and less drive-alone use. The data clearly shows that having higher densities, mixing land uses, and investing in multimodal facilities shortens trip length and encourages more non-auto travel options, which can reduce overall congestion levels and emissions.[54]

As of July 30, 2018, the Redwood City Planning Department reports that, within the Downtown Precise Plan (DTPP) boundaries, there are:

1. 37 (Greystar 5) pending Deed-Restricted Affordable Housing units.

2. 163 (Habitat, Bradford, Greystar 4) approved Deed-Restricted Affordable Housing units.

3. 0 approved Deed-Restricted Affordable Housing units under construction.

4. 263 (City Center, Franklin St. Apts, Lincoln Townhomes, Redwood City Commons and Villa Montgomery) Deed-Restricted Affordable Housing units built Deed-Restricted Affordable Housing units.

[54] RWCmoves: A comprehensive assessment of transportation within Redwood City, Draft Plan, October 2017.

There are currently about 200 units remaining in the affordable housing cap Plan for the DTPP (O'Dell D., Redwood City Principal Planner, 7/3018 e-mail).

C. Traffic and Parking Impacts: The City now has four downtown parking garages with a total of over 2,500 spaces, plus the 160-space Caltrain lot and several smaller surface lots. City reports show that these facilities successfully accommodate current demand for parking. Most offer free parking on evenings and weekends. The City has also installed multi-space "smart meters" for on-street parking, with convenient payment methods, such as credit card or with a remote phone feature. An available phone app provides live updates on available parking spaces. Additionally, a parking in-lieu fee to build future downtown parking garages and an agreement with the Box development property owners to use the garage after hours and on the weekends for events and the movie theater have been established.

The DTPP has been supplemented with several new planning initiatives that will further enhance the downtown area and facilitate additional housing construction while managing traffic and parking impacts. RWCmoves, the City's new transportation plan, provides a framework for a balanced multimodal transportation network addressing the City's transportation challenges and needs. It offers transit and street corridor improvements, grade separation of the Caltrain tracks, a long-term vision for the downtown transit center and train station, new street connections, complete street corridors, and bike/pedestrian improvements. It supports an updated multimodal Transportation Impact Fee (TIF) program to provide funding for planning and construction of high-priority transportation projects to alleviate traffic generated by new development.

The Downtown Transit Center redesign is intended to improve functionality, usability, and attractiveness of the station area while strengthening its connection to the downtown core and encouraging further residential and commercial development along the El Camino Real corridor. It will serve as a connection point for SamTrans buses and shuttles, high speed rail, on-demand transit, and provide a multi-purpose public space, including bike parking and access to multiple surface and underground parking lots. In the future, it may also provide connections to the Dumbarton Rail and Broadway Streetcar projects.

The El Camino Real corridor has not seen the level of successful development as the rest of the downtown but is a key area where housing can be located close to transit, jobs, and services. The City's new El Camino Real Corridor Plan supports active forms of transportation and seeks to make the corridor safer to move along and across. Its policies are designed to encourage community benefits, small businesses, and housing for a range of income levels near employment centers while reducing commute times and traffic congestion. The Plan allows for reduced parking requirements for commercial activities with monitored Transportation Demand Management (TDM) Plans, and its design elements will improve the appearance of buildings and storefronts, to enhance the walkability of the street and support economic development. The Plan incentivizes the provision of affordable housing through a tiered height bonus system which ensures that maximum heights will only be permitted by providing onsite affordable housing that exceeds City requirements. These strategies could be applied in other cities along the street as part of the Grand Boulevard Initiative.

5. METRICS USED TO MEASURE SUCCESS

Based on a travel model developed in cooperation with the Environmental Protection Agency (EPA) and the Institute of Transportation Engineers (ITE), Caltrain ridership in Redwood City has nearly doubled in the last five years. Bicycle travel in the City is also at an all-time high. The Plan is expected to result in 21% fewer daily vehicle trips in the downtown area than conventional development; 12% less AM peak hour trips; and 19% PM peak hour trips. In addition, increased transit use should eliminate an additional 6% of daily vehicle trips, 7% AM peak hour trips, and 6% PM peak hour trips.[55]

6. CHALLENGES / LESSONS LEARNED

The Plan took over 20 years to develop through a very thoughtful outreach effort. Despite these efforts, the Plan faced a major court fight that forced major revisions just before it was finally adopted in 2010. The Plan has since been amended twice. Major challenges included traffic congestion along key roadways into and through the downtown area, cut-through traffic on residential streets, and a lack of bicycle and automobile parking in the downtown. Major objectives of the Plan were to decrease speeds on major thoroughfares, shift travel behavior from drive-alone trips to walking, biking, using transit, and ridesharing.

Creating more open space for new residents in the fast-growing downtown area and encouraging retail activity remains a challenge. Despite the addition of new businesses and residents in downtown, there has been a decrease in retail activity. The City hopes that the completion of all the developments will bring new retail and restaurants to the area.

The dissolution of the City's state-sponsored redevelopment agency has limited the City's ability to develop affordable housing under the Plan. In light of that situation, the City has conducted a nexus study and adopted an inclusionary housing impact fee on all new commercial, office, and residential projects. The revenue goes towards the development of affordable housing units in the City. The success of the downtown Redwood City Precise Plan shows that urban areas can accommodate additional residential and retail, while careful planning can minimize traffic and parking impact. The Plan's design guidelines will facilitate adequate parking without detracting from the pedestrian character of the street. Since some drivers may be tempted to avoid slower arterial traffic by detouring through adjacent neighborhoods, the City is working to discourage cut-through with traffic calming strategies. Additional parking can be provided as needed and parking demand can be regulated through pricing and new technology. Pedestrian-friendly areas can be created through wider sidewalks, street trees, street lighting, enhancing crosswalks, median refuges, way-finding signage, improving first/last mile pedestrian facilities to provide better access to transit, managing traffic speeds, and implementing pedestrian safety improvements in key locations. Bicycle use is encouraged by establishing low-stress bike routes and creating a comprehensive bicycle network.

[55] Redwood City Downtown Precise Plan Draft EIR, August 27, 2010, p. 9–40.

7. ADDITIONAL RESOURCES

- Redwood City, California, Downtown Precise Plan (adopted January 24, 2011, last amended November 28, 2016).http://www.redwoodcity.org/home/showdocument?id=10001

- Draft Environmental Impact Report for The Redwood City Downtown Precise Plan, City of Redwood City (August 2010). http://webapps.redwoodcity.org/files/cd/precisePlans/Downtown_Precise_Plan_DraftEIR08.2010.pdf

- RWCmoves, Draft Plan (October 2017).http://rwcmoves.com/wp-content/uploads/2017/11/20171031_RWCmoves-Transportation-Plan.pdf

- Redwood City El Camino Real Corridor Plan (December 4,2017). https://www.redwoodcity.org/home/showdocument?id=14224

- Aknin, Aaron, Community Development Director, Redwood City, CA; O'Dell, Diana, Manager for Planning, Redwood City, CA (April 30, 2018), tour of Precise Plan area and discussion of Plan impacts.

- Dianna O'Dell, Planning Director, Redwood City CA (July 30, 2018) e-mail exchange.

XI. RICHMOND, CA: TRANSIT VILLAGE

1. OVERVIEW OF PROJECT

The Richmond Transit Village in Contra Costa County is a mixed-use, transit-oriented infill project spanning nearly 17 acres. The project is located at the City of Richmond's Bay Area Rapid Transit (BART) and Amtrak Stations to provide high density housing within walking distance of BART, bus service offered by Alameda County (AC) Transit, and Amtrak.

The Richmond Transit Village concept was initiated in the late 1990s by the Bay Area Rapid Transit (BART) around the Richmond Station. The intramodal station is the terminal, westernmost station in Contra Costa County. The Comprehensive Plan Goal was to work proactively with the City, local businesses and residents, the development community, transit agencies, and government partners to plan for the continued economic revitalization of the station and the station area, primarily along Macdonald Avenue. An originally small investment in the station has blossomed into a full revitalization of the City.

The transit village project was facilitated by an innovative approach taken by BART and the Richmond Redevelopment Agency to use the existing station property for new residential development instead of surface parking. BART approved a new five-level garage to cater to BART parking demands, as well as neighboring retail and civic uses.

The transit village contains 231 units of ownership housing; 27,250 square feet of retail space; a 3,700 square feet intermodal transit station which houses facilities for transit operators; a five-story, 800-space garage facility with 9,000 square feet of ground-floor retail; and multiple townhouses and live-work units. The project also provides 50% of the homes to moderate income buyers. A key part of Richmond's downtown revitalization plan is the transit village, which is near the City's downtown, including the Civic Center, farmers' market, and Kaiser Permanente hospital.

Phase I elevated the Nevin Avenue walkway, which provides primary access to the transit village station from the west and leads pedestrians to a plaza, immediately west of the BART station and the intermodal transit center. There is an existing sunken pedestrian walkway that will be brought to grade to provide a safer pedestrian entrance and auto drop-off. The redesigned transit plaza has many retail shops and restaurants to cater to commuters as well as residents. Other amenities include neighborhood parks and a performing arts center. This project has helped to revitalize the historic commercial core of Richmond and encouraged other mixed-use projects in the area. It is a good example of how a Transit Oriented Development (TOD) can reinvigorate older business areas with new housing, retail, and civic spaces. The transit village project is part of the larger vision for the City of Richmond 2030 General Plan.

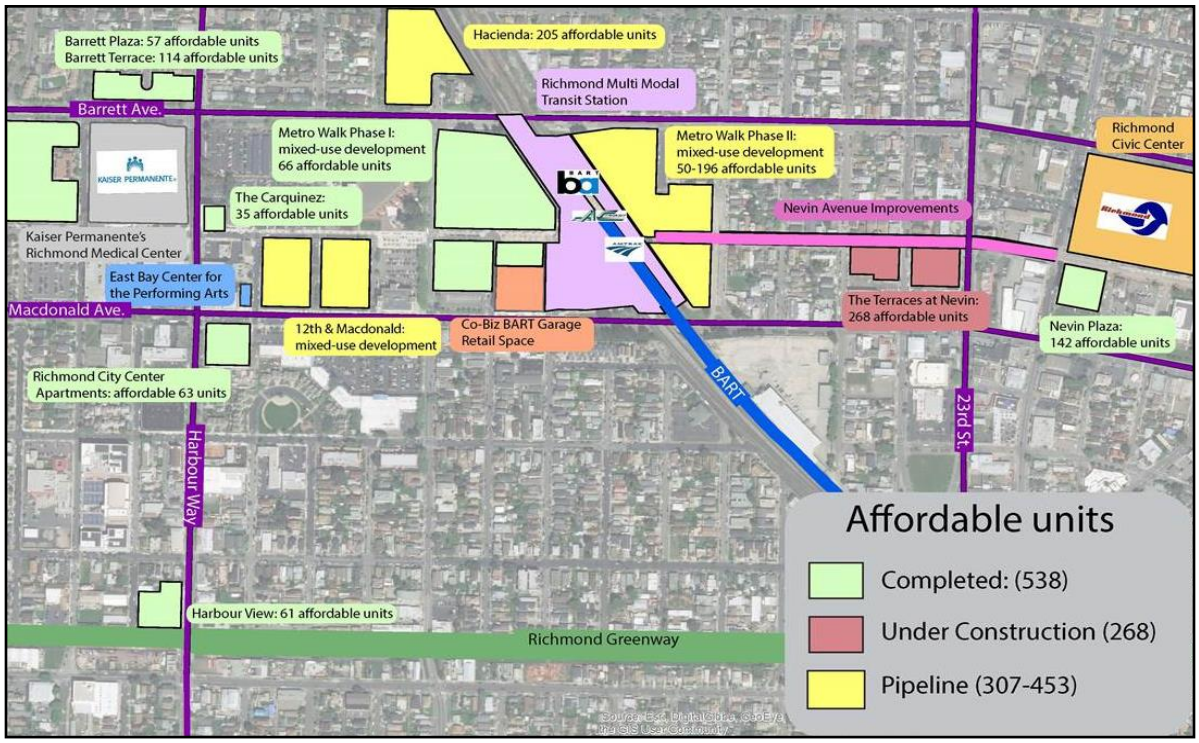


Figure 12. Downtown Richmond Residential Developments

Source: http://www.ci.richmond.ca.us/DocumentCenter/View/46077/Metro_Walk_Phase_II_Predevelopment_PP_fina

2. PLACE-TYPE

The Richmond Transit Village is designed as a mixed-use, transit oriented development within the transit station, which is the community hub. Consisting of nearly 17 acres, the transit village integrates housing with jobs, retail, and cultural activities and a multi-modal transit station that is the link for local and regional transportation options. The project consists of three phases, the first being called MetroWalk. All three phases of this project are intended to spark downtown redevelopment.

3. POLICIES AND ORDINANCES THAT CONTRIBUTED TO SUCCESS

The Richmond Transit Village concept was initiated in the late 1990s by the Bay Area Rapid Transit (BART) in accordance with the Richmond zoning and subdivision ordinances. The Zoning and Subdivision Regulations were adopted pursuant to the authority contained in Section 65850 of the California Government Code and The Subdivision Map Act (Title 7, Division 2, of the California Government Code, as amended).

These ordinances require that plans such at the Richmond Transit Village be referred by the City Council to the City Planning Commission, which is required to hold a public hearing before the planning agency can recommend that its legislative body adopt a specific plan (Government Code Section 65500). After approving the draft plan, the planning commission sends it to the City Council along with the Commission's reasons for its recommendation (Government Code Section 65502). The City Council then adopts the Plan either by ordinance or resolution (Government Code Section 65507).

4. OUTCOMES OF THE PROJECT

Public reception: Richmond Transit Village has successfully transformed underutilized land while promoting transit ridership and home ownership. According to Richmond Mayor Butt, "This project is an important link to a robust active transportation and public transit network."[56] The station also offers an Amtrak stop as well as access to key bicycle routes, multiple bus lines, and a new commuter ferry service to San Francisco.

Housing: The City successfully increased the overall production of affordable housing in Richmond. However, the City would like to see more affordable units incorporated into market-rate housing projects. To do so, it amended its Zoning Ordinance to incorporate changes in the State's housing density bonus law that provides incentives for projects receiving a density bonus by the City (Richmond Municipal Code 15.04.810.050). The Low Income Public Housing Program provided affordable housing to over 715 households. This program was successful in meeting the program objectives.[57]

Transit: Based on data from the 1998 BART Station Profile Study, BART riders who use the Richmond station have a very different profile from that of the entire system. They are female, persons of color, and have a lower household income, with 6.5% of Richmond riders being high disabled or youth due to discounted red BART tickets.

5. METRICS USED TO MEASURE SUCCESS

This development creates a vibrant mixed-use community with higher densities, provides affordable housing, and follows The BART Transit-Oriented Development (TOD) Guidelines and the Richmond General Plan 2030. The New Metro Walk Phase II (5.8 acres) is adjacent to the Richmond Multi-Modal Transit Station (BART, Amtrak & AC Transit). In April 2018, the City issued a request for a proposal to develop Phase II. The city wants to promote the active use of the area at all times of the day; integrate artistic and historic features; and highlight the history, diversity, and culture of Richmond while developing better connections to Macdonald Avenue and Nevin Avenue, the Richmond Multimodal Station, and its surrounding neighborhoods.[58]

6. CHALLENGES AND LESSONS LEARNED

On April 27, 2015, a local resident filed an appeal for a 289-unit affordable housing project just a few blocks from the BART Richmond Transit Village. The City Council rejected the appeal on June 16, 2015 and found that the negative declaration was properly noticed. Furthermore, City Council found that the project was in alignment with the general plan and would supply the City with much-needed affordable housing units.[59] At each phase, new guidelines, ordinances and laws have been created to address the challenges. Currently, most of the developers elect to pay in-lieu fees as an alternative to providing the affordable units required under the City's Inclusionary Housing Ordinance (also known as the "Fair

[56] http://www.tombutt.com/forum/2017/17-12-19.html
[57] http://www.ci.richmond.ca.us/DocumentCenter/View/31210/Richmond-Housing-Element_2015-2023_Adopted-May-19-2015
[58] http://www.ci.richmond.ca.us/DocumentCenter/View/45975/RFP_MetroWalk_II_final_interactive
[59] City of Richmond Resolution No. 75-15. http://www.ci.richmond.ca.us/Archive/ViewFile/Item/6660 Accessed June 25, 2018.

Chance Access to Affordable Housing Ordinance").[60] However, the City's Density Bonus Ordinance does not specify the amount of parking reductions.

As part of the Zoning Ordinance Update, adopted on November 15, 2016, the City evaluated potential incentives. The goal of these incentives was to ensure adequate provision of affordable housing as mandated in Association of Bay Area Governments (ABAG) 2014–2022 Regional Housing Needs Allocation. In their findings, ABAG found that most residents in Richmond are spending more than 30% of their income on rent, which is why the City adopted in-lieu fees and density bonuses into their updated zoning ordinance.[61] The city has "a total need of 2,435 units through the year 2022, out of which just over 29% is for low and moderate income households and another 18% is for very low and extremely low income households."[62]

Another challenge that the City is experiencing is attracting more mixed-use developments. Funding available for market rate financing is very limited, and the City and developers have not qualified for new markets tax credit for developments near the transit village.[63] The plan calls for mixed-use income developments for this major activity center and needs financial support to build it.

7. ADDITIONAL RESOURCES

- http://www.calthorpe.com/richmond-transit-village
- http://www.seifel.com/index.php/our-work/our-projects-list2/richmond-metro-walk-transit-village
- http://www.ci.richmond.ca.us/959/Transit-Village-Metro-Walk
- http://richmondstandard.com/2017/12/19/officials-cut-ribbon-on-richmond-transit-village-project/
- http://www.ci.richmond.ca.us/DocumentCenter/View/45975/RFP_Metro_Walk_II_final_interactive
- Michael Williams/Alan Wolken, Project Managers, Transit Village, Richmond Redevelopment Agency, Richmond City Hall, 510 307 8140

[60] City of Richmond Affordable Housing Ordinance passed October 4, 2016. https://www.ci.richmond.ca.us/ArchiveCenter/ViewFile/Item/7690 Accessed June 25, 2018.
[61] City of Richmond, Zoning and Regulations Codes. http://www.ci.richmond.ca.us/DocumentCenter/View/41218/City-Zoning-and-Subdivision-Regulations_for-Print_rev?bidId= Accessed June 25, 2018.
[62] Ibid., p. 285.
[63] Telephone interview with S. Curl. Community and Economic Developer. June 26, 2018. http://www.ci.richmond.ca.us/DocumentCenter/View/313/City-Center-Specific-Plan?bidId=#page=123&zoom=auto,-219,9

XII. SAN DIEGO, CA: VILLA ENCANTADA AND ENCANTO NEIGHBORHOODS TOD (TRANSIT-ORIENTED DEVELOPMENT)

1. OVERVIEW

The project is located on (1) a priority site in the San Diego Housing Commission Three-Year Work Plan and (2) a core "Village Area" and key corridor within the San Diego Encanto Neighborhoods Community Plan. A San Diego Metropolitan Transit System (MTS) trolley line bisects the neighborhood. Trolley service frequency and rider fares are comparable to BART in the San Francisco Bay Area. The environs have a population density that is 10% higher than the average for San Diego. The adopted environmental impact report (EIR) for the community plan covers two districts: The Encanto Community Plan and the Southeastern Community Plan. The project did not need additional environmental reviews, since it conformed to newly adopted zoning codes and community plans.

Located in the Encanto neighborhood, Villa Encantada is the redevelopment of an underused 163-space parking lot owned by MTS to a trolley station in Eastern San Diego. It is the first implementation of the Southeast San Diego Community Plan, which calls for mixed-use villages next to transit stations in the Encanto neighborhood. It is scheduled to be completed in the summer of 2018. The redevelopment site will include 67 family apartments, 100 MTS replacement parking spaces, and 1,000 square feet of retail. Figure 1 on the following page shows the project area.

Villa Encantada includes 105 residential, four commercial, and 100 public MTS parking spaces for a total of 209 parking spaces, in addition to 7 motorcycle spaces and 36 bicycle spaces. This array includes 95 below-grade residential parking spaces, as well as 14 at-grade podium parking spaces shared between the residential and commercial tenants. The need for parking replacement has been determined through an independent third-party traffic impact analysis and the application of the City of San Diego's Municipal Code parking requirements. The project developers requested to use the Transit Area Overlay Zone (TAOZ) Parking Rate, which would allow for a reduction of 0.25 parking spaces per residential unit and a reduction of 4.3 parking spaces per 1,000 square feet of commercial floor space.

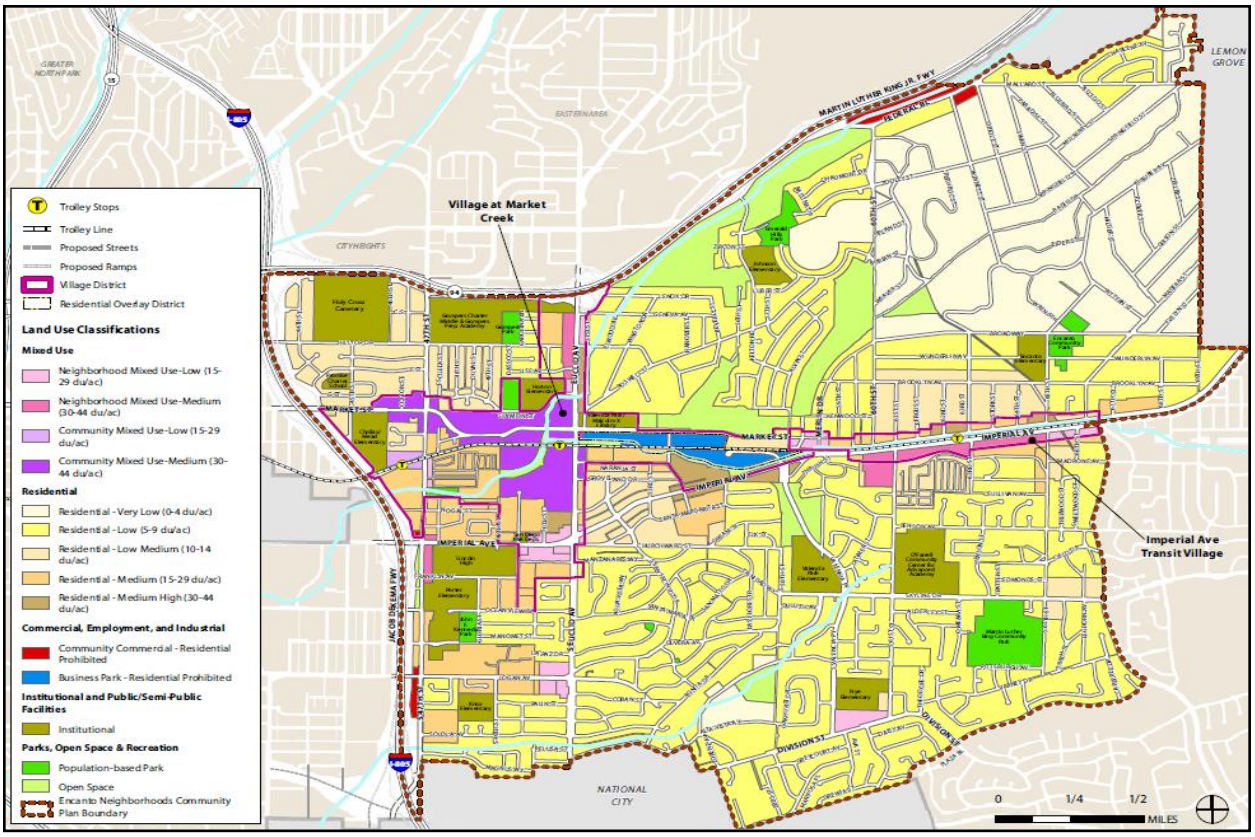


Figure 13. Encanto Community Plan

Source: https://www.sandiego.gov/sites/default/files/encanto_community_plan-revised_lu_maps-reduced_6-20-16.pdf

Characteristics of the environs are summarized here:

- A predominantly low to moderate income, ethnically, and racially diverse, medium density residential community.
- Villa Encantada is adjacent to an Orange Line Trolley Station and near the Encanto Recreation Center, the Malcolm X Library, the Jacobs Community Center, a market, and a pharmacy. Three trolley lines (Orange, Green and Blue) cross the area.
- Many of the residences in the Encanto neighborhood are older and well-established, and were typically built between 1940 and 1969, although some date from between 1970 and 1999. Housing types vary from smaller studio to two-bedroom units to larger three- and four-bedroom single family residences and small apartment buildings.
- The zoning for the area includes low and medium density residential, neighborhood commercial, community commercial, and community village.
- The area demographics, housing types, and housing densities are like some neighborhoods in proximity to northern San Mateo Caltrain and BART stations.

2. POLICIES AND ORDINANCES CONTRIBUTING TO SUCCESS

The City of San Diego has reduced parking requirements by 25% per dwelling unit for transit station areas (or very low-income housing areas) within multi-family residential developments, and by as much as 70% per 1000 square foot feet for commercial, office, and mixed land uses. Other policy reforms include:

1. Allowing tandem parking (two vehicles parked in one long space) and shared parking (an agreement between or among property owners to share the same parking lot or structure).

2. Provision for a payment in-lieu of providing on-site parking.

3. Provision for electric vehicle, bicycle, and motorcycle parking, as well as alternative transportation choices such as car and bike sharing and transit passes.

The Community Plan Implementation Overlay Zone (CPIOZ) supports transportation improvements in a “transit priority area” (TPA). In the Encanto Neighborhoods, this plan will foster the integration of transit within mixed-use residential and commercial areas, thereby reducing parking demand. The details of some of the relevant reforms being implemented in the City of San Diego for TPAs are as follows:

- Lower Parking Requirements: Residential developments in Transit Priority Areas (TPAs) have parking requirements reduced by 25% (.75 parking spaces per bedroom).

- Tandem Parking: Residential developments in TPAs can count each tandem space as two parking spaces.

- Shared Parking: The maximum distance between two developments sharing parking spaces was increased from 1,200 ft (City rule) to 2,400 ft for TPAs.

- Parking Substitution: Allows developments within TPAs to satisfy some of their parking requirements with less costly substitutes that promote non-car transportation. The recommended substitutes are:

    - Bicycle storage for three bicycles per one parking space.

    - Motorcycle parking for two motorcycles per one parking space.

    - Car-share parking for one car-share vehicle per three parking spaces.

    - Electric Vehicle (EV) parking equipped for EV charging for two parking spaces.

    - Bike sharing stations providing 15 docks and eight shared bicycles for three parking spaces.

- Transit Passes: A guarantee for 10 years of transit passes for two residents or employee for one parking space.

- In-Lieu Fee: Allows an in-lieu fee in exchange for building one parking space. The city or a parking district can use the funds to build off-site parking or infrastructure to reduce nearby parking demand.

The City of San Diego's Affordable Housing Parking Study (findings shown below in Figures 2 and 3) have helped determine the number of parking spaces for the Villa Encantada project.

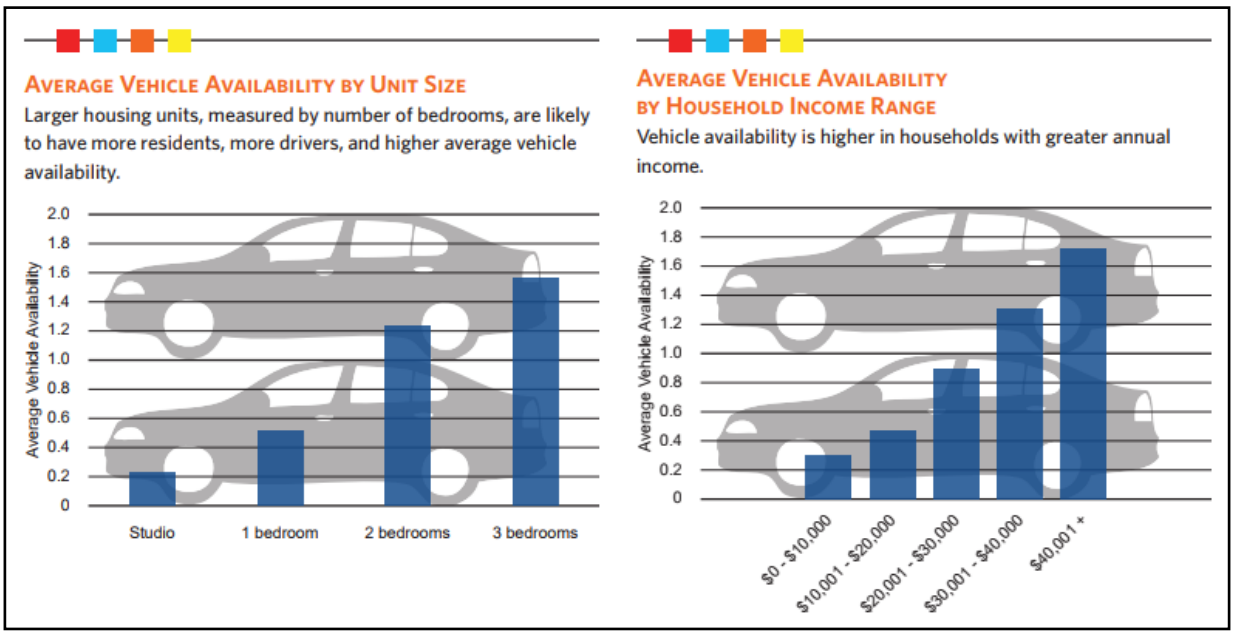


Figure 14. Average Vehicle Availability by Unit Size and Household Income Range, Respectively

Source: https://www.sandiego.gov/planning/programs/transportation/mobility/affordpark

3. OUTCOMES OF THE PROJECT

The Encanto Neighborhoods TOD projects are relatively new, with construction work recently completed or still ongoing. Therefore, information on the impacts of the projects is not yet available.

4. INDICATORS OF SUCCESS

The economic impacts of TOD in a mixed land use context include effects on property tax revenues, local sales tax revenues, net job creation, and property values. Since the Encanto Neighborhood TOD project is still under development, there does not yet exist a comprehensive cost/benefit analysis of development impacts.

5. CHALLENGES AND LESSONS LEARNED

The Encanto Community Plan includes rezoned land uses designated for affordable housing with reduced parking requirements for the new TOD projects. The City was not able to reduce the parking requirements to zero since many residents have expressed the need to use automobiles for some trips, such as driving their kids to school. Residents in the community expressed concerned about the changes to the community character in their neighborhoods. Because of this concern, the City of San Diego did not adopt a mixed-use mandate for new projects in the Encanto Community Plan.

City of San Diego Planner Karen Bucey observed that the Villa Encantada development land is still owned by the San Diego Metropolitan Transit System (MTS) and the project was approved prior to the Encanto Community Plan approval. Therefore, the parking requirements adopted in the Mobility Transit Overlay were not reflected in this project. The park-and-ride lot was converted for the development of affordable housing units that will have subterranean parking for residents and street level parking for future park-and-ride users. This specific site will include the 95 parking spaces that were at the parking lot with the MTS agreement.

The City of San Diego planning staff have made the following observations regarding the challenges of the planning and development process:

- The community has voiced concerns that reduced parking requirements in the neighborhood might cause parking spillover onto their residential streets.

- Some residents thought that an increase in mixed-use development would draw more cars to their neighborhood streets.

- Reducing street level parking lots from 6.3 acres to 0.3 acres was a challenge because developers often resist having to build parking garages that increase development costs.

- The Encanto Village development, a new project under construction, has adopted the new mobility plan transit overlay into the parking requirements and has 0.5 parking stalls per residential unit, an important achievement for the City made possible through extensive community outreach and engagement.

- Community input made the development project planning a success.

- Careful land use, housing, and parking, as well as transportation analysis and planning, are essential to reducing parking requirements and providing transportation options that support affordable housing.

- The work that was done will have significant long-term benefits in relation to implementing the City of San Diego General Plan.

Community resident and chairman of the Encanto Community Group Ken Malbrough has observed that the parking requirements adopted were well-received in the community, partly because transit ridership is high and service is good on the trolley line that runs through their neighborhoods. Malbrough also affirmed the importance of community involvement in the planning process to guide growth and enhance quality of life in a manner that reflects the community's vision.

6. ADDITIONAL RESOURCES

- Encanto Neighborhoods Community Plan.
- Circulatesd.org (2017). PlanDiego Report: Transit Oriented Development.
- SDHC (2011). Three-Year Work Plan to Facilitate Transit-Oriented Affordable Housing Development.
- San Diego Affordable Housing Parking Study.

XIII. SAN FRANCISCO, CA: TRANSPORTATION DEMAND MANAGEMENT (TDM) PROGRAM

1. OVERVIEW OF PROJECT

The San Francisco Transportation Demand Management (TDM) Program's primary purpose is to reduce vehicle miles traveled (VMT) generated by new development projects in the City and County of San Francisco. The Program is designed in conjunction with developers to enable the provision of viable transportation alternatives to private motor vehicle travel. These options reduce greenhouse gas emissions, help lessen the number of motor vehicle trips that new development projects generate, create a safer environment for walking and bicycling, and improve the overall efficiency of the San Francisco transportation network.

The Program's intent is to shift travel to and from new developments by residents, employees, and customers to transportation alternatives by providing a series of development-focused TDM measures such as:

- "Unbundling" parking from lease costs.
- Providing bicycle parking and amenities.
- Subsidized transit passes.
- Carshare and vanpool programs.

The purpose of applying TDM to new development is to maintain mobility and community livability in San Francisco as the city grows. The TDM Program helps to manage demand on the transportation network by making sure that new developments are designed to make it easier for new residents, tenants, employees, and visitors to get around by sustainable travel modes such as public transit, walking, and bicycling. Each element included in the program is intended to reduce VMT resulting from new development, measured using a clear, focused metric (e.g., VMT per capita or per employee).

The San Francisco TDM initiative requires each development project that is subject to the TDM Standards Program in the City and County of San Francisco to meet targets with no exceptions. The targets vary according to both the land use(s) associated with the development project and the number of parking spaces proposed for the project.

The San Francisco Planning Code contains definitions for over 100 different land uses. To simplify the applicability of the TDM Program, the TDM Program Standards classify land use code definitions into four land use categories—retail, office, residential, and other—based on reducing VMT from the primary motor vehicle trip generator associated with that land use. The TDM Program Standards rank the four land use categories from highest to lowest, according to the estimated number of motor vehicle trips per parking space provided for that primary user: visitors and customers, employees, or residents. The online TDM Tool shows the TDM Program elements. These include parking demand management,

active transportation facilities and support (bicycling and walking), high occupancy vehicle use incentives (public transit, vanpools), car share, and other measures to reduce private motor vehicle trips.

San Francisco's TDM Program is regulatory but flexible in nature. The City and County of San Francisco has mandated standards that eligible buildings must meet, but project sponsors or property owners may choose how they meet these requirements. Building owners can design an individual plan based on circumstances and preferences. These circumstances and preferences may include proximity of bus or passenger rail stops and bicycle lanes, availability of car sharing services, interest in providing free or low-cost public transit passes, and other pertinent factors.

The TDM Program applies to new residential developments with at least 10 dwelling units or bedrooms and new commercial developments that span 10,000 square feet or more. In addition, owners who change the use of their buildings—for example, from a warehouse to an office building—must follow the TDM program if they occupy at least 25,000 square feet.

Typical types of development project land uses include:

- Land use category A: formula retail, museums, entertainment venues, and grocery stores.
- Land use category B: office, child care facility, school.
- Land use category C: residential.
- Land use category D: Internet service exchange, manufacturing, and production, distribution, and repair.

A complete list of land uses classified from the Planning Code into land use categories is included as Section 2.2(a)(1) of the TDM Program Standards.

A rationale for the land use categories used is described in Chapter 3 of the TDM Technical Justification document. The TDM Program Standards set a base target that all development projects are required to meet. The Standards allow for the base target to change as TDM measures are added to or removed from the menu of options or as points associated with existing TDM measures are refined. As stated in Planning Code Section 169 and defined further in the Glossary of Terms, each TDM measure on the menu shall be designed to reduce VMT by residents, tenants, employees, and visitors and must be under the control of the property owner.

Phase	Action (Responsible Party)	Description
TDM Plan Development Project	Determine Applicability (property owner)	Property owner determines if the TDM Program is applicable to the Development Project.
	Fill out Application (property owner)	If subject to TDM Program, property owner understands TDM requirements and gathers information necessary for TDM Review Application.
	File Application (property owner)	Property owner submits a TDM Plan Review Application for City review, along with an administrative fee.
TDM Plan Review	TDM Plan Reviewed (Planning Department staff / property owner)	Planning Department staff reviews the TDM Plan and compares it to the TDM Program Standards.
Project Entitlement	TDM Plan: Condition of Approval (Planning Department staff / Planning Commission)	If the Development Project is approved, the requirements for a TDM Plan are included as a Condition of Approval.
TDM Plan Reporting & Monitoring	Pre-Occupancy Site Visit (Planning Department staff / property owner)	Prior to the issuance of a First Certificate of Occupancy, the Planning Department will conduct a site visit with the property owner to verify that all physical measures (bicycle Parking, signage, etc.) have been included as planned.
	Ongoing Monitoring and Reporting Statement (Planning Department staff / property owner)	Once the building is occupied, the property owner is required to submit an Ongoing Monitoring and Reporting Statement with an administrative fee. Planning Department staff will review the statement to ensure compliance with the TDM Plan; enforcement steps will be taken, if needed, to attain compliance status.
	TDM Plan Update (Planning Department staff / property owner)	At any time after the Development Project's entitlement, the property owner may voluntarily initiate review of the TDM Plan by filing a TDM Plan Update Application, along with an administrative fee.

The deed for the subject property is tied to the TDM plan in perpetuity once notice of restriction to permit approval is given and a building occupancy permit is granted. Physical evidence of implementation (e.g. bike parking spaces, proof of transit passes, car share program, etc.) is reviewed every year for the first 5 years. If all measures are in compliance, then review takes place thereafter every three years.

2. POLICIES AND ORDINANCES CONTRIBUTING TO PROJECT SUCCESS

Under Planning Code Section 169.6, the San Francisco Planning Commission adopted Standards for the Transportation Demand Management Program (TDM Program Standards). The TDM Program Standards are the culmination of years of work and research summarized in the TDM Technical Justification document.

In 1973, San Francisco passed a "Transit First" policy, and the City has continued to prioritize public transportation, walking, and bicycling when determining how best to use limited street space and other public resources. Voters have repeatedly supported an integrated approach to transportation that emphasizes sustainable travel modes such as public transit and travel on foot and by bicycle. In 1989, San Francisco voters approved a half-cent sales tax and the creation of the San Francisco County Transportation Authority, which administers revenues. This half-cent sales tax, which effectively provides a dedicated source of funding for sustainable transportation programs and projects, was reauthorized

by voters in 2003. In 2014, San Francisco voters passed two funding measures to improve public transit and create safer streets in neighborhoods citywide. San Francisco voters have consistently reaffirmed the City's transportation planning direction and supported environmentally-friendly transportation options.

Consistent with the City and County Interagency TDM Strategy, the TDM Plan's effectiveness will be evaluated by tracking changes in solo driving, measured by single occupancy vehicle (SOV) trips. Other indicators of the strategy's success will include changes in transportation behavior and transportation impacts indicated by other key metrics such as VMT and greenhouse gas emissions. The Resolution in Support of the Transportation Demand Management Resolution provides a clear policy rationale and guidance for implementation.

3. OUTCOMES OF THE PROJECT

In the strong economy of 2017 and 2018, developers have actively participated in the TDM Program since they have economic incentive to gain timely approval for their projects. City staff report that developers value the flexibility provided in the TDM Program to meet mandated targets in the most feasible way given the specific circumstances of their projects.

4. METRICS USED TO MEASURE SUCCESS

San Francisco will closely monitor the program, gathering data to learn as much as possible about its impacts and effects. As more and more projects come online, the City will gather data and analysis to identify what is most effective and why, determine measures that can be improved, and gather data concerning best practices that can be shared. City staff note that direct measurements like the number of bicycle trips caused by specific building plans are often difficult to quantify. Monitoring will depend largely on intercept surveys, whereby researchers stop people as they are coming in and out of specific buildings. Other potential methods being discussed include special surveys and journals in which participants record their daily travel. Metrics that will be reported by these measures include reduced motor vehicle trips due to TDM measures, as well as the travel mode share (e.g. drive-alone, transit, bicycle, walking) of the project after full TDM program implementation.

5. CHALLENGES AND LESSONS LEARNED

Monitoring and measuring are crucial not only for improving the TDM program in San Francisco, but also for demonstrating its viability elsewhere. San Francisco's approach to TDM differs from other cities' approaches, as San Francisco uses mandatory TDM targets with a menu of TDM measures provided to help developers achieve these targets. San Francisco has worked with developers in creating a TDM program that is flexibly tailored to each project and sets out attainable targets. San Francisco has used extensive developer outreach measures in crafting the program, and City staff believe that these efforts have contributed to the program's acceptance by the private sector.

City staff have furthermore received many inquiries from other municipalities and jurisdictions interested in the program. The TDM program could set a new standard nationally for development regulation that support public transit, biking, and walkability, thus creating less congested, healthier, and safer cities.

6. ADDITIONAL RESOURCES

- http://sf-planning.org/transportation-demand-management-program
- http://default.sfplanning.org/transportation/tdm/TDM_Program_Standards_02-17-2017.pdf
- https://sfenvironment.org/policy/resolution-in-support-of-the-transportation-demand-management-ordinance
- https://mobilitylab.org/2018/04/03/san-francisco-uses-parking-spaces-gamify-mobility/
- http://sf-planning.org/tdm-faqs
- http://sftdmtool.org/
- Charles R. Rvasplata, PhD, Sustainable Streets Planning Group, San Francisco Municipal Transportation Agency (SFMTA)
- Audrey Harris, Senior Planner, Transportation Demand Management (TDM) Performance Manager at City and County of San Francisco

XIV. SOUTH SAN FRANCISCO STATION AREA SPECIFIC PLAN: REVITALIZING AGING DOWNTOWNS, PROTECTING NEIGHBORHOODS, AND CONNECTING COMMUNITIES

1. OVERVIEW

South San Francisco's award-winning Station Area Specific Plan was adopted in February 2015 to expand the City's currently obscured and inaccessible Caltrain station and better connect the adjoining walkable downtown area to the west with the emerging biotech areas east of I-101. The Plan represents an innovative approach for transforming underutilized transit facilities into lively, vibrant hubs for visitors and residents by enhancing access for pedestrians, bicyclists, commuter shuttles, and public transit that will support new housing and commercial uses, allowing local businesses to better attract and retain workers. The Plan doubles the number of homes in the downtown area by about 1,400 units and increases commercial square footage for new office and research and development uses by about 1.2 million square feet. It also addresses traffic and parking issues. This Plan could serve as a model for revitalizing urban areas around other Caltrain stations and transit nodes in San Mateo County.

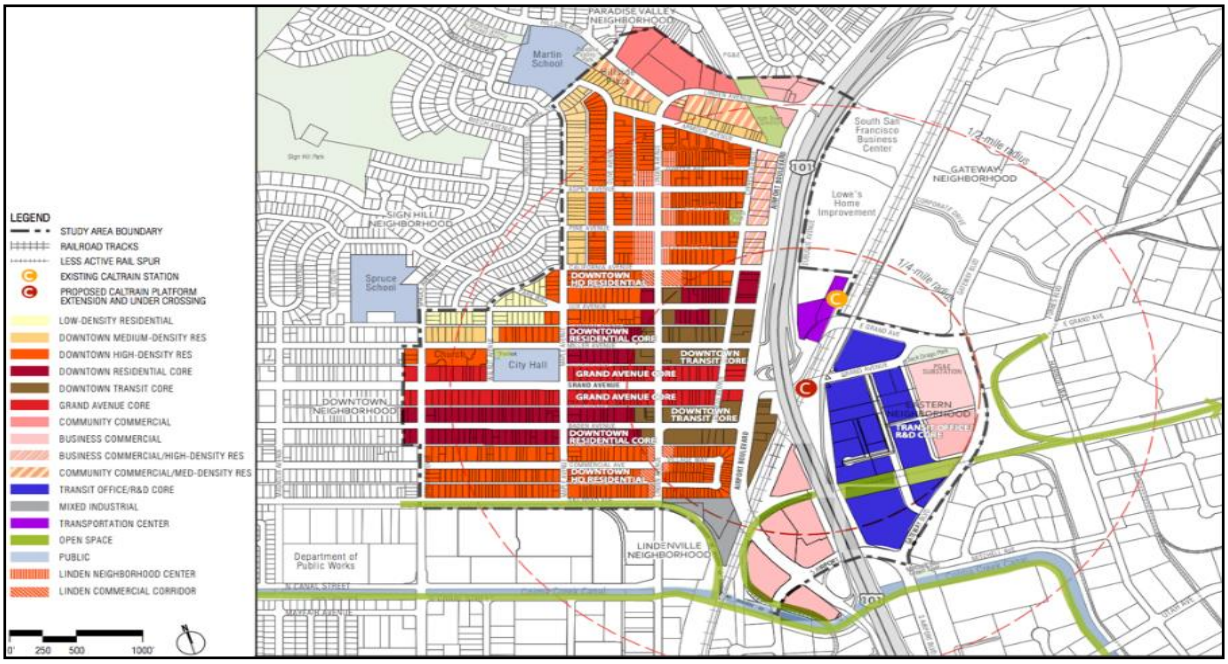


Figure 15. Land Use Plan

Source: http://www.ssf.net/home/showdocument?id=1312

2. PLACE-TYPE

- **Demographics:** The Plan area is predominantly Hispanic (68%), compared with 34% in the City. The vast majority of residents (79%) are renters compared to the rest of the City (40%). Incomes are generally lower than the City or the County. It has a population of approximately 11,000 with a higher anticipated rate of growth than both the City and County over the next 30 years. Another 18,000 new jobs are expected in the emerging bio-tech cluster on the east side of Highway 101.

- **Transit:** The Caltrain Station is a limited and local station stop with bus and shuttle connections serving commuters from South San Francisco and the Oyster Point Ferry Terminal. Grand Avenue, the City's major east-west connector, is heavily travelled and on-street parking is at capacity while adjacent streets and off-street parking are underutilized.

- **Land Uses:** The downtown area contains some higher density housing and is surrounded by residential areas with single-family homes and multi-family units. The study area also includes commercial office park and light industrial uses as well as many vacant parcels and surface parking lots.

3. POLICIES AND ORDINANCES THAT CONTRIBUTED TO PROJECT SUCCESS

A. Parking: The Plan recommends and encourages several parking practices:

- Shared parking.

- Implementation of "in-lieu" parking fees that allow developers to pay money into a city fund instead of providing additional parking on site.

- Parking maximums for projects to prevent over-building on-site parking where there is an adequate supply of off-site parking.

- Parking minimums that allow for flexibility for developers who wish to focus on urban, transit-oriented development and support off-site parking.

- Parking policies allowing residential and some commercial developers to "unbundle" the cost of parking from unit or tenant costs (see the GreenTRIP case study for more detail on unbundling parking costs).

- Car sharing and ride sharing programs.

B. Land Uses and Street Design: Improvements to the downtown area include conversion of existing angled parking to parallel parking in order to allow the widening of sidewalks, bike lanes, etc. Allowable building heights in both the downtown area and eastern neighborhood are greatest near the Caltrain station, while heights are reduced in the historic downtown area and near existing single family and multi-family neighborhoods.

C. Pedestrian and Bicycle: Secure long-term bicycle parking facilities are recommended based on the number of bedrooms, number of employees, or total square feet of development. Short-term bicycle parking spaces are recommended for civic, educational, and commercial land uses, with requirements based on total square feet or expected number of visitors.

D. Affordable Housing and Anti-Displacement: The Plan recognizes the lack of workforce housing affordable to lower-income households and the possibility that new development could displace existing residents by driving up rents. It includes programs to mitigate the risk of displacement and preserve existing affordable units, support the production of, and generate funding for, affordable housing.

E. Community Outreach: Early and sustained public participation through town hall meetings, collaborative workshops, small group interviews, and advisory committees that generated an understanding of community concerns and goals also contributed to project success. The City worked closely with the San Mateo County Union Community Alliance (SMCUCA), a local nonprofit, and TransForm, a transportation equity non-profit organization, with support from the Great Communities Collaborative. A Citizens' Advisory Committee comprised business owners, residents, and non-profits in the area met frequently during the planning process and provided important insights into issues facing businesses and residents. Community stakeholders, furthermore, including business owners and local downtown vendors, along with local and regional groups representing environmental, social, employment, and business interests, provided input, particularly community concerns regarding potential housing displacement, rising rents, and traffic congestion.

4. OUTCOMES OF THE PROJECT

The City received full funding to undertake station renovation work. When completed in 2019, it will provide a new entryway to the downtown area. The City has also been awarded a parking technical assistance grant through the City/County Association of Governments of San Mateo County to encourage even more ridership at the Caltrain station. The City, moreover, has completed a downtown parking study.

A. Public Reaction: According to City officials, reaction to the Plan has been positive, though some residents remain concerned about gentrification.[64] SMCUCA and TransForm state that the Plan reflects strong wins on three of the four goals in their South City Community Benefits Coalition platform by:

1. Providing for greenways, public plazas, and parks.

2. Including great parking policies to reduce vehicle trips, and excellent bike and pedestrian improvements with an emphasis to connect travelers from eastside employment centers and Grand Avenue to the Caltrain station.

[64] Telephone interview with T. Rossi, City of South San Francisco, Urban & Community Development Department, April 18, 2018.

3. Strong language encouraging all developers to utilize local workers, apprentices from state certified apprenticeship programs, and to pay area standard wages.

4. Doubling the number of houses in the downtown area.

The coalition did, however, urge the City to do more to address its concerns regarding displacement from gentrification.[65] The City recognizes the issue and has pledged to work with the community. The final Plan contains several policies and programs (p. 7-4) to preserve existing affordable units and support the production of new affordable units.

B. Traffic and Parking Impacts: Planned development will generate additional automobile traffic and some necessary traffic mitigation measures could adversely affect pedestrians by increasing intersection crossing distances. Precise impacts will depend on the actual projects that are approved. There is currently high demand for on-street spaces in the downtown area during peak periods. Permit-only and off-street metered spaces also exceed practical capacity at times, while peripheral spaces are underutilized. Overall the system is financially healthy but the City recognizes that continued success will be challenged by development and growth over time.

The Plan's implementation measures, including innovative parking strategies, unbundled parking, and car and bike-sharing programs should reduce traffic and parking demand. Additionally, the Downtown Parking District has the authority to use parking meter revenue for improvements in the district. The City is in the process of installing new parking meters that accept credit cards and will allow for better monitoring of parking usage. It is also installing real time way-finding signage to direct drivers to available garage parking spaces, and is encouraging people to take public transit transportation and other alternative means of travel to downtown. The City also undertook a more in-depth analysis of public parking facilities with the dual aims of right-sizing the amount and price of these resources and promoting alternative mode use.[66]

5. INDICATORS OF PROJECT SUCCESS

A. Provision of Housing. To date, entitlements for about 800–900 housing units in the downtown area have been approved, mostly on vacant land, including 200 market rate units, 80 for very low-income (30-50% area median income) seniors (built with reduced parking), plus two projects for 206 affordable (below market rate) units. Another 97-unit for sale project was approved with 20% of the units set aside for low income home buyers.

B. Promotion of Livable and Walkable Areas. The Plan's innovative parking, transportation, housing, and land use policies are set to reduce the costs of housing, promote more livable and walkable areas, and protect existing residential neighborhoods. Studies have shown that residents living in dense mixed-use developments use transit more and have lower transportation costs, which can make housing costs more affordable.

[65] San Mateo Union Community Alliance, blog-latest news, http://smcuca.org/httpsmcuca-orgp87/.
[66] Telephone interview with J. Lovell, City of South San Francisco Department of Public Works, May 3, 2018.

C. Positive Environmental and Traffic Impacts. The Plan will add an additional 1,240 new transit trips daily and increase pedestrian and bicycle activity, but additional traffic congestion at certain intersections could require mitigation. The Plan's traffic impact analysis was conducted using the LOS (level of service) methodology, which focuses on automobile traffic, though it did consider the effect of the transit investments and bike/ pedestrian features in the Plan on reducing automobile trips. In the future, greater use of VMT (vehicle miles traveled) methods to address development impacts (as required by state law) may reduce the need for auto-oriented mitigation measures and instead encourage more pedestrian, bicycle, and transit-friendly developments that will provide support for additional housing where it is needed.

D. Enhanced Mobility. Measures to improve bicycle and pedestrian access are proposed throughout the area, including a new Grand Avenue Extension that would link to the Caltrain station, building on the City's Bicycle Master Plan. The downtown Plan also includes policies to work with employers to develop shuttle connections and expand transit in the study area as well as smart parking strategies such as those mentioned above to encourage reductions in VMT. These should also make residential development more attractive while minimizing the impacts of any new housing constructed.

6. CHALLENGES / LESSONS LEARNED

A specific plan is a planning tool that can be used to direct and shape development in an area by addressing local housing, land use, and transportation in a coordinated manner with community input. It can also streamline development approval for new housing and commercial uses. In developing the Downtown Station Area Plan, City officials found that the key to winning public support was the extensive community outreach conducted to educate the public about the need for additional housing for both the growing number of workers and millennials who prefer urban residences, particularly along transit corridors. It was also important to get the public's input by asking questions such as: "What is important to you?" and "What element do you want to see in the plan?"[67] The public expressed concerns over three main topics: historic preservation; traffic; and displacement.

To address historic preservation, the Plan emphasizes retaining the unique historic character of Grand Avenue and that new development in this area should respect this character by limiting building heights along the street front. Additional tools to protect and enhance historic resources include development design guidelines to create a cohesive community between the downtown and East Side areas with emphasis on the transit station, and sidewalk and streetscape improvements to encourage pedestrian activity. These tools could be used in other communities to protect existing historic areas and enhance local building character.

To demonstrate its commitment to addressing parking and traffic issues, the City received funding from C/CAG to prepare a Downtown Parking Management Plan, which contains data on peak parking occupancy rates, reviews existing parking operations and policies, and recommends providing additional spaces in the downtown area to accommodate existing and anticipated development. This in-depth analysis of public parking facilities has utilized a customized version of the Urban Land Institute's (ULI's) shared parking

[67] Telephone Interview with City of South San Francisco Councilmember R. Garbarino, April 23, 2018.

model for both short-term and long-term users. It addressed parking management issues including adjusting parking rates, setting rates for in-lieu payments by developers, establishing permit systems, and using advanced technology to monitor parking demand. Recommended measures include:

1. Increased on-street parking fees.

2. A daily parking charge for employees.

3. A parking "cash-out" incentive for employees who use alternative transportation to commute.

4. Subsidized or free transit passes to employees.

5. Encouragement for alternative compressed work schedules and telecommuting.

6. Additionally, a ridesharing program.[68]

Because the Plan focuses new development on existing vacant and underutilized commercial parcels and other opportunity sites in the study area, it minimizes the likelihood of displacement. Nevertheless, the Plan also includes programs to mitigate the risk of displacement and preserve existing affordable units, support the production of, and generate funding for, affordable housing. Specific tools include density bonuses for affordable and senior housing. Developers applying for maximum densities must provide community benefits like a community room, recreational amenities, open space, or affordable housing.[69]

By incorporating a "complete streets" approach that prioritizes creation of a truly multimodal transportation system meeting the needs of all users with various abilities and resources, driving is not a necessity but an option, and the mobility and parking needs of existing and future residents and employees can be accommodated. A key element of the Plan is to create a mix of uses with sufficient residential and employment density to support transit use and a range of housing options.

With careful planning and design, cities in San Mateo County with major transit facilities can make surrounding parcels more attractive for housing development, and pedestrian and bicycle-friendly amenities can increase transit use and minimize traffic impacts. Rather than transit simply being a barrier, transit stations can become hubs of development linking previously disconnected communities, as in this case Downtown South San Francisco and the adjacent biotech employment areas. Additionally, transit stations can provide opportunities for revitalizing commercial areas through combining diverse new housing choices with more transit options and relieving development pressure on existing residential areas to preserve their scale and character.

[68] South San Francisco Downtown Parking Study, Draft Report, November 2016.
[69] Telephone Interview with City of South San Francisco Councilmember R, Garbarino, April 23, 2018.

7. ADDITIONAL RESOURCES

- South San Francisco Downtown Station Area Specific Plan (February 2015): http://www.ssf.net/home/showdocument?id=1312

- South San Francisco Downtown Station Area Specific Plan Environmental Impact Report SCH No. 2013102001 Volume I: Draft EIR (October 2014): http://weblink.ssf.net/weblink/DocView.aspx?dbid=0&id=198023&page=1&cr=1

- South San Francisco Downtown Station Area Specific Plan Environmental Impact Report SCH No. 2013102001 Volume II: Final EIR (December 2014): http://www.ssf.net/home/showdocument?id=6706

XV. TRANSFORM'S GREENTRIP PROGRAM: A GUIDE TO LOWER IMPACT, MORE AFFORDABLE HOUSING

1. OVERVIEW

GreenTRIP Certification is a program launched in 2008 by the Bay Area non-profit organization, TransForm. There are several innovative strategies used in the development of the GreenTRIP model for the evaluation and certification of housing development projects, as well as the quantification of their projected impact on the transportation infrastructure and environment.

Ann Cheng, one of TransForm's GreenTRIP designers, noted in 2018 that they have "always seen transportation and housing as two sides of the same coin." The link between land use in housing development and transportation demand has long been acknowledged, but accurately modeling transportation demand management has been difficult. TransForm's GreenTRIP is a powerful model that helps fill this gap and has been successfully deployed over the internet as GreenTRIP Connect, a calculator with the capability to quickly assess the mobility impacts of development projects. GreenTRIP Connect has been released online with data available for California. The underlying data includes parcel-level demographic and employment data, as well as information on transportation alternatives that enables a quick impact estimate of development parameters, such as number of units, parking ratio, and proximity to transit.

The evaluation tool inputs include the number of housing units, parking spaces, and innovative measures such as parking types, including unbundled parking, which separates the cost of the housing unit from the cost of the parking space(s) chosen, zero parking, as well as bike and car-sharing options that will reduce automobile dependency. All these factors typically mitigate increases in vehicle miles travelled (VMT). Planners and developers using GreenTRIP Connect can quickly assess various development project characteristics and mitigation strategies. The accompanying certification process, which has been used for GreenTRIP certification of more than 25 housing development projects in the Bay Area is beneficial to inclusive, affordable housing by standardizing a procedure that is multi-modal, comprehensive, and VMT based, and better informing the development entitlement process. GreenTRIP is applicable to multi-family residential and mixed-use projects across the Bay Area, especially project sites within walking distance of public transit. The GreenTRIP analysis can be used for individual projects, as well as in planning area studies such as specific plans for a defined district. GreenTRIP is well suited to San Mateo County with its rich array of Caltrain and BART rail stations and SamTrans bus services and walkable communities.

Model output metrics are vehicle miles of travel (VMT) per day, greenhouse gas (GHG) emissions, parking spaces needed, project parking costs avoided, and annual savings per resident with implementation of GreenTRIP strategies. Below is an example of a GreenTRIP project evaluation for the City of Mountain View, California.

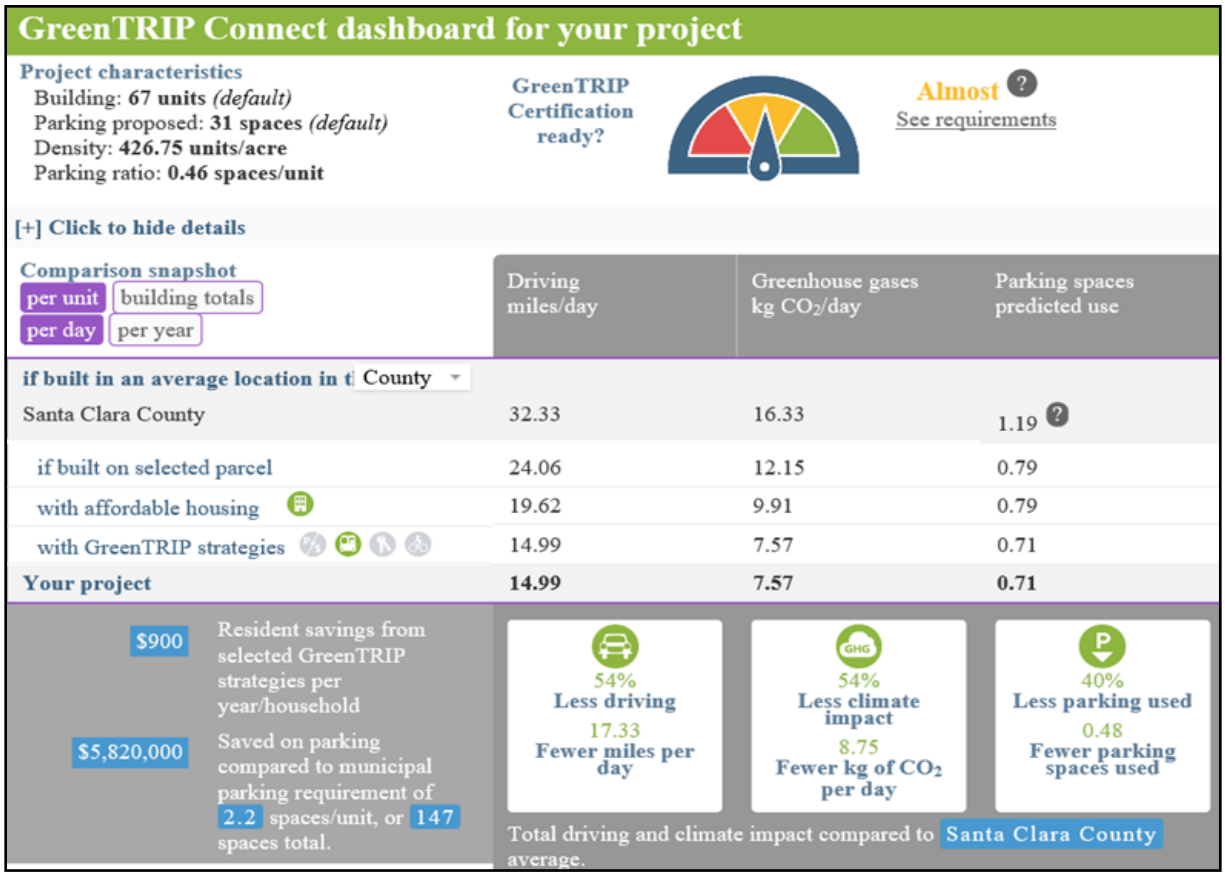


Figure 16. Green Trip Connect Dashboard

Source: Calculated using GreenTRIP Connect web tool.

2. POLICIES AND ORDINANCES THAT CONTRIBUTED TO PROJECT SUCCESS

Housing costs frequently rise due to minimum parking requirements in zoning codes that exceed actual parking needed. Parking requirements above demand constrain development density since added parking supply requires space that in turn reduces available project area for residential units. Minimum parking requirements in municipal zoning codes are often mandated without regard for the availability of travel options. It is customary to require the same parking ratio even for projects in areas that are walkable, bikeable, and in proximity to transit service. This is done since reliable data on the different parking needs of diverse geographic locations in a community are often not available. Thus, a "one size fits all" approach is adopted. Zoning ordinances that reduce or even eliminate parking requirements in areas with readily available transportation options lower housing development costs and enable higher development densities. This, in turn, creates opportunities to plan and build more affordable housing. It is therefore important to "unbundle" housing and parking. The GreenTRIP model assesses the effectiveness of proposed motor vehicle trip mitigation measures and their impact.

3. OUTCOMES OF THE PROJECT

TransForm's GreenTRIP model (including GreenTRIP Connect) and associated certification has been used to inform planners and policymakers about the role of innovative parking and transportation policies in increasing the supply of affordable housing. The introduction of the GreenTRIP Parking Database enables housing developers to examine whether they can reduce the cost of housing development through innovative parking strategies. The database was developed to address existing policies that impose the same parking requirements for all projects regardless of their impacts. Properly quantifying transportation and parking impacts and the use of sustainable transportation options overcomes the need for a one-size fits all approach. Each project is evaluated based on its merits and comparisons can be made as to alternative parking and transportation demand management strategies that benefit the community by reducing the footprint of a project, potentially improving the overall quality of the project. GreenTRIP Connect has been successfully utilized in many Bay Area communities. The lowering of parking requirements and associated impacts of automobile dependence can increase housing affordability, traffic safety, environmental quality, and can even enhance project aesthetics. This is because reduced use of motor vehicles and associated reductions in auto travel by residents of a housing development lessens the need for and cost of parking, results in fewer motor vehicle accidents due to reduced motor vehicle miles travelled, lessens air and noise pollution associated with motor vehicle use, and can result in replacement of unattractive parking facilities for attractive buildings and landscaping. By expressing these important community values in clear, quantitative terms, the GreenTRIP model has gained acceptance from planners, affordable housing advocates, developers, and community stakeholders. This is evidenced by the more that 25 housing development projects across the Bay Area that have earned GreenTRIP certification in a collaborative process that has included developers, advocates, and city planning staff.

4. INDICATORS OF SUCCESS

The primary benefit of unbundling housing and parking requirements is the reduced cost of development, which in turn means lower housing costs. On top of the fixed cost of building parking, the cost to households of owning a car that may not be used frequently (due to access to alternative transportation) consumes scarce disposable income. GreenTRIP prioritizes various strategies that reduce automobile dependency. Such strategies include developing in a location that is walkable with shops, stores, schools, and other desirable destinations nearby, availability of quality safe, and convenient transit bike/car share services, and transit subsidies provided by developers. The following two projects highlight the challenges and lessons learned in applying the GreenTRIP model and GreenTRIP certification process:

1. Eagle Park Apartments 1701 West El Camino Real, Mountain View, CA has 67 affordable housing units for veterans and contains 31 parking spaces for residents. Travel demand mitigation measures of the GreenTRIP model applied for this project include:

    - A reduced parking requirement to 0.46 parking spaces per housing unit.

- Free Santa Clara Valley Transportation Authority (VTA) transit passes for all residents.
- At least one bicycle parking space per unit.
- A developer commitment to an annual transportation and parking monitoring survey of project residents.

The approved plan is projected to reduce VMT per resident by 26 miles per day compared to the base case without travel demand mitigation measures. The base case, or "business as usual", does not assume any reduction in zoning code parking requirements. It further does not assume a lack of free car share program, a shared bicycle fleet, on-site bicycle repair, and free transit passes, and dos not "unbundle", or separate, the cost of the housing unit from the cost of the parking required for the unit.

2. 1450 Sherwin Street, Emeryville, CA is on 8.6 acres of land and includes 500 residential units. Travel demand mitigation measures of the GreenTRIP model applied to this project include:
   - One parking space per unit.
   - A free car share program for all residents for 40-years.
   - 100% unbundled parking that separates residents' parking costs from their rental costs.
   - A shared bicycle fleet.
   - On-site bicycle repair facilities.
   - Free AC Transit Easy Passes (AC Transit bus passes) for residents for five years.

GreenTRIP analysis estimates that each household will drive 59% less and produce 51% fewer GHG emissions with the transportation demand management measures listed above in place, compared to the "business as usual" base case.

5. CHALLENGES AND LESSONS LEARNED

The GreenTRIP program benefits from a parking database that TransForm built using a Regional Prosperity Plan grant. The availability of parcel-level demographic data, a detailed street network, transit data, and a robust online spatial platform have made it possible to produce powerful analytical tools such as GreenTRIP Connect. The tool is highly versatile and useful for planning and assessing travel impact in a wide variety of circumstances. The fact that it uses parcel-level data enables the tool to produce fine-grained walk and bicycle access measures. The actual street network can be used to model non-motorized transportation, much like the Low-Stress Bicycle Network. Such details make the tool even more useful in modeling appropriate travel alternatives.

The GreenTRIP analysis tool has been shown to be useful in providing pertinent information to developers, planners, advocates, and decision-makers. In this regard, the GreenTRIP model has similarities to the US Environmental Protection Agency (EPA) Smart Growth model that provides information about transit and walk access to specific employment locations throughout the United States. The challenge for TransForm is to maintain an updated database for travel and demographic data while potentially extending the model to include other states so that GreenTRIP remains useful and can be applied to a wider geographic area over time.

6. ADDITIONAL RESOURCES

- The High Cost of Parking, Donald Shoup - http://shoup.bol.ucla.edu/HighCost.pdf accessed May 30, 2018.

- A list of GreenTRIP certified studies can be found at the TransForm GreenTRIP website: http://www.TransFormca.org/greentrip/certified-projects

- The US EPA Smart Growth resources: https://www.epa.gov/smartgrowth/smart-growth-resources

- Low-Stress Bicycling and Network Connectivity: https://transweb.sjsu.edu/research/low-stress-bicycling-and-network-connectivity

XVI. SUMMARY AND CONCLUSIONS: INNOVATIVE BEST PRACTICES IN CREATING A "HOME FOR ALL" IN SAN MATEO COUNTY

The preceding compilation of case studies illustrates innovative best practices that can reduce barriers to creating affordable housing in San Mateo County. These barriers include concerns about increased motor vehicle traffic, parking spillover, and impact on community quality of life due to new housing development. Communities within the Bay Area and beyond have addressed these concerns with creative public policy adopted in consultation with community stakeholders. These case studies offer San Mateo County communities a menu of policy solutions from which to choose. While all may not be suitable for each San Mateo County jurisdiction, many are applicable throughout the County and beyond.

The Pasadena and Oakland case studies describe the benefits of shifting the paradigm for motor vehicle traffic evaluation of new development from a focus on the number of motor vehicle trips at traffic peak hour within the environs of a proposed project, to evaluating overall motor vehicle use measured in vehicle miles of travel throughout the day. This approach gives communities a framework for understanding the transportation and environmental effects of motor vehicle travel assignable to new developments. Once these effects are accounted for, the next step is to reduce projected motor vehicle travel ascribed to proposed projects.

The City and County of San Francisco case study shows how to require reduction in projected motor vehicle use while also giving project developers the choice of ways to do so. The San Diego Encanto Transit-Oriented Development (TOD), the City of San Mateo Rail Corridor TOD, the Richmond TOD, and the Mountain View El Camino Precise Plan illuminate best practices in reducing motor vehicle use by integrating land use with public transportation within walkable neighborhoods. By planning convenient access to alternatives to private motor vehicle travel, these efforts create practical travel choices for new residents. The wide array of rail and public transportation services available to many San Mateo County Communities, including those offered by Caltrain, BART, SamTrans, and other public transit providers, make these case studies particularly pertinent.

The King County case study illustrates how communities can right-size parking supply requirements for new housing development. One size fits all parking requirements do not suit all project locations, either in King County or within San Mateo County. Flexibility in these requirements—along with parking supply and demand management efforts—can reduce housing development costs and encourage use of alternatives to the private motor vehicles, while also protecting neighborhoods from spillover parking impacts.

The National City, San Diego, and Pasadena case studies are exemplary in stakeholder engagement to find public policy solutions to concerns about new housing development. No solutions are effective and sustainable without the active participation of the community, residents, and businesspeople alike. Community outreach and engagement contribute to solutions that best fit community circumstances and aspirations. Empowering stakeholders, building mutual trust, and fostering public understanding of the issues related to housing development create solutions that last.

These case studies are intended to inspire. Since San Mateo County is a diverse place, the case study solutions will need to be adapted through a community participation process to fit the needs of each community. As illustrated in this set of case studies, however, other communities within and beyond San Mateo County have been successful in crafting solutions to concerns about new housing proposals. San Mateo County can apply and extend these examples in its own search for solutions to housing and transportation needs.

ABOUT THE AUTHORS

SERENA ALEXANDER, PhD

Serena Alexander is an Assistant Professor with the Department of Urban and Regional Planning at San José State University and a Research Associate at Mineta Transportation Institute. Dr. Alexander's primary research interests include environmental planning, climate action, land-use, and transportation planning, community economic development, and sustainable urban design. Much of her work is targeted toward practitioners interested in the dynamics of plan implementation, monitoring, and evaluation. Examples of her recent research include evaluation of local and state level Climate Action Plans, harnessing the greenhouse gas emissions mitigation potential of on-demand mobility and autonomous vehicles and use of simulation models and techniques to improve multimodal transportation. Dr. Alexander has worked with many multi-disciplinary teams and aims at bridging the gap between technical knowledge, policy decisions and community values. Before joining the SJSU faculty, Dr. Alexander conducted community economic development and environmental policy research at the Center for Economic Development and the Great Lakes Environmental Finance Center at Cleveland State University, where she also received her doctorate in Urban Studies, specializing in urban policy and development. She holds master's degrees in Urban and Regional Planning from California State Polytechnic University, Pomona, and Architecture from Azad University, Tehran, with a specialization in urban design. Additionally, Dr. Alexander has more than six years of experience working as a planning and urban design practitioner.

JOSEPH KOTT, PhD (IN MEMORIAM)

Researcher and co-author, Joseph Kott died on February 14, 2019 as this report was being finalized. With an active career in city and regional planning, Joe had earned a PhD from Curtin University in Perth, Western Australia, Masters of Transport and Traffic Engineering from Monash University in Melbourne, Victoria, Australia, a Masters of Regional Planning from University of North Carolina in Chapel Hill, and a BA in Political Science from Wayne State University.

During his long and distinguished career, he worked in public agencies and consulting firms in North Carolina, Illinois, Maine, and California. Once he had completed his PhD, Dr. Kott focused on teaching at several universities in the San Francisco Bay area, with long service to San Jose State University through both the Urban and Regional Planning Department and the Mineta Transportation Institute. He saw himself as a scholar-practitioner and particularly enjoyed mentoring students as they launched or advanced in their careers. Along with his teaching and research activities at SJSU, Transportation Choices for Sustainable Communities, a not for profits organization he co-founded provided a platform for his passion for "more life-affirming transportation systems." Born in Detroit, Michigan to a family of Chrysler autoworkers, Joe's commitment to sus-tainability was rooted in that legacy.

Kott is survived by his wife Katherine Kott, daughter, Amy Rands, and son, Paul Kott. His son, Andrew Kott predeceased him.

BRUCE APPLEYARD, PhD

Dr. Bruce Appleyard is an associate professor of city planning in the School of Public Affairs at San Diego State University. He works with people and agencies to help them make more informed decisions about how we all live, work and thrive, now and into the future. Dr. Appleyard specializes in applied research of human settlement and behavior patterns at the intersection of urban design, transportation, land use, and environmental science. He has published numerous peer-reviewed and professional articles informing policies and practices toward achieving a range of sustainability, livability, and social equity objectives. He is also an expert in transit-oriented corridors, street livability, climate action planning, smart growth implementation, and social equity analysis. He coauthored the APA's textbook on The Transportation/Land Use Connection, as well as TRB's new Handbook for Building Livable Transit Corridors and Smart Growth/Livability Calculator.

MARK GARRETT, PhD

Mark Garrett holds a PhD in urban planning from the University of California, Los Angeles (UCLA) Luskin School of Public Affairs and a J.D. from the UCLA School of Law. For a number of years he was a practicing attorney in California specializing in land use, transportation, and environmental issues. Garrett is the co-author with Martin Wachs of Transportation Planning on Trial: The Clean Air Act and Travel Forecasting, and has contributed to articles in the UCLA Journal of Environmental Law and Policy, the UCLA journal Critical Planning, the Berkeley Planning Journal, the Transportation Research Record, and the Journal of the American Planning Association.

SHANNON MCDONALD, AIA

Shannon Sanders McDonald, AIA is an Associate Professor at the School of Architecture, Southern Illinois University; Carbondale, IL. Author of The Parking Garage: Design and Evolution of a Modern Urban Form, the basis for an exhibit at the National Building Museum titled House of Cars: Innovation and the Parking Garage. AT SIU her undergraduate, graduate and online students from around the country have been imagining new urban forms integrating architecture, planning, transportation, sustainability, and community. She is a frequent speaker on architecture, parking, transportation, sustainability and community issues. A contributor to several books: The Car in 2035, Sustainable Parking Design and Management and Encyclopedia of Sustainability Science and Technology and several articles on automated transit networks and their impact on sustainability, community and urban design. She has given presentations for a number of organizations, including the Advanced Transit Association, the American Institute of Architects, the American Society of Civil Engineers, the American Planning Association, the Association of Collegiate Schools of Architecture, Automated Peoples Movers Conference, the Construction Specifications Institute, the International Parking Association, The Congress for New Urbanism, the National Transportation Research Board, Smithsonian and the Library of Congress. Her work with the Transportation Research Board has included workshops for the Metropolitan Planning Organizations around the United States on the topic of future mobility, resiliency and community/urban design. She is a 1992 graduate of the Yale School of Architecture, where she was awarded a Business and Professional Women's Scholarship.

MAAZA MEKURIA, PhD

Maaza Mekuria is the Highway Performance Monitoring System (HPMS) coordinator for the Hawaii Department of Transportation. He has over 25 years of experience in consulting practice, research, education and public sectors. He a research associate with the Mineta Institute of Transportation (MTI) at San Jose State University. He was the co-author and principal investigator of the Low Stress Bicycle Network Modeling project for MTI. He is principal investigator of Multi-Modal Transit Access project for MTI, applying the network modeling and optimization methodology he developed. He has authored/co-authored several papers and presented nationwide. Maaza previously taught at Evergreen Valley College, San Jose, California and at Bunker Hill Community College, Boston, MA. He has a BSCE from Anna University, Chennai, India, MSc and PhD in Civil Engineering from Northeastern University, Boston, Massachusetts. His work and research interests include Transport network modeling and analysis, design, and simulation applications. Maaza is registered Professional Engineer in Hawaii, Massachusetts, Maryland, and California.

UDEME NDON, PhD

Udeme Ndon is a professor in the Civil and Environmental Engineering at San Jose State University. He joined San Jose State University in the Fall of 1996 as an assistant professor. He was promoted to associate professor with tenure effective from Fall of 2001 and to full professor effective from Fall of 2007. He teaches Environmental Engineering courses including courses in environmental sustainability and reactor design for water and wastewater purification. He served as the Chairman of the Civil and Engineering Department for eight years (August 2008 – August 2016).

ANURAG PANDE, PhD

Dr. Pande's research interests include observational data-based decision making for transportation engineering, community engagement, emergency evacuation, service-learning, and scholarship of teaching. He serves on two Transportation Research Board (TRB) Committees as a member: Safety Data, Analysis, and Evaluation (ANB 20) and Emergency Evacuation (ABR 30). At the institutional level Dr. Pande serves as the faculty liaison for Service-Learning and leads Cal Poly's community engagement effort from a curriculum perspective. His role is to engage with the faculty and local community to encourage local communities to apply expertise that exist in the academia to support efficient and equitable decision making.

He has co-authored close to 30 manuscripts that have been either published or are forthcoming in peer reviewed journals. He has worked on several sponsored projects including a study on driver behavior funded by the National Science Foundation. He was also one of the invited speakers on "Changes in Traffic Safety Policies and Regulations in 7 Countries (1950-2010)" at 2012 International Workshop organized by IATSS (International Association of Traffic and Safety Sciences) at the United Nations University in Tokyo. He is the editor of the recently released 7th edition of Traffic Engineering Handbook (TEH) published by ITE (Institute of Transportation Engineers). The TEH is a widely recognized reference among the traffic engineering practitioners since 1941 when the 1st edition of

the Handbook was released.

ERIC PETERSON

Eric C. Peterson is a transportation policy advisor, currently addressing infrastructure funding and finance, public transportation, and intercity and high-speed passenger rail issues. In his career he has played key roles in many major transportation improvement initiatives in the Washington, D.C. Metropolitan area and has held significant leadership roles on Capitol Hill, with national and regional transportation associations, and within the U.S. Department of Transportation where he was the first Deputy Administrator of the Research and Innovative Technology Administration. Outside of his transportation engagements, Eric Peterson is a former Deputy Under Secretary for Travel and Tourism at the U.S. Department of Commerce and a former Executive Director of the U.S. Consumer Product Safety Commission. He also served for many years on the Arlington County, Virginia Economic Development Commission where he was Chairman of its Tourism Committee. An active member of the Transportation Research Board Intercity and High-Speed Rail Committee (AR010) and former member of the American Public Transportation Association's Intercity and High-Speed Passenger Rail Committee, Eric earned his undergraduate degree in Political Science from Nebraska Wesleyan University and his Masters degree from the School of Public Communication at Boston University. He is also a research associate with the Mineta Transportation Institute at San Jose State University and is associated with the George Washington University Institute for Corporate Responsibility.

PEER REVIEW

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