Analyzing the Economic Benefits and Costs of Smart Growth

Final Report

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Disclaimer

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ABSTRACT

California's Senate Bill 375, (Chapter 728, Statutes of 2008), aims to reduce transportation-related greenhouse gas emissions through more efficient patterns of land development. Advocates claim these smart growth policies will reduce vehicle travel while benefitting residents, cities, and regions in the form of more attractive communities, more affordable housing, and healthier municipal finances. In this study, we analyzed the economic impacts of existing smart growth plans similar to those currently being considered and adopted throughout metropolitan California. Through five case studies of neighborhood-level plans already implemented in California, we examined the effects of smart growth interventions on residential development, commercial development, municipal budgets, and vehicle travel. We used a combination of quantitative and qualitative methods to estimate the net benefits and costs from the regional, municipal, and household perspectives. We found the plans, in most cases, produced net benefits for the stakeholders considered. The benefits emerged from plans that resulted in denser development in relatively central locations with good access to transit. However, in some cases the plans produced costs, and impacts were not evenly distributed. The research suggests smart growth policies can produce benefits, but planners must be aware of potential costs.

EXECUTIVE SUMMARY

BACKGROUND

For much of the twentieth century, cities in the U.S. were designed largely for the automobile. However, due to a combination of social, economic and environmental factors, planners began advocating for a “smarter” approach to building cities. By creating places in which people can drive less while maintaining access to services, “smart growth” promises to reduce vehicle travel—and the associated greenhouse gas emissions. California codified this concept in Senate Bill 375 (SB 375). With the legislation, the state expects metropolitan planning organizations to plan for, and local governments to promote, smart growth development. To enable smart growth, local governments are rezoning for higher density development, reducing parking requirements, zoning underused industrial land for a mix of land uses, and requiring pedestrian-friendly design in transit station areas. The expectation is that more compact development, especially in already built-up places and near public transit, will allow people to drive less and travel more by public transit, bicycle, or on foot. The changes are expected to bring a host of other benefits too, from more efficient use of existing infrastructure to higher property values to more attractive communities. Yet, it is not clear whether or not smart growth policies actually create these benefits—and at what cost. The California Air Resources Board is seeking to understand the economic benefits and costs of smart growth policies from the perspectives of regions, cities and households.

METHODS

To better understand the implementation and impacts of smart growth policies we conducted case studies of five established neighborhood-scale smart growth plans and policies. We used a combination of interviews, review of documents, and analysis of existing data to estimate the impacts of smart growth policies. To identify relevant case studies, we first interviewed experts familiar with smart growth and the implementation of SB 375. We selected five case studies that we judged most relevant to cities implementing SB 375: San Jose Midtown, Los Angeles Vermont-Western, San Diego East Village, and San Diego Rio Vista, and Turlock Downtown. In each case, the city adopted a neighborhood-scale smart growth plan (or multiple plans) intended to create compact, mixed-use development. The smart growth plans were adopted between the mid-1980s to 2001, emphasize infill development or redevelopment, and four include rail transit stations.

For each case study, we estimated the impacts of the smart growth plan and policies on development using interviews, site visits, public records, and analysis of several existing datasets. The key step in each case was to construct a likely scenario for what *would have* happened in the *absence* of the plans. This step necessarily involved uncertainty and hence our results should be seen as estimates rather than precise measurements. We focused on impacts arising from residential development, commercial development, municipal finance, and vehicle travel. We estimated impacts from the perspective of regions, municipal governments, and four types of households in the plan area: existing homeowners, prospective homebuyers, renters, and low-income households.

Results

The smart growth plans and policies we analyzed, for the most part, had positive net impacts from the regional, municipal and household perspectives. Net benefits were on the order of millions to tens of millions of dollars annually for regions and up to several thousand dollars annually for some households. The plans generally resulted in greater housing production—whether it was due to relaxed zoning regulations or the catalyzing effects of public investment—in relatively central locations with good access to transit, instead of in more outlying, automobile-oriented areas. Higher densities generally led to more efficient municipal spending, increased housing supply meant more households could take advantage of transit access, and increased local amenities produced value for residents. Regions benefitted greatly from relaxed zoning regulations that somewhat eased shortages of apartments and condominiums. However, in certain cases the plans resulted in net costs for some stakeholders. For example, in Los Angeles, new housing was filled with singles and childless couples, and the neighborhood's population decreased despite some new housing production. Low-income households generally benefitted far less than did other households. We also found benefits were generally smaller than planners initially expected, because some of the development envisioned in the plans never materialized, and much of the development would have occurred even without the smart growth plans and policies.

Conclusions

This research suggests smart growth interventions of the type envisioned by SB 375 can have economic benefits on net, at least for the stakeholders we considered, and there can be synergies between reducing greenhouse gas emissions and improving housing affordability. At the same time, our research shows the importance of carefully considering how proposed plans and policies affect different stakeholders. Additionally, to achieve intended benefits, planners must identify existing plans and policies that work at cross-purposes with the smart growth interventions. Further research in several areas is needed to more fully understand the impacts of land use policies and public investment on various stakeholders. Although we can never know exactly what would have happened without the smart growth plans, our results leave us cautiously optimistic about California's greenhouse gas reduction strategy, and illustrate the importance of local land use regulations to achieving these aims, provided planners are mindful of the potential costs.

1 INTRODUCTION

Planners have long advocated for “smart growth” policies intended to create more compact development, especially infill development around transit. One of the more prominent efforts, California’s Senate Bill 375 (SB 375), aims to reduce vehicle miles traveled and greenhouse gas emissions by shaping land use and transportation policies. To achieve these aims, the bill expects municipalities to promote higher-density and infill development by rezoning for higher density, reducing parking requirements, zoning underused industrial land for mixed use, and requiring pedestrian- and bicycle-friendly design in station areas (Barbour and Deakin, 2012). In this study, we evaluated the economic benefits and costs of such policies, focusing on housing and commercial development, municipal budgetary impacts, and vehicle use.

Proponents claim that smart growth policies and plans, of the type expected under SB 375, produce a wide range of benefits. Policies that allow increased housing supply are expected to result in lower per unit housing prices, especially since regulatory constraints on housing are ubiquitous in California’s large metropolitan areas (Glaeser and Gyourko, 2002; Quigley and Raphael, 2005). Since zoning laws tend to place specific limits on higher density multifamily housing, policies that relax regulations to permit multifamily housing could have particularly important benefits for affordability (Levine, 2006). Smart growth plans and policies that increase density may also result in more efficient use of public infrastructure and provision of public services such as fire, police, sewer, wastewater, parks, and libraries (Carruthers and Ulfarsson, 2008; Ladd, 1994). Increasing development near transit stations and near already dense urban cores could increase transit and non-motorized accessibility and reduce automobile use (Belzer and Autler, 2002). Lastly, compact, mixed-use development with pedestrian-oriented design is seen as an amenity that people value for its own sake (Calthorpe, 1993).

However, smart growth policies and plans may also impose costs. Infill development, compared with greenfield development, can require more expensive design, planning, and permitting process, and often higher construction costs—some of which we would expect developers to partially pass on to buyers (Mayer and Somerville, 2000; Utter, 2009). Smart growth policies may increase amenities locally, but existing households who are unable to afford the resulting higher rents may be displaced (Chapple, 2009). If transit-dependent, lower-income households are priced out of transit-accessible areas – replaced with higher-income, vehicle-owning households – vehicle use regionally could increase (Pollack et al., 2010), though it could also decrease; this is not clear.

In practice, smart growth policies are often only partially implemented, or fail to result in intended outcomes (Belzer and Autler, 2002; Boarnet and Crane, 1997; Downs, 2005), which means actual impacts may fall short of expectations. For example, transit-oriented development (TOD) is more likely to reduce vehicle travel when it provides only limited parking (Chatman, 2013), and ideally TOD plans should include reductions in parking standards (Belzer and Autler, 2002). However, whether because cities fail to change parking ordinances or because developers believe consumers expect plentiful parking, in practice many TODs contain too much parking (e.g., Serafin et al., 2010), likely undermining potential reductions in automobile travel.

1.1 Project purpose and scope

This research is connected to California's implementation of two major statewide greenhouse gas reduction laws. Assembly Bill 32, the California Global Warming Solutions Act of 2006, requires the state to reduce its greenhouse gas emissions (GHG) to 1990 levels by 2020. Senate Bill 375, signed into law in 2008, aims to reduce GHG emissions from automobiles and light trucks in California's metropolitan regions. SB 375 requires each metropolitan planning organization (MPO) to adopt a Sustainable Communities Strategy (SCS) as part of its Regional Transportation Plan (California Air Resources Board 2012). These SCSs contain smart growth-oriented policies and programs intended to achieve land use and developments that are associated with lower levels of vehicle travel.

SB 375 places primary responsibility at the regional scale with MPOs, which will be required to formulate SCSs in coordination with local stakeholders and officials. As the administrators of regional transportation plans, MPOs have legal and financial authority to implement many of the transportation elements of the SCSs. Responsibility for land use and development aspects will fall principally to local governments, which have authority over local land use decisions. The municipal level is the "weak link" in terms of implementing SB 375, since few legal or financial mechanisms exist through which MPOs or the state can require local implementation of the plans. Implementation of the SCSs will therefore rely largely on the voluntary or incentivized actions of municipal governments. For this reason, our project is particularly interested in how municipal jurisdictions view the costs and benefits of local smart growth land use policies.

We used case study methods to assess the likely economic impacts of local smart growth policies and plans as implemented in five cases in California, generally focusing at the neighborhood scale. The purpose of the project was to better understand the effects of the types of policies that local governments are likely to adopt under SB 375. Specifically, this project asks: how do these types of policies impact regions, municipalities, and households? We focused on major economic benefits and costs arising from housing development, commercial development, impacts on municipal finances, and vehicle travel from the regional, municipal, and household perspectives. We chose cases that included plans and policies consistent with SB 375, specifically those intended to achieve infill development and densification.

1.2 Literature review

Starting in the 1990s, an anti-growth paradigm began to give way to a new perspective that viewed new development not as a cost, but as an opportunity to achieve more desirable urban forms and create more attractive places (Burchell, Listokin et al. 2000; Ingram, Carbonell et al. 2009; Chapin 2012). Rather than limiting growth outright, the "smart growth" movement aimed to concentrate new development in designated areas, particularly central cities, in already built-up areas, and around transit lines. In this pursuit, the movement has in large part, explicitly or implicitly, taken the compact city ideal as its model. In contrast with the supposedly negative features of sprawl—unlimited outward expansion, automobile-oriented urban form, segregation of functional land uses, and abandonment of the central city—the concept of the compact city is characterized by centrality, human-oriented urban design, and diversity of functional uses (Fishman 2002). Smart growth proponents have drawn inspiration from New Urbanism, an urban design movement that venerates the design of early 20th century "traditional" neighborhoods that were built when the streetcar and walking were still dominant modes of transport (Leccese and McCormick 1999; Smart Growth Network 2002).

1.2.1 Definitions of smart growth

At the same time, smart growth supporters constitute a diverse coalition and do not hold a single unified vision of an ideal urban form, nor do they necessarily agree on policies (Burchell, Listokin et al. 2000). Some have argued that "smart growth" is a catch-all term that means "good planning," with a meaning that varies according to the particular interests of whoever is doing the defining (e.g., Downs 2005). We characterize smart growth in terms of its core objectives, including:

- limiting unchecked outward expansion of urban areas;
- concentrating additional development in central and already-developed areas;
- mixing land uses;
- providing and improving public transit services, pedestrian amenities, and bicycle infrastructure;
- preserving open space and agricultural land; and
- revitalizing inner-city areas that have experienced disinvestment.

Characteristic policies and interventions include permitting higher density, transit-oriented development programs, mixed-use zoning codes, reductions in parking requirements, central city infill and redevelopment plans, pedestrian-friendly urban design, and inclusionary zoning (Smart Growth Network 2002).

1.2.2 The impacts of smart growth

Why and how would smart growth policies, projects and plans be expected to influence economic outcomes? There are at least two main ways, reflecting two types of market imperfection: externalities and public goods. First, effects of smart growth might have amenity and disamenity values that are reflected in property values. For example, an urban growth boundary might preserve views and access to space, amenities thatsome people might value and be willing to pay for (Fischel 1985). Alternatively, some people might find the higher density environment created by an urban growth boundary to be less attractive and, if enough people hold this view, it would result in lower property values. In both cases, the urban growth boundary intervention creates externalities, which may be positive or negative. Second, smart growth policies intended to affect density, city size, mixture of land uses, and other land use characteristics may result in economies or diseconomies of scale and scope with respect to the provision of municipal services, with subsequent municipal fiscal impacts (Carruthers and

Ulfarsson, 2003; Ladd, 1994; Paulsen, 2014). For example, providing police service in a compact area as opposed to a sprawling area may cost less, per capita, because fewer officers, traveling fewer miles, can cover the same number of residents. On the other hand, higher density could be associated with diseconomies of scale, if it costs more to respond to calls and put out fires in higher density buildings where access is more difficult. (Or, the opposite might be true: the structural characteristics of higher density buildings might reduce fire risk, reducing the capital and operating costs of the fire department). The costs of providing and maintaining sewers, wastewater treatment, potable water, roads, and other public infrastructure might be lower in some types of locations, and higher in others. The ability of local governments to take advantage of these economies of scale and scope benefits the public, and thus may be considered a public good.

The picture is complicated by the fact that various decision makers consider benefits and costs at different spatial scales, which necessitates differently scaled benefit-cost analyses to best understand the incentives and issues stakeholders face when implementing smart growth. Smart growth interventions like densification could involve internal as well as external costs and benefits in both global and local senses. For example, a city may limit commercial uses in order to avoid the traffic they generate, leaving neighboring municipalities to provide for commercial needs—and the associated traffic. In this case, the first city's prohibition on commercial uses creates an external cost. Jurisdictions may compete with neighbors for desirable land uses, with winning municipalities benefiting from fiscal flows while externalizing a significant share of traffic or pollution associated with the land use (Misczynski, 1986; Wassmer, 2002).

Distributional issues arise between winning and losing municipalities, neighborhoods, and income cohorts. Thus, even when from a global or regional perspective economic benefits exceed costs, from other perspectives the reverse may be true. A small municipality might bear most of the costs of a smart growth project but realize few of the regional benefits. Some homeowners could expect increases in property value due to greater accessibility, while others could see decreases due to lower relative accessibility. These differences affect municipal balance sheets and also create local pressures on municipal decision-making. The benefits and costs of particular smart growth policies are also likely to vary greatly with market, political, spatial, and demographic conditions. For example, the costs of infrastructure to serve new growth will vary by place, due to current under- or over-capacity and the costs of providing new infrastructure. Suburban fringe expansion is more easily avoided in locations with ample infill opportunities, and in high-price land markets there may be more demand for affordable, higher-density housing. Identifying the winners and losers is an important part of benefit-cost analysis.

Research on land use planning has addressed a wide range of impacts that may result from smart growth interventions—and from land use policies or certain patterns of development—that reach beyond the intended objectives of smart growth. The following lists the major categories of impacts that researchers have attributed to, or attempted to attribute to, smart growth.

1. *Property values*
   The literature claims smart growth results in higher property values, but it also claims smart growth improves housing affordability. When smart growth interventions, such as urban design standards and transit investment, improve local amenities, they could result in higher property values, at least locally (Bartholomew and Ewing, 2011; Duncan, 2011; Mathur, 2007; Matthews and Turnbull, 2007; Song and Knaap, 2003; Wang and Immergluck, 2014). However, when smart growth involves relaxing development restrictions to allow more development in a greater range of uses, it can lead to lower property values, because the additional development increases supply and/or because it creates disamenities (Aurand, 2010; Song and Knaap, 2004).[1]

2. *Public spending and revenue*
   The pattern of development may affect the level of infrastructure and public services demanded, or the cost to local governments of providing such infrastructure and services. Development patterns may also influence local government's revenue, through both property and sales taxes (Carruthers and Ulfarsson, 2003; Ladd, 1994; Paulsen, 2014).

3. *Economic productivity*
   Development patterns may be associated with agglomeration effects, which would influence economic productivity. Agglomeration economies are economies of scale in city size, employment density, employment accessibility, and other features of cities and downtowns that are consistent with smart growth policy goals. Policies that increase density and improve accessibility may lead to higher economic productivity, although empirical research on this effect is scarce (Chatman and Noland 2011).

4. *Travel patterns*
   Urban form likely influences the time and distance of residents' commutes and other trips, and their mode choices. Vehicle travel has been found to decline in response to residential density, to increased jobs-housing balance, to more mixed land use, to increased street connectivity, to regional accessibility (proximity to regional or subregional activity centers), and to increased transit access (Boarnet and Handy 2010; Boarnet and Hsu 2011; Boarnet, Handy and Spears 2010; Boarnet, Handy and Tal 2010; Boarnet, Handy and Tal 2010; Boarnet, Handy and Tal 2010; Ewing and Cervero 2010).

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[1] For example, rezoning a neighborhood of single-family houses to allow apartment buildings could reduce local property values because prospective residents may perceive apartments as less desirable (Song and Knaap, 2004). It could also lead to lower regional housing prices because apartments tend to be priced lower, and because in a tight housing market the increase in supply might relieve upward pressure on prices (Aurand, 2010).

5. *Environmental change*
   Land use interventions may impact the environment in terms of the land and natural resources consumed, resources required to support the pattern of development, and air and water pollution generated from activity in the development pattern (Burchell et al., 2005).

6. *Health*
   Urban form can affect residents' levels of physical activity (Frank et al., 2004). Land use policies also influence residents' exposure to polluted environments as well as the availability of food options and function of food systems.

7. *Racial and economic segregation*
   To the extent that land use policies influence housing production and prices, they can also limit who can afford to live in a given neighborhood. Zoning regulations that specify minimum housing standards can, in effect, make that neighborhood unaffordable for low-income households, which can exacerbate racial segregation (Pendall, 2000; Rothwell and Massey, 2009; Rothwell, 2011). Zoning policies that improve housing affordability might have the opposite effect.

As noted previously we focus primarily on pecuniary effects (what the lay public might see as "economic effects") like those in categories 1, 2 and 3, but we also include a discussion of category 4, the primary intended impact of smart growth strategies under SB 375.

Few studies have attempted to assess the economic benefits and costs of smart growth policies as actually implemented; however, benefits and costs of various development patterns have long been part of the discussion on smart growth. A set of studies reporting that low-density suburban development has higher public infrastructure and service provision costs (Burchell et al., 2005; Carruthers and Ulfarsson, 2008; Ladd, 1994) were an important impetus to the popularity of smart growth planning (Chapin, 2012). Another set of studies has examined the effects of various smart growth policies on housing prices (Atkinson-Palombo, 2010; Duncan, 2011; Wang and Immergluck, 2014; Chatman, Tulach, and Kim, 2012), but these have rarely considered the mechanisms through which those price changes impact households. Without this knowledge, it is impossible to determine whether the price change represents a benefit or a cost. Researchers have studied the impact of smart growth policies and compact development patterns on vehicle travel (e.g., Arrington and Cervero, 2008; Chatman, 2013; Jun, 2008). We refer to this existing research to estimate impacts in our own case studies, as we will discuss in Section 2. However, these studies have focused on a single impact, without considering if the effects might be offset or intensified by other types of impacts.

The few comprehensive assessments of smart growth benefits and costs have either been general reviews of literature (Burchell et al., 2005), modeling studies of hypothetical policies (Echenique et al., 2012), or regional-level studies not suited to analysis of local-scale policies (Cheshire and Sheppard, 2002). Echenique et al.'s (2012) modeling study of three metropolitan regions in the United Kingdom illustrated how various development patterns are likely to involve tradeoffs between housing prices, vehicle travel reduction, economic productivity, and other outcomes. The authors developed models for each region that simulated the interaction between demand for land and supply of housing and employment space, integrated with a travel behavior model. Using these models, the authors predicted outcomes of 26 sustainability indicators under three different development pattern policy alternatives: compaction, dispersal, and planned expansion.[2] The model results indicated that the compaction alternative would, as expected, slightly lower transportation energy consumption in all three regions; however, it would also tend to slightly increase housing costs, at least in two regions. While useful in highlighting the tradeoffs involved in land use forms, these results derived from a model forecast are less reliable than results of empirical studies.

Cheshire and Sheppard (2002) attempted to estimate the costs and benefits of land use planning by applying formal economic models to a single city in the United Kingdom (Reading). Using detailed data on population, demographics, housing characteristics, and housing prices, the authors constructed a series of formal equations that resulted in estimates of costs and benefits.[3] They found that permitting more development produced benefits. Relaxing urban growth boundary constraints produced an overall benefit, and the distribution of benefits for households was proportional to income, with higher-income households benefitting more. Relaxations on development restrictions within the city benefitted higher-income households disproportionately more than lower-income households. However, their analysis assumes an idealized, perfectly circular city, only considers hypothetical policies that apply equally across the entire city, does not account for geographic variation, and only addresses two types of amenities (separation of industrial land use from residential use, and open space).

Our study will attempt to fill a gap in the literature by assessing several types of benefits and costs of neighborhood-level smart growth plans actually implemented by municipalities in California. Our analysis is more comprehensive than most previous research because it considers several types of impacts from the perspective of several different stakeholders. Compared to existing comprehensive studies, it offers a more realistic and context-sensitive analysis. However, it is not a fully comprehensive cost-benefit analysis, nor does it consider the perspective of every stakeholder. Further, in order to estimate the impacts, we make many assumptions, based on available evidence, about what would have occurred in the absence of these smart growth plans. The result is not a precise accounting of impacts, but a guide to how

[2] The compaction alternative simulated a government policy of even more concentrated growth than that achieved by existing policies in the UK, whereas the dispersal option assumed a scenario of relaxed regulations and market-driven development.

[3] Specifically, they estimated a hedonic price model to identify the structure of demand for amenities resulting from land use planning. They then used the demand system to estimate a utility function for each household. After estimating the housing price that would be obtained in the absence of planning, they compared that price with the status quo, and calculated benefits and costs.

real smart growth policies have impacted various parties differently, with rough estimates of the magnitude of effects.

2 METHODS

Our approach entailed three main components: elite interviews, case study selection, and case study analysis.

2.1 Elite interviews

We conducted interviews to gather background information that would guide case study selection and inform our analysis of costs and benefits. Our goals were to:

- Collect perceptions of economic costs and benefits of smart growth from planners setting smart growth policies, non-profit advocacy groups seeking to influence those policies, and real estate developers building various types of urban and suburban smart growth projects;
- Understand how different municipalities and agencies are currently reacting to or planning for SB 375 implementation;
- List a set of smart growth policies and plans that are likely to be adopted under the umbrella of SB 375 in the next few years;
- Tentatively select case studies that could best illustrate costs and benefits of smart growth;
- Identify barriers to smart growth and SB 375 implementation; and
- Understand equity and environmental justice concerns.

We conducted interviews with policymakers and planners in city, county, regional, and state governments; leaders and staff at advocacy organizations; and for-profit and non-profit real estate developers. Interviewees were chosen to represent diverse communities and perspectives. We interviewed thirty planners at different levels of government, eight staff members at advocacy organizations, and seven real estate developers. A complete list of interviewees is provided in Appendix A.

2.2 Case selection

We selected cases of neighborhood-scale smart growth plans, such as specific plans, that included policies to create infill development. We used information from the first round of interviews to define criteria for case study selection and identify a list of potential cases. To compile that list, we reviewed the specific plans, community plans, and downtown plans on websites of cities in California with populations greater than 50,000. We also considered smaller cities when their location or growth conditions made it likely that they had adopted smart growth policies. In addition, we considered as potential cases recipients of Environmental Protection Agency Smart Growth awards, case studies by the Greenbelt Alliance, Urban Land Institute, and Reconnecting America, and Compass Blueprint examples of smart growth, as well as cases recommended by interviewees. To investigate potential case studies, we used information available on city planning department websites, visual inspections via Google Streetview, and information gained in interviews. From the list of potential cases, we selected a shortlist according to the following criteria:

Table 1: Case selection criteria

Criterion	**Characteristics**
Specific Plan or equivalent	• The plan must be a specific plan or equivalent adopted by the local jurisdiction, focusing on particular subsections of the city (e.g. neighborhood, downtown, or overlay zone). • The plan must include land use regulations. Plans typically included design guidelines and transportation and parking elements as well. • We did not consider General Plans or citywide policies (although we analyzed citywide plans and policies in relationship to each case study).
Smart growth policies	The plan must feature smart growth policies of the types expected under SB 375. Plans were included as potential case studies if they included at least one of these policies; most included at least several. • Relaxation of zoning regulations to allow higher density or mixed use (often overlay zoning) • Form-based codes or alternative zoning ordinances[4] • Modified parking standards or more flexible parking requirements • Infrastructure and street design to improve walkability and connections to transit • Active transportation policies (e.g. complete streets, sidewalk projects, and bicycle infrastructure) • New Urbanist/neo-traditional design guidelines[5] • Expedited permitting for projects meeting certain criteria • Other policies supporting infill development
Significant policy change	• The policies included in plans had to be a significant change from previous policies. • Most plans directly stated that the policies were a change from previously existing policies. In some cases, plans built upon previously existing plans that had similar goals, but introduced new policies.
Plan maturity	• The plan must have been in place for a sufficient amount of time to allow changes to occur. • Our initial list included several plans from the early- to mid-2000s—these featured smart growth policies and had sufficient time to influence development patterns.

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[4] Form-based codes may promote smart growth objectives in a number of ways. By reducing restrictions on building use, they may allow greater mixing of land uses. By introducing pedestrian-oriented building forms – building to the lot line, aligning buildings to the street, ensuring visibility and accessibility of entrances, requiring minimum window frontages – they may increase walkability. And by simplifying development regulations – a major impediment to infill development – they may facilitate development in city centers and near transit services.

[5] Although New Urbanism focuses on urban design, its objectives are not merely aesthetic and its history is closely related to the smart growth movement. New Urbanism calls for transit-oriented development; for walkable, connected street networks and small blocks; for a fine-grained mix of land uses and housing types; for infill development; and for adaptive reuse of existing buildings. All of these are likely to facilitate smart growth. In examining New Urbanist policies we will focus on these elements, rather than guidelines that are merely aesthetic.

Criterion	Characteristics
	• Some plans from the 1990s were considered—these included smart growth policies such as increased density around station areas, even though the term “smart growth” was not prevalent until the 2000s.
Influence on development outcomes	• Plans were included only where there is evidence of development change and a substantial portion of envisioned development has been built. • Few, if any, plans that we considered have been completely built out, but there must be sufficient development to observe changes in development patterns and their effects.
Data availability	• There must be sufficient data available for both the periods before and after the plan’s adoption.

2.3 Final case study selection

We selected a set of cases that in our judgment were most relevant to municipalities implementing SB 375. The selected cases represent a diversity of policies, city sizes, and locations in California. The cases are from Northern California (San Jose Midtown), Southern California (Los Angeles Vermont-Western, San Diego East Village, and San Diego Rio Vista), and the Central Valley (Turlock Downtown). We chose cases in cities of varying sizes, ranging from Turlock (population 70,000) to Los Angeles (population 3.8 million). Four of the cases consist of Specific Plan areas near rail transit, each with different types of densification and infill-promoting policies; the remaining case is a smaller downtown plan (Turlock). Three of our cases were designated under state law as Redevelopment areas and were eligible for tax increment finance.[6] Our case studies represented a mix of urban and suburban smart growth policies. Each of the plans and policies that we studied had been adopted at least a decade earlier, ranging from 1985 (Rio Vista) to 2001 (Vermont-Western). This was necessary in order to have sufficient data after plan adoption and implementation.

[6] California’s Community Redevelopment Law (Chapter 710, Statutes of 1951) provided funding to promote the redevelopment of designated areas. It authorized Redevelopment Agencies to use tax increment finance (TIF), which uses the tax revenue from future increases in property values to finance public investments. Redevelopment Agencies were dissolved in 2012.

Table 2: Summary of case studies selected

Case study	Context	Plan area	Population/ Employment in initial year	Year of first smart growth plan	Types of intervention
Vermont-Western, Los Angeles	Large city, infill/redevelopment site, transit	2.2 sq mi	59,470 pop. 23,927 jobs	2001	Rezoning, parking changes, design requirements, park impact fee
East Village, San Diego	Large city, infill/redevelopment site, transit	2.3 sq mi	5,703 pop. 14,579 jobs	1992	Rezoning, public investment, parking changes, design requirements
Rio Vista, San Diego	Large city, undeveloped site, transit	0.14 sq mi	891 pop. 359 jobs	1985	Design requirements, zoning
Midtown, San Jose	Large city, development of former industrial area, transit	0.33 sq mi	127 pop. 1866 jobs	1992	Rezoning, design requirements, open space requirements
Turlock Downtown	Downtown revitalization	0.5 sq mi	1,244 pop. 2,788 jobs	1992	Public investment, design requirements

2.4 Case Study Methodology

We used a combined qualitative and quantitative approach. The qualitative aspects included interviews with key stakeholders, observation of case study sites, and review of documents. Information from these sources helped us interpret analyses using quantitative data and construct the quantitative estimates. For each case, we estimated the plans' impacts based on data from the plan area and comparable areas, and quantitative estimates from high quality empirical studies. The primary challenge in estimating impacts was constructing a plausible range of scenarios for what *would have* happened in the *absence* of the smart growth plans and policies in each case.

2.4.1 Analytical Approach

Our general analytical approach for each case study involved the following steps:

(1) Identify all relevant plans and policy changes that applied to the study area, and understand qualitatively how those plans and policy changes may have influenced development. In this step we rely on documents and interviews with planners.
(2) Characterize observed changes in the plan area in terms of residential and commercial development, property values, population and demographics, employment, municipal finances, and vehicle travel. In this step we draw on a wide variety of data sources as well as physical observation of the study area and interviews.
(3) Compare observed changes in the study area with those in comparable areas not subject to plan interventions. Comparable areas may include the region, the city, or other neighborhoods. For example, we might observe in the study area a drop in average

household size, but if household sizes decreased everywhere in the region, *the change may not be attributable to plan measures*.

(4) Identify the plans' impacts by identifying which changes in the study area were likely to have been a result of the smart growth plans and policies, as opposed to trends that would have occurred anyway. We essentially compare the observed changes against a "counterfactual" representing what would have happened in the plan's absence. This step relies on critical judgment informed by interviews, comparisons between the study area and comparable areas, and consideration of the policy changes and how the plan was implemented.

(5) Quantitatively estimate the magnitude of each impact. To do this, we use information and elasticities from previously conducted empirical studies as well as relevant data observed in the plan area.

(6) Identify whether each impact yields benefits or costs and calculate net impacts of the plan from the perspective of the region as a whole, the municipality, and individual households.

Challenges of the analytical approach

A common limitation in policy evaluation research stems from the difficulty in separating effects of the policy from outcomes that would have happened in the policy's absence. Following the social science research method, one might compare a set of places that adopted smart growth plans to a set of places that did not adopt such plans but are otherwise similar. But this approach is problematic. True controls are rare in policy and planning research. Planners do not randomly plan in some neighborhoods and randomly let others lie fallow. Instead, they choose a neighborhood for a policy intervention for some reason. Perhaps the characteristics of that neighborhood make positive outcomes more likely. Or, perhaps the neighborhood is in dire need of intervention. In other words, the policy is often endogenous—that is, related to the characteristics of the treatment group. This makes it difficult to separate the effects of the policy from outcomes that would have happened in its absence.

We faced this challenge here. A matched-pair approach would require finding a similar neighborhood that did not receive infill-promoting policies. For example, planners may choose a neighborhood for infill-promoting policies because its unique characteristics—recently opened transit stations, a location near downtown, and older buildings—present great redevelopment potential. Another nearby neighborhood with similar urban form and demographics may not be suitable as a matched pair because it might not have a transit station, or because it too received some form of smart growth policy intervention.

Therefore, instead of a control group or matched pairs, we relied on a "counterfactual" approach. A counterfactual is a hypothetical scenario of what would likely have happened in the plan's absence. That is, in order to assess the effects of a smart growth plan, we compare observed outcomes with a plausible scenario that represents likely outcomes had the plan not been adopted. Impacts of smart growth policies are then the difference between the observed outcomes and what would have occurred without the plan. The task was to identify which outcomes were plausibly a result of changes in policy, and which ones would likely have occurred anyway as a result of macro trends or events unrelated to the plan.

The use of a hypothetical counterfactual as a comparison has significant limitations, but in cases in which there is no appropriate control group—a common situation in land use policy research—a counterfactual-based approach may be the best available method. Simulation-based studies that compare alternative policy scenarios with a “business-as-usual” scenario employ this approach (e.g., Echenique et al. 2012). Ewing and Hamidi (2014) compared the effects of the introduction of light rail against a simulated scenario of highway development. Hall et al. (1973) evaluated London’s 1947 greenbelt policy against a counterfactual scenario in which 1930s trends had continued.

Accounting for uncertainty

The counterfactual approach inherently involves a large degree of uncertainty, since we cannot know exactly what would have occurred in the absence of the plans. We therefore present estimates as a range. The *“low-impact”* (or most conservative) estimate assumes the plan had relatively little impact, while the *“high-impact”* (most generous) estimate assumes a greater impact. The *“midrange”* estimate falls between these two extremes and represents a reasonable “best guess” of the plan’s impact.[7] Even with these ranges, all results should be interpreted as approximate estimates based on critical judgment, not exact values based on precise measurement.

Table 3: Low-impact, midrange and high-impact plan estimates

Low-Impact Estimate	**Midrange Estimate**	**High-Impact Estimate**
Represents a scenario in which the plans had relatively little impact. This is the most conservative estimate.	Represents the “best guess” of the plans impacts, using either the most likely assumptions or average values.	Represents a scenario in which the plans had relatively large impact. This estimate uses the most generous assumptions.

Assumptions about regional economy

In all case studies, we assumed the smart growth plans in question did not significantly affect the regional economy. The planning literature has not settled the question of whether neighborhood-level plans can influence overall regional economic growth or whether they merely redistribute

[7] It’s important to note that the labels “low” and “high” refer to the relative impact of the plan, rather than the absolute value of the variable in question.

activity within the region. However, empirical evidence tends to suggest the effect of local plans is mostly, if not entirely, redistributive (Chatman et al., 2012; Wang and Immergluck, 2014). It is unlikely the neighborhood-scale plans in our case studies affected the overall regional economy or population. In all cases, regional population, employment, and demand for housing would very likely have been the same in the absence of the plan.

Is development market-driven or plan-driven?

A perennial question in city planning is whether development is shaped primarily by the market and developers, or whether it is shaped primarily by plans. (This question quickly becomes philosophical, as plans themselves can be driven by the market.) This question arose in all of our case studies. It is almost impossible to tell whether the observed development has occurred in response to the plan, or if the development and the plan occurred in response to market changes. The decades of planning literature on this topic generally suggests that development regulations sometimes "follow the market," but other times do have an impact separate from the market. We resolved the market-*versus*-plans dilemma by assuming that development is driven by the market, but plans have an effect in *shaping where and how* the development occurs. For example, in many of our cases, demand for apartments grew but zoning laws initially prohibited apartment buildings. Planners might anticipate or respond to this growing market demand by rezoning the area to permit apartment construction. We assumed that, in the absence of this rezoning, regulations would still prohibit most apartments and, despite market pressure, the extra apartments would not be built in that location. Alternatively, we could have assumed that even without the smart growth plans in question, the market pressure would be so great as to compel planners to allow apartment construction anyway—but this would imply all plans are completely market-driven, rendering the plan analysis meaningless.

2.4.2 Case study interviews

For each case study, we interviewed planners, developers, and residents who were involved in the plan's development and implementation. We conducted the interviews by phone and in person. We aimed to understand how the plan affected development in the area, and what would have occurred in the absence of the plan. The interviews provided information on the plan from a range of perspectives. A list of interviewees is provided in Appendix A.

2.4.3 Data Sources

2.4.3.1 U.S. Census and American Community Survey

Data on population, demographics, housing characteristics, rents, and commute patterns came from the 2000 Census, the 2010 Census, and 2008-2012 American Community Survey (ACS) 5-year estimates. These data were analyzed at the smallest geographic level available: population and housing counts were analyzed at the block level, and rents and other housing variables were only available at the Census tract level. When data were only available at the block group or census tract level, we used the following procedure to approximate the plan area. All block groups (or tracts) that overlapped the plan area were selected. For each block group, the block-level population was used to find the proportion of the block group population that lay inside the plan area. The block group-level data were then weighted by this proportion.

2.4.3.2 National Establishment Time-Series (NETS)

Data from the National Establishment Time-Series (NETS) database, published by Walls & Associates, was used to estimate the number of establishments, the number of employees, the average number of employees per establishment, and net sales in each year from 1990 to 2011 in each of our case study areas. For comparison, the same statistics were also estimated for the city and the county in which each case study is located (exclusive of the case study area). All statistics were disaggregated by 2-digit North American Industry Classification System (NAICS) codes to facilitate observation of changes in specific industries. For technical details on the data processing, see Appendix B.

2.4.3.3 DataQuick property sales

Data on parcel-level property characteristics and historic sales transactions were acquired from the provider DataQuick. This dataset includes the housing type floor area, year built, sales price, and transaction year for residential and commercial properties in each county. For each case study, the appropriate county-level dataset was processed by adjusting historical sales values to 2011 dollars, calculating per-square-foot sales values, and removing outliers. The county-level dataset was then filtered for properties within the case study area using ArcGIS to look at property value effects specifically related to each plan. At the county and plan area levels for each case, the median per-square-foot sales value was calculated for every year since 1970. Since these sales values can have large variations year-to-year, a three-year average was generated to provide a longer-term perspective on trends. For each case study, yearly sales values were compared two ways: (1) between the plan area and county and (2) over time (between a base year and 2010/2012). Residential and commercial properties were analyzed separately for each case study in all of the above analyses. Finally, for residential properties, sales values were also compared between single family homes and multi-unit properties (including condos, duplexes, and other owned properties in multi-unit buildings). These properties were categorized according to DataQuick’s Standard Use Codes.

2.4.4 Perspectives: who wins and who loses?

Since smart growth plans affect different groups differently, we analyzed impacts from the point of view of the municipality, the region as a whole, and four types of plan-area households—existing homeowners, prospective buyers, renters, and low-income households. Not all perspectives were represented in our analyses: we do not consider the point of view of developers, businesses, or households outside the plan area. These parties may be impacted in important ways, but an analysis from their perspective is outside the scope of this project.

Regional perspective

The regional perspective includes all residents of the region, which is represented by either the county or the metropolitan area, depending on the case. Because we assumed the plans do not affect the regional economy—we treat the region as self-contained—the regional impacts can be thought of as approximating the impacts on society in general.

Municipal perspective

The municipality's point of view is important when considering fiscal impacts of the plans. This perspective represents how the smart growth plans impact municipal budgets—which for many cities is an important factor when deciding to implement such plans.

Households

Even within each plan area, households can be very diverse and each may be affected by the plan in different ways. To capture the most important effects, we consider the perspective of four different household categories, and for each category we consider the average household. Not all four types are relevant in all cases—when all development in the plan area is new, for example, all households are prospective buyers and there are no existing households.

Existing homeowners are those households who owned a single-family house in the study area at the beginning of the study period. Owners of single-family homes are affected by development plans differently than owners of multifamily units.[8] We specifically considered owners of single-family homes because: single-family houses are more likely to be owner-occupied and they are more politically active in local development decisions.[9]

Prospective homebuyers are those seeking to move into a multifamily unit, since almost all residential development in our case studies is in the form of multifamily housing. If there are prospective buyers considering single-family houses, they are in the minority and we did not consider them in this analysis.

Existing renters include households renting a multifamily unit in the plan area at the beginning of the study period.

Existing low-income households are assumed to be renters and live in the plan area at the beginning of the study period. We defined low-income households as those having less than 20% of the state median income in the year in question.[10] We considered the perspective of low-income households separately because low-income residents are generally more sensitive to price changes and tend to value affordability above other amenities. They are more likely to see all price increases as a cost.

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[8] Single-family houses belong to a different submarket than do multifamily buildings; an increase in the supply of one does not as directly affect the price of the other.

[9] Because owners of single-family homes have a large economic and personal stake in development in their neighborhood, they are likely to oppose, or otherwise attempt to shape, development that they perceive to reduce property values (Fischel, 1985).

[10] For example, the California median income in 2010 was $71,000 per year.

2.4.5 Analysis of the plans' impacts

For each case study, we estimated the impacts of the smart growth plans in four topic areas: (1) residential development, (2) commercial development, (3) municipal finances, and (4) vehicle travel. In the following sections we detail the general methodological approach for each topic area. Each section begins with an overview of the impacts estimated, followed by a more detailed discussion

2.4.5.1 Residential development impacts

We estimated the following impacts relating to residential development.

1) **Benefit from higher permitted density of multifamily housing.** In a market with high demand for multifamily housing and constrained supply, zoning to allow higher density allows the supply to more easily adjust to meet demand. The increase in supply is expected to result in lower prices of multifamily homes.
   a) **Regional benefit.** The regional value of this benefit is given by the increase in land value of rezoned parcels:

$$Regional\ benefit = Profit\ \times\ \Delta\, Density\ \times\ Land\ Area$$

Where

Regional benefit = benefit to region from zoning change in the plan area
Profit = Developer's expected profit per multifamily unit ($/unit)
Δ Density = Change in permitted residential density in plan area due to plan (units/acre)
Land area = land area of rezoned developable parcels in plan area (acres)

And

$$Profit = Price\ /Cost$$

Where

Profit = Developer's expected profit per multifamily unit
Price = Median sales price per multifamily unit in plan area, calculated from DataQuick records for the final year of the study period.
Cost = Average construction cost per multifamily unit, estimated from RS Means and includes development cost and cost reductions or increases from the plan.

   b) **Household benefit**. The benefit to an average household renting or seeking to buy a multifamily home is given by the reduction in price of the average multifamily unit.

$$Household\ benefit =\ \Delta\, Price = Price\ \times \frac{\Delta\, Housing\ units}{Total\ housing\ units} \times\ elasticity$$

Where

Household benefit = Benefit to an average household renting or seeking to buy a multifamily housing unit anywhere in the region.

Δ Price = Expected change in sales price due to supply increase
Price = Median sales price per multifamily unit in plan area, calculated from DataQuick records for the final year of the study period.
Δ Housing units = Increase in new multifamily units in plan area due to the plan over study period. Equal to the increase observed in Census data minus the number that would have been created without the plan.
Total housing units = Number of multifamily units in the region at the end of the study period, from Census.
Elasticity = price elasticity of supply is specific to the region, as estimated by Saiz (2010).

2) **Benefits from amenities.** Households in the plan area might benefit from greater transit accessibility and other amenities created by the plan. Other amenities might be access to parks, improved pedestrian environment, or similar neighborhood improvements.
   a) **Household benefit from transit accessibility.**

$$Household\ benefit = Price\ \times\ Accessibiltiy\ premium\ \times\ \%Near\ transit$$

Where
Household benefit = Benefit to an average household seeking to buy or rent a new multifamily housing unit in the plan area.
Price = Median sales price per multifamily unit in plan area, calculated from DataQuick records for the final year of the study period.
Accessibility premium = Assumed % sales price increase per multifamily unit resulting from proximity to transit. Transit accessibility premium assumptions are based on previous empirical research and are specific to each case.
% Near transit = Percentage of new multifamily units built in the plan during the study period that are within 1500 feet of a transit station.

   b) **Household benefit from other neighborhood amenities.**

$$Household\ benefit = Price\ \times\ Amenity\ premium$$

Where
Household benefit = Benefit to an average existing or new household in the plan area.
Price = Median sales price per unit in plan area, calculated from DataQuick records for the final year of the study period.
Amenity premium = Assumed % sales price increase per unit resulting from improved amenities. Amenity premium assumptions are based on previous empirical research and are specific to each case.

   c) **Regional benefit from transit accessibility**

$$Regional\ benefit = Price\ \times\ Accessibiltiy\ premium\ \times\ \Delta Housing\ units$$

Where

Regional benefit = Benefit for the region from a greater number of housing units located near transit
Price = Median sales price per multifamily unit in plan area, calculated from DataQuick records for the final year of the study period.
Accessibility premium = Assumed % sales price increase per multifamily unit resulting from proximity to transit. Transit accessibility premium assumptions are based on previous empirical research and are specific to each case.
Δ Housing units = Increase in housing units in the plan area, within 1500 feet of a transit station, due to the plan, over the study period. Equal to the increase observed in Census data minus the number that would have been created without the plan.

d) **Regional benefit from other neighborhood amenities**

$$Regional\ benefit = Price \times Amenity\ premium \times New\ housing\ units$$

Where

Regional benefit = Benefit for the region from improved neighborhood amenities due to plan
Price = Median sales price per unit in plan area, calculated from DataQuick records for the final year of the study period.
Amenity premium = Assumed % sales price increase per unit resulting from improved amenities. Amenity premium assumptions are based on previous empirical research and are specific to each case.
New housing units = Number of new housing units in the plan area over the study period, as observed in the Census.

3) **Benefits or costs from changes in residential development and construction cost**. The plan's policies might increase construction costs, for example, by requiring more expensive building designs, or decrease construction costs, for example, by reducing the required amount of parking.

a) **Household impact**. Households seeking to buy a new housing unit in the plan area face either higher or lower prices.

$$Household\ impact = (Cost \times \%\Delta\, Cost + \Delta Parking \times Parking\ cost) \times p$$

Where

Household impact = Benefit or cost to an average household seeking to buy or rent a new housing unit in the plan area.
Cost = Average construction and development cost per unit, estimated from RS Means.
% Δ Cost = Assumed percent change in construction and development cost due to the plan, from increased design and planning complexity and requirements to provide extra amenities like sidewalks and architectural details. Assumption ranges from 1% to 3%, consistent with the literature.
Δ Parking = Average change in required parking spaces per housing unit due to plan

Parking cost = Average cost to developer of providing one residential parking space. Costs estimated from RS Means and Litman (2011).
p = Assumed percentage of construction and development cost increment that is passed from the developer to the buyer or renter. Generally, we assume p = %50.

b) **Regional impact.** The regional impact is the aggregate over all impacted households.

$$Regional\ impact = (Cost\ \times\ \%\Delta\, Cost + \Delta Parking\ \times\ Parking\ cost)\ \times\ Number\ households$$

Where

Regional impact = Regional benefit or cost from construction and development cost changes due to plan.
Cost = Average construction and development cost per unit, estimated from RS Means.
% Δ Cost = Assumed percent change in construction and development cost due to the plan, from increased design and planning complexity and requirements to provide extra amenities like sidewalks and architectural details. Assumption ranges from 1% to 3%, consistent with the literature.
Δ Parking = Average change in required parking spaces per housing unit due to plan
Parking cost = Average cost to developer of providing one residential parking space. Costs estimated from RS Means and Litman (2011).
Number households = Number of households that bought or rented a new housing unit in the plan area during the study period. Assumed to be equal to the number of new housing units in the plan area, as calculated from Census data.

In theory, the smart growth policies could create costs or benefits from residential development in at least three ways: (1) by enabling increased housing supply to meet a growing demand, (2) by creating amenities, or (3) by changing the cost of construction. We accounted for all three mechanisms in each case. For all residential development impacts, we used DataQuick data on housing sales prices and Census data on median rents to identify a baseline housing price.

Housing supply effects

An important element of many smart growth plans—especially in our case studies—is rezoning to permit more high-density, multifamily housing in areas where it was previously limited or prohibited altogether. In theory, given a regime of supply-constraining development controls, policy changes to relax those controls could result in increased supply of land available for development, increase housing supply, and lower housing prices (Cheshire and Sheppard, 2002). Zoning to allow construction of multifamily and rental housing may have particularly strong effect because such housing is often undersupplied in typical low-density zoning (Levine, 2006). Studies have found restrictive zoning regulations to limit housing supply and raise housing prices (Glaeser and Gyourko, 2002; Quigley and Raphael, 2005). In theory we would expect a relaxation in zoning to have the opposite effect; however, few if any studies have provided empirical evidence of this specific effect.

In the presence of unmet market demand, such zoning changes to permit more multifamily housing would enable a better match between housing demand and supply (e.g., Burchell, Listokin, and Galley 2000). Lower regulatory constraints mean that supply can more quickly and easily respond to demand (Paciorek, 2011), which, all else equal, will result in a higher equilibrium supply and lower price. Consumers benefit because they pay a lower price for the same product, and producers benefit because they can sell more units—the total societal benefit is represented by the increase in consumer surplus.

To approximate the magnitude of the benefit, we estimated how many multifamily units the plan added to the regional housing supply. We then applied the region-specific price elasticity of supply, referring to published empirical studies. Quigley and Raphael (2005) estimated the price elasticity of housing supply for cities in California between 1990 and 2000, distinguishing between relatively more and less regulated cities.[11] Controlling for the endogeneity of housing demand, the authors estimated the supply elasticity of owner-occupied units to vary from -0.203 in regulated cities to 0.074 in unregulated ones, and for rental to units to similarly vary between 0.036 and 0.358. Using more panel data for major metropolitan areas, Saiz (2010) estimated supply elasticities with much higher values. According to the study, the Los Angeles area had one of the nation's lowest supply elasticities, at 0.63. Besides using more robust data than Quigley and Raphael, Saiz incorporated topographical constraints in land supply and accounted for endogeneity of development regulations. We therefore used elasticities calculated by Saiz. This calculation provided the estimated change in price for the average multifamily unit. This change in price is a benefit for buyers and renters of multifamily homes. It is a cost for existing owners of multifamily housing, but we did not consider this perspective in our final analysis. (We only considered owners of single-family housing.)

The plan-area benefit from an increase in multifamily housing supply is approximately equal to the increase in land value due to the zoning change. The higher permitted density allows more units to be built on developable parcels within the plan area, which allows the landowner to profit more from selling or renting those units, compared to what he or she would have gained without the zoning change. Since the market values land based on potential future profits, land values increase even if no development has yet occurred, so the zoning change itself produces benefits, even in the absence of actual development. Although in strict terms landowners only *realize* the benefit when they sell the land, as long as they hold the asset they will tend to behave as though they already have the benefit.

The increase in land value from the plan is equal to that additional profit. We calculated the additional profit a developer could obtain from the increase in permitted units for the average parcel, then multiplied that amount over all developable parcels in the plan area. Developable

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[11] "Less regulated" cities were defined as those with one or zero growth control restrictions, obtained from Glickfield and Levine's (1992) survey.

parcels were defined as those that were vacant or had uses (like parking lots or auto sales) that could be easily redeveloped.

Amenities and transit accessibility

Smart growth plans typically include interventions to increase local amenities, including transit accessibility, local retail, pedestrian facilities, and parks and open spaces. Households often value these amenities and if this value is capitalized into land or property values, housing prices would increase (Cheshire and Sheppard, 1995). In economic terms, the benefit from an increase in amenities (including transit accessibility) is represented by the change in consumer surplus and producer surplus as added amenities increase demand for that housing.[12] The benefit to households is equal to the change in consumer surplus, while the producer surplus is the benefit captured by developers. The sum of these two equals the societal benefit. Since the actual supply and demand functions are unknown, we cannot calculate the exact surplus values. We can, however, roughly estimate the change in consumer surplus by multiplying the change in price by the number of housing units. For each case, we estimated the change in price for an average housing unit using existing empirical studies of the housing price premium associated with local amenities and transit accessibility. We chose the most relevant studies for each case based on factors like the type of transit and the type of neighborhood. Where studies were available for that particular city or metropolitan area, we prioritized those studies.

One particular type of amenity, transit accessibility, features prominently in many of the smart growth plans we study. Studies have found rail transit to increase land values within a half mile of stations by 17% (McDonald and Osuji, 1995) to 35% (Knaap et al., 2001). In others studies, being within a ¼ mile of a light rail station increased condominium prices by 6.4% (Duncan, 2011) to about 16% (Goetz et al., 2010),[13] depending on neighborhood characteristics. See Appendix C for tables listing these empirical studies. Zoning for infill and densification by itself does not create transit, but enabling denser development around transit stations can increase the number of housing units that benefit from transit accessibility. We assumed that all households within 1500 feet of transit stations benefited from transit accessibility, whether or not they were

[12] The consumer surplus is defined as the area between the demand curve and the equilibrium price. In other words, the consumer surplus is the difference between what the consumer is willing to pay and what he or she actually pays. The producer surplus is defined as the area between the supply curve and the equilibrium price. An increase in amenities shifts the demand curve upward, which increases the equilibrium price, and also the quantity supplied. The consumer surplus will also increase, by an amount that depends on the elasticity of demand.

[13] These studies measure the housing price premiums, or the increase associated with transit proximity. The actual value of transit accessibility is higher, because not all value is capitalized into housing prices. These studies measure the value that *is* capitalized, whereas we are interested in the value that is *not* capitalized. Unfortunately, the uncapitalized value is not measurable, so we assume much of it is approximated by the price premium; this is equivalent to saying that half the value of transit accessibility is capitalized, and is equivalent to our explanation that the consumer surplus is approximated by the increase in price. The value of other neighborhood amenities follows an analogous argument.

regular transit users. Previous research shows that people value having the option of transit, even if they rarely use it (Billings, 2011).

Higher density and infill zoning may result in other desirable neighborhood improvements, such as streetscape and design improvements, pedestrian facilities, accessible retail shops and restaurants, and park spaces. The full array of amenities may not be easy to define—smart growth promoters often simply refer to “livability” as a general amenity (Belzer and Autler, 2002). Aktinson-Palombo (2010) found that condos located in “amenity-rich, mixed-use neighborhoods” within ½ mile of light rail transit received a 16% to 28% premium over those not transit-accessible, while single-use residential neighborhoods suffered a penalty from transit proximity (see Appendix C for more details). Duncan (2011) also found commercial activity to increase condo prices. However, infill and densification policies may also produce disamenities such as crowding, noise or crime; studies have found proximity to transit and commercial uses to be sometimes associated with lower home prices (Bartholomew and Ewing, 2011; Matthews and Turnbull, 2007). In each case we estimated the value of amenities (or disamenities) created by the plans, using the most appropriate values from the literature.

Construction and development costs

Zoning regulations may impact the price of new housing by changing the cost of production. Mayer and Somerville (2000) showed regulations that increase the marginal construction cost and introduce delays that reduce the ability of the housing market to respond to demand changes. Regulations may increase production cost by lengthening the planning process, requiring multiple and more complex designs, and introducing risk (Utter, 2009). Surveys of developers report that the costs in complying with zoning regulations and building codes can increase a home’s selling price by 5% to 26% (Ben-Joseph, 2003; Emrath, 2011). Based on this literature, in cases where the smart growth plans imposed more expensive design requirements or introduced complexity into the development process, changes increased construction cost by about 1% to 3%, not including impacts on parking.

Smart growth plans sometimes reduce the amount of parking developers are required to provide with housing units, which can significantly reduce construction costs. We estimate the costs of providing parking using values from RS Means and Litman’s parking cost estimator (Litman, 2011). Underground garages are generally the most expensive type of parking, followed by structures; surface parking is cheapest.

When construction cost of housing rises or falls, the change in cost might be borne by the developer or the homebuyer (or renter)—or both—depending on the strength of the housing market. In a market with strong demand, or when buyers are less sensitive to price, developers can pass on a greater proportion of extra costs to households through higher sales prices.[14] However, if demand is weaker or if buyers are more sensitive to price, demand will fall if developers raise prices too much—in this case, developers will pay more of the extra cost. In most cases, we assume that the situation falls somewhere in between and that the developer and household each pay half the costs (or each receive half the savings).[15] In some cases, as we will see, there are reasons to relax this assumption.

2.4.5.2 Impacts on population

Housing development drove, in part or in full, population changes in the plan area. Since we assumed there was an regional housing demand not affected by the plan, we could assume households would move in to occupy new plan-area housing. Assumptions about vacancy rates and household size varied by case and were made based on analysis of historical trends and trends in comparable areas. We assumed the plans had no effect on regional population, but they might redistribute population within the region. For each case, if the plan had an effect on population in the study area, we had to make assumptions about where those residents would have located in the absence of the plan. These assumptions vary by case.

2.4.5.3 Commercial development impacts

We estimated the following benefits and costs of the plan related to commercial development.[16]

1) **Regional benefits or costs from changes in development and construction costs.** The plan's policies might increase construction costs, for example, by requiring more expensive building designs, or decrease construction costs, for example, by reducing the required amount of parking.

$$Regional\ impact = (Cost\ \times\ \%\Delta\ Cost + \Delta Parking\ \times\ Parking\ cost)\ \times\ Floor\ area$$

Where

Regional impact = Regional benefit or cost from construction and development cost changes due to plan.

Cost = Average construction and development cost per square foot of commercial space, estimated from RS Means.

$\%\ \Delta$ Cost = Assumed percent change in construction and development cost due to the plan, from increased design and planning complexity and requirements to provide extra amenities like

[14] In economic terms, the ability of developers to pass on cost increases to households depends on the elasticity of demand. If the elasticity is low, households will pay more of the extra costs. If the elasticity is high, developers will pay more.

[15] When renters are involved, there can be an additional layer of pricing: developers could pass costs along to property owners in the form of higher prices, and owners can pass along those costs to renters in the form of higher rent. For the purposes of our analysis, we simplify the transaction to only developers and households, and assume renters rent directly from the developer.

[16] We defined commercial development as any development with a land use code beginning with "C," according to the DataQuick and tax assessor data. This includes retail, restaurants, offices, and other commercial services but does not include industrial uses or institutional uses such as government offices or public schools.

sidewalks and architectural details. Assumption ranges from 0% to 3%, consistent with the literature.
Δ Parking = Average change in required parking spaces per commercial floor area due to plan
Parking cost = Average cost to developer of providing one commercial parking space. Costs estimated from RS Means and Litman (2011).
Floor area = Total amount of new commercial floor space constructed in plan area during the study period, calculated from tax assessor data.

2) **Regional benefit from amenities**

a) **Regional benefit from transit accessibility**

$$Regional\ benefit = Price\ \times\ Accessibiltiy\ premium\ \times\ \Delta Floor\ area$$

Where

Regional benefit = Benefit for the region from greater commercial development located near transit
Price = Median sales price per commercial square foot in plan area, calculated from DataQuick records for the final year of the study period.
Accessibility premium = Assumed % sales price increase per commercial square foot resulting from proximity to transit. Transit accessibility premium assumptions are based on previous empirical research and are specific to each case.
Δ Floor area = Increase in commercial floor area in the plan area, within 1500 feet of a transit station, due to the plan, over the study period. Equal to the increase observed in DataQuick data minus the floor area that would have been added in the absence of the plan.

b) **Regional benefits from other neighborhood amenities.** In some cases, the plan might produce economic benefits for the region by creating concentrations of retail and office activity. This is because retail and office uses tend to be more productive when located near other retail and office uses, respectively.

$$\begin{aligned} Regional\ benefit \\ &= (Rent\ \times\ Retail\ premium\ \times\ Retail\ floor\ area) + (Rent\ \times\ \%\Delta Employment \\ &\times\ \ elasticity\ \times\ Office\ floor\ area) \end{aligned}$$

Where

Regional benefit = Regional benefit greater concentration of retail and office space due to plan
Rent = Median monthly rent for commercial floor space in plan area at the end of the study period.
Retail premium = Assumed increase in monthly rent due to higher concentration of retail space in one location, as estimated in previous empirical literature (Sirmans and Guidry 1993, Hardin and Wolverton 2000). Specifically, the premium results from greater pedestrian activity and lower vacancy rates.
Retail floor area = Total amount of retail floor area in the plan area at the end of the study period, according to tax assessor data. Includes retail and restaurant uses.

% Δ Employment = Percent change in professional employment in plan area over study period due to the plan. Estimated from NETS data and includes “Professional, Scientific, and Technical Services” and “Real Estate” employment. Equal to the observed employment minus the employment that would have existed in absence of the plan.
Elasticity = Assumed elasticity of office rent with respect to professional employment density, as estimated in the literature (Bollinger et al. 1998, Sivitandiou 1996).
Office floor area = Total amount of office floor area in the plan area at the end of the study period, according to tax assessor data. Includes financial, medical building, and office uses.

We identified the increase in commercial development that could be attributed to policy changes in the plan. For example, density bonuses for mixed use might enable more commercial development, reduced parking requirements for commercial development might enable more businesses to locate in the plan area, or population increase in the plan area might create greater local demand for goods and services. We accounted for potential effects on commercial development in terms of construction costs and amenities. These impacts figured into the regional costs and benefits—we did not specifically estimate impacts from the perspective of individual business establishments.

Supply effects

Unlike for residential development, the literature suggests that due to a municipal finance system that incentivizes commercial development, municipalities in California tend to over-zone for commercial uses and especially retail (Boarnet and Crane, 1998; Wassmer, 2002). Therefore we did not assume that the supply of commercial development is generally constrained by zoning. This means we did not assume there is an unmet *regional* demand for commercial use. However, in certain locations where zoning restricts commercial there may be an unmet *local* demand, in which case rezoning might lead to greater commercial development than there would otherwise be.

Construction and development costs

Smart growth plans might influence the development and construction costs of commercial development in the same way as residential. We accounted for the fact that plans could increase construction costs by imposing more expensive design requirements, or they could reduce construction costs by requiring less parking. We estimated the change in costs in the same way as for residential development, using values from the literature, RS Means,[17] and Litman’s parking cost calculator (Litman, 2011).

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[17] RS Means is a standard reference often used in the construction industry for cost estimates.

Transit accessibility

Changes in zoning might result in more commercial space in the plan area that otherwise would have been development. In this case, the increase in commercial development would mean more commercial space benefits from transit accessibility. We therefore estimated benefit of transit accessibility in a way similar to that for the residential property. Empirical studies, however, have not found a consistent relationship between transit proximity and commercial rents. In Atlanta, Bollinger et al. (1998) found proximity to the commuter rail was negatively associated with commercial rents. More relevant to the contexts in our study, Cervero and Duncan (2002) studied the effect of proximity to light rail and commuter rail on assessed land values for commercial, office, and light industrial properties in Santa Clara County. They found that being within ¼ mile of a commuter rail (Caltrain) station was associated with a premium of about $25 per square foot, or 145%. Commercial parcels within ¼ mile of a light rail station had a premium of 23% on average. (See Appendix C for a summary table.) For each case, we chose an appropriate range of values from the literature based the type of transit and the neighborhood context.

Agglomeration benefits

In some cases, the plans resulted in more commercial space and employment in the plan area by provided density bonuses for mixed-use development, by lowering commercial parking requirements, and by increasing local demand for goods and services. By creating a greater concentration of commercial space and employment in the plan area, the policies may have produced agglomeration benefits, or benefits resulting from the spatial concentration of mutually reinforcing economic activity (Chatman and Noland 2011). For example, retail shops and restaurants might cluster in order to take advantage of pedestrian spillover from neighboring shops. Professional businesses might benefit from locating near other establishments that offer complementary services. Empirical studies have found that higher density of office and service jobs is associated with higher office rents (Bollinger et al., 1998; Cervero and Duncan, 2002; Sivitanidou, 1996).

Sivitanidou (1996) studied the determinants of assessed commercial-office property values in the Los Angeles region. She found that, controlling for other factors, a higher concentration of finance, legal, and business services employment in the census tract was associated with higher property values. The sign of the coefficient on retail employment density, however, depended on the model specification. In the Atlanta region, Bollinger et al. (1998) broke down employment into blue-collar, service, clerical, and professional jobs. They modeled office rent (in terms of annual rate per square foot of office space) as a function of concentration of certain types of jobs, measured as the employment in these occupations divided by the total regional employment in these jobs. The relationship between professional (including executive, managerial and professional) employment concentration and office rent was positive and highly significant, as it was for service jobs (“FIRE business and repair services, and other professional services”). The concentration of clerical jobs was associated with lower office rents, as was the concentration of blue-collar jobs. In Santa Clara County, Cervero and Duncan (2002) found that service employment density had a positive impact on non-residential assessed land values, while retail employment density had the opposite effect.

In general, retail employment is associated with lower commercial-office property values, while the concentration of professional services is associated with higher values. (See Appendix C for a summary table.) The magnitude of agglomeration effects is unclear: the elasticities vary by an order of magnitude. Those in Cervero and Duncan are higher than for the other two studies; this might be partly because they considered only assessed land values, rather than including the value of the building. In our analysis, we chose a value in each case appropriate for the specifics of that case. The employment density was determined as described in the following section.

2.4.5.4 Impacts on employment

The methods for estimating the plans' impact on employment depend on the specifics of the case. The plans may have changed employment either by increasing local demand for certain activities, or by permitting more commercial development in a context of high local demand, or both. In general, we assumed that the number of employees was proportional to the amount of commercial space. Additionally, we generally assumed that certain economic trends, particularly a decline in manufacturing, were external to the plans and would have occurred regardless of whether or not plans were adopted. Specific assumptions for each case are discussed in the respective case study reports.

We assumed that the plans did not significantly effect regional employment, but that they could have redistributed jobs within the region. If the plan increased (or decreased) the number of jobs in the plan area, we assumed that those jobs were drawn from elsewhere in the region. In each case, we made assumptions about where jobs would have been located in the absence of the plans, depending on case-specific circumstances.

2.4.5.5 Municipal fiscal impacts

The pattern of land development may directly or indirectly impact municipal finances by affecting (1) tax revenues, (2) the demand for public services and infrastructure and/or (3) the cost of supplying services and infrastructure (Paulsen 2009).[18] First, new development directly impacts municipal revenue by adding to the existing tax base. This varies depending on the amount, value and location of new development. Development may indirectly impact municipal revenue by influencing values of existing real estate or by affecting the local economy generally, which would affect other tax revenues and the demand for new development (Paulsen 2009).

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[18] Paulsen (2009) showed how the connections between development and municipal finance are often substantially more complex than suggested by this simplified conceptual model. Relationships may be complicated by factors such as the voting behavior of residents, and factors may interact in different ways with different services—for example, development may spur local economic growth, which could increase demand for some services (e.g., parks, perhaps) while lowering the demand for others (e.g., social services).

Second, development patterns may also influence the demand for public services. New residents may desire a different quality of services than existing residents; for example, the development of new subdivisions that attract families with young children may raise the “per capita” demand for schools. Third, development patterns can affect the per capita cost of providing public services and infrastructure (Ladd 1994; Paulsen 2009). This effect may occur, first, through change in the cost of inputs to service provision. For example, if the pattern of development raises property values, then the higher cost of land would increase the cost of providing services that require land as an input—e.g., schools or parks. Second, development patterns may affect costs by determining the amount of service output needed to achieve a desired outcome. For instance, if a land use pattern generates a high volume of traffic, more road-miles and traffic lights would be needed to provide the desired level of mobility. Lower-density housing would require a longer pipeline length to achieve the same level of sewer service. It is here that economies or diseconomies of scale may enter the equation. Public transit, for example, is generally more cost-efficient in dense communities.

The relationship between fiscal impacts and development patterns may work in the opposite direction, as when local governments strategically aim to attract certain types of development based on their expected contribution to the tax base, a phenomenon that Miscynski (1986) termed the “fiscalization of land use.” Indeed, Miscynski (1986) suggested that, as with California’s Proposition 13, a shift from local government reliance on property taxes to reliance on sales taxes would lead to increased competition for retail development; some evidence supports this prediction (Wassmer 2002). California cities’ predilections for attracting high sales tax-generating automobile dealerships and big box retail illustrates this shift (Lewis, 2001). A focus on attracting retail and other employment-intensive land uses may also occur in rail transit areas (Boarnet and Crane 1997). In these examples, it difficult to consider increased sales tax revenues as a benefit, without accounting for the possibility that these “new” sales may have simply shifted from another location. As such, we focused on describing retail land use changes and trends in the smart growth case study areas, rather than regional economic modeling.

In each case study, we analyzed four categories of public revenues and expenditures: property tax revenue, impact fee revenue, municipal operating expenditures, and capital expenditures. This is not a full “fiscal impact analysis.”[19] Our intent was to assess smart growth plans’

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[19] Fiscal impact analyses come in a wide range, from simple spreadsheets to econometric and input/output models. They may evaluate a single site, or areas as large as a region or nation. Most fiscal impact analyses take one of two approaches. An “average cost” approach requires data that show rates of public spending and revenues per resident (or per employee, per vehicle mile traveled, or other appropriate multiplier), and estimates of population (or employee, or VMT, etc.) increases that a policy or project may incur. The rates are applied to the expected population increases to produce estimates of new spending and revenues. A “marginal cost” approach recognizes that the cost of providing services does not rise as a linear function with each new user. Rather, the cost climbs slowly until the capacity of existing infrastructure is reached, at which point new facilities must be built, and the cost jumps dramatically. This approach may produce more accurate predictions, but it requires detailed information on the supply of and demand for service infrastructure in the jurisdiction studied (Bunnell et al. 2007).

influence on the municipal fiscal categories most directly tied to land use. The equations in each section below show our approach to estimating each type of effect.

Property tax revenue

Municipal revenues are easier to measure in a fiscal analysis than expenditures because they are more clearly associated with a particular household or neighborhood (Burchell and Listokin, 1978). We considered several approaches to estimating property tax revenue under different land use scenarios. The most detailed approach would have been to design a parcel-by-parcel scenario for the plan area and estimate the value of each parcel without the plan. However, these land use scenarios require highly detailed assumptions beyond the intent of this research that can lead to precise, but inaccurate, results. We took a more straightforward approach based on differences in land use intensity in each plan area. We started with the city's share of the property tax revenue generated in each plan area in 2010. We then used the combined number of residents and employees as a proxy for land use intensity under each scenario. We used this land use intensity proxy to adjust the actual 2010 property tax revenue estimate upward or downward based on growth or shrinkage in population and employment (with low-, mid and high-impact estimates) in absence of the plan. The equation below shows how we used these data to estimate the change in property tax revenue attributable to the plan.[20]

Municipal benefit/cost from property tax revenue.

$$Municipal\ benefit\ or\ cost = \Delta\ Assessed\ value\ X\ Property\ tax\ rate\ X\ City\ share\ of\ revenue$$

Where

Municipal benefit/cost = Fiscal benefit to the municipality from the adopted plan
Δ Assessed value = Change in assessed value attributable to the plan ($), based on the change in housing units and employees attributable to the plan.
Property tax rate = General countywide property tax rate
City share of revenue = Share of property tax revenue collected by the county assessor allocated to the municipal government.

We also considered the property tax implications of households and commercial uses locating outside the plan area in the absence of the plan. We first calculated the citywide average of property tax revenue generated by each resident and employee.[21] We then applied this citywide average to the residents and employees who relocated outside of the plan area in absence of the plan. In four of the case studies (Turlock, East Village, Rio Vista and Midtown San Jose) we assumed that all of the residents and employees not accommodated in the plan area moved

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[20] Revenue split from Los Angeles County Assessor: http://auditor.lacounty.gov/wps/portal/ac/property_tax/faqs/
[21] Employees are a proxy for commercial uses.

elsewhere in the city limits. In the Vermont-Western case, given the high number of independent municipalities in metropolitan Los Angeles, we estimated that 39% of the residents and jobs relocated within the city boundary and the rest elsewhere in Los Angeles County. This share is based on the city's share of the county's population in 2010 (United States Census Bureau, 2010). A limitation of this approach is that it can under-estimate or over-estimate revenue if housing options or commercial development that occurred outside the plan area in absence of the plan differed significantly from the citywide average.

We note that we did not explicitly model the effects of Proposition 13. In the absence of Proposition 13, we might have observed larger property tax revenue benefits in the smart growth areas. These benefits would have occurred if local governments had more fiscal motivations to enable a variety of urban development types, including residential development, which tend to generate more property tax revenue and perhaps less sales tax revenue.

Municipal operating expenditures

We estimate operating expenditures associated with each plan or policy based on the most credible and relevant research described below. First, Ladd (1992; 1994) investigated the influence of population density on public spending using data from 247 counties in large metropolitan areas in the United States. Employing a regression analysis that accounted for other explanatory factors, she found that annual per capita spending exhibited a U-shaped relationship with countywide population density. In very sparsely settled areas, per capita spending *decreased* with density, but above 250 people per square mile it *increased* with density. However, Ladd's analysis suffers from some important shortcomings. First, using the county as the unit of analysis fails to capture density with adequate spatial granularity. Because counties are heterogeneous in urban form, density and expenditures should be measured at the neighborhood level, not averaged throughout the county. Second, the analysis does not account for the difference between counties that contain a central city and those with only suburbs. Because central cities often provide services that are used by residents of the entire metropolitan area, their per capita costs may be higher, and because central cities are typically denser, Ladd's analysis may overstate costs of density. In addition, density is associated with higher property values per acre, so the higher spending in Ladd's analysis may actually result from higher revenues. Although this research informed our thinking about fiscal impacts, we did not use the estimates from this study in our analysis.

Carruthers and Ulfarsson (2008, 2003) attempted to correct some of the methodological problems in earlier studies. The authors' 2003 regression analysis included more explanatory variables, including property values and central city versus suburban counties; the follow up in 2008 included even more. Although the authors, like Ladd (1992), used the county as the unit of analysis, they calculated density only for developed land, which produced a more accurate measure of density—although it still cannot account for variations at a smaller scale. In the more recent and detailed 2008 study, the authors included data for all counties in the contiguous U.S.

and, using a ‘spillover’ spatial model that accounted for interaction among neighboring counties, estimated the effect of density and the extent of developed land on nine different categories of municipal spending, as well as total spending. The results suggested that density was negatively associated with overall per capita local government spending, controlling for demographics and other local characteristics. All else equal, low density was also associated with higher per capita spending in four sub-categories—education, parks and recreation, police protection, and roadways—and lower spending for housing and community development.

The question of public service efficiency is still an open question, as evidenced by other recent examples from the grey and peer-reviewed literatures. For instance, an alternative finding is from Fulton et al.’s (2013) report for Smart Growth America, which estimated that more compact neighborhoods cost about 10% less to serve per capita than suburban neighborhoods. On the other hand, Holcombe and Williams (2008) examined municipal expenditure data for 1990 and 2000 from the Census Bureau’s Historical Finance Database. They found no statistically significant relationship between population density and municipal expenditures per capita for cities with populations smaller than 500,000 and a statistically significant positive relationship between population density and municipal expenditures per capita for cities with populations greater than 500,000. This may be attributable to bigger cities providing different or more services (e.g., social services) rather than a service efficiency issue.

Our approach focuses on four major basic public services for which the case study municipalities were responsible: police, fire, parks, and street maintenance. To assess how much cities spend in each plan area we make three simplifying assumptions. First, service *levels* – for police, fire, parks, and streets – are constant citywide. For example, police and fire response times are comparable across a city. This may be questionable, if poorer neighborhoods receive lower quality public services, but we lack the data to measure service level differences. Second, public service efficiency is tied to population density. We conclude that Carruthers and Ulfarsson’s (2008) research is most credible and applicable to our case studies, and we apply their finding that police, parks and transportation are more efficiently provided at higher densities, while the cost of fire service is not significantly associated with density.[22] Third, since previous analysis, including the one which we apply here, relating density and public service provision has been done at the city or county-scale, we assume that efficiencies hold between scales. For our

[22] However, Ladd (1992) finds that the relationship between density and public spending is not linear, but rather a U-shaped curve, with services becoming more expensive to provide at densities higher than 250 people per square mile. It seems unlikely to us that the most efficient density for service provision in Los Angeles would be in neighborhoods comprised of large-lot single family homes, and land use separated by large distances.

analysis, we calculated the citywide per capita net operating expenditures[23] on police, fire, parks, and streets, as shown in the equation below.

Municipal benefit/cost from public service provision.

$$\begin{aligned}&Municipal\ benefit\ or\ cost\\&= Citywide\ cost\ per\ person\ served\ X\ \ Difference\ in\ density\ between\ city\ and\ plan\ area\ X\ Elasticity\end{aligned}$$

Where

Municipal benefit/cost = Fiscal benefit to the municipality from the adopted plan
Citywide cost per person served = Average cost per resident and employee of police, fire, parks and roads.
Difference in density between city and plan area where plan area density = (Plan area residents + plan area employees) / size of plan area (sq. mi.), and citywide density = (Citywide residents + citywide employees) / size of city (sq. mi.)
Elasticity = elasticity of specific public service efficiency based on density (e.g. police, fire, parks, and roads) from Carruthers and Ulfarsson (2008).

We started with citywide expenditure data from Los Angeles, San Diego, Turlock and San Jose, as reported to the California State Controller's Office. We calculated citywide per-capita spending on police, fire, parks, and streets for 2000 and 2010. We then adjusted the citywide averages, using Carruthers and Ulfarsson's (2008) elasticities, based on the population density of our study area. For example, the population density of Vermont-Western in 2010 was 24,763 persons per square mile, while in the absence of the plan it would have been 23,649 persons per square mile. Again, the plan area is about three times denser than the entire city, which had 8,000 people per square mile in 2010. Based on Carruthers and Ulfarsson's research, most per capita service costs in the Vermont-Western area would have been lower than the city average. In each case study, for the people living outside the plan area, we assumed that households move to neighborhoods with the citywide average density and public service expenditures.

One-time fees

Cities assess development impact fees on different types of new development. There are some special fees in some areas, and fees are often negotiated (Altshuler and Gomez-Ibanez, 1993). Data on total impact fee revenues were sparse in most of the cases, with the exception of Rio Vista. In the other four cases we estimated this category of one-time revenues using available development impact fee schedules and from interviews. We began by estimating impact fees per single-family and multi-family unit and square foot of commercial development in each plan

[23] Net expenditures equal operating expenditures less functional revenues.

area. We used the housing and commercial development assumptions, described above in sections 2.4.5.2 and 2.4.5.4, to estimate the impact fee revenue in the plan area for each scenario. We then followed the same process for the residential and commercial development outside the plan area, applying a citywide average impact fee per unit and square foot to the new development. Fees were generally lower in our case study areas than the citywide averages, because cities typically assessed lower fees in downtowns and built-out neighborhoods. This meant that in some cases, we found that cities would have had higher impact fee revenues in absence of the smart growth plans, but this would have been offset by higher capital expenditures.

Municipal benefit/cost from impact fees

$$\begin{aligned} &\mathit{Municipal\ benefit\ or\ cost} \\ &\qquad = (\mathit{Special\ plan\ area\ fees\ X\ units\ or\ sf}) \\ &\qquad + \mathit{Fees\ assessed\ on\ development\ attributable\ to\ plan} \end{aligned}$$

Where

Municipal benefit = Fiscal benefit to the municipality from the adopted plan
Special plan area fees = Special fees that were adopted as part of the smart growth plan or policy (e.g., the Parks First Fee in the VWSP)
Units or sf = Housing units or commercial square footage developed in the plan area on which the special plan area fees are assessed.
Fees assessed on development attributable to plan = general impact fees X housing units or commercial square footage attributable to the plan

Capital expenditures

Per capita public infrastructure costs depend on the condition and un-used capacity of existing infrastructure. Previous research illustrates non-linear relationships and methodological limitations. Some studies, particularly early studies in the “costs of sprawl” debate, considered aggregate neighborhood types or patterns of development, rather than individual dimensions of urban form. Frank (1989) reviewed literature on the public service costs associated with various development patterns and, based on findings from the studies reviewed, estimated costs for patterns that varied by density, lot size, and distance from central service centers. He concluded that a sprawling development pattern was associated with substantially higher per-capita costs for roads, water, sewer, storm drainage and schools. The highest cost scenario, not surprisingly, was for large-lot, low-density development located far from service centers. The lowest costs were for compact development in a central location, in which single-family units and townhouses constituted 30% of the housing stock and apartments 70%. He found that costs of low-density development could be mitigated by using lower standards for roads, sewers, and drainage, but that would not be sufficient to lower overall costs of providing the service.

In an engineering cost model, Speir and Stephenson (2002) estimated the cost of providing water and sewer service for hypothetical new development under scenarios that differed by lot size, subdivision dispersion, and distance from subdivision to service center. They found that, as expected, larger lot sizes, more dispersion, and greater distances to the service center were associated with higher costs. Of these, lot size had the largest impacts; doubling the lot size from a quarter to half acre resulted in a 30% increase in water and sewer costs. However, these studies considered only costs associated with hypothetical "greenfield" development, not actual costs—and therefore did not account for factors such as the cost of land acquisition, possible use of existing infrastructure capacity, or costs of dealing with aging infrastructure.

In a modeling study, Burchell et al. (2005) compared the impacts of two growth scenarios, sprawl and compact development. The authors found that, per capita, the "compact" scenario would consume almost one-quarter less land; would reduce capital costs for water, sewer and road infrastructure; and would reduce net fiscal deficits. The authors reported these savings for four U.S. regions (Northeast, Midwest, South, and West) and the entire nation. The authors also acknowledged several benefits to sprawl, including lower land and housing costs at outlying sites; larger average lot sizes; and meeting consumer preferences for low-density housing. This book reinforced some expected relationships between development characteristics and infrastructure costs, but considering the large geographies and broad scenario definitions, it is almost impossible to parse out the costs and benefits of individual policies. In addition, the fiscal impacts analysis used generic assumptions for very broad geographic regions and is unlikely to apply to California's unique finance structure, which limits property taxes and, compared with other states, relies more heavily on sales taxes. In a similar study, Burchell and Mukherji (2003) compared the costs of conventional development and managed growth in terms of land consumption, infrastructure, real estate development costs, and public service costs. Using a county-based growth model, they estimated that managed growth across the nation would result in a 6.6% reduction in water and sewer capital costs and an 11.8% reduction in local road development costs.

In our analysis, we focus on one-time capital spending on new fire stations, libraries, parks, and streets. The extent to which growth triggers new capital expenditures depends on the condition of existing facilities and the extent to which excess capacity exists today (Schildt, 2011). While the general distinction in the non-academic literature is between infill and greenfield infrastructure development costs, we do not know much about how costs vary for *infill* development in different neighborhoods. This is an important point because the citywide average location in each of our case studies is an infill site. The cost of serving this growth depends on how much excess capacity there is for existing infrastructure and the quality of existing infrastructure. That said, we quantify expenditures in each case study's plan area using city budgets, news searches, and interviews. Beyond the plan area we found typical growth was occurring in areas already served by infrastructure and community facilities.

Due to a lack of consistent data, in three of the cases (VWSP, Rio Vista, and San Jose) we structure our infrastructure cost analysis as a qualitative analysis based on city budgets, news searches, environmental impact reports, and interviews. We looked for evidence of unused capacity in the area and any spending that was associated with growth, rather than spending that would have occurred regardless of the plan. In the other two cases (Turlock and East Village), more comprehensive data were available because these cases were in redevelopment areas.

Municipal benefit/cost from infrastructure spending.

$$Municipal\ benefit\ or\ cost = \textit{infrastructure spending or savings}$$

Where

Municipal benefit = Fiscal benefit to the municipality from the adopted plan
Infrastructure spending or savings = Evidence of additional spending or cost savings from the plan

2.4.5.6 Vehicle travel impacts

The plans influenced vehicle travel in two ways: by influencing the form of the built environment within the plan area, and by influencing the number of residents and employees located in the plan area. We estimated the following impacts on vehicle travel. Change in vehicle miles traveled (VMT) were estimated using the tool developed by Deborah Salon for CARB (2014).

1) **Household benefits and costs from changes in vehicle travel**
   a) **Impact on existing households.** Changes in the plan area's physical environment due to the plan may have influenced the travel behavior of households that initially lived in the plan area and stayed throughout the study.

$$\Delta VMT_{preexisting\ HH} = \sum_i (\%\Delta x_i \times e_i \times VMT_0) \times HH\ size$$

Where

$\Delta VMT_{preexisting\ HH}$ = Change in VMT attributable to the plan for an individual preexisting household in the plan area over the study period.

$\%\ \Delta\ x_i$ = Percent change in the i^{th} built environment or travel variable due to the plan over the study period. Built environment and travel variables are discussed in more detail in the following section.

e_i = Elasticity of the i^{th} built environment or travel variable, as calculated by Salon (2014). Elasticities are specific to each region.

VMT_0 = Per capita VMT in the plan area at the end of the study period, according to the California Household Travel Survey.

HH size = Average household size according to the Census.

$$Household\ impact = \Delta Cost_{preexisting\ HH} = \Delta VMT_{preexisting\ HH} \times Operating\ cost$$

$\Delta\ Cost_{preexisting\ HH}$ = Change in personal vehicle travel costs attributable to the plan for an individual preexisting household in the plan area over the study period.

Operating cost = Average vehicle operating cost per mile. Operating costs take into account fuel cost, fuel efficiency, and maintenance cost, as detailed in Appendix D.

b) **Impact on households that moved.** Through changes in residential development, the plan influenced the number of households residing in the plan area. Households that moved into or out of the plan area may have changed their travel behavior in response to the different location or differences in the local built environment.

$$\Delta VMT_{relocating\ HH} = \sum_i (\%\Delta x_i \times e_i \times VMT_0) \times HH\ size$$

Where

$\Delta VMT_{relocating\ HH}$ = Change in VMT attributable to the plan for an individual household that moved into or out of the plan area during the study period.

$\%\ \Delta\ x_i$ = Percent change in the i^{th} built environment or travel between the residents' original location and the residents' new location. Built environment and travel variables are discussed in more detail in the following section.

e_i = Elasticity of the i^{th} built environment or travel variable, as calculated by Salon (2014). Elasticities are specific to each region.

VMT_0 = Per capita VMT in the plan area at the end of the study period, according to the California Household Travel Survey.

HH size = Average household size according to the Census.

$$Household\ impact = \Delta Cost_{relocating\ HH} = \Delta VMT_{relocating\ HH} \times Operating\ cost$$

$\Delta\ Cost_{relocating\ HH}$ = Change in personal vehicle travel costs attributable to the plan for an individual household that moved into or out of the plan area during the study period.

Operating cost = Average vehicle operating cost per mile. Operating costs take into account fuel cost, fuel efficiency, and maintenance cost, as detailed in Appendix D.

2) **Regional impact from changes in vehicle travel**
To calculate total regional impacts from changes in vehicle travel, we first have to estimate changes in VMT for workers employed in the plan area.

$$\Delta VMT_{preexisting\ workers} = \%\Delta\ Density \times elasticity \times VMT_o$$

Where

Δ $VMT_{preexisting\ workers}$ = Change in VMT due to plan for employees that initially worked in the plan area and continued to do so over the study period.

% Δ Density = Percent change in workplace employment density in the plan area over the study period attributable to the plan.

Elasticity = Elasticity of employee VMT with respect to employment density at workplace, from Chatman (2002)

$$\Delta VMT_{relocating\ workers} = \%\Delta\ Density \times elasticity \times VMT_o$$

Where

Δ $VMT_{relocating\ workers}$ = Change in VMT due to plan for employees whose jobs relocated into or out of the plan area during the study period.

% Δ Density = Percent change in employment density between the workers' original workplace location and the new workplace location.

Elasticity = Elasticity of employee VMT with respect to employment density at workplace, from Chatman (2002)

The net change in VMT due to the plan is given by:

$$\Delta\ VMT_{Total} = \Delta\ VMT_{preexisting\ HH} + \Delta\ VMT_{relocating\ HH} + \Delta VMT_{preexisting\ workers} + \Delta VMT_{relocating\ workers}$$

The regional impact from changes in vehicle travel includes both personal cost and external costs.

$$Regional\ impact = \Delta\ VMT_{Total} \times (Personal\ operating\ cost + External\ cost)$$

Where

Regional impact = Benefit or cost to the region from changes in vehicle travel due to the plan.

Δ VMT_{Total} = Net change in VMT due to the plan, calculated above.

Personal operating cost = Average vehicle operating cost per mile. Operating costs take into account fuel cost, fuel efficiency, and maintenance cost, as detailed in Appendix D.

External cost = Total external costs per mile to the region of vehicle travel, as provided by Delucchi and McCubbin (2010). Details are in Appendix D.

We considered several ways smart growth plans might influence travel behavior. The plans intended to concentrate development in plan areas, which were relatively more accessible to transit and located closer to employment centers compared to other locations where development might have occurred absent the plan. By increasing density or otherwise permitting more development, the plans might enable more people who live or work in those locations, and those people would be more likely to use transit or drive shorter distances, reducing vehicle travel. Smart growth plans commonly aim to improve street design to make walking and cycling more attractive, which could all lead to less vehicle travel.

It is possible that if housing had not been constructed in target plan area, households would have simply lived in other locations with equally good access to transit. Research has shown that households that prefer to use transit are more likely to choose to live in neighborhoods with transit (Cao et al., 2009)—which suggests these households would have otherwise found another transit-friendly place to live, or they would have continued to use transit or walk even if it were not convenient (Chatman, 2009). However, when housing near transit is scarce or expensive, this preference for transit is less correlated with transit access and has little influence on residential choice (Chatman, 2009; Levine, 2006). As long as housing in dense, central locations with good public transportation is in high demand, providing such housing effectively alters residential choices, allowing households that otherwise would have located in suburban areas to locate in central locations instead.

To calculate the change in vehicle miles traveled (VMT) for residents of the plan areas, we used the tool developed by Deborah Salon for CARB (2014). The tool estimates changes in VMT at the neighborhood-level scale based on changes in eight built environment and travel variables. In each case study, based on a comprehensive analysis of available data, we determined how the input variables changed under the smart growth plans, in comparison to what they would have been without the plans. We then used these as inputs, and the tool applies a set of region-specific elasticities to estimate VMT changes. Four of the eight variables—*road density, activity mix, regional job access,* and *gas price*—were regional-level characteristics or were not changed by plans. The other four were likely influenced by the smart growth plans: share of commuters using transit, detached single-family housing as a share of housing units, local job access, and the non-motorized commute share, described below.

1. *Percent of commuters using transit:* Values were provided by the Census and the ACS.
2. *Percent of detached, single-family homes:* These were the same values estimated in the residential development section.
3. *Local job access:* Local job access is a gravity-based measure calculated from the jobs that are in close proximity to each neighborhood. We based our calculations on Longitudinal Employer-Household Dynamics (LEHD) employment data from the Census Bureau. We used 2003 jobs as a proxy for 2000 values, as this is the first year LEHD data was available.[24] A more detailed explanation of the local job access measure is available in Appendix D.
4. *Percent non-motorized mode commute share:* Values were provided by the Census and the ACS.

Those working in the plan areas, regardless of where they live, might also reduce driving because of the plans. To quantify this impact, we used coefficients for employment density measured by Chatman (2002). The figure we used for our analysis quantifies workers' personal travel based at the workplace—midday errands or trips for food before or after the workday—relative to employment density. In locations with higher employment density, more goods and services tend to be within walking distance, meaning more commercial trips can be taken using non-motorized modes. Employment density was determined in the employment impacts section.

After computing the combined change in VMT due to changes in residents' and workers' travel behavior, we converted the VMT change into dollar amounts as follows. We assumed that households already own vehicles, so for each additional mile of travel, they pay only vehicle operating costs. We also used standard assumptions about fuel efficiency, gas price, maintenance costs, and tire costs. To monetize the societal (and plan) impacts of incremental changes in VMT, we used the methodology of Delucchi and McCubbin (2011), who calculated external costs of vehicle travel. These calculations use a range of values to account for uncertainty; details are provided in Appendix D. Based on these assumptions, we estimated that each vehicle mile traveled had a marginal personal cost of 22.4 cents (2011$) and a societal cost of 3.5 cents to 4.12 cents (2011$).

The vehicle travel estimation contains several important limitations. Our analysis did not include the potential VMT reduction associated with the mode shift from auto to transit for workers employed near transit stations, implying we underestimated the VMT impact of the plans. Further, we did not include the potential impacts of reduced parking supply on VMT. Previous research has shown that parking scarcity is associated with reduced auto use (Chatman, 2013), but the Salon tool does not include parking as a variable, and no empirical studies report a relationship between parking availability and VMT that would be applicable to our methodology. Thus we have probably underestimated the plans' impacts on VMT. On the other hand, our

[24] We use LEHD for this calculation rather than NETS data as in the employment analysis because Salon's methodology uses LEHD. Additionally, we use 2011 jobs values in place of 2010, because 2011 values were less impacted by the 2008 economic recession.

analysis did not include any changes in personal costs for transit use. Reductions in VMT are likely associated with higher transit use, which implies travelers spend more on transit and less on personal vehicles—suggesting we probably overestimated the reduction in travel cost for individual households. We suspect the underestimation of VMT balances out the overestimate of household travel costs; nevertheless we acknowledge the VMT estimates are not highly precise.

2.4.5.7 Accounting of costs and benefits

After estimating the impacts of the plans in each section, we calculated net impacts from each point of view. It is important to note that impacts for different groups are *not* additive; e.g., the "total impacts" are not simply the sum of all groups' impacts. Instead, the impacts from each perspective represent how and how much that group experiences impacts of the plan.

In order to calculate net impacts, we must convert all benefits and costs to annual terms. For example, we estimated benefits from neighborhood amenities in as a percentage of property sales prices in total or cumulative terms, as explained in Section 2.4.5.1. But, savings on municipal operating expenditures are expressed annually, as explained in Section 2.4.5.5. Therefore, we converted impacts expressed as cumulative values (most residential and commercial property impacts) to annual terms by calculating the equivalent annual cost (or benefit). The equivalent annual cost (or benefit) is the cost (or benefit) per year of owning an asset over its lifespan. It can also be thought of as the annual loan payment for the asset, when the loan period is the lifespan of the asset. The formula for equivalent annual cost (benefit) is:

$$Annual\ cost\ or\ benefit = \frac{V \times r}{1 - (1 + r)^{n}}$$

Where

V = Value of cost or benefit over lifespan

r = Interest rate, assumed to be 6%. [25]

n = Lifespan of asset, in years. Since the assets in question are typically buildings or property, we assume n = 30 years.

To calculate the net impacts, for each perspective we totaled the annualized costs and benefits from residential property, commercial property, municipal finances, and vehicle travel. We treated benefits as positive and costs as negative.

Net benefit or cost = Residential property benefit or cost + Commercial property benefit or cost + Municipal fiscal benefit or cost + Vehicle travel benefit or cost

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[25] ARB typically assumes a 5% interest rate, which is closer to current interest rates (in 2015), but 6% is closer to the average for the study's time period, 1990-2010. (See https://research.stlouisfed.org/fred2/graph/?g=NUh)

In some cases not all types of impacts apply. For example, in some cases the plan had no effect on commercial property.

We must also note special consideration for transit accessibility values and personal (or household) travel costs. These are overlapping categories—the transit accessibility value estimates the benefit a new resident receives from having the option to use transit, while the vehicle travel value estimates the savings in personal transport costs he or she realizes.[26] Since counting both in the total would involve some double counting, where both appear in the equation we chose to count only the value from transit accessibility because we believe that estimate is more accurate than the estimation for vehicle travel.

2.4.6 Limitations of the analysis

This is not a full cost-benefit analysis; we considered only impacts on residential and commercial development, municipal finances, and vehicle travel. We did not consider social impacts such as shifts in neighborhood racial composition or the implications of increased non-family households in a neighborhood that formerly held mostly families. We only considered impacts on households in the plan area—we excluded those who leave and those who live just outside of it or elsewhere in the region. Finally, our assessment of household impacts only applied to average households. Individual households likely experience a greater range of impacts specific to their situations, both positive and negative.

Importantly, our analysis relied on assumptions about what would have happened in the plan's absence, which in fact cannot be known. Our assumptions were based on what we considered to be most likely and plausible, but many alternative scenarios are possible. Because we could not be sure about what would have happened in the absence of the plans, this analysis should not be seen as assertion of causality, but an estimation of the likely impacts of the plan. In future analyses, it would be useful to consider a range of possible counterfactual scenarios, which would more fully demonstrate the range of possible impacts.

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[26] The transit accessibility and vehicle travel savings do not overlap completely because the vehicle travel savings may come from sources other than transit accessibility, like a shorter commute distance. Ideally, we could isolate the effect of proximity to transit from other elements that contribute to the amount transit accessibility increases property values, and ideally we could isolate the effect of transit proximity from other factors that reduce vehicle travel. If we could do that, we could be sure to count the value of each element only once. However, existing empirical research does not completely disentangle these variables. For example, the transit accessibility premium observed in empirical studies might include other, harder to measure factors, like pedestrian friendliness.

3 RESULTS

In this section we present an overview of and results from each case study. More details on each case are available in the respective case study report.

3.1 Vermont/Western, Los Angeles

In 2001, the City of Los Angeles adopted the Vermont-Western Specific Plan (VWSP) with the intention of boosting infill development in four Metro rail transit station areas. The VWSP covers one of the densest parts of Los Angeles, a 2.2-square-mile area between downtown Los Angeles and Hollywood. At the time of the plan's adoption, 50,000 people lived in the plan area, largely a mixture of low- and middle-income residents, including many immigrants and ethnic minorities, and businesses catering largely to these residents. Vermont-Western was an employment center with two hospitals, a community college, and several public and private schools. However, the neighborhood lagged in economic activity compared to adjacent downtown and Hollywood areas, and many of its early 20th-century buildings were in need of reinvestment.

3.1.1 Major plans and policies

With the VWSP, city planners and community groups sought to take advantage of rail transit and make the neighborhood "more livable, economically viable, as well as pedestrian and transit friendly." City planners expected the area to accommodate an additional 12,000 residents by 2020 and intended the plan to increase "public facilities and services, jobs, housing, [and] transit ridership."

The plan's most important policies served to:

(1) increase allowable density and building heights to as much as 3.0 FAR[27] and 75 feet, depending on location in the plan area;

(2) allow mixed commercial and residential uses along major streets where previously only commercial was permitted;

(3) reduce parking standards by 15% within 1,500 feet of subway stations and add maximum parking limits, while maintaining existing parking;

(4) exempt renovations and changes of use from parking requirements, as long as any existing parking was maintained;

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[27] FAR (Floor Area Ratio) is a measure of density. It is equal to the ratio of a building's total floor area to the area of the land on which it is built.

(5) require public amenities intended to enhance the pedestrian environment. For example, each new project in the "Mixed Use Boulevard" subarea was required to provide one public walkway through the project for every 250 feet of street frontage. Housing developers in the plan area (except those with affordable units qualifying as low and very low income) were also to contribute $4,300 per unit to a "Parks First" fund to provide parks in the neighborhood; and

(6) require commercial and mixed-use developments with more than 100,000 square feet of non-residential uses to provide child care facilities.

3.1.2 Housing and population

Between 2000 and 2010, the plan area's population declined from 59,500 to 54,500. This occurred because families with children and Hispanic residents moved out in large numbers, replaced by smaller, childless households more likely to be white or Asian. The average household size decreased from 2.6 to 2.3, resulting in an 8% population decline, although the number of households decreased by less than 1%. Nearby areas outside the VWSP boundaries experienced similar shifts, suggesting that this was a part of larger-scale demographic trends in central Los Angeles rather than the result of changes specific to the plan area.

Between 2000 and 2010, the housing stock in Vermont-Western expanded by a net 696 units, a 3% increase. This net change reflects a loss of 198 existing single-family units and a gain of 894 new multi-family units; some single-family homes were converted to or replaced by multifamily units. Of the new units, 200 were affordable units and the rest were market-rate.

Much of the new housing development activity was enabled by the plan. The increase in permitted density and allowance of mixed use in formerly commercial-only area allowed new residential construction that would otherwise have been prohibited. The removal of parking requirements decreased construction costs, allowing developers to respond to increased demand by undertaking a few more reuse and renovation projects. The number of additional housing units was not large, though, considering the size of the plan area—we estimate the policy changes allowed between 246 and 496 additional housing units.

The plan also appears to have created more neighborhood amenities—more flexible parking requirements allowed more development of restaurants and other local retail and services uses, and streetscape upgrades improved the pedestrian environment. These amenities represented a cumulative benefit over the ten years of $1,394 to $2,768 for the average existing single-family homeowner. The plan allowed more housing to be built near transit stations, and new households in the plan area received an accessibility benefit of about $118 to $227. The plan appears to have produced modest net benefits from all perspectives, although low-income household benefited far less than other household types—they benefited by only a few dollars due to the price savings from increased housing supply. Existing homeowners and those who bought a new multifamily unit in the plan area saw the greatest benefit—as much as a couple thousand dollars annually—

mainly from increased neighborhood amenities. New buyers also benefited from accessibility and lower construction costs from lower parking requirements.

Compared to the existing housing stock, the new housing units were smaller and more often in multifamily buildings. The new units were also in newly constructed or recently renovated buildings. The plan therefore resulted in an increase in newer but smaller units in multifamily buildings. This new housing appealed to a different type of household—most likely childless households seeking smaller housing units in locations accessible to transit and urban amenities. Some of the decrease in household size was likely attributable to the plan, because the addition of smaller housing units allowed an influx of smaller households, but the decrease was also partly due to a more general trend. Depending on how much the plan influenced household size, the effect was either to decrease total population in the plan area by as much as 2,300 or increase it by up to 2,500 over the ten-year study period.

3.1.3 Commercial development and employment

Between 2000 and 2010, the Vermont-Western area added 4,969 jobs and over 150,000 square feet of commercial floor area; part of this growth was attributable to the increased allowable density and parking reductions. Of the added 150,470 square feet of commercial space, 69,380 square feet were in newly constructed buildings; the rest were in existing buildings, most likely from conversion of industrial or warehouse uses, or filling vacant buildings. (The additional commercial space does not include hospital expansions that occurred in the plan area during the decade.)

We found that the relaxation of parking requirements reduced the cost of opening small businesses like restaurants, bars, and cafés. Assuming there was already a growing demand for these types of commercial uses, the plan allowed more of these businesses to open in the plan area, accounting for 16,000 to 57,000 square feet of additional commercial space compared to what otherwise would have occurred. By increasing the number of higher-earning, childless households in the plan area, the plan may also have slightly increased demand for these types of services. Most of these businesses opened in existing buildings, whether converted from other uses or from previously vacant space. The reduced parking requirements lowered construction costs for commercial development, providing a benefit to the region of between $66,000 and $346,000 annually over the ten years.

In 2010, nearly 29,000 people were employed in the plan area, 21% higher than in 2000. This growth rate was substantially higher than in Los Angeles County (1.9%) and the city of Los Angeles (10%). In the plan's absence, employment growth would have generally followed regional trends, with the exception of jobs associated with the expansion of the Children's Hospital and the Kaiser Permanente Medical Center, which were planned before the VWSP and would have occurred regardless of the plan. Because the plan reduced the cost of providing parking and made opening small businesses in the plan area easier, it was likely responsible for increases in employment, particularly in the service and professional sectors. We found that the plan was likely responsible for adding between 900 and 1,800 jobs in the plan area. Without the plan, these additional jobs would have instead been located elsewhere in the county.

3.1.4 Fiscal

The plan's effect on the City of Los Angeles's budget is ambiguous and depends on the population assumptions in absence of the plan. In 2000 the neighborhood represented less than 0.9% of assessed value in Los Angeles, and this had risen to 1.2% by 2010. Per resident and per employee, the Vermont-Western area generates more property tax revenue than the city average. Our midrange estimate was that the plan resulted in $140,000 more per year in property tax revenue for the city.[28]

The plan's effect on municipal operating costs also depends on whether the plan increased or decreased population in the plan area. If it increased population, public service provision probably would have been more efficient because, if not for the plan, residents who lived in the plan area in 2010 would likely have settled in areas with lower residential densities, meaning service provision would have be less efficient. In this case, the plan would have saved the City of L.A. about $840,000 in operating expenditures annually. However, the plan could have also resulted in more people settling in less efficient areas, increasing municipal operating costs by about $900,000 per year.

The Parks First Fee of $4,300 per unit required by the plan resulted in higher impact fees in the plan area of about $1 million.[29] In the absence of the plan, the city would have received less in impact fee revenue, but other jurisdictions would have probably received more impact fee revenue because they tend to assess higher fees for each new unit (presumably because municipal costs associated with that development are higher). Lastly, there was little capital spending in the plan area between 2000 and 2010, and this would have been the same in absence of the Vermont-Western plan.

Our analysis shows the VWSP likely produced net benefits for municipal finances in the region, because the plan resulted in less greenfield development and more infill development, but the plan could have also produced costs. The region may have benefitted from more efficient provision of public services, on the order of $1 million per year, but if the plan resulted in reduced population in the plan area, then it made service provision less efficient. In the absence of the VWSP, revenue that went to the City's Parks First fund would instead have gone to other jurisdictions. This would have benefitted those jurisdictions, but it also would have imposed costs on households that ultimately pay for impact fees when they purchase or rent their homes. Therefore, there would be little or no overall impact to the region from this change.

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[28] The lower bound of our estimate was a decrease of $120,000 annually and the upper bound was an increase by $350,000 annually.

[29] At the time of writing, none of this impact fee revenue has been spent on new parks.

3.1.5 Vehicle Travel

The Vermont-Western plan is centered on four rail transit stations in one of the most transit-accessible parts of Los Angeles. During the study period, public transit commute share increased from 21% to nearly 25%, while pedestrian and bicycle commuting increased from 5.2% to 7.6%.

The VWSP influenced vehicle travel in several ways. Most importantly, the VWSP affected the number of residents and jobs located in an area that has good transit accessibility and is located relatively close to employment centers. Compared to residents of the average location in the region, residents of the plan area are more likely to use transit or walk to work; they are also more likely to drive shorter distances. The total effect on VMT generated by residents therefore depends on whether the plan resulted in more people living in the plan area, or fewer.

The plan enabled employers to locate more jobs in the plan area. Because the plan area is generally more accessible than where these jobs would have otherwise located, workers are more likely to commute by foot or public transit than they would be without the plan. The plan brought more shops to the neighborhood, which may have increased non-work trips carried out on foot by residents and workers in the plan area. Because the plan also reduced parking requirements for development, it made parking scarcer, providing a further incentive to reduce auto use. The plan therefore most likely reduced workers' VMT.

We estimate the plan's total net effect on VMT was either to reduce it by about 16,000 vehicle-miles traveled per day or to increase it by 400 per day, depending on the plan's effect on household size. Households moving into the plan area from elsewhere in the region would save more, on average \$335 to \$428 annually on personal vehicle travel, while households moving out of the plan area would increase their costs by the same amount. From the societal perspective, the plan's impact on vehicle travel may have imposed a cost of up to \$100,000 per year, or it may have produced a benefit of up to \$3.5 million.

Table 4: Summary of changes between actual and counterfactual scenarios: Vermont-Western.

Variable	**2000 Initial**	**2010 Observed**	**2010 In Absence of Plan *(Counterfactual)***			**Difference Between Observed and Counterfactual**		
			Low	Mid	High	Low	Mid	High
Total housing units	23,426	24,122	23,876	23,651	23,626	246	471	496
Average household size in plan area	2.56	2.32	2.56	2.47	2.37	n/a	n/a	n/a
Population in plan area	59,470	54,479	56,783	54,160	52,018	(2,304)	319	2,461
Employment in plan area	23,927	28,896	28,028	27,539	27,050	868	1,357	1,846

3.1.6 Summary

The overall impacts of the VWSP depend on whether it primarily enabled more households and residents to locate in the plan area, or whether it primarily resulted in replacing out-migrating family households with smaller, childless households. In both cases, though, the impact to the region was positive. The plan produced benefits by loosening restrictions on development, especially parking requirements. This led to household and regional benefits from increased tax revenues, greater municipal service efficiency, increased transit ridership, and lower vehicle miles traveled (VMT), at least for the residents of the plan area. The impacts to the municipality, however, depended far more on the household size effect.

The plan benefited mid- and high-income households of the plan area by several hundred to a few thousand dollars annually. Existing homeowners gained the most, mainly by capturing the value of increased neighborhood amenities, and existing renters gained somewhat less from increased amenities. However, low-income households, who were more sensitive to rising housing costs, may have found that the costs of rent increases were not offset by the benefits of new neighborhood amenities and did not see any significant impacts.

Table 5: Summary of net annualized benefits and costs from the regional and municipal perspective: Vermont-Western. (in 2010 dollars; costs shown as negative)

	Annual Net Economic Benefits (Costs)in Case Study Area		
	Low-impact estimate	Midrange	High-impact estimate
Regional			
Residential property subtotal	**$3,740,000**	**$4,940,000**	**$6,130,000**
Value from supply increase	$3,420,000	$4,510,000	$5,590,000
Accessibility benefits	$60,000	$150,000	$160,000
Other local amenities benefit	$-	$-	$-
Price change due to construction cost	$260,000	$280,000	$380,000
Commercial property subtotal	**$70,000**	**$210,000**	**$350,000**
Price change due to construction cost	$70,000	$210,000	$350,000
Fiscal subtotal	**$(1,310,000)**	**$420,000**	**$940,000**
Property tax	$50,000	$(60,000)	$(940,000)
Operating expenditures	$(120,000)	$130,000	$320,000
Impact fees	$60,000	$170,000	$170,000
Capital expenditures	$(1,300,000)	$180,000	$1,380,000
Vehicle travel subtotal	**$(100,000)**	**$1,700,000**	**$3,540,000**
Personal costs for residents and workers	$(90,000)	$570,000	$1,230,000
External costs for society	$(10,000)	$1,150,000	$2,320,000
Total Regional	**$2,390,000**	**$7,280,000**	**$10,960,000**

Municipal			
Residential property subtotal	**$-**	**$-**	**$-**
Value from supply increase	$-		
Accessibility benefits	$-		
Other local amenities benefit	$-		
Price change due to construction cost	$-		
Commercial property subtotal	**$-**	**$-**	**$-**
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$900,000**	**$290,000**	**$(320,000)**
Property tax	$(120,000)	$140,000	$350,000
Operating expenditures	$960,000	$(20,000)	$(840,000)
Impact fees	$60,000	$170,000	$170,000
Capital expenditures	$-	$-	$-
Vehicle travel subtotal	-	-	-
Personal costs for residents and workers	$-	$-	$-
External costs for society	$-	$-	$-
Total Municipal	**$900,000**	**$290,000**	**$(320,000)**

Table 6: Summary of net annualized benefits and costs from the household perspective: Vermont-Western. (in 2010 dollars; costs shown as negative)

	Low-impact estimate	Midrange	High-impact estimate
Household - Average single-family homeowner			
Residential property subtotal	**$1,384**	**$2,076**	**$2,768**
Value from supply increase	$-	$-	$-
Accessibility benefits	$-	$-	$-
Other local amenities benefit	$1,384	$2,076	$2,768
Price change due to construction cost	$-	$-	$-
Commercial property subtotal	**$-**	**$-**	**$-**
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$3**	**$8**	**$7**
Property tax	$(0)	$0	$0
Operating expenditures	$1	$(0)	$(1)
Impact fees	$3	$8	$8
Capital expenditures	$-	$-	$-
Vehicle travel subtotal	**$8**	**$20**	**$32**
Personal costs for residents and workers	$8	$20	$32
External costs for society	$-	$-	$-
Total homeowner	**$1,396**	**$2,104**	**$2,807**

Household - prospective buyers			
Residential property subtotal	**$808**	**$1,145**	**$1,473**
Value from supply increase	$0	$1	$1
Accessibility benefits	$118	$213	$227
Other local amenities benefit	$431	$646	$861
Price change due to construction cost	$259	$286	$384
Commercial property subtotal	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$3**	**$8**	**$7**
Property tax	$(0)	$0	$0
Operating expenditures	$1	$(0)	$(1)
Impact fees	$3	$8	$8
Capital expenditures	$-	$-	$-
Vehicle travel subtotal	**$-**	**$-**	**$-**
Personal costs for residents and workers	$335	$381	$428
External costs for society	$-	$-	$-
Total prospective buyer	**$811**	**$1,153**	**$1,480**

Household - renters			
Residential property subtotal	**$599**	**$899**	**$1,198**
Value from supply increase	$1	$1	$1
Accessibility benefits	$-	$-	$-
Other local amenities benefit	$598	$898	$1,197
Price change due to construction cost	$-	$-	$-
Commercial property subtotal	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$1**	**$0**	**$(0)**
Property tax	$(0)	$0	$0
Operating expenditures	$1	$(0)	$(1)
Impact fees	$-	$-	$-
Capital expenditures	$-	$-	$-
Vehicle travel subtotal	**$8**	**$20**	**$32**
Personal costs for residents and workers	$8	$20	$32
External costs for society	$-	$-	$-
Total renter	**$608**	**$919**	**$1,229**

Household - low income			
Residential property subtotal	**$1**	**$1**	**$1**
Value from supply increase	$1	$1	$1
Accessibility benefits	$-	$-	$-
Other local amenities benefit	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Commercial property subtotal	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$1**	**$0**	**$(0)**
Property tax	$(0)	$0	$0
Operating expenditures	$1	$(0)	$(1)
Impact fees	$-	$-	$-
Capital expenditures	$-	$-	$-
Vehicle travel subtotal	**$8**	**$20**	**$32**
Personal costs for residents and workers	$8	$20	$32
External costs for society	$-	$-	$-
Total low income household	**$10**	**$21**	**$32**

3.2 East Village, San Diego

San Diego’s East Village is a 130-block area located at the eastern side of the city’s downtown. It is a centrally located neighborhood served by the Trolley light rail and easily accessible to many job centers. It had endured decades of disinvestment until the 1990s, when it became a target for redevelopment. At that time, it was evolving from a neighborhood of warehouses and vacant lots to a community of artists and social services. The redevelopment initiatives brought investment and policy changes to East Village, as similar initiatives had to other downtown San Diego neighborhoods. Today, East Village is growing quickly, now with over 12,000 residents and 14,000 workers, and major anchors like the Petco Park major league baseball stadium, the city’s central library, and police headquarters.

3.2.1 Major plans and policies

In 1992, the Centre City Development Corporation (CCDC) designated East Village as a redevelopment area. The CCDC efforts included a coordinated vision and land use plan for East Village, a Master Environmental Impact Report for downtown, and enabled the use of tax increment financing. The 1992 land use plan allowed a greater range of uses, with a focus on residential uses, in areas that were previously zoned for non-residential use. It also raised density allowances; prior to the plan the maximum floor area ratio was 3.0-4.0, and the plan raised it to 3.0-10.0, depending on the specific location. To further encourage rehabilitation of residential buildings, the plan allocated funds for competitive loans and to arrange lower interest rates for mortgages on owner occupied units. In addition, the 1992 plan recommended public investments that included circulation and street enhancements, upgrade sewer and water utilities, provision of parks and community facilities. These interventions had large effects on development activity in East Village.[30]

In 2000, the city enacted several parking policy changes that also influenced development in East Village. These policy changes applied to areas with a high level of transit service throughout the city, including East Village. The policies reduced parking requirements by one-quarter space per unit and permitted residential parking requirements to be met with front-to-back tandem parking spaces instead of side-to-side parking spaces. A 2006 plan permitted even higher densities and offered density bonuses for mixed-use and affordable housing development, although this plan was too late to affect many development projects during our study period.

3.2.2 Residential development and population

The East Village redevelopment initiatives enabled an influx of new apartment and condominiums to replace low-density commercial buildings and warehouses, many of which were aging and in disrepair. Between 2000 and 2010, over 5,615 new housing units were built, in the form of apartments, condos, and townhouses. This new development was, to a large extent, enabled by the East Village redevelopment plans. Specifically, the higher density and mixed use zoning made permissible residential construction that would otherwise have been prohibited. The removal of parking requirements decreased marginal construction costs, allowing developers to respond to changes in market demand by undertaking a few more reuse and renovation projects. The plan also increased construction costs in some ways—requiring ground-floor retail, for example—which probably dampened the amount of new construction. In the absence of the plan, housing development would have still occurred, but at a slower rate, at lower densities, with more parking spaces, and without ground-floor retail. (Retail would likely have been provided in separate buildings.)

We estimate that the plans were responsible for an additional 3,000 to 5,000 housing units in East Village. Without the plans, these units would likely have been built elsewhere in the region, where they would be less centrally located and transit-accessible, and would be more likely to be single-family. Because of the increased housing supply, the plans resulted in a population increase of 2,460 to 5,114 between 2000 and 2010, compared to what would have occurred without the plan. The new residents were more likely than original residents to be white or Asian and have higher incomes. The average household size, already small at 1.6 in 1990, dropped further to 1.4 in 2010. In the absence of the plans, these residents would have lived elsewhere in the region.

The residential development added significantly to the region's supply of multifamily housing, creating a benefit to the region of roughly $31 million to $202 million per year—the greatest beneficiaries were owners of developable land. The plans also resulted in greater local amenities, and allowed more households to take advantage of the accessible location, for a regional benefit

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[30] Nancy Bragado personal interview, 2014.

of $3 million to $13 million per year, and a benefit to the plan area's new households of several thousand dollars annually. The more flexible parking requirements also allowed households and developers to save on construction costs, on the order of several hundred dollars per year.

3.2.3 Commercial development and employment

The East Village plans likely resulted in developers providing more commercial space in the plan area than they otherwise would have, for a few reasons. The plans resulted in more residents and institutions (like Petco Park) locating in the plan area, which created more local demand for services, retail, and restaurants—in addition to any increases in regional demand arising from population growth, the Trolley expansion, or other macro forces. The zoning for mixed-use allowed commercial space throughout the plan area to respond to increased demand. In addition, the plans included FAR bonuses for ground-floor retail, which allowed developers to include commercial space without it counting against their density limit. Without the plans, commercial development would have also been more costly due to higher parking requirements. The result was developers providing more commercial space in the plan area than they otherwise would have—we estimate that 80% of the new commercial space would have been built in absence of the plans. Instead of ground-floor retail in mixed-use buildings, most new commercial space would have been separated from residential. The increase in commercial activity may have created agglomeration or clustering effects that benefitted the region up to about $9 million—although we do not have high confidence in the existence of this effect.

Between 2000 and 2010, the number of jobs in East Village declined slightly, but the types of jobs changed more dramatically. In particular, by planning and financing major public facilities – like the Central Library – the plans supported growth in public administration jobs, the largest employment sector in the neighborhood. Most of the decrease in manufacturing and wholesale jobs probably would have occurred anyway due to a broader decline in manufacturing. Meanwhile, the plan resulted in more retail and restaurant employment in the plan area, jobs which otherwise would have located elsewhere in the region. In total, we estimate the plan was responsible for about 350 to 548 additional jobs locating in the plan area.

3.2.4 Fiscal

Overall, the biggest municipal benefits from the East Village redevelopment efforts come from long-term property tax revenue growth and more efficient municipal service provision. East Village's assessed value rose by 174% (compared with 90% citywide) between 2000 and 2011, and this is partially attributable to the new mixed-use housing development enabled by the plans. Because East Village was in a CCDC redevelopment area that used tax increment finance, the increases in property tax revenue above the neighborhood's base valuation did not flow to the General Fund, but were rather used to finance redevelopment activity. The plan may have increased the property tax revenue going to the CCDC by over $7 million per year over the study period, revenue that was invested back in local improvements. In the short term, the plan did not directly benefit the city budget, but over the long run it will if local investments lead to new development that otherwise would not have occurred.

The East Village plan led to more efficient provision of municipal services since it led to higher population densities than without the planning interventions, saving the city $190,000 to $230,000 per year in operating costs. The plan resulted in lower impact fee revenue, because outlying and less built-out areas of the city are assessed higher per-unit impact fees, but we assume that much of this effect was offset by less spending on capital costs, so the plan’s net fiscal effects are marginal.

3.2.5 Vehicle travel

East Village is highly accessible by transit, with two Trolley light rail stations and ample bus service. With its central location in downtown San Diego, residents of the plan area are also within a short drive or even walking distance of many jobs. As the neighborhood’s population grew and employment changed, the percentage of residents using public transit to get to work decreased from 30% in 2000 to only 8.5% in 2010. This is likely because incoming residents had higher incomes and were more likely to own cars, not because existing residents changed their travel behavior.

Without the plan, incoming residents would have likely lived in locations even less accessible to transit and employment centers, and would be even less likely to walk or use transit—they also likely would have driven longer distances. In addition, the increase in retail, restaurants, and offices stemming from the redevelopment plans also placed new destinations within walking and biking distance of more residents and workers. Thus, because of the plans, more people could take transit, walk and bike for non-work trips than without the plan. In other words, although the share of downtown residents using public transit fell, the overall share of residents in the region using public transit probably increased, compared to what would have happened without the plan. At the same time, the higher density may have increased congestion, and the reduced parking supply made parking scarcer and more expensive, discouraging automobile travel. The combination of these factors attributable to the plan—greater accessibility by alternative modes, costlier automobile travel, and shorter trips—reduced VMT by 15,000 to 24,000 miles per day. We estimate regional benefits of this reduction in vehicle travel to be between $120,000 and $4 million annually.

3.2.6 Summary

The redevelopment initiatives in East Village brought financial resources, increased allowable density, decreased parking requirements, and made mixed-use development more feasible. Redevelopment planning and funding led to large-scale projects like Petco Park and the central library, which otherwise would have located outside East Village, and numerous new small-scale mixed-use residential buildings across the neighborhood. Without these policies, development would have occurred more slowly, at a lower density, and with separated land uses. These policy changes led to an increase in housing supply, meeting a rising demand for downtown- and transit-accessible multifamily housing. The East Village plans also enabled a slight increase in retail, restaurant, and office activity. Under the plans, residents and employees who otherwise would have located in more dispersed locations instead concentrated in East Village. This created household and regional benefits from greater municipal service efficiency, agglomeration effects, increased transit use, and lower per capita vehicle travel. The net effects of the East Village plans and policies were positive for the region, the city, and individual households.

Table 7: Summary of changes between actual and counterfactual scenarios: East Village.

Variable	**2000 Initial**	**2010 Actual**	**2010 In Absence of Plan *(Counter- factual)***			**Difference Between Actual and Counter- factual**		
			Low	Mid	High	Low	Mid	High
Population in plan area	6,636	12,414	9,954	8,428	7,300	2,460	3,986	5,114
Total housing units	2,929	8,544	5,469	4,230	3,327	3,075	4,314	5,217
Employment in plan area	14,579	14,482	13,934	14,017	14,132	548	465	350

Table 8: Summary of net annualized benefits and costs from the regional and municipal perspective: East Village. (in 2010 dollars; costs shown as negative)

Annual Net Economic Benefits (Costs) in Case Study Area

	Low-impact estimate	Midrange	High-impact estimate
Regional			
Residential property subtotal	**$38,240,000**	**$120,660,000**	**$224,290,000**
Supply increase impacts	$31,280,000	$107,040,000	$201,620,000
Accessibility benefit	$3,800,000	$7,690,000	$12,900,000
Amenities benefit	$2,240,000	$4,390,000	$7,580,000
Price change due to construction cost	$920,000	$1,540,000	$2,180,000
Commercial property subtotal	**$110,000**	**$150,000**	**$1,040,000**
Accessibility + agglomeration effects	$-	$10,000	$890,000
Price change due to construction cost	$110,000	$140,000	$160,000
Fiscal subtotal	**$180,000**	**$100,000**	**-$20,000**
Property tax	$7,760,000	$7,660,000	$7,510,000
Operating expenditures	$190,000	$220,000	$230,000
Impact fees	$-	$-	$-
Capital expenditures	-$7,770,000	-$7,770,000	-$7,770,000
Vehicle travel subtotal	**$120,000**	**$2,080,000**	**$4,040,000**
Personal costs for residents and workers	-$70,000	$150,000	$380,000
External costs for society	$190,000	$1,930,000	$3,660,000
Total Regional	**$38,660,000**	**$123,000,000**	**$229,350,000**

Municipal

Residential property subtotal	**$-**	**$-**	**$-**
Supply increase impacts	$-	$-	$-
Accessibility benefit	$-	$-	$-
Amenities benefit	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Commercial property subtotal	**$-**	**$-**	**$-**
Accessibility + agglomeration effects	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$180,000**	**$100,000**	**-$20,000**
Property tax	$7,760,000	$7,660,000	$7,510,000
Operating expenditures	$190,000	$220,000	$230,000
Impact fees	$-	$-	$-
Capital expenditures	-$7,770,000	-$7,770,000	-$7,770,000
Vehicle travel subtotal	**$-**	**$-**	**$-**
Personal costs for residents and workers	$-	$-	$-
External costs for society	$-	$-	$-
Total Municipal	**$180,000**	**$100,000**	**-$20,000**

Table 9: Summary of net annualized benefits and costs from the household perspective: East Village. (in 2010 dollars; costs shown as negative)

Household - Average single-family homeowner			
Residential property subtotal	**$727**	**$1,018**	**$1,454**
Value from supply increase	**$-**	**$-**	**$-**
Accessibility benefits	**$-**	**$-**	**$-**
Other local amenities benefit	**$727**	**$1,018**	**$1,454**
Price change due to construction cost	**$-**	**$-**	**$-**
Commercial property subtotal	**$-**	**$-**	**$-**
Price change due to construction cost	**$-**	**$-**	**$-**
Fiscal subtotal	**$1**	**$1**	**$0**
Property tax	$17	$17	$17
Operating expenditures	$0	$0	$0
Impact fees	$-	$-	$-
Capital expenditures	-$17	-$17	-$17
Vehicle travel subtotal	**-$14**	**$33**	**$81**
Personal costs for residents and workers	-$14	$33	$81
External costs for society	$-	$-	$-
Total homeowner	**$713**	**$1,052**	**$1,535**

Household - prospective buyers			
Residential property subtotal	**$1,481**	**$2,079**	**$2,821**
Value from supply increase	$18	$25	$30
Accessibility benefits	$510	$764	$1,019
Other local amenities benefit	$727	$1,018	$1,454
Price change due to construction cost	$227	$272	$318
Commercial property subtotal	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$1**	**$1**	**$0**
Property tax	$17	$17	$17
Operating expenditures	$0	$0	$0
Impact fees	$-	$-	$-
Capital expenditures	-$17	-$17	-$17
Vehicle travel subtotal	**$-**	**$-**	**$-**
Personal costs for residents and workers	$441	$593	$745
External costs for society	$-	$-	$-
Total prospective buyer	**$1,709**	**$2,353**	**$3,139**
Household - renters			
Residential property subtotal	**$789**	**$1,105**	**$1,572**
Value from supply increase	$20	$28	$34
Accessibility benefits	$-	$-	$-
Other local amenities benefit	$769	$1,077	$1,538
Price change due to construction cost	$-	$-	$-
Commercial property subtotal	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$1**	**$1**	**$0**
Property tax	$17	$17	$17
Operating expenditures	$0	$0	$0
Impact fees	$-	$-	$-
Capital expenditures	-$17	-$17	-$17
Vehicle travel subtotal	**-$14**	**$33**	**$81**
Personal costs for residents and workers	-$14	$33	$81
External costs for society	$-	$-	$-
Total renter	**$776**	**$1,139**	**$1,654**

Household - low income			
Residential property subtotal	**$20**	**$28**	**$34**
Value from supply increase	$20	$28	$34
Accessibility benefits	$-	$-	$-
Other local amenities benefit	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Commercial property subtotal	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$1**	**$1**	**$0**
Property tax	$17	$17	$17
Operating expenditures	$0	$0	$0
Impact fees	$-	$-	$-
Capital expenditures	-$17	-$17	-$17
Vehicle travel subtotal	**-$14**	**$33**	**$81**
Personal costs for residents and workers	-$14	$33	$81
External costs for society	$-	$-	$-
Total renter	**$6**	**$62**	**$115**

3.3 Rio Vista, San Diego

The Rio Vista station area includes some of San Diego's best known and earliest transit-oriented development (TOD). Located in Mission Valley on the San Diego River north of downtown, Rio Vista was formerly a sand and gravel extraction site. During the 1950s, as highways were built from central San Diego to Mission Valley, commercial development expanded into the area. With the planned expansion of the San Diego trolley light rail system to Mission Valley, Rio Vista was chosen to be the first development guided by San Diego's 1992 citywide TOD guidelines. The adopted master plan for Rio Vista was designed by well-known urban planner Peter Calthorpe, with a goal of more than 1,000 residential units, 250,000 square feet of retail, 165,000 square feet of office, along with about two acres of open space. The key smart growth policies in this master plan included a coordinated neighborhood design and reduced parking allowances.

The key smart growth concepts in Rio Vista included pedestrian-friendly design elements—such as sidewalks, open spaces, and small-scale, ground floor retail—and a transit-accessible site. It is not clear whether the form of development actually built in Rio Vista was driven primarily by developers and the market, or by city planners and the Rio Vista plans. If the changes were primarily market-driven, the plans had little impact. But it is plausible the design elements called for in the plan would not have been provided by the market; in this case, the design requirements resulted in building types slightly different from what otherwise would have been built. Specifically, compared with the status quo, the plans required more vertical mixed use, more pedestrian connectivity and internal parking that is "hidden" within the building. Even though the plans did not directly mandate higher density development, the whole design package ultimately brought more units to the market for rent or sale than in a more conventional development. These additional units accommodated up to 1,200 more residents, who otherwise would have lived in less centrally located and lower-density locations than Rio Vista.

Due to the high cost of building these features, the developer of Rio Vista built at a slightly higher density to improve the project's return on investment. The design requirements effectively enabled higher-density housing in the plan area, allowing 20 percent more residents who otherwise would have located in more dispersed locations to live in Rio Vista. This created household and regional benefits from greater municipal service efficiency, agglomeration effects, increased transit use, and lower VMT. The Rio Vista case, however, highlights some of the challenges that have faced suburban transit-oriented development implementation in California. For example, policies intended to encourage walking and transit use were offset by auto level-of-service standards and high auto trip-generation assumptions. Developers also ignored the option to provide less parking because they believed that consumers and/or lenders would not accept less parking. It may also be that Rio Vista's location at the hub of regional highways and regional commercial uses may have made automobile use predominant regardless of how strong the transit-oriented design. Still, Rio Vista missed an opportunity to build more densely around the Trolley station and include elements—like reduced parking—that could increase transit use.

3.3.1 Major plans and policies

Over the past three decades, development in Rio Vista was subject to several overlapping planning initiatives, including the Mission Valley Community Plan and Planned District Ordinance (PDO), adopted in 1990. The PDO prescribed guidelines to support transit-oriented development; however, it also assumed development would generate automobile traffic, which discouraged higher density projects in practice. The specific plan that most directly encouraged and enabled higher density development in Rio Vista was the First San Diego River Improvement Project, which was first undertaken in 1982 and detailed the precise land use and design guidelines for the area. A 1999 amendment included several concepts for Rio Vista, including mixed-use development with higher density housing closest to the trolley station, open spaces, accessibility for pedestrians and bicyclists, and guidelines for the amount and style of parking provided. Citywide plans also affected the area; the citywide TOD design guidelines, adopted in 1992 and incorporated into the Rio Vista plans, advanced design strategies to encourage neighborhood-serving retail and a mix of housing types.

3.3.2 Residential development and population

The Rio Vista plan area experienced substantial population growth between 1990 and 2010. The plan area started with around 900 residents in 1990 and grew to more than 3,700 in 2010 as the neighborhood was built out. In the absence of the Rio Vista plans, there would have been 20% fewer people living in the neighborhood because development would have looked more like lower-density developments nearby. Even these nearby neighborhoods, however, are denser than the citywide average.

In 1990, the Rio Vista plan area was mostly vacant land, with only 640 housing units. By 2010, it had more than 2,300 units. Because of high housing demand in the region, the plan area would very likely have been developed regardless of the Rio Vista plans, although it may have been developed differently. The residential development in Rio Vista, compared to neighboring conventional developments, has denser buildings, hidden parking, landscaped common areas, and some ground-floor retail. It is not clear whether the differences in Rio Vista's development were driven primarily by developers and the market, or by city planners and the Rio Vista plans. It is possible the Rio Vista plans influenced residential development by requiring more vertical mixed use, more pedestrian connectivity and internal parking that is "hidden" within the building. In this case, the plans resulted in a different building type with higher density development than would otherwise have been built—creating an additional 778 housing units. It is also possible that in the absence of the plan developers would have chosen to build internal parking simply because the market demanded it, in which case the plan would have no impact on the number of housing units. The Rio Vista plans therefore allowed up to 1,233 additional residents to live in the plan area.

If the plan allowed more households to live in the plan area, then it enabled more households to take advantage of a transit-accessible and relatively centrally located than otherwise would have been possible. The plans also influenced developers to provide more amenities like landscaping, sidewalks, pedestrian connections, ground-level retail, and open spaces than they otherwise would have. These additional amenities were worth about $8,000 to $29,000 to the average homebuyers.

Whether the impacts of the Rio Vista plans on housing development are positive or negative depends on the extent to which the plan affected development. If the plan did have a large influence, the impacts appear to have been mostly negative. The plan increased construction costs, since it effectively required more expensive building types, more expensive parking, and additional pedestrian and other design elements. These design requirements added tens of thousands to the cost of constructing each unit. These same design elements also produced benefits like walkability and green spaces but in the midrange and high-impact estimates the benefits are not enough to outweigh costs. In this case, the plan would have imposed costs on the region of up to $6.7 million annually.

3.3.3 Commercial development and employment

Most of the commercial space in Rio Vista would have been built in absence of the plan, though possibly in a different configuration. The Rio Vista Shopping Center, the neighborhood's main commercial center including some large-format retail, would have most likely been built, although perhaps with fewer pedestrian-oriented design features. Meanwhile, the estimated 25,000 square feet of ground floor commercial space in the mixed-use Promenade development would probably not have been built, since it would have been a conventional residential-only development. This implies that the plan was responsible for up to about 149 additional jobs in the plan area. The plan's impacts on commercial space are overall very small and there is no evidence that the plan significantly changed the value of commercial space.

3.3.4 Fiscal

The plans for Rio Vista resulted in slight positive fiscal impacts for the city. First, the plans allowed for a small improvement in the efficiency of public service provision as a result of slightly higher densities—up to $140,000 in savings for the City of San Diego per year. However, this savings was slightly offset by lower property tax revenue because the households and jobs in the plan area generated less property tax revenue on a per-capita and per-employee basis than the citywide average.

Compared with more conventional development, the Rio Vista case is an example of greater negotiation between developers and the city with respect to funding capital investment. In this case, actual municipal impact fee revenues were much lower than listed in the fee schedules because the project's developers agreed to provide street improvements and parks in lieu of paying fees to the city. Conventionally, most impact fee revenue would fund roads, but in Rio Vista the negotiation between the city and developer likely resulted in more open space and station area public space improvements, which likely led to a higher quality station area and park than would have otherwise been built. The end result was likely more and different public investments than would have occurred in absence of the Rio Vista plan.

3.3.5 Travel

Despite Rio Vista's location adjacent to a trolley station, private vehicles remain by far the most common mode of travel in the area. Auto mode share decreased over the ten-year period between 2000 and 2010, though, as the share of workers getting to work via automobile decreased from 95% to 93%. Over this time period, the percentage of commuters using public transit to get to work increased from around 2% to 4%, while the share of pedestrian and bicycle commuters remained at about 2%. The Rio Vista plans appear to have reduced vehicle miles traveled (VMT) by allowing more residents and jobs to locate near the trolley station and by improving the pedestrian environment, which may have slightly increased the individuals' access to transit. These plans led to a net VMT reduction of up to 4,700 miles per day for residents of the plan area, although there was a negligible impact on the daily VMT of workers in the area. This reduction in vehicle travel produced a net benefit for the region of up to $1.1 million annually in the form of reduced external costs and aggregate individual savings of workers and residents.

3.3.6 Summary

Overall, whether the Rio Vista plans' impacts were a net positive or negative depends largely on two factors: (1) whether the development types in the plan area were driven by market demand and developers' perception of the market, or by the city and planners' design requirements and (2) the extent to which residents value Rio Vista's built environment amenities. From the regional perspective, if we assume the plans, by setting higher design standards, compelled developers to use a denser and more complex building type compared to what they otherwise would have built, the plans most likely had a negative impact.

Whether or not individual households benefited is ambiguous. In the case the plans compelled developers to build a more expensive building type than they otherwise would, developers themselves would be indifferent, because, assuming a tight housing market, they could recover the extra cost through higher sales prices. Households, however, would be left paying for something (i.e., internal parking) they don't really need or want. In the Rio Vista case, this cost is large. Thus in the high-impact estimate, households buying or renting homes in the plan area face a net cost of about $500 annually over a 30-year period. However, in the case developers would have built similar style housing regardless of the plan, there would be no construction cost impact, and households would benefit from the plan's other effects. That is, the effect of design standards on households was more or less neutral, because the plan merely standardized what households wanted anyway.

From the municipal perspective, assuming the plans resulted in denser building types, the higher density reduced the cost of municipal service provision, a benefit for the City of up to about $100,000 annually over a 30-year period.

Table 10: Summary of changes between actual and counterfactual scenarios: Rio Vista.

Variable	**2000 Initial**	**2010 Observed**	**2010 In Absence of Plan *(Counterfactual)***			**Difference Between Observed and Counterfactual**		
			Low	**Mid**	**High**	**Low**	**Mid**	**High**
Population in plan area	1,726	3,737	3,737	3,126	2,504	-	611	1,233
Total housing units	1,089	2,343	2,343	1,954	1,565	-	389	778
Employment in plan area	359	744	744	687	595	-	57	149

Table 11: Summary of net annualized benefits and costs: Rio Vista. (in 2010 dollars, costs shown as negative)

	Annual Net Economic Benefits (Costs) in Case Study Area		
	Low-impact estimate	Midrange	High-impact estimate
Regional			
Residential property subtotal	**$470,000**	**-$2,010,000**	**-$6,750,000**
Savings due to supply increase	$-	$-	$-
Accessibility benefit	$-	$570,000	$1,710,000
Amenities benefit	$1,370,000	$2,280,000	$4,560,000
Price change due to construction cost	-$900,000	-$4,860,000	-$13,020,000
Commercial property	Impacts on commercial space are very small		
Fiscal subtotal	**$-**	**$70,000**	**$120,000**
Property tax	$-	-$10,000	-$20,000
Operating expenditures	$-	$80,000	$140,000
Impact fees	-$2,070,000	-$2,140,000	-$2,210,000
Capital expenditures	$2,070,000	$2,140,000	$2,210,000
Vehicle travel subtotal	**$75**	**$360,000**	**$720,000**
Personal costs for residents and workers	$-	$-	$-
External costs for society	$75	$360,000	$720,000
Total Regional	**$470,000**	**-$1,590,000**	**-$5,910,000**
Municipal			
Residential property subtotal	**$-**	**$-**	**$-**
Supply increase impacts	$-	$-	$-
Accessibility benefit	$-	$-	$-
Amenities benefit	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Commercial property	Impacts on commercial space are very small		
Fiscal subtotal	**$-**	**$70,000**	**$120,000**
Property tax	$-	-$10,000	-$20,000
Operating expenditures	$-	$80,000	$140,000
Impact fees	-$2,070,000	-$2,140,000	-$2,210,000
Capital expenditures	$2,070,000	$2,140,000	$2,210,000
Vehicle travel subtotal	**$-**	**$-**	**$-**
Personal costs for residents and workers	$-	$-	$-
External costs for society	$-	$-	$-
Total Municipal	**$-**	**$70,000**	**$120,000**

Household - Average single-family homeowner	There were no existing households in this case.		
Household - prospective buyers			
Residential property subtotal	**$931**	**$353**	**-$1,437**
Value from supply increase	$-	$4	$14
Accessibility benefits	$733	$1,465	$2,198
Other local amenities benefit	$586	$977	$1,954
Price change due to construction cost	-$388	-$2,094	-$5,603
Commercial property	Impacts on commercial space are very small		
Fiscal subtotal	**$-**	**$0**	**$0**
Property tax	$-	$0	$0
Operating expenditures	$-	$0	$0
Impact fees	-$2	-$2	-$2
Capital expenditures	$2	$2	$2
Vehicle travel subtotal	**$-**	**$-**	**$-**
Personal costs for residents and workers	$-	$467	$935
External costs for society	$-	$-	$-
Total prospective buyer	**$931**	**$353**	**-$1,437**
Household - renters	There were no existing households in this case.		
Household - low-income	There were no existing households in this case.		

*The vehicle travel impacts are not counted in the total because we already accounted for accessibility benefits. The vehicle travel impact for households applies only to households who moved to the plan area from elsewhere. In the low-impact estimate, all of the households who moved to the plan area would have moved there regardless of the plan, so there is no impact.

3.4 Midtown, San Jose

In 1992, the City of San Jose adopted the Midtown Specific Plan to guide the transition of a former industrial district to more intensive residential and commercial uses. Originally attracted by its good railroad access, canneries and other industrial uses that had thrived in the Midtown area gradually closed or relocated to cheaper land. By the 1980s, the area held mostly low-intensity industrial, warehouse, and commercial service uses, with many vacant parcels. With large vacant and underutilized lots, close proximity to downtown San Jose, and the presence of commuter rail and the newly planned Valley Transit Authority light rail line, Midtown held great potential for redevelopment. Along with the adoption of the Midtown Specific Plan, throughout the 1990s and 2000s, San Jose increasingly shifted to smart growth planning as a citywide strategy.

3.4.1 Major plans and policies

The 1992 Midtown Specific Plan intended to concentrate residential and mixed-use development in this transit- and downtown-accessible neighborhood. The plan rezoned land from industrial to residential and mixed use, allowed relatively high-density housing (up to 100 units per acre in some places), called for creation of parkland, and imposed urban design guidelines intended to create an attractive and pedestrian-friendly environment. This is one of several efforts by the City of San Jose to encourage smart growth planning; the City's general plan has called for smart growth policies since 1993, and the planning department appears to have taken a relatively permissive position toward higher density development in infill areas, based on its approval of several rezoning requests in areas near the Midtown Plan Area (City of San José 2004; 2006; 2008b).

3.4.2 Residential development and population

At the beginning of the study period, the plan area was mostly manufacturing and commercial service uses, with some vacant lots—the population in 1990 was only 127. By 2010, it had grown to 2,797 people housed in 1,443 housing units. The new housing was a mixed of condos, lofts, apartments, and townhouses in large projects—with relatively little retail and commercial. Most residential developments included pedestrian-friendly design features, likely because of the plan, but the plan does not appear to have affected the number of parking spaces provided. Given strong development pressures in and around Midtown, most of this development in the plan area would likely have occurred even without the Midtown Specific Plan, but would have been lower density with a less cohesive and pedestrian-oriented design and less public open space. We estimate that the plan was responsible for between 252 and 630 more housing units compared to what developers would have provided in the absence of the plan. These additional units housed 475 to 1,212 additional residents.

The higher permitted density resulted in more multifamily housing being built in the region than otherwise would have been the case, which lowered prices for multifamily housing in the region by a few dollars per year, on average. The aggregate value of the increase in permitted density was roughly $50 to $76 million or, assuming a 30-year financing period, around $3-$5 million annually, with the greatest benefits going to owners of developable land. By permitting higher density, the plan also enabled more households to take advantage of the plan area's accessibility to transit and to downtown San José. The plan's pedestrian design requirements also created neighborhood amenities that otherwise would have been absent. These accessibility and other local amenities benefitted households new to the plan area, and the amenities benefitted the few households already in the plan area. The design requirements also increased construction costs, resulting in higher housing prices for buyers and partially offsetting the value of amenities. In total, households that bought a unit in the plan area benefitted from the plan's impacts on housing development between $232 and $2,784 annually.

3.4.3 Commercial Development and Employment

Despite the plans' intentions to create mixed-use development, very little new commercial space was developed in the plan area between 1992 and 2010. Many of the previously existing commercial buildings—mainly low-rise warehouses or stand-alone shops—continued to exist without change. Along the Alameda, the main pedestrian-oriented corridor in the plan area, a small number of small- to mid-sized retail spaces have opened in one- to two-story buildings, some new, some existing. However, most new developments were residential only. The plan intended to influence the details of commercial developments by setting design standards such as setbacks and facades, but actual developments do not reflect these standards, or if they do, they do so only minimally. We conclude the plan had little if any effects on commercial development, at least as of 2014.

Overall employment in Midtown increased by about 40% from 1991 to 2011 because the new commercial uses were more intensive than the earlier ones. However, we believe the plan had little to no effect on employment in the study area. The decrease in manufacturing and similar jobs was not likely influenced by the plan, but indicative of regional changes caused by factors such as high land values and the rise of the technology industry in Silicon Valley. While the number of professional, financial, and administrative service employees increased *during plan implementation*, we do not attribute these gains *to the plan*. The employment growth in Midtown was not in dense office clusters or mixed-use centers (as would be expected in smart growth), but mainly in existing low-density commercial buildings and a few new retail shops similar to those that would have been built without the plan (e.g. Midtown's Safeway shopping center).

3.4.4 Fiscal

Because of the denser residential development spurred by the Specific Plan's policies, the plan area generated more property tax revenue – a difference of up to $280,000 annually– than it would have without the plan. However, without the plan, other neighborhoods in San José would have seen more growth. Per capita property tax revenue is higher in Midtown than outside the plan area, so we estimate the annual net benefit of property taxes from the plan to be $84,000 on average for the region and municipality. The plan also led to an average of about $15,000 in annual municipal operating cost savings due to higher densities in Midtown. Lower density in Midtown without the plan would have resulted in higher per capita costs of providing police, parks and street services. Finally, although the city collected more in development impact fees than it would have without the plan, we conclude the impact fee revenue was offset by an equal increase in capital expenditures, since the city spent more on parks. The net impact of the plan on the San José city budget was a savings of about $70,000 to $160,000 annually.

3.4.5 Vehicle Travel

The vast majority of residents in the plan area commute by car, although the percentage commuting by transit, walking, and biking has grown since 1990. In 2010, 10.2% of plan area residents commuted by transit and 10.5% by walking or biking, up from 2.7% and 2.3%, respectively, in 1990. The shares for transit and non-motorized modes probably would have risen regardless of the plan, but the plan was likely partially responsible for the increase. The Midtown Specific Plan appears to have affected mode share by allowing more residents to locate near rail transit stations and by improving the environment for pedestrians in certain locations. However, the plan's effect on travel mode was probably limited because the neighborhood still lacks good pedestrian and bicycle connections and the supply of parking remains at conventional levels.

The plan also allowed more residents to live closer to employment centers than otherwise would have been possible, which likely reduced average commute distances for that population. Without the new housing built in Midtown, more households would have lived outside of transit station areas that are less dense, more auto-oriented, and further from jobs. By improving access to transit and improving the bicycling and pedestrian conditions in the plan area, we estimate that the plan was responsible for net reduction of 1,600 to 8,000 vehicle-miles travelled per day, which is equivalent to a reduction of about 3 to 6 miles traveled for each person who relocated to the plan area. This reduction resulted in reduced external costs and individual cost savings of between $20,000 and $1.2 million annually.

3.4.6 Summary

Our analysis suggests the Midtown Specific Plan resulted in between 252 and 630 more housing units in the plan area, compared to what would have happened in absence of the plan, by allowing higher density housing development. Higher densities resulted in household and regional benefits from greater municipal service efficiency, increased transit use, and lower per capita vehicle travel. The plan also resulted in more local parkland, which despite slightly increasing the cost of housing somewhat, overall generated benefits for residents and society overall. The plan may have some costs that we were not able to capture in this analysis. For example, the reduction in vehicle travel might actually reflect greater congestion from higher density, rather than better accessibility, in which case the added congestion would have a cost. The plan appears to have achieved its goal of concentrating residential development near transit, but it has been less successful so far in creating retail in a mixed-use setting. Finally, although individual development projects include pedestrian-friendly design, pedestrian and bicycle connections throughout the neighborhood are lacking and automobiles remain the dominant mode of travel.

Table 12: Summary of changes between actual and counterfactual scenarios: Midtown.

Variable	**1990 Initial**	**2010 Observed**	**2010 In Absence of Plan *(Counter factual)***			**Difference Between Observed and Counterfactual**		
			Low	**Mid**	**High**	**Low**	**Mid**	**High**
Population in plan area	127	2797	2,322	2,076	1,585	475	721	1,212
Total housing units in plan area	56	1443	1,191	1,065	813	252	378	630
Employment in plan area	1,866	2,632	2,632	2,632	2,632	0	0	0

Table 13: Summary of net annualized benefits and costs: Midtown. (in 2010 dollars; costs shown as negative)

	Annual Net Economic Benefits (Costs)in Case Study Area		
	Low-impact estimate	Midrange	High-impact estimate
Regional			
Residential property subtotal	**$5,910,000**	**$5,440,000**	**$8,030,000**
Savings due to supply increase	$5,550,000	$3,660,000	$4,140,000
Accessibility benefits	$380,000	$1,460,000	$3,370,000
Amenities benefit	$-	$470,000	$940,000
Price change due to construction cost	-$20,000	-$150,000	-$420,000
Fiscal subtotal	**$70,000**	**$100,000**	**$160,000**
Property tax	$60,000	$80,000	$140,000
Operating expenditures	$10,000	$20,000	$20,000
Impact fees	$-	$-	$-
Capital expenditures	$-	$-	$-
Vehicle travel subtotal	**$20,000**	**$640,000**	**$1,250,000**
Personal costs for residents and workers	$1,000	$3,000	$5,000
External costs for society	$20,000	$630,000	$1,250,000
Total Regional	**$6,010,000**	**$6,170,000**	**$9,440,000**
Municipal			
Residential property subtotal	**$-**	**$-**	**$-**
Savings due to supply increase	$-	$-	$-
Accessibility benefits	$-	$-	$-
Amenities benefit	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$70,000**	**$100,000**	**$160,000**
Property tax	$60,000	$80,000	$140,000
Operating expenditures	$10,000	$20,000	$20,000
Impact fees	$-	$-	$-
Capital expenditures	$-	$-	$-
Vehicle travel subtotal	**$-**	**$-**	**$-**
Personal costs for residents and workers	$-	$-	$-
External costs for society	$-	$-	$-
Total Municipal	**$70,000**	**$100,000**	**$160,000**

Household - Average single-family homeowner			
Residential property subtotal	**$-**	**$-**	**$-**
Savings due to supply increase	$-	$-	$-
Accessibility benefits	$-	$-	$-
Amenities benefit	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Commercial property	**The plan had no significant impacts on commercial property**		
Fiscal subtotal	**$0**	**$0**	**$0**
Property tax	$0	$0	$0
Operating expenditures	$0	$0	$0
Impact fees	$-	$-	$-
Capital expenditures	$-	$-	$-
Vehicle travel subtotal	**$22**	**$49**	**$77**
Personal costs	$22	$49	$77
External costs for society	$-	$-	$-
Total Homeowner	**$22**	**$50**	**$77**
Household - prospective buyers			
Residential property subtotal	**$232**	**$1,200**	**$2,784**
Savings due to supply increase	$4	$6	$10
Accessibility benefits	$277	$1,051	$2,427
Amenities benefit	$-	$339	$678
Price change due to construction cost	$(49)	$(196)	$(331)
Commercial property	**The plan had no significant impacts on commercial property**		
Fiscal subtotal	**$0**	**$0**	**$0**
Property tax	$0	$0	$0
Operating expenditures	$0	$0	$0
Impact fees	$-	$-	$-
Capital expenditures	$-	$-	$-
Vehicle travel subtotal*	**$-**	**$-**	**$-**
Personal costs	$588	$861	$1,133
External costs for society	$-	$-	$-
Total prospective buyer	**$232**	**$1,200**	**$2,784**

*These households do experience a vehicle travel savings but it is already accounted for the in accessibility benefits

Household - renters			
Residential property subtotal	**$2**	**$184**	**$367**
Savings due to supply increase	$2	$3	$5
Accessibility benefits	$-	$-	$-
Amenities benefit	$-	$181	$362
Price change due to construction cost	$-	$-	$-
Commercial property	**The plan had no significant impacts on commercial property**		
Fiscal subtotal	**$0**	**$0**	**$0**
Property tax	$0	$0	$0
Operating expenditures	$0	$0	$0
Impact fees	$-	$-	$-
Capital expenditures	$-	$-	$-
Vehicle travel subtotal	**$22**	**$49**	**$77**
Personal costs for residents and workers	$22	$49	$77
External costs for society	$-	$-	$-
Total renter	**$24**	**$234**	**$444**
Household - low income			
Residential property subtotal	**$2**	**$3**	**$5**
Savings due to supply increase	$2	$3	$5
Accessibility benefits	$-	$-	$-
Amenities benefit	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Commercial property	**The plan had no significant impacts on commercial property**		
Fiscal subtotal	**$0**	**$0**	**$0**
Property tax	$0	$0	$0
Operating expenditures	$0	$0	$0
Impact fees	$-	$-	$-
Capital expenditures	$-	$-	$-
Vehicle travel subtotal	**$22**	**$49**	**$77**
Personal costs for residents and workers	$22	$49	$77
External costs for society	$-	$-	$-
Total low-income	**$24**	**$53**	**$82**

3.5 Downtown Turlock

Turlock is located in the heart of California’s Central Valley, and is the second largest city in Stanislaus County (after Modesto). It is an agricultural community and the home of the California State University, Stanislaus campus. While Turlock grew in the early twentieth century around its downtown commercial core, the downtown area languished after the 1960s as retail establishments moved to suburban shopping centers. By the 1990s, the downtown was in dire straits, challenged by high vacancy rates, absentee landlords, neglected buildings, and empty streets. Even as Turlock's overall population more than doubled between 1980 and 2000, residential and commercial growth occurred disproportionately at the city's periphery. In the 1990s, Turlock designated the downtown as a redevelopment district, relocated its City Hall and other public facilities to downtown, and spent $8 million on streetscape improvements, landscaping, and other public infrastructure.

The biggest effect of the planning interventions downtown was an increase in commercial property values. The plan also led to an increase in business activity, primarily by local, independent investors and small businesses. The impacts were modest compared to the apparent ambitious of the downtown plans. However, the benefits to the city and its residents are not fully captured in the available data. The renewed downtown may contribute to residents' sense of place and pride in the city that distinguishes Turlock from other towns in the Central Valley—and is difficult to quantify. Interviewees argued that, compared with other communities in the Central Valley, Turlock was able to recover from the recession faster and is now better positioned to take advantage of an anticipated future increase in demand for downtown living and shopping. According to these advocates, future benefits will be greater. The small uptick in commercial activity in the years since 2011 appears to support this hypothesis, although it is too soon to tell whether these predictions will bear out in the future.

3.5.1 Major plans and policies

The 1992 Downtown Master Plan was the first of several reinforcing plans, policy changes, and public projects focused on downtown. The Master Plan outlined a strategy of strengthening the downtown through focused public investments and zoning changes to emphasize its historical characteristics and create a "unique shopping district." One of the City's first implementation actions, in 1994, was to create a façade improvement program. Then, in 1995, the city created a Property and Business Improvement District (PBID), which subsequently became a Redevelopment Area. The designation of downtown Turlock as a redevelopment area had the biggest effects on downtown because it enabled and funded streetscape and landscape improvements; utility improvements related to water and sewer lines; and reconstruction of public parking lots. The streetscape improvements included new trees, wider sidewalks, brick pavers, and redesigned intersections. In 1998, the city moved the City Hall, courthouse, and police station to downtown from a more outlying location. In 2003, after these public realm improvements were completed, the city adopted new design guidelines, which defined five Downtown Districts, each with an overlay to regulate building design.

3.5.2 Housing and population

Downtown had been losing population since the 1980s, and the trend continued over the study period. The residential population in downtown Turlock shrank by 12% between 1990 and 2010 to just over 1,000 residents. The public investment and design guidelines were intended to make downtown more attractive to residents and slow the conversion of residential uses and the loss of downtown residents. However, the initiatives failed to boost demand, and developers considered residential rents too low to justify providing more housing. We have no evidence the downtown initiatives had an effect on housing or population.

3.5.3 Employment and commercial activity

Our analysis shows that the downtown planning interventions—and particularly the redevelopment project's public investment—attracted new commercial activity into Turlock's downtown area that would have otherwise been absent. This, in turn, partially offset the trend of commercial decline and resulted in increased employment, compared to what otherwise would have occurred.

The number of workers downtown increased by 17% between 1991 and 2011, from about 2,800 to nearly 3,300. In the plan area, the largest employment sector in 1991 was retail with over 700 jobs, but this sector declined to about 450 jobs by 2011. In the absence of the master plan and redevelopment funds, retailers would have continued to close, and fewer new commercial establishments would have taken their places. But, there was a positive trend in terms of employment in (1) restaurants and (2) professional, scientific and technical services firms, which steadily increased during the study period by 43% and 185%, respectively. Without the increased attractiveness of the downtown as a dining destination and new office space enabled by the public investment, these employment sectors downtown would likely have grown more slowly. That economic activity would have instead been directed to other locations or other sectors of the economy. Additionally, without the redevelopment designation, the new city hall and joint police/fire facility would probably not have located downtown, but rather elsewhere in the city, bringing more employees to the area.

In total, the plans directly brought jobs downtown and sped up other business activity there. We estimate the plans were responsible for an additional 72 to 377 jobs in the plan area between 1991 and 2011. Without the plan, these jobs would have located elsewhere in the region. The increase in commercial development downtown generated a benefit for the region of around $1 million to $5.2 million annually, mainly due to the positive effects of clustering retail, restaurant and certain professional service activity.

3.5.4 Fiscal

The downtown plan led to annual increases in property tax revenues. For municipal operations, the results are ambiguous, though most likely neutral or slightly positive. In terms of costs, the city spent over $330,000 annually on bond payments for downtown-area capital improvements that would not have occurred in absence of the plan. The city collected about $580,000 more per year in property tax revenue as a result of the plan. To a lesser extent, the city also benefited from additional impact fee revenues, mostly from fees assessed with a change in building use. Overall, we find that the plans led to municipal benefits on the order of $930,000 annually, and individual households benefited about $46 a year.

3.5.5 Travel

Virtually all travelers to downtown—whether workers or shoppers—drive from elsewhere to the downtown, park their cars, and then walk. This stems from the fact that there are only a few residential units downtown and Turlock's bus system has low ridership. On one hand, interviewees reported an increase in pedestrian activity in the Main Street area in recent years.[31] On the other hand, interviewees said that downtown is a regional destination, drawing people from Modesto and Merced for dining and from as far as the Bay Area for antiques shopping, implying a small share of visitors make longer trips. Given the lack of major land use changes, and presence of few alternatives to driving, the impact of the plan on travel is small. It did enable more walking trips for the few downtown residents, and it enabled more walking trips for the employees in the plan area, both those who previously worked downtown, and those whose jobs moved there during the study period. Our analysis shows the reduction in VMT associated with the plan to be small, equivalent to between about 120 and 220 total miles traveled per day.

Table 14: Summary of changes between actual and counterfactual scenarios: Turlock.

Variable	**1990 Initial**	**2010 Observed**	**2010 In Absence of Plan *(Counterfactual)***			**Difference Between Observed and Counterfactual**		
			Low	**Mid**	**High**	**Low**	**Mid**	**High**
Population in plan area	1,221	1,073	1,073	1,073	1,073	0	0	0
Total housing units	474	429	429	429	429	0	0	0
Employment in plan area	2,788	3,266	3,194	3,042	2,889	72	225	377

[31] McGarry, 2014 personal interview

Table 15: Summary of net annualized benefits and costs: Turlock. (2011 dollars)

	Annual Net Economic Benefits (Costs)in Case Study Area		
	Low-impact estimate	Midrange	High-impact estimate
Regional			
Residential property	**The plan had no significant impact on residential property**		
Commercial property subtotal	**$940,000**	**$2,600,000**	**$5,190,000**
Amenity effects	$940,000	$2,570,000	$5,130,000
Price change due to construction cost	$-	$30,000	$60,000
Fiscal subtotal	**$900,000**	**$930,000**	**$960,000**
Capital expenditures	$570,000	$580,000	$590,000
Households (all types)	$-	$-	$-
Property tax	$-	$10,000	$40,000
Operating expenditures	$330,000	$330,000	$330,000
Vehicle travel subtotal	**$2,000**	**$20,000**	**$30,000**
Tracts Used in Per-Capita VMT analyses:			
6085500300			
Total Regional	**$1,850,000**	**$3,540,000**	**$6,180,000**
Municipal			
Residential property	**The plan had no significant impact on residential property**		
Commercial property subtotal	**$-**	**$-**	**$-**
Amenity effects	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$900,000**	**$930,000**	**$960,000**
Property tax	$570,000	$580,000	$590,000
Operating expenditures	$-	$-	$-
Impact fees	$-	$10,000	$40,000
Capital expenditures	$330,000	$330,000	$330,000
Vehicle travel subtotal	**$-**	**$-**	**$-**
Personal costs for residents and workers	$-	$-	$-
External costs for society	$-	$-	$-
Total Municipal	**$900,000**	**$930,000**	**$960,000**

*Household - All types (homeowners, prospective buyers, renters, and low-income)**			
Residential property	**The plan had no significant impact on residential property**		
Commercial property subtotal	**$-**	**$-**	**$-**
Amenity effects	$-	$-	$-
Price change due to construction cost	$-	$-	$-
Fiscal subtotal	**$39**	**$40**	**$42**
Property tax	$25	$25	$26
Operating expenditures	$-	$-	$-
Impact fees	$-	$1	$2
Capital expenditures	$14	$14	$14
Vehicle travel subtotal	**$7**	**$5**	**$4**
Personal costs	$-	$-	$-
External costs for society	$-	$-	$-
Total Household	**$46**	**$46**	**$46**

* All household types have the same impacts in this case.

3.6 Synthesis of impacts across cases

3.6.1 Residential development

In four of five cases, the plans resulted in greater housing production and subsequent local and regional benefits. Because housing, and particularly multifamily housing, was previously undersupplied in these regions, largely due to zoning constraints, rezoning to permit a greater supply of housing resulted in lower housing prices region wide. Rezoning for higher density created windfalls for owners of the rezoned land, which in some cases were very large. The rezoning also benefited households within the planning area as well as households across the region. In the two cases where the plans resulted in the most new housing production—San Jose Midtown and San Diego East Village—the regional benefits from increased housing supply significantly outweighed other regional impacts. In San Jose, where the metropolitan area only had about 300,000 multifamily housing units, the addition of even a few hundred units was enough to have a relatively large regional impact in the form of housing price savings. Individual households across the metro area saved on the order of $9 per year for renters and $70 per year for buyers—a relatively small savings when viewed through the lens of an individual, but a considerable savings when multiplied across many individuals.

If policies to enable higher density housing were more widespread, benefits in the form of lower prices would likely be even more significant. The only case where there were not regional benefits from increased housing supply was in Turlock, where there was no new housing development attributable to the plan.

All of the plans appear to have increased construction costs for developers by requiring more expensive design elements and contributions toward public improvements, like upgraded pedestrian infrastructure or local parks. Assuming a tight housing market, developers would partially or fully pass these costs on to homebuyers and renters. However, we estimate in most cases that these higher construction costs were outweighed by benefits resulting from greater housing supply and by increases in neighborhood amenities, which have value to residents that can be estimated from the empirical literature that monetizes such amenities using hedonic models. Urban design provisions also generally led to improved local pedestrian environments and/or public open spaces, which benefited many households within the planning areas.

3.6.2 Accessibility and travel impacts

An important benefit in four of our five case studies (all cases except Turlock) resulted from housing and employment growth near transit stations.[32] Allowing more intensive development near existing rail stations enabled more people to live and work near transit, producing accessibility benefits for households in those plan areas. In these four cases the increased housing supply allowed more households to locate near employment centers and other activities,

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[32] Again, this study analyzes only the impacts of land use plans, and not the impacts of transit investments themselves

reducing auto use. Since landowners and developers capture some but not all benefits of increased accessibility through higher rents or housing prices, households living in the plan area benefited from greater accessibility. Each region as a whole also benefited to the extent that the increased transit accessibility reduced vehicle travel and thus the external costs associated with motor vehicles. Living near transit does not guarantee that people use it, of course. In the Rio Vista and Vermont-Western areas, for example, fewer people probably used transit than smart growth advocates would expect.

3.6.3 Commercial development

With the exception of Turlock, most of the plans had much bigger effects on residential than commercial development. Turlock case represents a different kind of smart growth policy intervention—public investment intended to spur economic development and revitalization in a declining downtown. In that case, we estimated that the investments and coordinated planning efforts in downtown Turlock benefited the city through agglomeration or clustering effects. Urban design was an important dimension of Turlock's approach. Downtown Turlock started with a stock of historic buildings and a traditional urban form. The investments in streetscape improvements and sustained planning efforts signaled to investors that the city was committed to investing in downtown, which reduced perceived development risk. Moving the city government offices to the downtown increased local employment and brought foot traffic to Main Street businesses. Because of these interventions, the number of downtown businesses appears to have reached a critical threshold to attract other small-scale, independent retail and restaurant establishments, which otherwise may have not found a customer base in Turlock. Without these downtown establishments, Turlock residents probably would have spent money on dining and shopping on other ways that contributed less to the city's tax base. We estimated the magnitude of these benefits outweighed the cost of the investments, although it took many years for the downtown to reach that point.

3.6.4 Fiscal impacts

We found that the plans generally had positive impacts on municipal finances, largely due to property tax growth and municipal operating efficiencies. Generally across cases, smart growth policies led to higher property tax revenue due to more intense development within city limits. Additionally, most of our case study areas (all except Turlock) were denser than the average city location, which means municipal service provision was more efficient than it otherwise would be—a benefit for the city and households. Some of the plans accounted for the cost of new infrastructure associated with growth. For example, in the Vermont Western case, the plan resulted in more residential development within L.A. city limits than otherwise would have occurred, which likely raised demand for public services (e.g. parks)—but the specific plan also imposed additional impact fees to cover this additional cost. In the Rio Vista case, the city of San Diego negotiated with the master developer to create the central public park, station plaza, and pedestrian and auto improvements.

3.6.5 Net impacts by perspective

The benefits and costs of these smart growth plans were not felt equally across stakeholders. Tables 16-21 summarize the results of our analysis by perspective. These impacts are not additive. For example, the regional impacts of the Rio Vista plan are not added to the municipal impacts; instead, the regional and municipal impacts each represent how that stakeholder experiences the same effects.

In most cases, the region as a whole benefitted (Table 16). A large source of regional benefits was increased multifamily housing supply, but regions also benefited from where this housing was located—in relatively centrally located, already built-up areas where residents could take advantage of existing infrastructure, transit, and proximity to diverse destinations. In the case of Turlock, the region benefitted from public investments that created a more attractive and more productive downtown, which also led to higher tax revenues. San Diego's Rio Vista was the only case where the plan, assuming it had a major influence on development, likely had costs for the region as a whole. In this case, the plans may have imposed costlier design and construction practices without greatly boosting housing supply. Across the city in East Village, though, the regional benefits appear to be especially high, on the order of tens or even hundreds of millions of dollars annually (over a 30-year period), due mainly to rezoning that enabled much more intensive use of large swaths of valuable downtown land. In contrast, although the Vermont-Western plan covered a similarly sized area and many more residents, regional benefits were positive but modest because changes in development were slight.

Table 16: Comparison of annual net costs and benefits by case study from regional perspective (costs shown as negative).

Region Case Study	Estimated benefits (costs) (2010 dollars) Low-Impact Estimate*	 High-Impact Estimate*	Comparison statistics Plan Area	 2010 population	 Year first plan adopted
L.A. Vermont-Western	$2,480,000	$9,730,000	2.2 sq. mi.	54,479	2001
San Diego East Village	$38,720,000	$228,980,000	2.3 sq. mi.	12,414	1992
San Diego Rio Vista	$470,000	-$5,910,000	0.14 sq. mi.	3,737	1985
San Jose Midtown	$6,000,000	$9,010,000	0.33 sq. mi.	2,797	1992
Turlock Downtown	$1,850,000	$6,180,000	0.5 sq. mi.	1,073	1992

** Note that impacts are stated in relation to our assumptions about whether the plan had a low- or high-impact on a category. For some categories, the more "effective" the plan was, the bigger the cost; in other categories, the plan had the opposite effect.*

Table 17: Comparison of annual net costs and benefits by case study from the municipal perspective (costs shown as negative)

Municipality Case Study	Estimated benefits (costs) (2010 dollars) Low-Impact Estimate	 High-Impact Estimate
Los Angeles Vermont-Western	$900,000	-$320,000
San Diego East Village	$180,000	-$20,000
San Diego Rio Vista	$0	$120,000
San Jose Midtown	$70,000	$160,000
Turlock Downtown	$900,000	$960,000

In most cases, the smart growth plans benefited municipalities in the form of more efficient public service provision and greater tax revenue (see Table 18). However, in the Vermont-Western case, if we assume the plan had a large impact, it would have had costs for the city because, by reducing household size, it would have decreased population in the plan area—which would lead to lower tax revenue and less efficient public service provision. Under more conservative assumptions, though, the impact would have been positive. In East Village, the effects on municipal finances are also ambiguous, in this case because potential long-term benefits of public investment and tax increment financing are still uncertain and not included in the estimates. In Turlock, where the city viewed the downtown interventions very explicitly as an investment, the public spending appears to have paid off in the form of higher tax revenue.

3.6.6 Impacts by household type

These smart growth plans had, in many cases, quite different impacts on different types of households. Tables 17-20 show a summary of impacts by household type. As noted previously, the impacts on households are, for the most part, positive, especially for existing households in the plan area, both homeowners and renters. Existing owners of single-family homes mainly benefit from improvements in neighborhood amenities and, because they already own their homes, are not affected by changes like increases in construction costs. It’s notable, however, that these cases involve relatively few existing homeowners. Existing renters and new homebuyers outnumbered incumbent homeowners in all cases. Existing renters benefitted for the same reasons that homeowners did, although renters could be affected by rising rents.

Table 18: Comparison of annual net costs and benefits by case study from the perspective of existing households that owned a single-family home in the plan area (costs shown as negative)

Household – Existing homeowners	**Estimated benefits (costs)**		**Number of existing home-owning households**
Case study	**Low**	**High**	
L.A. Vermont-Western	$1,387	$2,775	1,808
San Diego East Village	$728	$1,454	40
San Diego Rio Vista	$560	$2,077	170
San Jose Midtown	$22	$77	10
Turlock Downtown	$43	$49	155

Table 19: Comparison of annual net costs and benefits by case study from the perspective of existing households renting a multifamily unit in the plan area (costs shown as negative)

Household – Existing renters	**Estimated benefits (costs)**		**Number of existing renting households**
Case study	**Low**	**High**	
L.A. Vermont-Western	$600	$1,197	20,792
San Diego East Village	$790	$1,572	2,637
San Diego Rio Vista	$436	$1,674	399
San Jose Midtown	$2	$367	41
Turlock Downtown	$46	$46	287

In Vermont-Western and San Diego East Village, however, a large number of existing households had low incomes, and may not have benefitted as greatly from the plans. Because low-income households are more sensitive to price changes, they are likely to value housing affordability above amenities and accessibility. (This is not to say they don’t value amenities and accessibility, just that affordability is a higher priority.) Because greater amenities and accessibility tend to be associated with higher housing prices, low-income households are more likely to see the changes brought by these smart growth plans as a cost. In addition, greater construction costs in some cases may have outweighed the benefit from increased housing supply. Indeed, in the East Village, Vermont-Western, and Rio Vista cases, low-income households appeared to have benefited less than other households under the most favorable assumptions, and under less favorable assumptions would have experienced these changes as costs.

Table 20: Comparison of annual net costs and benefits by case study from the perspective of existing low-income households that rented a multifamily unit in the plan area (costs shown as negative)

Low-income household **Case Study**	**Estimated benefits (costs)** **Low**	 **High**	**Number of low-income households* (initial year)**
L.A. Vermont-Western	$1	$1	7,458
San Diego East Village	$21	$34	1,048
San Diego Rio Vista	-$26	$136	122
San Jose Midtown	$2	$5	11
Turlock Downtown	$46	$46	99

**Low-income is defined as below 20% of the state median income in that year.*

Households who bought and moved into a multifamily home in the plan area generally benefitted because the policies created housing products (multifamily units in transit-accessible, centrally located neighborhoods) that these households wanted and that would otherwise be in short supply. Incoming households, it is important to note, were generally smaller and higher-earning than incumbent households.

Table 21: Comparison of annual net costs and benefits by case study from the perspective of incoming households that bought a multifamily unit in the plan area (costs shown as negative)

Household - Prospective buyer **Case study**	**Estimated benefits (costs)** **Low**	 **High**	**Number of new home-owning households**
L.A. Vermont-Western	$811	$1,480	658
San Diego East Village	$1,482	$2,821	1,228
San Diego Rio Vista	$931	-$502	377
San Jose Midtown	$232	$2,784	780
Turlock Downtown	n/a	n/a	-

4 DISCUSSION

The literature on smart growth often promotes its potential benefits, but few studies have examined the benefits and costs resulting from actual implementation of smart growth policies. The findings from this study suggest that, in practice, neighborhood-level smart growth plans and policies can, but do not always, have net benefits for regions, municipalities, and local households. Our case studies shed light on the conditions under which smart growth planning is likely to have benefits as opposed to costs. Smart growth interventions are most likely to have net benefits for regions when (a) they relax restrictive development regulations and permit more development, (b) when that development is in demand, and (c) when the new development is located in transit-accessible, already built-up areas close to employment centers. However, in our case studies benefits were less certain when (a) smart growth policies merely impose design standards that necessitated more expensive construction, (b) when new housing development resulted in lower population density due to smaller households replacing larger households, and (c) when intended development failed to materialize due to conflicting existing policies or low market demand. This research therefore recommends a more qualified view of the potential benefits of smart growth.

4.1 Types of plans and policies

Generalizing across the broad range of plans and policies typically categorized as smart growth is difficult, and it helps recognize the different types of interventions. Four of our five case studies featured plans that included rezoning to allow higher density and mixed-use development in specific areas and policies to improve the pedestrian environment and create neighborhood amenities. In the Turlock and East Village cases, the plans enabled tax increment finance and related public investments, along with coordinated development standards and urban design guidelines. The four cases that involved higher-density rezoning—Vermont-Western, East Village, Rio Vista, and San Jose Midtown—were in large, growing metropolitan areas with highly regulated and constrained housing markets and rail transit. These conditions differed from those in our fifth case, Turlock, a smaller city that has grown in population and employment, but does not face large housing constraints and has little public transit. Nevertheless, all five cases focused on planning efforts that aimed to increase development in a targeted neighborhood, whether by relaxing regulations to allow market forces to drive development in a location where it was previously restricted, or by using coordinated public investment to stimulate development in a location the market previously overlooked.

All of these case studies involved multiple plans and policy changes, some at the neighborhood scale and others at the city scale. In some cases (e.g., Vermont-Western and San Jose Midtown), a single specific plan accounted for most of the policy changes, but even in these cases planners continued to be involved throughout the study period in the plan's interpretation and implementation and in other planning efforts that affected the study area. In the other cases, the "planning intervention" in question is more accurately an on-going series of plans, policy changes, and projects and their implementation. Most often, the same goals laid out in the original specific plans infused subsequent planning interventions. Thus when we refer to effects of "the plan," we actually refer to the effects of a series of mostly consistent planning efforts that targeted the study area. In all our cases, these planning efforts spanned at least a decade, and some dated from the early 1990s or even mid-1980s.

Smart growth policies are often deregulatory in that they remove or relax binding density restrictions and parking requirements on the real estate market. For critics, the deregulatory nature of smart growth implies that such policies allow the free market greater reign at the expense of social goals (Krueger and Gibbs, 2008). Smart growth proponents argue that deregulatory policies often further social goals by removing distorting regulations that protect vested interests (Glaeser and Ward, 2009; Levine, 2006). However, in our cases, smart growth strategies included both targeted deregulation as well as imposition of new regulations. In four of the five cases—Vermont-Western, Rio Vista, East Village, and San Jose—cities relaxed density and use-type restrictions, while simultaneously requiring developers to adhere to design standards and provide certain amenities. The two types of interventions were often complementary, in fact. Greater density can in theory create benefits by easing housing shortages, reducing vehicle travel, and allowing more efficient public service provision—but it also creates costs in the form of crowding and congestion. The requirements for amenities and urban design may offset these negative congestion impacts by making a high-density urban environment more attractive. In our cases, at least (and perhaps in most cases in general), it makes sense to think about these smart growth plans as selective deregulation combined with transportation or amenity-focused new regulation.

4.2 Limitations of the analysis

Our analysis did not consider potential impacts on subgroups of households outside the case study plan areas, which may have experienced negative impacts. Neighbors frequently protest plans for higher density development for a variety of reasons, including an expectation of more traffic congestion and noise (Pendall, 1999). For example, the new development in the Rio Vista area likely increased traffic on nearby roads, which would have inconvenienced drivers living nearby and using those roads. Without the higher density development in Rio Vista, new housing to accommodate the same number of residents probably would have been more dispersed around the city and while total automobile traffic may have been greater, the local impacts would not have been as noticeable, at least to those in Mission Valley.

As mentioned, we also did not analyze the potential effects on households that moved out of the plan area during the study period, since such households were not possible to directly identify. Households displaced from the plan area may have experienced reductions in accessibility, for example—a potential concern in the Vermont-Western and East Village cases where some gentrification seemed to be occurring. Some households were likely displaced by rising housing prices, though property owners may have benefited if they received a significant windfall on selling their properties. Our project was unable to assess these impacts within the scope and budget available. Future research should investigate the magnitude and distribution of potential costs from displacement stemming from smart growth policies.

In addition, our analysis was constrained in some aspects by data availability. Data from historic periods and at the neighborhood scale were not consistently available. For example, existing databases generally do not consistently report detailed information on housing prices or land uses as far back as the 1990s, when many of these plans were first adopted. In these cases, we were forced to either truncate the study period, or extrapolate data to earlier time periods. Data on municipal capital expenditures and public service provision are generally available only at the city level, not for specific neighborhoods, preventing direct estimates of spending. Because of all these limitations, our results should be interpreted not as precise impacts, but rough estimates that illustrate their direction and magnitude.

4.3 Lessons for planners and policymakers

For policymakers, our case studies showed smart growth interventions can have economic benefits on net, at least for the stakeholders we considered, and there can be synergies between reducing greenhouse gas emissions from transportation and improving housing affordability. However, for a variety of reasons, we found these benefits are often more modest than planners and smart growth advocates initially imagined, for several reasons. First, less development occurred than initially envisioned by each plan (though it could be that the impacts will take longer to materialize). Second, much of the observed development probably would have occurred even without the plan, particularly in growing metropolitan areas like San Diego, Los Angeles, and San Francisco, where there is employment growth and a high demand for housing. Development may have been limited by existing zoning regulations, would have occurred more slowly, and/or would have occurred in a more piecemeal, less coordinated manner. In these cases, the smart growth policies contained in the specific plans probably resulted in marginally greater residential and employment densities, which had the modest benefits we describe. Policymakers and planners can now better quantify the potential net benefits and costs of smart growth, rather than only the gross benefits. In places where housing and commercial demand were weaker, impacts were smaller because little development occurred. The Turlock plan's public investment did help to concentrate some demand for office and retail space in the downtown area, but could only shape development at the margins. Furthermore, because we selected only cases in which plans were followed by noticeable changes in development, the plans in these cases were likely more influential than average—most plans likely face even more barriers to achieving intended development.

The combination of existing physical conditions and contradictory regulations sometimes thwarted the efficacy of the smart growth plans. San Diego's Rio Vista plan called for transit-oriented development, but existing road level-of-service requirements forced developers to also build significant amounts of automobile infrastructure (e.g. road improvements and parking) that was costly, reduced the amount of housing that could be built, and ultimately encouraged automobile use by its residents. The San Jose plan initially recommended reducing parking supply to encourage more transit use, but the surrounding physical environment of the city—largely low-density, auto-oriented development—meant that most people relied on cars, and developers catered to that perception. In these cases, local objectives for reduced automobile travel conflicted with greater citywide or regional interests in accommodating cars. In other cases, building standards increased development costs and diminished the housing price savings resulting from greater supply. Our research showed the importance of identifying existing plans and policies that may work at cross-purposes with the smart growth interventions.

These case studies also speak to the existing literature on transit-oriented development. Because smart growth policies can affect housing prices in several ways, the net impact on prices is in theory ambiguous and depends on specifics of the policies. Existing studies that show transit-oriented development increase housing prices do not generally identify the reasons for the increases (Atkinson-Palombo, 2010; Duncan, 2011). TOD could increase housing prices because it produces an accessibility benefit, or because higher development and construction costs are passed on to the resident. TOD that increases housing supply would be expected to *lower* prices, all else equal, at least across the region. In our four cases that involve housing impacts, the value of accessibility capitalized into housing prices is generally several times greater than the estimated cost savings from supply and construction cost effects for an average household in the plan area. This suggests that empirical studies that find a “transit accessibility premium” from a combination of higher density zoning and transit access (Atkinson-Palombo, 2010; Duncan, 2011) may be measuring the accessibility effect and not other impacts.

Our analysis suggests that these plans likely did result in reduced VMT at a regional scale, although not necessarily for the reasons that often capture planners’ attention. The largest VMT effects came from enabling more people to live in relatively centrally located areas, where driving distances to work and other destinations are shorter than they would be in more outlying areas. Enabling people to live near transit was also important, but not as much as enabling shorter driving distances, as the majority of people in all cases drove. The effects of pedestrian- and bicycle-friendly design on VMT, by comparison, were probably quite small. This should encourage planners who hope to reduce VMT to focus on the location of development , perhaps more its design.

Four of the five specific plans in our cases were adopted in the 1990s, when Redevelopment Agencies had great influence over urban redevelopment in California. In East Village and Downtown Turlock, Redevelopment Agencies played a large role in implementing the plans, especially through the use of tax increment financing (TIF). In these cases, enabled substantial public investment and implementation of relatively large projects, which, as we have found, produced benefits for the city and region. Without TIF, in these cases it probably would have take longer to realize these benefits, and they might have been smaller in magnitude. Urban infill plans can produce general benefits without TIF, as the San Jose Midtown case, which did not use TIF, shows. However, in cases where the real estate market is less robust, such as in Vermont-Western, the lack of TIF likely makes it more difficult for cities to jumpstart the intended types of developments. Given that, as of 2012, California cities no longer have the ability to use TIF, in the future they will have to rely more on zoning regulations to shape private investment.

4.4 Long time horizons for implementation

Our analysis also highlights the long time horizon of smart growth planning. In all cases, development took place over a relatively long time span, sometimes much longer than anticipated in the original plans. In San Jose Midtown, twenty years after the specific plan’s adoption, only half of the originally envisioned housing had been built, and even less of the envisioned commercial and office space. The Vermont-Western plan area developed even more slowly. Turlock’s two decades of planning and investment have only in the last two or three years produced benefits that surpassed the initial public investment. Even accounting for the effects of the Great Recession, these results imply that the time horizon for implementing infill plans is often longer than many planners expect, potentially as much as forty years. Perhaps the long-term impacts of smart growth planning are quite large. Regardless, planners should be cautious in their expectations about the speed at which smart growth plans can be implemented.

5 SUMMARY AND CONCLUSIONS

In this project, we estimated the benefits and costs of neighborhood-level smart growth plans and policies on regions, municipalities, and households. The purpose was to better understand how smart growth interventions expected as part of SB 375 will impact residents, communities and regions. Using qualitative and quantitative methods, drawing from a variety of data sources, we conducted five case studies of local plans and policies previously adopted in California cities.

Table 22: Summary of net impacts of the plan, by case, from societal and municipal perspectives

	Regional	**Municipal**
Vermont-Western (Los Angeles)	Increased regional housing supply, raised commercial property values through amenities, enabled more efficient municipal service and infrastructure provision, and reduced VMT.	Possible fiscal benefits from property tax revenue associated with new development and public service efficiencies. But, the plan may have reduced population in the city, leading to lower tax revenue and public service efficiency.
Rio Vista (San Diego)	Higher construction costs more than offset the benefits of increased regional housing supply, more efficient public provision, slightly more transit use, and less auto travel.	Lower operating expenditures for police, streets, and parks. Also, the negotiated development agreement between the developer and the city may have led to more and better quality developer-funded infrastructure.
East Village (San Diego)	Increased regional supply of multifamily housing, greater local amenities. Allowed more households to take advantage of the accessible location. Municipal service efficiencies from central, higher-density downtown location.	Enabled tax increment finance, which allowed the city to capture and spend more property tax revenue on East Village improvements. Higher densities led to more efficient service provision. But, not yet clear whether public investments will pay off.
Midtown (San Jose)	Benefits from: increased regional housing supply, more efficiently provide public services, reduction in auto travel.	Improved downtown pedestrian environment, retail clustering, and office agglomeration. Costs of streetscape and infrastructure expenditures were more than offset by higher property tax and impact fee revenue.
Downtown (Turlock)	Net benefits from property tax revenue coupled with more efficient public service expenditures.	Enabled tax increment finance for the downtown, and this led to a net fiscal benefit because capital improvement costs were funded by higher revenues.

The smart growth plans and policies we analyzed, for the most part, had positive net impacts from the perspectives of the region, the municipality, and households within the planning areas. Tables 21 and 22 summarize, in qualitative fashion, the impacts of the plans in each case. The plans generally resulted in the completion of more residential and commercial development — whether it was due to relaxed density limits, more flexible parking requirements and/or the catalyzing effects of public investment. The increase in development, often in the form of in-demand multifamily housing, was a benefit to the region, to municipalities, and to households in need of this type of housing. The plans affected the design of private buildings and the public realm, and they generally resulted in more pedestrian-friendly designs and coordinated connections with transit, which created benefits for residents who valued these amenities. The plans also generally resulted in reduced vehicle travel, because they allowed more people to live and work in relatively accessible locations, rather than outlying areas far from jobs and transit. Municipalities generally benefitted, as higher densities allowed more efficient provision of public services and greater tax revenue. The magnitude of impacts varied widely, depending on the scope of the plans, their actual influence in development, and the assumptions used in the analysis.

Table 23: Summary of net impacts of the plans, by case, from the perspective of each household type

	Existing owner households	**Prospective owner households**	**Existing Renters**	**Existing Low-income households**
Vermont-Western (Los Angeles)	Benefits from capturing the value of increased neighborhood amenities.	Benefits from amenities and accessibility more than offset the additional construction costs associated with the plan (that would be at least partially passed on to the future owners).	Benefits from increased neighborhood amenities.	No significant impacts. The costs of rent increases may not have been offset by the benefits of new neighborhood amenities.
Rio Vista (San Diego)	The few existing homeowners benefitted from new amenities (e.g. open space, pedestrian improvements, and retail).	Benefits from new neighborhood amenities and improved accessibility.	Benefits from new neighborhood amenities.	The few low-income households experienced benefits from better non-auto travel options.
East Village (San Diego)	Benefits from new neighborhood amenities, greater municipal service efficiency, and transportation options.	Benefits from increased accessibility, increased housing supply, neighborhood amenities, municipal service efficiency, and transportation options.	Benefits from increased housing supply, neighborhood amenities, and more efficient public services.	Small benefit from lower regional housing prices due to new supply. But difficult-to-quantify out-migration of homeless households.
Midtown (San Jose)	The few owner households had improved travel options and experienced small fiscal benefits.	Benefits from lower regional housing prices attributable to new housing supply enabled by the plan.	Benefits from lower rents due to regional housing supply.	Small benefit from additional housing supply.
Downtown (Turlock)	Since there was no change in residential development associated with the plan, most of the benefits for Turlock residents were attributable to municipal fiscal benefits that were passed on to taxpayers. Also, there was a small benefit from greater job access for downtown residents.			

But, plans did not always lead to benefits, and not everyone benefitted. In one case, greater housing development led to lower density—and negative impacts for the municipality—as singles and childless couple replaced larger family households. In another case, design standards may have created net costs for households by requiring more expensive construction. In all cases, low-income households benefitted far less than other types of households. Households outside the planning areas, impacts on whom we did not directly estimate, may also have experienced costs. We also found the full build-out envisioned by the plans rarely materialized, and much of the development would have been built even without the smart growth plans and policies. Overall, our research suggests that California's smart growth strategy embodied in SB 375 has potential to bring large benefits to many stakeholders, but those benefits are by no means guaranteed.

6 RECOMMENDATIONS

This study highlights areas where more research is needed to more fully understand the effects of land use planning in urban contexts.

- When are regulations binding on new real estate development? That is, when do regulations shape the built environment and when are regulations merely symbolic?
- How does urban housing production affect regional housing prices? Based on the existing literature, we estimated sizable price effects from the new multi-family housing developed in the plan areas, but existing studies provide little guidance on whether and how effects extend across submarkets and spatial scales.
- How do design-related regulations affect housing supply? In particular, the literature does not provide a good understanding of how design standards and requirements directly and indirectly affect the cost of housing production. Additionally, we know little about when and how much these costs are passed on to renters and homebuyers.
- How do neighborhoods' residential and employment densities affect public service provision? Most existing research has been done at the county scale, understandable due to data availability, but leaving an important gap related to the effects of small-scale density.
- How do low-income households weigh the benefits of amenities against higher housing costs in smart growth areas? This question is important because in some cases we found that low-income households experienced the smallest benefits, and potentially costs, depending on how they value plan area amenities.
- How do land use regulations affect economic productivity of neighborhoods and regions? Research is beginning to uncover effects of employment density and commercial clustering, but the literature is not yet sufficient for us to make strong statements on agglomeration effects in this study. In particular, it is not clear whether higher density in one neighborhood increases in economic productivity across the region, or simply relocates economic activity from elsewhere in the region.
- Finally, how do policies that improve local amenities impact the socio-demographic mix of neighborhoods, and do they lead to displacement of low-income households?

Broadly, the five cases presented in this study show that "smart growth" can mean many things in many contexts. Most of the development we observed fell somewhere on the spectrum between dispersed greenfield development and high-rise buildings. Future research could investigate the impacts of suburban infill development. For example, in our Los Angeles, San Diego, and San Jose cases, had development not occurred in the plan area, it probably would have located in suburban areas with existing public services—not necessarily greenfield fringe areas. That is to say, the alternative to compact development near transit is not always greenfield development, but often a more moderate-density form of suburban infill. Understanding the relative benefits and costs of these forms of development would be useful.

Better data collection will improve these types of analyses. Reliable and consistent information on local development regulations and neighborhood-specific municipal expenditures is especially difficult to obtain, especially for historic periods, as each municipality has a different system of maintaining these data, if they maintain them at all. Standardized and more detailed data collection—and public access—by municipalities would enable more rigorous research into the effects of smart growth planning.

Going forward, researchers in California should closely monitor the implementation of smart growth policies intended to comply with SB 375. In this study, we attempted to select cases that would provide lessons for plans and policies now being adopted. Are these new plans and policies, and their contexts, comparable to those that came before? Do they face the same issues in implementation? Are new plans and policies creating similar benefits, and for whom? On the whole, our results leave us cautiously optimistic about California's greenhouse gas reduction strategy, and illustrate the importance of local land use regulations to achieving these aims. Further research is needed, however, to evaluate progress towards those goals.

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List of Acronyms

ACS	American Community Survey
CARB	California Air Resources Board
CCDC	Centre City Development Corporation
FAR	Floor Area Ratio
GHG	Greenhouse gas
LEHD	Longitudinal Employer-Household Dynamics
MPO	Metropolitan planning organization
NAICS	North American Industry Classification System
NETS	National Establishment Time-Series
PBID	Property and Business Improvement District
PDO	Planned District Ordinance
SB	Senate Bill
SCS	Sustainable Communities Strategy
TIF	Tax increment finance
TOD	Transit-oriented development
VMT	Vehicle miles traveled
VWSP	Vermont-Western Specific Plan

APPENDIX A: Interviews

Elite interviews

Name	Title	Organization
Carol Barrett	Assistant Community Development Director, Transportation and Planning	City of Burbank
Keith Bergthold	Assistant Director of Planning	City of Fresno
Ken Bernstein	Principal City Planner and Manager of the Office of Historic Resources	City of Los Angeles
Vince Bertoni	Planning Director	City of Pasadena
Mike Bitner	Principal Planner	Fresno Council of Governments
Rick Bishop	Executive Director	West Riverside Council of Governments
Nancy Bragado	General Plan Program Manager	City of San Diego
Kelly Broughton	Director of Development Services	City of San Diego
Kristine Cai	Senior Regional Planner	Fresno Council of Governments
Greg Chew	Senior Planner	Sacramento Area Council of Governments
Bill Chopyk	Community Development Director	City of La Mesa
Peter Cohen	Co-director	Council of Community Housing Organizations
Barry Curtis	Manager of Planning Services	City of Irvine
David Fey	Deputy City Planner	City of Clovis
Amie Fishman	Executive Director	East Bay Housing Organizations
Chione Flegal	Associate Director	PolicyLink
Tim Gehrich	Deputy Director of Community Development	City of Irvine
Alan Greenlee	Executive Director	Southern California Association of Non-Profit Housing
Hasan Ikhrata	Executive Director	Southern California Association of Governments
Douglas Ito	Chief, Air Quality & Transportation Planning Branch	California Air Resources Board
Doug Johnson	Senior Planner	Metropolitan Transportation Commission
Tom Jordan	Senior Policy Advisor	San Joaquin Valley Air Pollution Control District
Patrick Kelly	Manager, Community and Economic Development Planning Division	City of Modesto
Patrick Kennedy	Owner	Panoramic Interests
Catherine Lyons	Policy Manager	Bay Area Council
Brian Ludicke	Planning Director	City of Lancaster
Taylor Mammen	Principal-Director of Consulting	RCLCO
Sandra Padilla	Land Use Program Director	TransForm
Erik Pearson	Senior Planner	City of Hayward
Denise Pinkston	Partner	TMG Partners
Laurel Prevetti	Assistant Director of Planning	City of San Jose
Stephen Proud	Vice President of Community Development	Lennar Urban

Marisa Raya	Regional Planner	Association of Bay Area Governments
Stephanie Reyes	Program Director	Greenbelt Alliance
Victor Rubin	Vice President for Research	PolicyLink
Scott Ruhland	Associate Planner	City of Fremont
Courtney Smith	Staff, Climate Action & Research Planning Section	California Air Resources Board
Barbara Steck	Deputy Director	Fresno Council of Governments
Eric Tolles	Director of Community Development	City of Irvine
Therese Trivedi	Program Manager	Metropolitan Transportation Commission
Linda Wheaton	Assistant Director of Intergovernmental Affairs	California Department of Housing & Community Development
Al Zelinka	Community Development Director	City of Riverside

Case study interviews

Name	**Title**	**Organization**
Turlock		
Michael Cooke	Director of Municipal Services	City of Turlock
Dana McGarry	Planner/Coordinator	Turlock Downtown Property Owners Assoc.
Eric Picciano	Principal Civil Engineer/Chief Building Official	City of Turlock
Michael Pitcock	Director of Development Services	City of Turlock
Katie Quintero	City Planner	City of Turlock
Sharon Silva	CEO	Turlock Chamber of Commerce
Deborah Whitmore	Deputy Planning Director	City of Turlock
Vermont-Western		
Monique Acosta	Planning Assistant	City of Los Angeles Planning
David Bell	President	East Hollywood Neighborhood Council
Stan Hoffman	Principal	Stanley R. Hoffman Associates
Alex Kalamaros	Joint Development Program Manager	Los Angeles Metro
Blake Lamb	City Planner	City of Los Angeles Planning
Craig Weber	City Planner	City of Los Angeles Planning
Billie Lay	Program Associate	Thai Community Development Center
San Jose Midtown		
Leslie Xavier	Planner	City of San José
Deborah Arant	Local resident	Shasta Hanchett Neighborhood Associ.
Karl Sveinsson	Resident; Director of Design and Development	Plant 51; Viewpoint REIC
Helen Chapman	President	Shasta Hanchett Park Neighborhood Assoc.
Michael Black	Senior Development Manager	Barry Swenson Builders
Nancy Ianni	Council member, Chair of Specific Plan Task Force	City of San José
San Diego Rio Vista		
Nancy Bragado	Deputy Planning Director	City of San Diego
William Fulton	Planning Director	City of San Diego

Oscar Galvez III	Facilities Finance Project Manager	City of San Diego
David McMahon		Greystone Group
Brian Schoenfisch	Program Manager	City of San Diego
Marco Sessa	Sr. Vice President-Land Development/ Residential	Sudberry Properties
Michael Stepner	Former Director of Planning and Housing	San Diego Economic Development Corporation
San Diego East Village		
Nancy Bragado	Deputy Planning Director	City of San Diego
William Fulton	Planning Director (at time of interview)	City of San Diego
Megan Sheffield	Facilities Financing Project Manager	City of San Diego
Michael Stepner	Faculty Member	NewSchool of Architecture + Design

APPENDIX B: Data Processing Technical Notes

National Establishment Time-Series (NETS)

Initial steps to facilitate locational analysis were performed in GIS. Remaining analysis was performed in Stata.

Analysis comprised the following principal steps:

1. Using GIS, coordinate locations provided in the NETS database were used to assign each establishment to a census block location in each year.
2. Using Stata, the dataset was collapsed using NAICS codes for all establishments. This converted it from a dataset in which observations represent establishments to a dataset in which observations represent 2-digit NAICS code industry sectors. The collapsed variables were:
    a. Counts of establishments
    b. Counts of employees
    c. Net sales
3. Employee counts were divided by establishment counts to calculate the average number of employees per establishment.

Influence of coordinate location precision on results

Analysis results are influenced by the precision of establishment coordinate locations in the NETS database. The LevelCode, OriginLevelCode and DestLevelCode fields identify the precision of the coordinate locations, respectively, for each establishment's final location, move origin locations, and destination locations. Most locations are assigned to the block face where the establishment is located – and can therefore be used to assign establishments to census blocks.

A significant minority of establishment locations are assigned to the centroid of the zip code where the establishment is located, and a small number are assigned to the centroid of the block group, to the centroid of the census tract, or to the street where the establishment is located. These locations are likely to mis-identify the census block where the establishment is located – and in the case of zip code centroids, the distance between the identified location and the actual location is usually sufficient to change whether the establishment is identified as being inside or outside the boundaries of our case study areas. In areas such as Turlock, where many businesses are concentrated inside the case study area and few are located outside, this could result in significant misreading of the effects of the plan, since many of the businesses in the plan area would be identified as being located outside the plan area.

To remove this source of error, establishments whose locations represent the block group centroid, the census tract centroid, the zip code centroid, or the street are excluded from the analysis. To give a sense of the significance of this, this excludes about 20% of establishments in the four counties where our case studies are located.

Location precision	
D = Block Face	87.30%
B = Block Group	.08%
T = Census Tract Centroid	.09%
Z = ZIP Code Centroid	12.29%
N = Not Coded	
S = Street Level	.24%

APPENDIX C: Empirical studies informing the analysis

Table 24: Estimated housing price premium with respect to transit proximity, from various studies

Study	Context	Independent variable	Dependent variable	Price premium	Relevant cases
Goetz et al. (2010)	Minneapolis light rail, Hiawatha line	Location within ¼ mi of station	Multifamily sales price	16%*	SJ, SD
Duncan (2011)	San Diego light rail, walk-up stations, neighborhoods with "average" pedestrian quality	Location w/in 0.19 mi of station	Condo price	6.4%	SJ
	San Diego light rail, walk-up stations, neighborhoods with "good" pedestrian quality	Location w/in 0.19 mi of station	Condo price	15.3%	SD
Knaap, Ding, and Hopkins (2001)	Portland light rail, western suburbs, after announcement of station plans	Location w/in 1/2 mi of station (dummy)	Land sales price /acre	35%	SD, SJ
McDonald & Osuji (1995)	Chicago elevated rail Midway Line, in 1990 after announcement of plans	Location within ½ mi of station (dummy)	Land value	17%	LA, SJ

**very approximate estimate from reading (small and blurry) graphs published in the study.*

Table 25: Estimated effects of neighborhood amenities on housing prices, from selected studies.

Amenity	Study	Context	X	Y	Estimated elasticity/ premium	Relevant cases
Amenity-rich, mixed-use nhood	Atkinson-Palombo (2010)	Phoenix light rail, amenity-rich mixed-use nhoods	Within 0.5 mile of station (dummy)	Condo price	16% to 28%	LA, SD, "plan" estimate
		Phoenix light rail, residential nhoods	Within 0.5 mile of station (dummy)	Condo price	-13% to 3%	LA, SD, BAU estimate
Commercial activity and proximity to transit	Duncan (2011)	San Diego light rail	service jobs/ha	Condo price	0.0360	SD, SJ, LA
			service jobs/ha x network km to station	Condo price	-0.0025	SD, SJ, LA

Table 26: Estimated premiums for commercial property associated with transit accessibility

Study	Context	X	Y	Estimated premium	Relevant cases
Bollinger et al. (1998)	Atlanta, office space	Within 1/4 mile of MARTA station (dummy)	Quoted annual rent per sq ft	-5.7%	LA?
Cervero and Duncan (2002)	Santa Clara county Caltrain and light rail, 1998-99. Professional, office, commercial-retail, and commercial-business parcels	LRT station w/in 1/4 mile (dummy)	Assessed land value per sq ft	23%	SJ, SD
		Caltrain station w/in 1/4 mile (dummy)	Assessed land value per sq ft	145%	SJ

Table 27: Estimated elasticities for agglomeration effects on commercial property values

Study	Context	X	Y	Elasticity		Relevant cases
				(low)	(high)	
Cervero and Duncan (2002)	Santa Clara county 1998-99. Professional, office, commercial-retail, and commercial-business parcels	labor force density	assessed land value per sq ft	1.12		SJ, SD, LA
		retail employment density	assessed land value per sq ft	-0.171		SJ, SD, LA
		service employment density	assessed land value per sq ft	0.313		SJ, SD, LA
Sivitanidou (1996)	LA, office-commercial properties in commercial nodes	employment in finance, legal, and business services per resident	assessed property value per sq ft of land	0.00110	0.00146	LA, SJ, SD
		retail employment per resident	assessed property value per sq ft of land	-0.0306	0.0358	LA, SJ, SD
Bollinger et al. (1998)	Atlanta, office space, 1990, 1994, and 1996	executive, managerial, and professional jobs in tract/these jobs in region	quoted annual rent per sq ft	0.0771	0.105	LA, SJ, SD
		FIRE, business, and repair service jobs in tract/these jobs in region	quoted annual rent per sq ft	0.0981	-	LA, SJ, SD

APPENDIX D: Vehicle Travel Assumptions

Local job access technical notes

An input variable for the Deborah Salon/CARB tool, local job access is calculated as a measure of all jobs within 5 miles of a location, weighted by proximity in miles. For this variable, we use 2003 jobs as a proxy for 2000 values as this is the first year the LEHD data is available for the plan areas. This approach is consistent with Salon's methodology. To calculate the change in local job access, we recreated Salon's tool using 2011 LEHD Workplace Area Characteristics data. We used 2011 data in place of 2010 data to reduce the impact of the 2008 economic recession on the jobs analysis.

Following Salon's methodology, we merged the jobs data with a list of 2010 block group centroids and calculated a distance-weighted sum of all jobs within five miles of the block group. LEHD LODES 7.0 data is all referenced to 2010 census block definitions, so calculations for years prior to 2010 still use 2010 block group centroid definitions for the analysis. For this calculation, jobs in each block group are weighted by the exact distance between the block group being measured and the block group containing the jobs. Jobs located in the specific block group being measured are excluded from the analysis. After calculating local job accessibility figures for each block group in the state, the values are aggregated to the census tract level by taking the population-weighted mean.

Once average local job accessibility values were created at the census tract level, we again aggregated the figures using a population-weighted mean to create an average local job access value for the plan area and another for the all other census tracts in the county, which excludes tracts in the plan area

To create counterfactual estimates of local job access for the plan area, we first had to construct estimates of the number of jobs that would have existed in the plan area in the absence of the plan. We created this estimate by applying the county-wide growth rate over the period in question to the observed number of jobs in the plan area in the initial year. In other words, our assumption for the counterfactual scenario is that the employment in the specific plan area would have simply grown at the county-wide average.

Assumptions for personal vehicle operating costs

Variable	Unit	Value	Source
Average fuel efficiency	miles/gallon	21.4	http://www.fhwa.dot.gov/policyinformation/statistics/2011/vm1.cfm
Gas price	$/gal	3.5	Assume constant price for gas. Estimate based on http://energyalmanac.ca.gov/gasoline/retail_gasoline_prices.html
Tires cost	$/mile	0.01	Source: AAA, 2011 "Your Driving Costs" (http://newsroom.aaa.com/wp-content/uploads/2011/08/YourDrivingCosts2011.pdf)
Maintenance cost	$/mile	0.05	Source: AAA, 2011 "Your Driving Costs" (http://newsroom.aaa.com/wp-content/uploads/2011/08/YourDrivingCosts2011.pdf)
Total operating cost per mile	$/mile	0.224	Includes, gas, tires, and maintenance cost

External (societal) costs of passenger road transport in cents (2011 USD) per passenger-mile

Impact	**Low**	**High**
Congestion delay	0.9592	8.175
Accident	1.526	15.696
Air pollution, health	0.0981	7.303
Climate change	0.654	5.232
Noise	0	3.815
Water pollution	0.0109	0.0545
Energy security	0.218	0.9156
Total external costs ($)	0.034662	0.411911

Source: Delucchi & McCubbin (2010)

APPENDIX E: Elite Interviews and Case Study Selection

Analyzing the Economic Benefits and Costs of Smart Growth

Elite Interviews and Case Study Selection

Prepared for the California Air Resources Board

October 4, 2013

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Table of Contents

1 Introduction

This memo summarizes work accomplished in the initial data collection and case study selection phase of the California Air Resources Board (ARB)-funded project, “Analyzing the Economic Benefits and Costs of Smart Growth.” Our intent was to understand what smart growth policies local and regional governments are most likely implement in order to achieve goals set by SB 375 and other local objectives, and what the greatest challenges to implementation of those policies are likely to be. Another objective of Task 2 is to identify the best ways to select potential case studies. We characterize smart growth in terms of its core objectives, including:

- limiting unchecked outward expansion of urban areas;
- concentrating new development in central and already-developed areas;
- mixing land uses;
- providing and improving public transit services, pedestrian amenities, and bicycle infrastructure;
- reducing automobile vehicle miles traveled (VMT);
- preserving open space and agricultural land; and
- catalyzing economic development in declining inner-city areas.

To accomplish this, we conducted interviews; identified smart growth policies, plans and projects throughout the state, focusing on land development policies; identified potential sources of data for economic impact analysis; developed case study selection criteria and possible case studies; and described interview results, mitigation strategies, and case study recommendations for ARB approval.

Our interviews confirmed that stakeholders view municipal finances, housing prices, and travel patterns as relevant impacts of smart growth policies, although their relative importance depended on context and perspective. City-level planners were likely to see benefits in terms of fiscal impacts, traffic reduction, and economic growth. Developers of urban infill also emphasized benefits of smart growth, but stated that land use regulations, potentially including those resulting from SB 375, often increase development costs and therefore housing prices. Social equity and housing advocates worried that smart growth policies would constrain housing supply and consequently raise prices. Views also varied by region: planners in Southern California were quicker to cite traffic reduction; in the Bay Area housing prices were a larger concern; and planners in Sacramento and the Central Valley associated smart growth with economic development and fiscal savings.

The interviews led us to believe that local specific plans are the most appropriate subjects for our case studies. The interviews revealed that one of the most important influences of SB 375 arises through regional policies that incentivize smart growth planning at the sub-local level. Local jurisdictions across the state are revising zoning and regulations to encourage denser, mixed-use, pedestrian-oriented development in strategic locations—often downtowns, station areas, or under-utilized areas—while leaving established residential neighborhoods mostly unchanged. Regional policies, reinforced by SB 375, are incentivizing this kind of planning through grants and investment priorities.

We therefore chose as potential case studies a set of specific plans—or similar station area or community plans—that include provisions for higher-density, mixed-use, pedestrian-oriented development. From a shortlist of potential cases, we recommend six that represent the range of smart growth contexts, considering geographic region, city size, economic conditions, and neighborhood context:

1. Los Angeles: Vermont/Western Specific Plan
2. San Jose: Midtown Specific Plan
3. Turlock: Downtown Design Regulations and Zoning Regulations
4. Petaluma: Central Petaluma Specific Plan
5. Hercules: Central Hercules Plan
6. Pasadena: Central District Specific Plan

Our next steps will be to finalize the selection of cases and carry out the case study analyses, following the methodology outlined in the accompanying methods memo. In this document, we summarize and discuss information gained in the interviews, identify smart growth policies and plans relevant to SB 375, identify case study selection criteria and list potential cases. Following review of this document and ARB approval, we will finalize the case study selection.

1.1 Background information on regional policies under SB 375

SB 375 requires regional Metropolitan Planning Organizations (MPOs) to adopt Sustainable Communities Strategies (SCSs), which are intended to guide planning at the local level. The SCS alone has little direct authority over local plans or development decisions, which remain the responsibility of local jurisdictions. Regional agencies can influence local planning through funding transportation projects—they may choose to fund transportation projects based on consistency with the SCS—or through other financial or legal incentives that encourage planning consistency with the SCS (Barbour & Deakin, 2012).

The SCSs vary by region. For example, the Bay Area's SCS calls for new growth to be concentrated in Priority Development Areas (PDAs), areas around transit stations designated as priorities for investment and development.[33] Designated PDAs are eligible for planning and capital improvement grants administered by the MPO. The PDA Planning Program, administered jointly by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC), provides grants to cities to create specific plans for transit station areas.[34] PDAs are nominated voluntarily by the local jurisdiction and approved by the regional agency ABAG. To be eligible, areas must be located within an existing community, they must be near planned or existing transit, and they must have plans for additional housing (ABAG, 2011). According to MTC guidelines, the recommended size of PDAs is 100 acres (about a ¼-mile radius, roughly the walk-shed around a transit station), although some that include downtown areas or transportation corridors are much larger. The grant criteria strongly encourage smart growth-style planning by requiring plan elements that address, for example, transit connectivity, "pedestrian-friendly design standards," and parking demand reduction (MTC & ABAG, 2012).

In the Sacramento area, the Sacramento Area Council of Governments (SACOG) provides CEQA (California Environmental Quality Act) streamlining for three levels of projects, each with progressively stricter smart growth requirements: Mixed-Use Residential Projects, Transit Priority Projects, and Sustainable Communities Projects. In Southern California, SCAG has identified "2% Strategy Opportunity Areas" for focused growth in metro centers, rail station areas, bur rapid transit corridors, priority residential infill areas, and Compass Blueprint Priority Communities. SCAG has also awarded grants of $20,000 to $200,000 for local initiatives related to integrated land use and transportation planning, active transportation, and environmental sustainability (SCAG, 2012; SCAG, n.d.). The San Diego Association of Governments' (SANDAG) Smart Growth Concept Map was updated in 2012 and identifies a typology of smart growth place types (SANDAG, 2012a). SANDAG administers a Smart Growth Incentive Program and an Active Transportation Grant Program (SANDAG, 2012b).

A common feature of the SCSs is that they typically provide incentives to municipalities to permit denser development, often near transit stops. Incentives are sometimes financial in the form of planning grants (aimed at municipalities) and sometimes procedural in the form of development permit streamlining (aimed at developers).

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[33] This information on regional policies relating to SB 375 provides necessary context for understanding the interviews. We gathered this information from regional agency websites and publicly available documents.

[34] Specific plans are tools for implementing a city's general plan in a subarea of the city. While varying in content and intent, they provide more refined regulations and guidance for land use and development than are included in the general plan.

2 Interviews

We conducted interviews in order to gather information that would guide case study selection and inform our analysis of costs and benefits. Specifically, we aimed to:

- identify the economic costs and benefits of smart growth as perceived by planners setting smart growth policies, non-profit advocacy groups seeking to influence those policies, and real estate developers building smart growth projects;
- understand how different communities are reacting to SB 375;
- identify the types of smart growth policies and plans that are likely to result from SB 375 in the next few years;
- identify the types of case studies that could best illustrate costs and benefits of smart growth;
- identify barriers to implementation of SB 375 and smart growth in general; and
- understand equity and environmental justice concerns.

We conducted interviews with policy makers and planners in city, county, regional, and state governments; leaders and staff at advocacy organizations; and for-profit and non-profit real estate developers. Interviewees were chosen to represent diverse communities and perspectives. We interviewed thirty planners at different levels of government, eight staff members at advocacy organizations, and seven real estate developers. A complete list of interviewees is provided in Appendix A.

Interviews were open-ended and exploratory. We began each interview with a predetermined set of discussion topics, which ensured a degree of consistency across interviews, but we encouraged interviewees to elaborate on issues that arose as important. This approach uncovered some issues that we had not initially expected to discuss, such as the importance of the now-dissolved redevelopment agencies in implementing infill development.

Interviews were conducted in person where possible and by telephone otherwise. We began each with a series of questions specific to the type of organization and encouraged the interviewee to elaborate on their responses with follow-up questions. Most interviews were recorded and transcribed, but some phone interviews were not, due to technical difficulties.

2.1 Perceptions of economic costs and benefits

Some interviewees had trouble identifying specific costs and benefits of smart growth; the majority, however, were able to discuss economic impacts. Many planners saw smart growth as a tool for economic development and for promoting growth in general. In Lancaster, Burbank, and Fremont, planners hoped to use smart growth policies such as form-based codes and higher-density zoning around transit to increase development and increase demand in underdeveloped areas. According to interviewees, policymakers in many cities hope smart growth policies will attract jobs and commercial development, which is seen as an economic benefit especially in primarily residential cities like Modesto and San Jose. One planner saw smart growth as a long-term growth strategy that would attract younger residents by providing a wider range of housing options. Underlying these economic development arguments, whether explicit or implicit, was a concern about competing with other cities for jobs and population.

Planners in some cities expected fiscal benefits in the form of municipal savings from more efficient use of existing infrastructure and reduced need for new infrastructure. Because infill development would utilize existing infrastructure, it was seen as a way to increase development—and hence tax revenue—without the need for significant public expenditures on new roads and other infrastructure. In Fresno, planners believed that previous suburban modes of growth had created unsustainable infrastructure and service costs, and that smart growth would be more fiscally viable. Planners in cities with a conservative political climate tended to rely on the fiscal efficiency argument to justify smart growth policies.

When asked specifically about fiscal impacts, some local planners said that they knew little about this topic because their city had not conducted studies. Some reported that they had done fiscal impact studies (Lancaster, San Jose, Hayward); these typically found smart growth to be a fiscal benefit. Interviewees in Hayward and Fremont, however, said they were actively trying to attract retail development to increase sales tax revenue, and saw increased residential development as incurring fiscal costs. An interviewee in Hayward identified a conflict between the aim of increasing sales tax revenue and the form-based code that was to be adopted for the downtown area.[35] Because such use-blind regulations would allow all-residential developments with no retail, the code was modified to require some ground-floor retail development in certain locations.

Some interviewees said that the fiscal impacts of urban form were irrelevant because development impact fees were designed to cover the cost of providing services. One planner said that this prevented fiscalization of land use.[36] Other places, like San Jose, use impact fees, but these do not cover the entire cost of providing services, and thus development form is still an important factor. One planner said he understood that land use differentially influences fiscal resources, but his city deliberately did not use fiscal impact

[35] Form-based code refers to a type of zoning in which development is permitted or prohibited based on the dimensions, form, and design of buildings, rather than type of use.
[36] Fiscalization of land use refers to the practice of setting zoning regulations based on expected impacts on municipal finances, rather than on other substantive criteria.

analysis because the city believes that it promotes narrow fiscalization of land use at the expense of the bigger picture and overall interest of the city.

Interviewees identified a few other costs and benefits. A representative from the Bay Area Council, a business interest group, stated that some policies they viewed as part of smart growth—for example, limitations on greenfield development and impact fees to support affordable housing—impeded regional economic growth. Several interviewees expressed concern that smart growth policies would raise housing prices by redirecting growth from the urban periphery, where land is cheaper and permissive regulations reduce the cost of development, to the urban core, where land prices and restrictive regulations increase development costs. A representative from the Southern California Association of Governments (SCAG) cited internal studies that concluded smart growth in the Southern California region would create jobs through infrastructure investment and improved regional efficiency. A few interviewees mentioned the benefits of reduced travel and traffic congestion. One Southern California planner stated that "traffic trips become the currency" of smart growth project approvals. That is, approval of infill projects often hinged on whether they could be shown to reduce traffic. One planner suggested that walkable, mixed-use environments support a greater variety of small-scale, locally-owned retail and services, benefiting the community.

2.2 Perceptions of the influence of SB 375

Across all types of organizations, interviewees expressed the opinion that SB 375 has minimal direct influence on local planning activities and development outcomes, but that its indirect and long-term influence could be significant. One reason given for the limited influence was that smart growth was not a new concept. Planners at the city and regional levels emphasized that they had been doing smart growth planning for years, sometimes decades, before SB 375 existed. Planners in San Jose and Los Angeles, for example, stressed that they had been building transit-oriented development since the 1990s, so SB 375 did not represent a significant change. Nearly every city interviewed, even traditionally suburban cities such as Modesto, stated they had already been pursuing smart growth planning and the law only reinforced existing efforts. Indeed, some interviewees stated that rather than state law guiding local planning, state-level policymakers had looked to local and regional experiences with smart growth planning. According to individuals in SACOG, the Sacramento region's Blueprint Plan informed the design of SB 375. Planners from San Jose stated that the regional SCS was influenced by the city's General Plan update process. Every local planner we interviewed in the SCAG and SANDAG regions described the SCS as consistent with their city's existing general plans.

Several interviewees believed that SB 375 was influencing planning by bringing a wider range of interests into regional planning discussions. One interviewee in Lancaster mentioned that the sub-regional cooperation stimulated in the SCS process had highlighted the different perspectives and issues of cities in the sub-region. At least one interviewee said that the law had facilitated smart growth by providing a common language and set of expectations that brought together diverse parties.

The interviews suggest that SB 375 is likely to influence development by reinforcing regional policies that incentivize smart growth at the local level. For example, interviewees in the Bay Area viewed smart growth policies as focused primarily in PDAs defined by ABAG under SB 375. Although they did not always identify it as an influence of SB 375, many local planners referred to smart growth plans or projects that were funded through regional programs designed to incentivize development in PDAs. Similarly, several planners in Southern California mentioned recently obtained or ongoing SCAG Compass Blueprint funding for smart growth plans and demonstration projects.

To given an example, Inglewood's first two rail stations opened in the mid-1990s without any accompanying station area planning, and development patterns now are largely as they were then. Today, as the city prepares for new stations opening in 2018, Compass Blueprint-funded station area planning is likely to lead to zoning changes. In this way, regional funding decisions and incentive programs are likely to influence local development patterns, and will probably result in more smart growth-style development than would otherwise occur. However, these mechanisms depend on voluntary local action, and many local jurisdictions that take advantage of these incentives would likely implement smart growth policies anyway; in these cases, SB 375 merely reinforces existing activities. In some cases, though, regional policies may tip the balance in favor of smart growth planning.

2.3 Focus and type of smart growth policies

Our interviews suggest that the principal smart growth strategy for most MPOs and cities is the concentration of new development in core urban areas and in areas served by transit. Even in regions without well-developed transit systems, regional and local planners discussed efforts to focus growth in targeted neighborhoods that were seen as having potential for infill development.

Our interviews identified a wide variety of smart growth policies being adopted in California, including:

- higher density zoning (often overlay zoning),
- mixed-use zoning (often overlay zoning),
- form-based codes,
- incentives for new development near transit,
- reduced parking requirements,
- special tax assessment districts,

- infrastructure and street design to improve walkability,
- inclusionary housing policies, and
- expedited permitting for projects meeting certain criteria.

The interviews also suggest that most cities are considering smart growth policies only in specific areas like PDAs, while explicitly preserving other areas, especially residential neighborhoods, from changes in density and use. Many local planners said they had promised to "protect" single-family neighborhoods, and were able to do this by directing planned growth to PDAs or other areas seen as having potential for redevelopment. When asked about examples of smart growth, interviewees repeatedly mentioned plans for downtowns, station areas, and particular neighborhoods—that is, specific plans, community plans, and station area plans. While cities are also using General Plan updates and citywide policies, such as parking reforms, to implement smart growth, even these "citywide" policies tend to apply specifically to areas like transit corridors.

In the Bay Area, where most cities have little remaining developable land, interviewees characterized smart growth as being virtually synonymous with infill development and redevelopment. For example, San Jose is using specific plans to rezone light rail station areas to convert existing uses to transit-oriented development, while Oakland is trying to reform zoning to encourage redevelopment around downtown BART stations. Several interviewees mentioned the El Camino Real corridor transformation effort as a significant planning challenge. This corridor, which spans several local jurisdictions, is an older, mostly commercial, automobile-oriented boulevard that several cities are rezoning for mixed-use, higher density development.

In the Central Valley, smart growth policies address both infill and greenfield development. Most discussion of smart growth referred to specific plans. "Smart growth" might mean either an infill development project or a new subdivision. Planners in Clovis referred to master-planned subdivisions as examples of smart growth, while in Modesto and Fresno, planners highlighted efforts to transform suburban commercial corridors into more urban mixed-use districts. In Southern California, many interviewees spoke of efforts to create TOD and to revitalize downtown areas. Cities like Pasadena are trying to direct growth to central core and transit station areas. While some cities, like Riverside, will still see more greenfield development, that city's smart growth efforts are more focused on specific central corridors.

Several municipal planners identified form-based codes as an important smart growth policy. Many cities have replaced use- and density-based zoning regulations with these alternative regulations, which govern primarily the physical design of development. Planners also frequently mentioned they were using mixed-use and multifamily zoning, as well as reduced parking requirements, to encourage smart growth. Representatives of housing and equity organizations emphasized the importance of inclusionary housing policies, value capture, and community benefits agreements in connection with zoning changes.

2.4 Barriers to smart growth

We asked interviewees about barriers to smart growth for two reasons. First, discussing obstacles to smart growth helped reveal the incidence of costs and benefits, since barriers to smart growth may also represent costs to particular parties. For example, developers reported that the CEQA regulatory process imposes a significant cost to them in terms of effort, time, and risk. Second, understanding barriers to smart growth helps contextualize the selection of case studies.

Interviewees identified a wide range of barriers to smart growth development and the implementation of SCSs. Some interviewees said that suburban-style development is often still cheaper to build and finance than smart growth development. According to some interviewees, many potential investors prefer to finance development in low-density, single-family housing, which they perceive as low-risk, compared to “riskier” higher density, multifamily housing and infill development. Interviewees in San Diego, Sacramento and Modesto said they found lack of public funding for infrastructure development to be an obstacle to implementing smart growth plans. Local planners said land assembly was a challenge for infill development, especially following the loss of redevelopment agencies (which we discuss below).

In some places, planners reported encountering residents opposed to smart growth and densification. Such public resistance typically arose in response to proposals for mixed-use and multifamily development near single-family residential neighborhoods. Our Southern California interviewees often reported opposition to new developments perceived to have insufficient parking. Other planners said that non-residential zoning provoked opposition from neighboring residents and explained they addressed this issue by focusing on specific areas for rezoning—such as downtowns, existing commercial, and former industrial districts—while promising to preserve single-family residential neighborhoods. One planner said that an advantage of directing new growth to areas served by transit was that it reassured residents that neighborhoods located further from transit would be left unchanged.

Interviewees in cities without well-developed transit systems often reported that they hoped to increase density in order to support future transit—but doing so was difficult because the CEQA exemptions under SB 375 apply only to areas served by transit, or with planned transit. One interviewee said that air quality regulations discourage denser development in areas without transit because it is expected to generate traffic impacts.

Another interviewee explained that it was difficult for residents to see the benefits of TOD and a reduced-driving lifestyle in the absence of a complete transit system.

Some interviewees said that CEQA is a significant obstacle to infill development and redevelopment because the law can prohibit projects based on traffic impacts, and any party can challenge any proposal, even for reasons unrelated to environmental impacts. One planner gave the example of a large retailer backing a “citizens’ group” to oppose the expansion of a competitor on grounds that it would create adverse traffic impacts. Several planners mentioned that CEQA creates a litigious development environment, and elected officials and city attorneys generally take a conservative approach. Developers saw CEQA and other local-level review processes as significant sources of uncertainty, in that they could not know in advance whether or when their proposals would be approved. Some cities have attempted to address the uncertainty issue by streamlining the review process. In a more general sense, one interviewee said that the impending CEQA reform creates uncertainty for developers. On the other hand, some interviewees defended CEQA as an important tool to give communities a voice in the development process.

Interestingly, some interviewees from non-profit housing and equity organizations suggested that overly permissive development regulations perversely impede development because property owners decline to develop or sell land when the relaxation of zoning restrictions leads them to overestimate the value of their property. One interviewee gave the example of downtown Oakland, where properties covered by regulations with essentially no height or density limit remain underdeveloped while owners wait for property values to “catch up” with expectations set by zoning.

An interviewee at the Bay Area Council said that fragmented regional governing bodies working at cross-purposes posed an obstacle to smart growth. The interviewee cited guidelines for evaluating air pollution emissions impacts under CEQA issued by the Bay Area Air Quality Management District in 2010. The guidelines imposed tighter restrictions on development near automobile and public transportation corridors, contrary to the efforts of ABAG and the MTC to encourage development in these locations.

2.5 Market demand issues

In some places, interviewees perceived lack of market demand as a significant barrier to smart growth implementation. Many cities have planned for smart growth for many years without seeing substantial development. In some cases, like Fremont and Clovis, plans have been in place for over ten years without much change. One municipal planner suggested that ABAG’s goal of focusing 70% of new growth in PDAs is overly optimistic because demand is too weak in some of the PDAs. An interviewee from the real estate industry stated that allowing infill development in PDAs where demand may be weak, while prohibiting growth in high-demand greenfield areas, would eventually constrain the supply of housing and increase prices.

It is difficult to distinguish a weak regional housing market from a lack of demand for smart growth development specifically. In the Central Valley, decades of single-family housing construction combined with the 2008 housing market collapse have created an oversupply of single-family housing; even though the market for multi-family and rental housing appears to have been undersupplied, the glut of cheap single-family houses has dampened any kind of construction. In the Bay Area, the demand for multifamily apartments and condos may be concentrated in urban centers. Outlying cities like Fremont, while trying to promote dense housing, have so far seen only limited interest from developers. Some cities, like Fresno, may tend to attract residents who prefer a suburban environment, and thus demand for urban smart growth is relatively low.

Some interviewees stated that weak market demand could be an obstacle to implementation of SCS policies. Cities designate areas where they hope to see smart growth-style development, but policy changes that follow the PDA designation, such as priority for transit investment or relaxed zoning restrictions, do not necessarily address the underlying reasons those areas are currently underdeveloped. One representative of the business community suggested that the SB 375 and SCS planning processes failed to adequately consider the market feasibility of recommended policies.

In other places, interviewees said that demand for smart growth and urban-style development is strong and growing. Planners in San Jose and Pasadena reported a rise in demand for apartments and condominiums, especially in urban areas with transit, sometimes from residents who had previously lived in suburban single-family houses. In San Jose, the growth of start-up companies is reportedly driving greater demand for urban office space. Some interviewees believed that demand for infill development in currently underdeveloped areas would increase with recovery of the housing market, or as demographic trends continue to shift preferences in favor of denser, more urban housing types. Some interviewees saw shifting housing preferences as inevitable in the long term and believed that cities need to plan for these shifts to stay competitive.

2.6 Environmental justice and housing affordability

Interviewees from housing and equity advocacy organizations expressed concerns that smart growth strategies focused on directing growth toward transit would decrease housing affordability. This concern was especially strong among interviewees from the Bay Area, where various community and advocacy organizations have formed a coalition, called the Six Wins for Social Equity Network, which argued that concentrating development near transit while simultaneously retaining restrictive development regulations in existing single-family residential areas would limit housing supply and increase housing prices

(Public Advocates, 2013). Several interviewees also worried that the transit-focused strategy would result in overzoning that would lead to developer speculation and delay housing production. To address these issues, housing and equity organizations like the East Bay Housing Organizations, Council of Community Housing Organizations, and PolicyLink are lobbying for inclusionary zoning policies, community benefit agreements, more community participation, and value capture agreements at the specific plan and project level. Meanwhile, planners in a few housing-rich localities believed the regional agency had overestimated local housing need projections and intended to challenge them. Other interviewees suggested that the dissolution of redevelopment agencies, discussed in further detail below, would hinder the inclusion of affordable housing as part of the housing mix in smart growth areas.

2.7 Redevelopment agencies dissolution

The interviews suggested that the dissolution of redevelopment agencies has changed the financial landscape for infill development in ways that may hold implications for our case studies and smart growth generally. Many interviewees expressed doubt that smart growth plans could be fully implemented, given a lack of funding from state and local government. Nearly all agreed that the dissolution of local redevelopment agencies in early 2012 presented a key challenge to smart growth and the implementation of SCSs. Previously redevelopment agencies—empowered via tax increment financing to capture a share of property tax revenue within redevelopment areas, to exercise eminent domain, and to assemble land and coordinate development—had been critical to the success of urban redevelopment projects. They also represented one of the largest funding sources for affordable housing in the state, as 20% of the revenue they collected was reserved by law for this purpose. These agencies were dissolved in 2012 as part of statewide budget reform (California Department of Finance, 2013). According to housing advocates and some local planners, revenue raised from tax assessments in redevelopment areas provided cities with a funding stream to support below-market-rate housing in new developments. One interviewee explained that, without this financing mechanism, cities are forced to rely on market-rate development, greatly reducing their ability to provide affordable units, or to support developers that provide affordable units. In addition, many local planners stressed that the elimination of redevelopment agencies has greatly reduced the ability of cities to assemble land and to coordinate investment for redevelopment projects. Several, if not most, existing smart growth projects mentioned in interviews, such as Uptown Oakland and Fulton Street in Fresno, relied heavily on financing and coordination tools available under redevelopment.

2.8 CEQA streamlining

We asked interviewees whether CEQA streamlining, as one of the primary implementation mechanisms of SB 375, would influence future smart growth projects. The CEQA exemptions are intended to provide incentives to developers to build smart growth-style developments in areas served by transit by streamlining the CEQA review process. Of our interviewees, only those in the Sacramento region believed the exemptions created sufficient incentives to influence development outcomes. Representatives from SACOG related how the agency made a special effort to communicate exemption criteria to developers through a simplified spreadsheet and website. According to SACOG planners, the agency has received numerous inquiries from developers interested in the incentives (although they were unaware of any projects that had yet taken advantage of the provisions). In other regions, interviewees did not believe CEQA streamlining would influence development, either because the exemptions were too complicated to be a sufficient incentive, or because many places lack locations that qualify for exemptions. Developers in the Bay Area and in Southern California stated that they did not expect to find any advantage in using the CEQA exemptions.

2.9 Analysis and implications for case studies

2.9.1 Implications for case study selection

As we have discussed above, in the current planning context the sub-local level is the locus for smart growth policies, planning initiatives, and actual development projects. We therefore recommend choosing case studies at this scale. Case studies at the sub-local level may be specific plans (or precise plans), station area plans, or community plans. Plans chosen as case studies should include the types of policies frequently identified in the interviews, as discussed above.

We recommend that case studies not focus on regional or citywide plans and policies. While SB 375 has direct influence on regional activities, the causal links between regional interventions and actual development patterns are in most cases quite indirect. This would make evaluating the economic impact of regional plans or policies very difficult. Compared with laws that have direct authority over development, voluntary, incentive-based policies complicate the task of constructing a counterfactual. Furthermore, the influence of these kinds of regional policies will vary substantially throughout a given region, making it more difficult to gauge the impacts. In terms of citywide interventions, our interviews suggest that SB 375 is generally not influencing General Plans, except in those cities that are currently in the update process. Only a few interviewees discussed citywide policies as examples of smart growth; instead, most jurisdictions are focusing smart growth planning efforts in specific areas within the municipality.

Our interviews have shown there is a great deal of variation in planning contexts, approaches, challenges, and attitudes with respect to smart growth throughout the state. Smart growth plans appear to depend on geographic region, city size, location within the metropolitan area, and market demand.

Differences between regions reflect metropolitan areas' varied histories of development and urban growth. Many Southern California planners focused on the possible transportation benefits of smart growth plans and projects, such as reducing traffic congestion, while confronting the challenge of shifting from a car-oriented to a transit-oriented environment. Smart growth remains less imperative in the Central Valley, where cities face fewer land constraints. Here, cities saw smart growth as possibly beneficial for realizing fiscal efficiencies or creating more attractive downtowns, but were more likely to consider it an option than a necessity. In contrast, cities in the Bay Area, a highly space-constrained region, have had years of experience with smart growth planning and often thought of smart growth as simply synonymous with "good planning." In the Bay Area, concerns centered more on the geographic distribution of market demand for smart growth development—demand appears high in urban centers and lower in suburban areas, especially in suburbs to the north and east of San Francisco—and the potential impacts on housing affordability.

City size and location within the metro region were important dimensions distinguishing interviewees' perceptions of smart growth. Large central cities tended to view high-density infill development as imperative to establishing or maintaining their urban character and reinforcing economic competitiveness. For central cities and many inner suburbs, planners saw infill development as a benefit because it was the only option for growth. Outer-ring suburbs and small towns had less consistent views on smart growth—for some, mixed-use and pedestrian-scaled development was seen as a way to increase attractiveness, while others believed residents preferred suburban-style neighborhoods. Cities with new or relatively new light rail transit systems (San Diego, Los Angeles, San Jose) were especially interested in supporting transit-oriented development as a way to capitalize on increased land values and to reduce traffic congestion.

Interviews also suggested that planning contexts differ in terms of market demand for smart growth. Interviewees believed that certain places—especially San Francisco, downtown Los Angeles, and downtown San Jose—are experiencing strong and increasing demand for denser, urban-style development. In these places, smart growth policies would be more likely to change development patterns and generate the associated benefits and costs. In contrast, in areas without strong demand (e.g., Fresno, Hayward), policies to allow smart growth while restricting suburban-style development could stifle growth and impose costs.

2.9.2 Implications for analysis of benefits and costs

The interviews helped identify how factors like regulatory structures and market demand contribute to costs and benefits, and how these impacts differentially affect different actors. Some of the costs and benefits discussed by interviewees were as we anticipated: several cities expected economic benefits from increased economic development and property values, fiscal benefits from increased efficiency in infrastructure and service provision, or benefits from reduced traffic. Some expected higher housing prices, a benefit for municipalities and, in some cases, homeowners, but a cost for homebuyers. The interviews uncovered some unanticipated costs of smart growth, such as the conflict between popular form-based codes and fiscalization of land use. By removing the ability to control development based on use, form-based codes could in some cases lead to more residential development rather than commercial, with increased fiscal costs to cities.

Our interviews suggested that smart growth policies, combined with a restrictive regulatory environment, could lead to higher housing prices. As discussed above, interviewees identified CEQA as a significant barrier to infill development. Permitting and entitlement processes, and particularly CEQA, impose costs on developers in terms of time, effort, and risk. Finally, community benefits agreements and inclusionary zoning policies, which interviews suggested have emerged as common elements of smart growth planning, also impose costs on developers. Those costs are passed on to consumers in the form of higher rents or housing prices. If SCS policies push more development toward infill in jurisdictions which employ these policies, a greater share of new housing will bear those costs. However, the size of this effect will partially depend on supply restrictions in infill and greenfield locations within a jurisdiction.

Low market demand for smart growth could also lead to higher housing prices. If SCSs restrict suburban development in areas where residents strongly prefer suburban-style housing to smart growth, the restrictions could suppress the supply of housing and lead to higher prices. Finally, much recent smart growth-style development in California relied heavily on financing and coordination from redevelopment agencies. As suggested by the interviews, without these agencies, infill and redevelopment of existing sites will become more expensive and difficult for both local governments and developers, and will remove a source of funding for affordable housing. Lower-cost new infill housing will be exceedingly difficult to produce. Households that desire to live in central locations are likely to respond to higher per-square-foot costs by choosing smaller housing units. Increasing net housing supply may exert some downward pressure on prices. However, the final effect on housing prices depends on multiple interacting forces including location, the particulars of smart growth regulation in a given jurisdiction, and market demand.

3 Case Study Selection

3.1 Short list criteria

Based on information gained in the interviews, we defined criteria for case study selection and identified a list of potential cases. Our potential case studies are primarily city-adopted specific area plans that include smart growth policies relevant to SB 375 planning. To compile the list, we reviewed the specific plans, community plans, and downtown plans on websites of cities in California with populations greater than 50,000. We also considered smaller cities when their location or growth conditions made it likely that they had adopted smart growth policies. In addition, we considered as potential cases recipients of EPA Smart Growth awards, case studies by the Greenbelt Alliance, Urban Land Institute, and Reconnecting America, and Compass Blueprint examples of smart growth, as well as cases recommended by interviewees. To investigate potential case studies, we used information available on city planning department websites, visual inspections via Google Streetview, and information gained in interviews. The full list of potential cases can be found in Appendix B. From this list, we selected a recommended shortlist according to the following criteria:

1. *Specific area plan*

   The case is a specific area plan or equivalent plan that has been adopted by the local jurisdiction. These are plans for particular subsections of the city, whether a specific district, neighborhood, downtown, overlay zone, or station area. They do not include General Plans or citywide zoning policies. These types of plans present a vision, goals, and a set of policies for a specific area. Elements of plans include land use regulations, and almost always include design guidelines and transportation and parking elements. Once adopted, the policies laid out in the plan become official regulations and part of the local zoning ordinance.

2. *Smart growth policies*

   The plan features smart growth policies of the type expected under SB 375. We focused on the following types of policies:

   - Relaxation of zoning regulations to allow higher density (often overlay zoning)
   - Relaxation of zoning regulations to allow mixed uses (often overlay zoning)
   - Form-based codes or alternative zoning ordinances that regulate development based on design and urban form[37]
   - Reduced minimum or more flexible parking requirements

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[37] Form-based codes may promote smart growth objectives in a number of ways. By reducing restrictions on building use, they may allow greater mixing of land uses. By introducing pedestrian-oriented building forms – building to the lot line, aligning buildings to the street, ensuring visibility and accessibility of entrances, requiring minimum window frontages – they may increase walkability. And by simplifying development regulations – a major impediment to infill development – they may facilitate development in city centers and near transit services.

- Infrastructure and street design to improve walkability and connections to transit
- Expansion in transit infrastructure and service
- Active transportation policies such as complete streets, sidewalk projects, and bicycle infrastructure
- New Urbanist/neo-traditional design guidelines[38]
- Expedited permitting for projects meeting certain criteria.
- Policies supporting infill development

Plans were included as potential case studies if they included at least one of these policies; most include several.

3. *Significant policy change*

   The policies included in plans are a significant change from previous policies. Most plans directly stated that the policies were a change from previously existing policies. In some cases, plans built upon previously existing plans that had similar goals, but introduced new policies.

4. *Plan maturity*

   The plan must have been in place for a sufficient amount of time to allow changes to occur. Our list includes several plans from the early- to mid-2000s—these feature smart growth policies and have had sufficient time to influence development patterns. Some plans from the 1990s made our list—these included smart growth policies such as increased density around station areas, even though the term “smart growth” was not prevalent until the 2000s. Few plans before the 1990s embody smart growth principles—these are mainly plans for “transit villages.” Plans after 2005 rarely resulted in observable changes, especially because of the construction downturn in 2008.

5. *Influence on development outcomes*

   Plans are included as potential cases only where there is evidence of development change and a substantial portion of development envisioned in the plan has been built. Few, if any, plans that we considered have been completely built out, but

[38] Although New Urbanism focuses on urban design, its objectives are not merely aesthetic and its history is closely related to the smart growth movement. New Urbanism calls for transit-oriented development; for walkable, connected street networks and small blocks; for a fine-grained mix of land uses and housing types; for infill development; and for adaptive reuse of existing buildings. All of these are likely to facilitate smart growth. In examining New Urbanist policies we will focus on these elements, rather than guidelines that are merely aesthetic.

there must be sufficient development to allow us to observe changes in development patterns and their effects.

6. *Data availability*

   There must be sufficient data available for both the period before and the period after the plan adoption.

3.2 Case study shortlist

Table 1 presents the shortlist of potential case studies. Additional details for these cases are available in Appendix C.

Because we are interested in estimating the costs and benefits of development forms, we chose to study only plans that have had an observable effect on development patterns. We acknowledge that in some places, plans have not led to any change in development patterns. As suggested in the interviews, in places with low demand smart growth plans have not necessarily translated into smart growth development. For example, one potential case study was the San Lorenzo Village Center, a 2004 plan by Alameda County for a suburban retrofit. This plan envisioned a New Urbanist-style retail center in place of strip malls in an area with low demand. However, to date nothing has been built. We recognize that the decision to study only cases where development has occurred results in a bias toward places where there is sufficient market demand and supportive public opinion.

Furthermore, many local jurisdictions have only recently adopted smart growth plans; these plans have not yet had time to significantly influence development patterns. For example, many Bay Area cities (e.g., El Cerrito, Albany, Hayward, Fremont, Pinole, Vallejo) developed in the 1970s and 1980s and are only now revising regulations to plan for smart growth. Similarly, many cities in the Sacramento region are currently planning for TOD around relatively new light rail stations. Our analysis will exclude these places because their plans are too recent to meet our case study criteria. It is important to acknowledge that our cases will be drawn only from communities where plans have had sufficient time to result in development, and in this sense they will not be completely representative.

We excluded several other potential cases because they did not meet the criteria for significant policy change. Many downtown plans that called for smart growth-style development essentially preserved or reinforced policies that were already in place. In other cases, policy changes were incremental—the specific plan in question was only one of several planning initiatives. For example, the Milpitas Midtown Specific Plan, adopted in 2002 and amended in 2008, built upon the 1992 Midtown Area plan, and the plan area included two former Redevelopment Areas and an existing TOD overlay zone. The complexity of policy changes in this case makes it very difficult to attribute outcomes to any particular policy.

We chose to exclude San Francisco from the list of potential case studies because its planning context is atypical compared to the rest of California. As the densest and most urban city, with an unusually strong housing market and liberal political environment, San Francisco is not representative of other California cities. Lessons learned from cases in San Francisco are unlikely to translate easily to other places in the state.

Table 6: Shortlist of potential case studies

City	Plan	Year adopted	Project type	Key policies
Los Angeles	Vermont/ Western TOD Specific Plan	2001	Light rail TOD	Density bonuses, mixed-use, parking reductions, community facilities bonus.
Pasadena	Central District Specific Plan	2004	Downtown revitalization, light rail TOD	Increase densities; allow non-traditional housing types; historic preservation; TOD; public open space plan; design guidelines, parking reform.
Lancaster	Downtown Lancaster Spe-cific Plan/ The BLVD Project	2008	Downtown revitalization	Design guidelines; encourage mixed-use; pedestrian-oriented streetscape design.
Turlock	Downtown Design Guidelines & Zoning Regulations	2003	Downtown revitalization (small town)	Pedestrian-oriented design; historic preservation.
Fresno	Fulton/Lowell Specific Plan	1996, design guide-lines in 2002	Downtown revitalization/ residential infill	Allows some multi-family (but does not increase the allowance for multi-family over what previously existed). Mixed-use ordinance in 2002.
San Jose	Communica-tions Hill Specific Plan	1992	Residential infill	New urbanist design standards, mixed use; medium-/high-density multi-family residential.
San Jose	Midtown Specific Plan	1992	Light rail TOD/ residential infill/ suburban retrofit	Med-/high-density mixed-used around station, design standards for pedestrian-oriented environment.
Emeryville	Park Avenue District Plan	2006	Industrial area redevelop-ment	Increased density, density bonuses, mixed-use, reduced parking for warehouse conversions. Pedestrian-friendly design standards, increased street connectivity.
Richmond	Transit Village Area Plan (part of City Center Specific Plan)	2001	Commuter rail TOD	Medium-density townhouses around BART station, no single-family.
Mountain View	Downtown Precise Plan	2004	Downtown revitalization/ TOD	Mixed use, medium- to high-density residential, New Urbanist design standards.
Sunnyvale	Downtown Specific Plan	2003	Downtown revitalization/ commuter rail TOD	Medium- to high-density, mixed use, re-establish street grid, create gateways and plazas, preserve historic center. New Urbanist design guidelines.
Petaluma	Central Petaluma Specific Plan	2003	Industrial area redevelopment/ downtown revitalization	Uses the New Urbanist "SmartCode" to encourage flexibility in land use and built form. High density, reduced parking.
Hercules	Central Hercules Plan	2001	Neo-traditional greenfield development	Form-based code. Medium to high density and mixed use. Defined street hierarchy with standards for street width and block size. Reduced parking.

Notably, our shortlist does not include cities along the central coast or north of Sacramento, and it includes few cases in the Central Valley. Potential cases in these places frequently failed to meet our criteria because they did not experience sufficient growth to have significant smart growth development, political climates did not support smart growth planning, or plans were too recent to have observable outcomes.

3.3 Final case study selection

Given that a city has adopted smart growth policies, and given that these policies have changed development patterns, what range of possible economic costs and benefits can be expected, and what is the incidence of these costs and benefits for different constituencies and spatial scales? Our aim is to select cases that will be informative to municipalities considering smart growth policies, while estimating costs and benefits with sufficient methodological rigor. We therefore aim to choose cases that feature policies most relevant to SB 375. The selected cases should also represent a diversity of regions, types of city, and smart growth types. The final set of four to six cases should be heterogeneous in terms of the following dimensions.

1. *Geographic region*

   We will choose cases that represent the diversity of geographic regions in the state. The set should reflect a balance of cases from Northern and Southern California and the Central Valley, and should include places both inside and outside the major metropolitan areas.

2. *City size*

   The cities where our potential cases are located can be described as large central cities (Los Angeles, San Jose, Fresno), suburban jurisdictions located in large metro regions (Sunnyvale, La Mesa), or small- and medium-sized towns (Turlock, Petaluma). Each type of jurisdiction must address a somewhat different set of planning issues; therefore, we would like our final set of case studies to represent each of these different city types.

3. *Demand for development*

   Market demand depends on general and local economic conditions. Places with weak market demand for development face different challenges in promoting smart growth than do areas with strong demand. To the extent possible, our case studies should include cases in both conditions.

   Whether demand for development translates into demand for smart growth depends on consumer preferences. Our information on demand for development and consumer preferences for smart growth comes primarily from interviews with developers, who are in the best position to judge them.

4. *Neighborhood context*

   Neighborhood contexts of the potential case studies can be described by the following typology.

   - Small-, medium- or large-city downtowns
   - Suburban corridors
   - Transit station areas
   - TOD around commuter rail (generally "park-and-ride" stations)
   - Neo-traditional greenfield development
   - Residential neighborhood infill or densification
   - Redevelopment of former industrial areas

3.4 Recommendation of four to six case studies

Based on the criteria above, we recommend conducting four to six case studies from the following list.

1. Los Angeles: Vermont/Western Specific Plan
2. San Jose: Midtown Specific Plan
3. Turlock: Downtown Design Regulations and Zoning Regulations
4. Petaluma: Central Petaluma Specific Plan
5. Hercules: Central Hercules Plan
6. Pasadena: Central District Specific Plan

This selection of case studies represents projects in different regions of California, in cities of diverse sizes and economic conditions, implementing diverse forms of smart growth. Table 2 illustrates the heterogeneity of cases, while Table 3 presents the characteristics of other shortlisted cases.

The next step in this project is to finalize the selection of case studies. Following selection, we will proceed with conducting the analysis of benefits and costs for each case study.

Table 7: Characteristics of recommended case studies

Case study	Region	City size	Economic conditions	Smart growth type
Los Angeles	Southern California	Large central city	High demand	Light rail TOD
San Jose: Midtown	San Francisco Bay Area	Large central city	Very high demand	Light rail TOD/ residential infill/ suburban retrofit
Turlock	Central Valley	Medium-sized town	Moderate/low demand	Small-city downtown revitalization
Petaluma	San Francisco	Medium-sized	Moderate	Industrial area redevelopment/

	Bay Area	town	demand	downtown revitalization
Hercules	San Francisco Bay Area	Suburb in large metro area	Moderate demand	Neo-traditional greenfield development
Pasadena	Southern California	Suburb in large metro area	High demand	Medium-sized city downtown revitalization/ light rail TOD/ residential infill

Table 8: Characteristics of other shortlisted case studies

Case study	**Region**	**City size**	**Smart growth type**
Lancaster	Southern California	Suburb in large metro area	Downtown revitalization
San Jose: Communications hill	San Francisco Bay Area	Large central city	Residential infill/ neo-traditional Greenfield development
Emeryville	San Francisco Bay Area	Suburb in large metro area	Industrial area redevelopment
Richmond	San Francisco Bay Area	Suburb in large metro area	Commuter rail TOD
Mountain View	San Francisco Bay Area	Suburb in large metro area	Downtown revitalization/ light rail TOD
Sunnyvale	San Francisco Bay Area	Suburb in large metro area	Downtown revitalization/ light rail TOD
Fresno	Central Valley	Large central city	Downtown revitalization/ residential infill

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Appendix A: List of Interviewees

Carol Barrett, Assistant Community Development Director, Transportation and Planning, City of Burbank
Keith Bergthold, Assistant Director of Planning, City of Fresno
Ken Bernstein, Principal City Planner and Manager of the Office of Historic Resources, City of Los Angeles
Vince Bertoni, Planning Director, City of Pasadena
Mike Bitner, Principal Planner, Fresno Council of Governments (Fresno COG)
Rick Bishop, Executive Director, West Riverside Council of Governments, (WRCOG)
Nancy Bragado, General Plan Program Manager, City of San Diego
Kelly Broughton, Director of Development Services, City of San Diego
Kristine Cai, Senior Regional Planner, Fresno Council of Governments (Fresno COG)
Greg Chew, Senior Planner, Sacramento Area Council of Governments (SACOG)
Bill Chopyk, Community Development Director, City of La Mesa
Peter Cohen, Co-director, Council of Community Housing Organizations (CCHO)
Barry Curtis, Manager of Planning Services, City of Irvine
David Fey, Deputy City Planner, City of Clovis
Amie Fishman, Executive Director, East Bay Housing Organizations (EBHO)
Chione Flegal, Associate Director, PolicyLink
Tim Gehrich, Deputy Director of Community Development, City of Irvine
Alan Greenlee, Executive Director, Southern California Association of Non-Profit Housing (SCANPH)
Hasan Ikhrata, Executive Director, Southern California Association of Governments (SCAG)
Douglas Ito, Branch Chief, Air Quality & Transportation Planning Branch, California Air Resources Board (CARB)
Doug Johnson, Senior Planner, Metropolitan Transportation Commission (MTC)
Tom Jordan, Senior Policy Advisor, San Joaquin Valley Air Pollution Control District (SJVAPCD)
Patrick Kelly, Manager, Community and Economic Development Planning Division, City of Modesto
Patrick Kennedy, Panoramic Interests
Catherine Lyons, Policy Manager, Bay Area Council (BAC)
Brian Ludicke, Planning Director, City of Lancaster
Taylor Mammen, Principal-Director of Consulting, RCLCO
Sandra Padilla, Land Use Program Director, TransForm
Erik Pearson, Senior Planner, City of Hayward
Denise Pinkston, TMG Partners
Laurel Prevetti, Assistant Director of Planning, City of San Jose
Stephen Pround, Lennar Urban
Marisa Raya, Regional Planner, Association of Bay Area Governments (ABAG)
Stephanie Reyes, Program Director, Greenbelt Alliance
Victor Rubin, Vice President for Research, PolicyLink
Scott Ruhland, Associate Planner, City of Fremont
Courtney Smith, Staff, Climate Action & Research Planning Section, California Air Resources Board (CARB)
Barbara Steck, Deputy Director, Fresno Council of Governments (Fresno COG)
Eric Tolles, Director of Community Development, City of Irvine
Therese Trivedi, Program Manager, Metropolitan Transportation Commission (MTC)
Linda Wheaton, Assistant Director of Intergovernmental Affairs, California Department of Housing & Community Development (CA HCD)
Al Zelinka, Community Development Director, City of Riverside

Appendix B: Full list of potential case studies

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Bay Area	Burlingame	North Burlingame/ Rollins Road Specific Plan	2004	Caltrain, BART (Millbrae and Broadway stations)	Higher density, mixed-use, more ped-friendly development, especially around El Camino Real. Not really TOD--does not focus on areas around Caltrain stations.	Suburban retrofit.
Bay Area	Daly City	BART Station Area Specific Plan	1993	BART Daly City station	Calls for "gradual transition to urban uses." Mixed use office/commercial, med- to high-density residential (6-55 du/acre). FAR 0.25-0.9. Only a couple blocks of true mixed-use (residential and retail). Mix of housing types. New Urbanist design guidelines. Improve pedestrian connections to BART station.	110 acres, park-and-ride BART station area. Partly in Daly City, partly unincorporated. A transitional area in 1993, with some undeveloped properties. On El Camino Real. Transition between urban and suburban areas.
Bay Area	Emeryville	Park Avenue District Plan	2006	N/A	Aims to create a cultural, residential and mixed-use district, Preserve historic buildings, create a ped-friendly street, break up large blocks. Allows 1.4 FAR (increase from 0.7 previous) with bonus of 2.4 for certain projects. Reduced parking requirements for warehouse conversions. Allows more kinds of commercial and retail uses. Street and building design standards.	Reuse of industrial/warehouse sites.

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Bay Area	Hercules	Central Hercules Plan	2001	n/a	Intended to create a town center. Form-based code with New Urbanist design standards. Med- to high-density and mixed use. 2-5 story buildings. Defined street hierarchy with standards for street width and block size. Allows mixed uses. Parking reqs 1.25 spaces/unit.	426 acres. Greenfield development.
Bay Area	Millbrae	Millbrae Station Area Specific Plan	1998	Caltrain, BART	"Special zoning upon that land for higher density housing, retail, restaurant, office, hotel, and entertainment in a mixed-use setting." Pedestrian and transit orientation. Extension of streets to improve connectivity. A goal is to "to attract new revenue sources for the City and Agency." Coordinated by Redevelopment Agency.	116 acres around BART and Caltrain station and along El Camino Real. "Since Millbrae is a small city and almost completely built out, the MSASP area possesses the greatest potential for the future growth and development of the city."
Bay Area	Milpitas	Midtown Specific Plan	2002 (amended 2008)	VTA Light Rail (Great Mall station)	Mixed use, high density, TOD, central community "gathering place". TOD overlay zoning. Minimum density 21-41 du/acre, mix of housing types. FAR of .75-1.5. Density bonuses for Class A office space in specific locations. Improve connections to transit, provide bike/ped facilities. Slightly more flexible parking policies.	Suburban retrofit. 850 acres in suburban area with mix of commercial and industrial uses. Plan intended to plan for extension of light rail lines and growth as part of Silicon Valley economy. Plans for 1100 new housing units, 720,000 sf of office space.

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Bay Area	Mountain View	San Antonio Station Precise Plan	1991, revised 2002	Caltrain	Mixed-use near transit to address jobs-housing imbalance. Improvements to Caltrain station. Design guidelines to create transit- and ped-oriented environment (minimum setbacks, other New Urbanist guidelines). Calls for transit-oriented retail. Permits multi-family res up to 40 units/acre, efficiency apts up to 100 units/acre, max 1.2 FAR. Calls for mix of housing. Limits office/commercial. Mostly 4-story bldgs, max 6 stories.	~40 acres adjacent to Caltrain station.
Bay Area	Mountain View	Downtown Precise Plan	2004	Caltrain Mountain View Station, VTA light rail	Mixed-use, high density, New Urbanist design.	Downtown area.
Bay Area	Petaluma	Central Petaluma Specific Plan	2003	N/A	Redevelopment of area around the river, create mixed use, emphasize industrial character. Encourages flexibility in land use and built form. Uses the New Urbanist "SmartCode" (essentially a form-based code). Up to 60 du/acre, 4-6 story buildings, reduced parking reqs (1 space/unit).	400 acres, redevelopment of former industrial area in a small town, includes part of downtown.
Bay Area	Pittsburg	Downtown Element of General Plan	2001	n/a	Revitalize downtown. Calls for mixed-use, medium density residential, streetscape improvements. Increase housing in order to support more intense retail. Create a walkable ped-oriented environment. Re-establish street grid. Reduced parking reqs for high-density residential (1 space/unit). Res density 8-24 du/acre; FAR 0.3-0.5.	300 acres downtown, includes marina district. Anticipates total of 2900 res units and 890,000 sf commercial at build-out.

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Bay Area	Pleasant Hill	Contra Costa Centre	early 1970s	BART	PPP TOD coordinated by the Contra Costa County Redevelopment Agency.	2.2 million sq ft of office space was built (another 600,000 sq ft was approved but not built), 423 hotel rooms, 2300 multi-family residential units built (522 approved but not built).
Bay Area	Rancho Cordova	Folsom Blvd Specific Plan	2006. Amendments followed in 2008-12	light rail (Mills and Zinfandel stations)	Envisions transformation of a mostly suburban corridor. Transit villages around light rail.	4-mile corridor along Folsom Boulevard.
Bay Area	Richmond	City Center Specific Plan, includes plan for Richmond Transit Village	2001	BART (Richmond station)	Higher density, New Urbanist design. Aims to preserve downtown as a commercial and retail district, but with residential too.	185 acres.
Bay Area	Richmond	Transit Village Area Plan (part of City Center Specific Plan)	2001	BART, Amtrak	TOD; Medium-density townhouses, no single-family.	Calls for 231 residential units, 24,000 sq ft of commercial space, 2.2 acres of open space, and a 120,000 sq ft parking structure.

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Bay Area	San Jose	Communications Hill Specific Plan	1992	N/A	New urbanist design standards, detailed guidelines for building massing; mixed use; multi-family residential w/ density at 24-40 du/acre.	Partially developed hill surrounded by greater San Jose.
Bay Area	San Jose	Evergreen Planned Residential Community Specific Plan	1991	N/A	Suburban, but higher density, some multi-family housing, sidewalks, and a quasi-street grid.	865 acres, greenfield.
Bay Area	San Jose	Jackson-Taylor Specific Plan	1992 (amended 1996, 97, 08)	SJ light rail	Calls for residential at 12-50 units/acre, mixed use, ground-floor retail, and some remaining industrial.	Downtown infill/redevelopment of former industrial area. Calls for total of 1677 residential units and 96,000 sf of retail, 380,000 sf of office.
Bay Area	San Jose	Martha Gardens Specific Plan	2002	SJ light rail, Caltrain	Calls for redevelopment and a mix of uses.	Infill/redevelopment downtown. 134 acres. Already fully developed with mix of uses. The site was previously (since 1980) planned for high density residential, but needed catalyst of redevelopment.
Bay Area	San Jose	Midtown Specific Plan	1992	SJ light rail, Caltrain	Plan is intended to spur development investment by providing certainty. Vision is for intensification, especially around Cahill Station and future West San Carlos light rail station; design standards for ped-oriented environment; various mid- to high-density residential and mixed use areas, 25-100 du/acre. Intended to be gradual change over time.	Transit-oriented development near the SJ light rail and Caltrain station. 210-acre site, mostly industrial and commercial, some of which is still viable. Calls for 920,000 sf of office, up to 3000 res units, 335,000 sf of retail, restaurant and entertainment.

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Bay Area	San Jose	Tamien Station Specific Plan	1995	SJ light rail, Caltrain	Establishes a "transit corridor." High density near station (25-50 du/acre). Medium density (8-25 du/acres) elsewhere. Mixed use in some areas.	"Vacant and underutilized land" around station; 140 acres. Calls for up to 1225 new housing units (457 existing).
Bay Area	San Mateo	Rail Corridor Transit-Oriented Development Plan	2005	Caltrain (Hillsdale and Hayward Park stations)	Promotes "density" and "directness." Encourage higher-density, mixed-use development; improve ped and bike connections to station.	1/2-mile radius around both stations. Suburban retrofit.
Bay Area	San Mateo	El Camino Real Master Plan	2001	n/a	Recommends policies to create TOD, but does not formally adopt them.	El Camino Real corridor between SR92 and the Belmont city border.
Bay Area	South San Francisco	South San Francisco BART Transit Village	2001	BART	Somewhat higher density, multi-family zoning, pedestrian access. Mixed-use in long term on current Costco site. Otherwise, only smart growth in the sense that it locates housing near transit.	1/2-mile radius around station.
Bay Area	Sunnyvale	Downtown Specific Plan	2003	Caltrain Sunnyvale Station	Mixed use, create a unique identity for downtown districts, re-establish street grid, improve street character, preserve historic buildings, create gateways and plazas. Mix of office, retail, and residential uses. Density ranges 7-78 du/acre, 2-6 stories. New Urbanist design guidelines. Still high parking reqs (2 spaces/unit).	125 acres downtown, encompassing four "districts".
Bay Area	Union City	Intermodal Station District and Transit Facility Plan (part of General Plan)	2002	BART (Union City Station)	Higher density, mixed use. FAR 1.0-2.0. Minimum 50 du/acre for residential. Parking req of min 1 space/du or .5 space/bedroom. Street improvements.	Suburban site. Park-and-ride BART station with lots of parking and undeveloped land. Plan calls for 469 new housing units 1.12 sf of office space.

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Central Valley	Fresno	Fulton/Lowell Specific Plan	1996, design guidelines in 2002	N/A	Plan aims to “stabilize” the area, primarily by emphasizing the single-family residential use and directing more intensive mixed-use to the main corridors. Allows some multi-family at max 18 du/acre, but does not increase the allowance for multi-family over what previously existed. 2002 design guidelines establish a Mixed Use Ordinance.	340-acre area near downtown. North half of the area is single-family residential, south half is residential and commercial. Both, especially the south half, were in economic decline. Plan aims to “stabilize” the area, primarily by emphasizing the single-family residential use and directing more intensive mixed-use to the main corridors.
Central Valley	Turlock	Downtown Design Guidelines and Zoning Regulations	2003	N/A	Pedestrian-oriented design; historic preservation.	Historic downtown center.
Northern California	Redding	Downtown Redding Specific Plan	2001	N/A	Establishes 3 new zoning districts, calls for redevelopment/reuse of the downtown mall. Zoning districts allow for mixed-use, medium- and high-density commercial development, high-density residential. Unlimited density in CBD, 15 du/acre in other zones. Calls for ped-friendly design, placement of parking behind buildings. Transition from edges of downtown to CBD.	Downtown and uptown areas.
Northern California	Sacramento	City of Sacramento Infill Strategy	2002	N/A	Citywide strategy to promote infill development. Includes institutional changes, like dedicated infill coordinator staff. Amendment to General Plan to make LOS reqs more flexible. Pilot neighborhood infill effort. Transit overlay zones. Streamlined review for infill projects.	Large urban area.

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Northern California	Sacramento	65th Street/ University Transit Village Plan	2002	Sacramento RT light rail, Folsom Line	Mixed-use with mostly commercial and some residential. Transit overlay zoning district; up to 3.0 FAR, residential mixed-use at 15-60 du/acre. Design guidelines; pedestrian infrastructure.	49 acres, currently suburban, near university.
Northern California	Sacramento	Transit for Livable Communities Strategy and Plans	2002	Sacramento RT light rail	Recommended TOD overlay zones for 21 stations on all three lines. "Recommended land use plans emphasize walkable designs, higher intensity development, and a mixture of residential, retail and office land uses, all designed to support and create unique, thriving communities at each station while encouraging transit use."	21 stations, approx. 1/4-mile radius around each station. Suburban retrofit.
Southern California	Brea	Downtown	early 2000s	N/A	Exact policies unclear: "walkable design, mixed land uses, provided housing choices, and took advantage of historic design elements."	Downtown street adjacent to historic downtown.
Southern California	Chula Vista	Otay Ranch General Development Plan/ Sub-regional Plan	1993	Future BRT	Plan for 9 urban villages, to be connected by a future BRT line. Emphasizes "pedestrian-oriented community."	23,000-acre master-planned community.
Southern California	El Cajon	Downtown Specific Plan	2011	San Diego Green Line and Orange Line (light rail)	Allows mixed-uses; pedestrian-oriented design.	Historic downtown center.
Southern California	Glendale	Downtown Specific Plan	2006, last amended 2012	Metro bus	Creates 11 downtown "districts"; mixed-use; ground floor commercial; incentives for historic preservation, affordable housing, signature design etc. (height and density bonuses).	Historic downtown center.

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Southern California	Inglewood	Hollywood Park Specific Plan	2009	Metro Crenshaw/LAX Transit Corridor Project (opens 2018)	New city center for Inglewood with retail, residential, office, entertainment, gaming, and a large open space.	Redevelopment of 238-acre racetrack and casino.
Southern California	Irvine	Irvine Business Complex	2010 (residential developed since 2004)	Tustin Metrolink (1.5 miles away)	Plan for transition of traditional office and industrial area to urban mixed-use; overlay zone; pedestrian and open space linkages.	2,700-acre former business/industrial complex transitioning to mixed-use neighborhood.
Southern California	La Mesa	Mixed-Use Strategic Implementation Plan	2003	San Diego Orange Line (light rail)	Mixed-use, design guidelines, shared parking, parcel consolidation incentives.	Transit corridors along University Avenue, El Cajon Boulevard and La Mesa Boulevard.
Southern California	Lancaster	The BLVD	2009?	Lancaster Metrolink	Downtown streetscape redesign and public infrastructure investments.	Lancaster Boulevard.
Southern California	Lancaster	Downtown Lancaster Specific Plan	2008	Metrolink station	Design guidelines; encourage mixed-use; pedestrian-oriented streetscape design.	Historic downtown center.
Southern California	Long Beach	Downtown Plan	2012	Metro Blue Line	Development standards, design standards, and streetscape standards. Designates Pedestrian-Oriented Main Streets and Pedestrian-Oriented Secondary Streets requiring active ground floor uses. Creates Downtown Neighborhood Overlay that allows some commercial, but is intended to protect residential character.	Historic downtown center.

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Southern California	Los Angeles	Alameda District	1996	Union Station	Parking maximums; transportation improvements; open space requirements.	Redevelopment of former railroad terminal and yard.
Southern California	Los Angeles	Avenue 57 Transit Oriented District	2002	Gold Line/Highland Park	Live-work policy; density bonus for community uses; density bonus for pedestrian amenities; density bonus for lot assembly; density bonus for target uses; provisions to encourage adaptive reuse; provisions for mixed-use; provisions for commercial aircraft.	Neighborhood surrounding Metro Gold Line station.
Southern California	Los Angeles	Vermont/Western TOD	2001	Red Line/4 stations areas	Live-work policy; community facilities bonus; parks first program; childcare facility requirements; permits sidewalk cafes; density bonus for lot assembly; parking reductions within 1,500 of Metro Red Line Station.	2.2 square-mile neighborhood surrounding several Red Line stations in Hollywood and Wilshire.
Southern California	Los Angeles	Warner Center	1993	Orange Line/Warner Center (BRT)	Density bonus for open space; allows TDR; urban design requirements; shared parking agreements.	Neighborhood surrounding Warner Center Metro Orange Line station.
Southern California	Monrovia	Station Square Transit Village Specific Plan		Future Metro Gold Line Station	Mixed-use transit-oriented development.	Neighborhood surrounding Metro Gold Line Foothill extension.
Southern California	Orange	Santa Fe Depot Specific Plan	1993, updated 2012	Orange Metrolink station; OCTA bus transfer station	TOD around station area; encourage mixed-use; introduce live-work space; historic preservation; better connect the depot area with Chapman University.	Neighborhood surrounding San Diego Trolley/Amtrak station at Santa Fe Depot/Union Station.
Southern California	Palmdale	Transit Village Specific Plan	2007	Metrolink station	Create a TOD in Palmdale; encourage affordable and market-rate housing; facilitate parcel assembly; rezone to allow urban uses, mixed-use.	Neighborhood surrounding downtown Palmdale and the Palmdale Transportation Center.
Southern California	Pasadena	Central District Specific Plan	2004	Metro Gold Line	Increase densities; allow non-traditional housing types; historic preservation; TOD; implement Public Open Space plan; design guidelines.	Historic downtown center.

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Southern California	Riverside	Downtown Specific Plan	2002	Riverside Downtown Metrolink	Mixed-use; distinct district plans; historic preservation; infill development incentives.	Neighborhood surrounding Riverside Downtown Metrolink station.
Southern California	San Diego	Quarry Falls Specific Plan	2008	San Diego Green Line (light rail)	Brownfield redevelopment, mixed-use, pedestrian-oriented design.	Redevelopment of 225-acre brownfield site.
Southern California	San Diego	Downtown Community Plan	2006	Regional rail (Amtrak), commuter rail (Coaster), light rail stations	Growth directed to urban core in order to preserve neighborhood character elsewhere.	Urban core.
Southern California	San Diego	Transit Overlay	2000	Multiple	Reduced parking requirements in areas with high frequency transit service.	n/a
Southern California	San Diego	Urban Village Overlay	2000	Multiple	Requires mixed-use core component of urban villages; higher density residential near transit.	n/a
Southern California	San Diego	Rio Vista West Masterplan (amendment to First San Diego River Improvement Specific Plan)	1992?	San Diego Green Line (light rail)	Mixed residential/commercial development surrounding transit station.	Neighborhood surrounding Rio Vista West trolley station.

Region	Jurisdiction	Plan	Year	Transit Line/Station	Smart growth policies and strategies	Site and development characteristics
Southern California	Ventura	Downtown Specific Plan	1993, updated 2007	Bus	Set of catalytic projects: multi-modal transit center, cultural arts center etc.; historic preservation; design review; ground floor commercial; pedestrian connections to the beach; form-based development code.	Historic downtown center.

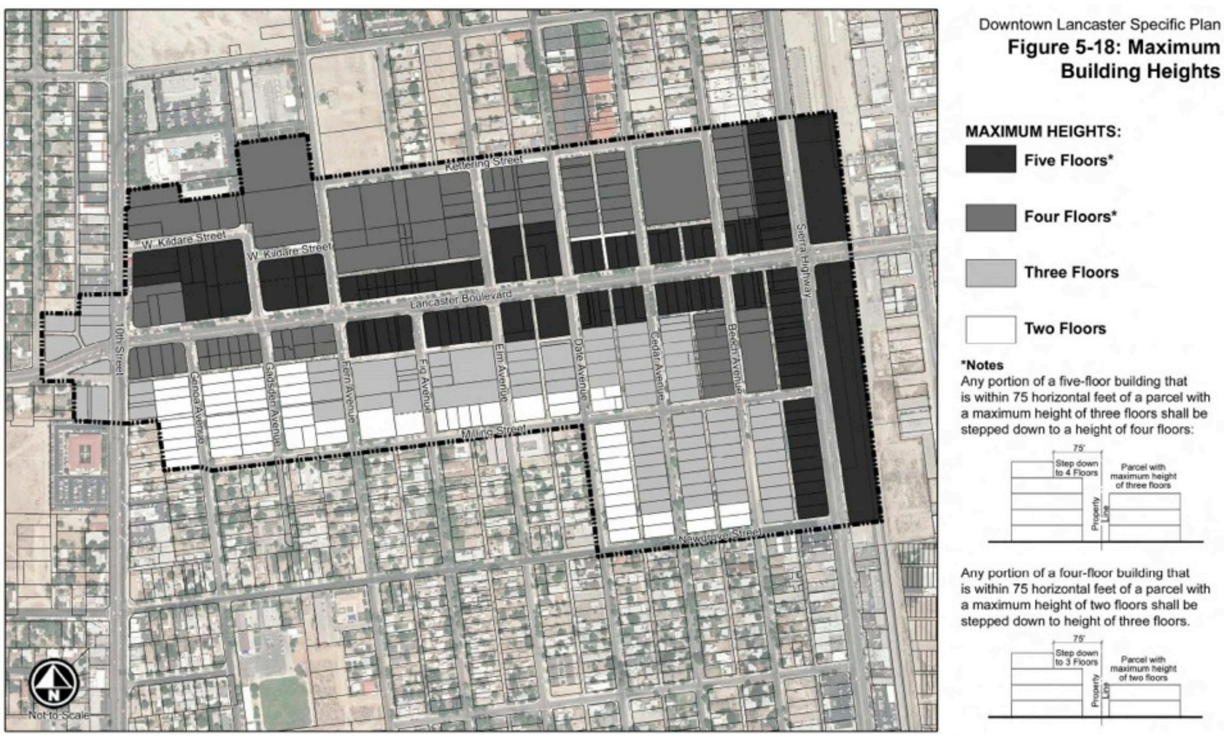
Appendix C: Case study shortlist details

1. Lancaster - Downtown Lancaster Specific Plan / The BLVD Project

Year: 2008
Transit: Metrolink station
Project type: Downtown revitalization

Policies: Design guidelines; encourage mixed-use; pedestrian-oriented streetscape design.
Site Characteristics: 140 acres. Maximum buildout of 924,000sf of retail, 973,000sf of office, and 3,525 housing units.

Plan area

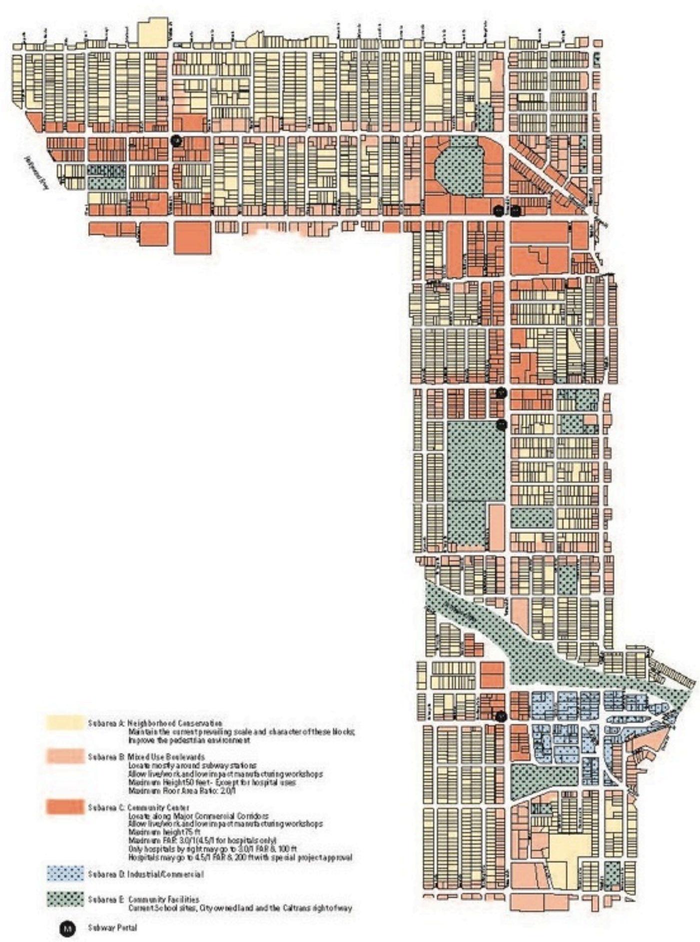


Current conditions

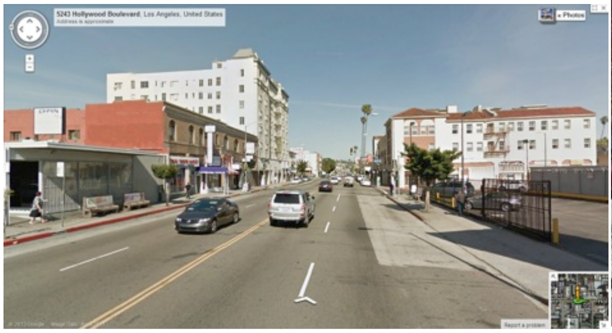

2. Los Angeles - Vermont/Western TOD

Year: 2001
Transit: Metro Red Line/4 stations areas
Project type: TOD around light rail

Policies: Live-work policy; community facilities bonus; parks first program; childcare facility requirements; permits sidewalk cafes; density bonus for lot assembly; parking reductions within 1,500 of Metro Red Line Station.
Notes: Large area (2.2 square miles) within Hollywood and Wilshire communities.
Plan area



Current conditions

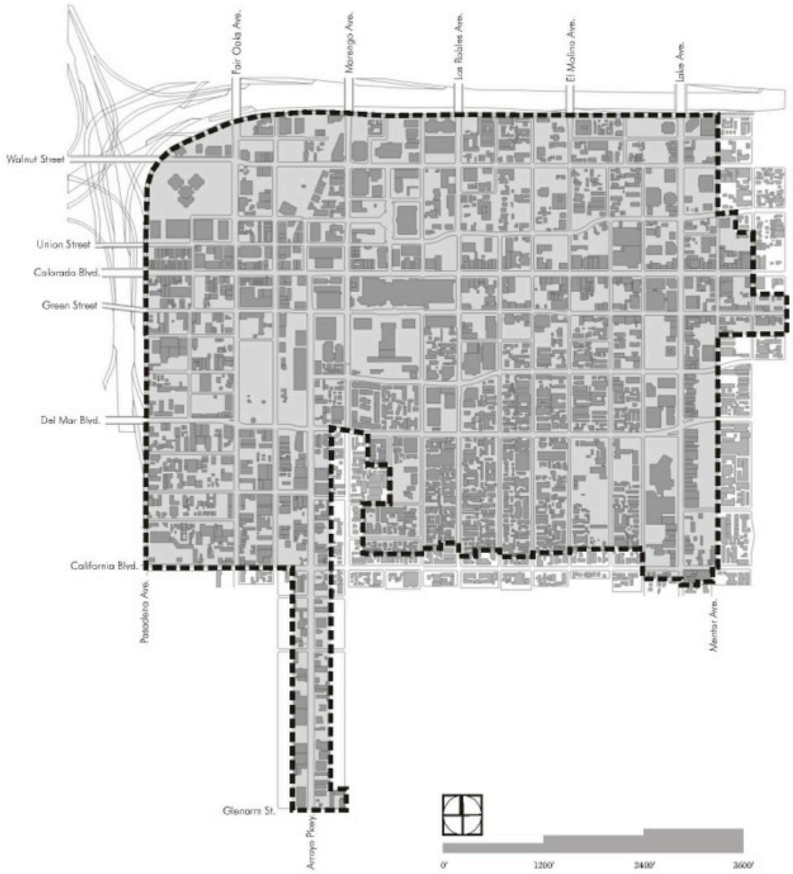
 

3. Pasadena - Central District Specific Plan

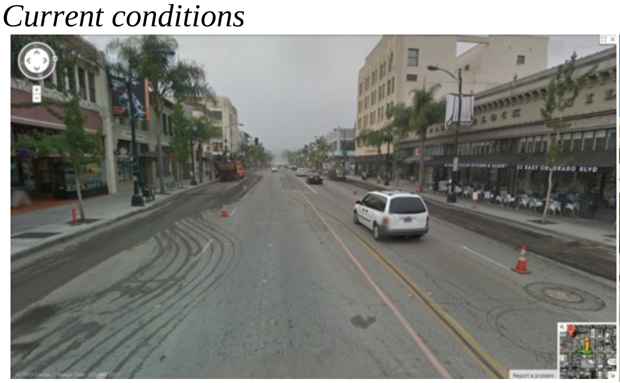
Year: 2004
Transit: Metro Gold Line
Project type: Downtown revitalization / TOD around light rail / residential neighborhood infill

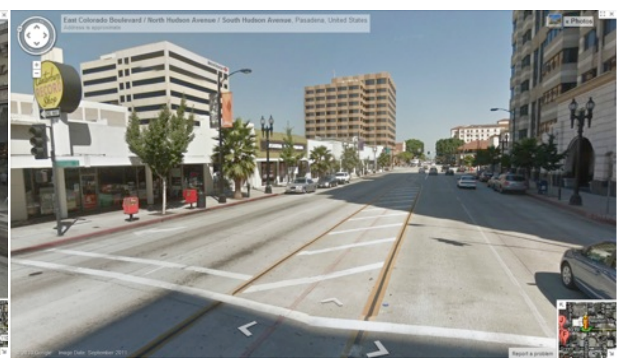
Policies: Increase densities; allow non-traditional housing types; historic preservation; TOD; implement Public Open Space plan; design guidelines; parking reform.
Site Characteristics: 960 acres including Old Pasadena, the Civic Center, the Playhouse District, and South Lake Avenue.

Plan area



Current conditions



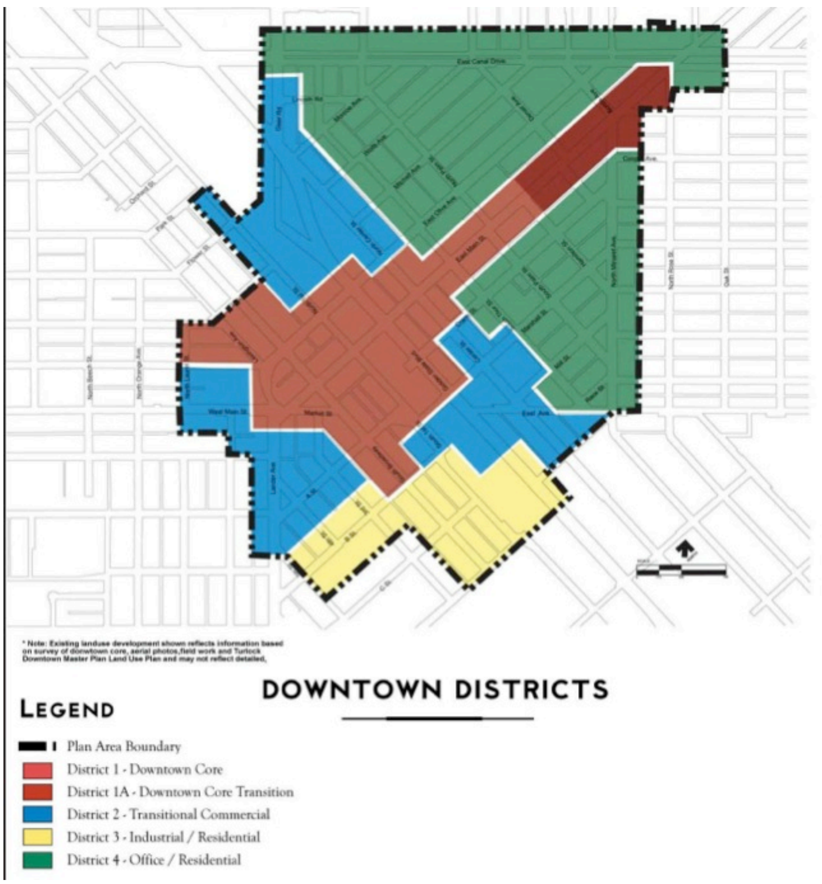


4. Turlock - Downtown Design Guidelines and Zoning Regulations

Year: 2003
Transit: N/A
Project type: Downtown revitalization (small town)

Policies: Pedestrian-oriented design; historic preservation.
Site Characteristics: Downtown core; land uses from Main Street retail to single family to industrial.
Notes: Part of implementation of earlier Downtown Master Plan; good Central Valley example of a small walkable downtown.

Plan area



Current conditions

5. San Jose - Midtown Specific Plan

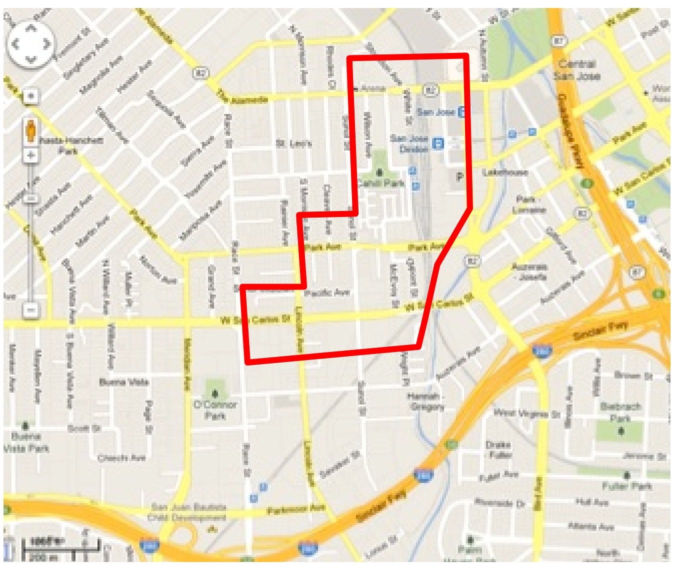
Year: 1992
Transit: SJ light rail, Caltrain
Project type: Light rail TOD/residential infill/suburban retrofit

Policies: Plan is intended to spur development investment by providing certainty. Vision is for intensification, especially around Cahill Station and future West San Carlos light rail; station; design standards for pedestrian-oriented environment; various mid- to high-density residential and mixed use areas, 25-100 units/acre.

Site Characteristics: Transit-oriented development near the SJ light rail and Caltrain station. 210-acre site, formerly mostly industrial and commercial. Calls for 920,000 sq ft of office, up to 3000 residential units, 335,000 sq ft of retail, restaurant and entertainment

Current conditions: Some is built in Cahill neighborhood. Areas to the south mostly unchanged.

Plan area



Current conditions

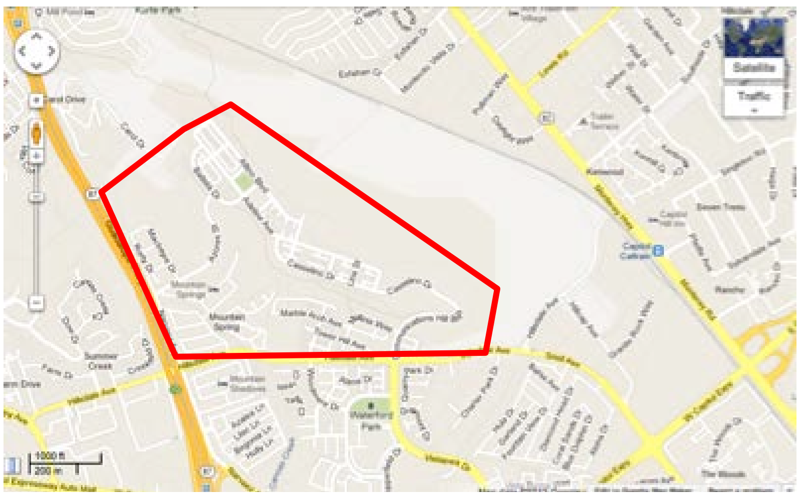
6. San Jose - Communications Hill Specific Plan

Year: 1992
Transit: N/A

Project type: Residential infill, neo-traditional greenfield development.

Policies: New Urbanist design standards, detailed guidelines for building massing; mixed use; multi-family residential with density at 24-40 units/acre
Current conditions: Appears to be built as planned; not complete yet.

Plan area



Current conditions


Casselino Drive / Manuel Street, San Jose, United States
25


Adeline Avenue, San Jose, United States

7. Emeryville – Park Avenue District Plan

Year: 2006
Transit: N/A
Project type: Industrial area redevelopment

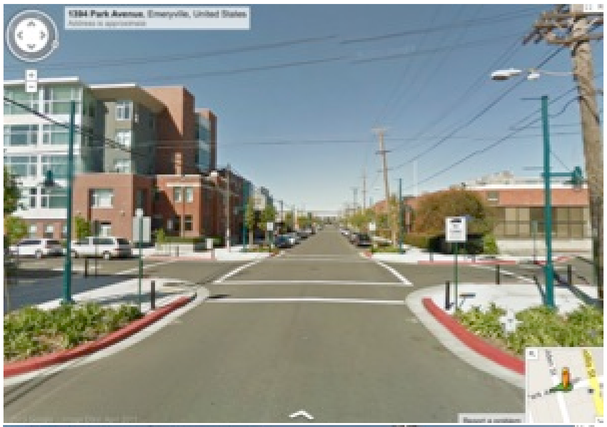
Policies: Aims to create a cultural, residential and mixed-use district, preserve historic buildings, create a pedestrian-friendly street, and break up large blocks. Allows 1.4 FAR (increase from 0.7 previously) with bonus of 2.4 for certain projects. Reduced parking requirements for warehouse conversions. Allows more kinds of commercial and retail uses. Street and building design standards.

Site Characteristics: Reuse of industrial/warehouse sites.

Current conditions: Fairly recent, but some changes in development are evident.

Plan area

Current conditions



8. Richmond – Transit Village Area Plan (part of City Center Specific Plan)

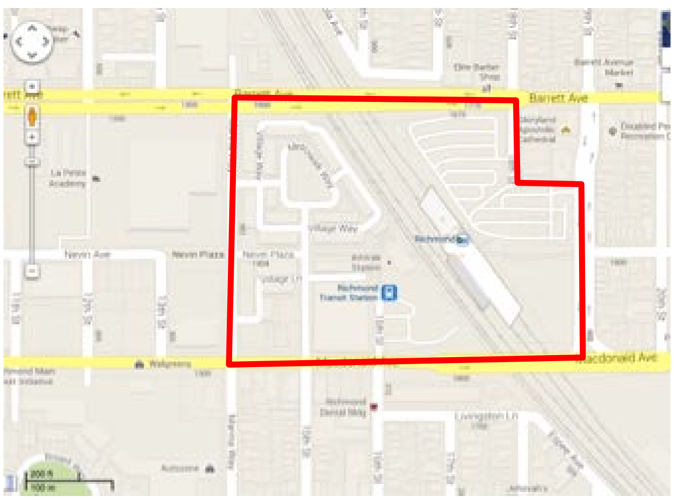
Year: 2001
Transit: BART (Richmond station), Amtrak
Project type: Commuter rail TOD

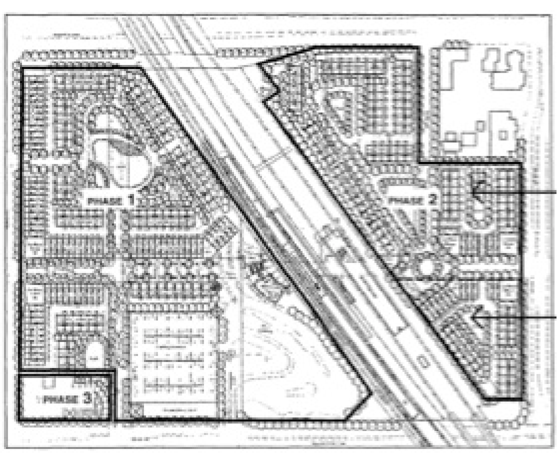
Policies: TOD; Medium-density townhouses, no single-family

Site Characteristics: Calls for 231 residential units, 24,000 sq ft of commercial space, 2.2 acres of open space, and a 120,000 sq ft parking structure.

Current conditions: Now has denser, multi-family housing to south of station, parking and single-family housing to north with New Urbanist design.

Plan area





Current conditions

9. Mountain View – Downtown Precise Plan

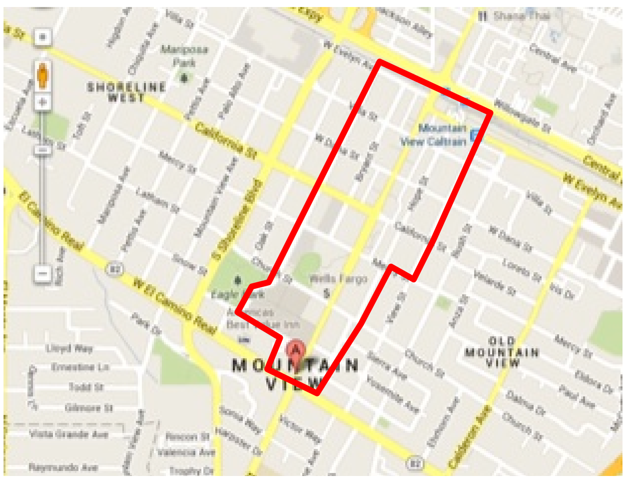
Year: 2004
Transit: Caltrain Mountain View Station, VTA light rail

Project type: Downtown revitalization/light rail TOD

Policies: Mixed-use, high density, New Urbanist design. “Sliding scale” for residential density.

Notes: May be a good case, but is also very frequently used as an example of "successful" smart growth.

Plan area



Current conditions


312 Castro Street, Mountain View, United States


Castro Street, Mountain View, United States

10. Sunnyvale – Downtown Specific Plan

Year: 2003
Transit: Caltrain (Sunnyvale station)

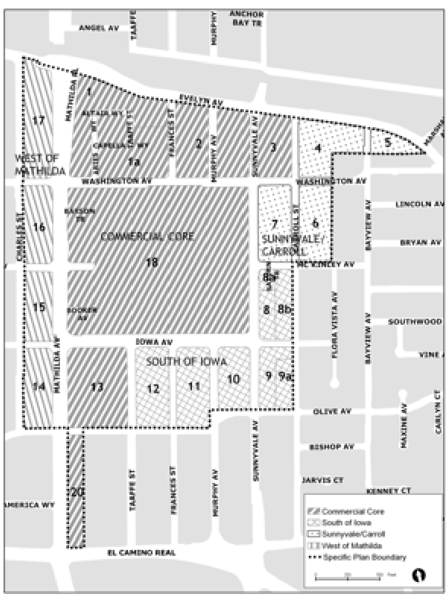
Project type: Downtown revitalization/light rail TOD

Policies: Allow mixed use, create a unique identity for downtown districts, re-establish street grid, improve street character, preserve historic buildings, and create gateways and plazas. Mix of office, retail, and residential uses. Density of 7-78 units/acre, 2-6 stories. New Urbanist design guidelines. Still high parking requirements (2 spaces/unit)

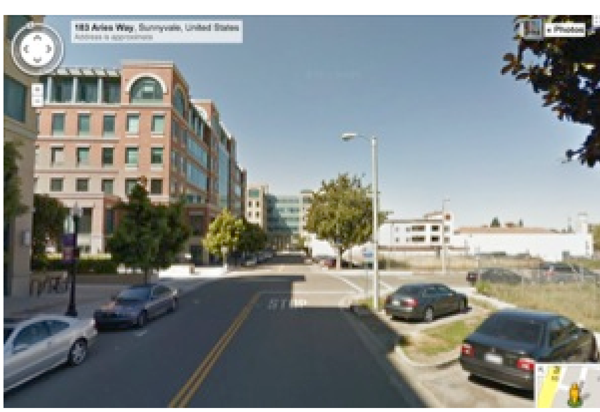
Site Characteristics: 125 acres downtown, encompassing four "districts".

Current Conditions: Several new buildings completed. Very recognizable as smart growth.

Plan area



Current conditions




West Iowa Avenue, Sunnyvale, United States
Address is approximate

11. Petaluma – Central Petaluma Specific Plan

Year: 2003
Transit: N/A

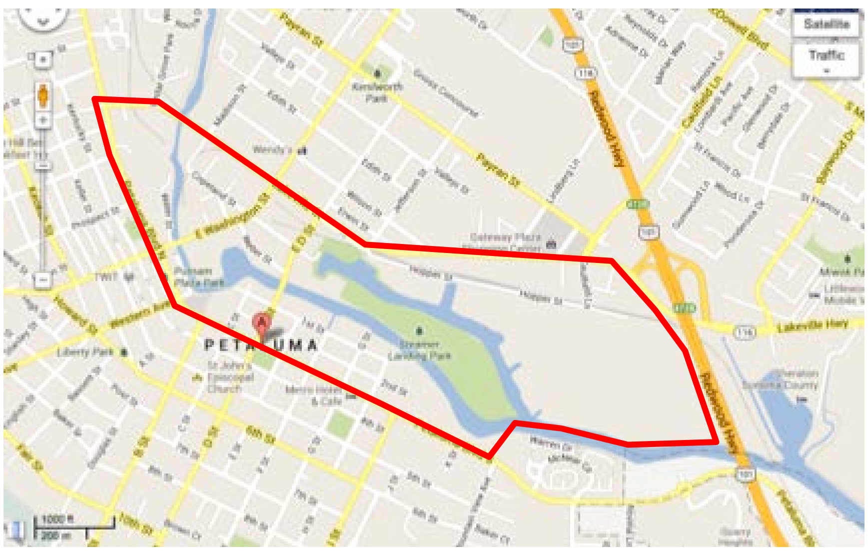
Project type: Industrial area redevelopment/downtown revitalization

Policies: Redevelop area around the river, create mixed use, emphasize industrial character. Encourages flexibility in land use and built form. Uses the New Urbanist "SmartCode" (essentially a form-based code). Up to 60 du/acre, 4-6 story buildings, reduced parking requirements (1 space/unit).

Site Characteristics: 400 acres, redevelopment of former industrial area in a small town, includes part of downtown.

Current Conditions: A lot of development visible, clearly more smart growth than pre-existing development. Introduces residential to a warehouse/industrial area. Interesting because uses the New Urbanist Smart Code directly.

Plan area



Current conditions

12. Hercules – Central Hercules Plan

Year: 2001
Transit: N/A

Project type: Neo-traditional greenfield development

Policies: Intended to create a town center. Form-based code with New Urbanist design standards. Mid- to high-density and mixed use. 2-5 story buildings. Defined street hierarchy with standards for street width and block size. Allows mixed uses. Parking requirements 1.25 spaces/unit.

Site Characteristics: 426 acres. Greenfield development.

Current Conditions: Early example of New Urbanism. Process started in 1995--motivation was to avoid conventional suburban growth. Charrette design process; Andres Duany involved in 1998. Not built out yet, but several new developments since 2001. Still distinct subdivisions on greenfield sites with little external connectivity and no transit.

Plan area

Current conditions

13. Fresno – Fulton/Lowell Specific Plan

Year: 1996
Transit: N/A

Project type: Downtown revitalization/residential infill

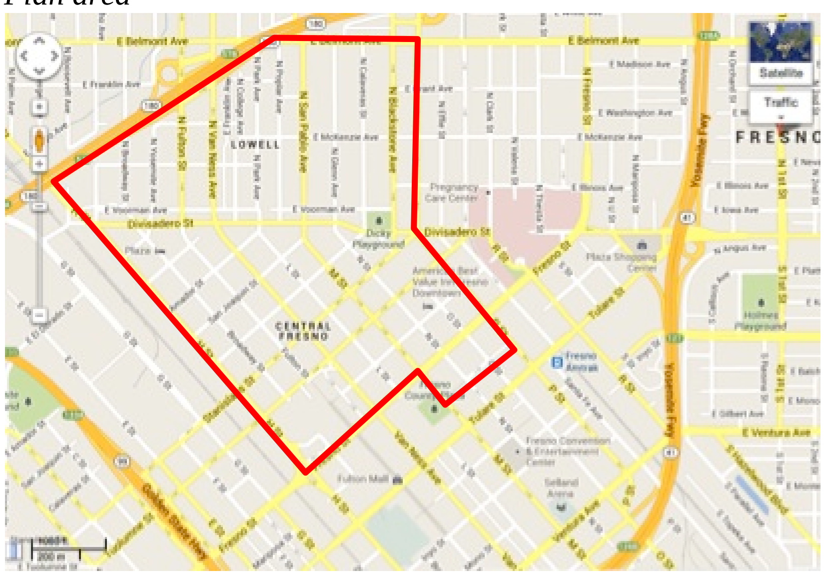
Policies: Plan aims to "stabilize" the area, primarily by emphasizing the single-family residential use and directing more intensive mixed-use to the main corridors. Allows some multi-family at max 18 du/acre, but does not increase the allowance for multi-family over what previously existed. 2002 design guidelines establish a Mixed Use Ordinance.

Site Characteristics: 340-acre area near downtown. North half of the area is single-family residential, south half is residential and commercial. Both, especially the south half, were in economic decline.

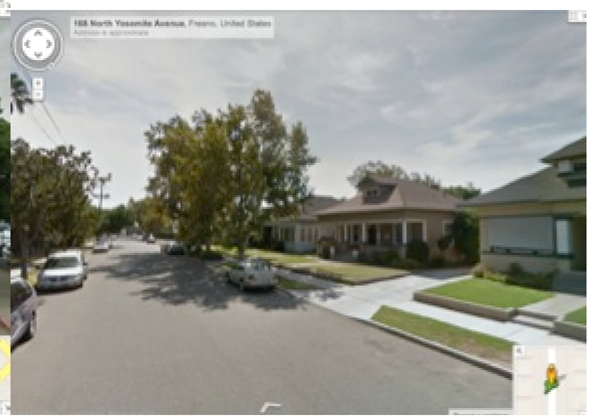
Notes: Unclear if it could be considered smart growth, because emphasis is on protecting single-family houses. Calls for limiting residential density and preventing conversion of single-family to multi-family.

Current Conditions: Only a small amount of new development.

Plan area



Current conditions



APPENDIX F: Case Study 1: Vermont-Western Specific Plan, Los Angeles

Executive summary

Context

In 2001 the City of Los Angeles adopted the Vermont-Western Specific Plan with the intention to boost infill development in an area planners perceived as poised for revitalization. Relative to adjacent downtown L.A. and Hollywood, the neighborhood attracted little investment. But its early twentieth-century buildings fronted the street and gave it an urban feel, it had a relatively high population density, and four Metro stations along the city's new Red Line had just opened. Local planners believed new investment and infill development would make the neighborhood "more livable, economically viable, as well as pedestrian and transit friendly" and take advantage of the new subway. To those ends, the Vermont-Western plan included policies to increase density allowances, especially for mixed-use projects and transit-proximate sites, and to allow residential development in previously commercial areas; to relax parking standards; and to require neighborhood-enhancing amenities such as sidewalk improvements and funding for parks.

Results

Between 2001 and 2010, the Vermont-Western plan led to a modest amount of additional housing and commercial space in the plan area, compared to what would likely have occurred without the plan. The new zoning allowed mixed-use residential and commercial projects in formerly commercial-only areas. By waiving parking requirements for reuse and renovations of existing buildings, the plan allowed a number of former single-family houses to be converted to multifamily units, and allowed a number of commercial spaces to change uses. As a result, about 500 to 700 additional multifamily housing units and about 16,000 to 57,000 square feet of commercial space were created in the plan area, compared to what otherwise would have been built. This development resulted in roughly 900 to 1,800 more workers than in the plan's absence. The new multifamily housing allowed more households to move into the plan area, and these households were smaller than those initially in the plan area. Depending on the extent to which the decrease in household size was due to the plan's policies or to a more general trend toward smaller households, the plan either decreased overall population in the plan area by about 2,300 or increased population by about 2,500—compared to what would have occurred without the plan. In other words, had one of two effects: it may have resulted in larger households being replaced with smaller households for a net population reduction (the "low" estimate), or it may have enabled more households to move into the plan area to replace households that would have moved out anyway (the "high" estimate).

The plan likely produced net benefits for the region, the municipality, and households. A summary of impacts is shown in the table below. The largest benefits appear to have resulted from an increase in value for developable land due to formerly commercial land being rezoned for mixed-use. The plan's effects on municipal and regional finances are ambiguous and depend on how the plan influenced household size. The plan may have shifted some housing and commercial demand to infill development rather than greenfield development, saving the region in infrastructure and service provision costs. The plan's policies may have helped increase revenue for the City of L.A. through higher property tax, and one-time impact fee revenue. On the other hand, the plan could have had a negative impact on the municipality's and region's finances.

The plan allowed more small businesses in the area and improved the streetscape to some extent. These amenities increased property values in the area, a benefit for homeowners. The additional housing increased the number of households who could take advantage of the proximity to transit and the increase in local amenities. Prospective buyers in the plan area would likely benefit from these amenities, depending on how much they value these amenities. They also benefitted from lower construction costs due to relaxed parking requirements.

Finally, the plan likely shifted households and jobs to the plan area, a neighborhood with relatively high job and transit accessibilities, and away from less accessible greenfield areas, leading to a reduction in vehicle miles traveled—unless those households moving into the plan area displaced larger existing households. Most likely, more residents and workers were able to commute by transit, and those who commuted by car had shorter trips. However, the plan may have also resulted in more residents moving out of the plan area to less accessible neighborhoods, which, in the most conservative case, would result in a net increase in vehicle travel. The change in vehicle travel also affected the region by reducing (or increasing) external costs of vehicle travel, namely reduced congestion, pollution and other negative externalities of driving.

Summary of Net Annualized Benefits and Costs in Case Study Area (in 2010 dollars; costs shown as negative)

Perspective	Low-impact estimate	Midrange	High-impact estimate
Regional			
Residential property	$3,737,681	$4,937,927	$6,129,182
Commercial property	$65,838	$205,744	$345,649
Fiscal	$(1,309,807)	$417,198	$938,639
Vehicle travel	$233,007	$1,661,849	$3,090,691
Total regional	**$2,726,720**	**$7,222,717**	**$10,504,161**
Municipal			
Residential property	$-	$-	$-
Commercial property	$-	$-	$-
Fiscal	$900,686	$285,176	$(316,346)
Vehicle travel	-	-	-
Total municipal	**$900,686**	**$285,176**	**$(316,346)**
Household - average homeowner			
Residential property	$1,384	$2,076	$2,768
Commercial property	$-	$-	$-
Fiscal	$3	$8	$7
Vehicle travel	$8	$20	$32
Total household - average homeowner	**$1,396**	**$2,104**	**$2,807**
Household - prospective buyers			
Residential property	$808	$1,145	$1,473
Commercial property	$-	$-	$-
Fiscal	$3	$8	$7
Vehicle travel	$-	$-	$-
Total household - prospective buyers	**$811**	**$1,153**	**$1,480**
Household - renters			
Residential property	$599	$899	$1,198
Commercial property	$-	$-	$-
Fiscal	$1	$0	$(0)
Vehicle travel	$8	$20	$32
Total household - renters	**$608**	**$919**	**$1,229**
Household - low income			
Residential property	$0.52	$1.00	$1.06
Commercial property	$-	$-	$-
Fiscal	$1	$0	$(0)
Vehicle travel	$8	$20	$32
Total household - low income	**$10**	**$21**	**$32**

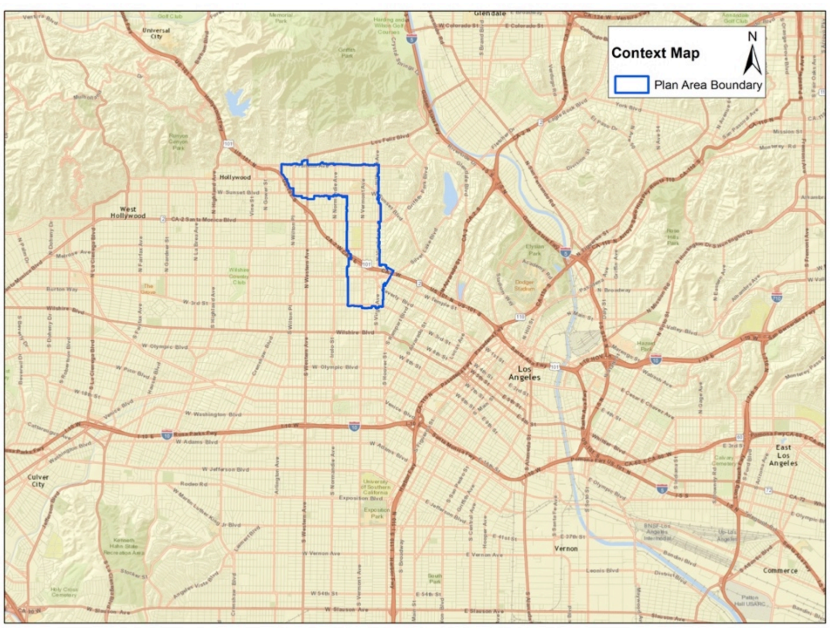
Table of Contents

1 Context

The Vermont-Western Specific Plan was one of the first efforts at transit-oriented development (TOD) planning in Los Angeles. We chose the Vermont-Western plan as a case study for this project partly because it met two key criteria. First, like many policies that are expected to be adopted under SB 375, it enabled denser infill development around transit stations in a previously developed neighborhood that was poised for reinvestment. Second, it was adopted in 2001, and therefore it is now mature enough to have observable effects.

The Vermont-Western Specific Plan (VWSP) encompassed a 2.2-square-mile area between downtown L.A. and Hollywood, in one of the densest areas in Los Angeles. In the late 1990s, the Vermont/Western area, sometimes also known as East Hollywood, was populated by a mixture of middle- and lower-income residents, many of them immigrants and ethnic minorities, and businesses catering largely to these residents. The population of the plan area was 50,000 in 2001. It had a large number of apartment buildings and mixed-use buildings dating from the early 1900s. It also had high employment density with two hospitals, a college, and several public and private schools.

Figure 1: Plan area location

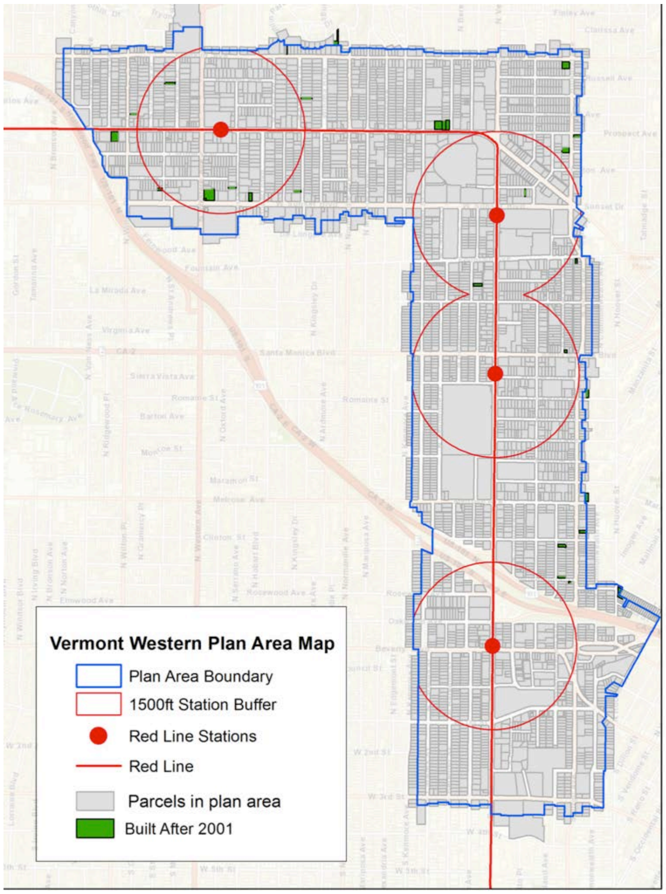


Despite this concentration of activity, there was little new development and few new businesses, and property values were stagnant relative to the rest of L.A. Interviewees attributed this economic stagnation to the 1992 Los Angeles riots, which affected nearby areas to the south; to the 1994 Northridge earthquake; and to high poverty and crime rates (Weber 2013). Demand for new housing and commercial buildings seemed to be relatively low, and barriers like small parcel sizes and high minimum parking standards made profitable development difficult. Yet the area had potential for redevelopment due to its density, proximity to downtown, and multistory mixed-use buildings fronting sidewalks. Notably, the new Metro Red Line was under construction, with four stations set to open in 2000.

In this context, the city created the VWSP, adopted in 2001. The plan aimed to "mak[e] the neighborhood more livable, economically viable, as well as pedestrian and transit friendly" and to "achieve maximum benefit from the subway stations as a valuable public asset" (City of Los Angeles 2001, 1). City planners expected the area to accommodate an additional 12,000 residents by 2020 and intended the plan to increase "public facilities and services, jobs, housing, [and] transit ridership" (City of Los Angeles 2001, 1).

Towards these ends, the plan increased permitted floor area ratios (FARs) and maximum building heights in station areas and main corridors. FAR and building height limits were increased to as much as 3.0 FAR and 75 feet, depending on location in the plan area. The higher limits applied to mixed-use projects; commercial-only projects were subject to a lower FAR and height limit. For example, in the intensive-use "Community Center Subarea," mixed projects were allowed 3.0 FAR and 75 feet in height, but commercial-only projects were limited to 1.5 FAR and 35 feet. The plan relaxed parking requirements, reducing parking standards by 15% within 1,500 feet of subway stations and replacing minimum requirements with maximum limits for residential and commercial uses. Before the plan, a three-bedroom residential unit was required to have a *minimum* of one parking space, with more allowed if desire. After the plan, a *maximum* of one parking space was allowed for the same unit. The plan also exempted renovations and changes of use from parking requirements, as long as any existing parking was maintained.

Figure 2: Vermont-Western Plan Area



The plan also required streetscape and design elements intended to enhance the pedestrian environment. For example, it required that each new project in the "Mixed Use Boulevard" subarea provide one public walkway through the project for every 250 feet of street frontage. It required new housing projects in the plan area (except those with affordable units qualifying as low and very low income) to contribute $4,300 per unit to a "Parks First" fund to provide parks in the neighborhood. And it required commercial and mixed-use developments with more than 100,000 square feet of non-residential uses to provide child care facilities. Projects with more than 40,000 square feet of retail floor area were required to “submit a program for free delivery of purchases to residents in the specific plan area.”[39] Appendix A provides a detailed list of specific policy changes.

More than a decade after the specific plan’s adoption, the development in the Vermont-Western neighborhood has been slower than planners initially envisioned. As we will see later in this report, by 2010 only about 700 new housing units were added and population actually decreased—far from the additional 12,000 residents the plan projected to be added by 2020. The slow pace of development is partly attributable to the 2008 housing and financial crisis. Our interviews confirmed that macro economic conditions had halted some development—for example, developers had difficulty securing financing for some previously planned projects. The seven year-period between the plan’s adoption and the recession, 2001-2008, does not provide a very large window of time to plan, permit, and construct new development. While some projects may have been completed during this period, many projects that were initiated just after the plan was adopted would likely have been caught in the financial crisis.

The VWSP policies also failed in some ways to achieve the development envisioned. For instance, a previously existing zoning requirement that enforced gradual building height transitions prevented some projects from taking full advantage of the VWSP’s increase in permitted density (Lamb 2013). Unlike some of the other case studies we examined in this project, the VWSP did not include major public investment, and thus had limited ability to stimulate development. It removed restrictions on development, but in the absence of externally driven market demand, few changes would be expected. Nevertheless, the plan did have at least a small effect on the development, as this report will show.

The Vermont-Western area underwent some changes during this time period not related to the plan. The neighborhood contains two major hospitals, the Kaiser Permanente Medical Center and the Children’s Hospital, both of which had planned new construction projects prior to the VWSP’s adoption. In 2009, Kaiser Permanente opened a new 400-bed, 792,000-square foot facility on Sunset Boulevard, next to the existing hospital.[40] The

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[39] Vermont-Western Specific Plan, p. 16
[40] http://articles.latimes.com/1998/may/09/business/fi-47805,
http://share.kaiserpermanente.org/article/kaiser-permanente-opens-replacement-flagship-hospital-in-los-angeles/

new building was designed to replace the existing building with a more up-to-date facility that met recent seismic standards. The new building was also larger, making the location Kaiser Permanente's largest in the U.S. During this period the Children's Hospital also added two new buildings. In 2001 it opened a new 105,000-square foot research facility, which doubled existing research space. The hospital added another 460,000-square foot building in 2011, greatly expanding existing patient treatment facilities.[41] Planning for the Kaiser Permanente and Children's Hospital projects predated the VWSP and would have occurred even in the absence of the plan. Indeed, the VWSP provided special zoning exceptions to accommodate the medical center development, which at seven stories exceeded normal building height and massing allowances.

For the remainder of this report, when we refer to "the plan," we specifically mean the Vermont-Western Specific Plan and the policies it contained. Our definition of "the plan" does not include the decision to expand the medical centers, nor citywide plans and policy changes that would have affected the area regardless of the VWSP.

2 Case-specific Methodology

Our analysis estimates the impacts of the VWSP from it was adopted in 2001 to 2010, the last year for which all the relevant data are available. We use the year 2000 to represent pre-plan conditions and the year 2010 to represent post-plan conditions.[42] The study area is defined as the 2.2-square mile plan area as shown in Figure 1. We estimate impacts of the plan for households in the study area, as well as for the City of Los Angeles and the metropolitan region.

To estimate plan impacts, we compared observed outcomes in the plan area with what we expect would have occurred in their absence. To approximate what changes would have occurred in the plan area in the absence of the plans, we constructed a plausible

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[41] http://www.healthcaredesignmagazine.com/article/childrens-hospital-los-angeles-los-angeles-c, http://www.chla.org/site/apps/nlnet/content2.aspx?c=ipINKTOAJsG&b=6089699&ct=9143721#.Uo6VqKXfhg0

[42] We use housing price data from 2012 rather than 2010, because housing prices in 2010 were heavily affected by the housing crisis and recession that began in 2008. Similarly, we use employment data from 2011 rather than 2010 because it is less affected by the recession.

alternative scenario based data from other areas (e.g. the rest of L.A. city and county) and interviews with local planners. Table 1 describes the ways in which we used data from other areas to build an approximation of what would have occurred in the plan area in the absence of the plan. For example, we note that in Koreatown—another dense, central L.A. neighborhood, that was not subject to a TOD plan—population was also declining, suggesting that population decline may have been a general feature of central L.A. neighborhoods and would have occurred to some degree regardless of the plan. Or, we note that employment in L.A. County increased only a small amount, suggesting the large increase in Vermont-Western was unusual and perhaps a result of the plan.

Table 9: Comparison areas used to approximate what would have occurred in the Vermont-Western area in the absence of the plan

Type of change:	**Other places we looked to determine if changes in the plan area were unique and possibly attributable to the plan:**	**Reason for identifying these locations for comparison:**
Population, Demographics, and Housing Units	• The county • Koreatown	The county is used to represent regional trends. Koreatown is densely populated, centrally located neighborhood and represents macro demographic trends occurring generally in central L.A.
Employment	• The city • The county	Both provide base of reference for trends that would have occurred in absence of the plan
Residential and Commercial Property Prices	• The county	The county values are used to provide context and a baseline regional growth rate for estimates. Sales price data are also more easily available at the county level.
Municipal Finance	• The city	The fiscal analysis specifically estimates impacts for the city, so city data is used. This analysis also draws on all the data listed above.
Travel Behavior	• State-wide modeling tools • Extends from the population, employment, and housing analysis.	The vehicle travel model builds on all the above analyses, and also uses a statewide modeling too.

2.1 Interviews and field visits

We interviewed seven planners, developers, and residents who were involved in the plan's development and implementation, listed in Appendix B. The interviews provided information on the plan from a range of perspectives. Planners who created the VWSP and who were responsible for its implementation were able to tell us about details of the policy changes and how they affected development. A developer of a large mixed-use project provided information on how the policies affected development costs. Leaders of residents' organizations explained how the neighborhood has changed since the plan was adopted and how those changes have affected residents. We spoke to a property owner and members of the local Thai community, who also provided their perspective.

The team made a field visit to the plan area in March 2014 during which staff from the Thai Community Development Corporation provided a site tour.

2.2 Data sources

This analysis uses several datasets, including the Census and American Community Survey (ACS), the National Establishment Time Series (NETS), DataQuick property sales, and county tax assessor records. Details on these data sources are available in the full report. Specific to the Vermont-Western case, for the fiscal analysis, we used 2000 and 2010 parcel-level data from the Los Angeles County Assessor. These data include land uses and assessed land and improvement values.

3 Observed changes and analysis of plan effects

The Vermont-Western area underwent substantial changes in population, demographics, employment, development, property values, and fiscal resources during the study period. In the following sections, we quantify what happened between 2000 and 2010, and analyze the extent to which these changes can be attributed to the VWSP. The following sections describe our analysis of impacts on population and employment, housing, commercial property, municipal finances, and vehicle travel.

3.1 Population and housing

3.1.1 Population and demographic changes

Between 2000 and 2010, the plan area's population declined, as many family households moved out and were replaced with smaller, non-family households—a trend not unique to Vermont-Western. Families with children and Hispanic residents moved out in large numbers, replaced with smaller, childless households more likely to be Asian or white. Population declined by 8%, but since the average household size shrunk—from 2.6 to 2.3—the number of households decreased by less than 1% (Table 2). By comparison, average household size in Los Angeles County remained constant. The data further show that the area lost family households while gaining non-family households. The number of family households decreased by 14.2%, compared with a 2.7% increase in L.A. County overall. Koreatown, another centrally located neighborhood with a similar size and demographic profile to Vermont-Western, displays a similar trend but to a lesser degree: the number of family households also decreased, although there was no change in total number of households. Similar to Vermont-Western, average household size in Koreatown decreased from 2.7 to 2.5, and average family size decreased from 3.4 to 3.2.

Most tellingly, in the plan area, the number of children under eighteen years-old decreased by 34% over the decade, fourteen percentage points more than in the county and eight percentage points more than in Koreatown. Because the young adult (ages 18-34) population decreased over this time period as well, the decrease in the number of children cannot be explained by individuals simply growing into older age brackets—it must reflect some families with children moving out of the plan area and fewer families with children replacing them (Figure 3). The change in age distribution in Koreatown (Figure 4) evidences a similar shift in that neighborhood.

Table 10: Population change in the plan area and comparison areas

	Vermont/Western			Koreatown		LA County	
	2000	2010	% change	2010	% change	2010	% change
Population	59,470	54,479	-8%	59,681	-8%	9,818,605	3%
Population under 18	14,198	9,371	-34%	11,939	-26%	2,402,208	-10%
Average household size	2.6	2.3	-9%	2.5	-7%	3.0	0%
Households	22,600	22,414	-0.8%	24,102	0.2%	3,241,204	3.4%

Source: 2000 and 2010 Census

Table 11: Change in households by type in the plan area and comparison areas

	Vermont/Western			Koreatown	LA County
	2000	2010	% change	% change	% change
Total	22,600	22,414	-0.8%	0.2%	3.4%
Family households	12,692	10,872	-14.2%	-9.0%	2.7%
Non-Family households	9,908	11,542	16.5%	14.2%	5.0%

Source: US Census Bureau, 2000 and 2010 Census

Figure 3: Population in Vermont-Western Plan Area by age

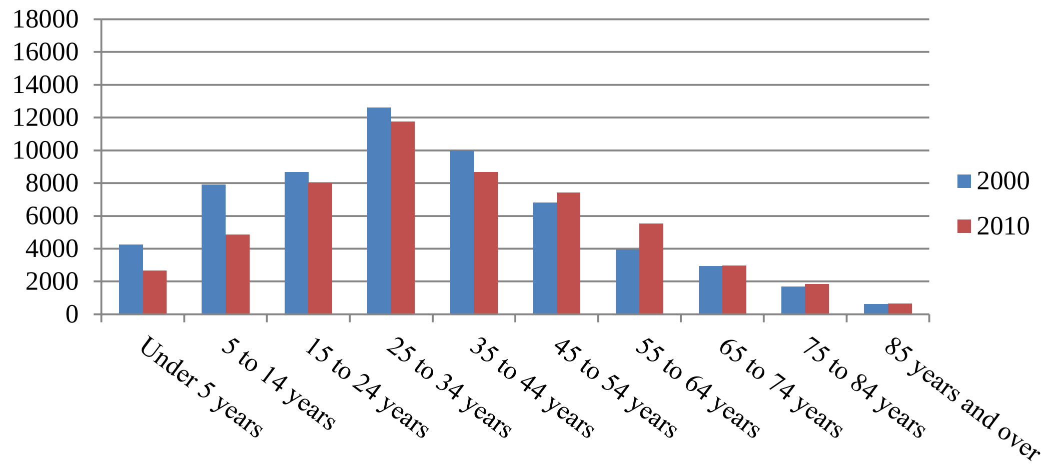
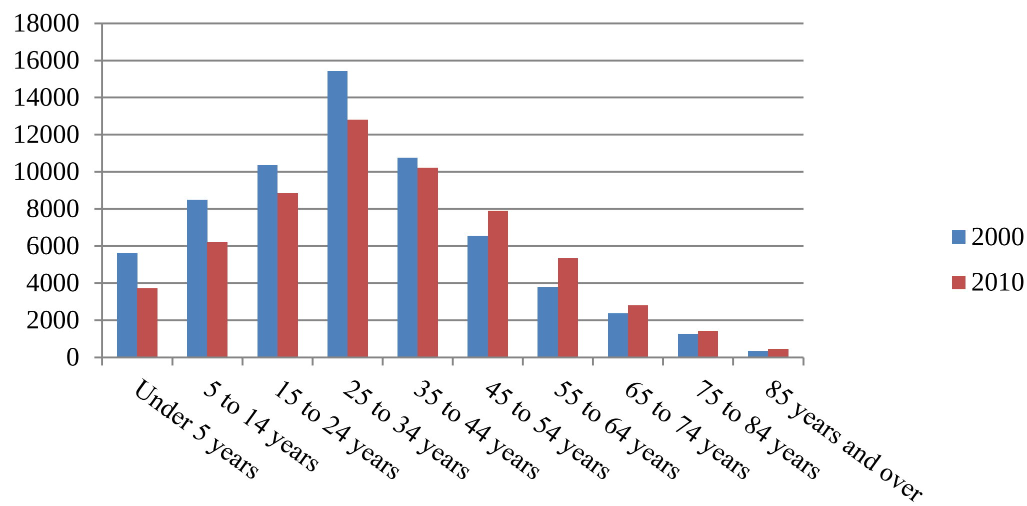


Figure 4: Population in Koreatown by age



The plan area lost Hispanic residents during this period while gaining white and Asian residents. Vermont-Western lost 13% of its Hispanic population over the decade, while the Hispanic population in L.A. County increased by 11%. Meanwhile, the plan area's white and Asian populations increased. The Hispanic population in Koreatown also decreased by 19%, suggesting that a declining Hispanic population in central neighborhoods might be a more general trend. Despite the difference in overall racial makeup between these two neighborhoods—Koreatown has a much higher proportion of Asian residents than Vermont-Western and L.A. County—overall, the changes to race and ethnicity in the plan area were similar to trends in Koreatown. This suggests that the changes may have been caused by larger forces and were not solely attributable to the

VWSP's policies—although, as we will discuss later, the VWSP may have exacerbated the trend.

The 2010 median household income in the plan area was just over $32,000, much lower than the L.A. County median of $55,000, but very close to Koreatown's median income of $33,000. However, over the study period, the median income in L.A. County only increased by about $200 (after adjusting the 2000 median to 2010$) a less than one-percent increase. The Vermont-Western median income increased by over $1,000 dollars, a 4% increase, while the Koreatown median increased by $4,500, a 16% increase over the 2000 adjusted median income. In 2000, 33% of the households in Vermont-Western were low-income, defined as having an annual household income under $10,000. In 2010, that percentage declined to 24%.

Vermont-Western is largely a neighborhood of renters; rental units—as in Koreatown and similar neighborhoods—make up nearly 90% of the occupied housing stock, a much higher proportion than the county-wide proportion of 52%. However, over the study period, neither Koreatown nor L.A. County saw a change in the shares of units that are rented or owned, while the share of renter-occupied units in Vermont-Western decreased slightly from 92% to 89%.

Overall, the data suggest that, during the study period, the Vermont-Western experienced an outmigration of family households, and an in-migration of non-family households more likely to be white and Asian. Another comparable neighborhood, Koreatown, appears to have experienced similar changes, but to a lesser degree. This suggests many of the demographic changes observed in the plan area were part of broader shifts in population rather than to changes induced by the plan, but, as we will discuss in the follow sections, the plan may have accelerated some of these changes.

3.1.2 Housing supply changes

The plan area experienced some residential development between 2000 and 2010, although less than planners initially expected. The existing residential development in the plan area is mostly low-rise single-family houses and 3- to 4-story apartment buildings along residential streets (see Figure 5). Although these residential-only streets have not changed much in character since 2000, several single-family houses have been converted to multifamily, or, in a few cases, torn down and replaced with multifamily. New construction, consisting of only a few apartment buildings, has been mainly along the major boulevards, which used to be zoned only for commercial. According to Census data, 696 housing units were added to the plan area between 2000 and 2010, a 3% increase (see Table 4). This net change reflects a loss of 198 existing single-family units and a gain of 894 new multi-family units. The data imply that some single-family homes were converted to or replaced by multifamily units, confirming interviews that indicated some single-family houses were subdivided into apartments (Bell 2013).

Despite the increase in housing units, the number of households dropped because the housing vacancy rate increased, from 4% in 2000 to 7% in 2010. Vacancy rates also increased in Koreatown and the county (from 4% to 6% in L.A. County). The increase in vacancy rates is more likely a general regional trend resulting by the 2008 housing crisis and recession than it is due to VWSP policies. Of the 696 newly constructed units in Vermont-Western, 200 were affordable units and the remainder was market-rate. The recession also likely halted or slowed development that had been planned prior to the crisis (Kalamaros 2013)—between 2008 and 2011 no new buildings were constructed in the plan area..

Table 12: Change in housing supply in plan area

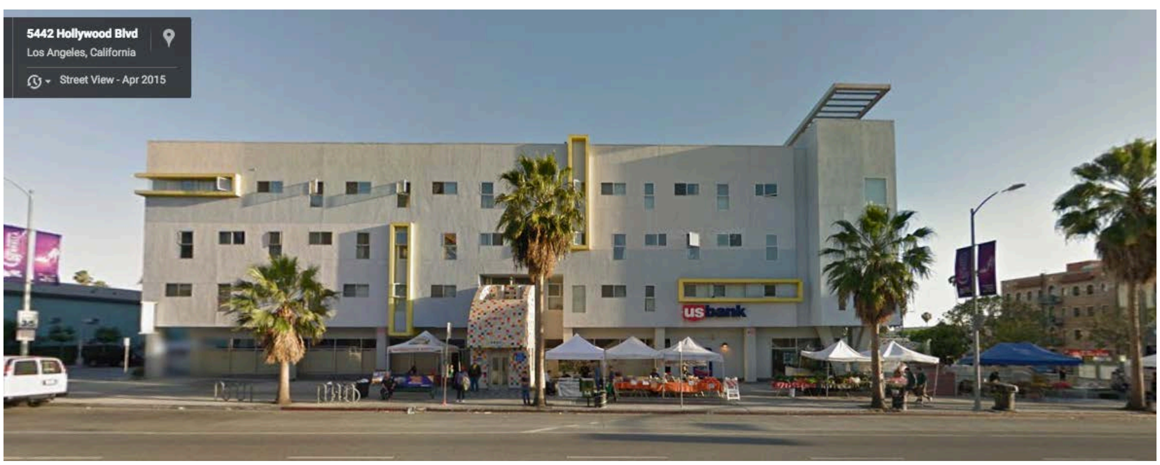
	2000	**2010**	**Change, 2010-2000**
Total housing units	23,426	24,122	696
Detached single-family units	1,779	1,581	-198
Housing units in multi-family buildings	21,647	22,541	894
Percent of units that are renter-occupied	92%	89%	

Source: Census 2000, Census 2010, ACS 2008-12 5-year estimates.

Figure 5: Typical residential street in plan area with low-rise single-family and multi-family buildings. These predated the 2001 plan.

Source: Google Streetview (2015)

Figure 6: New mixed-use development, the Metro Hollywood Apartments, next to the Hollywood/Western Metro station. This project was enabled by the plan's zoning changes and includes affordable apartments, retail space, and reduced parking.



Source: Google Streetview (2015)

3.1.3 Impacts of the plan on housing supply

The plan had modest effects on housing supply in the plan area, which, as we will see, helped to shape population change. .

To analyze the impacts of the plan on housing, we assume there was an existing demand for housing in the region—multifamily housing in particular—that was not met by the existing housing stock. This exogenous demand was driven by the regional economy, population growth, and household formation rates, and would have existed regardless of the plan. This assumption is based on previous research that suggests constraining regulations and geography in the Los Angeles region, like other California regions, prevent the housing market from fully meeting demand (Saiz 2010; Quigley and Raphael 2005; Quigley and Rosenthal 2005). In much of the region, regulations directly prohibit multifamily housing or make it prohibitively expensive by requiring provision of costly parking spaces (e.g., Manville and Shoup 2010). Moreover, because regulations in many jurisdictions favor low-density single-family housing, there may be an undersupply of lower-cost multiunit dwellings (Levine 2006).[43] Thus there was probably an unmet demand for housing in the plan area, and particularly an unmet demand for multifamily housing.

In this context, the VWSP relaxed zoning regulations and allowed development to respond to previously unmet demand. Through these changes, the VWSP likely allowed new residential construction that would otherwise have been prohibited. In the areas designated as “Community Centers” and “Mixed use Boulevards,” which were mainly along major streets, the plan allowed residential and mixed-use development on land previously zoned exclusively for commercial or light industrial, and allowed densities of up to 3.0 FAR, higher than previous allowances. These zoning changes enabled a few new mixed-use projects and apartment buildings (Figure 6). The removal of parking requirements decreased marginal construction costs, allowing property owners and developers to respond to changes in market demand by undertaking a few more reuse and renovation projects than they would have in the VWSP’s absence. According to interviewees, such projects included conversions of single-family houses to multifamily and changes in use of commercial buildings (Bell 2013; Lamb 2013). Without the plan, conversions of single-family to multifamily housing would have been much more difficult because they would have required an increase in off-street parking spaces—and most of these lots are too small to physically accommodate more parking spaces without construction of expensive parking structures or underground garages. The plan also increased marginal construction costs in some ways—it imposed parks fees, design standards, and additional complexity—which probably dampened new construction to some extent.

[43] Some have suggested that demand for this type of housing may be increasing as smaller, childless households become more common (Deka 2014; Ehrenhalt 2012)—although we cannot verify that this is true in the Vermont Western case since the overall percentage of non-family households in the region barely changed.

The parking requirement changes were probably a significant cause of single-family to multifamily conversions. To illustrate how, consider a landlord who in 2000 owned a single-family house rented by a family for $1500/month. This property owner reads a newspaper article claiming that people are marrying and having children later, causing a trend toward smaller households, especially those who want to live in urban areas. Seeing the potential to profit from this trend, the landlord considers subdividing her rental house into three units. With renovations, she figures she can charge a monthly rent of $700 for each, a total of $2100. However, she discovers that zoning regulations require that, if she were to do so, she provide a total of six parking spaces (two for each unit). But the lot is too small to accommodate six parking spaces. To provide that much parking she would need to either build a parking structure at cost of $20,000 per space (total $120,000), or reconfigure the house to accommodate a parking lot at an even higher cost. Financing on these projects would cost at least $650/month, more than the expected additional rent. Perhaps she could subdivide the house into two units, which would only require four parking spaces, but the increase in rent barely makes the effort worthwhile, so she does nothing. However, in 2001, once the VWSP waives parking requirements, she can proceed with the conversion without building any new parking, and the Vermont-Western neighborhood gets two additional housing units. Our interviews and site visits suggest this is a typical scenario in the plan area.

Together, the plan's policies likely enabled more new multifamily housing and more conversions of single-family houses to multifamily units than there otherwise would have been. We estimated the number of additional units using Census data and interviews. Of the 696 housing units added to the plan area between 2000 and 2010, some would have been built anyway. Affordable housing projects were subject to reduced parking requirements under citywide code and had access to dedicated financing regardless of the plan. Therefore, it's likely that one or two new affordable developments – totaling 200 multifamily housing units – would have been built in the plan's absence. This assumption represents our midrange and high estimate. In the low estimate, we assume that, in the absence of the plan, in addition to 200 affordable units, some housing conversions would have also occurred, for a total of 400 new multifamily units. These assumptions imply that the VWSP policies were responsible for between 246 and 496 new housing units in the plan area (Table 5).[44]

[44] The total number of housing units in LA County would probably be unaffected by the VWSP policies. We further assume that, without the plan, the 496 new multifamily housing units would not have been accommodated elsewhere in the region because of regulatory constraints.

Table 13: Housing supply with and without the plan

Housing, plan area	2000	Observed 2010	2010, Without Plan			Difference Observed – Without Plan		
			Low	Mid	High	Low	Mid	High
Total housing units[a]	23,426	24,122	23,876	23,651	23,626	246	471	496
Detached single-family units[a]	1,779	1,581	1,729	1,754	1,779	(148)	(173)	(198)
Multifamily units[a]	21,647	22,541	22,147	21,897	21,847	494	694	694
New multi-family units from single-family conversions[b]	n/a	396	100	50	-	296	346	396
New multi-family units in newly constructed buildings	n/a	498	400	200	200	98	298	298
% of total units <1500 ft of metro station[c]	50%	51%	51%	51%	50%	n/a	n/a	n/a
% of new units <1500 ft of metro station[c]	n/a	67%	100%	100%	100%	n/a	n/a	n/a

Source: [a]Census and ACS, [b] interviews, [c] tax assessor.

n/a = not applicable

In the absence of the plan, more of the growing demand for housing would have had to be accommodated elsewhere in the region. Given that zoning regulations in many areas prohibit multifamily development, much of this housing would have had to single-family—even if demand for multifamily existed. We assume that the proportion of housing demand that would have been built as single-family would have been determined by existing zoning and would have reflected the proportion observed in the county, or 58%. In other words, had the plan not allowed multifamily development in the Vermont-Western area, developers would have instead built those units elsewhere in the county, and 58% would be single-family. This means that, had the plan not been adopted, between 142 and 287 fewer multifamily units would exist in the region.

In order to later estimate impacts on housing prices, municipal budgets, and auto use, we must also calculate how many of the additional units attributable to the plan were from new construction (rather than conversion or renovation of existing housing stock) and how many were accessible to transit. Our interviews suggested the loss of single-family units is due to the subdivision of those buildings into multifamily units (Bell 2013). We don’t have information on how exactly these single-family houses were subdivided or redeveloped—some may have been converted into, for example, four units, while others may have been converted to non-residential uses. A reasonable estimate is that each of the “lost” single-family houses was converted into an average of two multifamily units. This conservative assumption accounts for some uncertainty about the conversion or redevelopment of some single-family homes into commercial uses. This would yield 396 converted multifamily units, implying 498 units would be from new construction (see

Table 5), which is consistent with available information on new development projects in the plan area. In the absence of the plan, parking requirements would have made conversions from single-family to multifamily housing more difficult, so there would have been fewer conversions; we estimate between zero and 100.

In 2010, 51% of housing units were within 1,500 feet of a metro station.[45] All new multifamily units were within 1,500 feet of a metro station, and only a few of the converted units were. Therefore, we estimate that 67% of all new units were within transit station areas. To be conservative, we assume that all 200 new units that would been built regardless of the plan would have been in newly constructed multifamily buildings located within 1,500 feet of a metro station. Any single-to-multifamily housing conversions would, in the absence of the plan, be evenly distributed in the plan area such that 50% would in transit areas.

3.1.4 Impacts of the plan on households and population

The changing housing supply in the plan area affected population and households. Compared to the existing housing stock, the new units were smaller and more often in multifamily buildings. The new units were also in newly constructed buildings or recently renovated ones. The plan therefore resulted in an increase in newer but smaller units in multifamily buildings. This new housing appealed to a different type of household—most likely childless households seeking smaller housing units in locations accessible to transit and urban amenities. These households were also more likely to be higher income and less likely to be Hispanic. It is important to note that these in-migrating households were not original residents of the plan area, but are generic households resulting from population growth and new household formation.

In the absence of the plan, several hundred fewer housing units would have been added. Assuming a vacancy rate of 7.1% (the rate observed in 2010) there would have been 22,227 to 21,763 households in the plan area (Table 6). We observed the average household in the plan decreased from 2.56 to 2.32 over the study period. Some of that decrease was likely attributable to the plan, because the addition of smaller housing units allowed an influx of smaller households. However, the decrease was partly due to a more general trend. Therefore, in the low estimate, we assume the plan area's average

[45] To calculate the percentage of units in metro station areas, we used GIS to create a 1,500-foot buffer around the metro stations and calculated the total number of housing units, as given by tax assessor data, located within that buffer.

household size, in the absence of the plan, would have been close to the initially observed value of 2.56. In the high estimate, we assume household size would have decreased to 2.37—not quite as small as actually observed. The midrange estimate is the average of the other two. As shown in Table 6, these assumptions imply that, in the most conservative case, the plan actually decreased population by more than 2,000, compared to what would have occurred anyway. In the most generous case, the plan increased the area's population by about 2,500. In other words, the plan's effect on total plan area population is ambiguous. Note that these estimates are highly sensitive to the household size assumption. If instead we assume the households would have shrunk to 2010 sizes regardless of the plan, the plan's effect would unambiguously be to increase population.

Table 14: Estimates for households and population in the absence of the plan

	2000	Observed 2010	2010 Without Plan			Difference Observed-Without Plan		
			Low	Mid	High	Low	Mid	High
Housing units in plan area	23,426	24,122	23,876	23,651	23,626	246	471	496
Vacancy rate	n/a	7.1%	7.1%	7.1%	7.1%	n/a	n/a	n/a
Households in plan area	22,600	22,414	22,181	21,972	21,949	233	442	465
Average household size in plan area	2.56	2.32	2.56	2.47	2.37	n/a	n/a	n/a
Population in plan area	59,470	54,479	56,783	54,160	52,018	(2,304)	319	2,461

Source: Census

If the plan had not been adopted, where would these households have settled instead? Although the L.A. region saw some growth in multifamily housing during this period, it was almost certainly insufficient to meet existing demand. Other neighborhoods received new high-density, transit-accessible development. Downtown Los Angeles has seen fast growth in housing construction and population, due in part to the adaptive reuse ordinance (Manville and Shoup 2010).[46] Interviews suggested that Hollywood also accommodated a large amount of new, multifamily construction. Other cities in the region such as Pasadena saw new transit-oriented development. In the absence of the VWSP, some of the development in the plan area may have been directed to these other centrally located neighborhoods. However, it's unlikely these alternative neighborhoods

[46] See also: http://www.betterinstitutions.com/2014/09/downtown-los-angeles-building-a-fifth-of-housing.html, http://www.downtownla.com/pdfs/econ_residential/1Q09HousingBook.pdf, http://www.downtownla.com/survey/2013/results/DTLA-Demo-Study-2013.pdf

would have accommodated the entire demand for housing. Considering the L.A. region's restrictive regulations (Saiz 2010), the new development in these other neighborhoods represents an exception to the status quo. If the VWSP had not been adopted, we cannot assume there would have been an equivalent change in zoning regulations somewhere else. More likely, the market housing would have continued to be constrained, as it is in most parts of the region. This would have led people to move elsewhere in the city of Los Angeles or into neighboring cities within the county. We assume that these households distribute around the region such that the percentage residing in the City of L.A. equals the actual percentage of LA County's population that resides within city limits, or 39%. We further assume that, due to existin zoning laws, 42% of the housing built in L.A. County outside the plan area is multifamily, the same as actually observed.

In short, without the plan, the households that moved in to multifamily units in the plan area would likely have settled for single-family homes in locations with poorer access to transit, which are more available in the region.

3.1.5 Potential displacement effects

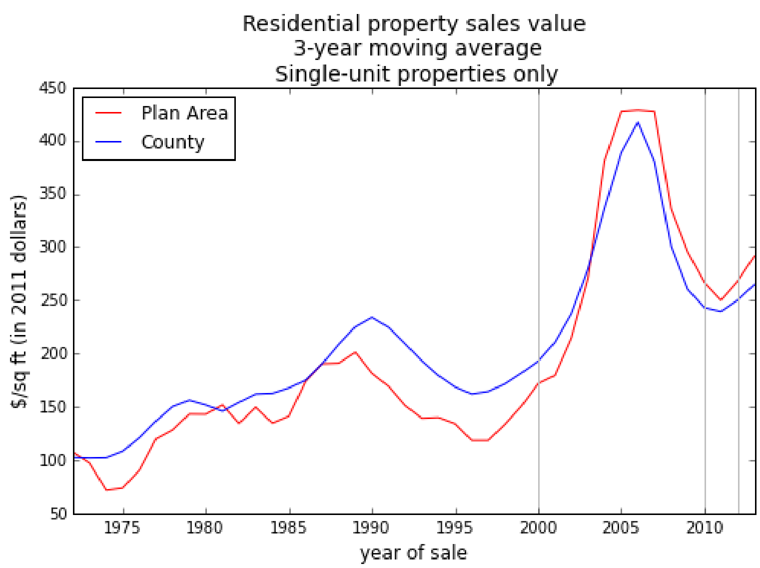
An important question is whether the new housing construction and the conversion of single-family to multifamily units caused displacement of existing households, or whether those existing households would have left anyways. Our analysis was not designed to specifically answer this question, but based on trends observed in Koreatown, it is likely that the out-migration of family and Hispanic households was a more general trend and would have occurred to some extent regardless of changes in Vermont-Western's housing stock. At the same time, because the more flexible parking requirements made conversion of older single-family houses easier, the VWSP could have hastened turnover in the housing stock and the out-migration of existing residents. Consider again the landlord deciding whether to convert her rental house into three units. Without the plan's parking requirement changes, she probably would do nothing, allowing the existing tenants to stay. However, with the parking changes, she might decide to convert the house into multiple units and, being charitable, would give her existing tenants the option of moving into one of the newly converted units. But the tenants, deciding the new units are too small for their large family, might find a larger space for the same rent in another neighborhood—then they would be displaced. Some households in the plan area may have faced this decision, and some may have moved for other reasons—maybe some households increased their income and voluntarily moved to neighborhoods with better schools, for example. In short, the VWSP potentially accelerated displacement, but we cannot know to what extent.

3.2 Residential property values

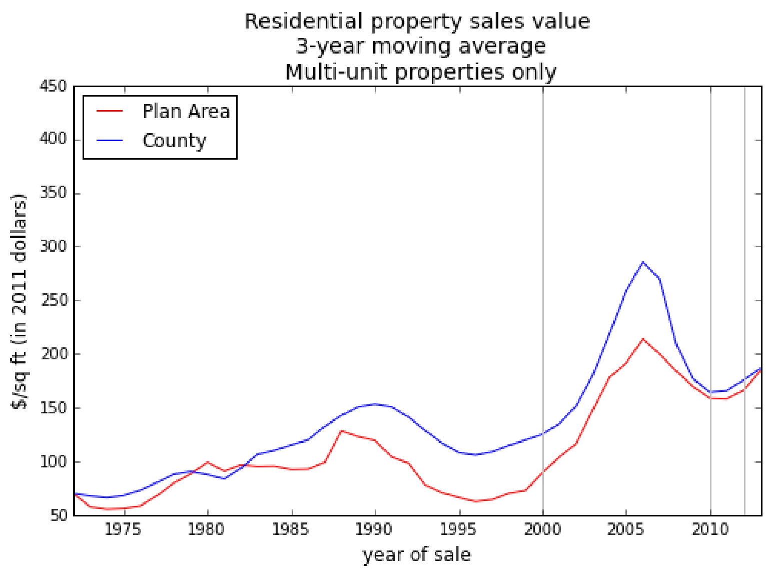
3.2.1 Changes in residential sales prices

During the study period, sales prices of single-family and multifamily housing increased faster in the plan area than in the rest of the county. As shown in Figure 7, prices for single-family properties in the plan area remained slightly lower than prices in L.A. County until the early 2000s, when they surpassed L.A. County prices. For multifamily properties, median sales prices in the plan area remained below county levels throughout the 1990s and before 2005, but largely caught up in recent years. Unlike residential home prices, residential rents in the plan area increased at the roughly the same rate as those in the county. According to the Census, median monthly rents in the plan area were lower than in the county, and increased 31% over the decade.

Figure 7: Residential sales property prices in plan area and LA county



Source: DataQuick



Source: DataQuick

Table 15: Changes in median sales price per square foot and median rent in plan area and county

	2000	2010	2012	Change 2000-2012	% change 2000-2012
Median sales price per sq ft (2011 USD)[a]					
Single-family properties					
Plan Area	$172	$267	$268	$96	56%
LA County	$193	$243	$250	$57	30%
Multifamily properties					
Plan Area	$89	$158	$166	$77	86%
LA County	$125	$164	$175	$50	40%
Monthly median rent (2011 USD)[b]					
Plan Area	$773	$1,011	-	$238	31%
LA County	$920	$1,187	-	$267	29%

Source: [a] DataQuick, [b] Census

3.2.2 Economic impacts reflected in housing prices

(1) Regional supply and demand effects

Given the previously discussed assumptions, the VWSP policies helped to increase regional housing supply by about 100 to 200 units between 2000 and 2010, all of which were multifamily. Assuming the regional supply of multifamily and rental units is normally constrained by regulations (e.g. more housing would be built if not for L.A.'s density restrictions, high parking requirements etc.), this increase in supply would theoretically offset some of the upward pressure on prices in those submarkets. The plan actually reduced the supply of single-family units, since some were converted to multifamily, therefore possibly increasing pressure on prices in the single-family submarket.

In the absence of the plan, housing prices in the plan area likely would have increased at roughly the average county rate of 30% for single-family and 40% for multifamily, and rents would have increased at the county rate of 29%, all in constant dollars. Because prices in the plan area started out lower, it's also possible they would have increased faster than prices in the county regardless of the plan. To account for this possibility, in the low estimate we add 20% to the assumed plan area growth rate. To estimate how the local increase in multifamily housing supply affected prices in the regional market, we applied values of the price elasticity of supply from the literature[47] to the observed and assumed changes in price and supply. We estimate the increase in multifamily housing attributable to the plan lowered regional prices by about one cent per square foot, or $5 to $10 for the average multifamily unit, below what they otherwise would have been—an almost negligible effect for individual households. Note that the increased supply in the multifamily housing submarket does not affect existing owners of single-family houses, although it does affect existing owners of multifamily properties, who are not considered in this analysis. We assume the single-family housing submarket is not as constrained, and thus any effects of a change in supply of single-family units are negligible.

By permitting more and relatively dense housing development in formerly commercial-only areas, the plan made developable land in those areas more valuable, a regionwide benefit. The change in zoning allowed landowners to profit more from selling or renting additional units, compared to what they would have gained without the zoning change. In Vermont-Western, the zoning changes were relatively small and applied only to a fraction of the plan area, an even smaller fraction of which was developable. The zoning changes permitted, on average, roughly 30 additional housing units per acre in areas previously zoned only for commercial. Most of these newly zoned parcels were already developed, however; only about 4% were vacant or easily developable.[48] Assuming a

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[47] For the L.A. metro area, Saiz (2010) estimated a supply elasticity of 0.6.

[48] The amount of developable land was calculated using tax assessor data. Developable parcels were defined as those that had a structure built since 2001, were vacant, or were used as parking lots. Since only non-residential land was rezoned for higher density, only commercial, industrial, or institutional uses were considered.

constant construction cost and sales price per unit,[49] the change in permitted density would confer a benefit to owners of re-zoned developable land of roughly $947,000 to $1.5 million per acre. Over all developable land in the plan area, the zoning changes added was $47 to $77 million in land value or, assuming a 30-year financing period, around $3.4-$5.6 million annually. This would be a benefit to the region. The change in multifamily housing supply therefore created negligible effects for individual households but a non-negligible benefit for owners of developable land and for the region as a whole.

(2) Changes in production costs

Development policies could also influence housing prices by changing construction and development costs. The VWSP policies likely had two opposing effects on construction costs. On the one hand, the reduced parking requirements lowered mandatory construction costs. But interviews suggested the plan also increased marginal costs by imposing design standards, such as façade improvements (Lamb 2013). It also may have introduced additional complexity in the planning process, which could lead to permitting delays and uncertainty. It also imposed a $4,300 per unit “Parks First” fee.

To estimate how parking standards influenced construction costs, we assume that developers supplied exactly the required number of spaces.[50] Parking standards vary depending on the exact use, but typically the city standard before the plan was 2 spaces per dwelling unit. The plan switched from minimum to maximum standards, and the maximum depended on the size of the unit. According to a developer, a ratio of 1.2 spaces per dwelling unit was typical post-plan (Kalamaros 2013). In addition, the plan allowed a parking reduction of 15% for projects within 1500 feet of a metro station. No additional parking was required for conversion or reuse of existing buildings, so we assume those new residential units from conversion had zero new spaces. Therefore the new housing units, both new construction and conversion, had on average 0.75 parking spaces per unit, as shown in Table 8. In the absence of the plan, newly constructed housing—as affordable housing—would have had a reduced parking standard of 1.2 spaces per unit, because affordable housing in the city is subject to special parking

[49] Based on values listed in RS Means, we estimate the construction cost for a typical multifamily unit in the plan area (assuming a 4- to 7-story apartment building) is about $120,000 to $140,000. Sales price is assumed to be average observed sales price for multifamily units in the plan area. In reality, higher density might slightly change construction cost and would lower prices, but these changes are very small in comparison to the total construction cost and price per unit.

[50] When asked, our interviewees could not name any instances of developers not providing the required amount of parking (Lamb 2013, Weber 2013, Kalamaros 2013).

requirements. However, these projects would not have had the further reduction for transit proximity.

According to one interview, most new parking was a combination of underground garages, structure parking, and surface lots (Kalamaros, 2013). A ballpark middle value is provided by the cost for a 3-level parking structure. According to RS Means, the estimated cost of a parking space in a 3-level structure in the L.A. region is $20,400. Underground parking is more expensive. We assume the average cost per parking space ranged from $20,000 in the low estimate to $30,000 in the high estimate (Table 8).

Table 16: Residential parking assumptions

		2010		
	2000	**Observed**	**Without Plan**	**Observed-Without Plan**
Parking supply requirements				
Required off-street parking spaces per unit, new construction[a]	2	1.2	1.2	0.00
Required off-street spaces per unit, new units in existing buildings[a]	2	0	2	(2.00)
Required off-street parking spaces per new unit, in station areas[a]	n/a	1.02	n/a	n/a
Percent of new units <1500 ft of station	n/a	67%	100%	n/a
		Low	**Midrange**	**High**
Average construction cost per parking space [b]		$20,000	$25,000	$30,000

Source: [a]LA planning code, interviews, [b]RS Means.

n/a = not applicable

Interviews suggest that the plan also may have increased the complexity and uncertainty involved in the planning process. Previous studies suggest such regulatory changes may increase a new home's selling price by about 5%. That is, a developer's costly delays or design modifications are at least partly passed along to the buyer or renter. In this case, we assume that additional costs due to entitlements and planning delays as well as costs due to design standards add between 1% and 3% to the standard construction cost.

The plan also required a $4,300 per new unit fee to support development of parks. As shown in Table 9, these cost increases partially balance out the parking savings. As a result, we estimate the plan reduced construction costs for new housing by about $7,000 to $11,000. Note that these cost savings only apply to new development. The developer will capture some of the savings—we assume 50%—and will pass on the rest o the savings to the buyer or renter in the form of lower prices or rents.

Table 17: Estimated impacts of the plan on construction costs for new housing units in plan area

	Low estimate	**Midrange**	**High estimate**
Typical construction cost per multifamily unit	$140,000	$130,000	$120,000
Construction cost reduction per new unit due to parking, plan area*	$(12,826)	$(14,773)	$(18,466)
Additional construction cost per new unit due to entitlements and planning delays, as percent of standard cost	1%	2%	3%
Additional construction cost per new unit due to entitlements and planning delays	$1,400	$2,600	$3,600
"Parks first" fee	$4,300	$4,300	$4.300
Total difference in construction cost per new unit due to plan	**($7,126)**	**($7,873)**	**($10,566)**

(3) Changes in neighborhood accessibility and amenities

The VWSP policies likely increased the benefits from transit accessibility not by building transit, which occurred prior to the plan's adoption, but by increasing the number of housing units near transit, and therefore the number of households that could benefit from transit access. Transit accessibility premiums would have been comparable regardless of whether the VWSP was adopted. The research literature suggests the capitalization of transit accessibility in land and development prices depends on neighborhood type, transit type, and distance from station.[51] For instance, McDonald and Osuji (1995) found that the "L" in Chicago was associated with a 17 to 35% increase in land values within a ½ mile of a station. Given Los Angeles' relatively high automobile accessibility, the value of transit accessibility is probably lower than in Chicago. Therefore we assume that land within a ½ mile of a metro station received between a 8% and 15% premium. We note from L.A. County tax assessor data that, on average for multifamily housing, 40% of home value is land. With the previously mentioned assumptions, this translates into a price increase of $4 -$8 per square foot for multifamily units, and $23-$33/month for rents, for units within station areas (Table 10).

[51] See this project's final report for a more detailed description of the methodology behind analyzing transit accessibility impacts.

Table 18: Amenity effects on housing prices

	Unit	Low	Mid	High
Value of transit accessibility for single-family units near transit	$/sq ft	11	16	20
Value of transit accessibility for multifamily units near transit	$/sq ft	4	6	8
Value of transit accessibility for rental units near transit	$/unit/ month	23	33	43
Value of other neighborhood (dis)amenities per sq ft, excluding accessibility, multi-family (sales price)	$/sq ft	7	10	13
Value of other neighborhood (dis)amenities per sq ft, excluding accessibility, multi-family (rent)	$/unit/ month	50	75	100

We next estimate the effect of amenities other than transit accessibility; these amenities were affected by the VWSP. Some amenities were in the public realm while others were new neighborhood services and retailers. Our interviews suggested that the VWSP design guidelines helped create a more pedestrian-friendly streetscape, and the exemption of change-of-use permits in commercial buildings from parking standards led to the opening of restaurants and cafes (Bell 2013; Lamb 2013). In previous research, Atkinson-Palombo's (2010) found that "amenity-rich, mixed use neighborhoods" were valued more highly than single-use, "residential" neighborhoods. In our case studies, the plan's policies may have shifted the plan area more into the "amenity-rich" category, but to apply Atkinson-Palombo's estimated price premiums for two categories directly would probably overstate the effects of the plan. Thus, rather than using the 16-28% range for the amenity premium, we use a range of 5-10%, which translates to $7-$13/sq. ft. for multifamily housing.

We have shown that the plan influenced housing prices in the plan area through regional supply, changes in construction costs, and local amenities. Considering all these factors and given the assumptions discussed, we estimate the plan increased average housing prices in the plan area by $30 to $39/sq. ft. for single-family units and $52 to $59/sq. ft for multifamily units. In other words, the plan was responsible for a 16-20% increase in single-family housing prices and a 54-61% increase in multifamily housing prices.

3.2.3 Summary of costs and benefits – housing prices

Given our assumptions, the plan appears to have produced modest net benefits from all perspectives, although low-income household benefitted far less than other household types, as presented in Table 11. Existing owners of single-family homes in the plan area would have benefited the most from the plan, by about $1,400 to $2,800, entirely from the increased neighborhood amenities. They do not benefit from any change in accessibility, since the metro would have opened regardless of the VWSP.

Those who bought a new multifamily unit in the plan area saw a benefit—about $800 to $1,500 annually—due mainly to increased accessibility and neighborhood amenities. This benefit also includes an average savings of a few hundred dollars per year due to lower construction cost. The reduction in parking spaces reduced the construction cost of new units; however households that preferred more parking spaces may have viewed the reduction in parking as a cost. Based on our assumptions, the average existing renter could benefit about $600 to $1,200 annually, mainly due to amenity effects.

The degree to which households benefit from amenities depends on how they value amenities versus affordability. For low-income households who are sensitive to housing price increases, accessibility and other amenities impacts may be seen as a price increase rather than a benefit. Under the assumptions, the 24% of households in the plan area classified as low-income would have barely benefitted—they would see the supply increase as a benefit, but this amounts to only about a dollar per year.

Table 19: Summary of annual costs and benefits from housing change (Negative indicates cost; positive indicates benefit. All figures in 2010$)

	Low Estimate	Midrange Estimate	High Estimate
Societal	**3,737,681**	**4,937,927**	**6,129,182**
Savings due to supply increase	3,421,623	4,505,444	5,589,265
Accessibility benefits	58,250	147,651	157,648
Price change due to construction cost	257,809	284,832	382,270
Household - existing homeowner	**1,384**	**2,076**	**2,768**
Savings due to supply increase	-	-	-
Accessibility benefit	-	-	-
Amenities benefit	1,384	2,076	2,768
Price increase due to construction cost	-	-	-
Household - prospective buyers	**808**	**1,145**	**1,473**
Savings due to supply increase	0.39	0.71	0.74
Accessibility benefit	118	213	227
Amenities benefit	431	646	861
Price increase due to construction cost	259	286	384
Household - renters	**599**	**899**	**1,198**
Savings due to supply increase	0.52	1.00	1.06
Accessibility benefit	-	-	-
Amenities benefit	598	898	1,197
Price increase due to construction cost	-	-	-
Household - low income	**0.52**	**1.00**	**1.06**
Savings due to supply increase	0.52	1.00	1.06
Accessibility benefits	-	-	-
Amenities benefit	-	-	-
Price increase due to construction cost	-	-	-

From the regional perspective, our analysis suggests the greatest benefits from the VWSP policies came from increased multi-family housing supply, which produced an annualized benefit of $3 to $6 million. The plan also appears to have produced important benefits by allowing more housing units to benefit from transit accessibility. There is a modest benefit from reduced construction cost for new units, an effect achieved primarily by reducing parking requirements. However, it is possible that reducing parking requirements could lead to increased traffic congestion caused by drivers searching for parking on local streets, which could be a significant cost. (We do not include impacts of other amenities in the region because we assume these amenities would have been produced somewhere else in the region had the plan not been adopted.) Overall, under our assumptions the annual regional benefit due to the VWSP was about $4 to $6 million.

3.3 Employment and commercial development

3.3.1 Employment changes

According to data from the National Employment Time-Series (NETS) database, the plan area gained 4,969 jobs during the study period, resulting in a total employment of 28,896 in 2010 (Table 12).[52] This represents a 10-year growth rate of 21%—substantially higher than in L.A. County (1.9%) and the City of LA (10%). About half of the new jobs were in the health care and social service sector—these were likely created by the expansions of two major medical facilities, the Children's Hospital and the Kaiser Permanente Medical Center. Employment in professional, finance, real estate, and management services increased 25%, much faster than in the city and the county, where it barely changed. Retail jobs, an indicator of retail sales and hence municipal tax revenues, increased 3%, less than in the City of L.A.[53]

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[52] The NETS database counts jobs based on location of employment, regardless of where the individual who holds that job lives. Jobs are categorized by the sector of the *establishment* of employment, which may differ from the nature of the position. For example, a cafeteria worker employed by a hospital would be categorized as "health care," not "food services." However, a cafeteria worker employed by a food service company that is contracted by a hospital would be categorized as "food services."

[53] We specifically compare retail jobs in the plan area with those in the *city*—not the county—in order to understand how economic changes affect municipal finances.

Table 20: Employment changes in the plan area and L.A. County

	2000	2010	2000-2010 change	% change
Plan area				
Total employment	23,927	28,896	4,969	21%
Health care and social service	11,847	14,740	2,893	24%
Professional/finance/real estate/mgmt	2,346	2,921	575	25%
Retail, accommodation and food services	3,986	4,097	111	3%
All other sectors	5,748	7,138	1,390	24%
LA County				
Total employment	3,513,314	3,580,067	66,753	1.9%
Professional/finance/real estate/mgmt	501,912	502,111	199	0.04%
City of LA				
Total employment	1,703,821	1,861,498	157,677	9%
Professional/finance/real estate/mgmt	459,769	458,791	(978)	-0.2%
Retail/accommodation/food services	262,232	288,006	25,774	10%

Source: National Employment Time-Series (NETS) database, Census

3.3.2 Commercial development

Between 2000 and 2010, the plan area added 150,470 square feet of commercial space, according to DataQuick records. Commercial space includes office, retail, shopping centers, restaurants, automotive uses, and medical/dental offices, but does not include institutional uses like hospitals and schools. Therefore the commercial space analysis excludes the plan area’s hospital expansions, although it does include any independent medical offices that may choose to locate near the two major hospitals. Of this total, 69,380 square feet was in newly constructed buildings; the rest was in existing buildings. An additional 81,090 square feet was added in existing buildings, most likely from conversion of industrial or warehouse uses, or filling vacant buildings (Table 13).

Table 21: Changes in commercial floor area in plan area

	2000	2010	Change, 2010-2000
Floor area of commercial space (sq ft)	2,162,192	2,312,662	150,470
Commercial space in new construction (sq ft)	n/a	69,380	n/a
Commercial space in existing buildings--reuse or renovation (sq ft)	n/a	81,090	n/a
Floor area in newly constructed buildings within 1500 ft (sq ft)	n/a	27,752	n/a
Percent of new construction that is within 1500 ft of station	n/a	48%	n/a
Floor area of commercial space within 1500 ft of station (sq ft)	1,037,852	1,110,078	72,226

Source: DataQuick

3.3.3 Impacts of the plan on commercial development

It is likely there was already a growing regional demand for certain types of commercial space in the region, especially restaurants, bars, and cafés, that would have occurred regardless of the plan. Unlike housing, it is not clear that existing supply of commercial space was initially constrained by regulation. Some authors have suggested that, because municipal finance systems incentivize commercial development, many cities in southern California have over-zoned for commercial uses, creating surplus commercial space (Boarnet and Crane 1998). On the other hand, Sivitanidou's (1995) analysis suggested that zoning regulations in the LA region in the 1990s restricted the supply of office and commercial space. While initial regulations in the plan area did not directly disallow development of commercial space in designated corridors, they may have inflated the cost of developing it through parking requirements. Minimum parking standards probably imposed a disproportionate cost on small-scale commercial establishments—precisely the types of cafes and retail shops espoused in smart growth plans.

Assuming there was exogenous demand for certain types of commercial space, and assuming supply of those types of businesses was initially somewhat constrained by parking costs, we would expect a relaxation in parking requirements to allow more small businesses to open. The VWSP exempted change-of-use commercial permits from additional parking requirements. For example, in 2000 an entrepreneur who wanted to open a 1,000-sq. ft. restaurant in the plan area would have had to provide four off-street parking spaces, regardless of whether the restaurant was in new construction or an existing building, and regardless of whether on-street parking was available. But many existing buildings in the plan area, which were built before automobiles became widespread, have no space for parking, such as the building in Figure 8. In this case, the business owner would have to purchase space in a nearby lot to provide parking, significantly increasing the cost of opening the business. Such a cost would be especially prohibitive for a small restaurant with narrow profit margins. However, the VWSP cut the parking requirements for new construction roughly in half, and waived all additional parking requirements for establishments opening in existing buildings. The VWSP thus lowered development costs for new businesses and enabled more to open in the plan area (Lamb 2013).

Figure 8: Typical pre-existing commercial building in plan area

(Source: Google Streetview, 2015)

We found that the number of higher earning, childless households in the plan area increased, partly as a result of the plan. These households, although not necessarily high-income, would have more disposable income than previous residents and may have slightly increased local demand for more upscale businesses. Site visits and interviews also suggest that some businesses in the plan area attract residents of Los Feliz, a higher-income neighborhood located just northeast of Vermont-Western, and other nearby neighborhoods. This spillover demand would have been present even in the absence of the plan, although plan area businesses may have been less able to respond to it.

The combination of lower development costs and strong local demand for restaurant and café-type businesses may have led to more small, relatively upscale establishments than there otherwise would have been. While the overall median income of the plan area remained below average, there was growth in the number of higher income households in Vermont-Western and nearby neighborhoods. However, while local demand probably increased, the plan also increased construction costs through new design standards and requirements for new retail, which probably dampened new construction. Renovations and conversions of existing buildings were not subject to the parks fee and retail requirements, so the deregulatory effects may have been more important for reuse than for new construction.

There is no evidence the plan's policies affected the amount of commercial space in *new construction*, so we assume all of the space in new construction would have occurred regardless of the plan. For example, the Metro Hollywood Apartments included about 9,000 square feet of retail. Without the plan, the same land would still have been zoned for commercial use—the only difference is that it would be one-story commercial use, rather than commercial on the first floor and residential above.

The plan probably did have an impact on commercial space in *existing buildings*. The relaxation of parking requirements likely allowed more commercial space to be developed in existing buildings, whether converted from other uses or from previously vacant space, than would otherwise have been possible. Unfortunately, data on exactly how much more are unavailable. To estimate, we assume that, in the absence of the plan, only 30% to 80% of the commercial renovations and conversions would have occurred, implying the plan was responsible for about 16,000 to 57,000 square feet of additional commercial space (Table 14). Because we assume the plan did not affect the regional economy, the regional demand for this commercial space would still be the same, it only would have occurred in another location. Following the same logic as with housing development, we assume the remaining commercial space would have been developed elsewhere in the city or county, likely in a lower density and less transit-accessible setting.

It is easier for large businesses, such as national chains, to pay development costs imposed by regulation. Therefore the plan's relaxation of parking requirements likely favored small enterprises such as cafes and small retail shops. The plan itself made it difficult to develop conventional large-format retail (e.g. Wal-Mart or Target), because it required extra services like child care facilities for developments with over 100,000 sq. ft of non-residential space and free delivery for retail developments over 40,000 sq. ft.[54] In the plan's absence, the plan area might have fewer small businesses and more large businesses. Without the plan, the same amount of commercial space might still have been created, but the demand may have been filled by larger establishments rather than small businesses. Residents may value proximity to small neighborhood-scale businesses more than they do large-format retail—previous studies suggest small-scale retail has a positive effect on nearby housing prices while large-scale retail has a negative effect (Bartholomew and Ewing 2011). Small-scale retail is a neighborhood amenity, and we account for its benefit to residents in the "amenity effects" estimate (p. 26).

After mapping the location of added commercial space, we found no evidence the plan affected the spatial distribution of commercial development, so the percentage of commercial space in metro station areas would be the same regardless of the plan.

Table 22: Supply of commercial floor space in plan area, observations and assumptions

	2000	Observed	Change due to plan		
		2010	Low	Mid	High
Floor area of commercial space (sq ft)	2,162,192	2,312,662	16,218	40,545	56,763
Commercial space in new construction (sq ft)	n/a	69,380	-	-	-
Commercial space in existing buildings--reuse or renovation (sq ft)	n/a	81,090	16,218	40,545	56,763
Percent of floor area within 1500 ft of station	na	48%	-	-	-
Floor area of commercial space within 1500 ft of station (sq ft)	1,037,852	1,110,078	7,785	19,462	27,246

[54] The language of the delivery requirement suggests it would be hard to enforce, however. "Any project containing 40,000 sq ft or more of retail commercial floor area must submit a program for free delivery of purchases to residents in the specific plan area."

3.3.4 Impacts of the plan on employment

In the plan's absence, employment growth would have generally followed regional trends, with the exception of jobs associated with the expansion of the two hospitals in the plan area. As noted previously, these expansions were planned before the VWSP, and would have occurred regardless of the plan. Therefore we assume that without the plan the number of health care jobs would be the same as observed in 2010.

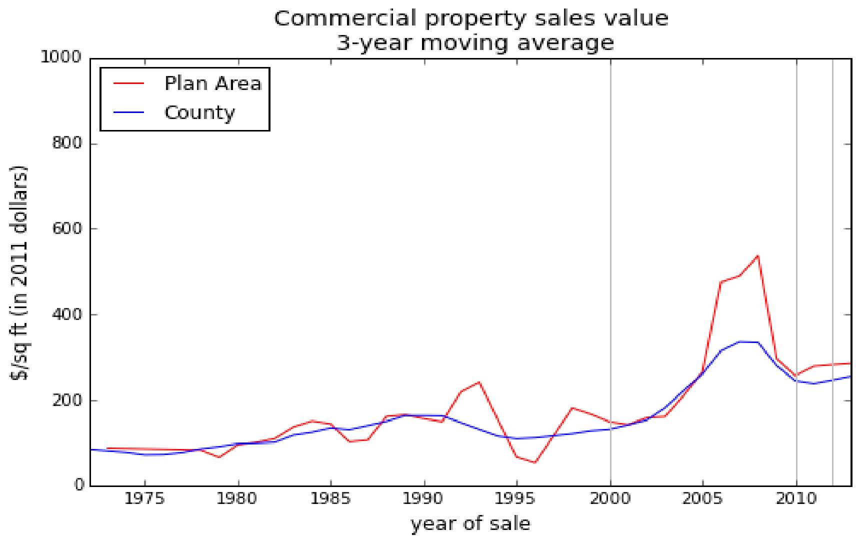
Beyond the hospital expansions, employment grew faster in the plan area than in the county, and a portion of this growth was likely due to VWSP policies. In particular, relaxation of parking standards likely helped to increase the number of small businesses in the plan area, and thus the number of jobs. As noted previously, growth in professional service jobs in the plan area significantly outpaced that in the city and county. The reduced parking requirements probably made small professional offices easier to establish in the plan area, which brought more jobs. Therefore, we assume that in the plan's absence, the total jobs and professional service jobs in the plan area would have grown more slowly, a rate closer to the rate in the county. In the most generous case, we assume the overall job growth rate (excluding health care jobs) in Vermont-Western without the plan would have been 2%, the same as in the county. In the most conservative case, we assume the same figure would have been 10%--this represents a scenario in which the plan area would have added jobs at a higher rate than the county regardless of the plan. This implies the plan was responsible for between about 900 and 1,800 jobs. Without the plan, these additional jobs would have instead been located elsewhere in the county.

3.4 Commercial property values

3.4.1 Changes in commercial property sales prices

As shown in Figure 9, commercial property sales prices in the plan area tracked prices in the county fairly closely. Again, we use the county as a benchmark because that best represents the range of substitutes for the Vermont-Western area. The exceptions to countywide trends were a spike between 2005 and 2008 and a slight uptick in 2012 in the plan area. The pre-2008 deviation from the county average could indicate a trend of growth in plan area property values that was diminished by the recession, and then reemerged in 2012. Or it could simply indicate data noise, since the number of observations in the plan area is relatively small. Prices per square foot in the plan area increased from \$149 in 2000 to \$282 in 2012, slightly more than in the county as a whole, but the difference is probably not significant since there were so few (only 171) recorded sales in the plan area since 2000 (Table 15).

Figure 9: Median sales prices for commercial property in plan area and LA county



Source: DataQuick

Table 23: Median commercial property price per square foot (3-year moving average)

	2000	2010	2012	% change 2000-2012	change 2000-2012
Plan Area	$149	$257	$282	90.0%	$134
L.A. County	$131	$241	$241	85.1%	$111

Source: DataQuick

3.4.2 Economic benefits and costs reflected in commercial property changes

The VWSP policies could have affected commercial property prices in three ways: (1) by enabling supply to meet a growing demand, (2) by creating amenities that would be reflected in property values, or (3) by changing the cost of construction. As to the first, we found no evidence that the region's supply of commercial space was previously constrained and we conclude the VWSP likely had no effect on regional supply.

Reductions in and exemptions from parking standards likely lowered the average construction cost for commercial development. Assuming developers supplied the required amount of parking, the number of parking spaces supplied for commercial space in new and existing buildings is shown in Table 16. Since commercial parking standards vary by specific use, these values are estimates for typical uses. Given the small size of these lots, parking would typically need to be provided in a structure or underground garage, with an average cost of $20,000 to $30,000 per space. Given these assumptions, the VWSP reduced parking construction costs for commercial development by an average of $56 to $84/square foot, for both new construction and conversions of existing buildings.

Table 24: Commercial parking supply and costs

	2000	**Observed 2010**	**Without plan 2010**	**Difference Observed – Without plan**
Parking supply requirements				
Required off-street parking, new commercial construction (per 500 sq ft)[a]	2	1	2	(1.00)
Required off-street parking spaces, commercial re-use of existing buildings (per 500 sq ft)[a]	2	0	2	(2.00)
Required off-street parking spaces per floor area new commercial space, in station areas (per 500 sq ft)[a]	n/a	0.85	n/a	n/a
Percent of new commercial space <1500 ft of station	n/a	0.5	n/a	n/a
Estimated parking supply				
Average parking spaces per floor area new commercial space (per 500 sq ft)	2	0.60	2	(1.40)

Source: [a]LA planning code, interviews, [b]RS Means

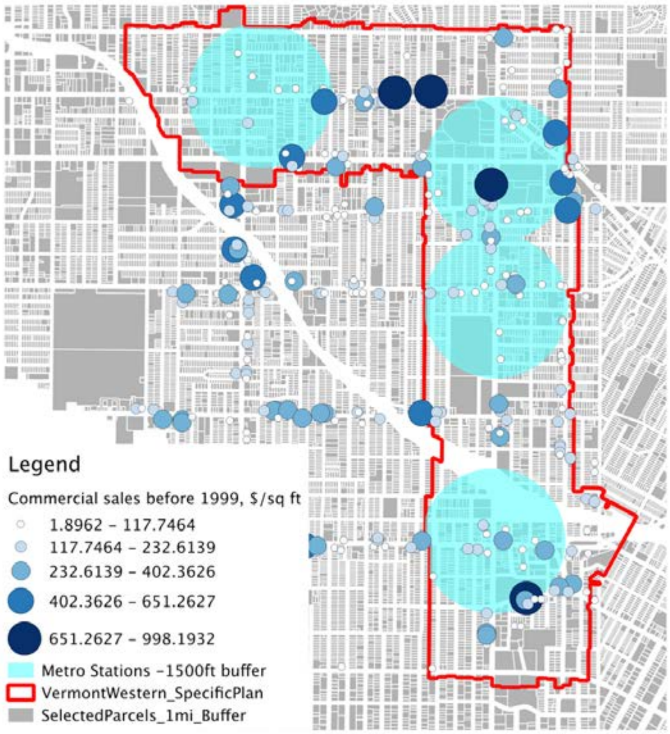
According to RS Means, the typical construction cost for a one- to four-story office building in the Los Angeles region was $134 per square foot (in 2011 dollars). Interviews suggested the plan also may have increased the complexity and uncertainty involved in the planning process and added to façade and streetscape design costs, which, similar to residential construction, we estimate would add 1 to 3% to construction costs (Table 17). (Note that by adding amenities these design requirements likely increased property values, in addition to increasing construction costs.) The savings from the parking reduction outweighed these additional costs; we estimate that the total savings in construction costs due to the plan was $900,000 to $4.8 million (Table 17). Developers capture some of these savings, while property owners or tenants capture the rest, although we do not specifically consider these perspectives in our final analysis. Regardless of which party benefits, the total is a benefit for the region as a whole.

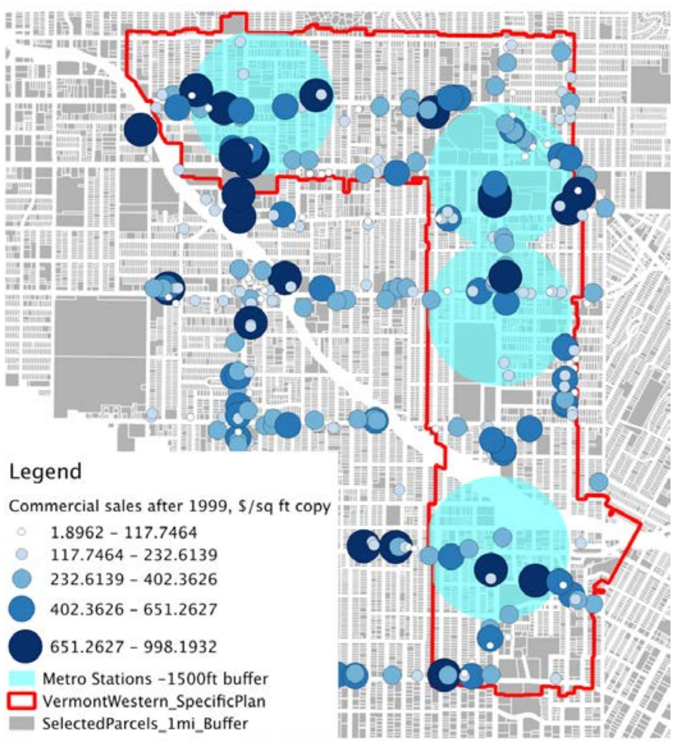
Table 25: Estimated impacts of the plan on commercial construction costs in plan area

	Difference between plan and without plan		
	Low	**Mid**	**High**
Assumed additional development, permitting and design costs due to plan (%)	1%	2%	3%
Additional development, permitting and design costs due to plan (%)	$1.34	$2.68	$4.02
Parking construction cost (2011$/sq ft)	$(55.88)	$(69.85)	$(83.82)
Total difference in construction cost, over all added commercial development (2011$/sq ft) (new construction and conversions/renovations)	$(906,248)	$(2,832,026)	$(4,757,804)

The VWSP did not affect the overall amount of commercial space in the region, but it probably resulted in more commercial space in the plan area near transit. (Note that although the *proportion* of commercial development in transit areas did not change, because the total amount of commercial space in the plan area increased, the *absolute amount* of commercial space in transit areas increased.) As discussed in the general methodology in the full report, previous studies have found conflicting results regarding the effect of transit accessibility on commercial property values. Studies have found light rail stations to have a positive effect, but, studying metro stations in Atlanta, Bollinger et al. (1998) found transit proximity to have a negative effect on commercial property values. To investigate whether there is a relationship between transit proximity and sales price in the Vermont-Western case, we mapped commercial property sales prices before and after the opening of the metro in 1999 along with 1500-foot buffers around the stations (Figure 10). Sales prices clearly rose after 1999, but they appear to have risen equally in station areas and outside station areas; there appears to be no relationship between sales price and proximity to transit in this case. In the absence of any evidence in either direction, we assume that transit proximity did not affect commercial property sales prices.

Figure 10: Commercial sales prices in the plan area before 1999 and after 1999





3.4.3 Summary of costs and benefits from commercial property changes

Overall, the plan's policies affected the region through commercial development by lowering construction costs. Under our assumptions the total annualized benefit to the region due to the plan's commercial development impacts was between $66,000 and $326,000 per year (in 2010$). This assumes there was already an oversupply of parking and the reduction in parking spaces did not create parking shortages that negatively impacted businesses or congestion.

3.5 Municipal finances

Here we examine how municipal revenues and expenditures in the plan area changed between 2000 and 2010. All figures are in 2010 dollars unless otherwise noted.

3.5.1 Property tax revenue

According to tax assessor records, in 2000, total assessed land value (residential and commercial) in the plan area was $798 million (2000$) and total assessed improvement value was just over $1 billion (2000$), totaling $1.8 billion (2000$) or approximately $2.29 billion (2010$). This represented less than 0.9% of assessed value in the City of L.A. (Table 18).

Ten years later, assessed land value in the plan area had risen to $1.9 billion and total assessed improvement value was over $2.7 billion, a total assessed value of $4.65 billion (2010$). The plan area now accounted for 1.2% of the city's total assessed value. Expressed in per capita terms, in 2010, the plan area generated $55,772 (2010$) per capita (including residents and employees), more than double the 2000 rate and significantly more than in the City of L.A. (Table 18). In other words, people and jobs in the plan area generated more property tax revenue in the plan area than did people and jobs outside of the plan area, and the plan area's contribution to the city's property tax receipts grew over the study period.

Table 26: Observed assessed property values in City and Plan Area, 2000-2010

Assessed Value	**Land value (nominal $, billions)**	**Improvement value (nominal $, billions)**	**Total value (nominal $, billions)**	**Total value per capita (incl. pop+emp) (nominal $)**
City of L.A.				
2000	95.89	102.62	198.51	17,687
2010	209.42	181.64	391.06	33,480
% change	118%	77%	97%	89%
Plan Area				
2000	0.798	1.005	1.803	21,619
2010	1.910	2.740	4.650	55,772
% change	139%	173%	158%	158%

Source: DataQuick

Because California's Proposition 13 limits annual increases property tax assessments, assessed property values may differ from property sales prices.[55] Assessed values in the plan area increased by 103% in constant dollars over the decade, faster than property sales prices—single-family home prices rose by 88%, condo prices rose by 87%, and commercial property prices rose by 89%. Since these percentages are larger than the annual increases permitted under Proposition 13, it suggests that the plan resulted in the sale of long-held parcels whose assessed values had been previously capped. Some of this may have been attributable to new development opportunities enabled by the plan, but most of this growth and sales activity is attributable to Vermont-Western's central location, rail transit stations, and the growth in the hospital sector. That is, we attribute part of the growth in property values and property tax revenue to the VWSP, although most of the growth would have occurred anyway.

We analyze property tax revenue as a function of residents and employment, which assumes the number of residents and jobs is a proxy for assessed property values (e.g., an

[55] Proposition 13 limits property tax increases to 2% per year, unless the property is sold. When a property is sold, it is reassessed at 1% of the sales price.

increase in residents indicates an increase in property sales prices and number of sales).[56] The plan's estimated impact on property tax revenue depends on how the plan redistributed population and employment within the region. As we have shown, residents and jobs generate more property tax revenue in the plan area than they do elsewhere in the city. Revenue also depends on whether residents and jobs are inside of city boundaries (the city of Los Angeles receives about 27% of property tax revenue collected by the L.A.'s county assessor). If the plan resulted in more residents and employment in the plan area, compared to what would happen in the absence of the plan, the result would be an overall increase in tax revenue.

As discussed on page 207, we assume that, without the plan, residents and employees would not be accommodated in the plan area would have lived or worked in "average" locations elsewhere in the region. We find that the plan likely resulted in more property tax revenue for the city than it otherwise would have collected, on the order of up to $350,000 per year (Table 19). This is because the plan enabled more residents and jobs to locate in the plan area, where, due to higher property values, they generated more property tax revenue. It also enabled more residents and jobs to locate within the City of L.A., allowing the municipality to capture more of the tax revenue. However, if the plan's main effect was to reduce population in the plan area (the "low" estimate), then the plan decreased total property tax revenue for the city.

[56] It's not generally true that residents and jobs are proxies for property values and number of sales, but in this case, where the amount of development affects both, it is a reasonable approximation.

Table 27: Estimated property tax revenue (in 2010$)

	Observed		2010 Estimated Values			Difference Actual/Counterfactual		
Variable	**2000**	**2010**	**Low**	**Mid**	**High**	**Low**	**Mid**	**High**
Inside Plan Area								
Population	59,470	54,479	56,783	54,160	52,018	-2,304	319	2,461
Employment	23,927	28,896	28,028	27,539	27,050	868	1,357	1,846
Property tax revenue - municipal (millions)	$6.34	$12.88	$13.10	$12.62	$12.22	-$0.22	$0.26	$0.67
Outside Plan Area								
Population (outside plan area but in city)		2,648	1,759	4,157	7,196	889	-1,509	-4,548
Employment (outside plan area but in city)		-1,743	335	786	1,425	-2,078	-2,528	-3,168
Property tax revenue - municipal (millions)	$-	$0.49	$0.38	$0.61	$0.81	$0.11	$-0.12	-$0.32
Total property tax revenue (Inside + Outside Plan Area) (millions)	$6.34	$13.37	$13.49	$13.24	$13.02	-$0.12	$0.14	$0.35

3.5.2 Municipal operating expenditures

The city of L.A. provides public safety, parks and streets to local residents and workers. Although the supply of and demand for these services certainly varies across the city, the data is presented in an aggregated, citywide form, so we must make assumptions about how service costs vary across neighborhoods. The academic literature suggests a relationship between population density and service provision (Carruthers and Ulfarsson 2008; Ladd 1992). Our methodology starts with the citywide per capita cost of service by category (e.g. in 2010, the city spent an average of $480 per capita on police service) and then we adjust this citywide average upward or downward based on a neighborhood's density using Carruthers and Ulfarsson's (2008) findings. Based on the number of residents and density of Vermont-Western, we calculate that in 2010, total service costs associated with the plan area were $39.6 million along with about $2 million for those living outside the plan area. (See Appendix C for details.)

In the absence of the plan, the plan area population would have been either higher or lower, depending on household size assumptions. If population is lower, service provision would theoretically be less efficient on a per capita basis (Carruthers and Ulfarsson 2008). Those residents not living in the plan area would likely have settled in areas that are lower-density, meaning service provision for them would be less efficient. Whether these higher costs are borne by the City of L.A. or a neighboring municipality, public service costs would generally be higher than in an efficient urban location.

If the plan had not been adopted, plan area population density would have been either slightly higher or slightly lower, based on the previously discussed population estimates. As such, using the density elasticities from Carruthers and Ulfarsson, total annual service costs in the plan area would have been between $38 and $41 million. Adding in the costs for the "extra" residents located outside the plan area bumps the total to between $44 and $45 million.

The net effect on regional operating expenditures hinges largely on our household size assumptions. As discussed earlier, our "low estimate," which assumes the plan had a relatively small impact, represents a scenario in which the plan caused a net population decline in the plan area due to smaller households replacing larger ones. In this scenario, we find the plan resulted in lower overall (but higher per capita) municipal expenditures inside the plan area. Although expenditures outside the plan area rose, the net result was $124,000 per year savings for the region, but $24,000 higher costs for the city. The "high estimate," which assumes the plan had a relatively large impact, represents a scenario in which the large households were moving out of the plan area anyway, and the plan allowed a greater influx of people and jobs. In this case, the plan resulted in increased population and employment within the plan area, and lower population and employment outside the plan area, compared with what otherwise would have happened. Because this also means population in the city is higher than it otherwise would be, the net effect of the plan was to increase overall city operating expenditures by $838,000 and decrease overall regional expenditures by $320,000 per year. In other words, if plan mainly caused smaller households to replace larger households in dense, centrally located areas, it would have made public service provision less efficient. On the other hand, if it resulted in more people and jobs locating in dense, centrally located area, it would have made service provision more efficient. More detail on these calculations is available in Appendix C.

3.5.3 One-time revenue

The only special source of one-time revenue from development in Vermont-Western comes from the $4,300 Parks First Fee assessed on each new market-rate housing unit. Between 2000 and 2010, 298 new market-rate units were built, which generated $1 million in parks revenue.[57] Outside the VWSP area, we assume that no special impact fees were assessed, and that no Quimby fees were generated by plan-related development. This is reasonable since we think that the average residential development does not require land subdivision or a zone change.[58]

Since in the absence of the plan fewer housing units would have been constructed in the plan area, the revenue from the Parks First fee would have been lower. Without the plan, at most 200 new market-rate units would have been built, which would produce $860,000 in fee revenue. In the midrange and high estimates, no new market-rate housing would have been built. Therefore the plan increased fee revenue by $140,000 to approximately $1 million over a ten-year period.

In the absence of the plan, the city of L.A. would have received less in impact fee revenue, but other jurisdictions would have probably received more impact fee revenue because they tend to assess higher fees for each new unit (presumably because municipal costs associated with that development are higher). Standardized data on impact fees are limited, but in 1999, impact fees in the City of L.A. were a few thousand dollars lower than the regional average.[59] Because the plan had only a small effect on the number of housing units located outside the city, and the difference in impact fees is small, we conclude this effect would be negligible.

3.5.4 Capital expenditures

There were limited major capital expenditures in the plan area between 2000 and 2010, and none of these expenditures were associated with the plan. This is mostly because there was adequate public service capacity in the area already. The environmental impact review for the proposed Target store development claims that the Vermont-Western neighborhood generally has adequate public service capacity, with several commenters stating that the development impact of greatest concern to them was automobile

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[57] Parks First Trust Fund financial report: http://clkrep.lacity.org/onlinedocs/2010/10-0861_MISC_05-19-10.pdf.

[58] A recent report on Quimby fees from the Los Angeles Neighborhood Land Trust suggests that one of the problems with the current fee system is that new development – which generates demand for park-space – on land zoned for residential or mixed use are not subject to the Quimby fee: http://www.lanlt.org/library/Creating%20New%20Urban%20Park%20Space%20In%20LA.pdf

[59] http://www.hcd.ca.gov/hpd/pay2play/pay_to_play.html

congestion.[60] A letter from the Los Angeles Bureau of Sanitation found that the city had adequate sewer capacity for this project. A letter from the Los Angeles Police Department[61] stated that the development would have an impact on police services, and recommended mitigation through the application of crime prevention design features. The City's response to a comment from Doug Haines from the La Mirada Avenue Neighborhood Association stated that impacts to police services could be mitigated through design and coordination with the police department, and that the "project would generate a significant amount of General Fund revenues to the City in the form of sales and property taxes. The City could use these added revenues to enhance police services as needed."

At the time of plan's adoption, the neighborhood had deficiencies in park space and fire protection services. Three parks—Barnsdall Park, Madison West Park, and Lemon Grove Recreation Center—existed before the plan. The VWSP document found that existing parks were insufficient, and city financial reports indicate no major expenditures on new or existing parks after the plan was adopted. In fact, interviewees stated some controversy has arisen because the Parks First Fee introduced under the VWSP was intended to fund new parks in the neighborhood, but no new parks have been developed (Lamb 2013, Bell 2013).[62] We do not have reason to believe this would have been different in the absence of the VWSP.

The Plan area is served by fire stations #82, #35, and #6. Fire Station #82 was opened in 2012, not because of population growth but because existing facilities needed replacement. Like many other stations across the city, Station #82 was paid for through a citywide ballot initiative, Proposition F, approved by voters in 2000. This would have been the same with or without the VWSP.

In short, there were no significant capital expenditures in the plan area between 2000 and 2010—an unsurprising finding, given that population declined. The plan likely had no

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[60] Target Final EIR: http://cityplanning.lacity.org/eir/Target/FEIR/FEIR%20Target%20at%20Sunset%20and%20Western.html
[61] Target FEIR letter from Police Department: http://cityplanning.lacity.org/eir/Target/FEIR/FEIR%20Appendices/Appendix%20B%20Letter%20from%20Los%20Angeles%20Police%20Department.pdf
[62] "The Parks First Program": http://www.hollywoodunbound.com/2010/07/parks-first-program.html

significant effect on capital expenditures inside the plan area. Residents that moved out of the plan area to other locations may have generated some capital costs in those locations. By allowing more infill housing, the plan may have reduced development in greenfield locations. Research suggests that greenfield development requires more capital expenditures on infrastructure (Carruthers and Ulfarsson 2008). Assuming greenfield development costs average $16,000 per unit higher than infill development, we can expect that many of the housing units that located outside the plan area would incur these costs. If half of those housing units were located in greenfield developments, additional capital expenditure costs for the region would be between $2.0 and $4.0 million. (This would be partially offset by higher impact fee revenue, but studies show that impact fees typically only partially cover the cost of new development.)

3.5.5 Summary of fiscal costs and benefits

Our analysis shows the VWSP likely produced net benefits for municipal finances in the region, because the plan resulted in less greenfield development and more infill development, but the plan could have also produced costs (Table 20). The region may have benefitted from more efficient provision of public services, on the order of $1 million per year, but if the plan resulted in reduced population in the plan area, then it made service provision less efficient. In the absence of the VWSP, revenue that went to the City's Parks First fund would instead have gone to other jurisdictions. This would have benefitted those jurisdictions, but it also would have imposed costs on households that ultimately pay for impact fees when they purchase or rent their homes. Therefore, there would be no overall impact to the region from this change.

Table 28: Summary of annual fiscal costs and benefits for the region and municipality (costs are shown as negative. All figures in 2010$)

	Net annual benefit (cost)		
Perspective	Low Estimate	Midrange	High estimate
Regional	**$(1,309,807)**	**$417,198**	**$938,639**
Property tax	$53,039	$(61,903)	$(939,316)
Operating expenditures	$(124,204)	$125,810	$319,608
Impact fees	$57,255	$174,101	$174,101
Capital expenditures	$(1,295,897)	$179,189	$1,384,247
Municipal	**$900,686**	**$285,176**	**$(316,346)**
Property tax	$(115,727)	$135,066	$347,166
Operating expenditures	$959,158	$(23,991)	$(837,614)
Impact fees	$57,255	$174,101	$174,101
Capital expenditures	$-	$-	$-

According to our analysis, the plan's policies could have produced benefits for the City of L.A. in the form of higher tax revenue. The City probably spent less on municipal services because service provision may have been more efficient on a per capita basis; however, it's also possible the plan caused service provision to be less efficient. The City of L.A. may have collected more in property taxes as a result of the plan, if more residents and jobs located within the plan area, where property tax assessments were higher than elsewhere. If this was the case, then the plan also resulted in more people living and working within city limits. The plan allowed the city collecting more in impact fees because of the Parks First Fee. City capital expenditures in the plan area were the same under both scenarios, so the plan had no benefits or costs in terms of capital expenditures by the City (Table 20).

Table 29: Summary of annual fiscal costs and benefit for households (costs are shown as negative. All figures in 2010$)

	Net annual benefit (cost)		
Perspective	Low Estimate	Midrange	High estimate
Existing homeowners	**$3.19**	**$7.85**	**$7.40**
Property tax	$(0.09)	$0.10	$0.26
Operating expenditures	$0.73	$(0.02)	$(0.64)
Impact fees	$2.55	$7.77	$7.77
Capital expenditures	-	-	-
Households - prospective buyers	**$3.19**	**$7.85**	**$7.40**
Property tax	$(0.09)	$0.10	$0.26
Operating expenditures	$0.73	$(0.02)	$(0.64)
Impact fees	$2.55	$7.77	$7.77
Capital expenditures	-	-	-
Households - renters	**$0.64**	**$0.08**	**$(0.37)**
Property tax	$(0.09)	$0.10	$0.26
Operating expenditures	$0.73	$(0.02)	$(0.64)
Impact fees	-	-	-
Capital expenditures	-	-	-
Households - low income	**$0.64**	**$0.08**	**$(0.37)**
Property tax	$(0.09)	$0.10	$0.26
Operating expenditures	$0.73	$(0.02)	$(0.64)
Impact fees	-	-	-
Capital expenditures	-	-	-

As for households, the plan likely affected property values in the plan area, but this did not affect households that already owned their homes. This is because, with or without the plan, the assessed value of homes that remain under the same ownership is allowed to increase only at the annual rate set by Proposition 13. New owners and renters, however, likely experienced higher assessed values than would have occurred in the absence of the plan, resulting in property tax increases of about $200 (Table 21).

Many renting households likely experienced rent increases as properties were bought and sold, property taxes increased, and landlords passed along higher property taxes to their low-income tenants. The degree to which property taxes are passed on to renters depends on the elasticity of demand—we assume 50% of the cost is passed on. Property tax exemptions for non-profit organizations operating affordable housing may have shielded some low-income residents from this increase, however. California's welfare exemption guidelines state that the "funds that would have been necessary to pay property taxes are used to maintain the affordability of the housing or to reduce the rents for the units occupied by lower income households."[63]

According to our analysis, households would benefit if the plan enabled the city to provide public services more efficiently, but less efficient provision of services would be a cost. Research has shown that a share of savings (or costs) from changes in service provision costs is capitalized into housing prices. We expect that about half of these changes were capitalized, producing benefits of up to $0.73 per household or costs of $0.64 annually. Estimating these benefits precisely is difficult, because the City does not report operating expenditures by neighborhood.

Parks First fee revenues would benefit plan area households if it were used to fund facilities they use. However, so far it has not been used to fund local parks. If it is used to fund local parks in the future, it will benefit households that live in the plan area at that time. We assume that current and future homeowners will eventually benefit by up to around $7 annually. These benefits may not come soon, so we assume that shorter-term residents like renters and low-income households will experience no benefit—they are likely to leave the neighborhood before benefits occur. The fee created a cost to renters and buyers in the form of higher prices, which we account for in the housing price section.

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[63] State of California Property Tax Welfare Exemption guidelines: http://www.boe.ca.gov/proptaxes/pdf/pub149.pdf

3.6 Travel behavior

There was a slight shift away from private vehicle commuting VWSP area between 2000 and 2010 in the. For residents of the plan area, the public transit commute share increased from 21% to nearly 25%, while pedestrian and bicycle commuting increased from 5.2% to 7.6%, according to Census data. The increase in transit commuting is likely attributable to the addition of the four new Metro Red Line stations in the plan area in 1999. The effects of this major increase in service likely continued over several years, contributing to the transit share increase observed in 2000–2010.

The VWSP likely influenced vehicle travel in several ways. Construction of the Metro Red Line stations in the plan area would still have happened in the absence of the plan, so the observed increase in transit use probably would have occurred anyway. However, the built environment changes in the plan area—decreased parking and improved sidewalks—may have boosted transit ridership slightly.

The most important effect of the plan was likely the number of households who lived near transit: households who would otherwise have lived in more suburban locations may have taken advantage of opportunities to live in a dense neighborhood with good public transportation and access to employment centers. In the absence of the plan, these households would have likely lived in suburban locations less access to transit and longer average commute distances. The *absolute number* of commuters using transit may have increased. This depends, however, on whether the primary effect of the plan was to replace large households with small ones, or to increase the overall number of households and population.

As described on page 217, we concluded that without the plan there would have been fewer jobs in the plan area, and these jobs would otherwise have been located in less accessible locations. This would mean that, the absence of the plan, fewer workers would likely bike, walk, or take public transit to work. The plan brought more shops to the neighborhood, which may have increased non-work trips carried out on foot by residents and workers in the plan area. It also brought more jobs. Some of the workers at these jobs were likely able to shift from driving to work to taking the train, combine multiple car trips into one, or use non-auto modes for their non-work trips (Chatman 2002). Because the plan also reduced parking requirements for development, it made parking scarcer, providing a further incentive to reduce auto use.

3.6.1 Residents' Personal Vehicle Travel

To calculate the VMT change for residents, we used the tool developed by Deborah Salon and ARB. As discussed previously, we assume households who do not locate in the plan area live in neighborhoods that can, on average, be represented using L.A. County averages. These values are presented in Table 22. To estimate VMT changes, the tool then applies a set of region-specific elasticities to these inputs. [64] See Appendix D for details of these assumptions.

Table 30: Input land use variable values for vehicle travel model

Variable	Plan area			L.A. County	
	2000	2010, with plan (observed)	2010, without plan	2000	2010
% of commuters using transit	21.3%	24.7%	24.7%	7.5%	7.2%
% single-family homes	7.6%	6.6%	7.4%	51.5%	49.8%
local job access (gravity-based job density)	22.6	28.0	27.8	9.9	10.9
road density (road miles per square mile)	14.3	14.3	14.3	14.2	14.2
% non-motorized mode commute share	5.2%	7.6%	5.2%	3.8%	3.7%

** From Salon (2014).*

3.6.2 Workers' Personal Vehicle Travel

To quantify the impact of the plan on workers employed in the plan area, we used coefficients for employment density measured by Chatman (2002). The figure we use for our analysis quantifies workers' personal commercial vehicle travel—midday errands or trips for food before or after the workday—relative to employment density. In locations with higher employment density, more goods and services tend to be within walking distance, meaning more commercial trips can be taken using non-motorized modes.

[64] Because Salon's tool presents elasticity values as a pair of lower and upper bounds, with no middle value, our VMT analysis presents only "low" and "high" estimates. The final "midrange" estimate will the midpoint of low and high.

For workers whose jobs would be located in the plan area regardless of the plan, the increased employment density in the plan area might allow reduced auto trips. The plan also resulted in more jobs locating in the plan area. Consistent with our other assumptions described in the sections above, we assume that in the absence of the plan these jobs would have located in neighborhoods that, on average, can be represented using the average employment density of L.A. County. Table 23 presents workplace employment density values based on employment estimates made earlier in this report.

Table 31: Workplace employment density estimates and assumptions

			2010 Without Plan	
	2000	**2010 Observed**	**Low estimate**	**High estimate**
Plan Area (workers per sq mi)	10,900	13,100	12,700	12,500
LA County (workers per sq mi)	1,400	1,500	1,500	1,500

Source: NETS

3.6.3 Overall Quantified Impact on Vehicle Travel

After applying the range of elasticities provided by Salon (2014) and Chatman (2002), our analysis suggests that, in the most conservative case, the VWSP increased net VMT by about 400 miles per day (Table 24). In this case, although residents in the plan area would have generated less vehicle travel, more residents would have lived outside the plan area, in less accessible locations where they would have driven more. Worker VMT would decrease too, but not enough to offset the increased vehicle travel of out-migrating residents. In the most generous case, however, we estimate the plan would reduce net VMT by 15,000 miles per day. In this case, the plan would have allowed more residents and more workers to live in the plan area, where they would need to drive less than they otherwise would.

Table 32: Estimated net VMT effect

	Change in VMT as a result of the plan (miles per day)	
	Low estimate	High estimate
Pre-existing residents of plan area who continued living in plan area	-2,526	-8,675
Residents who relocated as a result of the plan	4,078	-5,558
Pre-existing workers in plan area who continued working in plan area	-209	-202
Workers whose jobs relocated as a result of the plan	-288	-613
Total Net VMT Effect	**1,055**	**-15,048**

3.6.4 Summary of vehicle travel costs and benefits

Using standard assumptions about the personal and social cost of vehicle travel,[65] we estimated that under the plan, the average household in the plan area saved between about $8 and $32 per year in vehicle travel costs (Table 25). Households moving into the plan area from elsewhere in the region would save more, on average $335 to $428 annually on personal vehicle travel, while households moving out of the plan area would increase their costs by the same amount. This savings would be offset by higher spending on public transit and other non-auto modes of travel, so it somewhat overestimates savings. From the societal perspective, the plan's impact on vehicle travel may produced a benefit of between $233,000 and $3.1 million.

It is important to note, however, that we have already accounted for the benefits of transit accessibility for relocating residents (prospective buyers) in the residential property section, so to include VMT impacts in the final estimate of benefits and costs would be partial double-counting. Because we believe the accessibility estimate to be more accurate than the VMT estimate, we chose to use the former in the net accounting.

[65] See the full final report for details on the monetization of vehicle travel impacts.

Table 33: Summary of annual costs and benefits from vehicle travel (costs shown as negative. All figures in 2010$)

	Net benefits (costs)		
	Lower bound	**Midpoint**	**Upper bound**
Regional	**233,007**	1,661,849	**3,090,691**
Personal costs for residents and workers	246,677	510,490	774,303
External costs for society	(13,669)	1,151,359	2,316,387
Household - average homeowner	8.42	19.99	31.57
Household - prospective buyers	335.11	381.35	427.58
Household - renters	8.42	19.99	31.57
Household - low income	8.42	19.99	31.57

4 Discussion and conclusions

4.1 Summary

Our analysis suggests that, overall, the VWSP benefitted the region, the City, and individual households in a number of ways (Table 26 and Table 27). The main benefits arose from loosened restrictions on development, especially allowing residential development in areas previously zoned for commercial and less restrictive parking requirements. These allowed a modest increase in housing supply, meeting an under-served demand for transit-accessible multifamily housing. It also allowed a slight increase in small business activity. Households and jobs that otherwise would have located in more dispersed locations instead concentrated in the plan area. This likely created household and regional benefits from higher property values, greater municipal service efficiency, increased transit use, and lower vehicle travel, compared to what would have occurred without the plan.

The plan had positive regional impacts from an increase in land value for developable land and better transit accessibility for many residents and employees. The regional impacts related to municipal finances and vehicle travel depend on whether the effect of the plan was mainly to replace large households with smaller ones and thus reduce plan area population, or to allow more households to live in the plan area and thus increase plan area population over what it would have been. If the former, the plan would have led to less efficient provision of public services and more vehicle travel, both costs to the region. If the latter, the plan would have increased efficiency of service provision and reduced regional vehicle travel, both regional benefits. From the perspective of the City of L.A., the net impact also depends on our assumptions about how the plan affected households.

Table 34: Net annual benefits and costs from the regional and municipal perspective (in 2010 dollars)

	Annual Net Economic Benefits (Costs)		
Perspective	Low-impact estimate	Midrange	High-impact estimate
Regional			
Residential property	\$3,737,681	\$4,937,927	\$6,129,182
Commercial property	\$65,838	\$205,744	\$345,649
Fiscal	\$(1,309,807)	\$417,198	\$938,639
Vehicle travel	\$233,007	\$1,661,849	\$3,090,691
Total regional	**\$2,726,720**	**\$7,222,717**	**\$10,504,161**
Municipal			
Residential property	-	-	-
Commercial property	-	-	-
Fiscal	\$900,686	\$285,176	\$(316,346)
Vehicle travel	-	-	-
Total municipal	**\$900,686**	**\$285,176**	**\$(316,346)**

We estimate that the plan benefitted individual households in all cases, but different types of households were impacted differently (Table 27). Existing homeowners gained the most, mainly by capturing the value of increased neighborhood amenities. Existing renters also benefited from increased amenities. We assume that low-income households are more sensitive to housing costs and, while they might benefit from amenities, they view any increase in rents as a cost. However, they do benefit from more efficient municipal service provision. Prospective homebuyers benefit from increased amenities and lower construction costs that reduce home prices.

Table 35: Net annual costs and benefits from household perspective (in 2010 dollars)

	Annual Net Economic Benefits (Costs)		
Perspective	Low estimate	Midrange	High estimate
Household - average single-family homeowner			
Residential property	$1,384	$2,076	$2,768
Commercial property	$-	$-	$-
Fiscal	$3	$8	$7
Vehicle travel	$8	$20	$32
Total household - average homeowner	**$1,396**	**$2,104**	**$2,807**
Household - prospective buyers (multifamily housing)			
Residential property	$808	$1,145	$1,473
Commercial property	$-	$-	$-
Fiscal	$3	$8	$7
Vehicle travel*	$-	$-	$-
Total household - prospective buyers	**$811**	**$1,153**	**$1,480**
Household - renters			
Residential property	$599	$899	$1,198
Commercial property	$-	$-	$-
Fiscal	$1	$0	$(0)
Vehicle travel	$8	$20	$32
Total household - renters	**$608**	**$919**	**$1,229**
Household - low income			
Residential property	$0.52	$1.00	$1.06

Commercial property	$-	$-	$-
Fiscal	$1	$0	$(0)
Vehicle travel	$8	$20	$32
Total household - low income	**$10**	**$21**	**$32**

**Prospective households do benefit from reduced vehicle travel, but this benefit is already counted in the accessibility component of the residential property analysis.*

4.2 Limitations

Our analysis suggests the plan had many positive impacts. However, it is important to understand the limitations of this analysis.

This is not a full cost-benefit analysis; we consider only property values, municipal finances, and vehicle travel. We assume that the plan did not impact the overall economy, and that any impacts were merely redistributive. In reality, it's possible that increased employment and business activity had a small impact on the regional economy. We do not consider social impacts such as shifts in neighborhood racial composition or the implications of increased non-family households in a neighborhood that formerly held mostly families. We only consider impacts on households in the plan area—we exclude those who leave and those who live just outside of it. Finally, our assessment of household impacts only applies to average households. Individual households likely experience a greater range of impacts specific to their situations, both positive and negative.

Our analysis did not directly consider the impacts on households who left the plan area. We observed an outmigration of family households who were more likely to be Hispanic and the in-migration of non-family, childless households who were more likely to be white. Given this demographic shift, one might wonder whether the plan's policies to some degree have caused the shift. We also noted this shift was underway before the plan was adopted, and a similar shift occurred in another similar neighborhood, Koreatown, so it's very unlikely the plan was solely responsible for the changes. It's still possible the plan's policies could have hastened the shift in demographics. For example, once it was easier to convert single-family houses into multiple small units, more property owners may have found they could increase their rental revenue by subdividing their properties, and could have put pressure on existing tenants to leave. Our analysis cannot determine whether this was the case; doing so would require more targeted research.

Our estimate of the plan's effect on vehicle miles traveled (VMT) is likely an under-estimate, because we have been unable to account for a few key factors that likely impact vehicle travel. First, we did not calculate the VMT reduction associated with reduced parking availability. Because the plan reduced parking requirements, it probably made parking harder to find in the plan area, further reducing vehicle-trips made by residents of the area. Second, we have not estimated how many employees might have stopped driving to work as a result of increased employment density near their workplace.

4.3 Implications for policy

This analysis suggests a relaxation in development regulations, of the type in the VWSP, can benefit households as well as municipalities and regions. Particularly important in this case was the relaxation of parking requirements. Municipalities and existing homeowners in particular can benefit greatly, whereas the benefits to renters and low-income households depend on the extent to which benefits are capitalized into rents and the extent to which these households value certain types of neighborhood improvements. The rezoning to allow multifamily residential development in areas previously in exclusively commercial use also generated large benefits, but the greatest beneficiaries are owners of developable land. This finding suggests policies to allow mixed uses can generate benefits, but planners should find ways to ensure individual households also benefit.

In addition, this finding relies on the assumption that the increase in density and results of design policies have a positive impact on property values. As the literature suggests, this is not always the case. In other cases, we may find that a relaxation in development regulations negatively impacts property owners.

The Vermont-Western case offers a cautionary story for planners hoping to increase population density through zoning changes. While our analysis suggests the plan most likely created overall benefits, by changing the type of housing available, it may have had the unintended consequence of replacing larger, family households with smaller, non-family households, resulting in a overall local *decrease* in population compared to what would have otherwise occurred. This effect would not only have negative impacts on vehicle travel and municipal service provision, it would mean the plan contributed to displacement—directly or indirectly—of existing households. We cannot be certain in this case whether the plan had these effects, but planners should be cautious of this possibility.

The Vermont-Western case also demonstrates that dramatic changes in development take time. The development in the Vermont-Western neighborhood since 2001 has been much more modest than planners envisioned in the original plan. The pace of development was due partly to the 2008 recession and partly to contradictions between the plan and existing regulations—but it's also likely market demand in the plan area was weaker and development costs higher than planners initially thought. However, as development in the plan area continues, in the future it may more closely resemble that envisioned in the original plan.

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Appendix A

Policy Changes in the VWSP

New Policy	**Old Policy**	**Change?**
Joint live/work units: allowed in commercial and residential zones in subareas B and C, subject only to incentives 1-4 and 6 of Downtown Adaptive reuse section 12.22.A.26 (exemption from site review not allowed), and existing buildings are granted all exceptions Joint live/work units: allowed in commercial and residential zones in subareas B and C, subject only to incentives 1-4 and 6 of Downtown Adaptive reuse section 12.22.A.26 (exemption from site review not allowed), and existing buildings are granted all exceptions	Allowed in Limited Commercial (C1) and Commercial Manufacturing zones (CM), live/work units in adaptive reuse areas (The north west section and south-most section of the V/W plan are in these areas) were allowed all incentives and exceptions	Yes-Live/work units allowed in more areas within the specific plan area, and allowed some of the incentives and exceptions designed for adaptive reuse projects.
Small Assembly Workshops: Allowed in residential or commercial zones in subareas B and C IF the lot is along Virgil, Vermont, Western, Hollywood, Sunset, or Santa Monica Aves/Blvds; no more than 20 employees	Allowed only in Commercial Manufacturing (CM) zones, not restricted by size	Yes, assembly workshops allowed in more zones within the plan area, but only small ones are allowed.
Floor area of a community Facility not included in calculation of FAR, provided it will be used as a community facility for the life of the building; permitted in any zone in subareas A, B, C, and E	Community facilities not defined or grouped together, except in mixed-use zone, in which only 75% of the floor area of a community facility will be calculated in the FAR.	Yes
Parks First Program: residential projects (except projects with low and very low income units) pay a per-unit fee to Parks First Trust, or provide park space. The Trust will be used to acquire, develop, and maintain parks, open space, and landscaping on public property.	Municipal code allows for establishment of park fees and trusts.	Established fee and trust for this area
All commercial and Mixed Use projects in Subareas B,C, and D which total 100,000 net sq ft or more of non-residential use shall include child care use pursuant to requirements in the specific plan (see Land Use Regulations section G)	New policy	Yes

New Policy	**Old Policy**	**Change?**
In Mixed Use in subarea B or C or light manufacturing in subarea D a project that results from the assembly of two or more lots and has a total area of 10,000-40,000 sq feet may receive a 15% FAR bonus	New policy	yes
Setbacks: min. 5 ft of landscaped or sidewalk area on all street frontages	Unknown	
Parking reduction: 15% reduction in minimum parking space standards if the project is within 1500 ft of a subway station	There are some reduced parking requirements in districts that slightly overlap with the plan area, but none for proximity to transit	yes
Free Delivery: Any project containing 40,000 sq ft or more of retail commercial floor area must submit a program for free delivery of purchases to residents in the specific plan area.	New Policy	Yes
Subarea A-Neighborhood Conversion		
Residential Parking: 1 space max up to three bedrooms, 1.5 spaces max for three bedrooms, 2 spaced max for more than three bedrooms	These standards are the same for the city, but they are minimums	yes
Bicycle parking required at ratio of .5 spaces per dwelling unit for all projects with two or more residential units, or 1 space per 1,000 ft of non-residential floor area.	A lot of city-wide bicycle parking requirements were added this year, it is unclear what was there before	
Commercial Parking: max 2 spaces per 1,000 sq ft	Generally, 1 space per 500 sq ft minimum, but changes based on type of business	

Appendix B

Interviewees

Name	Title	Organization
Monique Acosta	Planning Assistant	City of Los Angeles Planning
David Bell	President	East Hollywood Neighborhood Council
Stan Hoffman	Principal	Stanley R. Hoffman Associations
Alex Kalamaros	Joint Development Program Manager	Los Angeles Metro
Blake Lamb	City Planner	City of Los Angeles Planning
Craig Weber	City Planner	City of Los Angeles Planning
Billie Lay	Program Associate	Thai Community Development Center

Appendix C: Municipal Operating Expenditure Calculations

City of L.A. Operating Expenditures (in millions, 2010 USD)[66]

	Observed Values			Counterfactual Scenario					
				2010 Estimated Values			Difference Actual/Counterfactual		
	2000 Initial	2010 Actual	Actual change	Low	Mid	High	Low	Mid	High
In Plan Area									
Police	24.94	24.95	0.02	26.02	24.82	23.84	(1.07)	0.14	1.12
Fire	8.08	6.32	(1.76)	6.59	6.28	6.03	(0.27)	0.04	0.29
Parks	4.27	4.99	0.72	5.21	4.97	4.77	(0.21)	0.03	0.22
Streets	2.34	3.41	1.07	3.56	3.40	3.26	(0.15)	0.02	0.15
Total	39.63	39.68	0.05	41.37	39.46	37.90	(1.70)	0.21	1.78
Outside Plan Area									
Police	-	1.27	1.27	0.84	2.00	3.45	0.43	(0.72)	(2.18)
Fire	-	0.31	0.31	0.20	0.48	0.83	0.10	(0.17)	(0.53)
Parks	-	0.26	0.26	0.17	0.41	0.71	0.09	(0.15)	(0.45)
Streets	-	0.19	0.19	0.12	0.29	0.51	0.06	(0.11)	(0.32)
Total	-	2.03	2.03	1.35	3.18	5.51	0.68	(1.16)	(3.48)
Total Inside + Outside Plan Area									
Total	39.63	41.71	2.07	42.72	42.65	43.41	(1.02)	(0.94)	(1.71)

[66] Note that the impact in the "midrange" estimate is smaller than in the "low." This is because the plan area and outside plan area population effects work in opposite directions, such that their sum just happens to be lower in the "midrange" scenario. This is not a mistake, just a result of keeping assumptions consistent between the estimates.

Operating Expenditures Per Capita (2010 USD)

	L.A. City		Plan Area		
	2000	**2010**	**2000**	**2010**	**2010 Without Plan**
Police	349	480	330	458	458
Fire	107	116	107	116	116
Parks	62	99	57	92	92
Streets	36	71	31	63	63

Elasticity values of operating expenditures with respect to population density

	Elasticity
Police	-0.0222
Fire	0
Parks	-0.0362
Streets	-0.0562

Source: Carruthers & Ulfarsson (2008)

Appendix D: Vehicle travel calculations

Rationale for built environment variables

Percent of commuters using transit: Observed values for 2000 and 2010 are provided by the Census and the ACS. In the absence of the plan, there likely still would have been an increase in the percent of commuters using transit because the Metro would still have opened. (There would be fewer commuters in total, but the share using transit would be the same.) We assume that the residents that left the plan area during the decade would use transit at the average County rate of 7.2%. This may underestimate actual transit use of this group, because location is only one determinant of transit use—other important determinants are income and demographics. Since these households previously used transit at a high rate, they may continue to use it at a higher rate than the County average.

Percent of detached, single-family homes: As discussed above in the housing and population analysis, single-family homes decreased from 7.6% of housing units in 2000 to 6.6% in 2010. We assume that in the absence of the plan, single family homes would have decreased only slightly to 7.5%.

Local job access: Local job access is a gravity-based measure calculated from the jobs that are in close proximity to each neighborhood. We base our calculations on Longitudinal Employer-Household Dynamics (LEHD) employment data from the Census Bureau. We use 2003 jobs as a proxy for 2000 values, as this is the first year LEHD data is available for the plan area.[67] As discussed previously, the number of jobs in the plan area would have been slightly lower without the plan.

Percent non-motorized mode commute share: Observed values for the 2000 and 2010 commute mode share are from the Census and the ACS. The share for non-motorized modes grew, perhaps due to the improved pedestrian environment and scarcer parking associated with the plan. In the absence of the plan, the share would have likely remained roughly the same as in 2000, because these changes would not have occurred.

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[67] We use LEHD for this calculation rather than NETS data as in the employment analysis because Salon's methodology uses LEHD. Additionally, we use 2011 jobs values in place of 2010, because 2011 values were less impacted by the 2008 economic recession.

Road density: The plan had no effect on the other inputs to the Salon tool: road density, activity mix, regional job access, and gas prices.

Elasticities for variables influencing vehicle miles traveled

	Lower bound	**Upper bound**	**Midpoint**
% of commuters using transit	-0.0234	-0.0865	-0.0550
% single-family homes	0.0148	0.0010	0.0079
road density	-0.0107	-0.1348	-0.0727
activity mix	-0.0001	-0.0010	-0.0005
regional job access	0.0043	-0.1694	-0.0826
local job access	-0.0682	-0.1343	-0.1013
% nonmotorized mode commute share	-0.0034	-0.0285	-0.0160
average gas price	-0.0463	-0.2062	-0.1263

Source: Salon 2014.

APPENDIX G: Case Study 2: San Diego East Village

Image: Justin Brown

Introduction

San Diego's East Village neighborhood, a 130-block area located at the eastern side of the city's downtown, had endured decades of disinvestment until the 1990s, when it became a target for redevelopment. In other parts of downtown San Diego, the Centre City Development Corporation (CCDC) led redevelopment efforts beginning in 1975, aiming to transform areas of the city that had become known for homelessness and crime. Spurred by early successes in other neighborhoods, in 1992 the CCDC expanded its efforts to include East Village, and the neighborhood was incorporated into the downtown redevelopment area. Community plans in 1992, 1994, and 2006 introduced smart growth policies in East Village, included revised zoning to allow for higher density and mixed-used development. Redevelopment funds made possible the construction of a major stadium, Petco Park, intended to stimulate development in the area.

The redevelopment of East Village is ongoing, but the high-density, mixed-use development the area has seen in the past fifteen years has dramatically changed the neighborhood. The plans and policies for East Village brought financial resources, a more streamlined CEQA review process, increased allowable density, and decreased parking requirements and requirements for mixed-use development. East Village became seen as an "up-and-coming" neighborhood attractive to developers. Without these redevelopment plans, the neighborhood would have seen more modest growth. Spillover effects from the nearby Gaslamp District and other downtown neighborhoods would have brought some growth regardless of the plans, but the concerted planning and development efforts spurred investment to a level not otherwise possible.

Results

The East Village policies and plans benefited the city of San Diego and local households; and had an even larger positive impact for the region. Policy shifts and investment through the redevelopment plans enabled high-density, mixed-use growth in East Village. More multi-family, mixed-use residential buildings were built than would have been in absence of the plan. In the absence of the new policies and plans, fewer of the building developments would have included ground-floor retail space, lowering the overall number of commercial buildings in the area. Growth in demand for commercial spaces—particularly for retail space—coincided with a small increase in the total number of people employed in the plan area.

The East Village plans benefited the region by approximately \$39 to \$229 million annually, with the largest regional benefits the result of a dramatic increase in permitted multifamily housing. The population increase in this transit-accessible neighborhood reduced the city's vehicle miles traveled (VMT) by as much as 24,000 miles per day in the plan area—or almost 2 miles per capita per day. Households also benefited, mainly because reduced parking requirements allowed lower housing prices, and due to an increase in amenities in the area. From San Diego's municipal fiscal perspective, there were benefits in terms of higher property tax revenue in the downtown and more efficient public service provision. Fiscal impacts to the municipality were modest, on the order of $105,000 annually.

As this report describes, we find that smart growth policies in downtown San Diego, especially redevelopment funding and zoning for high density housing and mixed use, resulted in substantial benefits. Those benefits were not evenly distributed, though. The greatest beneficiaries were owners of developable land, and while the average household also benefitted, low-income households benefitted far less.

Summary of estimated annual benefits from East Village development plans (2011 USD)

Perspective	Low-impact estimate	Midrange	High-impact estimate
Regional			
Residential property	38,238,116	120,664,407	224,287,644
Commercial property	113,580	145,223	1,044,647
Fiscal	181,609	104,639	(20,582)
Vehicle travel	124,563	2,081,897	4,039,230
Total societal	**$38,657,869**	**$122,996,167**	**$229,350,939**
Municipal			
Residential property	0	0	0
Commercial property	0	0	0
Fiscal	181,609	104,639	(20,582)
Vehicle travel	-	-	-
Total municipal	**$181,609**	**$104,639**	**$(20,582)**
Household – average single-family homeowner			
Residential property	727	1,018	1,454
Commercial property	-	-	-
Fiscal	1	1	0
Vehicle travel	(14)	33	81
Total household – average single-family homeowner	**$713**	**$1,052**	**$1,535**

Household - prospective buyers			
Residential property	1,481	2,079	2,821
Commercial property	-	-	-
Fiscal	1	1	0
Vehicle travel*	-	-	-
Total household - prospective buyers	**$1,482**	**$2,080**	**$2,821**
Household - renters			
Residential property	789	1,105	1,572
Commercial property	-	-	-
Fiscal	1	1	0
Vehicle travel	(14)	33	81
Total household - renters	**$776**	**$1,139**	**$1,654**
Household - low income			
Residential property	20	28	34
Commercial property	-	-	-
Fiscal	1	1	0
Vehicle travel	(14)	33	81
Total household - low income	**$6**	**$62**	**$115**

**Prospective households do benefit from reduced vehicle but these are already counted in the transit accessibility component of residential property.*

Table of Contents

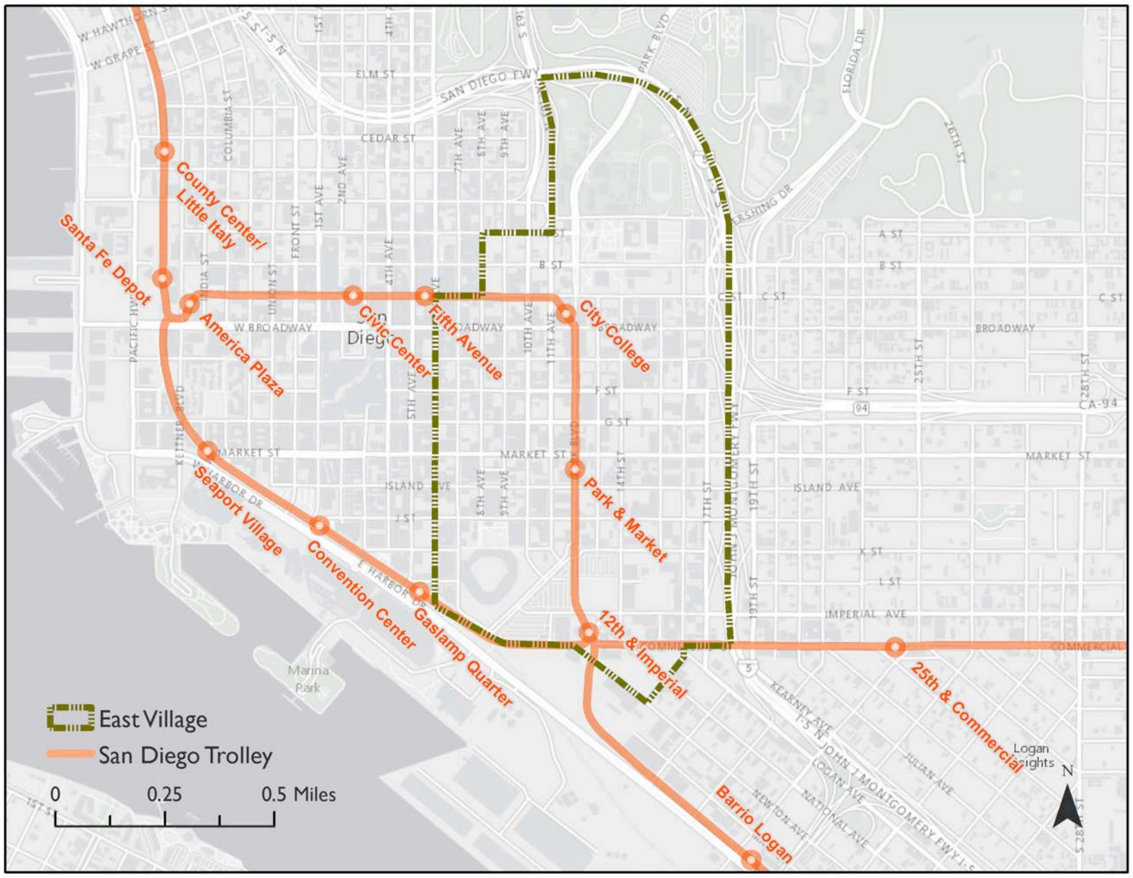
1 Context

Downtown San Diego is the 1,450-acre area bounded by San Diego Bay and the curve of the I-5 freeway. Historically known as Centre City, the downtown is comprised of eight neighborhoods: the Gaslamp Quarter, East Village, Columbia, Marina, Cortez, Little Italy, Horton Plaza, and the Civic Core. San Diego's downtown, like that of most American cities, has experienced periods of urban decline, transition, and renaissance. Downtown struggled with disinvestment during the 1970s, but redevelopment efforts picked up steam in the 1980s with the opening of the Horton Plaza Mall and the Gaslamp Quarter. Shortly thereafter, the renovated US Grant Hotel opened, spurring growth in hotel development and tourist activity. There was also an increase in high-rise office development in downtown San Diego in the late 1980s. San Diego was an early innovator in building a new light rail system; the construction and operation of the Trolley light rail system has proceeded incrementally since 1981.

Figure 11: Regional context

The Centre City Development Corporation (CCDC) led redevelopment efforts in Downtown San Diego from 1975 until the state abolished the redevelopment funding mechanism in 2012. The mission of CCDC was to manage public improvement and public-private partnership projects in the downtown area. With more than $150 million invested in specific projects by 1992, the work of the CCDC was crucial in shaping downtown San Diego (Hamilton, 1994). With massive public investments and several major policy changes, described further below, the trajectory of Downtown has greatly shifted since the 1970s. The longest-term redevelopment efforts have focused on the Marina and the Gaslamp Districts, and these areas are now perceived to be mature, established, and stable. Other downtown neighborhoods, such as East Village, are in the midst of major transformation to accommodate new residential and commercial growth (FEIR, 2006). Since 2012, the functions of CCDC have been scaled-back and merged with those of the Southeastern Economic Development Corp. forming a new non-profit organization called Civic San Diego (CCDC, 2012). In general, downtown San Diego is expected to continue growing and changing, and the 2006 Downtown Community Plan projects the area to accommodate an additional 47,700 people and 77,300 jobs.

Figure 12: East Village



1.1 East Village: A rapidly-evolving downtown neighborhood

The largest and most rapidly changing neighborhood within downtown, East Village comprises 130 blocks and the Downtown Community Plan estimates full build-out of East Village to approach 46,000 residents and 39,000 employees. This neighborhood first evolved from a series of warehouses and vacant lots to a community of artists and social service providers (City of San Diego Downtown Community Plan, 2006). Social service organizations in East Village provide outreach/intake/assessment, case management, day shelters, emergency shelters, health service programs, permanent supportive housing, supportive services and transitional shelters (Centre City Development Corporation 1999). Social service providers with facilities in the neighborhood include the San Diego Rescue Mission, St. Vincent de Paul Village, the Alpha Project, Catholic Charities, Volunteers of America, and the Salvation Army (Centre City Development Corporation 1999).

By the early 1990s, East Village was suffering from disinvestment and the neighborhood was often considered a center of homelessness and crime. Given this tenuous state of affairs, in 1992 the CCDC expanded its downtown redevelopment area to add East Village (then known as Centre City East) and other neighborhoods like Little Italy, Cortez, and the Core (Hamilton, 1994).

Figure 13: Map of downtown San Diego neighborhoods

The focus on redevelopment, policy changes, and several large catalytic projects has shifted the trajectory of East Village. The development of PETCO Park (the home of Major League Baseball's San Diego Padres) in the southwestern end of the neighborhood in 2004 represents the largest and most prominent public investment in East Village, and is popularly credited with sparking renewal in the area (Bragado 2014). However, as we will discuss later, most of the increase in household income and land values has occurred on the northern areas of the neighborhood. This suggests that many other factors, including the plans and public policies on which this research project is focused, may have had an effect.

1.2 Major transit investments and subsequent policy changes

Several major policies and plans affected East Village, as seen in Table 1 below and in the following analysis. These plans and policies include broad citywide policies that laid the foundation for transit-oriented and mixed-use development in East Village, and complementary plans and policies focused on East Village itself.

The Trolley light rail system was introduced in the early 1980s without any specific policies to encourage transit-oriented development. It was not until the mid-1990s that the city adopted policies intended to encourage mixed-use, higher density development near Trolley stations. The first such policy initiative was the 1992 Citywide Transit Oriented Development (TOD) Guidelines. These TOD guidelines were intended to reduce urban sprawl, plan the urbanized area efficiently, encourage infill and redevelopment, and support the trolley and bus transit systems that were already in place but underused.

Although the guidelines were intended to encourage higher-density infill development and transit integration, they did not state any specific policies for the implementation of these concepts. The work included an Implementation Strategy that outlined the steps necessary to fully adopt the principles and specific recommendations of the design guidelines into citywide zoning, street standards, and other recommendations. Though these guidelines are still on the books, they have been incorporated into all subsequent downtown plans and policies (Bragado 2014). All of these plans and policies, as listed in Table 1, are the focus of our case study and will be referred to throughout this report as "the plan" or "the plans."

Table 36: East Village-related plans and policies, with geographic extent

Year	Plan
1992	Centre City Community Plan *(downtown-wide)*
	Master EIR for the Centre City *(downtown-wide)*
1994	Centre City East Focus Plan *(East Village only)*
2000	Transit Area Overlay Zone *(citywide)*
	Residential Tandem Parking Overlay Zone *(citywide)*
2006	San Diego Downtown Community Plan (amended 2012, 2013) *(downtown-wide)*
	Planned Development Ordinance *(downtown-wide)*

1.2.1 Centre City Community Plan (1992), Master EIR for the Centre City (1992), and Centre City East Focus Plan (1994)

The Centre City East Focus Plan was adopted in 1994, extending the Centre City Community Plan and the Centre City Redevelopment Plan (1992). The Centre City East

Focus Plan, along with all the other downtown neighborhood focus plans, was later incorporated into the 2006 San Diego Downtown Community Plan. The Centre City East Focus Plan was intended to reverse the decline that the East Village was experiencing in the 1980s and 1990s. These plans replaced the 1976 Centre City San Diego Community Plan.

These initiatives aimed to address what the plans described as neighborhood "blight" – vacant lots, properties with deferred maintenance, limited public amenities, and "neglect, crime and homelessness" (CCEFP, 1994). The Centre City East Focus Plan included a set of recommendations, which were common to plans in other downtown neighborhoods: circulation and street enhancements, upgrade sewer and water utilities, provision of parks and community facilities. It also introduced Conditional Use Permits to allow a greater variety of land uses within the neighborhood. It also envisioned East Village as a residential neighborhood, and, in order to encourage private owners to rehabilitate existing buildings, it allocated funds for competitive loans and to arrange lower interest rates for mortgages on owner occupied units. Even so, no other specific policies were established to attract residential development or to encourage transit ridership. These plans were also followed by several other associated EIRs for the Ballpark and related projects. This included a 1999 Subsequent Environmental Impact Report for the Ballpark and Ancillary Development Projects, and a 2005 addendum to this Subsequent EIR.

1.2.2 Parking reforms: Transit Area Overlay Zone and Residential Tandem Parking Overlay Zone (2000)

The Transit Area Overlay Zone created supplemental parking requirements applicable to areas with a high level of transit service. This policy reduced off-street minimum parking requirements for multi-family developments, and for nonresidential development. Residential buildings in this overlay were eligible for modestly reduced standards, as shown in Table 2 below. These reductions are quite small and a recent consultant report recommended allowing less parking near transit (Clarion Associates 2014). Commercial building requirements were generally reduced from 2.5 to 2.1 spaces per 1000 square foot of floor area.

Table 37: Transit Area Overlay Zone parking standards

	General standards	**Transit Area Overlay Zone**
Studio under 400 square feet	1.25	1.0
Studio over 400 square feet	1.5	1.25
1 bedroom	1.5	1.25
2 bedrooms	2.0	1.75
3 or 4 bedrooms	2.25	2.0

While the reduction in parking requirements provided developers some flexibility to create housing with fewer parking spaces, a reform allowing tandem parking also had an effect on development in East Village. A tandem parking space allows two vehicles to park end-to-end in a single space. The Residential Tandem Parking Overlay Zone[68] was adopted to "identify the conditions under which tandem parking may be counted as two parking spaces in the calculation of required parking." The tandem overlay zone allows a 2-space requirement in most Transit Overlay Zones to be satisfied with one tandem space (if both spaces are assigned to the same unit). Hence, a developer can build a 2-bedroom unit with one 8 by 35 foot tandem space[69] instead of two spaces, which may be an estimated 10-20% more efficient because it reduces the amount of required auto circulation space in the parking structure, effectively increasing the number of parking spaces per floor of underground parking. The possible inconvenience, from a tenant's perspective, is that an auto in the outer parking space can block an auto in the inner parking space.

1.2.3 San Diego Downtown Community Plan (2006, amended 2012, 2013) and Planned Development Ordinance (2006)

The Community Plan, as a subcomponent of City of San Diego General Plan, established the land use vision and development policies for Downtown San Diego. The plan's associated Planned Development Ordinance (PDO) provided a series of incentives intended to encourage mixed-use and higher densities. Ground-floor retail and commercial and other public uses on the ground floor were exempted from floor area ratio (FAR) calculations. It also provided FAR bonuses of up to 35% to promote affordable housing and increases in FARs through payment into the FAR Bonus Payment Program for Parks and Public Infrastructure. Part of East Village is eligible for the bonus payment program and several projects have received or purchased density bonuses (Centre City Development Corporation 2012). The plan also created FAR bonuses for

[68] http://docs.sandiego.gov/municode/MuniCodeChapter13/Ch13Art02Division09.pdf
[69] http://sdapa.org/download/WilliamAnderson_SDParkingSym_7-14-06.pdf

development projects in specific locations that provided public amenities or benefits beyond those required for normal development approvals: urban open space, three-bedroom units, eco-roofs, employment uses, public parking, FAR Payment Bonus Program, and green building.

Comparing the 1976, 1992 and 2006 downtown plans, one sees that allowable density has increased over time in East Village. The 1976 downtown plan included two sub-areas that later became East Village: the City College Sub-Area (the northern part of today's neighborhood) and the South College Sub-Area (the southern part). Table 3 below compares allowable densities for these two areas over time. In 1992, base densities were increased up to three times, and the 2006 plan instituted FAR minimums and added the possibility of FAR bonuses in exchange for public amenities.

Table 38: Allowable density in East Village plans

	1976 plan	**1992 plan**	**2006 plan**
East Village – north of E Street	3.0-4.0 FAR, 60-80 dwelling units/acre	3.0-10.0 FAR	3.0-10.0 FAR + bonuses, with minimum FARs of 2.0-6.0, depending on the area.
East Village – south of E Street	2.0 FAR, 30-60 dwelling units/acre	3.0-6.0 FAR	3.0-6.0 FAR + bonuses, with minimum FARs of 2.0-4.0, depending on the area.

2 Case-specific methodology

The analysis focuses on the impacts of all plans that targeted in the East Village area, as defined in Table 1. The earliest plan was adopted in 1992. However, for most of our data source, the earliest year data are available is 2000. The latest year relevant data are available is 2012. Therefore by necessity our quantitative analysis focuses on the period 2000 to 2012, although the discussion will acknowledge the fact that policy changes began in 1992.

In order to assess the impacts of the plan, we constructed a scenario that depicts likely outcomes of the plan area and its residents had the plan not been adopted. The objective was thus to create a plausible, internally consistent account of what would likely have happened. To aid in developing this counterfactual scenario, we compared the case study area to four areas: San Diego County, San Diego City, and two nearby neighborhoods, Little Italy and Sherman Heights (Figure 4). The following table summarizes how we used the comparison areas in each case. In the following section, we will discuss the differences between East Village and these other areas and explain our reason for choosing each comparison area.

Figure 14: Comparison neighborhoods

Type of change:	**Other places we looked to determine if changes in the plan area were unique and possibly attributable to the plan:**	**Reason for identifying these locations for comparison:**
Population, Demographics, and Housing Units	• The county • Little Italy • Sherman Heights	The county is used to represent regional trends. Little Italy and Sherman Heights are centrally located neighborhoods. On one hand, Little Italy was subject to some of the same policies as East Village, but Sherman Heights was not. On the other hand, Little Italy is a downtown neighborhood while Sherman Heights is predominantly residential.
Employment	• The city	Provides base of reference for what citywide changes might have impacted the area.
Residential and Commercial Property Prices	• The county	The county values are used to provide context and a baseline regional growth rate for estimates. Sales price data are also more easily available at the county level.
Municipal Finance	• The city • Extends from our population, employment, and housing analysis.	We use the population, housing and employment data above for the fiscal analysis.
Travel Behavior	• State-wide modeling tools • Extends from our population, employment, and housing analysis.	We use the population, housing and employment data above in the vehicle travel model.

2.1 Interviews and field visits

The team interviewed four planners, city officials and architects who were involved in the East Village planning and/or implementation. Interviews were conducted by phone and in-person. In the interviews, we aimed to understand how the plan's policies had affected development in the area, and what would have occurred in the absence of the plan. A list of interviewees is provided in Appendix A. The team made one field visit to East Village in March 2014.

3 Analysis of observed changes and plan effects

The downtown initiatives shaped local development through a combination of regulatory changes and major public investments that reinforced each other. The public investment in Petco Park and other projects directly drew visitors to the neighborhood and created local demand. Adding East Village as a redevelopment area also signaled to developers that the city sought to encourage new development, thus reducing risk and potential planning costs. The regulatory changes—higher density and mixed use zoning and more flexible parking requirements—enabled more development to respond to existing and new demand. In a virtuous cycle, the increase in housing development and residents likely created more demand for local retail and restaurants. In the absence of these plans – and particularly the redevelopment funds – these changes would likely have not occurred with such mutually reinforcing timing, if they had occurred at all. East Village would have had a drastically different look and feel today. Table 4 below summarizes the key differences had each policy or plan not been adopted.

Downtown-focused public policies and streamlining of processes induced more developers to pursue higher-density development (Fulton 2014), resulting in a boom in market-rate residential development. This suggests that in absence of these plans and policies, fewer residential development projects would have occurred, and those that did would have different characteristics. Even without all of the redevelopment planning, the close proximity of East Village to San Diego's CBD means that some development would have occurred in East Village. But that development would have been less intense because (1) the plan allowed higher floor area ratios and (2) each unit would have been required to include an average of one quarter additional parking space. The mixed-use zoning and FAR bonuses for ground-floor retail enabled developers to include more commercial space than they otherwise would have.

Table 39: Summary of plans/policies and outcomes

Plan/policy	**What would have happened without this plan/policy?**

Centre City Community Plan (1992), Master EIR for the Centre City (1992), and Centre City East Focus Plan (1994)	• If East Village had not been brought into the CCDC redevelopment area, only piecemeal development, without catalyst projects, would have occurred in the neighborhood. • There would have been more extensive CEQA processes for any housing that was developed. As such, fewer units may have been developed or those that were might have been more expensive. • The Central Library would have been smaller or developed in another part of downtown. • The Petco ballpark would have been built in a less urban location, outside of the downtown.
Parking reforms: Transit Area Overlay Zone and Residential Tandem Parking Overlay Zone (2000)	• Housing development would have had at least 0.25 more parking spaces per unit, on average., • If the average underground parking space costs upwards of $55,000[70], developers would have spent an extra estimated $10,000 to $25,000 per unit. • In the absence of allowance for tandem parking, developers would have had to use more building space for parking, which would mean lower housing density.
San Diego Downtown Community Plan (2006, amended 2012, 2013) and Planned Development Ordinance (2006)	• Since this plan was adopted at the tail end of the housing boom, it will shape future efforts, but had limited effect on neighborhood prior to 2010. • We also note that this Plan will almost certainly be implemented more slowly than intended with the end of redevelopment financing, on which CCDC based most downtown San Diego initiatives.

Fewer neighborhood amenities, such as retail service and the public library, would likely have resulted in lower housing demand and prices in absence of the East Village plans. Some property owners would have allowed their low-quality housing units to continue to deteriorate, deferring maintenance for as long as possible. However, other property owners would have seen rising demand for urban living as an opportunity to preserve or upgrade their apartments.

[70] http://www.sandiego.gov/planning/documents/pdf/trans/voplj3.pdf

The East Village plans probably resulted in more commercial space than there otherwise would have been. Even though the area was previously zoned for commercial space, the policy changes most likely made development there more attractive by reducing the construction costs required for providing parking. The new residential development would have increased local demand for commercial space. If the East Village plans had not been adopted, there likely would have been fewer workers in the neighborhood. Most of the new or expanded institutions would not be in the area.[71] Petco Park would have been sited in a less urban location. The Central Library would have located elsewhere in downtown.[72] In general, less residential and commercial activity—coupled with less mixed-use development with ground floor retail—would have resulted in fewer retail, food service, and accommodation jobs in the plan area, and they would instead be located elsewhere in the region.

In the absence of planning and redevelopment in the East Village, where would growth have occurred? Since the Downtown Community Plan (2006) was explicitly intended to reduce growth pressure on existing neighborhoods, it is reasonable to expect that the growth would have occurred elsewhere in the downtown and the city. Even before East Village was folded into the downtown community plan and CCDC redevelopment areas (1992), there was some growth and momentum downtown. As such, in the absence of the East Village planning and redevelopment efforts, some of the market-rate development that occurred would have occurred in other downtown neighborhoods, like the Gaslamp District, Civic Center, and perhaps even Little Italy. Downtown also represents the city's most concerted effort at "smart growth." However, other downtown neighborhoods probably would not have been able to accommodate all of the growth observed in East Village. Without the East Village policies that allowed higher density development, more growth probably would have occurred in other areas of the city with vacant land, such as Mission Valley, but also in more peripheral locations.

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[71] Even in absence of the plans, we expect that San Diego City College and the police headquarters would have been in East Village.

[72] Based on information from the city government: http://www.sandiego.gov/public-library/pdf/mainsite.pdf

3.1 Population and demographic changes

3.1.1 Changes from 1990 to 2010

The population of East Village grew and changed considerably from 1990 to 2012. The population expanded by about 15% from 1990 to 2000, and almost doubled between 2000 and 2012 to about 11,000 residents (Table 5). Over the two decades in the study period, the number of non-Hispanic white[73] and Asian residents in the East Village plan area grew much faster than the number of Black and Hispanic residents shrank (Table 6). Average household sizes were small and shrank from 1.6 to 1.4 from 1990 to 2010, likely due to the predominance of small apartments and condos. In 1990, 45% of households were low-income, defined as having a median household annual income of less than $10,000. The percentage of household that were low-income fell to 26% in 2010. Median household income in the plan area increased by 60% from 1990 to 2000 and 90% from 2000 to 2010 (Table 7).

Table 40: East Village demographics

East Village Plan Area	**1990**	**2000**	**2010**
Total population	5703	6636	12414
Households			
Population in Households	3201	4010	9626
Total Households	2048	2677	6673
Average Household Size	1.6	1.5	1.4

Table 41: East Village population by race/ethnicity

	1990	**2000**	**2010**	**% change (1990-2010)**
White (non-Hispanic)	2,691	3,149	6,536	143%
Hispanic	1,633	1,818	3,076	88%
Black	1,134	1,063	1,790	58%
Asian	154	270	862	459%
American Indian	82	85	113	37%
Other race	11	14	37	228%

3.1.2 Comparison neighborhoods

Are the types of changes seen in East Village an anomaly in San Diego? To provide context, we analyzed the demographic changes in two comparable neighborhoods,

[73] Estimations of census-defined races exclude those who are ethnically Hispanic.

Sherman Heights and Little Italy, as well as San Diego county (summarized in and Table 7). Sherman Heights is a small residential neighborhood, east of East Village, on the other side of I-5 and south of CA-94. Sherman Heights was not subject to the same extensive smart growth plans, policies, and redevelopment funding. In contrast to East Village, Sherman Heights experienced population loss, with a 33% drop in total population, and decreases in housing units and households. Incomes in Sherman Heights increased over the study period, but not as steeply as in East Village—in 1990, median income in Sherman Heights was higher than that in East Village, but by 2010, incomes in East Village surpassed Sherman Heights. East Village has grown more than Sherman Heights, but that does not prove the East Village plans caused growth; it could be that the East Village plans arose in response to market demand that was not similarly present in Sherman Heights.

The second comparison neighborhood is Little Italy, in the downtown area southeast of the airport and southwest of I-5. Little Italy was a part of the downtown community plan, and subject to some of the same regulatory changes and incentives as East Village.[74] Little Italy is less transit-accessible than East Village, with only one Trolley station on the edge of the neighborhood. It also lacks the concentration of social service agencies seen in East Village. The growth rates in Little Italy were larger than in the East Village area over the 20-year study period, but the neighborhood is still relatively small; despite a housing growth rate almost double that of East Village, Little Italy only increased its housing stock by less than 2,500 units, while the number of new units in East Village was over 6,000. The total growth in population in Little Italy was just under 2,500 residents. From 1990 to 2000, the population, the number of housing units, and the number of households all decreased—growth did not start happening in Little Italy until the second half of the study period. The trends seen in East Village are much more similar to those of Little Italy than to Sherman Heights, which might suggest the downtown community plan had some effect on growth, or that the downtown community plan responded to market demand that affected both East Village and Little Italy.

San Diego County started out in 1990 with a larger proportion of white residents than East Village, but the white population decreased in total numbers over the study period, so that by 2010, the county had a lower proportion of white residents and a higher proportion of Hispanic residents. White residents were the only group that grew over the study period in Sherman Heights, resulting in a decrease in the proportion of Hispanic

[74] We use Little Italy as a comparison neighborhood to better understand why two centrally located neighborhoods with similar policies had similar or different development trajectories.

residents and an increase in the proportion of white residents. Little Italy had a similar pattern of change, but even more dramatic—almost all of the new residents in the area were white, while the Hispanic population decreased. These patterns are closer to what happened in East Village than in the county, but in East Village the changes to the proportional split were less dramatic, and the population in each race group increased. East Village experienced the fastest rate of growth in the white population.

Table 7: Population by year

Area	1990	2000	2010	% change (1990-2010)
East Village	5,703	6,636	12,414	118%
San Diego County	2,498,016	2,813,833	3,095,313	24%
Sherman Heights	4,977	4,535	3,355	-33%
Little Italy	1,216	995	3,683	203%

Table 42: Median household income by year (in nominal dollars)

Area	1990	2000	2010	% change (1990-2010)
East Village	$12,542	$19,860	$37,329	198%
San Diego County	$35,022	$46,887	$63,373	81%
Sherman Heights	$17,864	$21,139	$31,325	75%
Little Italy	$15,407	$23,518	$63,648	313%

3.1.3 Without East Village plans

In absence of the plans, East Village would have still grown because of development momentum from neighboring parts of downtown (e.g. the Gaslamp District) and its prime location near the region's employment center—but growth would have been slower. As evidence that it would not have grown as quickly as it did as a CCDC redevelopment area, we look across the freeway to Sherman Heights, where population declined by 33% between 2000 and 2010. (Again, during this same period the population of East Village increased by 87%.) Our midrange estimate assumes that the East Village population growth rate in the absence of the plan would have been between the actual 87% growth rate in East Village and the 33% population loss in Sherman Heights—an average of 27% growth (see Table 8). In the low estimate, we assume the plan had a somewhat smaller impact and the population growth rate in the absence of the plan would have been 50%. The high estimate assumes the plan had a larger impact and thus in the absence of the plan population growth would be lower—we assume 10%. With this assumption, we estimate that the East Village plans were responsible for increasing the neighborhood's population by as little as 2,460 and as much as 5,615 residents (Table 9).

Table 43: Assumptions for population and household size in the absence of the plan

Variable	Low	Midrange	High	Explanation
Population growth rate in plan area in absence of the plan, 2000 - 2010	50%	27%	10%	Actual pop growth rate as 87% and in Sherman Heights was -33%. The average is 27%.
Average household size in plan area, 2010	1.44	1.49	1.465	In High estimate, assume the plan resulted in smaller households due to more condos and apts--so hh size is same as actual in 2000. In low estimate, assume plan did not change hh size, so it is the same as actual in 2010. Midrange is the average.

Table 44: Observed population growth and assumptions of change without plans

Population, East Village	Observed		2010 Estimate Without Plans			Difference Observed – Without Plans		
	2000	2010	Low-impact	Mid	High-impact	Low-impact	Mid	High-impact
Population in plan area	6,636	12,414	9,954	8,428	7,300	2,460	3,986	5,114
Households in plan area	2,677	6,673	4,976	3,850	3,028	1,697	2,823	3,645
Population density in plan area	7,456	13,493	10,820	9,161	7,934	2,674	4,333	5,559

The East Village plans also may have had an impact on household size. By resulting in the addition of more condominiums and apartments, the plans may have enabled smaller households to move to the area, reducing the average household size—although any impact would be modest because we only observed a slight decrease in household size in the plan area. In the absence of the plan, the average household size could plausibly have been at the most 1.49—the size actually observed in 2000—or at the least 1.44—the size actually observed in 2010. These two value therefore form the ends of our range, with our midrange estimate as the average, 1.5. We therefore estimate that the plan resulted in 1,697 to 3,645 more households in East Village, compared to what would have occurred without the plan. East Village has a large group quarters population, which remained stable (actually grew a small amount) between 2000 and 2010, so this would have been the same in absence of the plan too.

Population in the region would continue to grow at the same rate, with or without the plan. However, in absence of the neighborhood plans, 2,460 to 5,615 fewer people would have been able to live in East Village, so these residents would have had to find housing elsewhere in the city of San Diego. We do not know exactly where these 2,460 to 5,615 residents would have lived, so we assume they would settled in various areas throughout the region. Since the City of San Diego boundaries cover much of the metropolitan area, and include a wide range of urban types from downtown to low-density exurban areas, we use the City to represent the region. **Thus we assume that, in the absence of the plan, these residents would have lived in various places throughout the City such that, as a group, they would be represented by the average City of San Diego location**.

3.2 Housing

The East Village housing stock grew and changed considerably over this time period, with block after block of mid- and high-rise apartments that replaced low-intensity, non-residential uses. The total number of housing units in East Village grew by 26% between 1990 and 2000. Between 2000 and 2010 the total number of housing units in East Village increased by 192%, with 5,615 new housing units added during that time (Table 13). Not surprisingly given its location downtown, the vast majority of this growth was in the form of multifamily units, which increased in number by over 5,564, while only eight single-family units were added during the time. Developers built new housing in buildings ranging from three to more than twenty stories (Figure 5). New residential and mixed-use development predominantly replaced low-intensity commercial and warehouse space similar (Figure 6).

Figure 15: New mixed-use development in East Village

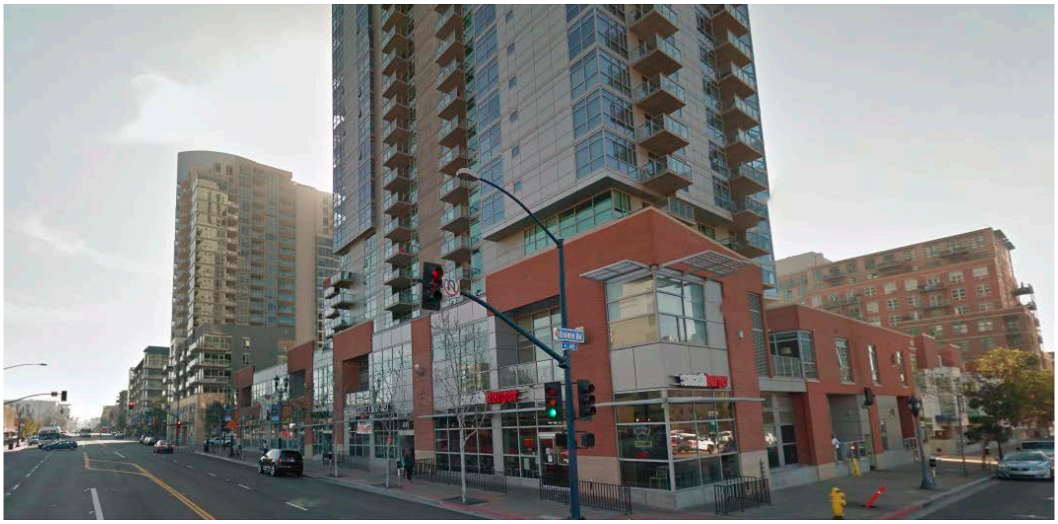
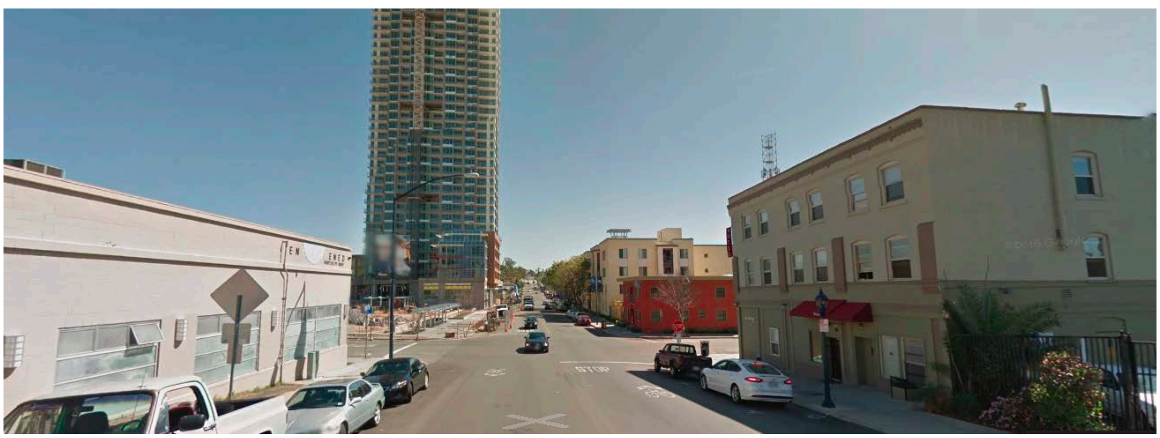


Figure 16: Pre-1990 low-rise buildings contrast with newer high-rise development



The number of households in the plan area did not increase as quickly, with almost 4,000 households added during the same period, leaving 22% of units vacant in 2010. This high vacancy rate is likely due to slow post-construction lease-ups and sales following the 2008 housing market downturn, rather than a permanent condition.

While East Village is still predominantly a neighborhood of renters, the share of owner-occupied housing expanded between 2000 and 2010. In 1990 and 2000, less than 2% of occupied units were owner-occupied. However, by 2010 the share of owners had increased to 19%, reflecting the introduction of new condominiums in the neighborhood during the housing boom.

Table 45: Change in housing supply in plan area

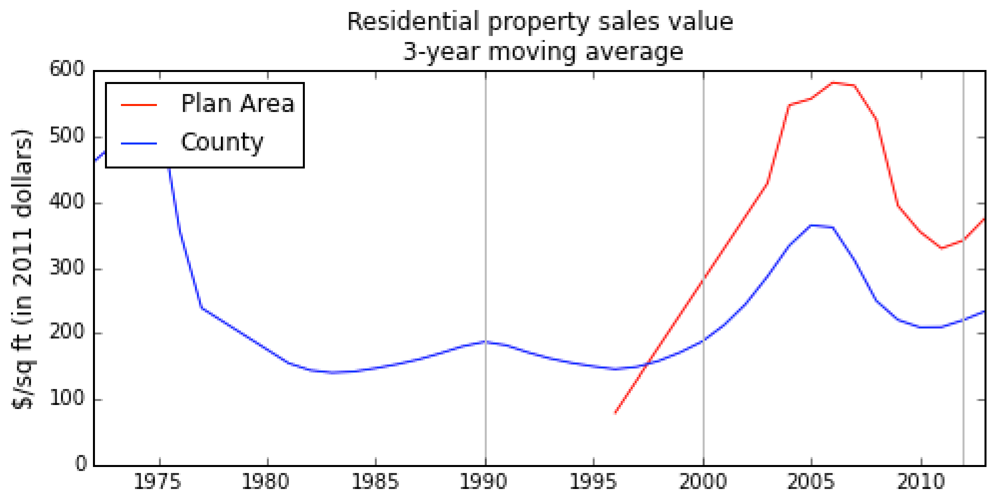
Housing in plan area	1990	2000	% Change 1990-2000	2010	Absolute change 2000-2010	% Change 2000-2010
Total housing units	2,328	2,929	26%	8,544	5,615	192%
Detached single-family units	134	136	1%	144	8	6%
Attached single-family units	43	51	17%	94	43	86%
Multifamily units	1,251	2,763	28%	7,585	5,564	203%
Vacancy rate	12%	9%		22%		
Percent of occupied units that are owner-occupied	1.5%	1.6%		19%		

Source: Census 2000, Census 2010, ACS 2008-12 5-year estimates.

3.2.1 Residential property value changes

From 2000 and 2010, sales prices of housing increased faster in the plan area than they did in the rest of the county, although, like those in the county, they experienced a drop with the 2008 recession. As seen in Figure 5, from 2000 to 2010, residential property sales prices mostly followed the same trajectory as sales prices in the county, with a steep rise in prices from 2000 to 2007 followed by a decline starting around the beginning of the recession in 2008. Though prices in the plan area were much lower than those of the county on average in 1996, plan area prices quickly outpaced those in the county, and they have remained on average much higher than prices for the rest of the county since 1998. In the first year for which sufficient data are available, the average multi-family unit in the plan area sold for $428 per square foot (in 2011 USD), compared to $330 per square foot in the county overall (Table 14). By 2012, the average was $342/sq ft in the plan area and $203/sq ft in the county. This decrease in sales price reflects the effects of the 2008 housing crisis and recession—and also suggests that properties in the plan area either increased in price faster during the recovery, or in some cases held more of their value through the recession, compared to properties in the county.

Figure 17: Residential property sales prices in San Diego County and East Village



Source: DataQuick

Table 46: Median sales prices for multi-unit residential properties, 3-year moving average (2011 USD)

	2000	2003*	2010	2012	% change 2000-12	% change 2003-12	Absolute change 2003-12
East Village	n.a.	$428	$355	$342	n.a.	-20.3%	-$87
San Diego County	$194	$330	$203	$218	12%	-34.0%	-$112
Difference	n.a.	$98	$153	$123	n.a.	13.7%	$25

** 2003 is used because it is the first year for which sufficient data are available*

n.a. = not available

Source: DataQuick

Average rents also rose considerably during the study period. In 2000, average rent was $659 (2011 USD), according to the Census. By 2010, the average rental price rose to

$1,058, an increase of 61%. Average rents in East Village rose faster than they did for San Diego County, which saw a 29% increase during this time period.

3.2.2 Subsidized affordable housing

The CCDC estimates that 25% of the housing development since 1975 is publicly subsidized, but most of the more recent housing developments are market-rate units. For example, new market-rate townhouses were built, such as the development near the corner of 10th Avenue and F Street, with sales prices on some units exceeding $700,000. Also, all of downtown's subsidized housing units developed from 1975 to 2005 were rental units (SDDCP 2006). One of the stated goals of the 2006 downtown plan was to create more home ownership opportunities for moderate-income households (SDDCP 2006). It is too soon to assess whether the 2006 downtown plan achieved this goal; the development that did occur between 2000 and 2010 was virtually all planned prior to the 2006 plan.

3.3 Impacts of the plans on housing supply

The East Village plans most likely resulted in more housing construction in the plan area than would otherwise occur. Housing was likely built at higher densities, in forms with more expensive construction, and with less parking compared to what would have otherwise been built. The plans' policy changes allowed the construction of much more multifamily housing, thus serving a growing demand in the multifamily submarket, whereas without the plan, many more of the new housing units would have been single-family houses located in other parts of the city. In the following paragraphs we explain the reasoning behind these claims.

The various East Village plans partially relaxed regulations and allowed development to respond to the previously unmet demand for centrally-located, multifamily housing. Specifically, the 1992 plan increased permitted density to 3.0-10.0 FAR (depending on location; equivalent to a maximum of roughly 100 to 300 dwelling units per acre), much higher than the 2.0-4.0 FAR and 30 to 80 dwelling units per acre previously permitted under the 1976 plan. The East Village plans also allowed mixed use and relaxed parking requirements for new construction. By enacting these changes, the plans made permissible and feasible new residential construction that would otherwise have been prohibited. The removal of parking requirements decreased marginal construction costs, allowing developers to respond to changes in market demand by undertaking a few more reuse and renovation projects. The plan also increased marginal construction costs in some ways—requiring ground-floor retail, for example—which probably dampened the amount of new construction. Together, these policy changes allowed new construction and reuse of existing buildings that would not otherwise have happened.

In the absence of the plan, housing development would have still occurred, but at a slower rate and in a different form. Since density would have been limited to 2.0 to 4.0 FAR, new buildings probably would have been lower-rise. Housing would be served by fewer amenities (as will be discussed later in this section) and less ground-floor retail, but would have had more parking than observed. More units would have been rentals rather than condominiums.

Our estimate of the plan's impact on the number of housing units in East Village derives from our assumptions about the likely population in the absence of the plan. Assuming that, without the plan, population in East Village would have grown at 10% to 50% (with a midrange estimate of 27%) as described above, and assuming that the vacancy rate would have been the same as in 2000, or 9%, we estimate that 3,327 to 5,469 housing units would have been built in East Village (Table 15). In other words, of the 5,615 housing units added to the plan area between 2000 and 2010, the plans were responsible for about 3,000 to 5,000. These figures suggest the plan had a very large impact on housing production in East Village. Since as of 2010 a large amount of developable land remained, future impacts could be much larger.

In the absence of the plan, the growing regional demand for housing would have had to be accommodated elsewhere in the region. However, sites for new housing construction in the region are limited. In many of these areas, zoning laws prohibit multifamily housing, so developers would have had to build single-family units—even if they would have rather catered to households wanting multifamily units. Developers would also have built at different densities, depending on the zoning regulations and land values in that location. As discussed in the population section, we assume that the new housing units would be located such that, as a group, they are represented by the average city density and proportion of multi-family houses. Thus, in the absence of the plan, about 3,000 to 5,000 additional housing units would have been built in neighborhoods outside the plan area. The new housing would have had to follow current zoning regulations, so we assume the new units would have reflected the city's current proportion of single-family and multifamily—thus 45% would have been single-family and the rest multifamily. This housing would have been built with an average population density of 4,024 per square mile.

Table 47: Housing supply as observed and in absence of the plan

	Observed Values		**2010 Counterfactual**			**Difference Actual-Counterfactual**		
	2000	2010	Low-impact	Mid	High-impact	Low-impact	Mid	High-impact
Plan area								
Total housing units	2,929	8,544	5,469	4,230	3,327	3,075	4,314	5,217
Detached single-family units	136	144	144	144	144	-	-	-
Multifamily and attached units	2,793	8,400	5,325	4,086	3,183	3,075	4,314	5,217
Region (City of San Diego)								
Total housing units	469,756	514,366	514,366	514,366	514,366	-	-	-
Detached single-family units	219,376	230,436	231,814	232,368	232,773	(1,378)	(1,933)	(2,337)
Multifamily and attached units	250,380	283,930	282,552	281,998	281,593	1,378	1,933	2,337

3.3.1 Benefits and costs of housing impacts

(1) Regional supply and demand effects

Given the previous assumptions, we estimate that the plans' policies helped to increase the housing supply in the *region* by about 1,400 to 2,300 multifamily units. Assuming the regional supply of multifamily and rental units is normally constrained by regulations, this increase in supply would offset some of the upward pressure on prices in those submarkets. Since we assume the supply of single-family housing is not similarly constrained, we estimate that there is no impact on the single-family submarket.

Calculations of the estimated effect of supply on prices are shown in Table 16. Assuming a supply elasticity of 0.67, we estimate the increase in multifamily housing supply lowered regional prices for multifamily housing by about \$0.50 to \$0.90 per square foot. For the average size unit of 917 square feet, this would mean a roughly \$500 to \$800 reduction in sales price. The price reduction is a benefit for individual households buying (or renting) multifamily units in the region, but a cost for owners of multifamily housing. The increased supply in the multifamily housing submarket does not affect existing owners of single-family houses.

Table 48: Estimated price change due to increased housing supply

	Low Estimate	**Midrange**	**High Estimate**
New multifamily housing units in region due to the plan	1,378	1,933	2,337
Percent change in regional multifamily housing supply (2000-2010)[a]	0.23%	0.33%	0.40%
Assumed price elasticity of supply[b]	0.67	0.67	0.67
Change in sales price due to increased regional supply, $ per sq ft	($0.54)	($0.75)	($0.91)
Savings for average unit (at 917 sq ft/unit)	$491	$688	$832
Aggregate regional savings from price change, multifamily units	$16,460,066	$23,086,970	$27,919,850

The regionwide benefit from the increase multifamily housing supply can be estimated from the increase in land value due to the change in zoning. The higher permitted density allows more units to be built on developable parcels within the plan area, which allows the landowner to profit more from selling or renting those units, compared to what he or she would have gained without the zoning change. In East Village, the plans dramatically increased permitted density, from 30 to 80 units per acre to the equivalent of roughly 100 to 300 units: we estimate, on average, the plan allowed 40 to 140 additional units per acre.[75] (Not all of these units have been built, but they are allowed by zoning.) Assuming a constant construction cost and sales price per unit, the change in permitted density would confer a benefit to owners of developable land of roughly $2.4 to $16 million per acre.[76] We estimate that, just after the plan was adopted, there were about 180 acres of developable residential land in the plan area. This implies the total regionwide benefit of the zoning changes was $0.4 to $2.8 billion or, assuming a 30-year financing period, around $31-$224 million annually.

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[75] To check if these assumptions are realistic, this increase in permitted density would allow 25,000 addition additional units in the plan area. With an average household size of 1.4, this is equivalent to about 35,000 residents, bringing the total population in the plan area to 43,000. The Downtown community plan envisions a full build-out of 46,000 residents, so these assumptions are realistic.

[76] In reality, higher density might slightly change construction cost and would lower prices, but these changes are very small in comparison to the total construction cost and price per unit.

(2) Changes in production costs

Development policies could influence housing prices by changing construction and development costs. The reduced parking requirements likely lowered mandatory construction costs. The parking supplied with new residential development appears to have followed the new Transit Area Overlay Zone and Residential Tandem Parking Overlay Zone requirements. Our interviews and review of real estate listings online suggest that new development in East Village typically provides one space per studio or one-bedroom unit and two spaces per two-bedroom unit, slightly less than would have been required without the policy changes. On average, housing development had at least 0.25 fewer parking spaces per unit, than it would have without the plan. Assuming an average parking space costs $25,000 to $35,000, developers would have spent an extra estimated $6,250 to $8,750 per unit, based on the efficiency estimates mentioned above. Overall, as a result of the plans, developers would have likely spent less per unit on parking construction. Note that these cost savings only apply to new development. For renters, the construction cost changes can be expected to be partly passed on in lower monthly rent.

(3) Changes in neighborhood accessibility and amenities

The plans likely produced benefits by increasing local neighborhood amenities and by increasing the number of housing units located near transit, and therefore the number of households that can benefit from transit accessibility.[77]

In a previous San Diego study, Duncan (2011) found that condominiums sold for a 15% premium when they were located within 0.3 km (984 ft) of a light rail station, in a neighborhood with a “good” pedestrian environment.[78] To account for uncertainty, we assume a range of 10% to 20% for the transit premium, which would mean that transit accessibility adds $33 per square foot, or about $20,000 to $40,000 total to the average

[77] See this project’s final report for a detailed description of the theory and methodology behind analyzing accessibility impacts.

[78] A “good” pedestrian environment was defined as that having 75th-percentile scores for two built environment indicators—intersection density and service jobs density. East Village is probably at least in the 75th percentile in terms of neighborhood-level pedestrian environment, if not higher, so this is a conservative estimate. The premium applies specifically to walk-up trolley stations, which are the type in this neighborhood.

condominium's sales prices (Table 17). Over all the housing units within 1000 feet [79] of a trolley station, the total consumer benefit of transit accessibility equals roughly $22 million, about $73 million more than it would have been without the plan (Table 17).

Table 49: Housing and transit accessibility (applies to 10-year period)

Amenity effects	**Low-impact Estimate**	**Midrange**	**High-impact Estimate**	**Explanation**
Value of transit accessibility for average unit near transit	$20,013	$30,019	$40,025	Apply 10%-20% transit premium to average unit price
Value of other neighborhood amenities, excluding accessibility (multi-family) ($/unit)	$10,006	$14,009	$20,013	Apply 5%-10% amenities premium to average unit price
Aggregate value of transit accessibility due to plan	$21,569,718	$45,380,688	$73,173,858	Multiply over all new units due to plan w/in 1000 ft of transit
Aggregate value of other amenities due to plan	$30,773,795	$60,428,867	$104,398,091	Multiply over all units in plan area
Total aggregate value of accessibility + other amenities due to plan	$52,343,513	$105,809,555	$177,571,949	

The East Village plans also likely increased the number of local amenities in the neighborhood, including more retail, more bars and restaurants, and the central public library. Without the plans, the neighborhood probably would have had less commercial space, and it would have been less likely to be neighborhood- and service-oriented businesses. The plans also allowed more housing units to benefit from these amenities than would have without the plan. We use a value of 5% to 10%, which translates into a premium for multifamily units of $10,000 to $20,000. The total benefit to households in the plan area associated with increased amenities over all units in the plan area is $52 million to $178 million, or $3.8 to $12.9 million annually over a 30-year period.

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[79] We use 1,000 feet in this case study (instead of 1,500 feet in the other cases) to take advantage of Duncan's (2011) local data and results.

3.3.2 Plan impacts on the homeless population

At least several hundred homeless people resided in East Village in the early 2000s, according to homeless counts conducted as part of the Ballpark Environmental Impact Review (EIR) and subsequent homelessness advisory committee report ("Initial Report of the East Village Redevelopment Homeless Advisory Committee" 2000). East Village has historically acted as the hub of social services for the homeless in San Diego, and the city's plans may have affected East Village's homeless population in two main ways.

First, the East Village plans could have simply displaced homeless people to other downtown neighborhoods (Centre City Development Corporation 1999). The EIR for the ballpark identified displacement as a potentially significant impact: "Displaced homeless could move into surrounding areas. Affected areas could experience problems associated with loitering, improper public sanitation and an increase in criminal activities" (Centre City Development Corporation 1999, 1–6). One of the mitigation measures in the EIR was to create an advisory committee to study issues of homeless displacement in the ballpark area and make recommendations (Centre City Development Corporation 1999). Recommendations of the committee included to add shelter beds, preserve low-cost housing, and add restrooms and shower facilities ("Initial Report of the East Village Redevelopment Homeless Advisory Committee" 2000).

Second, the plans may have made the lives of East Village's homeless people more difficult. The relationship between housed and unhoused residents has become more contentious as real estate development activity has increased (Cubbison 2015; Bennett 2012). Probably the most likely outcome of the development activity induced by the East Village plans was a combination of these two things. Some homeless people were probably displaced, but media reports, our interviews and our field visit showed that homeless people still live in East Village. But, we have no doubt that their toehold in East Village – or prospects for finding low-cost housing in downtown San Diego – is growing ever more precarious.

3.3.3 Summary of costs and benefits - housing prices

The East Village plan appears to have produced fairly substantial net benefits from all perspectives, although low-income households benefitted far less than other household types. Table 18 shows a summary of benefits and costs from housing impacts, annualized over the 10-year study period. Those who bought a new multifamily unit in the plan area saw the greatest benefit—about $1,500 to $2,800 annually—due mainly to increased accessibility, neighborhood amenities, and lower construction cost. The reduction in parking spaces reduced the construction cost of a new unit by several thousand dollars. While this would be a benefit to many households, those who preferred two or more parking spaces may have viewed the reduction in parking as a cost.

Based on our assumptions, the average existing renter could benefit as much as $1,500 annually, due mostly to amenity effects. Existing homeowners in the plan area—although there were very few—would have benefited from the increased neighborhood amenities, for a total benefit of about $700 to $1,500.

The degree to which households benefit from amenities depends on how they value amenities versus affordability. For low-income households who are sensitive to housing price increases, accessibility and other amenities impacts may be seen as a price increase rather than a benefit. Under these assumptions, the 26% of households that were low-income would have benefitted much less than other households, just $20 to $34/year, because the increase in multifamily housing supply meant rents were lower than they would have otherwise been.

Table 50: Annualized costs and benefits of housing effects (positive indicates benefits; negative indicates cost)

	Low-impact estimate	Midrange	High-impact estimate
Regional	**$38,238,116**	**$120,664,407**	**$224,287,644**
Supply increase impacts	$31,282,025	$107,042,747	$201,623,540
Accessibility benefit	$3,802,699	$7,686,949	$12,900,409
Amenities benefit	$2,235,683	$4,390,091	$7,584,408
Price change due to construction cost	$917,709	$1,544,620	$2,179,288
Municipal			
Household – existing single-family homeowner	**$727**	**$1,018**	**$1,454**
Supply increase impacts	0.00	0.00	0.00
Accessibility benefit		$-	
Amenities benefit	727	1018	1454
Price change due to construction cost			

Household - prospective buyers (multifamily units)	**$1,481**	**$2,079**	**$2,821**
Supply increase impacts	$18	$25	$30
Accessibility benefit	$510	$764	$1,019
Amenities benefit	$727	$1,018	$1,454
Price change due to construction cost	$227	$272	$318
Household - renters	**$789**	**$1,105**	**$1,572**
Supply increase impacts	$20	$28	$34
Accessibility benefit	$-	$-	$-
Amenities benefit	$769	$1,077	$1,538
Price change due to construction cost		$-	
Household - low income	**$20**	**$28**	**$34**
Supply increase impacts	$20	$28	$34
Accessibility benefits	$-	$-	$-
Amenities benefit	$-	$-	$-
Price change due to construction cost	$-	$-	$-

Finally, from the regional perspective, our analysis suggests that, by greatly increasing permitted housing density, the East Village plans produced very large benefits from higher land values. The annualized benefit to the region was large—from $38 to $224 million. The additional supply lowered prices modestly for individual households—on the order of $20-30 per year for an average unit. The plan also appears to have produced benefits by creating amenities and by allowing more housing units to benefit from transit accessibility. There is a modest benefit from reduced construction cost for new units, an effect achieved primarily by reducing parking requirements.

3.4 Commercial activity and employment

3.4.1 Changes in commercial space

The amount of commercial space in East Village grew by more than 5% between 2000 and 2010. (Commercial space includes all properties with use codes listed as “commercial” in tax assessor records, and does not include institutional or industrial space.) In 2010, the plan area had over 2,800,000 square feet of commercial space, according to tax assessor records. This space was highly accessible to Trolley rail transit stations, with 75% of the space located within 1,500 feet of a station. According to available tax assessor data, between 2000 and 2010, the plan area added at least 156,000 square feet in new buildings.[80] The actual amount of commercial space added was probably greater.

3.4.2 Employment changes from 2000 to 2010

East Village is the home of several major San Diego institutions, including Petco Park, the city's Central Library, the city's police headquarters, San Diego City College, and the NewSchool of Architecture & Design. As shown in Table 16, between 2000 and 2010, the total number of jobs in East Village declined slightly, from 14,579 to 14,482.[81] The largest drop in jobs was in public administration, with 2,169 fewer jobs by the end of the decade.[82] This drop is mainly due to how jobs were categorized, rather than widespread job losses. And, despite this drop, public administration remained the largest sector in 2010, accounting for 24% of employment. Transportation and warehousing made up the second largest sector: there were about 1,500 more transportation and warehousing jobs added between 2000 and 2010, and by 2010, this sector accounted for 20% of all employment in East Village. Educational services, which had previously been the second largest employment sector, dropped to the third largest in 2010, accounting for 12% of all jobs.

Table 51: Total employment changes in East Village, San Diego County and City of San Diego

	2000	**2010 Observed**	**2010-2000**	**% change**
East Village	14,579	14,482	-97	-1%
San Diego County (excluding East Village)	1,235,758	1,511,819	276,061	22%
City of San Diego (excluding East Village)	707,305	780,634	73,329	10%

Source: NETS

[80] The county tax assessor records only go back to 2004, so we estimated the additional floor area by subtracting the floor area in buildings constructed between 2000 and 2010 (156,341) from the total in 2010. Because some floor area may have been added in existing buildings, ours may be an underestimate, but the 2004 figure indicates our estimate is probably very close.

[81] In 2011, there was an increase in the number of jobs in East Village, rising to 15,442 in total (863 more than there were in 2000). 2011 saw continued growth in the transportation and warehousing sector, the information sector, the professional, scientific and technical sector, the arts, entertainment and recreation sector and the accommodation and food services sector.

[82] The biggest drop occurred in 2008, when 5,000 fewer jobs were accounted for in public administration. The decline in the public administration sector can be attributed to how jobs were reported. A block-level analysis reveals that the public administration job count for the block of the San Diego Police Headquarters dropped from 5,000 employees multiple years in a row to 0 in 2008. The sector regained half of the original employees in 2009.

The number of retail jobs actually declined over the decade, while the number of food services and accommodation jobs grew substantially. This increase was likely due to the influx of restaurants and bars to serve new residents of the area, patrons of Petco Park, and a more general regional demand. Despite the slight decline in the number of retail employees, the number of retail and food services establishments did grow during the study period. Similarly, the arts, entertainment and recreation sector grew by about 200 jobs during this period, which was to be expected with a new stadium in need of staff. The professional, scientific and technical services sector increased as well, growing from 5% of the total jobs in 2000 to 8% in 2010. There was some growth in the healthcare and social services sector, increasing from 2% of the total jobs in 2000 to 3% in 2010. This is likely due to an increase in the number of private practice healthcare establishments (e.g. dentists, chiropractors etc.), particularly in the new developments near Petco Park.

3.4.3 Impacts of the plan on commercial development

The East Village plans likely resulted in developers providing more commercial space in the plan area than they otherwise would have, for a few reasons. The plans resulted in more residents and institutions (like Petco Park) locating in the plan area than otherwise would, which created more local demand for services, retail, and restaurants—in addition to any increases in regional demand arising from population growth, the Trolley expansion, or other macro forces. Zoning allowed developers to respond to increased demand. Specifically, the plans included mixed-use zoning, which allowed commercial space throughout the plan area. In addition, the plans included FAR bonuses for ground-floor retail, which allowed developers to include commercial space without it counting against their density limit. This last provision applied only to development since 2006, but still could have had an effect. Finally, without the plans, commercial development would have also been more costly due to higher parking requirements. The result was developers providing more commercial space in the plan area than they otherwise would have. Overall, we estimate that roughly 80% of the new commercial space would have been built in absence of the plans.

3.4.4 Impact of the plans on employment

The plans increased the demand for and the amount of commercial space in the plan area, compared to what would have occurred in the absence of the plan. This change in commercial activity also impacted employment: it resulted in different types of jobs in the plan area, and likely slightly increased overall employment in the plan area. Many of the new retail and food service establishments were likely responding to demand created by the influx of residents and the siting of Petco Park. Rather than the 47% rate of job growth observed in retail, accommodation, and food services, growth in this sector would have been lower, closer to the overall retail job growth rate in the city (10%). We assume that in the absence of the plan jobs in retail, accommodation, and food services would have grown between 7 and 15% (Table 11). For similar reasons, jobs in arts, entertainment, and recreation, many of which are presumably related to Petco Park, probably would have located somewhere outside the plan area (e.g. wherever the ballpark located). We attribute between half and all of growth in this sector to the redevelopment plans (see Table 11).

Table 52: Assumptions for employment growth rates in East Village in the absence of the plan, 2000-2010

	Assumed job growth rate in rate in plan area, 2000 - 2010			
Sector	**Low-impact estimate**	**Midrange**	**High-impact estimate**	**Explanation**
Retail, accommodation and food services	15%	10%	7%	The siting of Petco Park and influx of residents probably increased these jobs. Assume that, in absence of the plan, would have been closer to the citywide sector growth rate of 10%
Arts, entertainment, and recreation	188%	94%	0%	Assume the plan was responsible for half to all of the job growth in this sector.
Health care and social service	30%	18%	10%	Assume growth rate would have been similar to the citywide rate and the plan area rate observed in the previous decade.
Construction	70%	54%	37%	In low estimate, assume the plan had no impact. High is equal to the citywide rate. Mid is the average
Manufacturing and wholesale	-48%	-29%	-9%	Low estimate assumes plan had no impact. High estimate is equal to the citywide rate. Mid is the average.
All other sectors	-4%	-4%	-4%	Assume the plan did not affect jobs in other sectors

Many new medical and dental offices opened in new development in the plan area, drawn by local demand and available office space. In the absence of the plan, some of these may have located elsewhere. We assume the growth rate would have been similar to that observed in the city as a whole and in the plan area in the previous decade, or about 18%.

We also expect a portion of the growth in construction jobs is attributable to the plan, but how much is uncertain. Therefore we assume that, in the high estimate, construction jobs would have been equal to the citywide growth rate of 37% (Table 11). In the low estimate, we assume the plan had no impact on construction jobs. The midrange is the average of the high and low.

Most of the 48% loss in manufacturing and wholesale jobs was probably due to macroeconomic trends and probably would have occurred regardless of the plan. However, the additional residential and commercial uses may have had the effect of displacing some manufacturing. In the City of San Diego, manufacturing jobs declined about 9% in the same period. Considering these facts, we assume that in the most conservative case the manufacturing job loss would have still been 48%, but in the opposite case the decline would have been equal to the citywide rate.

There is no indication the plan influenced the growth rate of jobs in other categories, so in the absence of the plan those would likely have followed the observed trend. With the above assumptions, we estimate that, without the plan, the total number of jobs in the plan area would have declined by 386, for a total of 14,193. In other words, we estimate the plans were responsible for a gain of 289 jobs in the Plan area. In the absence of the plan, these 289 jobs would have located in other areas of the City of San Diego.

Table 53: Observed employment changes and assumed changes without plans

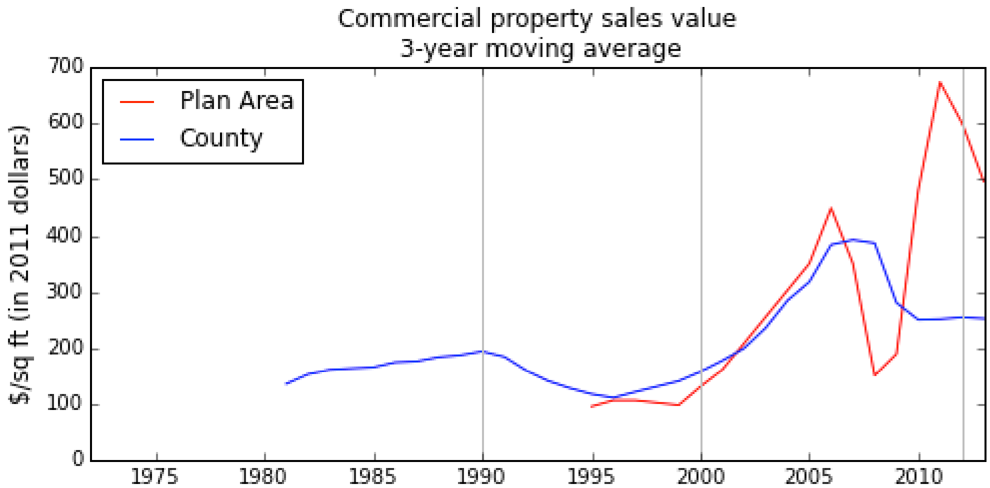
Jobs in plan area	Observed Values		2010 Counterfactual			Difference Actual-Counterfactual		
	2000	2010	Low	Mid	High	Low	Mid	High
Total employment	14,579	14,482	13,934	14,017	14,132	548	465	350
Health care and social service	267	423	347	316	294	76	107	129
Retail, accommodation and food services	1,154	1,698	1,327	1,269	1,235	371	429	463
Manufacturing and wholesale	1,239	639	639	883	1,127	-	(244)	(488)
Construction	132	224	224	203	181	(0)	21	43
Arts, entertainment and recreation	54	257	156	105	54	102	152	203
All other sectors	11,733	11,241	11,241	11,241	11,241	-	-	-

Source: NETS

3.4.5 Changes in commercial property values

Commercial property sales prices have risen in East Village and across the county. As shown in Figure 8 and Table 19 below, sales prices for commercial property began increasing in 1995. Starting in about 2002, commercial property prices per square foot in East Village eclipsed those in San Diego County, and they remained marginally higher until around 2007, peaking in 2006, when they began to fall back to their 2002 values. This followed the real estate drop during the Great Recession. Then, in 2009, as the effects of recession, commercial sales prices began an upward trajectory once again and shortly thereafter had surpassed the 2006 peak. This recovery is attributable to strong demand for downtown commercial space. Unlike in East Village, the County did not see a second upward trajectory in prices. The median sales price per square foot for properties in the plan area in 1999 to 2001 was $131 (in 2011 USD), which increased to $564 in 2011 to 2013, an increase of 330%. This is a far greater increase than the 60% growth observed in San Diego County.

Figure 18: Commercial property sales prices in San Diego County and East Village



Source: DataQuick

Table 54: Median sales price for commercial properties, 3-year moving average (2011 USD)

	2000	2010	2012	% change 2000-2012	Absolute change 2000-2012
Plan Area	$131	$466	$564	330%	$432
County	$156	$249	$250	60%	$94
Difference	-$25	$218	$313	270%	$339

Source: DataQuick

3.4.6 Impacts of the plan on commercial activity – costs and benefits

The analysis of commercial property values follows the same general approach as that for residential properties. The East Village plans could have affected commercial property prices in three ways: (1) by enabling regional supply to meet a growing regional demand, (2) by creating amenities that would be reflected in property values, or (3) by changing the cost of construction.

(1) Regional supply and demand effects

The plan may have increased commercial space in the plan area; however, because there is no evidence that the region's supply of commercial space was previously constrained, in the absence of the plan that space probably would have located elsewhere in the region. Therefore, the plan likely had no effect on regional supply.

(2) Changes in construction costs

As in the case of the residential property construction costs, the reduction in parking standards likely lowered the average construction cost for commercial development. Previously, commercial space in the plan area was required to provide 2.5 parking spaces per 1000 square feet. The Transit Area Overlay Zone reduced this requirement to 2.1. This policy change reduces average construction costs by $10 to $14/sq. ft., depending on whether parking is provided in structures or underground garages (the latter being more expensive). Over all newly constructed commercial space in the plan area, the reduced parking represents a savings of $1.5 million to $2.2 million.

(3) Changes in local accessibility and amenities

The plans may have led to greater development of commercial space in the East Village area. Assuming that commercial space would otherwise have been developed in a non-transit accessible location, the plan effectively meant more space was developed near transit. We can estimate the benefit from this increase in commercial space that can benefit from transit accessibility using the same approach as we did for residential property. The value of transit proximity is debatable however, with the literature finding as much as a 23% premium for land within ¼ mile of light rail (Cervero and Duncan 2002) to a slight negative impact for a subway (Bollinger, Ihlanfeldt, and Bowes 1998). Since East Village has light rail, we conservatively assume being within ¼ mile of a station increased commercial land values by between zero and 10%. Given a baseline median commercial property sales price of $262/sq. ft., of which 40% is land value, we estimate the value of transit accessibility in this case is as much as $10 per square foot. Over all additional commercial space in the plan area, the total benefit resulting from the plans for accessibility is therefore between zero and $500,000 .

By enabling a greater concentration of commercial space and employment in the plan area, the policies may have created agglomeration benefits, or benefits resulting from the spatial concentration of mutually reinforcing economic activity. For example, retail shops and restaurants might cluster in order to take advantage of pedestrian spillover from neighboring shops. In the East Village case, the high concentration of shops and restaurants in the vicinity of Petco park may benefit from this effect. Empirical evidence on the incidence of agglomeration effects is far from conclusive, however, so we include agglomeration effects only in the "high" estimate. The literature suggests a range of values for the elasticity of commercial land

value with respect to service employment density of between 0.001 to 0.1 (Sivitanidou 1996; Bollinger, Ihlanfeldt, and Bowes 1998; Cervero and Duncan 2002).[83] We chose to use a range of with a middle value of 0.1. In this case, given that land values make up 40% of total property values, the increase in service employment in the plan area translates to a premium of $3.40 per square foot. Over all commercial property in the plan area, this would be a benefit to the region of $9.4 million. This benefit applies only to the high estimate; in the low and midrange estimates we assume there are no agglomeration effects.

In sum, the annualized benefits relating to commercial property total between $212,000 and $1.7 million, as shown in Table 20. Of that, about $200,000 to 300,000 was from reduced construction cost from lower parking requirements. The remaining amount was from accessibility and agglomeration effects.

Table 55: Summary of impacts as reflected in commercial property prices (2000-2010)

Perspective	**Low-impact Estimate**	**Midrange**	**High-impact Estimate**
Societal	**$113,580**	**$145,223**	**$1,044,647**
Accessibility + agglomeration effects	$-	$8,927	$885,635
Price change due to construction cost	$113,580	$136,296	$159,012
Municipal			**n/a**
Household - average homeowner			**$-**
Household - prospective residents			**$-**
Household - renters			**$-**

[83] See the general methodology section in the final report for details on how we

3.5 Municipal finances

Below we estimate what actually occurred in each major fiscal category between 2000 and 2010. (All figures are in 2010 USD, unless otherwise noted.) The East Village plans could have affected municipal finances in several ways. They could affect revenues by shifting taxable property value into or out of the city, or by increasing (or decreasing) the total amount of property tax revenue through economic growth (or decline). They could also affect one-time revenues if development impact fees vary spatially, or if they cause development to move into or out of the city. They could affect expenditures by changing operating and capital costs through greater (or lower) efficiency, or by changing the number of persons served. As we have discussed, any population or employment growth caused by the plans was merely spatially redistributive; without the plan it would have occurred elsewhere in the city.

3.5.1 Property tax revenue

Between 2000-01 and 2011-12, the city's property tax revenue rose from $157 million (2000 USD) to $299 million (2011 USD), a 90% increase in nominal terms.[84] In East Village during the same period, assessed value rose by 174%. Because East Village was in a Centre City Development Corporation redevelopment area, the increases in property tax revenue above the neighborhood's base valuation did not flow to the General Fund, but were rather used to finance redevelopment activity.[85] The plan allowed the city's Centre City Development Corporation to receive property tax revenue that would have otherwise gone to the city's General Fund, county, schools and other taxing jurisdictions.

Without the plan, the neighborhood would have had between 80% and 89% of its 2010 intensity, based on combined population and employment. We use this as a proxy for land use intensity and multiply it by the actual 2010 East Village property tax revenue to estimate $2.1 million to $2.3 million in municipal property tax revenue generated in East Village in absence of the plan.[86] In the absence of the plan, some of the residents

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[84] Citywide property tax figures are based on the municipal reporting to the state's *Cities Annual Report*.

85 Civic San Diego provides a simple chart illustrating tax increment financing: http://www.civicsd.com/about-us/financial-information/overview.html. For a more detailed discussion of tax increment financing in California, see "The Demise of TIF-Funded Redevelopment in Californian: http://www.planningreport.com/2014/07/24/demise-tif-funded-redevelopment-california

[86] In this case, comparing property tax revenues in absence of the plan to actual revenues is to some extent like comparing apples and oranges. As described above, under the East Village plans, new development in the area did not lead to additional General Fund revenue from property tax revenue, but rather contributed to CCDC redevelopment funds for East Village. This is short-term revenue foregone by the city (and other taxing entities) with the expectation that it will lead to longer term increases in General Fund property tax revenue.

accommodated by new housing in the plan area would instead reside outside the plan area. In the low estimate case, we assume these residents generated the same amount of property tax revenue regardless of where they lived, in which case the plan's impact on property tax revenue would be zero. But it is likely that by living in locations in which housing units are larger, more likely to be single family, and are more expensive with more land, these residents would have generated property tax revenue at closer to the citywide per capita average. In this case, they would produce up to $1.2 million annually in property tax revenue. The net result is that the plan – by enabling tax increment finance – may have increased the property tax revenue going to the Centre City Development Corporation by over $7 million per year over the study period.[87]

From the regional/societal perspective, the use of TIF is redistributive because it partially reallocates property tax revenue that would have otherwise gone to other taxing jurisdictions to the redevelopment agency to fund local improvements.[88] This additional revenue was used to make local investments, so it did not benefit the General Fund in the immediate term. And, over the long run, if the plan led to new development that otherwise would not have occurred, there will be both municipal and regional benefits.

3.5.2 Municipal operating expenditures

In East Village, the city's annual expenditures in 2000 on police, fire, parks and streets were $1.9 million (2010 USD). By 2010, expenditures had risen to $6.2 million. There are several explanations for this rise. First, the residential population in East Village nearly doubled, which explains most of the increase. Second, there were some major changes to the city's budget. Citywide, in 2000, the net operating expenditures for parks and streets were actually positive. That is, the city received more functional revenues related to parks and streets than it spent on these services. By 2010, however, the city was spending more than it was receiving in these categories, with the city spending $10 per capita on parks and $92 per capita on streets.

Our municipal operating expenditure estimates are tied closely to residential density. Population density citywide in 2000 was about 3,800 persons per square mile and increased to 4,000 persons per square mile by 2010. This resulted in more efficient

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[87] This is a conservative estimate because our parcel dataset goes back to 2000, not 1992 when the plan was adopted.
[88] The 2010 CCDC budget included $19 million in tax sharing payments, equivalent to 14% of the agency's TIF revenue (Centre City Development Corporation 2009).

provision of public services citywide. The density increases in East Village were more dramatic, rising from 6,700 to nearly 12,000 persons per square mile. In both periods, we expect that public services were provided more efficiently in East Village than citywide due to higher residential densities.[89]

In the absence of the plan, fewer people would have lived in East Village, and the population density would have been 59% to 80% of the actual population density in 2010. These people would instead live in less dense areas outside East Village. Applying the elasticities presented by Carruthers and Ulfarsson (2008) and accounting for the lower population, we estimate the cost to serve East Village with police, fire, parks and streets would have been roughly averaged $4.3 million, but the city would have spent an average of about $2.1 million on police, fire, parks and streets for the additional residents outside East Village. In total, because the plan resulted in people living at higher densities, the city saved about $192,000 to $232,000 per year in operating costs.

3.5.3 One-time revenue

Our one-time revenue estimates are based on residential growth, because commercial square footage data were not available at the time of writing. The 5,607 new attached units and 8 new single-family units would have generated about $34 million in impact fee revenue, or over $8,000 per unit. In absence of the plan, there would have been 398 to 2,540 new units built in the plan area. These units would have generated about $2.4 million to $15 million in impact fee revenue. All of the housing units built outside of the plan area would have been in the city of San Diego. These units would have generated higher per-unit impact fees than the units built in East Village because they are in neighborhoods that are less built-out, with higher fees because the city assigns the new units with more responsibility for funding infrastructure. These units outside the plan area would have generated $76 million to $99 million in impact fee revenue. In total, the city of San Diego would have received $91 million to $101 million in impact fee revenue in the absence of the East Village plans. In comparison, $45.4 million in impact fees in the

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[89] There are some estimation issues in East Village, however. The neighborhood was (and is) parks deficient, so it's not clear whether parks spending per capita was the same or less in the neighborhood. In terms of police provision, East Village could have greater needs if there were higher crime rates or the social services in the neighborhood required higher than average police calls per capita. East Village probably has high, though not the highest, crime rate in the city: http://www.sandiego.gov/police/pdf/2014/201409ratecumneighborhood.pdf. On the other hand, the city's police headquarters is located in East Village at 15th and Broadway, suggesting that officers have a short distance to travel for calls.

plan area was actually observed in 2010. Thus in the absence of the plan, the city would have collected roughly twice as much in impact fee revenue.

As mentioned above, interviews with facilities finance planners in San Diego suggest that impact fees are intended to cover the costs of the new development. Although some argue that these fees do not generally cover all infrastructure needs in reality, the gaps are seldom filled with general fund monies. As such, it seems reasonable to assume that impact fees and capital expenditures are roughly equivalent at about $28 million.[90]

3.5.4 Capital expenditures

According to a July 2014 interview with Megan Sheffield, the City views impact fees as covering the costs associated with the new development itself, but that means that there is a gap to fund new infrastructure and facilities because the cost of each new infrastructure project is allocated to both existing and projected development. The city's General Fund has not been used much to fund infrastructure or public improvements in built-out areas, so these needs often remain unfilled. As such, we estimate that capital expenditures would have also been about $45 million, the same amount as the total impact fees. We do not include public subsidies to Petco Park in the capital expenditure calculations.

Redevelopment funds underwrote many local capital improvements. For example, in the CCDC 2010-11 budget, Island Avenue sidewalk improvements, several traffic signals, public improvements on Broadway were funded. Larger, longer-term projects included affordable housing (20% of funds set aside), parks and parking structures. The 2010 CCDC budget includes about $11.6 million in expenditures focused on East Village, along with general downtown-wide expenditures (Centre City Development Corporation 2009). About 67% of the redevelopment agency's revenue was from non-affordable housing tax increment, which we assume covered $7.8 million in East Village expenditures.

3.5.5 Overall effects of the plan on municipal finance

Overall, the East Village plan had a positive effect on municipal finances during the study period, as shown in the summary in Table 22. The plan benefitted San Diego by an average of about $100,000 per year or $0.68 per household. The plan increased property tax revenue through the tax increment finance mechanism, but this additional revenue was offset by spending on public improvements in the plan area. Over the long-term, if the redevelopment plan led to development that otherwise would not have occurred, we

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[90] If there is a gap between the infrastructure needs associated with growth and the impact fees assessed, this would be a cost to new residents. We do not have the data to estimate this.

will see a bigger net benefit for the region and municipality. The East Village plan led to more efficient provision of municipal services, on the order of between $192,000 to $232,000 annually. The plan resulted in lower impact fee revenue, but we assume that this was offset by less spending on capital costs, so in this area the plan's effects are marginal.

Table 56: Summary of municipal fiscal impacts annually (2011 USD)

	Net annual benefit (cost)		
	Low Estimate	Midrange	High estimate
Regional	**$181,609**	**$104,639**	**$(20,582)**
Property tax	$7,756,563	$7,656,896	$7,514,899
Operating expenditures	$192,316	$215,013	$231,790
Impact fees	$-	$-	$-
Capital expenditures	$(7,767,270)	$(7,767,270)	$(7,767,270)
Municipal	**$181,609**	**$104,639**	**$(20,582)**
Property tax	$7,756,563	$7,656,896	$7,514,899
Operating expenditures	$192,316	$215,013	$231,790
Impact fees	$-	$-	$-
Capital expenditures	$(7,767,270)	$(7,767,270)	$(7,767,270)
Households (all types)	**$0.88**	**$0.68**	**$0.38**
Property tax	$17.21	$16.99	$16.67
Operating expenditures	$0.20	$0.23	$0.25
Impact fees	$-	$-	$-
Capital expenditures	$(16.54)	$(16.54)	$(16.54)

3.6 Vehicle travel

As East Village's residential population grew, the share of residents riding public transit to work shrank considerably, from 30% in 2000 to 8.5% in 2010. This decline is a function of rising incomes and auto ownership rates of East Village residents. Population growth took place over this time frame: there were 2,200 employed residents in 2000, which increased to roughly 5,600 by 2010. Yet, despite this increase in population, the actual number of workers commuting using transit dropped from 650 to 475. On the other hand, the transit mode share in East Village was still twice as high as in the city was a whole, where only 4.2% commuted by transit.

The share of commuters walking or biking also fell slightly over this ten-year timeframe, though to a much lesser degree than the decline in public transit use. In 2000, 20% of workers walked or biked to their places of work and in 2010 about 18% of workers used non-motorized modes. East Village remains a short walk or bike ride away from San Diego's CBD. This decline is similar to citywide shifts, with the share of workers using non-motorized modes falling slightly from 4.3% to 3.8%. Meanwhile, the percentage of workers using private vehicles for their commute increased from 45% in 2000 to 64% in 2010. Despite these trends toward more car use, plan area residents still generated less vehicle travel than did residents in the rest of the region. In 2010, the average plan area resident generated 10.4 vehicle miles traveled (VMT) per day, much lower than the city and statewide averages.[91]

The East Village plans affected VMT through land use, population, and demographic mechanisms. The increase in housing and employment in East Village put more residents and workers within access of transit. The growth of commercial establishments placed more services and workplaces within walking and biking distance of more residents and workers. More people had more opportunities to use transit, walk and bike than they otherwise would. At the same time, the higher density may have increased congestion, and the reduced parking supply made parking scarcer and more expensive, discouraging automobile travel. Finally, the increase in population meant more residents were able to live in a central location, likely reducing their commute distance and leading to shorter trips. On the other hand, demographic shifts, particularly growth in higher income households, may have increased vehicle ownership rates and auto use in the plan area. However, in the absence of the plan, these residents would have still owned and driven cars, and they would have lived in less central locations, which means they would likely drive even greater distances. All of these effects—greater accessibility by alternative modes, costlier automobile travel, and shorter trips—reduced VMT compared to what would have occurred without the plan.

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[91] This is based on data from the California Household Travel Survey. It is estimated as unique vehicle trips for residents of plan area tracts divided by number of respondents in tracts.

3.6.1 Residents' Personal Vehicle Travel

The greatest change in vehicle travel can be attributed to residential growth and higher densities in East Village. If the plan had not allowed greater housing development, households that moved into East Village would have instead lived in less centrally located, less transit-accessible, and less job-rich areas of San Diego. Non-motorized or public transit commuting would have been more difficult for these residents, and if they drove, they would likely have longer commutes. Input values to the ARB/Salon tool for the plan area and City of San Diego are shown in Table 23. We assume residents who moved into the plan area otherwise would have lived elsewhere in the city. With these assumptions, the plan allowed new residents to East Village to collectively reduce VMT by anywhere from 15,000 to 24,000 miles per day (Table 25). That is, the average new East Village resident drives 5-6 fewer miles per day compared to an average resident living elsewhere in the city.

Table 57: Input values for Salon tool: Changes in travel and land use in Plan Area and City of San Diego

	2000		2010		
Variables	**Plan Area**	**City of San Diego**	**Plan Area**	**Plan Area, Without Plan**	**City of San Diego**
% of commuters using transit	29.7%[a]	4.9%	8.5%[b]	20%	4.1%
% single-family homes	4.6%[a]	46.7%	1.7%[b]	4.6%	46.7%
road density (road miles per square mile)	18.1[c]	13.7	18.1[c]	18.1	13.7
local job access (gravity-based job density)	20.9[c]	6.43	21.48[c]	21.4	6.7
% non-motorized mode commute share	20.1%[a]	3.8%	17.6%[b]	20.1%	4.4%

Sources: [a]2000 Census, [b]2008-2012 ACS 5-year estimates, [c]Salon tool

Residents in East Village who initially lived and stayed in East Village likely did not change their travel much. Initial residents of the plan area were poorer, less likely to have access to a vehicle, and more reliant on public transport. These residents would have had lower average VMT than the neighborhood's new residents. Additionally, as the two trolley stops already existed in the neighborhood, these residents already had convenient access to the city's transit network. The plan did not greatly increase the number of jobs in the neighborhood; rather it changed the composition of jobs. Accordingly, job access did not increase greatly for these residents either. Given these figures, we estimate that initial residents of the plan area who stayed there may have reduced their vehicle travel or slightly increased it, but either way the effect is less than one vehicle-mile per person per day, for an aggregate increase of up to 813 miles per day, or an aggregate decrease of up to 4,585 miles per day (Table 23).

Table 58: Estimated VMT impacts of plan

	Low Estimate (miles per day)	**High Estimate (miles per day)**
Change in total VMT		
New residents added to plan area (who otherwise would have lived elsewhere)	-15,592	-19,190
Residents who initially lived in plan area (and continued to live in plan area)	813	-4,585
Workers who initially worked in plan area (and continued to work in plan area)	-46	-46
New workers added to plan area (who otherwise would have worked elsewhere)	33	52
Total Impact of plan on VMT	**-14,774**	**-23,803**
Average VMT impact per resident	**-1.19**	**-1.92**
Average VMT effect per worker	**0.00**	**0.00**

3.6.2 Workers Personal Vehicle Travel

The plan slightly increased employment density in East Village, as presented in Table 24. This increase in job density likely reduced VMT by a small amount, as residents and workers alike could access more destinations without driving a car. However, regional destination accessibility (including to employment elsewhere in downtown San Diego) was unaffected, as the plan presumably had no impact on greater regional trends. The plan had very little impact on VMT for workers of the plan area – it only added 289 jobs – there was little change in the destination access for workers in the region. Additionally, while the added workers saw a great increase in destination accessibility compared to their previous locations (which we assume to be represented by the city average job density), these workers are few in number. The total effect of the plan on workers' vehicle travel is only on the order of ten vehicle-miles per day, as shown in Table 25, negligible in comparison to the effect on residents' travel.

Table 59: Workplace employment density estimates and assumptions

	2000	**2011 Observed***	**2011 Without Plan***
Plan Area (workers per sq mi)	16,380	15,741	15,517
City of San Diego (workers per sq mi)	2,225	2,439	2,439

Source: NETS

**Data are from 2011 to better capture post-recession trends.*

3.6.3 Overall range of VMT impacts

Our analysis suggests that the East Village plan reduced daily VMT by 15,000 to 24,000 vehicle-miles per day (Table 25). The average East Village resident in 2010 would have traveled one or two fewer vehicle-miles per day; for comparison, we estimated the baseline VMT for residents of the plan area as 10.4. The reduction in VMT is mostly due to the fact that the plans permitted more San Diego residents to live and work in East Village than would have in the absence of the plans.

We estimate that each vehicle mile traveled has a marginal personal cost of 22.4 cents (2011$) and a societal cost of 3.5 cents to 4.22 cents (2011$), although this neglects the social costs of other travel modes. In the worst case, personal vehicle travel costs for the average pre-existing household increased by $14 per year and in the best case decreased by 81 per year. The average household moving into the plan area saved a roughly estimated $440 to $745 per year in vehicle costs, compared to what they would have spent if they had lived somewhere else in the region, although a portion of this would have been offset by additional costs from using transit or other modes.

The plan likely reduced VMT for residents moving into the plan area, producing considerable benefits for the region and for individual households. Households that moved into the plan area benefitted most. Their reduction in VMT is attributable primarily to better job accessibility by non-auto modes and shorter trips. Households already in the plan area likely experienced small reductions in vehicle travel due to the increase in local activities. For both new and existing residents, part of the decrease in vehicle travel may be due to greater congestion and costlier parking. While these factors might induce people to spend less on vehicle travel, they would also reduce mobility, a cost for residents. However, it is beyond the scope of this analysis to separate the VMT effects into those stemming from accessibility and those from congestion. The region benefits from reduced external costs and from the aggregate individual savings of workers and residents. We estimate regional benefits at between $1.4 million and $5.6 million annually (Table 27).

It is important to note, however, that we have already accounted for the benefits of transit accessibility for relocating residents (who are the same as prospective buyers) in the residential property section, so to include VMT impacts in the final estimate of benefits and costs would be partial double-counting. Because we believe the accessibility estimate to be more accurate than the VMT estimate, we chose to use the former in the net accounting.

Table 60: Annualized benefits and costs of vehicle travel (2011 dollars)

	Net benefits (costs)		
	Low	**Midpoint**	**High**
Regional	**124,563**	**2,081,897**	**4,039,230**
Personal cost for residents and workers	(66,806)	154,161	375,127
External costs	191,369	1,927,736	3,664,103
Existing households in plan area	**-$14**	**$33**	**$81**
Households moving into plan area	**$441**	**$593**	**$745**

4 Discussion and conclusions

4.1 Summary

Based on our analysis, the net effects of the plans on East Village were positive for the region, the city, and individual households (Table 26 and Table 28). This was in large part due to the Centre City Development Corporation's (CCDC) addition of East Village into its downtown redevelopment initiative. The redevelopment focus brought financial resources, streamlined CEQA review, increased allowable density, decreased parking requirements, and required some mixed-use development in East Village. Redevelopment in East Village made possible some large-scale projects, including Petco Park and the central library. The plans rezoned a large amount of land for high-density housing. These policy changes led to an increase in housing supply, meeting a rising demand for downtown- and transit-accessible, multifamily housing. The East Village plans also allowed a slight increase in small business activity. Residents and employees who otherwise would have located in more dispersed locations instead concentrated in East Village. This created household and regional benefits from greater municipal service efficiency, lower per capita vehicle travel, and possibly agglomeration effects. The plan had positive regional and local impacts from more efficient provision of municipal services, increased tax revenues, and other impacts. These fiscal benefits may be partly passed on to residents as reduced taxes or improved services.

Table 61: Summary of net annualized benefits and costs from the regional and municipal perspective

Perspective	Estimated benefit (cost)			Description
	Low-impact estimate	**Midrange**	**High-impact estimate**	
Regional				
Residential property	38,238,116	120,664,407	224,287,644	Benefits from greater supply of multifamily housing. Benefits from more housing units near transit and savings due to slightly lower construction costs from more flexible parking requirements.
Commercial property	113,580	145,223	1,044,647	Benefits arose from agglomeration effects more commercial space taking advantage of accessibility.
Fiscal	181,609	104,639	(20,582)	Benefits from more efficient provision of public services, partially offset by lower property tax revenue.
Vehicle travel	124,563	2,081,897	4,039,230	Lower external costs from vehicle travel due to more residents and workers benefitting from transit and job accessibility.
Total regional	**$38,657,869**	**$122,996,167**	**$229,350,939**	
Municipal				
Residential property	0	0	0	Not applicable
Commercial property	0	0	0	Not applicable
Fiscal	181,609	104,639	(20,582)	Benefits from more efficient provision of public services, partially offset by lower property tax revenue.
Vehicle travel	-	-	-	Not applicable
Total municipal	**$181,609**	**$104,639**	**$(20,582)**	

While the East Village plans generally had benefits for the types of households we considered, those benefits were not evenly distributed. As shown in Table 27, prospective residents likely benefitted most from the policy changes. Existing homeowners benefitted considerably as well, although very few households initially owned homes in the plan area. It's likely that low-income households—or households who do not highly value the neighborhood's new amenities—benefitted very little. Moreover, our analysis was not able to quantify effects on households that may have been displaced by redevelopment initiatives or rising housing prices; it's likely these households were negatively impacted. Nor were we able to account for the homeless population, for whom the neighborhood changes likely made life more difficult. Additionally, we did not consider impacts on specific groups of households outside the plan area. Although the average household in the region benefitted from the plans, owners of multifamily housing would have experienced a small cost due to a decrease in their home's value. If the East Village attracted development or public funding that would have otherwise gone to other specific neighborhoods, households in those specific neighborhoods would have been negatively impacted. Thus, while our analysis suggests the smart growth policies in this case produced benefits, one must keep the potential negative impacts—which would have been more dispersed and difficult to quantify—in mind.

Table 62: Summary of net annualized benefits and costs from the perspective of different types of households

Perspective	Estimated benefit (cost)			Description
	Low	Mid	High	
Household - average homeowner				
Residential property	727	1,018	1,454	Benefits from increased local amenities such as shops, restaurants, and improved streetscape.
Commercial property	-	-	-	Not applicable
Fiscal	1	1	0	Benefit from more efficient provision of public services
Vehicle travel	(14)	33	81	Households benefit from improved pedestrian environment and job accessibility.
Total household - average homeowner	**$713**	**$1,052**	**$1,535**	
Household - prospective residents				
Residential property	1,481	2,079	2,821	Benefits from accessibility, amenities, lower prices due to increased supply, and lower construction costs due to more flexible parking.
Commercial property	-	-	-	Not applicable
Fiscal	1	1	0	Benefit from more efficient provision of public services
Vehicle travel	-	-	-	Households benefit from greater job and transit accessibility, but is already captured in residential property estimate.
Total household - prospective buyers	**$1,482**	**$2,080**	**$2,821**	
Household - renters				
Residential property	789	1,105	1,572	Existing renters benefitted from increased local amenities. Small benefit from lower rents due to increase in regional multifamily supply.
Commercial property	-	-	-	Not applicable

Fiscal	1	1	0	Benefit from more efficient provision of public services
Vehicle travel	(14)	33	81	Households benefit from greater job and transit accessibility.
Total household - renters	**$776**	**$1,139**	**$1,654**	
Household - low income				
Residential property	20	28	34	Small benefit from lower rents due to increase in regional multifamily supply.
Commercial property	-	-	-	Not applicable
Fiscal	1	1	0	Benefit from more efficient provision of public services
Vehicle travel	(14)	33	81	Households benefit from improved pedestrian environment and job accessibility.
Total household - low income	**$34**	**$35**	**$40**	

4.2 Implications for policy

This analysis suggests that, in the case of East Village, the combination of public investment in neighborhoods, increased development certainty, and the relaxation of development regulations benefited households, municipalities and regions. A few measures were of particular importance: the removal of density from discretionary review; a decrease in parking requirements; an increase in maximum FAR; and greater emphasis on mixed-use designs in certain areas. The single largest beneficiaries in the East Village case were likely owners of developable land in the plan area that was rezoned to higher density, who would have suddenly found their land much more valuable. We did not directly consider these landowners as a party in our analysis, though. Municipalities and existing homeowners may be the clearest beneficiaries, whereas the benefits to renters and low-income households depend on the extent to which these households value certain types of neighborhood improvements. Households vulnerable to displacement may be negatively affected by these type of smart growth plans, although the extent of the impact is difficult to quantify. Our analysis nevertheless suggests that smart growth policies have potential to generate overall positive impacts for society. A challenge for policymakers is therefore to find ways to distribute those benefits more equally.

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Appendix A: Interviewees

Name	Title	Organization
Nancy Bragado	Deputy Planning Director	City of San Diego
William Fulton	Planning Director (at the time of interview)	City of San Diego
Megan Sheffield	Facilities Financing Project Manager	City of San Diego
Michael Stepner	Faculty Member	NewSchool of Architecture + Design

APPENDIX H: Case Study 3: Rio Vista West, San Diego

Executive Summary

Background and the plans

Rio Vista West is one of San Diego's earliest and best known transit-oriented development (TOD) sites. Located in Mission Valley on the San Diego River, Rio Vista was formerly the site of sand and gravel extraction. During the 1950s, as highways were built from central San Diego to Mission Valley, commercial development expanded into the area. With the expansion of the San Diego trolley system to Mission Valley – the Rio Vista station opened in 1997 – Rio Vista was the first new development under San Diego's 1992 citywide TOD guidelines. Construction began in the late 1990s and Rio Vista development was completed in 2006 (Inam 2012). The adopted plan for Rio Vista, designed by Peter Calthorpe, included more than 1,000 residential units, 250,000 square feet of retail, 165,000 square feet of office, and about two acres of open space (Inam 2012).

The key smart growth concepts in Rio Vista included pedestrian-friendly design elements—such as sidewalks, open spaces, and small-scale, ground floor retail—and a transit-accessible site. It's not clear whether the form of development actually built in Rio Vista was driven primarily by developers and the market, or by city planners and the Rio Vista plans. If the changes were primarily market-driven, the plans had little impact. But it's plausible the design elements called for in the plan would not have been provided by the market—in this case, the design requirements resulted in building types slightly different from what would have been built in the absence of the plan. Specifically, compared with the status quo, the plans required more vertical mixed use, more pedestrian connectivity and internal parking that is "hidden" within the building. Even though the plans did not directly mandate higher density development, the whole design package ultimately brought more units to the market for rent or sale than in a more conventional development. These additional units accommodated up to 1,200 more residents, who otherwise would have located in less centrally located and lower-density locations to live in Rio Vista.

Findings

Overall, whether the Rio Vista plans' impacts were a net positive or negative depends largely on two factors: (1) whether the development types in the plan area were driven by market demand and developers' perception of the market, or by the city and planners' design requirements and (2) the extent to which residents value Rio Vista's built environment amenities.

From the regional perspective, if the plans compelled developers to use a denser and more complex building type compared to what they otherwise would have built, the plans most likely had a negative impact. Construction costs in this case would be higher, and would not be offset by the greater amenities, more efficient service provision, and reduced vehicle travel. If instead the plans had no effect on the building type, their effect would be only to require additional improvements like pedestrian connections that developers would not otherwise provide, which would confer a small benefit.

Whether or not individual households benefited is also ambiguous. In the case the plans did influence the building type, households would be left paying for something (i.e., internal parking) they don't really need or want. Thus in the high estimate, households face a net cost of about $500 annually. However, if the plan had a more modest impact, the net effect on households would be positive. The plan likely produced benefits in from of greater accessibility and reduced vehicle travel, although these impacts were in most cases much smaller than the housing development impacts.

From the municipal perspective, assuming the plans resulted in denser building types, the higher density reduced the cost of municipal service provision, a benefit for the City of up to about $100,000 annually.

Summary of annualized benefits and costs of Rio Vista plans (in 2011 USD, costs presented as negative)

Perspective	Low estimate	Midrange estimate	High estimate
Regional			
Residential property	$466,810	$(2,014,682)	$(6,748,791)
Commercial property	$0	$0	$0
Fiscal	$0	$66,074	$117,364
Vehicle travel	$75	$358,559	$717,042
Total societal	**$466,885**	**$(1,590,050)**	**$(5,914,384)**
Municipal			
Residential property	$0	$0	$0
Commercial property	$0	$0	$0
Fiscal	$0	$66,074	$117,364
Vehicle travel	$0	$0	$0
Total municipal	**$0**	**$66,074**	**$117,364**

Household - prospective buyers			
Residential property	$931	$353	-$1,437
Commercial property	$0	$0	$0
Fiscal	$0.00	$0.06	$0.10
Vehicle travel*	$0	$467	$935
Total household - prospective buyers	**$931**	**$820**	**$(502)**

*The vehicle travel impact for households applies only to households who moved to the plan area from elsewhere. In the low estimate, all of the households who moved to the plan area would have moved there regardless of the plan, so there is no impact.

The Rio Vista case highlights some of the challenges that have faced suburban transit-oriented development implementation in California. For example, policies intended to encourage walking and transit use were offset by road capacity standards that assumed all residents would drive. Even though the plans reduced parking requirements, developers declined the option because they believed the market would not accept less parking. In addition, Rio Vista's location at the hub of highways and regional commercial uses made automobile use predominant regardless of how strong the transit-oriented design. Partly as a result, although the Rio Vista development may have been successful in the real estate market, it fell short of its goal of reducing auto use.

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1 Context

The Rio Vista area in San Diego includes some of the city's earliest transit-oriented development (TOD). Designed in 1992 and built between the late 1990s and 2006 around the Rio Vista light rail (or "trolley") station, the development was intended as the first newly-developed TOD in the city, and served as a testing ground for local land use and urban design policy (Inam 2012). Rio Vista follows the city's 1992 TOD Design Guidelines, which were prepared by the urban designer Peter Calthorpe's firm, Calthorpe Associates, and which made San Diego the second city in the country to adopt citywide TOD design guidelines (Inam, 2010). Local planners aspired for Rio Vista to be a model for the city's transit-oriented future (Stepner, 2014). The major developer in Rio Vista, Sudberry Properties, promoted Rio Vista's TOD credentials on its website: "it's a throwback to the urban village… Rio Vista West is going to be a place where people wander through their neighborhood for something other than a parking place" (Sudberry Properties 2010). Quoting Calthorpe, the website continues: "Rio Vista West will serve as an ideal demonstration project to show how planning concepts can be transformed into reality…. Parents will be able to send their children to the corner for ice cream or a loaf of bread without fear of their having to cross major thoroughfares in order to get there." (Sudberry Properties 2010). Calthope's plan for Rio Vista contained many design elements common to smart growth projects, like small-scale ground-floor retail, higher-density building types, architecture that minimizes visibility of cars, and landscaped common spaces.

Three decades of planning initiatives have shaped the Mission Valley and the present-day Rio Vista plan area. The station area plan called for over 1,000 housing units (including townhomes, apartments and condos), 250,000 square feet of retail, 165,000 square feet of office, along with about two acres of open space. According to developers and planners, development around Rio Vista has been successful in the real estate market (McMahon, 2014; Sessa, 2014). However, as others have noted (Inam 2012) and as we will see, its performance as a transit-oriented development is much more dubious—despite planners' ambitious and the development's proximity to rail transit, automobile use remains the norm.

Figure 19: Rio Vista West plan area location in San Diego

1.1 The evolution of development near Rio Vista

Rio Vista lies in the Mission Valley on the northern bank of the San Diego River, near the geographic center of San Diego. Bluffs and the San Diego River separate Mission Valley from the city, and Mission Valley was previously used for farming and later gravel quarries. Urban development began in 1958 with the Mission Valley Center shopping mall, followed by regional freeways, more shopping malls, golf courses, and Jack Murphy (now Qualcomm) Stadium. With the addition of office buildings, the area became a major regional employment and shopping center. Mission Valley is connected by several major freeways, including Interstates 5, 8, 15 and 805, and CA 163. The area thus served important regional economic and transportation functions when planners began targeting it for residential development in the 1980s. Now home to both residences and regional employment and shopping, Rio Vista lies at a point of tension between the regional transportation system and local transportation needs. That is, the Mission Valley road network must serve multiple purposes: through traffic passing between northern San Diego and downtown, traffic from around to the region heading to Mission Valley, and local circulation of residents, workers and shoppers within the area.

Figure 20: Rio Vista study area

1.2 Plan, policies and projects related to Rio Vista

Over the past three decades, development in Rio Vista has been subject to several adopted plans and policies including the Mission Valley Community Plan, the Mission Valley Planned District Ordinance (PDO), and the First San Diego River Improvement Project Specific Plan. These – along with the most relevant citywide plans and policy changes – are described below. We describe these policies and plans that targeted the Rio Vista area as “the Rio Vista plans,” or simply “the plans.”

Table 63: Major Plans and Policies Related to Rio Vista Study Area

Plan	Year Adopted	Last Modified
Mission Valley Community Plan	1985	2013
Mission Valley Planned District Ordinance	1990	2007
Citywide TOD Guidelines	1992	
First San Diego River Improvement Project Specific Plan – Rio Vista West Plan Amendment	1993	1999
Citywide Transit Area Overlay Zone	2000	
Land Development Code	2000	2014

1.2.1 Mission Valley Community Plan (1985) and Planned District Ordinance (1990)

The original Mission Valley Community Plan was adopted in 1985 and laid the framework for residential growth in Mission Valley. As of 2014, it had been amended approximately twenty times (Schoenfisch, 2014). The Community Plan laid out a vision and preferred alignment for rail transit. It planned for growth across Mission Valley that would be "limited by the ability of the surface street system to carry the traffic" but also prescribed that the "base development intensity is to be increased as additional transportation opportunities become available."

The Planned District Ordinance (PDO), adopted in 1990, codified the Community Plan. The PDO split the Mission Valley into different planning areas. Whereas the Community Plan laid out concepts for the area, the PDO specified more formal development regulations (Sessa, 2014). The original PDO prescribed guidelines to support transit, including mixed uses and relatively high densities. However, our interviews suggested that the auto-oriented development standards made higher density development difficult to implement. The PDO relied on ADT (Average Daily Trips) counts as the primary criterion for development approval; higher density projects would generate more ADT and therefore would be less likely to obtain planning approval (see Table 3). Rio Vista area projects can only receive a ministerial permit[92] if they produce less than 140 ADT per gross acre. Projects located within 1,500 feet of the light rail station are eligible for ADT threshold increases per acre to as much as 350 ADT. If projects are not granted a ministerial permit, they are subject to a discretionary review process (which introduces risk and delay into the development approval process), or a discretionary permit and a

[92] A ministerial permit is a government decision that requires no specific discretion or individual judgment, and instead relies solely upon fixed standards or objective measurements. This is development allowed "by right."

plan amendment. The PDO has been amended several times since then, but the ADT-related criteria, calculated in 1984, have not changed (Schoenfisch, 2014; Sessa, 2014).

Auto-oriented standards served as a major development constraint because denser projects are assumed to generate more auto trips and to generate congestion, which might trigger expensive traffic mitigation measures and/or review under the California Environmental Quality Act (CEQA). Project approvals may at this point become politicized and created opportunities for neighborhood opposition. Traffic mitigation measures may require the developer to increase road capacity, which can compromise the pedestrian environment and undermine the transportation objectives of TOD. The developer’s alternative would be to propose lower density multi-family and single family projects to avoid traffic impacts, but lower densities also conflict with the objective of concentrating development in these areas. Under the PDO dating to 1990, parking requirements are based on the ADT generated by a project.

Table 64: Assumed Trip Generation Rates for Mission Valley (from Mission Valley Community Plan)

Use	Trip Generation Rate
Single-Family House	10 trips/unit
Multifamily (under 30 units/acre)	8 trips/unit
Multifamily (30 or more units/acre)	6 trips/unit
Commercial Office (under 100,000 sq.ft.)	20 trips/1,000 sq.ft.
Commercial Office (100,000 or more sq. ft.)	16 trips/1,000 sq.ft.
Neighborhood Shopping Center	120 trips/1,000 sq.ft.
Community Shopping Center	70 trips/1,000 sq.ft.
Regional Shopping Center (over 1,250,000 sq.ft.)	30 trips/1,000 sq.ft.
Freestanding Retail	40 trips/1,000 sq.ft.
Sit-Down Restaurant (Medium Turnover)	370 trips/1,000 sq.ft.
Theatre	4 trips/seat
Hotel/Motel	10 trips/room

These transportation standards have created barriers for development: until recently no ministerial permits have been issued in Mission Valley because there are so many constraints (Schoenfisch, 2014). Compounding the problem, the ADT calculations are based on traffic studies that predate the trolley (Schoenfisch, 2014). Thus, the Rio Vista Promenade, like many other developments in Mission Valley, had to undergo a discretionary approval process (Schoenfisch, 2014; Fulton, 2014). In addition, the reliance on outdated ADT standards likely worked against transportation objectives. Whereas the introduction of the trolley had the potential to shift residents’ travel from autos to transit,[93] the ADT standards assumed that no trips were by light rail and all were by car. Development built based on these assumptions was thus more conducive to driving than to transit use, which reinforced the auto orientation of Mission Valley.

The plan also recommended reductions in parking requirements for retail, commercial services and mixed-use projects within a Transit Area, from a required 2.5 spaces per 1,000 sq. ft. of floor area to 2.1. Additionally, it capped the number of spaces at a maximum 6.5 per 1,000 sq. ft. of floor area.

1.2.2 Citywide TOD Guidelines (1992)

The citywide TOD design guidelines, adopted in 1992, were intended to reduce automobile travel by encouraging transit use, reducing vehicle trip lengths and creating environments conducive to walking and bicycling (Inam et al, 2004). The city's TOD strategies included allowing narrower streets, balconies and patios, neighborhood-serving retail, and a mix of housing types. The design guidelines identified specific station areas with potential for development and particularly singled out Mission Valley, which in the early 1990s was in the planning stages for the Trolley network. The guidelines have been incorporated into subsequent plans and policies (Bragado, 2014). Rio Vista was conceived as the first TOD project in San Diego following adoption of these guidelines (Inam, 2012).

1.2.3 First San Diego River Improvement Project Specific Plan – Rio Vista West Plan Amendment (1993 and 1999)

The First San Diego River Improvement Project (FSDRIP) Specific Plan was adopted in 1982 to implement flood control measures and protect development in Mission Valley. The FSDRIP Specific Plan detailed the precise land use and design guidelines for development of the 261 acres in Mission Valley, including the 94 acres designated as Rio Vista West. The Specific Plan was amended in 1993 and 1999 to include and update respectively the master plan for Rio Vista. This amendment codified several concepts for Rio Vista:[94]

- A central mixed-use development area with higher residential density closest to the trolley station;
- A mix of housing types and densities;
- The development of three multi-functional open spaces and a recreational center;
- Accessibility for pedestrians throughout the project area by means of interconnected pedestrian paths; and

[93] As a point of reference, in 2010 about 4% of Rio Vista commuters used public transit.

[94] The Rio Vista development approvals were subject to the Mission Valley-wide standards in the PDO.

- Bicycle accessibility with bikeways and parking facilities.

The plan also stated that reductions in parking should be "considered due to the intensity and mix of uses as well as transit opportunities" (p. 111). The planned land use of the Rio Vista project, as described in the FSDRIP Specific Plan, is shown in Figure 3.

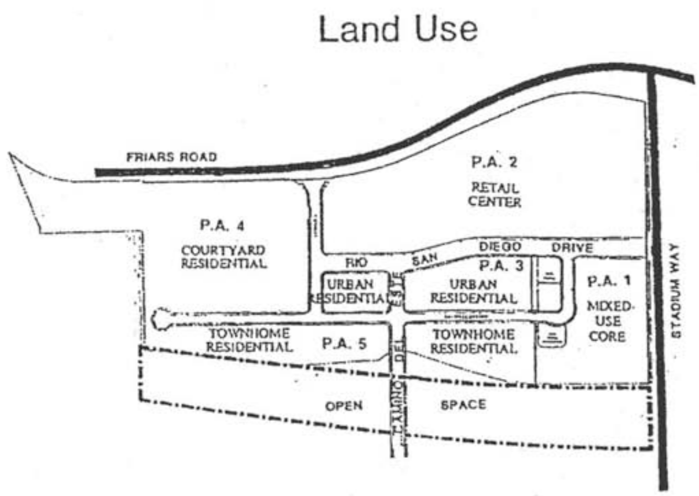

Figure 21: Land Use Plan for Rio Vista West (Source: Specific Plan Amendment)

The 1999 FSDRIP Specific Plan amendment called for several changes to the 1993 plan, including a shift from office to residential development in the mixed-use core (Table 4). The modifications increased residential density in the mixed-use core and reduced density in the urban residential part of the plan area. Additionally, the amendment removed the stipulation for office space in the mixed-use core. Both the 1993 plan and 1999 plan amendments were the product of a negotiation between the property owner and the city. There were clearly overlaps between public policy goals and developer interests, and the lines are sometimes blurry in terms of which plan elements were city-driven or developer-driven, especially fifteen to twenty years in retrospect.

Table 65: Zoned land use in 1993 and 1999 Rio Vista West Amendments

Land Use and Density	1993 Rio Vista West Amendment	1999 Rio Vista West Amendment
Mixed-Use Core (P.A. 1)	Residential: 55 dwelling units Office: 165,000 square feet Commercial: 50,000 square feet	Residential: 416-970 dwelling units Office: unspecified Commercial: 30-50,000 square feet
Retail Center (P.A. 2)	Residential: not in excess of 1070 dwelling units Commercial: 260,000 square feet	Residential: unspecified Commercial: 260,000 square feet
Urban Residential (P.A. 3)	Residential: 106-260 dwelling units total	Residential: 85-197 dwelling units
Courtyard Residential (P.A. 4)	Residential: 374-490 dwelling units	Residential: 374-490 dwelling units (with tuck-under parking)
Townhome/Riverfront Residential (P.A. 5)	Residential: 144-265 dwelling units	Residential: 53-97 dwelling units

1.2.4 Citywide transit-oriented development policies (2000)

As of 2000, the city reduced some requirements for development sites within transit area overlay zones (TAOZ), which extend 2,000 feet beyond Trolley stations. For example, the city has applied a 15% reduction in required parking spaces and project ADT counts near Trolley stations. This means that a transit-proximate project is expected to generate less auto traffic, which would reduce required transportation mitigations. Schoenfisch (2014) explained that the Rio Vista Promenade development qualified for the 15% parking reduction – even if the overlay zone was adopted after the project – since the city often allows developers to take advantage of policies that are in process of being adopted. David McMahon of the Greystone Group, the developer of the Promenade, recalls parking concessions as the major incentive offered by the city in Rio Vista. However, the Greystone Group passed on the opportunity to provide less parking in the development, because “the worst thing you can do to an apartment project is to under-park it” (McMahon, 2014). For example, McMahon (2014) said they did not know how many roommates would live in the apartments and there was potential for higher parking demand. Transit-oriented multi-family housing was an untested product in the San Diego market and the Greystone Group chose to be conservative (McMahon, 2014). The residential parking ratio was more than two spaces/unit, but McMahon could not recall the exact number, with additional on-street parking available for retail customers and visitors. (This is consistent with conversations with on-site property management.) McMahon emphasized that the parking provision was designed with the market in mind, not city or lender requirements. However, Sessa (2014) recalled that the parking provision was due to lender requirements. This is consistent with past research on barriers to transit-oriented development (Cervero 2004).

2 Case-specific Methodology

Prior to 1985, when the first Rio Vista plan was adopted, very few people lived in the plan area—only a few residents in a few single-family houses. Virtually all development in the plan area has been influenced by the series of plans adopted from 1985 onward. Our analysis therefore covers all development in the plan area, regardless of when it was built, and all residents of the plan area, regardless of when they moved there. The study time period is effectively from 1985 to 2010, the most recent year for which all relevant data are available. In this report, we present data from 2000 and 2010 because those are the years for which data are available—very little data from before 2000 are available. In most cases, the 2000 to 2010 time period closely represents what occurred since the first plans were adopted in 1985, since most of the development occurred after 2000. The reader should note, however, that the formal study time period covers 1985 to 2010.

There are a few exceptions to using 2010 data. For housing sales prices, we use 2012 data because housing prices in 2010 were still heavily affected by the aftermath of the housing crisis and recession, and prices in 2012 appeared to have somewhat recovered.[95] Similarly, we used 2011 data for employment calculations because it was less affected by the recession.

Because the plan area had so few original residents, we only consider the perspective of incoming residents. (In other case studies we also consider existing homeowners, renters, and low-income residents in the plan area.) These incoming households could be new homeowners or renters.

In order to understand how changes in the plan area differed from those in other areas, we compared the plan area with the city, the county, two nearby neighborhoods, Fashion Hills and the Fenton Parkway station area, as summarized in Table 5. Both Fashion Hills

[95] Data on rents are only available for 2010, not 2012, but this is acceptable because rents were not as strongly affected by the housing crisis as were sales prices. In both cases, we attempt to account for effects of the recession by comparing the plan area to the region; however, it is always possible that the crisis affected the plan area differently from the region.

and Fenton Parkway are located on the Trolley line and have access to regional highways (Figure 4). Fashion Hills, developed in the 1970s and 1980s, contains condominiums and a shopping mall. Fenton Parkway contains apartments and shopping centers anchored by big-box stores, many built at the same time as Rio Vista. We comparisons between the plan area and these other neighborhoods, along with comparisons with the entire city and region, to develop a plausible scenario of what would have likely happened without the adoption of smart growth plans and policies for Rio Vista. Table 4 describes how we use data from these comparison areas.

Figure 22: Comparison neighborhoods

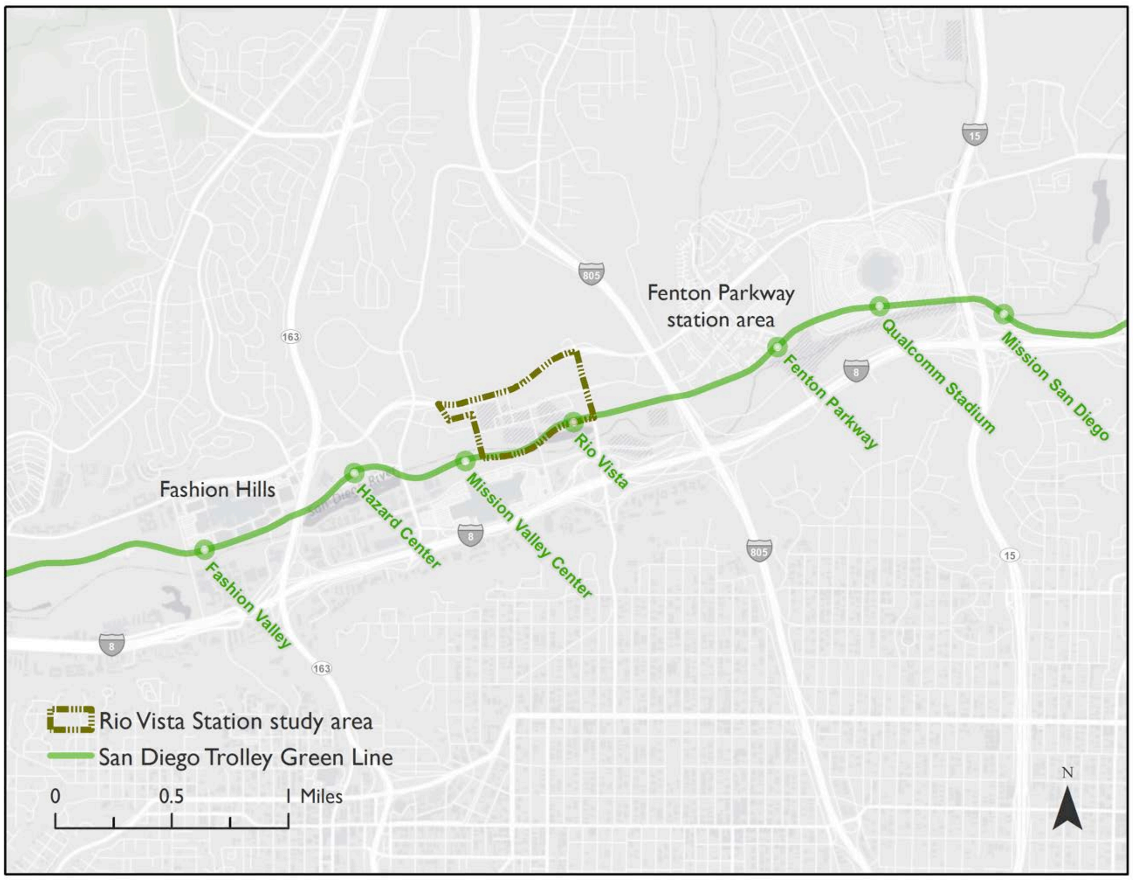

Table 66: Summary of comparisons used to development the counterfactual scenario for the Rio Vista case study.

Type of change	Other places we looked to determine if changes in the plan area were unique and possibly attributable to the plan	Reason for identifying these locations for comparison
Population, Demographics, and Housing units	• The county • Fenton Parkway • Fashion Hills	The county is used to represent regional trends. Both Fenton Parkway and Fashion Hills are on the trolley line and were developed around the same period of time as the plan area, but were subject to different plans and were built with different housing types.
Employment	• The city	Provides base of reference for what citywide changes might have impacted the area.
Housing Prices	• The county	The county values are used to provide context and a baseline regional growth rate for estimates because the county best represents the regional housing market. Housing price data are also more easily available at the county level.
Municipal Finance	• The city • Extends from our population, employment, and housing analysis.	We use the calculations of population, housing and employment (above) to measure municipal fiscal impacts.
Travel Behavior	• State-wide modeling tools • Extends from our population, employment, and housing analysis.	We use calculations of population, housing and employment (above) to estimate travel behavior changes.

2.1.1 Market-driven or plan-driven?

A perennial question in city planning is whether development is shaped primarily by the market and developers, or whether it is shaped primarily by plans. (This question quickly becomes philosophical, as plans can be driven by the market.) This is a question we wrestle with throughout all cases in this project. In other case studies in this project, we resolve the market-vs.-plans dilemma by assuming that plans have an effect—if plans and development merely follow the market, then analyzing plans' impacts is a meaningless exercise. In the case of Rio Vista, however, development was often the outcome of negotiations between developers and planners. The influence of the market and developers is therefore especially difficult to separate from the influence of planners. It's very possible, in the Rio Vista case, that development would have turned out similarly even in the absence of the plans. In this case, therefore, we explicitly consider the possibility that development largely reflected market demand, or at least developers' perceptions of market demand, and that planning policies had effects only in very clear cases. This possibility is represented by the "low estimate." It's also possible that the plans did influence development; this possibility is represented in the "high estimate." The "midrange" falls in between these two extremes.

3 Analysis of observed changes and plan effects

3.1 Population and demographics

3.1.1 Changes from 1990 to 2010

As development proceeded in the plan area, it brought high growth rates in population and households. The plan area started with around 900 people and 640 housing units in 1990. Then in the 1990s, 900 people and 400 housing units were added to the plan area, with another 2,000 people and 1,300 new housing units from 2000 to 2010 (Table 5). Median household income in the plan area also increased steadily over the study period, increasing by about $10,000 (in constant 2010 USD) between 1990 and 2010 (Table 6). In 2000, 12% of households in the plan area were classified as low-income, defined as have an annual household income of less than $10,000; this percentage increased slightly to 13% in 2010.

Table 67: Population change in the plan area and comparison areas

Rio Vista	1990	2000	2010	% Change 1990-2010
Total population	891	1,726	3,737	319%
Total housing units	640	1,089	2,343	266%
Total households	569	1,014	2,082	266%

Source: 1990, 2000, and 2010 Census SF1

Table 68: Change in median household income in the plan area and comparison areas

Median Household Income by Year	1990	2000	2010	% Change 1990-2010
Rio Vista	$ 55,338	$ 62,309	$ 65,645	18.6%
Fashion Hills	$ 57,675	$ 53,406	$ 56,599	-1.9%
San Diego County	$ 58,430	$ 59,373	$ 63,373	8.5%

Source: US Census Bureau, 1990, 2000, and 2010 Census; all figures in 2010 dollars

County-wide, there were fairly steady increases in population, housing, and households (Table 7). However, growth rates in the plan area were much higher than in the county—as we would expect, given Rio Vista’s stage of development. Incomes at the county level rose similarly to the plan area, but with a slightly lower growth rate.

Table 69: Change in population and households in San Diego County

San Diego County	1990	2000	2010	% Change 1990-2010
Total population	2,498,016	2,813,833	3,095,313	24%
Total housing units	946,240	1,040,149	1,164,786	23%
Total households	887,403	994,677	1,086,865	22%

Source: US Census Bureau, 1990, 2000, and 2010 Census SF1

3.1.2 Comparison neighborhoods

We examine two comparison neighborhoods to help distinguish changes due to the plan from general trends that affected similar neighborhoods. We note that the comparison neighborhoods were subject to many of the same plans and policies as Rio Vista, including the Mission Valley Community Plan and Planned District Ordinance. The biggest policy difference is that the two comparison areas were not subject to a master planned development adopted as a specific plan amendment. The first neighborhood is the Fenton Parkway station area, which is just east of the plan area, on the other side of I-805 and bounded by Friars Road to the north, I-8 to the south, and I-15 to the east (Figure 4).[96]

The growth in the Fenton Parkway station area, while still higher than the county level, was much lower than in the plan area. The population grew by about 2,000 people over the entire study period, and 600 housing units were added (Table 8). This comparison area started out larger in terms of population and housing stock than the Rio Vista plan area, but by 2000, there were 500 more people and 200 more housing units in the plan area than Fenton Parkway, and this divide continued to widen in 2010.

Table 70: Population and housing change in Fenton Parkway area

Fenton Parkway	1990	2000	2010	% Change 1990-2010
Total population	1,397	1,284	2,340	68%
Total housing units	809	809	1,411	74%
Total households	786	773	1,282	63%

(Source: Census)

[96] Fenton Parkway is in the same census tract as Rio Vista, so we do not compare tract-level variables such as income and housing prices.

The second comparison area is Fashion Hills, an area west of Highway 163, including the residential neighborhoods directly to the north of Friars Road, and the shopping center to the south of Friars Road. This neighborhood is also part of the Mission Valley Planned District.

Fashion Hills actually saw less total growth than the county. The area started out with 3,440 people, and only increased by about 400 residents over the study period (Table 9).

Table 71: Population and housing change in Fashion Hills area

Fashion Hills	1990	2000	2010	% Change 1990-2010
Total population	3,441	3,656	3,854	12%
Total housing units	2,005	2,108	2,211	10%
Total households	1,871	2,001	2,047	9%

(Source: Census)

3.2 Housing development

3.2.1 Changes in housing development

In the 1980s, the Mission Valley area was mostly vacant land. Since then, it has become a major site for housing development. According to one interview, the market for residential development in Mission Valley has strengthened over time, with the exception of the 2008 recession (Sessa, 2014). In 2010, the plan area contained 2,339 residential units. Most have been built since 1990, and about half since 2000 (Table 10).

Table 72: Change in housing supply in Rio Vista West

	2000	2010	Change
Total housing units	1,090	2,339	1,249
Detached single-family units	16	10	-6
Multifamily units	1,074	2,329	1,255
Percent of units that are renter-occupied	70%	74%	4%
Population density in plan area (persons/sq. mile)	11,958	25,890	13,932

Source: Census 2000, Census 2010, ACS 2008-12 5-year estimates.

The residential development in Rio Vista, compared to neighboring conventional developments, has denser buildings, hidden parking, landscaped common areas, and some ground-floor retail. The Promenade Apartments are moderately upscale, with rents averaging about $2 per square foot. The apartments include two or three parking spaces, depending on unit size and availability. Parking is primarily built in structured or underground lots, rather than surface lots, due to requirements of the plan (Sessa, 2014). Promotional materials portray the new housing development as upscale and rich in “community amenities,” including a pool, fitness centers, resident clubhouse, “onsite retail shops”—and easy highway access.[97] The newer housing as part of the Civita development (adjacent to Rio Vista, and not in the study area) includes multi-family, townhomes and single-family residences (Sessa, 2014). These are marketed as “perfectly walkable” with “parks and open spaces, nearby transit and car-sharing.”[98] The housing units developed at Rio Vista are primarily rental apartments, although the more recent Civita development includes more for-sale units.

3.2.2 Impacts of the plan on housing development

It’s not clear whether the development in Rio Vista was driven primarily by developers and the market, or by city planners and the Rio Vista plans. It’s possible the Rio Vista plans influenced residential development by introducing design requirements that resulted in building types slightly different from what otherwise would have been built. Specifically, compared with the status quo, the plans required more vertical mixed use, more pedestrian connectivity and internal parking that is “hidden” within the building. Even though the plans did not directly mandate higher density development, the whole design package ultimately brought more units to the market for rent or sale than in a more conventional development.

The internal parking requirement and vertical mixed use limited developers’ choice of building types. In the absence of the plan, developers may have chosen to build two- and three-story townhouses or apartments with parking in surface lots and ground-floor garages and separate one-story strip commercial, much like those found in nearby developments of Hazard Center and Fenton Parkway (see Figure 5). Construction costs for these building and parking types are relatively low and the residential buildings would have about 20 to 25 dwelling units per acre. In contrast, the plan called for internal parking and vertical mixed use, which required a more expensive 5-story mixed-building with an integrated parking structure (Figure 6). Even though the amount of parking would be the same, it would be more expensive to provide. To make up for the higher construction costs, developers would be compelled to build more units. The Rio Vista development was built at 30 to 35 dwelling units per acre, slightly denser than the conventional apartments and townhouses in Hazard Center and Fenton Parkway. An illustration of the trade-offs between these two development types from a developer’s point of view is available in Appendix B. Because both types are more or less equally

[97] http://www.srgliving.com/promenade/
[98] http://www.civitalife.com/

profitable, it is plausible the Rio Vista plans nudged developers toward higher density and more complicated building designs. It’s also possible, however, that developers provided a product they thought the market demanded, and would have done so with or without the plan. We represent this possibility in the low estimate.

Figure 23: Residential development near Hazard Center station. These two-story buildings with ground-floor garages are illustrative of what might have been built in Rio Vista without the plan. (Source: Google StreetView 2015)

Figure 24: Rio Vista West. Retail is on the ground floor and a parking structure is hidden within the building. (Source: Google StreetView 2015)

We assume that, in the absence of the plan, housing in the plan area would have been built at 20 or 25 units per acre (rather than the observed 30 to 35 units/acre). This implies the plan was responsible for an additional 389 to 778 housing units and an additional 611 to 1,233 residents in the plan area—these are the midrange and high estimates (Table 11).

In the low estimate, we assume developers would have used the same building type regardless of the plan and therefore the plan did not affect density or the number of housing units. All of these estimates assume the plan did not influence household size or vacancy rates.

Table 73: Estimated impacts of the plan on housing supply and population

	Observed Values		**2010 Counterfactual**			**Difference Actual-Counterfactual**		
Variable	**2000**	**2010**	**Low**	**Mid**	**High**	**Low**	**Mid**	**High**
Assumed housing density in plan area (units/acre)		30	30	25	20			
Population								
Population in plan area	1,726	3,737	3,737	3,126	2,504	-	611	1,233
Average household size in plan area	1.7	1.8	1.80	1.80	1.80	-	-	-
Households in plan area	1,014	2,082	2,082	1,736	1,391	-	346	691
Housing, plan area								
Total housing units	1,089	2,343	2,343	1,954	1,565	-	389	778
Detached single-family units	16	10	10	10	10	-	-	-
Attached single-family units	0	0						
Multifamily and attached units	1,073	2,333	2,333	1,944	1,555	-	389	778

The plan did not significantly affect the overall regional demand for housing and, in the absence of the plan, the additional housing units would have been built elsewhere in the region. Since much of the region has restrictive zoning that allows only single-family development, it’s likely that many of these new units would have instead been built as single-family houses, in a way that mirrors that actual distribution of single- and multi-family housing in the city. Therefore the plan was responsible for adding up to about 350 multifamily units in the region; in the absence of the plan, these would have been built as single-family units instead. These houses would have been distributed throughout the city, meaning that they would have been in less transit-accessible areas on average.

3.3 Residential property values

Because of a lack of sales data prior to 2005, it is difficult to describe how property values have changed in the plan area over time. Since 2005, prices for properties in the plan area have remained slightly higher than prices in San Diego County (Table 12). According to Census data, median monthly rents in the plan area are also higher than in the county, though county-wide rents have increased faster between 2000 and 2010 compared to the plan area.

Table 74: Residential property median sales prices and rents

	2000	2010	Change 2000-2012	% change 2000-2012
Median sales price per sq. ft. (2011 USD)[a]				
Plan Area	-	$241	-	-
County	$188	$220	$33	17%
Monthly median rent (2011 USD)[b]				
Plan Area	$1,437	$1,624	$187	13%
County	$1,312	$1,017	$295	29%

Source: [a] DataQuick, [b] 2000 Census and 2008-2012 ACS

3.3.1 Impacts of the plan on residential property values

(1) Regional supply and demand effects

Given the previously discussed assumptions, the Rio Vista policies helped to increase regional multifamily housing supply by up to 348 units. Assuming the regional supply of multifamily and rental units is normally constrained by regulations, this increase in supply would theoretically offset some of the upward pressure on prices in those submarkets. In the absence of the Rio Vista policies, the additional units would have reduced regional prices by about nine to eighteen cents per square foot. For the average multifamily unit, the increased supply was responsible for a reduction in sales price of roughly $110 to $220 per unit, or about fifty cents to one dollar in terms of monthly rent (Table 13). Both developers and households buying a multifamily unit would benefit from this price reduction, while existing owners of multifamily property would experience a cost. Single-family homeowners and buyers would not be affected because the market for single-family housing is not as constrained.

Table 75: Impact of increased housing supply on prices (all prices in 2011 dollars)

	Low estimate	Midrange estimate	High estimate
Base multifamily sales price ($/sq ft)[a]	$220	$220	$220
Base rent ($/month)[b]	$1,282	$1,282	$1,282
New multifamily units in region attributable to plan	0	174	348
Price elasticity of supply[c]	0.67	0.67	0.67
Change in sales price due to increased regional supply ($/sq ft)	$ 0	$(0.09)	$(0.18)
Change in rent for average unit ($/unit/month)	-	(0.53)	(1.05)
Change in sale price for average unit ($/unit)	$0	(111)	$(221)

[a] Median multifamily sales price in 2010, San Diego County (Source: DataQuick)

[b] Median monthly rent in 2010, San Diego County (Source: Census)

[c] Estimated for San Diego metropolitan area by Saiz (2010)

From the regional perspective, the change in multifamily housing supply had no impact because the increased supply was due not to a change in permitted density, but a change in building design. The plan had no significant effect on the value of developable land in the plan area from a developer's perspective. The additional housing supply therefore creates small benefits for individual households who buy multifamily units, but insignificant impacts for all other perspectives.

(2) Changes in production costs

The Rio Vista policies may have influenced construction costs by nudging developers toward more expensive building types and by (indirectly) requiring developers to provide amenities like landscaping, ground-floor retail, and sidewalks and other pedestrian connections. All of these changes would increase construction costs, as summarized in Table 14. The plan may have resulted in developers building internal parking structures, rather than tuck-under parking, which could have increased costs by $12,500 per unit. Developers also built more expensive 4- or 5-story residential buildings with ground-floor retail, rather than 2- or 3-story residential-only buildings, which increased construction costs by about $10/sq. ft. On the other hand, if the market drove the development type, developers would have built internal parking and 4- or 5-story buildings regardless of plan. In this case (the "low" estimate), parking and construction costs would not be affected by the plan.

It does appear that planners required more landscaping and pedestrian amenities than developers would have provided without the plan. These requirements increased costs by 1-3%. In sum, the plan increased construction costs by about $21,000 to $85,700 per unit.

Table 76: Estimated construction cost changes in plan area due to plan (in 2010 dollars)

Construction cost	**Low**	**Mid**	**High**	**Explanation**
2010 Typical construction cost, without plan ($ sq ft)	165	175	190	2-3-story building, estimated from RS Means
2010 Typical construction cost, with plan ($ sq ft)	175	185	200	4-5-story building, estimated from RS Means
Construction cost increase due to design standards and amenity requirements ($/unit)	1%	2%	3%	Cost of providing extra amenities like sidewalks, architectural details, ground-floor retail, and open space.
Change in parking cost due to plan ($/unit)[a]	0	$12,500	$12,500	Low estimate: assume plan did not change parking. Mid and high: assume a shift from surface to internal structure parking
Change in construction cost due to plan for average new unit in plan area ($/unit)	$21,350	$57,640	$85,700	
% of additional cost paid by buyer or renter	25%	50%	90%	Low: assumes a relatively weak housing market. High: assumes a strong housing market.
Change in sales price of average new unit in plan area, due to plan	$5,338	$28,820	$77,130	This the additional cost to homebuyer or renter

[a] Assumes the average unit had 2.5 spaces, of which 0.5 spaces were for guest parking provided in surface lots both with and without the plan.

Whether the developer absorbs these extra costs or passes them on to homebuyers (or renters) in the form of higher prices depends on the strength of the housing market. Since the plan had potentially large impacts on construction costs in this case, our estimates are quite sensitive to this assumption. In the low estimate, we assume the developer only passes on 25% of the cost and absorbs the rest as a decrease in profits. In the midrange, we assume the developer and buyer each pay 50%. In the high estimate, we assume a strong housing market where the buyer pays 90% of the additional cost. Therefore, because of the plan's costly design requirements, a household buying a new unit in the plan area paid about $5,000 to $77,000 more per unit.

(3) Changes in neighborhood accessibility and amenities

The Rio Vista policies likely produced more benefits from transit accessibility by increasing the number of housing units near transit, and therefore the number of households that could take advantage of it. Rio Vista would have had a Trolley station with or without the plan, but because the plan resulted in increased density, more households could live near the Trolley station than could have in the absence of the plan. We estimate that 75% of units in the Rio Vista West development were within 1,500 feet of the Trolley station, a proportion that was unchanged by the plan. Based on the transit premium observed by Duncan (2011) in San Diego, we assume that being within 1,500 feet of a Trolley created a value to households equivalent to between 5% and 15% of a unit's sales price, implying that transit accessibility was worth about $11 to $33 per square foot (Table 15). Applied to all additional units in the Trolley area that are attributable to the plan, this is an aggregate value of $24 million. In the low estimate, however, there is no impact, since in that case the plan did not change the number of housing units. For the average household moving into the plan area, the benefit is about $10,000 to $30,000 per unit. These values might seem high considering few residents actually use the Trolley, but research suggests homebuyers value having the option of transit even when they don't use it regularly. Duncan's study of home prices near San Diego Trolley stations confirm there is a premium for transit proximity, even though the Trolley serves only a very small share of the city's travel.

The Rio Vista plans called for amenities like landscaping, sidewalks, pedestrian connections, ground-level retail, and open spaces. It's possible developers would have provided many of these anyway, but it's also possible the plan compelled them to provide more than they otherwise would have. Following empirical estimates in Aktinson-Palombo (2010) and Leinberger and Alfonso (2012), we assume these amenities produced a value to households equivalent to 3% to 10% of sales prices (Table 15).[99] The value of these additional amenities is about $8,000 to $27,000 and applies to all households in the plan area. The aggregate value for the region of these amenities is about $19 to $63 million.

Table 77: Amenity effects on housing prices in plan area (all prices in 2010 dollars and are cumulative, not annualized)

In Plan Area	Low	Mid	High
Transit accessibility			
Assumed value of transit accessibility as a percent of sales price[a]	5%	10%	15%
Value of transit accessibility for units near transit ($/sq ft)	$11	$22	$33
Value of transit accessibility for average prospective buyer ($/unit)	$10,086	$20,172	$30,258
Aggregate value of transit accessibility increase due to plan	**$-**	**$7,843,665**	**$23,530,996**
Other neighborhood amenities			
Assumed value of other amenities resulting from plan, as a percent of sales price[b]	3%	5%	10%
Value of other amenities resulting from plan($/sq ft)	$7	$11	$22
Value of other amenities for average prospective buyer ($/unit)	$8,069	$13,448	$26,896
Aggregate value of other amenities	**$18,824,797**	**$31,374,661**	**$62,749,322**
Total aggregate value of accessibility + other amenities due to plan	**$18,824,797**	**$39,218,327**	**$86,280,318**

Sources: [a]Duncan (2010); [b]Leinberger and Alfonso (2012), Atkinson-Palombo (2010)

3.3.2 Summary of costs and benefits from residential development

The impacts of the Rio Vista plans on housing development appear to be positive or negative, depending on the extent to which the plan affected development. If the plan did have a large influence, the impacts appear to have been mostly negative. The primary effect of the plan in this case was to increase construction costs, since the plans effectively required more expensive building types, more expensive parking, and additional pedestrian and other design elements, compared to what the housing market

[99] Atkinson-Palombo (2010) found that "amenity-rich, mixed use" neighborhoods were associated with a 16-28% premium. This is in comparison to single-use neighborhoods, <0.5 mi of station. The premium from amenities in Rio Vista is almost certainly less than that because changes were not that dramatic. Leinberger and Alfonso (2012) studied how pedestrian connectivity increases housing values; see general methodology for more details.

would have demanded. The plans generally did not always require these changes directly through zoning regulations; they often worked indirectly through design guidelines on the basis of which planners could grant development permits. A large portion of the construction cost increase was due to more expensive parking. The impact of the plans on construction costs depends on our assumptions of the differential construction cost for various elements, and added tens of thousands to the cost of constructing each unit. These same design elements also produced benefits like walkability and green spaces—what we consider "local amenities"—but in the midrange and high estimates the benefits are not enough to outweigh costs. In this case, the plan would have costs for the region of up to $6.7 million annually (Table 16).

In the low estimate, we assume developers provided higher-cost buildings not in response to the plans, but because they thought residents would value them. (We assume developers provided some additional amenities because they were required to, though.) In this case, the construction cost increase was outweighed by greater value from amenities and accessibility, for a net benefit to the region of $467,000 annually (Table 16).

Table 78: Summary of the plan's annualized costs and benefits for residential development (costs in parantheses, all in 2010 dollars)

	Low	Mid	High
Total Regional	**$466,810**	**$(2,014,682)**	**$(6,748,791)**
Savings due to supply increase	$0	$0	$0
Accessibility benefits	$0	$569,834	$1,709,501
Amenities benefit	$1,367,601	$2,279,335	$4,558,670
Price change due to construction cost	$(900,791)	$(4,863,851)	$(13,016,962)
Incoming households (buyers and renters)	**$931**	**$353**	**$(1,437)**
Supply increase impacts	$-	$4	$14
Accessibility benefit	$733	$1,466	$2,198
Amenities benefit	$586	$977	$1,954
Price change due to construction cost	$(388)	$(2,094)	$(5,603)

For households moving into the plan area, the net impact of the plan ranges from a positive $931 to a cost of $1,437 per year. For households, increased construction costs could be high—up to about $5,600 annually for the average household (Table 18). In the high estimate, the higher construction costs outweigh benefits from increased accessibility and neighborhoods amenities. In the low estimate, the value of accessibility and amenities exceeds the higher construction cost, resulting in a net benefit for households.

Design elements like internal parking and pedestrian facilities are expensive, but they also create a more attractive and accessible environment. Developers often choose to add such elements because they add value and can command higher sales prices. Whether the benefits of that choice outweigh the costs depends on market demand. In the Rio Vista case, the plans may have imposed design elements that were not actually demanded, and benefits did not outweigh costs; however, the conclusion depends on our assumptions.

3.4 Employment and Commercial development

3.4.1 Changes from 1990 to 2010

Employment in the immediate vicinity of the Rio Vista Trolley station is predominantly retail, with some service-oriented offices, including a salon and an investment brokerage firm. The ground-floor retail space in the mixed-use Promenade development appears to be mostly targeted at local customers. It includes a café, wine bar, convenience store and several other uses. The rest of the ground-floor space in this development is comprised of amenities for residents of the Promenade apartments: two gyms, a community room, a theater, business center, and a leasing office. The developer intentionally designed this mix of retail and resident amenities to create an atmosphere in which “a resident could come home after work, without needing to leave the premises to work out or have a glass of wine” (McMahon, 2014).

A little farther from the immediate station area, the Rio Vista Shopping Center is anchored by large-format retailers and includes smaller chain stores and restaurants retailers—like Living Spaces (formerly occupied by K-Mart), Office Depot, Ross Dress for Less, and the Sports Authority. This 21-acre retail center has about 300,000 square feet of commercial space. It is fairly similar to other retail centers in Mission Valley—although it contains a few more pedestrian-oriented elements like sidewalks and crosswalks, the dominant feature is a large surface parking lot.

Total employment in the plan area more than doubled between 2000 and 2010, from 359 to 744 (Table 17). Initially, the majority of jobs were in retail, accommodation and food services, but the growth over the decade mostly added jobs in other sectors. In comparison, job growth in the City of San Diego was 10% during the same period.

Table 79: Employment in plan area and City

	2000	2010	Change, 2010 – 2000	Percent Change
Employment, plan area	359	744	385	107%
Retail, accommodation and food services jobs	307	481	174	57%
Employment, City of San Diego	721,884	795,116	73,232	10%

Retail, accommodation and food services jobs, City of San Diego	125,074	137,296	2,222	10%

Source: National Establishment Time Series (NETS)

3.4.2 Impact of the plan on commercial development and employment

Most of the commercial space in Rio Vista would have been built in absence of the plan, though possibly with a different configuration. The Rio Vista Shopping Center, the commercial center with large-format retail, would have most likely been built, although perhaps with fewer pedestrian-oriented design features. Meanwhile, the estimated 25,000 square feet of ground floor commercial space in the Promenade would probably not have been built, as the Promenade would have been a conventional residential-only development. In short, without the plan, the Rio Vista Shopping Center likely would have been completed at a similar commercial density, but the Promenade commercial space either would have been built in a less pedestrian-oriented form (the “low” estimate), or would not have been built in the plan area at all (the “high” estimate).

Without the commercial space in the Promenade, the plan area would have about 20% less commercial floor space and, assuming employment is proportional to floor space, up to 149 fewer employees. If, in the absence of the plan, the Promenade’s commercial space had been developed using a different design but with the same amount of floor space, then there is no effect on employment. Therefore, without the plan, there would have been between 595 and 744 total employees in the plan area.

3.5 Municipal finances

Below we estimate what actually occurred and what would have plausibly happened with the plan in terms of property tax revenue, municipal operating expenditures, one-time revenue and capital expenditures. All figures are in 2010 USD, unless otherwise noted.

3.5.1 Property tax revenue

Between 2000-01 and 2011-12, the city of San Diego’s property tax revenue from commercial and residential properties increased by 90%, from $157 million (2000 USD) to almost $300 million (2011 USD). At the same time, property tax revenue generated in Rio Vista increased by 141%, from $233,000 (2000 USD) to $562,000 (2011 USD). The large rise in value in Rio Vista can be largely attributed to the major new development completed during the study period.

In absence of the smart growth plans in the area, Rio Vista would have had between 69% and 100% of the intensity of the actual development, based on the combination of residents and employees in the neighborhood (Table 20). Fewer residents and employees would have meant lower property tax revenue in the plan area in absence of the plan. However, these residents and employees would have located elsewhere, generating property tax revenue for San Diego from a different location. Our midpoint estimate is that $573,000 in property tax revenue would be generated annually without the Rio plan, which would be about $11,000 more per year than was observed in 2010. Said another way, the city would have received slightly more property tax revenue without the plan because the households and jobs that would have located elsewhere in the city would have generated more property tax revenue on a per-capita and per-employee basis.[100]

Table 80: Development intensity of Rio Vista, based on assumptions previously discussed

	2010 – Actual	**2010 Without Plan**		
		Low	**Midrange**	**High**
Population	3,737	3,737	3,126	2,504
Employment	744	744	687	595
Total	**4,481**	**4,196**	**3,813**	**3,099**
% of 2010 intensity		***100%***	***85%***	***69%***

3.5.2 Municipal operating expenditures

Between 2000 and 2010, the costs to provide Rio Vista with police, fire, streets and parks increased, not only because the neighborhood's population grew by over 2,000 persons, but also because operating costs rose citywide. In 2000, the city spent an estimated $487,000 (2010 USD) annually to service the 1,726 residents of Rio Vista. This equates to $282 (2010 USD) per capita. In 2010, the city spent $1.7 million to service 3,737 residents, or $460 per capita. Compared with the citywide average, service provision in Rio Vista is more efficient than the citywide average. Rio Vista's population density—which increased between 2000 and 2010 to about six times the citywide average—means that services can be provided at lower cost than in most other parts of the city.

The plans had greater impact on municipal operating expenditures than they did on property tax revenue streams, since this spending is closely linked to residential density. In the absence of the plans, Rio Vista could have had as little as 67% of the area's actual population density. This would have translated into less efficient and more costly city service provision on a per capita basis. Even without the plan, Rio Vista would have been considerably denser than the citywide average and so more efficient to serve than the citywide average. The people living outside the plan area – between 0 and 1,233 people –

[100] In San Diego in 2010, the average property tax generated per resident and employee was $125, while the citywide average was $142. This is largely because the citywide calculation includes more single-family housing and higher-value employment uses.

would have incurred city services at the citywide average cost. Without the plan, the combination of generally lower density in the plan area, and the need to service some of the population in other less efficient parts of the city means that the city would have spent an average of $77,000 in additional service costs.

3.5.3 One-time revenue and capital expenditures

Since Rio Vista had a single developer, we were able to obtain actual impact fees associated with the development (Table 19). These data show that the average impact fee amounted to less than $530 per housing unit. This is much lower than we would have estimated given the city's standard fee schedule. (Based on the city's fee schedule, we would have estimated fees of over $11,000 per unit.) What explains the difference? The Rio Vista West Specific Plan lists mitigation measures that are provided by the developers in lieu of payment of fees including the development and maintenance of public outdoor open space, installation of on-site traffic signals, and improvements to off-site roads. Generally, we would expect that these costs would be passed on to buyers and renters.

Table 81: Rio Vista West Specific Plan Summary of Impact Fees Paid

Year Permit Issued	Project Name	Dwelling Units	Library Impact Fee	Development Impact Fees (Per Dwelling Unit)	Total
1998	Missions at Rio Vista	464			
2000	Promenade Rio Vista (Bldgs. 1-3)	490			
2000	Promenade Rio Vista (Bldgs. 4-6)	480	363 dwelling units X $522		$ 189,486
2003	HP Mission Valley (owner)	56		$ 2,596	$ 145,376
2004	Rio Vista West	113		$ 2,596	$ 293,348
2004	Rio Vista West Phase II	107		$ 2,596	$ 277,772
Total		**1710**			**$ 905,982**

Source: City of San Diego Planning Department, Facilities Financing Section

Note: This table does not include mitigation measures provided in-lieu of impact fee payment, an option that was largely exercised in Rio Vista.

There remains a major gap between impact fee revenue, capital facility needs and actual capital spending in Mission Valley as a whole: “The Mission Valley Community Plan area is almost fully developed. Because of this, the fees will provide only a small portion of the financing needed for the facilities for the entire community. Thus, the majority of the required public improvements will have to be provided through special funding mechanisms other than DIF [development impact fees]” (Mission Valley Public Facilities Financing Plan, 2013). Sheffield (2014) explained that the City views impact fees as covering the costs associated with the new development itself, but there is a gap to fund new infrastructure and facilities because the costs of each new capital project are allocated to existing and projected development. In an interview, Schoenfisch (2014) observed that since impact fees do not actually cover the entire cost of capital needs in growing areas; the limited revenue raised often funds roads rather than parks or schools, because roads are the priority for most communities in Mission Valley. This is a Mission Valley-wide problem, independent of any smart growth plans for Rio Vista. However, there were several new capital investments in Mission Valley that partially serve Rio Vista. New public facilities built near Rio Vista between 2000 and 2010 include a new library completed in 2002 at North Mission City Parkway; and a new $11.1 million Fire Station 45, which serves Mission Valley and other San Diego communities.

Rio Vista presents an interesting case in that actual municipal impact fee revenues were much lower than listed in the fee schedules because the project’s developers agreed to provide street improvements and parks in lieu of paying fees to the city. In absence of the plan, there would have been less negotiation with the developers—in fact it may not have been a master-planned area at all—which could have led to *higher* development impact fee revenue for the city. This does not necessarily mean that the city was better off in either scenario. The flip side of the potentially higher impact fee revenue from the development in absence of the plan is that the city would have been liable for more capital improvements – those improvements that were paid for by the developers of Rio Vista West.

Rio Vista may be an example of a different capital equation than more conventional development. In contrast to impact fee revenue from most development funding roads, in Rio Vista the negotiation between the city and developer resulted in a different spending focus. In particular, it included open space and station area public space improvements. This likely led to a higher quality station area and park than would have otherwise been built (McMahon, 2014). We conclude that one of the effects of the smart growth planning process was a greater ability for the city and developer to negotiate impact fees and public infrastructure investments. The end result was likely more and different public investments than would have occurred in absence of the Rio Vista plan.

3.5.4 Summary of the plans' fiscal impacts

The plans for Rio Vista resulted in several positive fiscal impacts for the city. First, the plans allowed for public service efficiencies as a result of higher densities. Additionally, it seems likely that the net capital improvements in Rio Vista were greater – and more transit- and pedestrian-oriented – than would have occurred in absence of the plan (Table 20). These benefits were modestly offset by higher property tax revenue outside Rio Vista in absence of the plans.

Table 82: Summary of annual municipal fiscal benefits and costs (in 2010$, costs shown as negative)

	Low Estimate	Midrange	High estimate
Regional	**$0**	**$66,074**	**$117,364**
Property tax	$0	$(10,956)	$(22,646)
Operating expenditures	$0	$77,030	$140,010
Impact fees		*Qualitative analysis**	
Capital expenditures		*Qualitative analysis**	
Municipal	**$0**	**$66,074**	**$117,364**
Property tax	$0	$(10,956)	$(22,646)
Operating expenditures	$0	$77,030	$140,010
Impact fees		*Qualitative analysis**	
Capital expenditures		*Qualitative analysis**	
Households (all types)	**$0.00**	**$0.06**	**$0.10**
Property tax	$0.00	$(0.02)	$(0.05)
Operating expenditures	$0.00	$0.08	$0.15
Impact fees		*Qualitative analysis**	
Capital expenditures		*Qualitative analysis**	

* Note: due to limited data, impact fees and capital expenditures are included in the discussion, but not the benefit/cost calculations.

3.6 Travel behavior

Although Rio Vista is adjacent to a trolley station, almost all residents of the plan area commute by private automobile, at an even higher rate than in the city as a whole. In the plan area the rate of auto commuting dropped only slightly between 2000 and 2010 from 95% to 93% (excluding those who worked from home). In comparison, in the City of San Diego, the share of workers commuting by car decreased slightly, from 86% in 2000 to 85% in 2010. Meanwhile, the percentage of commuters in the plan area using public transit to get to work nudged upward from 2% to 4%, while in the city the share using transit fell slightly from 5% to 4%. The percentage of pedestrian and bicycle commuters in the plan area remained at about 2%, compared to a flat 4% in the city (Census 2000 and ACS 2008-12).

The primary impact of the Rio Vista plans on vehicle travel was to allow more people to live in a relatively central location, closer to their jobs than they otherwise would, thus allowing them to reduce commute distance. The plan also slightly increased the number of jobs in a relatively central and transit-accessible location, which could reduce auto use or commute distance by those employees. The Rio Vista plan probably did not change mode share dramatically, given the low shares of non-auto commutes. The plan did, however, allow more residents to locate near the Trolley station and it did slightly improve the pedestrian environment and pedestrian access to the Trolley station, which might have resulted in slightly more transit use and walking. The plan did not affect the actual number of parking spaces provided, so there were not any changes to driving behavior based on parking.

3.6.1 Residents' personal vehicle travel

To calculate the VMT change for residents, we used the tool developed by Deborah Salon (2014) for the California Air Resources Board. Table 21 presents the values for neighborhoods and travel characteristics for residents who moved into the plan area. We assume residents moving into the plan area would have otherwise traveled according to San Diego city mode shares in 2000 and lived in neighborhoods with characteristics of the average city neighborhood in 2000. Of course, some residents moved to the plan area before 2000, and in reality the characteristics in the rest of the city changed over time, but 2000 city averages still provide a plausible representation of residents' neighborhoods in the absence of the plan. Since Rio Vista was a new development and there were almost no residents prior to the plans, we do not include an analysis of pre-existing residents who remained in the plan area.

Table 83: Input variable for Salon tool, in-migrating residents

In-migrating residents	**Unit**	**City of San Diego 2000***	**Plan Area 2010**	**Plan area, Without plan 2010**
% of commuters using transit	percent	4.09%	8.52%	4.09%
% single-family homes	percent	46.7%	0.4%	46.7%
Road density	road miles per sq mi	13.73	18.07	13.73

Activity mix	entropy index	-	-	
Regional job access	gravity-based measure	-	-	
Local job access	gravity-based measure	6.43	21.48	6.67
% nonmotorized mode commute share	percent	4.37%	17.59%	4.37%

** 2000 values are used as the counterfactual*

3.6.2 Workers' personal vehicle travel

The Rio Vista plans may also have affected the total vehicle travel of those working in the plan area by increasing the number of local destinations to which plan area workers can travel. To quantify this impact, we used coefficients for employment density measured by Chatman (2002). The figure we used for our analysis quantifies workers' personal commercial vehicle travel—midday errands or trips for food before or after the work day—relative to employment density. In locations with higher employment density, more goods and services tend to be within walking distance, meaning more commercial trips can be taken using non-motorized modes.

Because the plan may have caused employment density to increase in the location where they work, employees of the plan area may drive slightly less. For the few workers employed in the plan area whose jobs would otherwise be located elsewhere, Rio Vista's relatively central location and transit accessibility may slightly reduce the share and distance of auto commutes.

3.6.3 Combined impact on vehicle travel

Each resident who moved into the plan area traveled, on average, about 3.8 vehicle-miles per day less than in he or she had lived in the average city location. The savings in vehicle travel comes mainly from better local job access—the plan area is located closer to job centers than is the average location. (Not many jobs are *in* the plan area, but many are nearby.) The Rio Vista plans probably allowed more residents to live in the plan area, in which would have a net VMT reduction of up to 4,700 miles per day for residents of the plan area. The impact on daily VMT of workers in the area is negligible.

The reduced overall vehicle travel from the Rio Vista policies produced a net benefit for the region and individual households. Individual households who would have otherwise lived elsewhere benefited from reduced personal vehicle travel costs, on average about up to $930 per year (Table 22). These households would likely spend more on public transit and travel by other non-auto modes, so it probably overestimates the travel savings. Since this benefit is mostly from better jobs access, not higher transit use, it is separate from the transit accessibility benefit calculated in the residential property estimates. The region benefits from reduced personal travel costs and external costs. External costs of vehicle travel include congestion delay, accidents, air pollution, climate change, and noise. The region saw total benefits from reduced travel of as much as $1.1 million annually (Table 22). In the low estimate, however, we assume the plan had no effect on the number of households in the plan area, so all plan area households would have lived there regardless of the plan. While the extra pedestrian connections in the plan area might slightly reduce household vehicle travel in the case, the effect is negligible.

Table 84: Net annual benefits and costs of vehicle travel (2011 dollars)

Perspective	**Low estimate**	**Midrange estimate**	**High estimate**
Regional	**$550**	**$548,839**	**$1,097,127**
Personal costs for residents and workers	$475	$190,280	$380,085
External costs for society	$75	$358,559	$717,042
Household - prospective buyers (who would have otherwise lived elsewhere)	**-***	**$745**	**$935**

**The vehicle travel impact for households applies only to households who moved to the plan area and who would have otherwise lived elsewhere. In the low estimate, all of the households who moved to the plan area would have moved there regardless of the plan, so there is no impact.*

4 Discussion and conclusions

The development in Rio Vista has a number of smart growth elements not found in neighboring conventional developments, including denser buildings, hidden parking, landscaped common areas, some ground-floor retail, and pedestrian connections—all elements envisioned in the series of plans for the area. Overall, whether the impacts of the Rio Vista plans were a net positive or negative depends largely on two factors: (1) whether the development types in the plan area were driven by market demand and developers' perception of the market, or by the city and planners' design requirements and (2) the extent to which residents value Rio Vista's built environment amenities.

From the regional perspective, if we assume the plans, by setting higher design standards, compelled developers to use a denser and more complex building type compared to what they otherwise would have built, the plans most likely had a negative impact (see Table 23). As we see in the midrange and high estimates, construction costs in this case would be higher, and would not be offset by the greater amenities, more efficient service provision, or reduced vehicle travel. In other words, the plan would have a negative impact because it induces people to buy something they would not otherwise want—that is, a more urban-style design.

It's also possible that developers would have chosen the denser and more complex building type regardless of the plans. In this case (the low estimate), the effect of the plans would be to require additional improvements like pedestrian connections that developers would not otherwise provide, which would confer a small benefit. In other words, in this case, the plans' design standards mostly codified what people wanted anyway, and required a few extra elements whose value exceeded their cost.

Whether or not individual households benefited is ambiguous. In the case the plans compelled developers to build a more expensive building type than they otherwise would, developers themselves would be indifferent, because, assuming a tight housing market, they could recover the extra cost through higher sales prices. Households, however, would be left paying for something (i.e., internal parking) they don't really need or want. In the Rio Vista case, this cost is large. Thus in the high estimate, households buying or renting homes in the plan area face a net cost of about $500 annually. However, in the case developers would have built similar style housing regardless of the plan, there would be no construction cost impact, and households would benefit from the plan's other effects. That is, the effect of design standards on households was more or less neutral, because the plan merely standardized what households wanted anyway.

The plan likely produced benefits in from of greater accessibility and reduced vehicle travel, although these impacts were in most cases much smaller than the housing development impacts. Assuming the plan resulted in higher density development, it allowed more people to live in the plan area than otherwise would have. Since the plan area is located closer to job centers than is most of the city, plan area residents can travel shorter distances. The plan may have also allowed more people to live near a Trolley station, which may have slightly increased transit use, although this effect is very small. Because it allowed mixed-use, the plan also resulted in a few more jobs in the plan area than would otherwise exist, which very slightly reduced worker vehicle miles traveled, although this effect is very small as well. Overall, the plan's net effects on vehicle travel were very modest from the regional perspective. Households who moved into the plan area and would have otherwise lived elsewhere saved several hundred dollars per year in reduced vehicle travel.

Table 85: Summary of net annualized benefits and costs of the Rio Vista Plans (in 2010$, costs presented as negative)

Perspective	Low estimate	Midrange estimate	High estimate
Regional			
Residential property	$466,810	$(2,014,682)	$(6,748,791)
Commercial property	$0	$0	$0
Fiscal	$0	$66,074	$117,364
Vehicle travel	$75	$358,559	$717,042
Total societal	**$466,885**	**$(1,590,050)**	**$(5,914,384)**
Municipal			
Residential property	$0	$0	$0
Commercial property	$0	$0	$0
Fiscal	$0	$66,074	$117,364
Vehicle travel	$0	$0	$0
Total municipal	**$0**	**$66,074**	**$117,364**
Household - prospective buyers			
Residential property	$931	$353	-$1,437
Commercial property	$0	$0	$0
Fiscal	$0.00	$0.06	$0.10
Vehicle travel*	$0	$467	$935
Total household - prospective buyers	$931	$820	$(502)

*The vehicle travel impact for households applies only to households who moved to the plan area from elsewhere. In the low estimate, all of the households who moved to the plan area would have moved there regardless of the plan, so there is no impact.

From the municipal perspective, assuming the plans resulted in denser building types, the higher density reduced the cost of municipal service provision, a benefit for the City of up to about $100,000 annually. Spread over all taxpayers in the city, the benefit is only a few cents. The more efficient municipal service provision would also be a benefit from the regional point of view, but it is an order of magnitude smaller than the housing development impacts. In the case where the plan does not affect population in the plan area (the low estimate), there is no impact from the municipal point of view. These estimates all assume that revenue from impact fees cover the cost of capital expenditures.

The plans also required mixed uses—which without the plan would be unlikely or even prohibited—and the additional commercial space likely led to slightly higher local employment that would otherwise have occurred. The higher local employment density very slightly increased municipal service provision and reduced travel distances for some workers. These effects were very small though, almost negligible compared to other impacts.

4.1.1 Discussion

The Rio Vista case highlights the potential risk of imposing urban design regulations that are out of sync with the existing environment or conflict with other policies. Design elements like internal parking and pedestrian facilities can create a more attractive and accessible environment, but they are expensive. Developers often choose to add such elements because they can add value and can command higher sales prices that justify the cost. Planners often require certain design elements in order to create cohesive and attractive neighborhoods. Whether the benefits of that choice outweigh the costs depends on the extent to which people value the resulting design. However, the value of design is highly subjective. Many argue urban design has benefits beyond those valued by the market. Good design can inspire people to take pride in their community, it can make people's lives easier in ways they may not immediately recognize when making a decision on whether to buy a house, and it can preserve an attractive environment for future residents. Good design is difficult to codify in regulations, though, and it is equally difficult to measure its value.

In the Rio Vista case, it is highly questionable whether the development possesses the kind of urban design that has benefits beyond its market value. The internal parking structures kept cars out of sight from sidewalks, but it did very little, if anything, to encourage walking and discourage driving. The ground floor retail in the Promenade does not appear to be highly trafficked. The pedestrian connections to the Trolley station have not resulted in large numbers of people using transit.

If the plan had an impact, it was most likely negative. It probably induced developers to build more expensive buildings and parking structures that increased housing costs without offering many benefits. If the plan did not have much of an impact, and developers would have built something similar anyway, then it’s hard to conclude the plan was a success.

Why was the plan not more successful? As we, and previous researchers (e.g., Inam, 2012), have noted, the development in Rio Vista represents a number of compromises in the original concepts. The main barrier to greater change was a mismatch between TOD objectives and the implicit goals of existing transportation policies. TOD policies intended to encourage walking and transit use were countered by road capacity standards and auto trip-generation assumptions designed to ensure efficient flow of automobile traffic. Policies that improved pedestrian design, required sidewalks, and permitted reduced parking had to work against standards that assumed all residents would drive and required developers to widen roads. Developers ignored the option to provide less parking because they believed the market and/or lenders would not accept less parking. Perhaps Rio Vista’s location at the hub of regional highways and regional commercial uses would have made automobile use predominant regardless of how strong the transit-oriented design. Still, Rio Vista may have missed an opportunity to build more intensely around the Trolley station and include elements—like reduced parking—that could increase transit use. This points to the importance of taking a comprehensive look at policies that may shape development, not just the master plan concept itself. In the end, we can view Rio Vista as the product of a compromise between the transit-oriented ideals of San Diego planners, dated auto-oriented development standards, and market realities at the time.

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Appendix A

Interviewees

Name	Title	Organization
Nancy Bragado	**Deputy Planning Director**	City of San Diego
William Fulton	Planning Director	City of San Diego
Oscar Galvez III	Facilities Finance Project Manager	City of San Diego
David McMahon		Greystone Group
Brian Schoenfisch	Program Manager	City of San Diego
Marco Sessa	Sr. Vice President-Land Development/ Residential	Sudberry Properties
Michael Stepner	Former Director of Planning and Housing	San Diego Economic Development Corporation

Appendix B

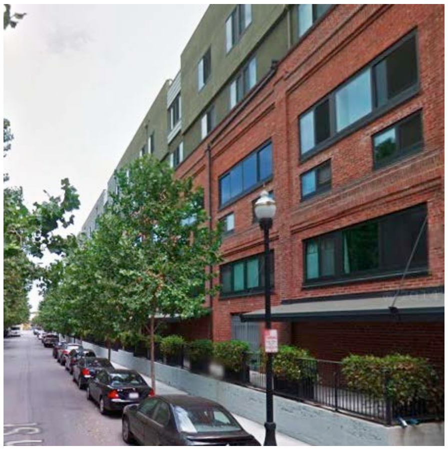
To illustrate the developer's perspective on this trade-off of more expensive parking for more units, Table 13 presents approximate costs for two prototypical developments, a conventional one with lower density and one with higher density like in Rio Vista. A development at 25 units per acre with surface parking would cost roughly $5.7 million to construct, while construction costs for 35 units per acre with structured parking would be about $9 million. However, given housing prices for multi-unit dwellings in 2005, developers would more than recover the higher construction cost by selling more units: expected revenue would be roughly $2.2 million above construction cost, compared to a $2.3 million margin for the lower density development. The margins for both would be considerably lower with 2013 prices, but both types of development appear to be financially feasible and roughly equally profitable.

Table 86: Financial feasibility comparison of two prototypical developments

	Prototype 1: Lower density + surface parking	**Prototype 2: Higher density + internal parking**
Building characteristics		
Units per acre	25	35
Stories	3	4
Building floor area (sf) [a]	30,625	42,875
Costs		
Building construction cost/sf [b]	$176	$185
Total building construction cost	$5,394,500	$7,951,500
Parking construction cost/unit[c]	$12,500	$31,250
Total parking construction cost[d]	$312,500	$1,093,750
Total development costs	***$5,707,000***	***$9,045,250***
Revenues		
Sales price/sf (2013) [e]	$262	$262
Total revenue (2013)	***$8,010,976***	***$11,215,367***
Margin	**$2,303,976**	**$2,170,117**

Sources: [a] Assumes average unit size of 1225 sq ft., as calculated from DataQuick records in plan area; [b]RS Means for San Diego region; [c]Litman (2012); [d] assumes 2.5 spaces per unit; [e] DataQuick median sales prices for plan area.

APPENDIX I: Case Study 4: San Jose Midtown



Executive Summary

Context

In 1992, the City of San José adopted the Midtown Specific Plan to guide the transition of a former industrial district to more intensive residential and commercial uses. The plan shaped development of a 210-acre area as it grew from a population of 127 residents and 1,866 jobs in 1990 to 2,797 residents and 2,632 jobs in 2010. Originally attracted by its good railroad access, canneries and other industrial uses that had thrived in the Midtown area gradually closed or relocated to cheaper land. By the 1980s, the area held mostly low-intensity industrial, warehouse, and commercial service uses, with many vacant parcels. With large vacant and underutilized lots, close proximity to downtown San José, and the presence of commuter rail and the newly planned Valley Transit Authority light rail line (opened in 2005), Midtown held great potential for redevelopment. Along with the adoption of the Midtown Specific Plan, throughout the 1990s and 2000s, San José increasingly shifted to smart growth planning as a citywide strategy.

The plan and its outcomes

The 1992 Midtown Specific Plan was intended to concentrate residential and mixed-use development in this transit- and downtown-accessible neighborhood, while creating a “livable and walkable community.” The plan rezoned industrial land to residential and mixed use; allowed relatively high-density housing (up to 100 units per acre); designated the development of new parks; and imposed urban design guidelines intended to create an attractive and pedestrian-friendly environment.

Two decades after the Midtown plan was adopted, about half of the 3,000 envisioned housing units have been built, all multifamily at relatively high density, and about half of the park space has been created. The housing development, despite some shortcomings, mostly embodies the urban neighborhood and pedestrian-oriented style called for in the plan. Some low-density auto-oriented retail and commercial spaces have been developed, but residential developments generally have not been built to include retail or commercial spaces, perhaps because demand for retail and commercial in this area was too weak. Still, as of 2014, additional projects were planned, permitted or under construction.

Results

The Midtown Specific Plan increased the amount of high-density residential development in the plan area, and increased its pedestrian orientation and access to parks. Without the change in planning policies, new housing likely still would have been developed, but at a lower density. The higher density enabled by the plan led to greater supply of multifamily housing, which conferred very modest benefits to people buying multifamily units and large benefits to owners of developable land now zoned for multifamily. Increased density also allowed more households to live in neighborhoods accessible to rail transit and to downtown San José. Better transit accessibility for more households meant travel cost savings for households and a regional benefit from reduced external vehicle travel costs. Higher density also allowed more efficient provision of public services, a small benefit for households and for the city. Those who benefitted most were new homebuyers in the plan area, for whom greater accessibility and lower housing prices held a value of a few thousand per year on average.

We found only small costs associated with the plan, including an increase in housing prices due to higher construction and development costs required by the plan, such as design requirements—but this was offset by the benefits. Our analysis did not include potential costs like increases in local congestion or loss of industrial land, or potential benefits from the conversion from industrial to residential uses to households in surrounding neighborhoods. The plan did not have any noticeable impacts on commercial development or employment.

Summary of estimated annual benefits from San José development plans

Perspective	Low-impact estimate	Midrange	High-impact estimate
Regional			
Residential property	5,912,901	5,435,551	8,033,859
Fiscal	70,319	99,462	157,749
Vehicle travel	22,705	636,219	1,249,733
Total societal	**$6,005,925**	**$6,171,233**	**$9,441,340**
Municipal			
Residential property	0	0	0
Fiscal	70,319	99,462	157,749
Vehicle travel	0	0	0
Total municipal	**$70,319**	**$99,462**	**$157,749**
Household – prospective multifamily unit buyers			
Residential property	232	1,200	2,784
Fiscal	$0.08	$0.11	$0.18
Vehicle travel	-	-	-
Total household - prospective buyers	**$232**	**$1,200**	**$2,784**
Household - renters			
Residential property	2	184	367
Fiscal	$0.08	$0.11	$0.18
Vehicle travel	22	49	77
Total household - renters	**$24**	**$234**	**$444**

Household - low income			
Residential property	2	3	5
Fiscal	$0.08	$0.11	$0.18
Vehicle travel	22	49	77
Total household - low income	**$24**	**$53**	**$82**

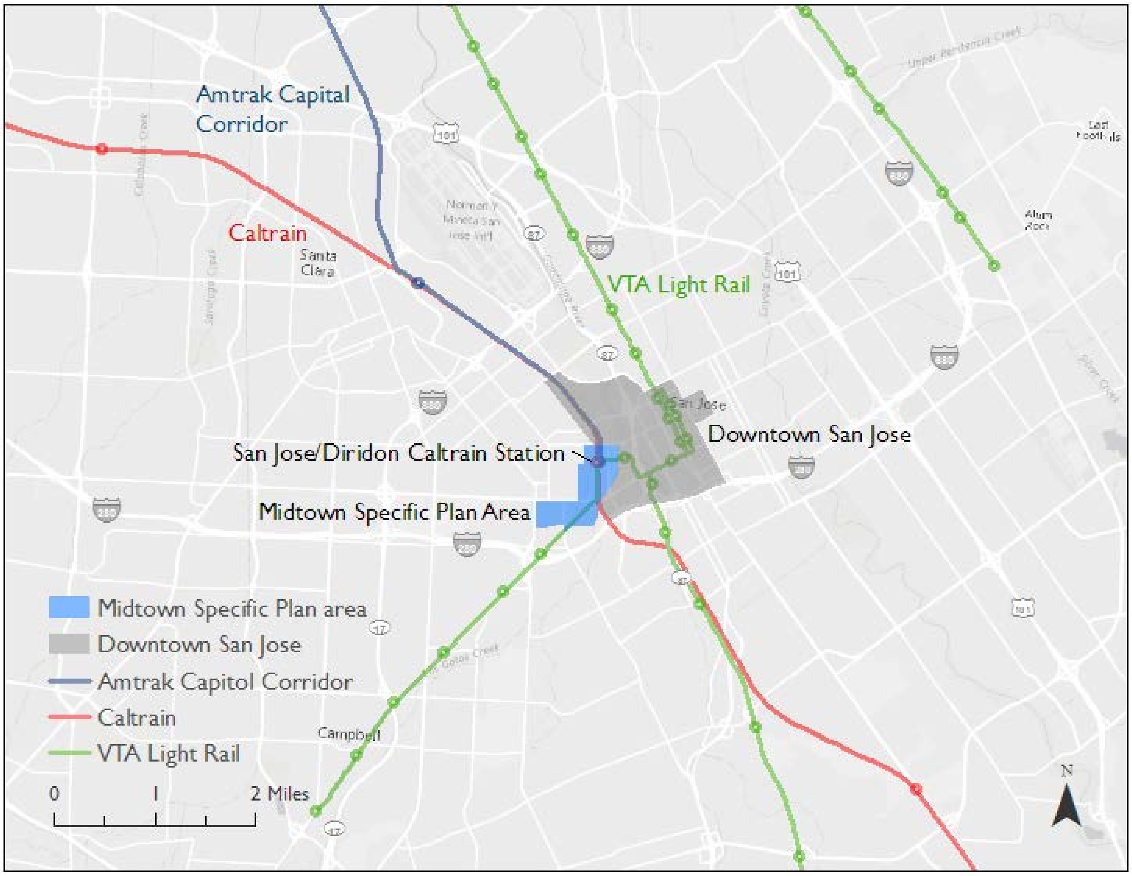
**Because there were initially so few households who owned single-family homes in the plan area, we omit that perspective from the analysis.*

Table of Contents

1 Context

A city of over one million people, and the third largest in California, San José has undergone a dramatic transformation as, in decades following World War II, the area's shift from an agriculture- to a technology-dominated economy drove a population boom. Until to the 1950s, fruit production and processing dominated the region. This activity was centered on the Southern Pacific rail line and included several large canning companies (PAST Consultants 2009). Orchards and the related processing operations provided the largest source of employment in San José until 1952. These jobs, along with the city's growing status as the financial center of Santa Clara Valley, supported high rates of population growth. During World War II, the city's industry diversified to serve wartime needs, producing electronics for aircraft and planting the seeds of the future technology industry. After the war, housing growth once again boomed, mainly in the form of automobile-oriented, peripheral development. Meanwhile, San José's downtown lost employment to suburban locations (PAST Consultants 2009). Despite the loss of agricultural lands, cannery and processing operations remained strong in the city through the initial growth of the high-tech industry, until rising land values in the Santa Clara Valley and new opportunities in California's Central Valley caused the closing of canning facilities (PAST Consultants 2009). By the 1990s, few agricultural operations remained and San José became increasingly encompassed by a growing Silicon Valley.

Figure 25: Regional context



San José Midtown

In the early 1990s, however, few signs of the Silicon Valley technology economy were evident in Midtown San José. Located just west of downtown San José, the Midtown area is anchored by the San José Diridon Caltrain station (formerly Cahill station of the Southern Pacific Railroad). Previously home to several canneries and food packing plants, the neighborhood's proximity to a major rail station made it a center for food production and distribution during the region's agricultural boom, but, mirroring trends in the rest of the city, little of this activity remained by the 1990s. The neighborhood's last cannery, Del Monte, closed in 1999.

The Midtown area in the 1990s contained a mix of industrial and warehouse uses and vacant or underused parcels left by the departure of the agricultural industry (see Figure 2). To the north and west was a residential neighborhood containing mainly small-scale, one-story bungalows dating from the early 20th century (see Figure 3). Downtown San José lay just to the east. In between was a major rail station serving Caltrain, Amtrak, and—in planning stages—the new

Santa Clara Valley Transportation Authority (VTA) light rail line. The plan area at this time had relatively low-intensity land uses, but city planners believed its proximity to downtown and major transit connections created potential for more intense development (City of San José 1992). Regional demand for housing at that time was growing and projected to be very strong; meanwhile, the city expected the demand for industrial uses to decline due to larger economic shifts away from manufacturing. With rising land values in central San José, the city no longer expected commercial service uses to be the "highest and best use" of land in the plan area. The area had very few residents to object to higher intensity uses, and residents of adjacent neighborhoods welcomed development, believing even high-density housing would be a better neighbor than industrial uses. Within this context, the city council directed the preparation of a specific plan for Midtown, intended to kick-start higher intensity development in the area.

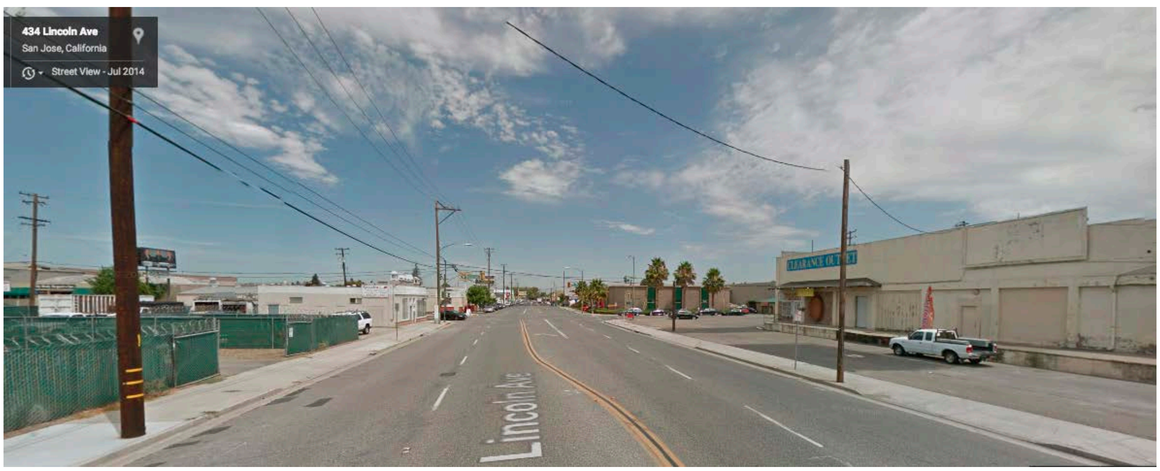


Figure 26: Low-density industrial and warehouse uses in the plan area. The buildings seen in this view from 2014 have changed very little from adoption of the Specific Plan in 1992.
(Source: Google StreetView)

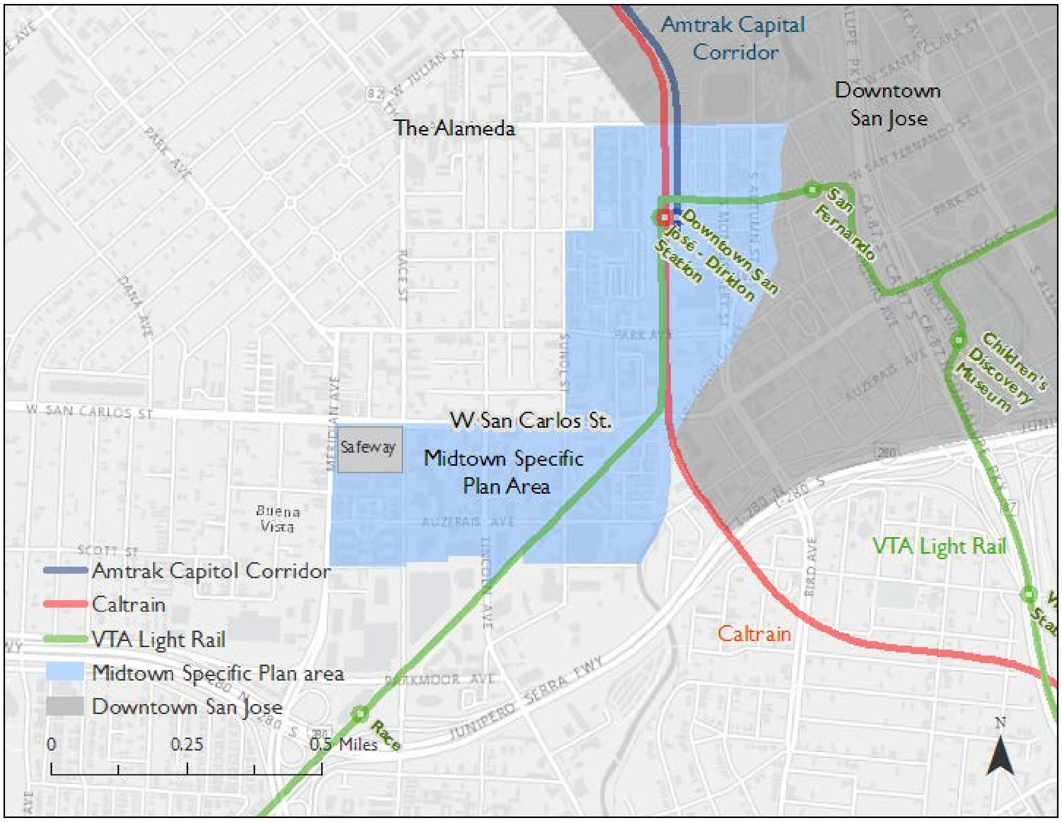
Figure 27: Pre-existing single-family houses in the neighborhood adjacent to the plan area. This street has seen very few changes since 1992

(Source: Google Streetview)

1.1 San José Midtown Specific Plan

In this study, we assess impacts of the Midtown Specific Plan ("the plan") from its adoption in 1992 through 2011. Adopted by the City of San José in 1992, the plan reflects many smart growth principles that were beginning to gain popularity among planners at that time. The plan's goal was to "create a new mixed-use community that includes high-density commercial and residential uses oriented to transit, while maintaining some industrial and service uses" (p. 1). The plan emphasized concentration of residential and commercial development near the Caltrain and VTA light rail stations, in order to "create an employee and resident population in close proximity to transit… and strengthen these areas as pedestrian-oriented activity centers" (p. 2). The plan's authors envisioned a mix of housing that would "meet housing needs and promote a diverse and heterogeneous community" (p. 2). Also important was the creation of a pedestrian-friendly street pattern amid the existing large industrial blocks as well as "an extensive system of pedestrian ways and open spaces that promotes Midtown as a livable and walkable community" (p. 2). The plan also called for "compatible land use relationships" between various use types and between the Midtown plan area and adjacent neighborhoods (p. 2). The plan area covers 210 acres; the boundary was drawn to include former industrial land and exclude existing single-family housing (Figure 4).

Figure 28: Midtown Specific Plan Area



The 150-page document called for policies in the areas of land use, urban design, community facilities, circulation, and utilities. The key policies in the plan were:

- Rezoning sections of midtown for high-density residential, transit-oriented mixed-use, commercial, and industrial.
- Increasing height and density limits, and in some cases, density minimums.
- Introducing minimum open space requirements for new residential developments.
- Introducing design standards intended to create a pedestrian-friendly environment. These standards governed setbacks, orientation to sidewalk, streetscape design, construction materials, and architectural detail.
- Identifying recommended bicycle routes and encouraging adequate bicycle parking at employment and commercial centers.
- Creation of 13.5 acres of public parks.

Apart from the allowable land use change from industrial to residential and mixed use, perhaps the most important aspect of the plan was allowing increased density. Prior to the plan's adoption most of the plan area was zoned for manufacturing uses and most existing uses were primarily low-rise warehouse and industrial buildings (p. 12). Adjacent residential neighborhoods consisted nearly entirely of single-story detached houses. The Alameda, a major street on the plan area's northern border, had two-story commercial buildings, but was generally low-density. By contrast, the plan called for densities of up to 100 dwelling units per acre and a maximum floor area ratio of 3.0 (Figure 5). The plan called for 2,940 new dwelling units, up to 920,000 square feet of office development, 335,000 square feet of retail and commercial uses, and up to 300,000 square feet of additional industrial and commercial uses. This amount of development in the 210-acre plan area would be significantly denser than what previously existed in the plan area and in nearby neighborhoods.

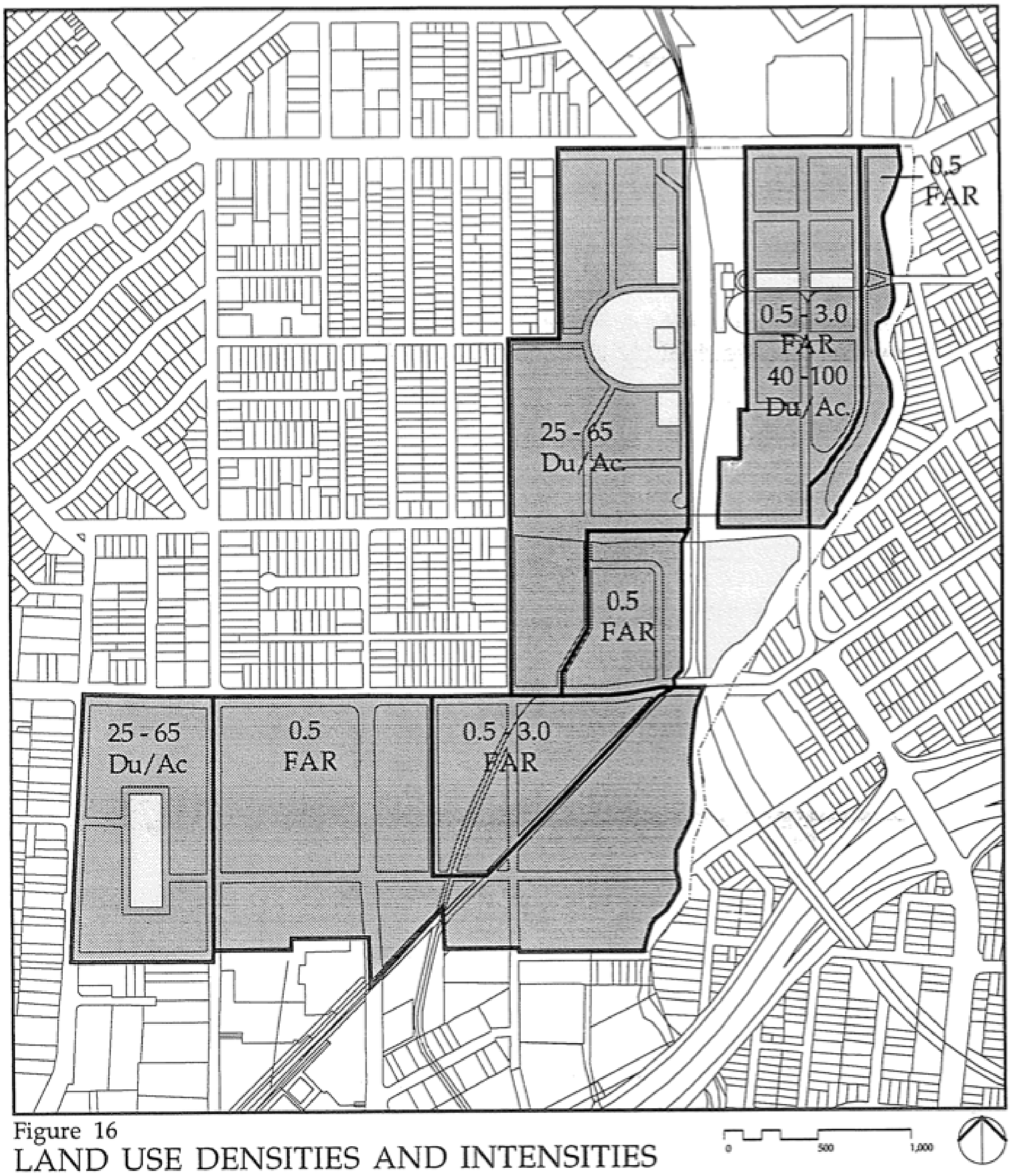


Figure 29: San José Midtown Allowed Densities

Implementation of the Midtown Specific Plan

The plan changed allowable land uses in Midtown and also included financing options for infrastructure and community facilities. Other policies recommended in the plan could not be implemented immediately, but were intended as future improvements. For example, the plan called for the creation of new local streets to break up large blocks and "reinforce the grid configuration of the neighborhood, providing additional pedestrian and vehicular routes" (p. 104), although the alignment of these new streets could not be determined until individual development projects had been proposed. The plan similarly called for new bicycle facilities, standards for coordination with the school district on development of local facilities, a reduction in parking standards, and utility upgrades (including proposed sewer, water, and storm drainage systems). As of 2014, only some of these had been implemented. Some new developments did create new streets that broke up large blocks, although they did not provide the connectivity of a complete grid pattern. Citywide policies reduced parking standards near the transit station and for projects that added travel demand management measures. However, bicycle facilities remained unbuilt and, according to interviewees, there does not appear to be increased coordination with the school district.

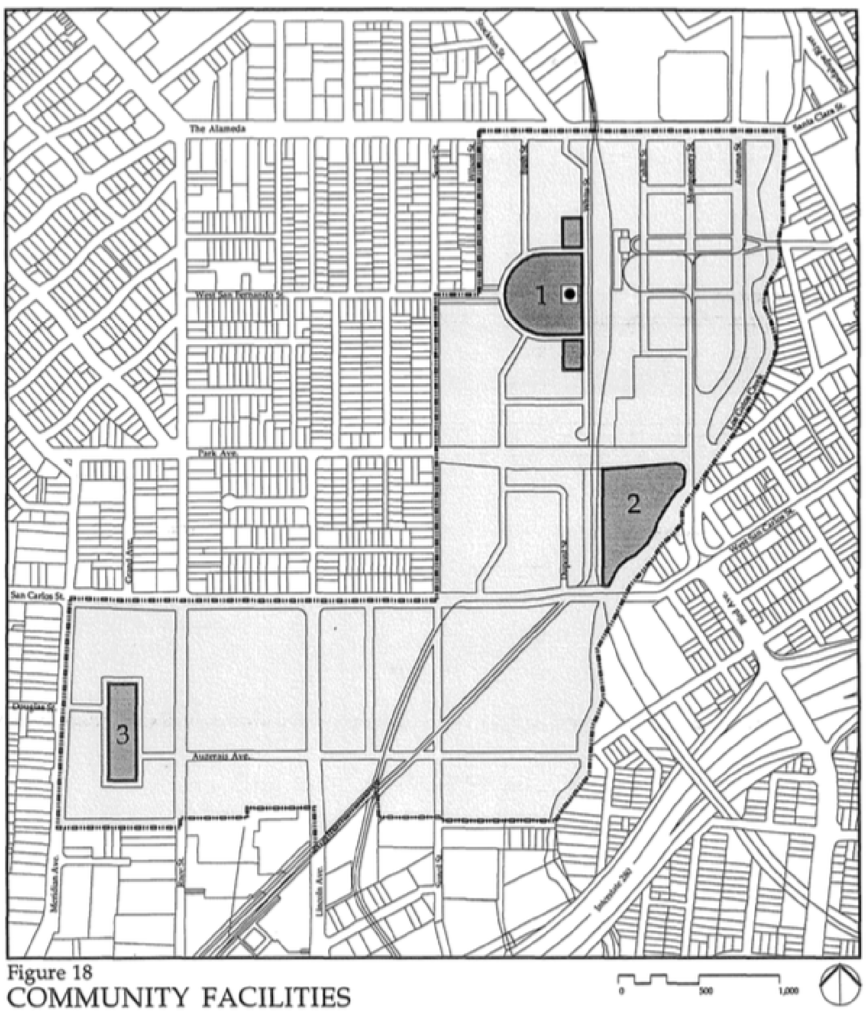


Figure 30: Parks proposed in Midtown Specific Plan (1 = Cahill Park, 6.0 acres; 2 = Neighborhood Park, 5.0 acres; 3 = Saddlerack Park, 2.5 acres)

The plan called for the creation of 13.5 acres of parkland, in the three locations shown in Figure 6. The goal, following the city's general plan at the time, was to have 3.5 acres for every 1,000 residents. The plan laid out design details for each of the three proposed parks. The proposed Cahill and Saddlerack Parks (#1 and 3 in Figure 6, respectively) would be developed on privately owned properties. The plan did not specify how privately owned property would be made into parkland, but the necessary legal framework to require parkland provision was available in the City's Parkland Dedication Ordinance and Park Impact Fee Ordinance (see section 1.2). Thus far, these of two parks have been developed, each smaller than originally envisioned. Cahill Park is 3.6 acres, rather than the planned 6.0 acres, and Saddlerack Park is about 1.8 acres, less than the planned 2.5. The third proposed park, Neighborhood Park (#2 in Figure 6) was to be on city-owned land and as of 2014 had not been developed.

The Midtown Specific Plan and smart growth

The plan reflects smart growth principles of increasing housing densities, creating mixed use and pedestrian-friendly neighborhoods, emphasizing public transit and transit-oriented development, and providing a diversity of housing types (Downs 2005). The urban design guidelines include promoting a "visually diverse and rich fabric" and reinforcing "neighborhood scale and pedestrian orientation" through diverse building types, architectural detail, and hidden parking lots (p. 51). In some ways the plan's ability to address smart growth objectives was limited by citywide and regional realities. For example, although the plan heavily emphasized transit and active travel modes, policies to reduce automobile use were limited. Specifically, the plan suggested a reduction of parking standards and a transportation demand management program to reduce single-occupancy automobile travel "should be considered"—but it appears neither was implemented (p. 108). Additionally, as we will explain next, the VTA light rail has been less successful than expected.

Midtown's rail transit

The Midtown San José Diridon station is served by Caltrain, Amtrak, and the VTA light rail line, as well as VTA buses and private employer shuttles (Figure 4). It is also planned to eventually serve a future Bay Area Rapid Transit (BART) connection, expected to be completed after 2025. The Amtrak system is primarily used for long-distance travel rather than commuting. The heavily used Caltrain Diridon station is Caltrain's fourth most popular in ridership, with an average of 3,489 boardings daily in 2010 (Caltrain 2015). Boardings at Diridon more than doubled since 1992, as did overall ridership on Caltrain (Caltrain 2015).

The VTA light rail serves far fewer riders. The light rail line began construction in the 1990s, mostly funded by a 1996 countywide ballot measures, and the Mountain View-Winchester line through Midtown was completed in 2005. Originally, two VTA stations were planned for the Midtown plan area—Diridon and an additional station at West San Carlos. The Diridon station is closely integrated with the Caltrain station. However, apparently not many people make use of the connection: in 2013, an average of 595 riders boarded light rail at Diridon each weekday (VTA 2014)., The Midtown Specific Plan originally designated the area around the planned West San Carlos station at as a "high-density mixed-use activity area," encouraging intensive transit-oriented development (City of San José 1992, 78). Unfortunately, the VTA never built the station and indicated it was unlikely to do so in the future, citing financial constraints and need to minimize travel times (Baxter 2009).While bus lines still served West San Carlos, the failure to build the rail station undermined the argument for transit-oriented development and likely weakened proposals for high-density development (Baxter 2009). The VTA light rail has failed to meet ridership expectations more generally. Possible reasons for this failure include slow travel times, a meandering routes, and lack of supportive land uses. Whatever the reasons, the shortcomings of the light rail have probably undermined the Midtown plan's objective of reducing auto use.

1.2 Citywide planning policies

The 1992 Midtown Specific Plan was only one of San José's several early forays into smart growth planning. In 1993, the City updated its general plan, which it has revised on an annual basis since. The general plan called for smart growth policies, including an urban growth boundary, an urban service area boundary, and infill development (City of San José 1993). Throughout the 2000s, the city promoted a smart growth strategy of "growth targeted for downtown, transit corridors, and other strategic areas" (City of San José 2001b, 6). In this period, the planning department appears to have taken a relatively permissive position toward higher density development in infill areas. It approved several rezoning requests for residential and mixed-use projects in areas surrounding the Midtown Plan Area (City of San José 2004; 2006; 2008b). The City's 2011 general plan update, called Envision San José 2040, articulated the City's strategy of concentrated infill development in calling for the creation of "urban villages" (City of San José 2011a).

Parking

The Midtown Specific Plan recommended future reduced parking standards in the plan area, but did not actually implement them. Instead, it stated, "parking is needed in sufficient amounts to satisfy the demands of future residents and employees" and parking should "be monitored on an ongoing basis to allow for possible reductions in parking standards as transit systems develop"

(p. 108). Reduction in parking for specific projects was to be "considered if complementary uses provide an opportunity for shared parking" (p. 108); e.g., for parking that serves residents at night and inbound commuters or shoppers during the day. At that time, the parking standard was two spaces per unit for most housing. The plan did govern the design of new parking lots and facilities. It required parking to be hidden from street view, either behind buildings or in garages.

Later changes to the city's parking ordinance allowed reduced parking in transit station areas and other special districts. In 2001, the city revised parking standards to allow a 10% reduction in required off-street parking for developments within 2,000 feet of an existing or planned rail station and in areas designated as neighborhood business districts (City of San José 2001a). In 2011, the city made further allowances for reductions, including reductions for ground floor uses in business districts and a 10% reduction if a specified amount of bicycle parking was provided (City of San José 2011b). The 2011 reductions did not affect most of the development we analyze in this case study, however.

Parkland Dedication and Impact Fees

San José adopted the Parkland Dedication Ordinance in 1988 and four years later adopted the Park Impact Ordinance, in the same year as the Midtown Specific Plan (City of San José 2015). These ordinances allowed the City to require developers to dedicate up to 3 acres of parkland or the equivalent in-lieu fees per 1000 new residents either at the project site or a nearby location. Projects of up to 50 units could be subject to in-lieu fees and those over 50 units could be required to dedicate land. Developers could reduce their parkland obligation by up to 50% by including private recreation facilities such as private pet areas or exercise rooms (City of San José 2008a).

Preservation of Employment Uses

The Midtown Specific Plan, which guided the conversion of industrial land to residential and mixed-use, predated San José's 2007 citywide policy that called for the preservation of industrial uses. The Framework for Preservation of Employment Lands stated that no amendment to the city's General Plan should result in a net loss of employment capacity (City of San José 2007). The city enacted the Framework to forestall the increasing conversions of commercial and industrial land to residential, which was seen to result in a fiscal cost to the city. The Framework's primary objective was thus to preserve employment in order to increase the city's revenue. The framework recommended generally against conversion of industrial or commercial land to any non-employment use. However, the Framework also stated that "rezonings that are consistent with existing Specific Plan land use designation" were not governed by the framework (City of San José 2007). The 2011 General Plan update integrated the Framework's recommendations and designated areas of the city for employment preservation. These areas did not include Midtown.

Summary of interventions

A summary of planning interventions that affected the plan area is provided in Table 1. The 1992 Midtown Specific Plan (hereafter, "the plan") contained significant policy changes for Midtown. These changes were partly deregulatory, in that some restrictions on use and development intensity were lifted. In other ways, the plan merely shifted regulation to other development aspects, such as design and provision of open spaces. Subsequent planning initiatives after 1992 were comparatively much less important for the plan area. The General Plan update in 2011 did include important changes for the city as a whole, but it largely left the Midtown Specific Plan as it was and, in any case, was too recent to affect development during our study period.

Table 87: Planning interventions in Midtown area

Intervention	Policies
1988 Parkland Dedication Ordinance	• Allowed city to require developers to dedicate up to 3 acres of parkland for each 1000 new residents, for projects over 50 units
1992 Park Impact Ordinance	• Applied parkland dedication requirements to new non-subdivided residential development; City can only request in-lieu fees for projects of 50 units or less
1992 Midtown Specific Plan	• **Rezoning from manufacturing to higher-density residential and commercial** • **New open space requirements for new developments** • **New urban design standards to improve pedestrian environment** • **Implementation plan for new public parks**
1993 General Plan Update	• Urban Growth Boundary, Urban Service Area Boundary • Strategy of infill development
2001 Citywide Parking Standard Revision	• 10% reduction in parking requirements for rail station areas citywide
2011 General Plan Update: Envision San José 2040	• Reinforced strategy of infill development • Reduced parking requirements for ground-floor uses and for providing bicycle parking citywide • Designated areas for preservation of employment uses (did not include Midtown) • Did not significantly alter the Midtown Specific Plan

2 Case-specific Methodology

In order to assess the impacts of the plan, we constructed a "counterfactual" scenario that depicts likely outcomes of the plan area and its residents had the city not adopted smart growth planning.

The counterfactual scenario is based on multiple information sources, including interviews, comparison of trends between the plan area and wider region, and comparison of policies between the plan area and the wider city. In particular, we compare current conditions with conditions just prior to the implementation of the plan in 1992, and to conditions in the city and county as a whole. Table 2 summarizes the types of comparisons made. Before-and-after comparisons, with 1990 data when available and data from later years when that is the best option, are the most clear, empirical way of measuring the changes that happened after the plan was implemented.

Table 88: Summary of comparison areas used in the analysis

Type of change:	**Comparison area:**	**Rationale for comparison area:**
Population and demographics	• City of San José	The city provides broader context for population and demographic trends in the region.
Employment	• City of San José • Santa Clara County	We contrast total jobs and professional service jobs in the plan area with those in the *county* to understand how economic trends in the plan area compare with regional economic trends. We compare retail jobs in the plan area with those in the *city* in order to understand how economic changes affect municipal finances.
Commercial	• Santa Clara County	The county values are used to provide context of economic changes in the region.
Housing	• Santa Clara County	The county values are used to provide information about the regional housing market and to estimate housing price trends in the absence of the plan
Municipal fiscal impacts	• City of San José Extends from our population, employment, and housing analysis.	We use our previous analysis to contextualize the citywide fiscal changes we see.
Travel behavior	• City of San José • Extends from our population, employment, and housing analysis.	Travel behavior changes are compared with the city to provide context. We use our previous analysis to identify the resulting changes to traffic patterns and behavior.

2.1 Interviews and field visits

For this case study the team interviewed six planners, developers, and residents who were involved in the plan's development and implementation. Interviews were conducted by phone and in-person. In the interviews, we aimed to understand how the plan's policies had affected development in the area, and what would have occurred in the absence of the plan. A list of interviewees is provided in Appendix A. Team members made two separate field visits to the plan area in spring 2014.

2.2 Data Sources

This analysis uses several datasets – including the U.S. Census and American Community Survey, and the National Establishment Time Series – that are common across all case studies and are described in the full report. DataQuick property sales data were used in the Midtown case and included several notes unique to San José. In this case, DataQuick data on residential property sales are only available as far back as 2004. The records also show fewer than 20 sales per year until 2009.[101] Commercial property data are available from 1990, but shows only 15 properties were sold. However, parcels within the plan area are generally large, so we would expect fewer sales of larger lot sizes, which is consistent with these data. We describe our corrections for the date range and small number of records in the appropriate sections below.

3 Population and housing

3.1 Population and demographic changes

During the study period the plan area saw transformative development. The population grew rapidly during the study period, from only 127 residents in 1990 to 2,797 in 2010. This was enabled by rapid residential construction; in 1990 there were only 56 housing units and 127 residents in the plan area, and in 2010 there were 1,443 units housing 2,797 people.

Table 89: Plan Area Observed Population Changes, 1990 - 2010

	Plan Area 1990	Plan Area 2000	Plan Area 2010	San José 2010
Population (not in group quarters)	127	602	2,797	925,300

[101] A significant portion of the condos in the assessor data were recorded with 0 units, an irregularity that would have required us to make calculations with a much smaller set of properties had we left out the entries with this problem. After spot-checking a handful of properties using APNs to confirm that they corresponded to individual townhouses or condos, and confirming that none of these properties had building square footage that was too large to be a single unit, we replaced the 0s with 1s and continued calculations assuming these were one-unit properties.

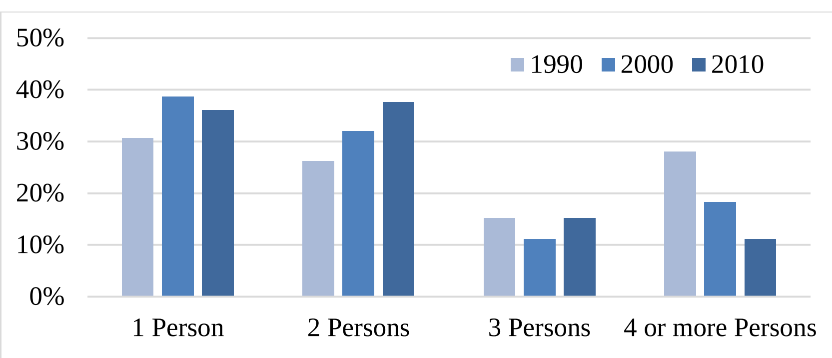
Average household size	2.3	2.2	2.1	3.1
Households	51	269	1,340	301,366
Population density (per sq. mi.)	374	1,771	8,226	5,242

Source: Census 2000, Census 2010, ACS 2008-12 5-year estimates

Since the plan area had so few residents in 1990, demographic changes over the study period are not very meaningful; more meaningful is a comparison between the plan area and the city in 2010. In 2010, white and Asian residents made up 70% of the plan area population, compared to 63% in the City of San José overall. The median income of plan area residents in 2010 was $70,856, slightly below the citywide median of $79,405 (in 2010 dollars). In 2010, 41% of the plan area's housing units were renter-occupied, compared to 39% in the city, and 7% were vacant, compared to 6% in the city. In 2000, 21% of households in the plan area were low-income, defined as having an annual household income of less than $10,000. In 2010, only 9% were low-income.

Average household size decreased in the plan area from 2.3 in 1990 to 2.1 in 2010, much smaller than the 3.1 average household size for the entire city. The downward trend in the plan area is mostly due to an increase in the proportion of two-person households and a decrease in the proportion of households with four or more persons (Figure 7). The proportion of households that are family households was 48% in 2010, far lower than in San José as a whole, were 73% of households are families. That plan area households are relatively small is not surprising considering that the area's housing stock is almost entirely multifamily housing—99% of plan area units in 2010 were in multifamily buildings, whereas only 45% in the city were multifamily.

Figure 31: Plan Area Changes in Household Size, 1990-2010



Source: Census 2000, Census 2010, ACS 2008-12 5-year estimates

3.2 Changes in housing supply

Since 1990, Midtown has seen a substantial amount of residential development —a mix of condominiums, lofts, apartments, and townhouses in large projects—with little new retail and commercial. According to the Census, the plan area gained 218 housing units between 1990 and 2000 and an additional 1,169 housing units between 2000 and 2010; only half of the units called for in the plan have been built. As of 2015, though, several more projects were in planning or construction phases.

Table 90: Change in housing supply

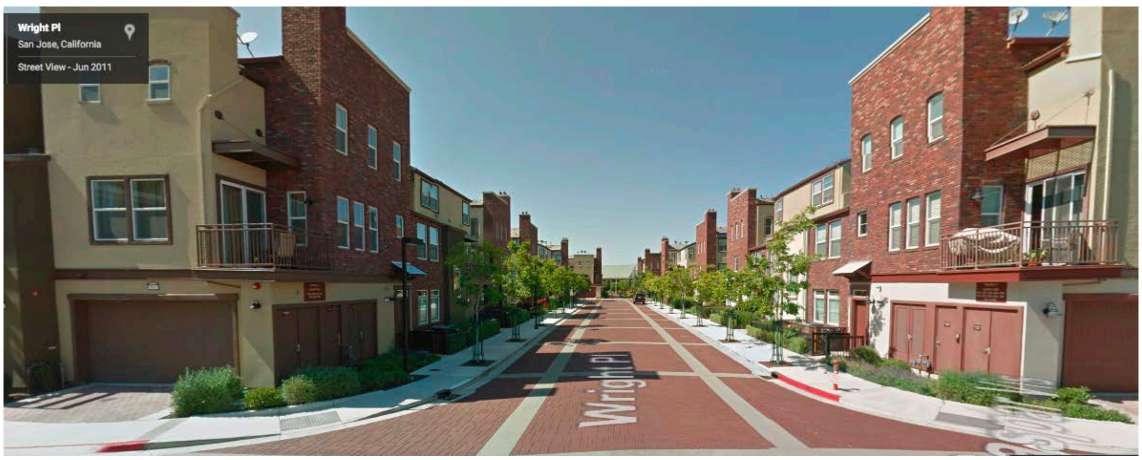
	Plan area			San José City, 2010
	1990	**2010**	**Change, 1990-2010**	
Total housing units	56	1,443	1,387	317,592
Detached single-family units	19	19	0	174,428
Multifamily units	37	1,424	1,387	143,164
Percent of units that are renter-occupied	80%	41%	-	39%
Vacancy rate	n.a	7%	-	6%

Source: Census 2000, Census 2010, ACS 2008-12 5-year estimates.

There is evidence the 2008 housing crisis and economic recession affected the area, as many of the properties for sale in 2014 were foreclosures and some proposed projects reportedly experienced temporary problems obtaining financing. For example, the proposed Ohlone project, an 800-unit development that initially included a 160-feet residential tower, lost financial backing in 2013, apparently because the original proposal overestimated market demand and underestimated costs (Donato-Weinstein 2013). While developers pre-recession may have been overly optimistic about housing demand, the housing market in the area appears to have largely recovered and current demand is quite strong—recently constructed condos and apartments have sold out very quickly (Black 2014). Developers believed there was strong demand for housing in Midtown (Black 2014; Sveinsson 2014). One developer claimed his firm would have developed 2,000 to 3,000 more units, if it were not for the citywide policy, codified in the 2011 General Plan update, to discourage conversion of industrial and commercial land to residential (Black 2014). (However, we did not find evidence that the industrial conversion policy actually limited development in the plan area in this case.)

In 1990, 19 of the 56 units in the plan area were detached, single-family houses, the remaining were in small multi-family buildings. Since building permit data suggest there was no major demolition and little redevelopment of existing housing in the area, we found no evidence that the 19 detached houses that existed in 1990 have changed. All new construction is in the form of attached housing, mainly townhouses and four- or five-story apartment and condo buildings (Figure 8 through Figure 10). Following the specific plan's design standards, new housing developments generally featured connective pedestrian sidewalks and walkways, pedestrian-scaled streets and buildings, and street furniture and landscaping. Contrary to the plan's intentions, new residential developments, at least those completed by 2013, did not include retail or commercial uses, although some were located near existing retail.

Figure 32: New housing development at the site of the former Del Monte cannery: moderately dense with a street designed for pedestrian access.

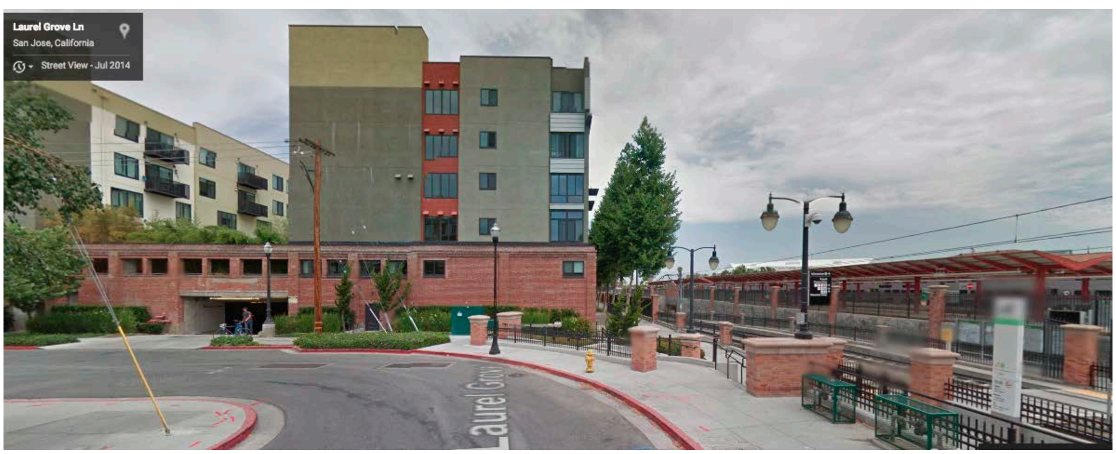


(Source: Google StreetView)

Figure 33: New Cahill townhouses across from the new Cahill Park

(Credit: Sergio Ruiz)

Figure 34: New loft-style residential development offering direct pedestrian access to the adjacent Diridon Station



(Source: Google StreetView)

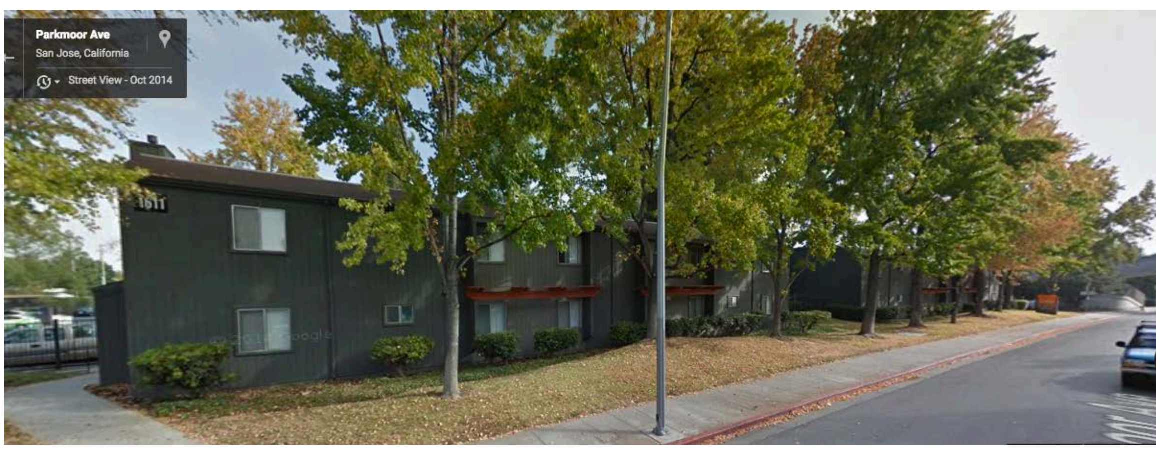
3.3 Impacts of the plan on housing development

Our analysis suggests that some development in the plan area would likely have occurred even without the Midtown Specific Plan, but would have been lower density with a less cohesive and pedestrian-oriented design and less public open space. In other words, the effect of the plan was to allow higher density and require more pedestrian-oriented development.

Housing supply impacts

Throughout the study period the San José area continued to experience a strong unmet demand for housing, especially multifamily housing, even accounting for brief periods of recession (State of California 2000; 2009). Several interviewees indicated that the combination of declining industrial activity and greater housing demand would have placed enormous development pressure on the Midtown area regardless of the 1992 plan (Xavier 2014, Sveinsson 2014, Chapman 2014). Without the plan's rezoning, developers would have had to apply individually for zoning changes. Developers actually did apply for zoning changes for several projects outside of the plan area, and these were granted because of the city's overall permissive stance toward infill development (City of San José 2004; 2006; 2008b). These projects were at densities significantly higher than adjacent existing development—densities of 60 dwelling units/acre or higher in the midst of single-family housing. However, without the City's general smart growth strategy, such applications for high density would likely have been denied. In the absence of a smart growth policy, the planning department would probably have allowed residential development on former industrial land because that land was underused. But, without the guidance of a smart growth strategy, the planning department would likely have required developers to build at densities more in line with existing development in nearby neighborhoods. For example, planners may have requested development similar to nearby multifamily buildings built in the 1970s and 1980s, like those in Figure 11, at about 30 to 40 units per acre.

Figure 35: Multifamily housing near, but outside, Midtown built prior to the plan's adoption. In the absence of Midtown's planning and zoning changes, housing in Midtown may have been built at about this density, with this level of pedestrian design.



(Source: Google Streetview)

The Midtown specific plan allowed relatively high density, 25 to 65 dwelling units per acre, and up to 100 units/acre next to Diridon station. Based on documents of permitted projects, we estimate the average density of new construction in the plan area was about 55 units/acre. Without the plan—or any smart growth policy—we estimate that the planning department would have allowed residential development in the plan area, but at only about 40 units/acre (or 45 units/acre in the most conservative case; 30 units/acre in the most generous case; see Table 5). Forty units per acre is at the higher end of the density range observed in multifamily residences in neighborhoods surrounding the plan area. With these densities, 252 to 630 fewer housing units would have been developed in the plan area. These would have still been in multi-family buildings. The plan allowed even higher densities near the light rail and Caltrain transit stations; without the plan a lower percentage of new units may have been within 1,500 feet of the station. In the most conservative case this percentage would be the same with or without the plan and in the most generous case we assume that only 50% of units would have been in transit areas. Further, we have no evidence that the plan changed the number of single-family units.

Table 91: Housing supply with and without the plan

Housing, plan area	1990	Observed 2010	2010 Without Plan Low	2010 Without Plan Mid	2010 Without Plan High	Difference Observed – Without Plan Low	Difference Observed – Without Plan Mid	Difference Observed – Without Plan High
Average density of new construction (dwelling units/acre)		55	45	40	30	n/a	n/a	n/a
% of new units <1500 ft of metro station	n/a	75%	75%	63%	50%	n/a	n/a	n/a
Total housing units	56	1,443	1,191	1,065	813	252	378	630
Detached single-family units	19	19	19	19	19	-	-	-
Multifamily units	37	1,424	1,172	1,046	794	252	378	630
% of total units <1500 ft of metro station	50%	72%	71%	59%	47%	n/a	n/a	n/a

Source: 1990 and 2010 Census. n/a = not applicable

Therefore, in the plan’s absence, fewer housing units would have been built in dense, transit-accessible locations, at least during the study period. The households that would have lived in those housing units would live elsewhere in the city, and at least some of the households that would have preferred a denser, transit-oriented setting would have to settle for something closer to the citywide average. In reality, the residents who currently live in the area but would have been unable to without the plan would likely have looked in similar neighborhoods in nearby cities, such as Santa Clara or Palo Alto. But because of the Bay Area’s extremely constrained housing market, we assume these other higher-density areas would not have had the capacity for spillover of these households. Although developers and households would have options in other Bay Area cities such as Santa Clara or Fremont, San José is a reasonable approximation of available alternative housing locations, because it covers a very wide area, encompassing urban, suburban, and rural areas, and, unlike other parts of the Bay Area, has land available for development.

In the absence of the plan, therefore, the demand for housing would have been met elsewhere in the City of San José, in the "average" location. However, zoning regulations restrict much of the city to single-family development, so more new development would be built as single-family. In the city of San José, 35% of new housing units built 2000 and 2010 were single-family. We assume that, in the absence of the plan, the "additional" housing units not accommodated by the plan would be built elsewhere in the city with this same proportion of single-family units, 35%. We assume the total number of housing units in the city (any type) would be the same regardless of the plan. These assumptions imply the plan was responsible for adding 88 to 219 new multifamily units to the city over the two decades.

Housing design impacts

In addition, without the plan's urban design standards, projects would have been evaluated on a more ad-hoc basis, and may be less consistently pedestrian-oriented. Developers said they viewed the neighborhood as still "auto-oriented" even with the neighborhood's transit and pedestrian facilities and the plan's transit-oriented ambitions (Sveinsson 2014; Black 2014). Developers' attitudes and the area's high level of auto use indicate that transit-oriented designs were due mainly to the plan's guidelines, and not due to a perceived demand for TOD. Without the plan's guidelines to establish pedestrian-oriented design elements like sidewalks, small setbacks, hidden parking, and articulated facades, developers may have designed projects with larger setbacks, fewer pedestrian connections, and more prominent parking. While some interviewees felt pedestrian facilities and design could have been better (Chapman 2014), without the plan they may not have existed at all. Our assessment suggests that individual new developments *themselves* were generally pedestrian-friendly, but pedestrian connections *between* new developments and in the wider neighborhood—with the exception of around Diridon station—did not change much from what existed in 1990.

Open space impacts

One of the plan's key provisions was to create new parks, two of which have been developed. Without the plan, city planners could have required developers to provide parkland under the Parkland Dedication Ordinance, but they would have lacked guidance on where and how to provide the parks. The ordinance does not necessarily require developers to provide parkland, it only gives planner the authority to do so. In the absence of the Specific Plan, the planning department still could have required developers to provide park space, but without the specific location and design for the parks, it would have been less likely to make parks a priority. With the specific plan's detailed proposal for parkland development, both the planning department and residents were in a stronger position to negotiate with developers to provide parks. We assume that, without the plan, these parks would not have been provided.

Parking impacts

Residential parking in the plan area is provided mostly in structures and underground, with very little surface parking. Interviews indicated that most of the development during the study period provided parking at the 1992 standard of approximately one space per bedroom. In other words, the plan did not affect parking (Sveinsson 2014; Xavier 2014). One developer claimed that parking requirements remain a constraint on development in the area. This constraint is a combination of the parking minimums imposed by the city and the demand for parking, as the overall neighborhood is not seen as walkable, the retail in the area needs parking, and there is little on-street parking (Sveinsson, 2014). Another developer claimed that the plan requires more parking than is needed, and that his company's developments now take advantage of more recent exemptions for light rail proximity and other relaxations (Black, 2014). However, changes in parking appear to only apply to the last couple years. During the study period, the plan's policies did not have an affect on parking supply.

3.4 Impacts of the plan on population

Our analysis regarding plan area population absent the plan follows directly from our assumptions about housing supply. In short, the plan allowed greater density and hence more housing units than would otherwise have been built, which allowed more households to move in to the plan area. Table 6 summarizes how the plan's effects on development led to population changes.

Observed population growth in the area matched housing growth closely, evidenced by a vacancy rate that decreased from 9% in 1990 to 7% in 2010—this indicates demand for housing in the plan area has been high. In the context of high demand, the supply of housing probably determined Midtown's population. In the absence of the plan, there would have been fewer housing units in the plan area, but those would have been filled with households with the same demographic profile as actually observed in 2010 and to the same occupancy rate. This means that, by allowing higher density, the plan enabled an additional 475 to 1,212 people to live in the plan area than would otherwise have been able to (see Table 6). These "extra" people would have had to find housing elsewhere; we assume they would have located elsewhere in San José.

Table 92: Population and households in plan area without the plan

Variable	**Plan Area, Observed**		**Plan area, Without Plan**			**Difference, With Plan - Without**		
	1990	**2010**	**Low**	**Mid**	**High**	**Low**	**Mid**	**High**
Average household size in plan area	2.3	2.1	2.1	2.1	2.1	n/a	n/a	n/a
Housing units in plan area	56	1,443	1,191	1,065	813	252	378	630
Vacancy rate	n/a	7.1%	7.1%	7.1%	7.1%	-	-	-
Households in plan area	51	1,340	1,106	989	755	234	351	585
Population in plan area	127	2,797	2,322	2,076	1,585	475	721	1,212
Population density in plan area	374	8,226	6,830	6,107	4,660	1,396	2,120	3,566

Source: Census

4 Residential property values

4.1 Changes in residential property values

DataQuick property value data are only available in the plan area from 2003 onwards, so we consider both the 2012 ACS estimates and the more detailed sales data in estimating the actual changes in property values and rents. The Census data show that over the 20-year study period, median home values increased 80% and rents increased 85%. Both home values and rents were consistently lower than those across the whole county, but also increased at a much faster rate than the county averages. However, since very few of the housing units in the plan area are single-family homes, whereas those in the county mostly are, it is likely that the plan area's lower prices are due to smaller housing units rather than less desirable land. Comparisons of median monthly rent are somewhat more meaningful because rentals are more likely to be multifamily units. At the beginning of our study period, median monthly rent in the plan area was $764, compared to $1,330 in the county, but by 2010, rents in the plan area had largely caught up to the county (Table 7). Still, the Census data do not allow us to account for changes in unit size for rentals.

Table 93: Changes in median home value and rent in plan area and county

	1990	2000	2010	Percent change 2010-1990
Median Home value (2011 USD)				
Plan Area	$259,588	$369,565	$468,107	80%
Santa Clara County	$495,141	$552,028	$677,326	37%
Monthly median rent (2011 USD)				
Plan Area	$764	$1,165	$1,412	85%
Santa Clara County	$1,330	$1,547	$1,508	12%

Source: 1990, 2000, and 2010 Census

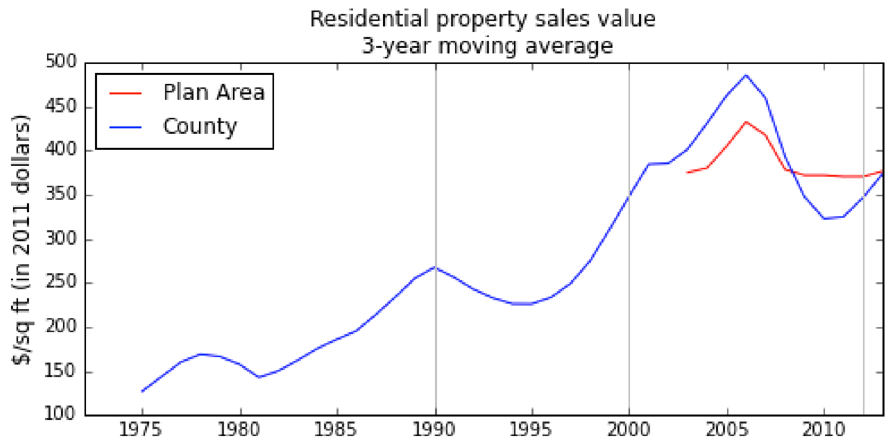
The DataQuick data does account for housing unit size, and shows that the per square foot sales prices in the plan area were lower than in the county in 2003, but by the end of the study period were slightly higher. In 2012, the median sales price for a multifamily unit in the plan area was $370/sq ft., compared to $346/sq ft. in the county (Table 9). As shown in Figure 12, sales prices in the plan area experienced a much less pronounced drop than did those in the county following the 2008 housing crisis.

Table 94: Changes in median sales price per square foot in plan area and county

	2003	2010	2012	Change 2003-2012	Percent change 2003-2012
Median sales price per sq ft, multi-family properties (2011 USD)[a]					
Plan Area	$375	$372	$370	-$5	-1%
Santa Clara County	$401	$323	$346	-$55	-14%

Source: DataQuick

Figure 36: Median sales prices for residential property in Santa Clara County and the SJ Midtown Plan Area



Source: DataQuick

Both sources show that housing values in the plan area were stronger than in the county, with a higher rate of growth in median home value and rent from 1990 to 2000, and less of a negative change in per square foot value from 2003 to 2012.

4.2 Impacts of the plan on property values

How did the plan's policies impact housing prices? As we already discussed, the plan resulted in higher density, more pedestrian-oriented design, and more public park space, compared to what would have existed without the plan.

(1) Regional supply effects

In San José, housing prices generally rose over the study period as regional economic and population growth boosted demand for all housing types, with the exception of a sharp drop during the economic downturn. The increased prices reflect high demand and the fact that housing supply, especially for multifamily, is constrained in the San José area by regulations and limited land availability (Saiz 2010; State of California 2000). As previously discussed, the policies enacted under the plan increased the supply of multifamily housing by about one to two hundred units over what would have been built without the plan. Given the constrained regional housing supply, this increase in supply would theoretically offset some of the upward pressure on housing prices caused by high demand.

To estimate how the local increase in housing supply affected prices in the regional market, we applied values of the price elasticity of supply from the literature. Saiz (2010) estimated a supply elasticity for the San José metro area of 0.76. Applying this elasticity, the increase in regional multifamily housing due to the plan would be expected to lower prices by 8 to 20 cents per square foot, or $107 to $264 for the average unit in the plan area (Table 9). Households buying a multifamily unit would benefit from this price reduction, while existing owners of multifamily property would experience a cost. Single-family homeowners and buyers would not be affected.

Table 95: Impact of increased housing supply on prices (all prices in 2011 dollars)

	Low	**Midrange**	**High**
Base multifamily sales price ($/sq ft)[a]	$346	$346	346
New multifamily units in plan area attributable to plan	88	131	219
Price elasticity of supply (from Saiz (2010))	0.76	0.76	0.76
% difference in supply	0.030%	0.045%	0.075%
Expected % difference in price	-0.023%	-0.034%	-0.057%
Change in sales price due to increased regional supply ($/sq ft)	(0.079)	(0.118)	(0.196)
Change in sale price for average unit ($/unit)	(107)	(159)	(264)

[a] Base sales price is 2003 median sales price in plan area from DataQuick, minus the county-wide change in housing prices from 2003 to 2012, 14%. (The observed 2012 median price cannot be used for this calculation, because it already reflects for the plans' impacts.) Base rent is calculated in the same way.

The regionwide benefit from the increase multifamily housing supply can be estimated from the increase in land value due to the change in zoning. The higher permitted density allows more units to be built on developable parcels within the plan area, which allows the landowner to profit more from selling or renting those units, compared to what he or she would have gained without the zoning change. In Midtown, the zoning increase to 55 units per acre allowed landowners to build, on average, 10 to 25 additional units per acre. Assuming a constant construction cost and sales price per unit, the change in permitted density would confer a benefit of roughly $2 to $3 million to owners of developable land.[102] We estimate that, just after the plan was adopted, there were 24 acres of developable residential land in the plan area. This implies the total regionwide benefit of the zoning changes was $50 to $76 million or, assuming a 30-year financing period, around $3-$5 million annually.

2) Accessibility and amenity effects

Even though rail transit existed in Midtown without the plan, the policy changes likely increased the benefits from transit accessibility by increasing the number of housing units near transit, and therefore the number of households that could benefit from it. Midtown has access to both heavy commuter rail and light rail transit, so we looked to previous studies of the effects of both. Studies of the effect of proximity to light rail transit on multifamily housing prices have found that being located within about a 1/4-mile from a station increases sales prices by about 6% to 16%, depending on the type of neighborhood (Goetz et al. 2010; Duncan 2011; Knaap, Ding, and Hopkins 2001). A study of the effect of heavy rail in Chicago found that land located within a half-mile of stations sold for 17% higher than land elsewhere, which assuming that land value is 40% of total property value, would mean a 7% premium for housing prices (McDonald and Osuji 1995). It is important to note that the premiums reported in these studies refer to the portion of the accessibility value actually capitalized into real estate prices; the actual value of the accessibility may be higher. Therefore our estimates are conservative.

Given the range of effects found in the literature, we estimated that the proximity to the Caltrain and VTA light rail stations in Midtown was together worth between 6% and 15% of the average unit sales price, or about $21 to $52 per square foot for the average unit within 1,500 feet of the station (Table 10). In other words, the average unit near a transit station would sell for about $28,000 to $70,000 more than one further away. Given that the plan resulted in several hundred more units being built near the transit station than would have in the absence of the plan, we estimate that the plan created a value of about $5 to $46 million over the lifetime of these houses.

[102] In reality, higher density might slightly change construction cost and would lower prices, but these changes are very small in comparison to the total construction cost and price per unit.

Table 96: Impacts on transit accessibility and other amenities (all prices are in 2011 dollars)

Amenity effects	**Low**	**Mid**	**High**
Assumed price premium for rail transit accessibility for multifamily units <1500 ft of station[a]	6%	11%	15%
Assumed price premium due to access to parks and open space[b]	0%	1%	2%
Value of transit accessibility for multifamily units near transit ($/sq ft)	$21	$36	$52
Value of proximity to parks per unit (multi-family) ($/sq ft)	$0	$3	$7
Aggregate value of transit accessibility	$5,289,808	$20,071,483	$46,329,578
Aggregate value of park access	$-	$4,708,275	$7,062,412
Total aggregate value of accessibility + other amenities	$5,289,808	$24,779,758	$53,391,990

[a] *Based on Goetz et al. (2010), Duncan (2011), Knaap, Ding, and Hopkins (2001), McDonald and Osuji (1995).*

[b] *Based on Bartholomew and Ewing (2011)*

The plan also required developers to provide parks in residential developments, in an area in which there was previously no parkland. Without the plan, these parks would not have been created. In general, parks are an amenity that generates value for households living nearby. A large number of studies have found proximity to parks and open space to be associated with higher home prices. Bartholomew and Ewing (2011) reviewed more than 60 studies on the effect of parks and open space on housing prices. They concluded that the marginal price of proximity to an open space, within about 600 feet, ranged from negative to 2.8% of the housing price, depending on the type of urban environment and size of park. Given the parks in the plan area are relatively small, in the midrange and high estimates we assume the value of park access was 1-2% to the price of an average housing unit, respectively; in the low estimate we assume there was no added value. As with transit accessibility, the measured price increase in these studies reflects the amount of amenity value that was capitalized into prices, not the full value.

Because it was a requirement of the plan, all new housing developments in the plan area were near parks or included park space. But very few, if any, of the existing housing in the plan area was within 600 feet of a new park. Therefore the park amenity applies only to new housing. With these assumptions, the parks created by the plan would have generated a benefit of up to $7 per square foot (Table 10). Over all new units in the plan area, we estimate the new parks generated a cumulative benefit of up to $7 million, as long as these units would not have been built near parks in the absence of the plan. Presumably, the parks would also benefit residents from elsewhere in the city as well as future residents, who are not included in this analysis.

3) Construction costs

Development policies could also influence housing prices by changing construction and development costs. The plan included several design requirements, such as providing parkland, architectural details, and pedestrian facilities. By making these requirements of developers, the plan also likely increased the complexity of the planning process. Previous studies suggest such regulatory changes may increase a home's selling price by about 5%. In this case, we estimate that additional costs due to urban design and planning complexity added 1 to 3% to a unit's construction cost, where, according to RS Means, the typical construction cost is $80/sq ft. For the average sized unit, design requirements would add $1079 to $3,238 to the development and construction cost. We assuming that developers pass on 50% of this cost to residents—prospective buyers of housing unit in the plan area would perceive this as a cost.

4.3 Summary of costs and benefits - housing

The Midtown Specific Plan, along with other planning changes, allowed more housing to be built in the plan area—a transit- and downtown-accessible location—than would otherwise have been.

The annual impacts are summarized in Table 11. The greatest benefit has come from the increase in housing supply. By allowing higher density, the plan permitted more multifamily units than would otherwise have been allowed, some of which already have been built. We estimate the benefit of increased multifamily housing to the region is around $3-$5 million annually. The increase in regional supply is expected to lower housing prices slightly. That savings is a benefit to prospective buyers of multifamily housing, but a cost to those who already own multifamily properties. The amount depends on how much of the impact property owners pass on to buyers or renters—we assume 50%. Therefore prospective multifamily buyers benefit only $4 to $10 a year. Owners and buyers of single-family homes are not affected.

The concentration of additional housing in a transit-accessible location allowed more households to benefit from accessibility, from about $300 to $2,400 annually for prospective buyers. The plan also increased neighborhood access to parks and open space, worth up to about $700 for prospective buyers. This was partially offset by higher construction and development costs, resulting from requirements for parkland dedication and well as more burdensome planning and design requirements.

Since there were only ten existing households that owned homes in the plan area (the other existing households were renters) we omit existing homeowners from the analysis. Homeowners in adjacent neighborhoods probably were impacted by the plan—that they were involved in the planning process suggests that there were—but estimating impacts on those specific neighborhoods is outside the scope of this study.

Table 97: Summary of annual benefits and costs reflected in housing prices (in 2011 dollars)

	Low-impact estimate	Mid	High-impact estimate
Regional	**$5,912,901**	**$5,435,551**	**$8,033,859**
Savings due to supply increase	$5,553,317	$3,655,348	$4,144,485
Accessibility benefits	$384,299	$1,458,171	$3,365,793
Amenities benefit	$-	$470,320	$940,640
Price change due to construction cost	$(24,715)	$(148,288)	$(417,060)
Municipal	**$-**	**$-**	**$-**
	$-		
Household - existing (single-family) homeowner	**$-**	**$-**	**$-**
Savings due to supply increase			
Accessibility benefits	$-		
Amenities benefit	$-		
Price change due to construction cost			
Household - prospective buyers	**$232**	**$1,200**	**$2,784**
Savings due to supply increase	$4	$6	$10
Accessibility benefit	$277	$1,051	$2,427
Amenities benefit	$-	$339	$678
Price increase due to construction cost	$(49)	$(196)	$(331)
Household - renters	**$2**	**$184**	**$367**
Savings due to supply increase	$2	$3	$5
Accessibility benefit	$-	$-	$-
Amenities benefit	$-	$181	$362
Price increase due to construction cost	$-	$-	$-
Household - low income	**$2**	**$3**	**$5**
Savings due to supply increase	$2	$3	$5
Accessibility benefits	$-	$-	$-
Amenities benefit	$-	$-	$-
Price increase due to construction cost	$-	$-	$-

5 Commercial property and employment

5.1 Changes in commercial development

Very little new commercial space was developed in the plan area between 1992 and 2010. Many of the previously existing commercial buildings—mainly low-rise warehouses or stand-alone shops—continued to exist without change. Even in 2014, new commercial development was very limited.

Along the Alameda, the main pedestrian-oriented corridor in the plan area, a small number of small- to mid-sized retail spaces have opened in one- to two-story buildings, some new, some existing. In 2014, street-level storefronts tended to be low-value retail and services, with a few restaurants and cafes. These uses do not indicate a high demand for retail or neighborhood services—one of the common uses on the Alameda was check-cashing services, and many businesses were real estate or financial service companies that do not necessarily need high foot traffic locations. It is possible that the population increase in Midtown will create future demand for local services and spur development; for example, at the time of this writing, a Whole Foods grocery store had recently opened. In other parts of the plan area, where there is less foot traffic, previously existing low-rise buildings house a variety of commercial uses such as salons, small restaurants, used car dealerships, and wholesale distributors.

Despite the intent of the plan, most new developments were entirely residential and very little mixed-use or commercial development occurred in the plan area. In fact, residents we interviewed complained about the lack of commercial uses, since they had hoped increased density would bring more amenities like shops and restaurants (Chapman 2014; Arant 2014). Developers said it was difficult to finance and find tenants for retail uses, especially in non-traditional mixed use buildings (Sveinsson 2014). As of 2014, the only new commercial development was a shopping center anchored by the supermarket Safeway that includes a bank and a McDonald’s.

The plan intended to influence the details of commercial developments by setting design standards such as setbacks and facades, but actual developments do not reflect these standards, or if they do, they do so only minimally. For example, the Safeway shopping center is in the form of a typical suburban commercial development with a single story and a large surface parking lot, although it does have an entrance sign designed specifically for the Midtown location (see Figure 13). The Safeway development is also entirely commercial—not mixed use—and would have been permissible under previous zoning; most likely it would be been built even in the absence of the plan.

Figure 37: New Safeway supermarket and shopping center

(Source: Google Streetview, 2014)

5.2 Impacts of the plan on commercial development

Because very little mixed-use or high-density commercial space was developed in the plan area – the type of commercial developments to which the plan aspired – the plan appears to have had little effect on the overall amount of commercial development in the plan area in 2010. We conclude that the development patterns reflect actual demand, and not the binding constraints of zoning. This implies that, absent the plan, development in 2010 would have been very similar, with some changes in square footage or cost due to smaller setbacks or more parking provision. Again, however, we note that new retail development (e.g. Whole Foods) suggests that the commercial effects of the plan may just be greatly lagging the residential effects of the plan.

5.3 Changes in employment

As Midtown transitioned from an employment-focused area to a mixed-use neighborhood, Midtown added 766 jobs from 1991 to 2011, an increase of 41% (Table 12).[103] But, the employment make-up shifted with the neighborhood's changes. There were 519 fewer jobs in manufacturing, transportation, warehousing, and construction jobs while employment in professional services, finance, real estate, and public administration increased by 1,100. This shift from manufacturing to service jobs continues the trend of declining manufacturing jobs in Midtown that predates the Specific Plan (City of San José 1992). As an example, the closure of the Del Monte cannery in the area in 1999, reportedly caused a loss of 1,454 manufacturing jobs in the plan area (Tomb 1999). (This loss does not appear in the NETS data, likely because of the seasonal nature of cannery work, which peaks in the summer, whereas Dun and Bradstreet

[103] This refers to jobs located in the plan area, regardless of where the job-holders live.

collect their data in January.) These shifts also mirror the overall employment shifts in San José. In the rest of San José, manufacturing, wholesale, and construction jobs declined by 15% over the study period, while professional services employment increased by 25%. The changes in the plan area were larger than those in the city in percentage terms.

Table 98: Employment changes in plan area and in surrounding geographies

	1991	2001	2011	Change (2011-1991)	% Change (2011-1991)
Plan area					
Total employment in plan area	**1,866**	**2,005**	**2,632**	**766**	**41%**
Manufacturing, wholesale, transportation, construction	1,111	793	592	(519)	-47%
Professional services, finance, real estate, public administration	270	498	1,370	1,100	407%
Other Sectors	485	714	670	185	38%
City of San José					
Total employment	**262,813**	**389,493**	**397,450**	**134,637**	**51%**
Manufacturing, wholesale, transportation, construction	84,968	124,080	110,983	(13,097)	-15%
Professional services, finance, real estate, public administration	67,688	108,584	125,414	16,830	25%
Other sectors	110,157	156,829	161,053	50,896	46%

Source: Dun & Bradstreet/National Establishment Time Series (NETS)

5.4 Impacts of the plan on employment

The employment changes, while large, were not much different from what we would have expected without the plan. The shift from manufacturing to service jobs was a larger macroeconomic trend that began well before the plan was adopted in 1992, and was the result of regional changes caused by factors such as land value and the rise of other industries in Silicon Valley. affected the entire city. While the plan did call for the redevelopment of former manufacturing and warehouse sites, we have little evidence the plan's policies hastened this change. As discussed, there is no evidence the plan affected commercial development and the plan did not seem to increase retail land uses in Midtown during the analysis period.

While the number of professional, financial, and administrative service employees increased, we do not attribute these gains to the plan. This increase was not in dense office clusters or mixed-use centers, but mainly in existing low-density commercial buildings and a few new retail shops that would have existed without the plan. Employment in these sectors also increased in the city, more evidence that the increase was due to factors outside of the plan. Thus, we estimate that the plan had no significant effect on employment.

6 Municipal finance

Below we measure what actually occurred in each major fiscal category between 1990 and 2010.[104] (All figures are in 2010 dollars, unless otherwise noted.)

6.1 Property tax revenue

From 2004 to 2013, Midtown's assessed value increased considerably due to new residential and commercial development.[105] To illustrate the magnitude of this development activity, about 37% of the acreage in the plan area was redeveloped during this short time period. In 2013, the Midtown area generated over $650,000 in property tax revenue for the city of San José, an increase of about 81% from 2004 in real dollars. On a per capita basis, property tax revenue generated in Midtown was about twice the city average in 2013. While this is partially attributable to more commercial uses relative to residential population in Midtown, it also reflects the high value of urban land in Midtown.

Without the plan, there would likely have been less residential development in the plan area, and consequently lower overall assessed property value in Midtown (Table 13). The plan area would have likely generated between 17% and 43% less property tax revenue – a difference of up to $280,000 annually– without the plan. Some of this would have been offset by new growth outside the plan area. For example, residents of new apartments, condominiums, townhomes, and detached houses built in other neighborhoods in San José would generate – based on citywide per capita averages – about $117 per year in property tax revenue for the city's general fund. When taking into consideration the residents inside and outside the plan area, we find an annual net benefit from the plan for the region and municipality averaging $84,000. However, over the long term, given San José's limited land supply, the benefits of increased density in Midtown will likely be higher in terms of property tax revenue.

[104] We analyze different periods for several indicators, due to data availability.
[105] Electronic parcel data are only available for this period.

Table 99: Employment and population intensity of Midtown, Plan Area

	2010	2010 Without Plan		
	Observed	**Low**	**Midrange**	**High**
Population	2,797	2,322	2,076	1,585
Employment	2,632	2,632	2,632	2,632
Total	**5,429**	**4,954**	**4,708**	**4,217**
% of observed 2010 intensity		***91%***	***87%***	***78%***

6.2 Municipal operating expenditures

Over the study period, total municipal operating expenditures associated with Midtown increased for two reasons. First, population growth meant that public services were required to serve more people.[106] Second, most per capita service costs citywide increased in real terms. These cost increases were somewhat counterbalanced by the city's ability to serve Midtown more efficiently over time – particularly relative to the citywide average – because population density increased more than four-fold in the plan area between 2000 and 2010. Overall, this combination of factors resulted in a rise in annual municipal operating expenditures from $300,000 per year to $1.6 million per year in real terms from 2000 to 2010. In absence of the plan, at least several hundred residents would have located outside the plan area, where service provision is less efficient, on average. The difference would have been an average of $15,000 per year higher. This savings is attributable to higher densities in Midtown – compared with the city's overall density and the density in Midtown if the plan had not been adopted. Without the plan, Midtown would have been an average of 25% less dense, leading to a higher per capita cost of providing police, parks and street services.

Table 100: Effects of the plan on population density. We estimate operating expenditures as a function of population density.

	2010 Observed		2010 Plan area, Without Plan		
	Citywide average	**Plan Area**	**Low**	**Midrange**	**High**
Population density (persons per sq. mi.)	5,307	8,226	6,830	6,107	4,660

6.3 One-time revenue and capital expenditures

Like most cities, the City of San José assesses impact fees on new residential and commercial development to fund capital improvements associated with new growth. Midtown was not in a redevelopment area and no improvement district was implemented in the neighborhood. Interestingly, our research found that residential development impact fees in downtown and

[106] Our analysis of municipal operating expenditures covers 2000 to 2010 due to data consistency.

Midtown were higher than those in many other areas due to the parkland dedication fee.[107] These fees are set based on land values (e.g. the city assesses higher fees in areas with higher land costs). This is the only fee that varies significantly between downtown and other San José neighborhoods. This fee does not apply to commercial development. We estimate that new residential growth in Midtown generated a maximum of $24 million in impact fee revenue between 1990 and 2010 (2010$).[108] If not for the plan, much of the residential development would have still occurred in Midtown. However, the several hundred units that would have built in other locations in the city, where impact fees are on average $8,800 lower per multi-family unit and $7,425 lower per single-family unit. Given this per-unit differential, we calculate that the plan enabled the city to collect between $1.8 and $4.4 million more over the twenty-year period.

However, while the city's impact fee revenues were higher under the plan, we also need to analyze the city's capital expenditures to understand if the plan provided a net benefit. Available data on expenditures in the neighborhood are more limited. Prior to plan implementation, Midtown had few community facilities or amenities. Fire department response times reportedly rose over the study period due to increased service demands and fire station closures, and the sewers and roads in the area remain out of date (Arant, 2014; Chapman, 2014). The plan identified a number of objectives and policies aimed at making improvements to infrastructure to support development. These were partially completed. Two of the three proposed parks were actually constructed, although they were smaller than originally planned. However, from building permit records, it appears that the parkland for the Cahill and Saddlerack Parks was fully dedicated by developers, but that the city was responsible for the development and maintenance costs.

Our interviews and analysis suggest that higher impact fee revenues were probably mostly offset by higher capital costs (or deferred spending that did not meet the needs of Midtown's growing population). From this we conclude qualitatively that the fiscal benefits related to impact fees and capital spending were probably modest at best, and it is entirely possible that there were small costs associated with the plan. We conservatively conclude that the plan led to no benefits or costs in terms of capital development and revenues to pay for them.

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[107] Developers of more than 50 residential units have the option to "dedicate land for public parks, pay a fee in lieu of dedication, construct new park facilities, or a combination of these." Smaller project developers must pay the in-lieu fee. https://www.sanjoseca.gov/index.aspx?NID=562

[108] This is the maximum value because developers could opt to construct the parks themselves instead of paying the impact fee.

6.4 Summary of costs and benefits - Fiscal impacts

Because it led to greater development and higher property values, the plan generated fiscal benefits by increasing city revenue from property taxes and impact fees and decreased operating expenditures (Table 15). Impact fee revenues are a function of higher parkland impact fees in the downtown area (which includes Midtown) compared with the citywide average. These increases in revenue act as a direct benefit for the city and its residents. Residents benefit from greater municipal revenue because, at least ideally, the city will use it to provide more or better services (or lower tax rates). Both residents and the city also benefit from lower operating expenditures, because the higher density development allows more efficient use of services. However, the higher impact fees were offset by higher capital costs in Midtown. The overall fiscal benefit of the Midtown plan was between $67,000 and $163,000 per year from the city's perspective, is relatively small from the household perspective– because the benefits are distributed across the city – equating to less than one dollar per year per household.

Table 101: Net annual municipal fiscal impacts (in 2010 dollars)

	Net annual benefit (cost)		
	Low Estimate	**Midrange**	**High estimate**
Regional	**$70,319**	**$99,462**	**$157,749**
Property tax	$55,372	$84,049	$141,404
Operating expenditures	$14,947	$15,413	$16,345
Impact fees	-	-	-
Capital expenditures	-	-	-
Municipal	**$70,319**	**$99,462**	**$157,749**
Property tax	$55,372	$84,049	$141,404
Operating expenditures	$14,947	$15,413	$16,345
Impact fees	-	-	-
Capital expenditures	-	-	-
Households (all types)	**$0.08**	**$0.11**	**$0.18**
Property tax	$0.06	$0.09	$0.15
Operating expenditures	$0.03	$0.03	$0.03
Impact fees	-	-	-
Capital expenditures	-	-	-

7 Vehicle travel

7.1 Changes in vehicle travel

As Midtown's population grew between 1990 and 2010, the neighborhood's residents were more likely to commute via transit, walking, and biking. Data on mode share for the exact plan area are not available because data are only available for census tracts, so we analyze the two census tracts that compose the plan area. In 1990, 2.7% of residents in these tracts traveled to work by transit (Table 16). That share rose to 10.2% in 2010. The share of residents who walked or biked to work also increased, from 2.3% in 1990 to 10.5% in 2010. By comparison, in the City of San José, the share of workers using transit, walking, and biking was similar in 1990, but did not increase over time. As noted in Section 1.1, the number of Caltrain boardings at Diridon station roughly doubled over this time period, as did total Caltrain ridership. The VTA light rail ridership also increased, but is very small in comparison to Caltrain. These figures suggest a general increase in commuting by rail, but one that is probably limited to station areas. Considering that the plan area had very few residents in 1990, most of the observed change in commute mode share was probably driven by incoming residents rather than behavior change in existing residents.

Table 102: Changes in commute mode share, plan area and city

Commute mode share, workers over 16 years of age	**1990**	**2010**
Plan area (2 census tracts)		
Transit	2.7%	10.2%
Walk or bike	2.3%	10.5%
City of San José		
Transit	3.5%	3.1%
Walk or bike	2.2%	2.2%

Source: 1990 Census, 2008-2012 ACS 5-year estimates (for census tracts), 2010 ACS 1-year estimates (for City)

7.2 Impacts of the plan on vehicle travel

The Midtown Specific Plan appears to have impacted vehicle travel in three main ways: (1) by allowing more residents and to locate near rail transit stations, (2) by providing better connections to transit for these residents, and (3) by slightly improving the bicycle and pedestrian environment.

In the absence of the plan, more households would have likely lived outside of station areas in less dense developments, represented in our calculations by average values for the city of San José. As described in Section 3.3, constraints on housing allowances and development in the region meant that, without the new housing provided by the plan, some households would have had to live in neighborhoods that area lower density, single-family, and not well connected to transit. The main effect of the plan, in terms of travel, was to allow an additional 475 to 1,212 people to live within walking distance of rail stations and frequent-service bus, and close to the employment centers like downtown San José. In such accessible conditions, these residents would be more likely to travel by transit, by bicycle, or on foot, or if they drove, they would likely drive shorter distances. In the absence of the plan, these people would have instead lived elsewhere in the city, presumably in a less-dense, less-transit accessible environment, where they would have been less likely to use non-auto modes and have to commute longer distances. Therefore we expect the effect of the plan was to reduce vehicle miles traveled (VMT).

The few residents who initially lived in the plan area may have changed their travel behavior too, although probably only slightly. The plan improved the appeal of areas around Diridon station and better connected it to other parts of the plan area, likely resulting in a small increase in transit use even for pre-existing residents.

As previously discussed, we concluded the plan did not have an effect on employment, so although the neighborhood's built environment changes may have very slightly affected workplace-based travel, this effect would be negligible.

7.2.1 Estimate of residents' VMT

To estimate the plan's impact on vehicle travel, we used the tool developed by Deborah Salon (2014) for the California Air Resources Board.[109] Table 17 presents input values for residents who moved into the plan area—those who would otherwise have lived elsewhere. Table 18 presents the values for preexisting residents who continued to live in the plan area. As a baseline value of VMT, we used California Household Travel Survey data to estimate the average resident of the Midtown area generated 24 vehicle miles traveled per day at the beginning of the study period.[110]

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[109] Details of the tool's use are presented in the methodology section of the full report.

[110] To estimate the VMT of plan area residents in 2000, we divided the unique vehicle trips by number of persons living in plan area, using an expanded list of census tracts to sufficiently large sample. This estimate is not highly accurate, but enough to estimate the likely change in VMT.

*Table 103: Input values for Salon tool: Change in travel and land use for original residents in the plan area**

Variables	**1990 Initial (Midtown Plan Area)**	**2010 Assumption for Plan Area**	**2010 Without Plan (Midtown Plan Area w/o Plan)**	**% Change due to Plan (2010-1990)**
% of commuters using transit[a]	2.7%	3.5%	2.7%	%
% single-family homes[b]	34.0%	1.3%	11.4%	-29.8%
road density (road miles per square mile)[c]	12.9	12.9	12.9	0.0%
local job access (gravity-based job density)[d]	13.2	13.2	13.2	0.0%
% non-motorized mode commute share[a]	2.3%	3.3%	2.3%	%

** Residents who lived in the plan area in 1990 and 2010.*

[a]*Source: 1990 and 2008-2012 ACS 5-year estimates, for the two census tracts that comprise the plan area*

[b] *Source: 1990 and 2008-2012 ACS 5-year estimates.*

[c] *Calculated from GIS*

[d] *Calculated following Salon (2011) methodology*

*Table 104: Input values for Salon tool: Change in travel and land use for residents accommodated in plan area**

	1990 Initial (City of San José Average)	**2010 Observed (Midtown Plan Area)**	**2010 Without plan (City of San José Average)**	**% Change due to Plan (2010-1990)**
% of commuters using transit	3.5%	10.2%	3.5%	163%
% single-family homes	58%	1.3%	53.8%	-91%
road density (road miles per square mile)	13.8	12.9	13.8	-6%
local job access (gravity-based job density)	6.71	13.2	6.7	96%
% non-motorized mode commute share	2.2%	10.5%	2.2%	376%

** Residents who moved into the plan area between 1990 and 2010 as a result of the plan. In the absence of the plan, it is assumed these residents would have lived elsewhere in the city and would be represented by the citywide average.*

** Use 2000 as initial scenario due to a) lack of LEHD data for 1990 and b) represents average condition for all added residents as some arrived before 2000 and others after.*

For the small number of residents who live in Midtown in 1990, the plan impacted vehicle travel by increasing the residential density of the area, by increasing the appeal of transit use, and by improving the neighborhood’s environment for pedestrians. We assume that, among the original plan area residents, the share of using transit for commuting increased only slightly from 2.7% in 1990, to 3.5% in 2010, the same share as for the City as a whole. They likely increased their share of walking and biking to work by a small amount. Thus, we estimate these original residents of the plan area reduced their vehicle travel by less than 1 mile per day.

The plan’s policy changes had a greater impact on people who moved to the plan area from elsewhere. These in-coming residents benefitted from greater access to jobs in downtown and nearby neighborhoods, greater transit access, and a denser environment than would have been available to them in the absence of the plan. For these added residents, we estimate the percentage of workers commuting via transit, walk, and bike, was equal to that actually observed in the plan area, while they otherwise would have had mode shares equal to that of the city average. Applying the Salon tool, we estimated the plan contributed to a reduction of roughly

1,600 to 8,000 vehicle-miles traveled per day for the newly added residents. This is equivalent to a reduction of about 3 to 6 miles traveled per person.

In sum, we estimate the plan's policy changes were responsible for a net reduction of 1,600 to 8,000 vehicle-miles traveled per day. The vast majority of this change results from more people being able to live in an accessible location. To estimate the monetary value of the reduced vehicle travel, we applied standard assumptions for the personal and societal costs of travel, as described in the methodology of the final report.

7.3 Summary of costs and benefits - Vehicle travel

By allowing more people to live in denser, accessible areas than otherwise would be able to, the plan likely reduced overall VMT, producing considerable benefits for the region and for individual households. Households that moved into the plan area benefitted most, saving between $588 to $1,133 per year in personal vehicle travel costs, compared to what they would have spent if they had lived somewhere else in the city. Part of these savings would have been offset by an increase in spending on public transit and other non-auto modes. Note that to avoid double-counting we do not include this benefit in the final analysis, because we have already considered the value of reduced vehicle travel in the accessibility calculation. Households already in the plan area saved a smaller, almost negligible, amount on vehicle travel. For both groups, part of the decrease in vehicle travel may be due to greater congestion. While these factors might induce people to spend less on vehicle travel, they would also reduce mobility, a cost for residents. However, it is beyond the scope of this analysis to decompose the VMT effects into those stemming from accessibility and those from congestion. The region as a whole benefitted from the reduced vehicle travel in the form of less congestion, less pollution, and fewer accidents, among other benefits. We estimate the total regional benefit from VMT reduction to be about $23,000 to $1.2 million annually.

8 Summary of costs and benefits

Our analysis suggests the Midtown planning policies had an overall positive effect on the region, the city, and individual households, at least for the categories of impacts we analyzed (Table 19). The greatest benefits were due to fact that higher plan area density allowed an increased supply of in-demand multifamily housing and allowed more households to live in a transit-accessible location. The planning policies allowed residents who otherwise would have located in more dispersed locations to instead concentrate in Midtown. This created household and regional benefits from greater municipal service efficiency, higher property tax revenue, increased transit use, and lower per capita vehicle travel. The plan also resulted in more local parkland, which slightly increased the cost of housing, but generated overall benefits for residents and society.

The plan may have some costs that we were not able to capture in this analysis. For example, the lower vehicle travel might actually reflect greater congestion from higher density, rather than better accessibility, in which case that congestion would have a cost. Even though we assume that, without the plan, the industrial land would have been converted anyway, the loss of land for industrial uses might have future negative impacts on the city's economy that we do not consider in this analysis.

We also did not consider the effect of development on residents outside of the plan area. In theory, the more intensive development may have created congestion and noise that negatively impacted neighbors. However, our interviews found that residents in adjacent neighborhoods actively supported the new development in the plan area and considered it a positive influence on their own property values (Chapman 2014; Arant 2014). If anything, it is likely that the plan created benefits for property beyond the plan area itself, and our estimates might undervalue the plan's benefits.

In some aspects, the plan did not achieve the full range of benefits originally intended. The 1992 plan called for much more retail in a mixed-use setting. While some retail was built, it was not in the pedestrian-friendly form imagined in the plan. Demand for retail lagged and the benefits that an amenity-rich neighborhood might provide have not yet been realized. The initial plan also envisioned greater connectivity for pedestrians and bicyclists. While the pedestrian environment did improve and travel by non-motorized modes did increase, the change was far less than imagined in the original document. Similarly, although the plan discussed reduced parking as an important aspect of smart growth, the plan did not include provisions to reduce it and the actual supply of parking hardly changed. At the same time, considering that only half the planned development has thus far been built and more development is in the pipeline, the area could continue to change into the future.

Table 105: Summary of net annualized benefits and costs from the perspective of different types of households

Perspective	Low-impact estimate	Midrange	High-impact estimate
Regional			
Residential property	5,912,901	5,435,551	8,033,859
Fiscal	70,319	99,462	157,749
Vehicle travel	22,705	636,219	1,249,733
Total societal	**$6,005,925**	**$6,171,233**	**$9,441,340**
Municipal			
Residential property	0	0	0
Fiscal	70,319	99,462	157,749
Vehicle travel	0	0	0
Total municipal	**$70,319**	**$99,462**	**$157,749**
Household - prospective buyers (multifamily housing)			
Residential property	232	1,200	2,784
Fiscal	$0.08	$0.11	$0.18
Vehicle travel	-	-	-
Total household - prospective buyers	**$232**	**$1,200**	**$2,784**
Household - renters			
Residential property	2	184	367
Fiscal	$0.08	$0.11	$0.18
Vehicle travel	22	49	77
Total household - renters	**$24**	**$234**	**$444**
Household - low income			
Residential property	2	3	5
Fiscal	$0.08	$0.11	$0.18
Vehicle travel	22	49	77
Total household - low income	**$24**	**$53**	**$82**

**Because there were initially so few households who owned single-family homes in the plan area, we omit that perspective from the analysis.*

8.1 Implications for policy

This analysis suggests that higher density zoning in transit-accessible locations, combined with provisions for park space, can benefit households, municipalities and regions. In the San José case, the strong housing market would have created pressure for high-density development even without planning interventions, and the role of planning was simply to *allow* such development. By allowing more density, planners allowed creation of economic benefits—at least for the households we studied—that would have been prevented by previously existing zoning regulations. However, even though the main planning intervention in this case was deregulatory, the plan also had elements of re-regulation: in exchange for greater density, planners required developers to provide neighborhood amenities like parks and pedestrian design. Our analysis suggests that the greatest benefits, measured in monetary terms, came from relaxing density restrictions, although the amenities generated benefits too.

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Appendix A: Interviewees

Name	Title	Organization
Leslie Xavier	Planner	City of San José
Deborah Arant	Local resident	Shasta Hanchett Neighborhood Association
Karl Sveinsson	Resident; Director of Design and Development	Plant 51; Viewpoint REIC
Helen Chapman	President	Shasta Hanchett Park Neighborhood Assocation
Michael Black	Senior Development Manager	Barry Swenson Builders
Nancy Ianni	Council member, Chair of Specific Plan Task Force	City of San José

APPENDIX J: Case Study 5: Downtown Turlock

Executive summary

In 1992 the City of Turlock adopted a general plan that called for reinvestment in its downtown, which had languished ever since businesses began to depart for suburban sites in the 1960s. Since 1992, the city has pursued a series of initiatives to spur development in the downtown area, including a major publicly funded redevelopment project from 1995 to 2001. Through streetscape upgrades, landscaping, tree planting, parking lot reconstruction and water and sewage improvements, the project aimed to transform the look and feel of Main Street. The City subsequently adopted design standards and zoning for the area. As part of this renewed focus on downtown, the City also relocated city hall and the police/courthouse/fire facility to the downtown area. Our analysis takes into account this combination of plans, policy changes and public investments.

Based on this analysis, we conclude that the downtown planning interventions—and particularly the redevelopment project's public investment—attracted new commercial activity into Turlock's downtown area that would have otherwise been absent. This, in turn, partially offset the trend of commercial decline. For instance, downtown employment increased by 17% between 1991 and 2011, compared to 30% for the rest of Turlock, but would have increased less, if at all, in the absence of the plans. According to our interviews, the public works projects and zoning changes signaled the city's long-term commitment to development downtown. In response to the reduced development risk, improved pedestrian environment, and the policies that reduced the regulatory cost of renovation, more private development occurred. The relocated city hall and increased commercial activity and generated foot traffic that attracted other small businesses. As a result, the storefront vacancy rate declined and the types of establishments in downtown changed. Main Street now holds several small dining, retail, and entertainment establishments that depend on, and contribute to, a vibrant downtown. We estimate that the planning initiatives were thus responsible for an increase in downtown employment of nearly 400 jobs, which otherwise would have occurred elsewhere.

Though first-floor commercial vacancy rates have declined as a result of the plans, the second stories of many downtown establishments have remained vacant. This is in large part due to the fact that California codes require seismic and fire retrofits that cost more than what investors expect to collect in rents for those spaces. Additionally, our interviews suggest that mixed-use development is still viewed as a risky investment, so while commercial activity has increased in Downtown Turlock, the residential population has continued to decline, shrinking by 12 percent between 1990 and 2010. This is, we determine, not a direct result of the plans, but of a longer-term trend that continued in spite of the plans.

We estimate that this set of interventions in downtown Turlock led to a net benefit for the region of about $1.8 to $6.2 million annually by 2010 (see summary table below). Most of the benefit arises from an improved pedestrian environment and newly created agglomeration effects that increased commercial activity. The plans led to fiscal benefits for the city, with increases in property tax revenues and impact fees more than offsetting about $8 million in capital improvements that would not have occurred in absence of the plan. During our study period, these capital expenditures cost less than $5 annually per capita (or $14/households). In terms of travel impacts, we estimate that the increased employment density slightly reduced workers' vehicle travel by making more work-based trips possible by foot.

Summary of estimated annual benefits and costs from Turlock development plans, 1990-2010 (in 2010 USD; costs are shown as negative)

Perspective	Estimated benefit (cost) Low-impact estimate	Midrange	High-impact estimate	Description
Regional				
Residential property	$-	$-	$-	No impacts on residential property
Commercial property	$944,205	$2,599,026	$5,185,186	Benefits from improved pedestrian environment, retail clustering, and office agglomeration.
Fiscal	$903,805	$926,513	$962,147	Cost due to capital expenditures. Benefits from higher property tax revenue and impact fees.
Vehicle travel	$1,644	$16,940	$32,236	Lower personal and external costs from vehicle travel due to greater non-motorized job access and greater opportunities for work-based non-motorized travel.
Total regional	**$1,849,653**	**$3,542,479**	**$6,179,568**	
Total municipal				
Residential property		$-		Not applicable
Commercial property		$-		Not applicable
Fiscal	$903,805	$926,513	$962,147	Cost due to capital expenditures. Benefits from higher property tax revenue and impact fees.
Vehicle travel		$-		Not applicable
Total municipal	**$903,805**	**$926,513**	**$962,147**	
Household – all existing households				
Residential property		$-	$-	No impacts on residential property.
Commercial property		$-		Not applicable
Fiscal	$39	$40	$42	Cost due to capital expenditures. Benefits from higher property tax revenue and impact fees.
Vehicle travel	$7	$5	$4	Downtown households benefit from greater job access
Total household	**$46**	**$46**	**$46**	

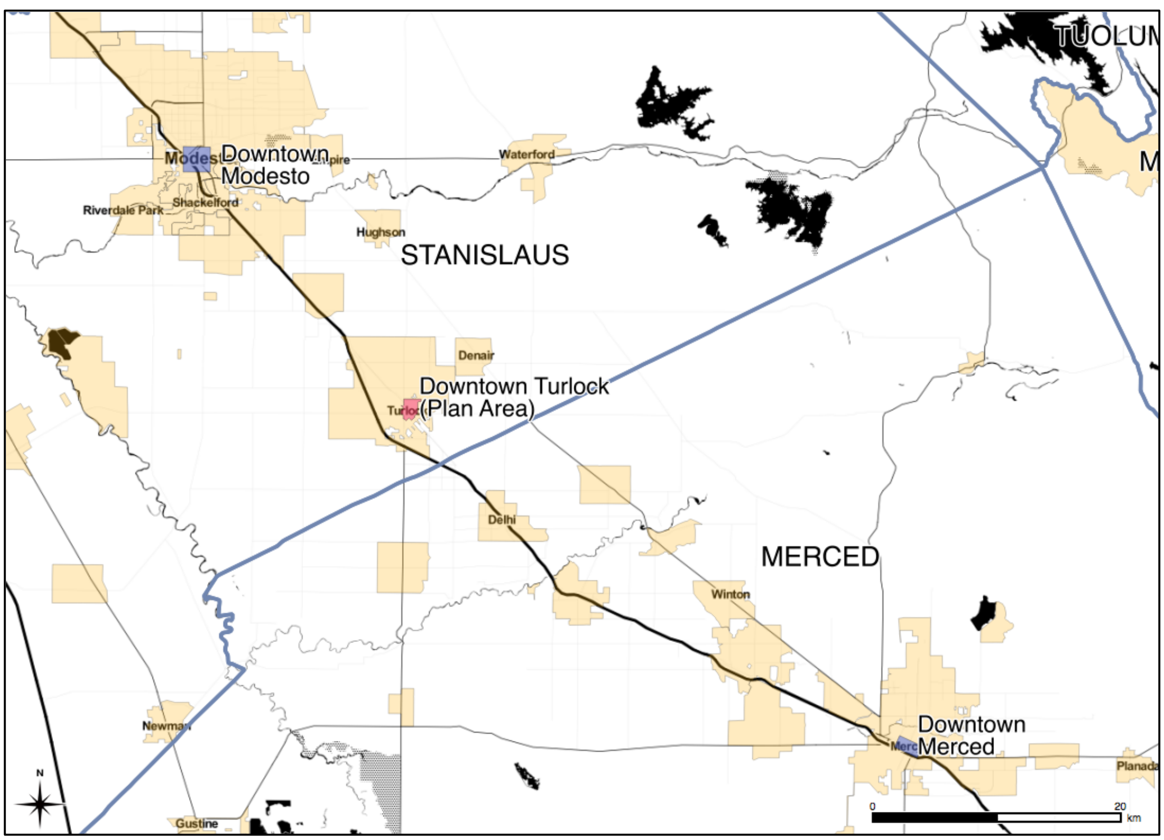
In addition to the monetary benefits described above, our interviews pointed to many non-monetary benefits in downtown Turlock. Quantifying these non-monetary benefits is beyond the scope of our study, but important to acknowledge. Prior to the downtown plan and redevelopment project, our interviewees described the downtown area as underutilized, blighted and suffering from disinvestment. The downtown beautification project—planting trees, widening sidewalks, changing the intersection layouts—and the rezoning measures to increase street activity in the neighborhood (like allowing sidewalk dining) has made the downtown area an attractive destination for locals and tourists. These benefits are quantified somewhat through improved sales for local businesses, which we capture only from the regional perspective. It’s possible that individual households also experienced this as a benefit.

Table of Contents

1 Context

A small city located in California's agriculture-rich Central Valley, Turlock might attract little attention if not for an unusually dedicated tradition of planning. With a population of 70,365, Turlock is, after Modesto, the second largest city in Stanislaus County (see Figure 1). Driven by growth in agricultural production, Turlock developed in the early twentieth century around the downtown's commercial core. But, like in many cities, in the 1970s through the 1990s, the downtown languished as commercial activity moved away from Main Street to suburban, auto-oriented shopping centers. In the 1980s retailers like JC Penney and Woolworth began to depart for suburban locations, and consumers flocked to low-cost superstores like Wal-Mart rather than independent downtown shops. By the 1990s, high vacancy rates, absentee landlords, neglected buildings, and empty streets plagued the downtown (Cooke 2014). Even though Turlock's population was booming, more than doubling from 1980 to 2000, most of the growth occurred at the city's periphery as the downtown stagnated. Today, while agriculture remains important to the economy, Turlock's largest employers are now education and health institutions, including California State University, Stanislaus.

Figure 38: Regional context



1.1 Planning interventions

The City of Turlock prides itself on a tradition of proactive planning (City of Turlock 2003) and since the 1990s its planning policies and initiatives have reflected several smart growth principles. In this document, we refer to the series of plans, policies, and public investments targeting downtown Turlock, summarized in the timeline below, as "the plan." The citywide1992 General Plan called for limiting outward urban growth and protecting agricultural land, providing a diversity of housing types, creating development that supports alternatives to automobile use, and enhancing quality of life (City of Turlock 1992). The 1992 Downtown Master Plan and subsequent initiatives intended to revitalize the existing downtown district and create a pedestrian-friendly environment (City of Turlock 2003). These are all typical goals of the smart growth movement that was beginning to gain popularity with planners in the 1990s (Downs 2005; Chapin 2012).

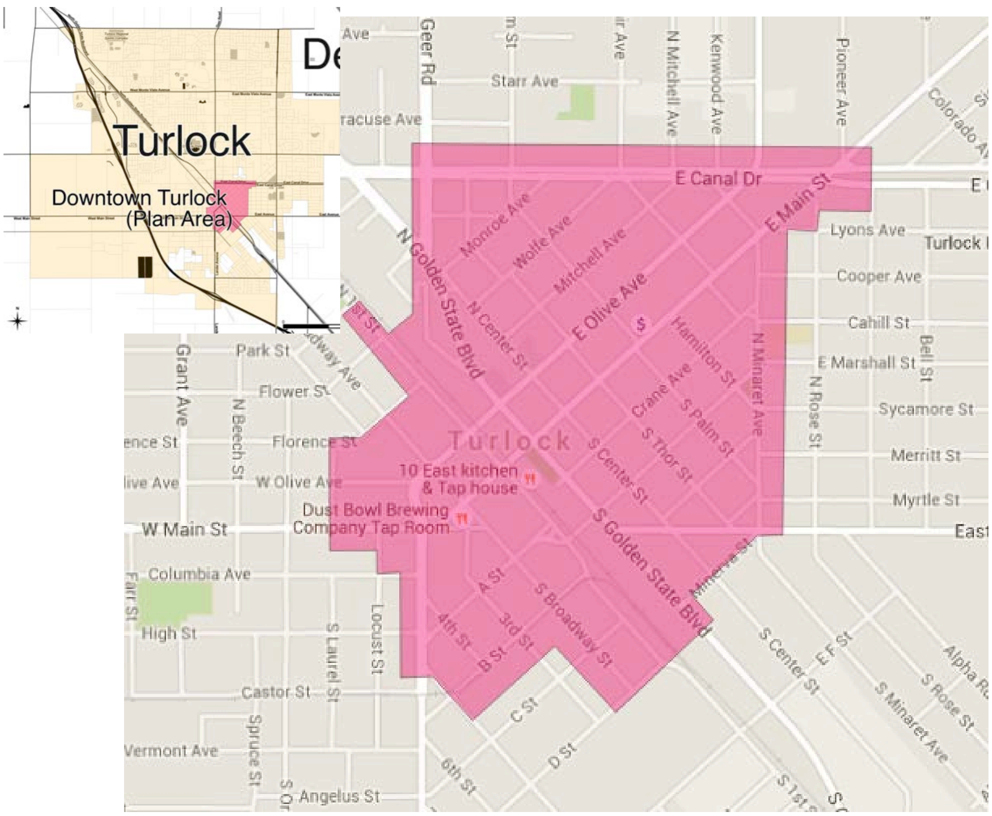
Timeline of plans and policy changes in downtown Turlock (a.k.a., "the plan")

1992: Turlock General Plan adopted
1992: Turlock Downtown Master Plan adopted.
1993: Redevelopment Project Area established
1994: Façade Improvement Program began
1995: Redevel opment to implement public improvements from Master Plan began
1995: Downtown Turlock Main Street Design Guidelines (part of California Main Street program) adopted
1998: City Hall, courthouse, and police station move to downtown
2001: Redevelopment Project improvements completed
2003: Downtown Design Guidelines and Zoning Regulations adopted
2012: General Plan updated

The 1992 Downtown Master Plan

Inspired by the success of projects in California cities like Berkeley and Pasadena, Turlock began a series of initiatives in the early 1990s to strengthen its downtown (Cooke 2014). The 1992 Downtown Master Plan was the first of several reinforcing plans, policy changes, and public projects. The Downtown Area generally encompasses the original historic grid that was laid out parallel and perpendicular to the First San Joaquin Valley Rail Line (now Union Pacific/ Burlington Northern) that still bisects the district (Figure 2). The Downtown Master Plan was adopted as part of the city's General Plan, and it outlined a strategy of strengthening the downtown through focused public investments and zoning changes to emphasize its historical characteristics and create a "unique shopping district." A later document summarizes the vision of the 1992 Master Plan: "The goal is that through this type of program [encouraging retail specialty shops and restaurants,] the downtown will differentiate itself from other developments by offering a combination of uses that cannot be duplicated in shopping centers" (City of Turlock 2003, 12).

Figure 39: Study area

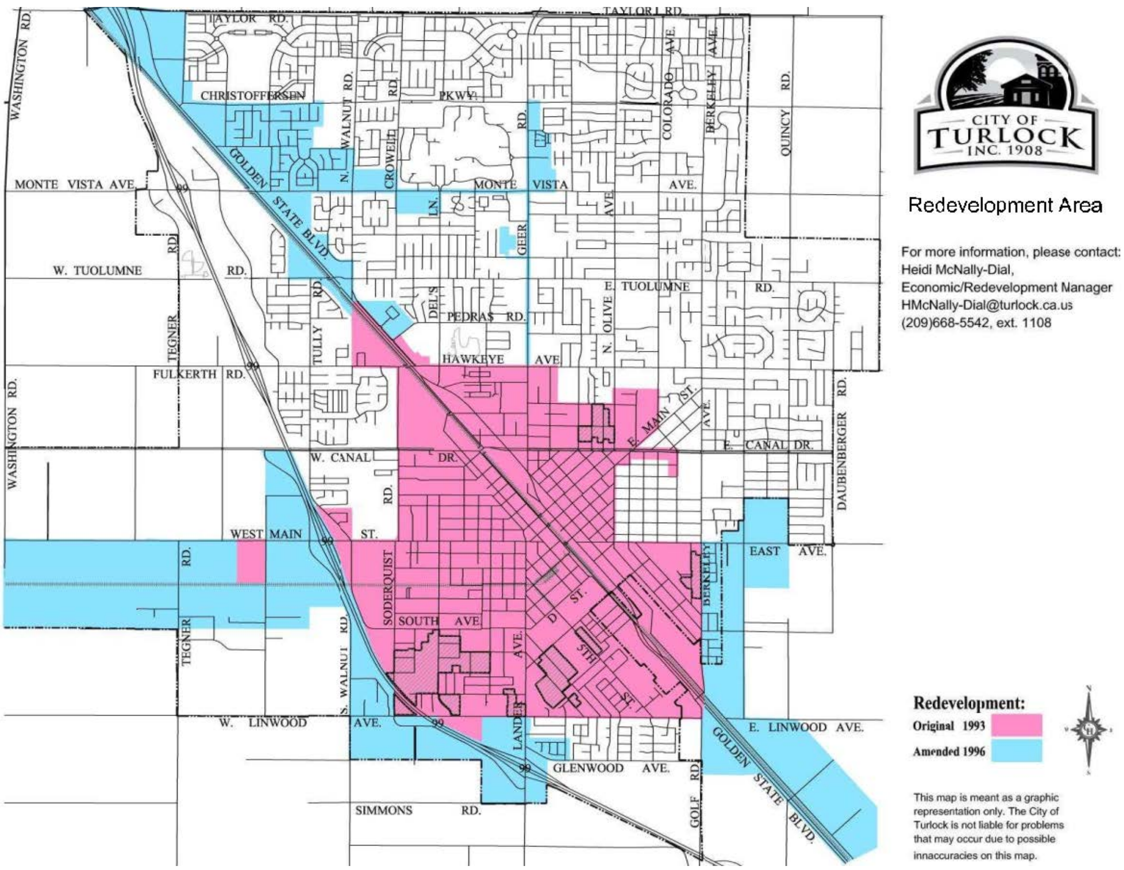


Implementing the Downtown Master Plan

The city carried out many of the improvements laid out in the Downtown Master Plan through its Redevelopment Agency, which, under California law could establish tax-increment financing districts to leverage future property tax increases and finance capital projects for urban revitalization. In 1993, the city designated a Redevelopment Area that encompassed downtown; the Area was amended in 1996 (see Figure 3). The City Council, acting as the Redevelopment Agency, used tax increment finance (TIF) to fund infrastructure improvements along six blocks of Main Street and a half block on either side from Lander Avenue to Bonita Avenue. The Redevelopment Project had three main components: streetscape and landscape improvements; utility improvements related to water and sewer lines; and reconstruction of public parking lots (Silva 2014). The streetscape improvements included new trees, wider sidewalks, brick pavers, and redesigned intersections that transformed downtown from an “industrial-feeling area” to a “park-like setting” (Pitcock 2014). The public improvements were intended to signal the city’s commitment to downtown and to encourage private sector investment in the area. The project was completed in 2001 at a cost of about $8 million (McGarry 2014), which the city financed by borrowing against future property tax increases in the Redevelopment Area. The Redevelopment Area, at a full 4,300 acres, or about 40% of the City of Turlock, was much larger than the part that received capital improvements.

Other efforts complemented the Redevelopment Project. In 1994, the city created a façade improvement program, which offered downtown businesses grants or loans to contribute to façade upgrading. In 1998, the city relocated City Hall along with the courthouse and police station from a more residential location in the northeast part of the city to the downtown, a move that would have brought more pedestrian activity to the area and likely reduced travel distances for many employees.

Figure 40: Redevelopment Area boundaries. The original 1993 boundaries (pink) were expanded in 1996 (blue). The Redevelopment Area encompasses the entire Plan Area.



The 2003 Downtown Design Guidelines

After these public realm improvements were completed, the city adopted the 2003 Design Guidelines, building on the framework that had been laid out in the 1992 Downtown Master Plan (City of Turlock 2003). The Guidelines defined five Downtown Districts, each with an overlay zone to regulate the land use and building design. These requirements outlined design standards for building size and shape, storefront façades, signage, window treatments, other architectural details, and landscaping; allowed sidewalk dining; and set relatively high permitted density for commercial and residential development. The downtown core, for example, was allowed up to a 3.0 floor area ratio for mixed uses with no minimum setback and up to 60 feet in building height—existing buildings did not begin to approach this density. According to interviewees, the Guidelines did not represent a major change from existing development, but rather codified existing conditions and ensured that future development would be similar in form (McGarry 2014).

The City took other steps to encourage development downtown. In the early to mid-2000s, the City altered the building permit process (Picciano 2014). Historically, the cost of a building permit was set as a percentage of construction costs; under the new system, permits are based on the amount of service provided by the city's Building Division. For example, if only one inspection is needed, then the permit cost is low (Picciano 2014). In an attempt to make it easy for property owners and entrepreneurs to invest in the area, City officials began to proactively reach out to developers and make information about the permitting process more accessible in the pre-development phase (Quintero 2014). The city aimed to reduced permitting turnaround and trained staff to walk potential investors and developers through the development process (Cooke 2014).

The City has also used its development impact fee structure to encourage certain types of development downtown. The City adopted its current system of impact fees in 2000, which it later updated in 2002, 2004, and 2013 (Pitcock 2014). Impact fees have traditionally been lower in the downtown area than in greenfield areas (Pitcock 2014), under the rationale that infill development requires less new infrastructure. Rather than building new infrastructure in greenfield areas, the city could focus public spending on maintaining existing infrastructure that would need upgrading anyway, as it did when it replaced water and sewer lines as part of the downtown Redevelopment Project. In 2013, the City further reduced fees for downtown, as it considered it a high-pedestrian area. The City also stopped charging impact fees for renovation or enlargements of existing buildings, even when that would mean converting to a use defined as more "intensive" (Quintero 2014). For example, a change from a retail store to a restaurant would not entail a fee, even though the city defines a restaurant as a more intensive use (Pitcock 2014).

2 Case-specific Methodology

The relevant policy initiatives began in downtown Turlock in 1992, we use 1990 as the initial date for our analysis when possible. When 1990 data are not available, we analyze changes between 2000 and 2010. For example, estimates for residents' vehicle travel are based on 2000 data. Using 2000 rather than 1990 travel data does not affect the vehicle travel estimates very much because the data are used only to provide a baseline figure for average daily vehicle miles traveled, not to directly measure impacts. We used 2011 data for employment calculations because employment in 2011 was less affected by the recession than the 2010 data.

We estimated what changes would have occurred in the plan area in the absence of the plans, based on data from other areas (e.g. the rest of Turlock or the entire county) and interviews with local planners. We then compared actual changes in the plan area with those changes that we estimate would have occurred in absence of the plans. The “plan area” is the area defined by the 2003 Design Guidelines, which is similar to the area defined in the 1992 plan (see Figure 2). This boundary is a subset of the larger Redevelopment Area. Finally, the plans affected primarily commercial uses. Although the plans did intend to preserve existing residential uses and to increase the number of residents downtown, the interviews, site visits, and data analysis showed the plan did not have a noticeable effect on housing or housing prices, as we will explain in Section 3.2. In other case studies in this project, we estimated impacts from the perspective of homeowners, renters, and low-income households because each group is affected differently by changes in housing prices. In the present case study, since there are no significant impacts on housing prices, we do not attempt to differentiate between household types.

2.1 Interviews and field visits

For this case study, the team interviewed seven planners, local officials, and property owners who were involved in the downtown Turlock initiatives. Interviews were conducted by phone and in-person. A list of interviewees is provided in Appendix B. The research team made one field visit to the plan area in April 2014.

2.2 Case-specific analysis

To help us understand observed trends in Downtown Turlock, we compared data observed in the plan to those observed in the City of Turlock and Stanislaus County. As described in Table 1, county-level trends represent regional conditions. Although the city and county provide important context for the population and employment analyses, they tell us little about the plan’s impacts, since there are many reasons downtown areas would be expected to differ from surrounding areas. In order to assess the impacts of Turlock’s downtown interventions, we compared employment and business establishment trends in the study area to those in two other comparable downtown areas, Downtown Modesto and Downtown Merced.

Table 106: Comparison areas used in the analysis

Type of change	Comparison area	Rationale for comparison area
Population and demographics	• Stanislaus County	The county provides broader context for population and demographic trends in the region. The plan had no significant impact on population, so further analysis is not needed.
Employment and business activity	• City of Turlock • Stanislaus County • Downtown Modesto • Downtown Merced	We contrast employment data in the plan area with those in the *county* to understand how economic trends in the plan area compare with regional economic trends. We compare retail jobs in the plan area with those in the *city* in order to understand how economic changes affect municipal finances. We compare all employment and sales data in the plan area with those in downtown Modesto and Merced to assess impacts of the plan.
Commercial property	• Stanislaus County	The county values are used to provide context of economic changes in the region.
Municipal finance	• City of Turlock • Extends from employment analysis.	We use our previous analysis to contextualize the citywide fiscal changes we see.
Travel behavior	• Extends from employment analysis	We use our previous analysis to identify the resulting changes to traffic patterns and behavior.

3 Population and housing

3.1 Observed changes

Downtown Turlock lost population during our study period, even though the city and county continued to grow. Downtown Turlock's residential population declined by 12 percent between 1990 and 2010, falling from 1,221 to 1,073.[111] In contrast, the population of the City of Turlock grew by 62% and the county by 37% during the same time period (Table 2). The number of households downtown fell even more, by 18%. This is because households, on average, grew slightly larger over the study period. Average household size in the plan area is about the same as in the City of Turlock, at 3.0 persons in 2010 (Table 2). Downtown is only about half as densely populated than the City of Turlock as a whole. The relatively low concentration of residents downtown reflects the areas character as a primarily commercial area, and the population decline suggests the area may have become more dominantly commercial.

[111] There appears to be a Census data anomaly in 2000, with over 700 new residents reported in group quarters (e.g. university residences, nursing homes etc.). Because we were unable to determine the cause of this anomaly, we generally use the population not in group quarters throughout this analysis.

Table 107: Population in plan area, City of Turlock, and Stanislaus County

	1990	2000	2010	%Percent change (1990-2010)
Plan Area				
Population	1,244	1,839	1,106	-11%
Population not in group quarters	1,221	1,111	1,073	-12%
Population in group quarters	23	728	33	43%
Average household size	2.8	2.8	3.0	7%
Households	442	394	364	-18%
Population density (per sq. mi.)	2,442	2,222	2,146	-12%
City of Turlock				
Population	42,198	55,810	68,549	62%
Average household size	2.6	2.9	3.0	15%
Households	14,689	18,408	22,932	56%
Population density (per sq. mi.)	4,401	4,195	4,056	-8%
Stanislaus County				
Population	375,312	449,702	515,281	37%
Average household size	2.9	3.1	3.2	10%
Households	125,375	145,253	163,841	31%
Population density (per sq. mi.)	248	297	340	37%

Source: Census

Turlock's downtown area has primarily been a center of commerce, but it is ringed by older residential neighborhoods comprised largely of single-family homes, along with some apartments. The majority of units (72%) are in detached single-family houses or houses that have been divided into apartments.

Consistent with the population decline the number of housing units decreased by 9% over the study period, from 474 to 429 units (Table 3). Most of the decline was in renter-occupied units; owner-occupied units changed little. Very few if any new units were built in the area and several residential buildings were converted to non-residential uses (City of Turlock 2003), although our data cannot tell us exactly how many conversions took place. The vacancy rate more than doubled, from 6.8% in 1990 to 15.2% in 2010, likely indicating falling demand for housing downtown. Overall, it appears many former single-family detached houses had previously been divided into multi-family rentals, and then as demand for rental units lagged, these buildings were converted to non-residential uses.

Downtown contains very little housing in mixed-use buildings. In most buildings, the upper floors—which are zoned for residential units—have remained vacant over the study period, even when the ground floor is in use (McGarry 2014; Quintero 2014).

Table 108: Housing changes in plan area

	1990	**2000**	**2010**	**Percent Change (2010 – 1990)**
Total housing units	474	427	429	-9%
Owner-occupied units	166	161	167	1%
Renter-occupied units	308	266	262	-15%
Percent renter-occupied housing units, plan area	65%	62%	61%	
Vacancy rate	6.8%	7.7%	15.2%	

Source: 1990, 2000 Census; ACS 2008-2012 5-year estimates

3.2 Effects of the plan on housing and population

There is little evidence that any of the plans or policies during this period affected housing or population in the plan area. The downtown was losing population as early as the 1980s. The conversion of residential units was already underway before the 1992 Plan. The 2003 Design Guidelines suggests “traditional residential neighborhoods… face[d] the eminent pressure of potential conversion from residential to commercial or office land uses" as early as 1992.[112] Although the city's policies were intended to slow conversion of residential uses and increase housing downtown, there is no evidence they were effective in doing so. According to interviewees, the policies did little to retain existing residents or attract new ones (Whitmore 2014).

Although the City's policies enabled the renovation of commercial buildings, residential rents were still too low and renovation costs too high for property owners to invest in residential uses. Even as investors have renovated ground-floor commercial spaces, upper residential floor remain un-renovated and vacant. Given the weak demand for housing downtown, renovation of second stories is not economical, since residential rents for such spaces are low, while the cost of complying with building code requirements, especially required fire and seismic safety retrofits, is high. The City of Turlock's building code is the same as the California state code. While the cost of the retrofits is not prohibitively high for commercial establishments, for which investors are likely to see a return on their investment, that is not the case for residential property. The retrofit requirements act as a barrier due to 1) the high (perceived) cost of these requirements, although this may be diminishing as more buildings go through the process; 2) a lack of financing options, because local banks are unfamiliar with mixed-use development projects; and 3) the relatively low property values and rent values of downtown properties (Picciano 2014).

In short, the city's intentions of maintaining population downtown did not pan out because of low housing demand in that area. Demand would have been lower regardless of the plan; hence, in the absence of the plan, the housing supply and residential population would not have been different.

4 Employment and commercial activity

4.1 Observed changes in employment and commercial activity

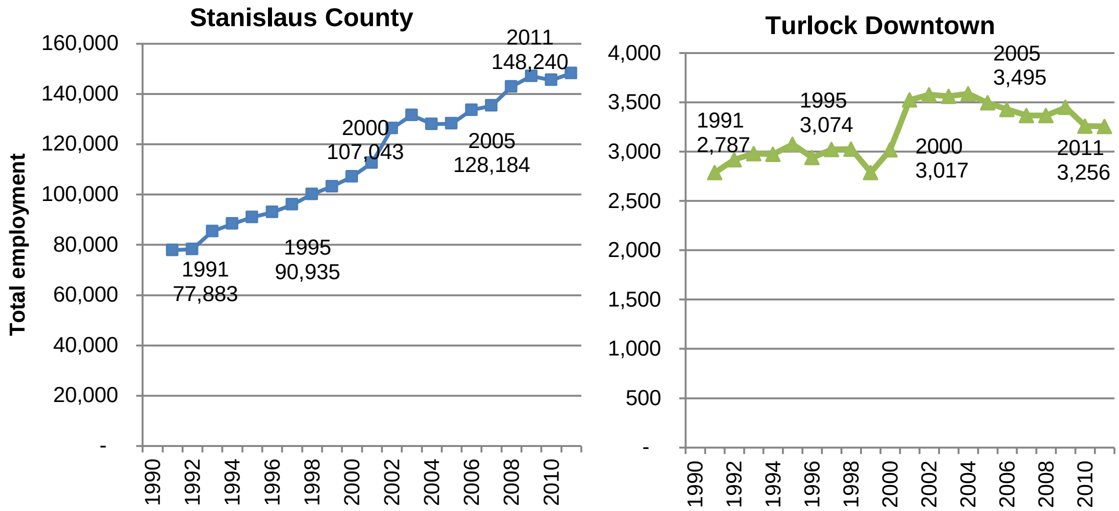
Regional employment grew fairly steadily over the time period: in Stanislaus County the number of non-agricultural jobs nearly doubled between 1991 and 2011, with a slight slowing of job growth in the most recent years, as shown in Figure 4.[113] In contrast, employment in Downtown Turlock remained flat and even declining, except for a jump between 1999 and 2001. The timing of this jump coincides with the relocation of City

[112] *Downtown Design Guidelines, Zoning Regulations.* 2003. Page 1-7.

[113] Although a large source of employment, agriculture jobs are excluded due to unreliable data. Many such jobs are unreported or seasonal—the NETS data are collected in January each year—and so the NETS data may undercount agricultural employment.

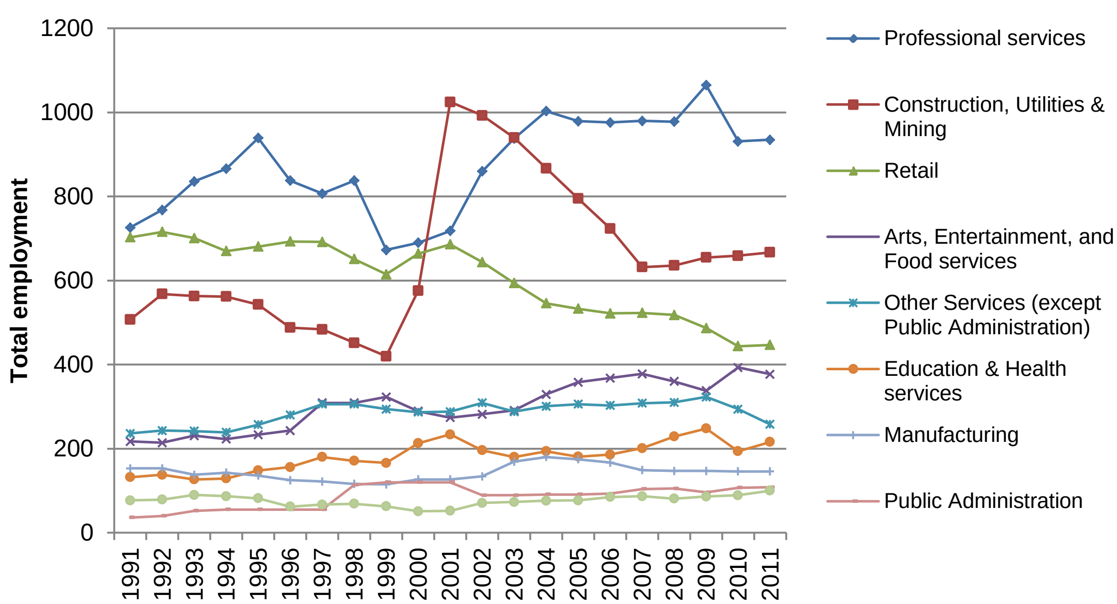
Hall and the police station to downtown; however, as shown in Figure 5, the increase is actually in construction jobs, which could be explained by temporary hiring in the construction sector. Despite these fluctuations, the total number of people working in Downtown Turlock increased by 17% between 1991 and 2011, from 2,788 to 3,266.

Figure 41: Total employment in Stanislaus County and Downtown Turlock, 1990-2011 (excluding agriculture)



Source: National Establishment Time Series (NETS)

Figure 42: Employment in Downtown Turlock by sector, 1990-2011 (excluding agriculture)



Source: National Establishment Time Series (NETS)

To understand change in the types of jobs in downtown Turlock, we examined employment by sector.[114] In 1991, retail was the second largest employment sector in the plan area, with over 700 jobs, but this sector declined steadily to about 450 jobs by 2011 (Figure 5; detailed tables are available in Appendix C). At the same time, retail employment in the rest of Turlock grew substantially. This is consistent with interviewees' descriptions of the shift from downtown to suburban retail. Construction accounted for a large number of jobs in the plan area in 2001, but this appears to have been temporary. In the plan area, the number of jobs in accommodation and food services and professional, scientific and technical services steadily increased during the study period, by 43% and 185%, respectively. This could reflect the emergence of downtown as both a regional center for dining and the expansion of office space in the area. Overall, Downtown Turlock appears to have declined as retail center, while strengthening its professional services and food service sectors.

Are the changes in Turlock attributable to city's planning efforts, or are they merely reflecting shifts in the larger economy? To find out, we examined employment changes in the downtowns of nearby Modesto and Merced. Modesto is larger than Turlock, with a population of about 200,000 and is located north of Turlock in Stanislaus County (see Figure 1). Like Turlock, Modesto's economy is driven by agriculture; however, Modesto is also the largest city in Stanislaus County and the county seat. Merced, population approximately 80,000, is similarly sized to Turlock. Like Compared to Merced, Turlock's top employers include more agricultural businesses, (e.g., Foster Farms, Mid-Valley Dairy)[115], whereas Merced's economy is driven more by government and education functions. Merced is the county seat of Merced County and home to the University of California, Merced—these are the city's top two employers. Despite these differences, all three cities have a similar urban form and all three have lost downtown retail to suburban shopping centers and big-box stores. Like Turlock, Modesto and Merced also invested in their downtowns through Redevelopment Agencies, although unlike Turlock neither emphasized "smart growth" in their planning rhetoric.

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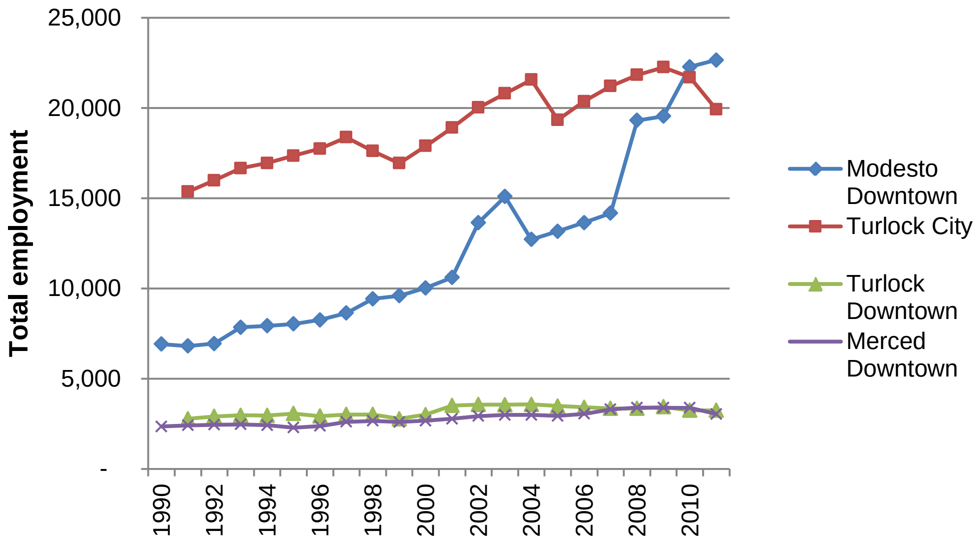
[114] The NETS database classifies establishments by sector, defined by the North American Industry Classification System (NAICS). We report data by sector at the most general level, using the first of the six-digit NACIS code. Jobs are classified according to the employing establishment. For example, a cook employed directly by a hospital would work in "health services," not "food services."

[115] http://www.turlock.ca.us/citydepartments/administrativeservices/economicdevelopment/demographics/

Figure 43: Total employment in Downtown Turlock and comparison locations, 1990-2011 (excluding agriculture)

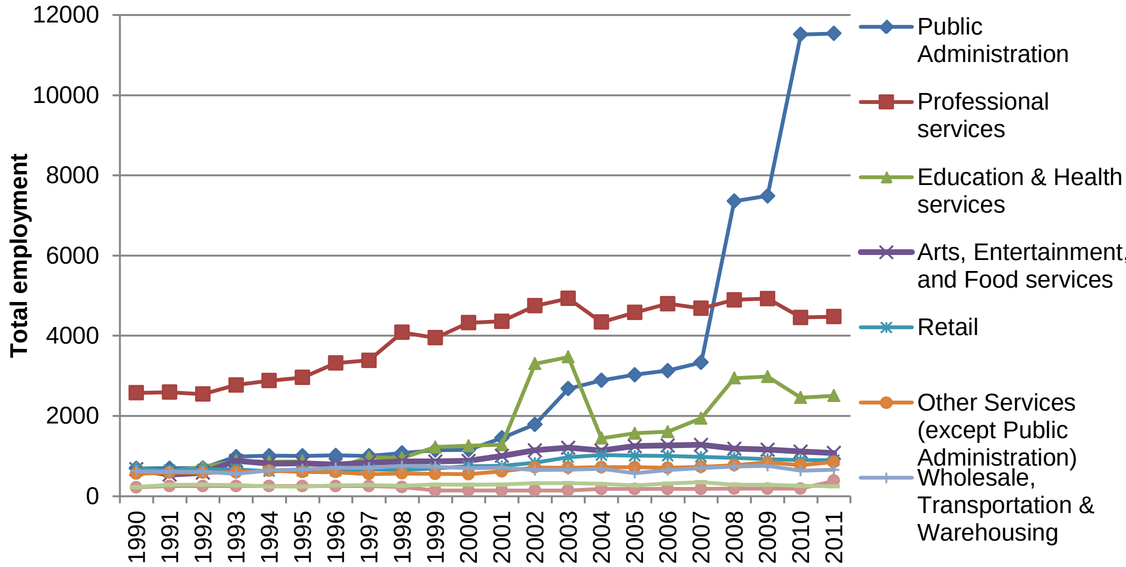


Source: National Establishment Time Series (NETS)

Figure 6 shows trends in total employment in the three downtowns between 1991 and 2011, along with employment in the City of Turlock as a whole.[116] Employment in downtown Modesto increased dramatically over this time frame, whereas downtown Merced and downtown Turlock both exhibit very slight job growth. Examining employment by sector, we see that in downtown Modesto public administration was responsible for the very high job growth, which could be explained by an expansion or relocation of government offices. Professional services and education and health showed steady growth over the two decades, while there was little change in retail employment. In downtown Merced, retail jobs fell, as they did in downtown Turlock. Like in Turlock, downtown Merced saw growth in professional services and arts, entertainment and food services. These data do not suggest employment trends in downtown Turlock have differed significantly from comparable areas.

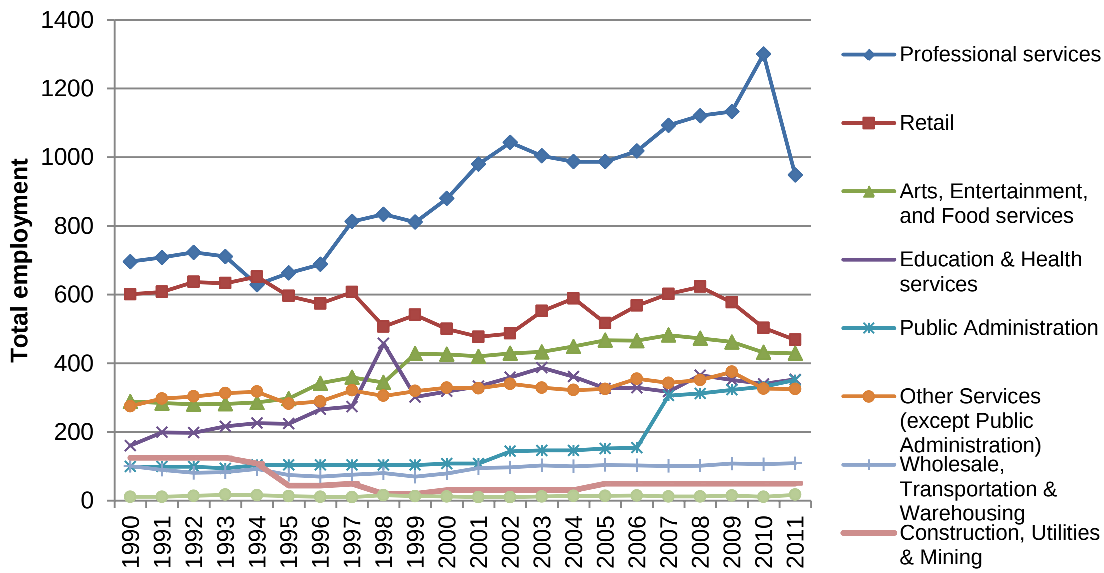
[116] Downtown Turlock was defined as the Plan Area; downtown Modesto was defined as the area indicated as “Downtown Modesto” by Google Maps, and downtown Merced was defined as the area bounded by R St., 20th St., G St., and 14th St. The downtown areas are outlined in Figure 1. All three cities, and especially Modesto and Turlock, have downtown districts with distinct street patterns, making definition of boundaries fairly straightforward.

Figure 44: Employment by sector in downtown Modesto, 1990-2011 (excluding agriculture)



Source: National Establishment Time Series (NETS)

Figure 45: Employment by sector in downtown Merced, 1990-2011 (excluding agriculture)

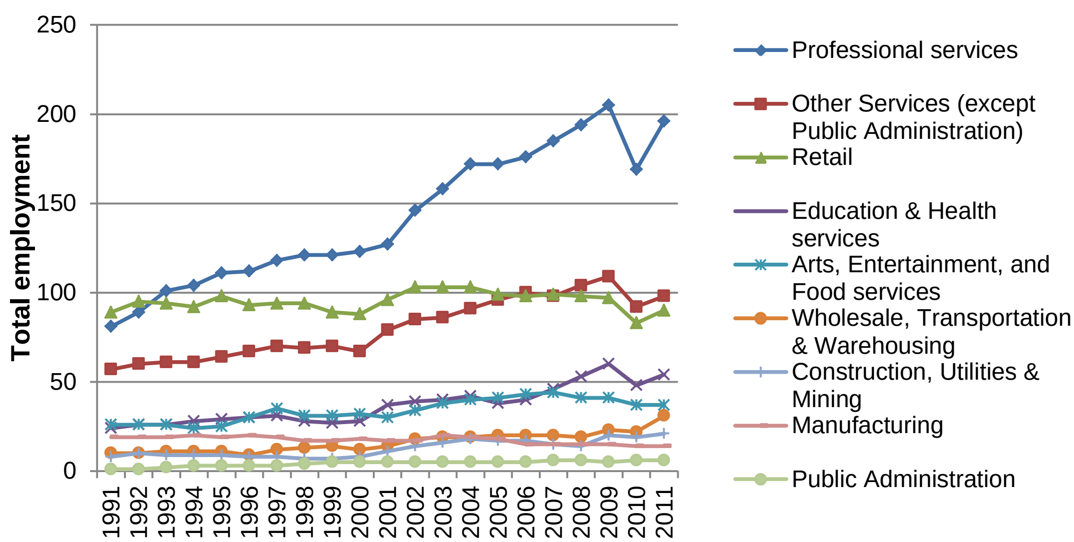


Source: National Establishment Time Series (NETS)

Retail activity

Interviews suggest that the commercial mix in downtown Turlock today has evolved from more generic locally-serving establishments to small-scale, independent retail and restaurants with a unique regional niche. Downtown retail establishments in the 1990s included the chain retailer JC Penney as well as furniture stores (Cooke 2014). Since then, these large retailers have either gone out of business or moved to suburban shopping centers in other parts of Turlock. In their place, a small number of mostly locally owned businesses, such as antique shops and clothing boutiques have opened on Main Street. Unlike the more generalized merchandisers historically located in downtown, these specialized shops rely more on foot traffic and likely prefer Main Street to a more automobile-oriented location. With these new shops, the number of retail establishments remained more or less steady between 1991 and 2011 (Figure 9). However, these new shops sold less and employed fewer people and sold less, such that the total volume of retail sales fell by 28% in nominal terms and retail employment fell by 36% (Figure 10 and Figure 5; detailed numbers in Appendix C).[117]

Figure 46: Number of establishments in Downtown Turlock by sector, 1990-2011 (excluding agriculture)



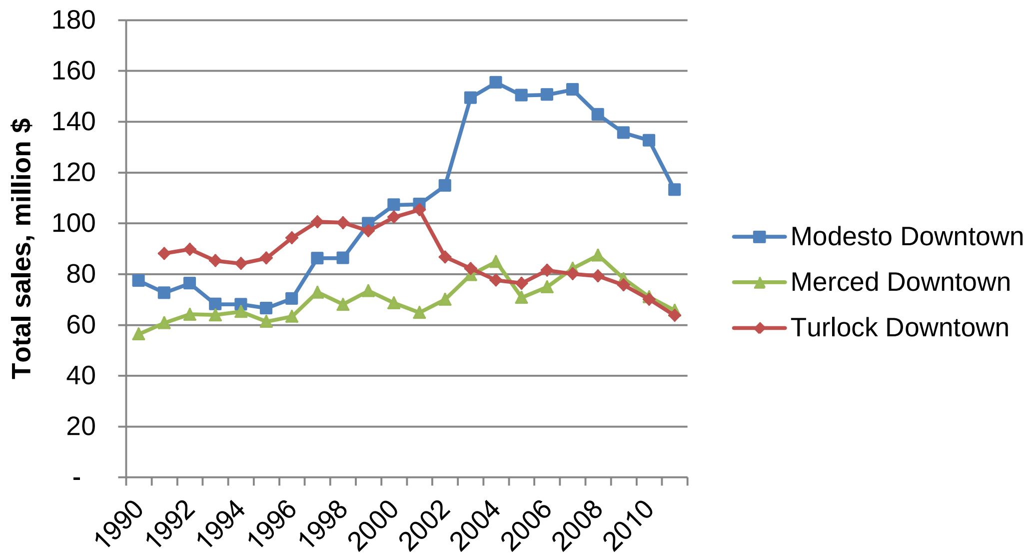
Source: National Establishment Time Series (NETS)

[117] Retail sales data from the NETS database are less reliable than employment data. Some establishments do not report actual sales, in which case they are estimated based on industry-level sales per employee. Thus in our subsequent analysis we do not rely on NETS sales data to estimate impacts; we use NETS sales data only to compare Turlock to other locations.

The changes in downtown retail contrast sharply with strong retail growth in the rest of the city and the county. In the rest of Turlock and in Stanislaus County, retail employment more than doubled between 1991 and 2011. As shown in Figures 10 and 11, retail sales in Downtown Turlock increased between 1991 and 2001 but after that fell, whereas in the rest of the city and the county sales increased strongly, although all areas experienced a decline since 2010, likely due to the recession. The data suggest a shift in retail activity from downtown to the other locations in the city and county.

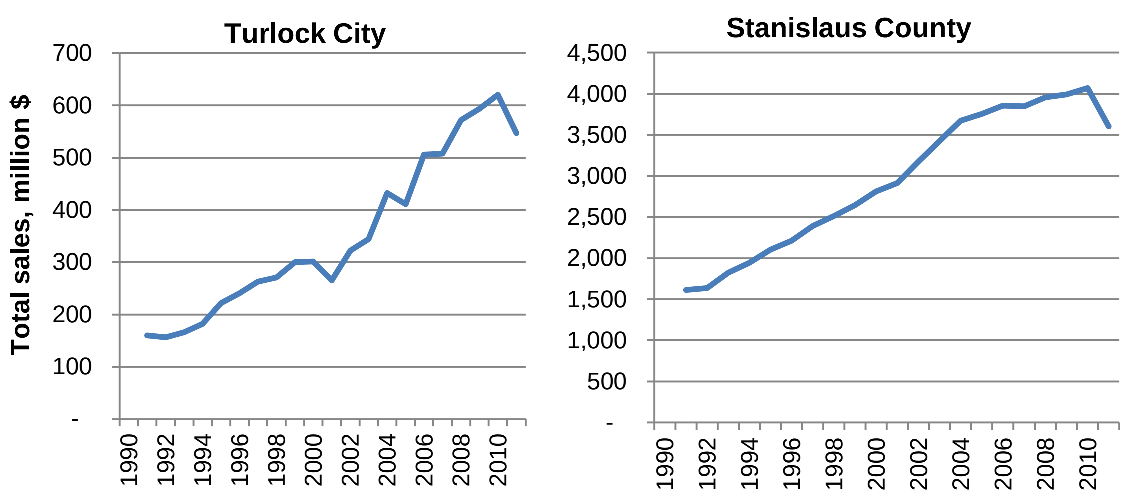
Despite a general trend of declining retail activity in downtown Turlock, some smaller shops have located in the area. It's possible the city's streetscape investments, by improving the pedestrian environment, helped attract these shops and, without the city's planning efforts, retail activity would have declined even more. If this is the case, we might expect downtown Modesto and Merced to see even more precipitous drops in retail activity. However, as Figure 10 makes clear, that is not the case. Retail increased grew in both in downtown Modesto and downtown Merced between 1990 and 2011. In downtown Modesto, sales increased dramatically in the 2000s. Retail employment did not match the growth in sales, yet neither place experienced declines in retail jobs as notable as in Turlock. Investigating the exact causes of retail growth in downtown Merced and Modesto is outside the scope of this project. It could be that planning efforts or public investment these places stimulated retail activity as well or it could be that Merced and Modesto's relatively more stable economic bases created a strong market for downtown retail than in Turlock. Either way, we cannot conclude Turlock uniquely attracted downtown shops—if anything, retail in downtown Turlock performed worse than in comparable areas.

Figure 47: Retail sales in Downtown Turlock, Modesto, and Merced, 1990-2011 (nominal dollars)



Source: National Establishment Time Series (NETS)

Figure 48: Retail sales in Turlock City and Stanislaus County (excluding plan area), 1990-2011 (nominal dollars)

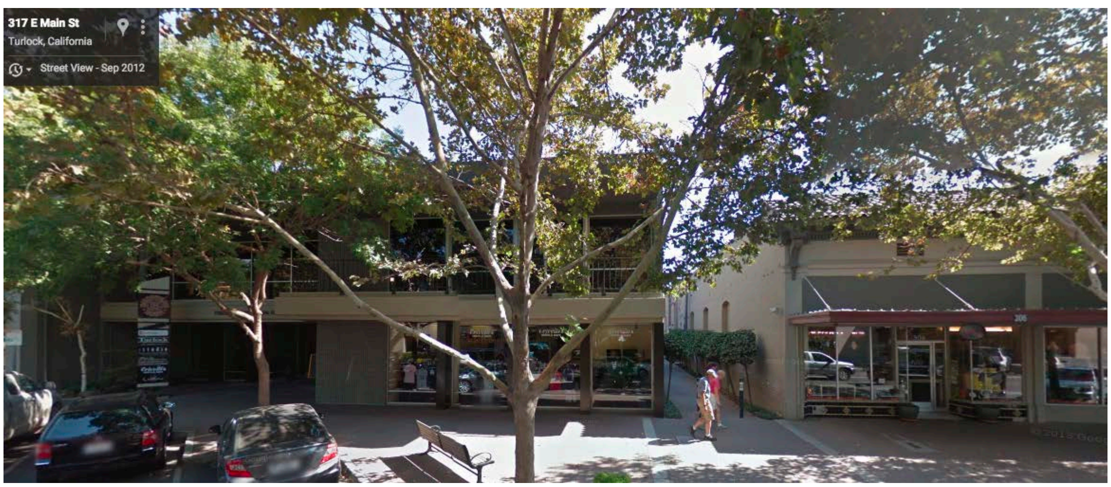


Source: National Establishment Time Series (NETS)

Restaurants, offices, and other commercial activity

While no one sector grew to replace downtown Turlock's former retail base in terms of jobs or sales, other sectors did grow during the study period. As discussed above, the total number of jobs in the plan area increased during the twenty-year period. The number of establishments in real estate, construction, professional, scientific and technical services, and arts, entertainment and recreation all increased between 1991 and 2011, even though their overall numbers are relatively small (Figure 9). These increases roughly mirror trends in the rest of the city. Since 2011, the new restaurants, bars, and cafes downtown have contributed to a relative increase in street activity, according to interviewees (Figure 12). One interviewee called the new mix the "three Bs" of "bistros, bars and boutiques" (McGarry 2014). Interviewees reported that businesses are open later into the evening, more young people spend time downtown, and people come from other cities in the Central Valley to dine in the downtown restaurants (Pitcock 2014; Whitmore 2014; Cooke 2014). Examples from interviews include Bistro 234, Dust Bowl Brewing, and the Vintage Lounge and Piano Bar (Whitmore 2014). In addition, the new City Hall and police and fire center have contributed to public employees working, eating and spending money downtown.

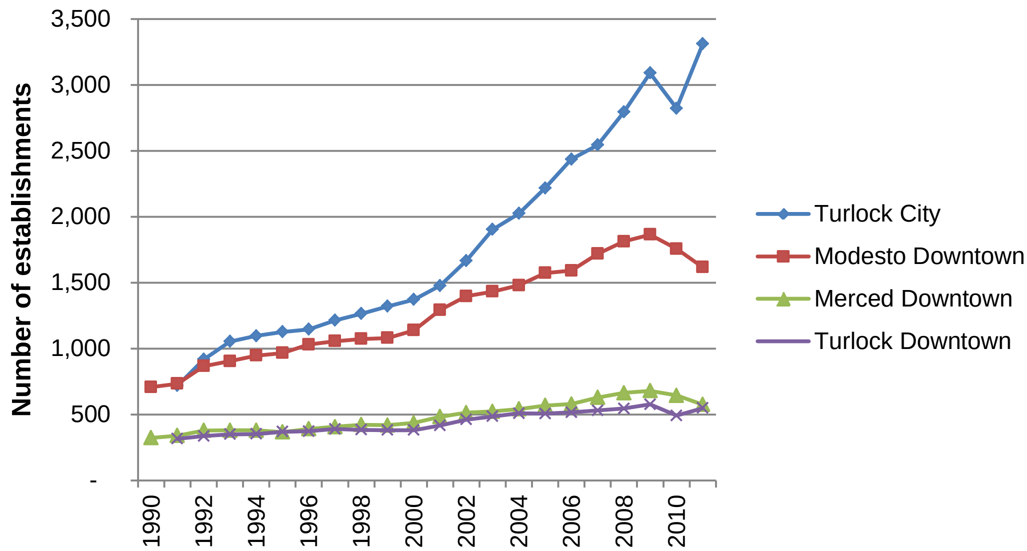
Figure 49: A number of small clothing and antique shops have opened in existing buildings on Main Street, catering to shoppers on foot.



(Source: Google Streetview, 2015)

However, the increase in general commercial activity in Downtown Turlock was not unique. In downtown Modesto and Merced, the number of jobs and establishments both increased between 1991 and 2011 (Figure 13). In terms of total establishments, downtown Turlock looks hardly different from downtown Merced. As discussed earlier, jobs in professional services also increased in these comparison areas. In downtown Modesto and Merced, the number of arts, entertainment, and food establishments increased as well (Appendix C).

Figure 50: Total establishments in Downtown Turlock and comparison areas, 1990-2011 (excluding agriculture)



Source: National Establishment Time Series (NETS)

4.2 Observed changes in commercial property

There have been renovations and changes in use in the plan area since 1990, but little new construction (Whitmore 2014). The only new construction includes a new city hall, police and fire facility, which were all part of the City's plan to reinvest in downtown, and a new commercial project—the Courtyard building—which replaced the former Woolworth building that was destroyed in a fire (Cooke 2014). City records list permits for six renovation projects since 2005. Another change in use since 2003 includes new plant science labs, off of Main Street. According to interviews, two buildings on Main Street have been seismically retrofitted and another is in progress, but no buildings off Main Street have gone through seismic retrofits (Picciano 2014). According to interviews, a single investor has been influential in these renovations by financing the projects independently, thus bypassing the difficulty of getting a renovation financed by a bank in the Central Valley (Whitmore 2014). According to Whitmore, banks viewed investment in downtown Turlock as risky, likely due to its low rents, especially in comparison to more proven suburban models.

County tax assessor data show that in 2010 the plan area had 1.3 million square feet of commercial space. The data from before 2010 are incomplete, but interviews and reports of renovations suggest that the plan area added approximately 300,000 square feet of commercial space between 2000 and 2010; roughly 10% from new construction and the rest from conversions from residential and warehouse uses. (The new city hall and police station are not included in commercial space.)

Downtown rental properties have undergone frequent turnover, but the vacancy rates along Main Street have decreased in recent years from a peak of about 25% in 2008, at the height of the recession, to about 5% in 2014, (McGarry 2014).[118] At about $1 per square foot, the commercial rents downtown are lower than in mall locations (McGarry 2014). The real estate site loopnet.com confirms that downtown commercial space rents for about $1/sq. ft./month, whereas properties in newer strip commercial centers can be up to 50% higher. Detailed data on commercial rents are unavailable, however.

Since 1990, property values in the Downtown Plan Area have largely followed those in Stanislaus County (see Figure 14). Between 1990 and 2000, sales prices for commercial property declined steadily in both downtown and the county overall. While the rest of the country was experiencing an economic boom during the mid- and late-1990s, this economic growth evidently did not translate to increased commercial property prices in the Turlock region. It was not until the early 2000s that both the plan area and the county experienced a sharp increase in sales prices, followed by a sharp fall with the 2008 recession. In 2012, commercial sales prices in the plan area, at $67/sq. ft., remained below those in the county, at $76/sq. ft. (Table 4). In both areas prices showed a slight uptick in 2013, possible evidence of recovery after the recession. We must be careful about drawing conclusions from these data alone, however, since there were only 105 recorded sales transactions in the plan area over these two decades.

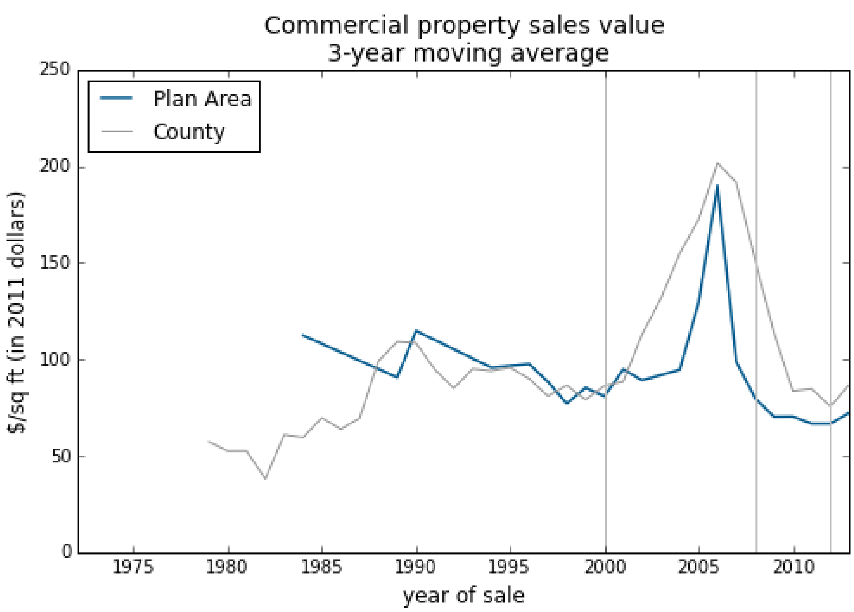
[118] Turlock does not record vacancy rates.

Table 109: Median sales prices (3-year moving average) for commercial property in Plan Area and Stanislaus County (2011$/sq ft)

	1990	2010	2012	% change 1990-2012	Absolute change 1990-2012
Plan Area (count = 105)	$115	$70	$67	-42%	-$48
Stanislaus County (count = 2,075)	$108	$84	$76	-30%	-$32

Source: DataQuick

Figure 51: Median commercial property sales prices, Plan Area and Stanislaus County



Source: DataQuick

4.3 The plan's impacts on commercial activity

Interviewees claimed Turlock's planning initiatives had strong positive impacts on downtown by stimulating increased economic activity, yet the employment and business establishment data do not fully support that assertion. However, neither do the data necessarily refute that assertion. We first present the argument, based largely on interviews, contending the plan had positive impacts. We then discuss evidence suggesting the plan did little to affect economic activity. The truth likely lies somewhere in between. Thus we present impacts as a range from a "low estimate," in which the plan had almost no impact on economic activity, to a "high estimate," in which the plan boosted economic activity in the way interviewees described.

4.3.1 The "high" estimate: potential positive impacts of the plan

We interviewed several individuals who were involved in local planning and development, and all asserted Turlock's planning initiatives, particularly the Redevelopment Project, contributed to the "success" of the downtown district—lower vacancy rates, increased business activity, and rehabilitation of buildings (Pitcock 2014; Silva 2014; McGarry 2014). Indeed, despite declining retail, downtown employment and the number of businesses in other sectors did increase between 1990 and 2011. According to this argument, the main effect of the plan was to concentrate investment and economic activity that would have otherwise gone elsewhere by improving the physical environment, showing support for developers, bringing public employees to the area, and catalyzing the clustering of businesses.

If we believe interviews, Redevelopment Project investment combined with the Downtown Master Plan acted as a signal to property and business owners that the City was committed to supporting Turlock's downtown area. The improved physical environment and business climate contributed to slightly higher property values, while the city's long-term commitment reduced development risk and uncertainty. The city's efforts to make information about the building permit process clearer made it easier for developers to consider renovations downtown. These changes tilted the calculation for some property owners in favor of investment in downtown. Although the costs of renovation from building code requirements would still act as a barrier to renovations and redevelopment, the promise of higher returns encouraged a modest amount of investment. Indeed, recent reports indicate the relative costs of retrofits downtown may have changed. One property owner explained, "A few years ago, it would've been cheaper to tear it down and rebuild it." The owner said his building's retrofit was supported by "the city's willingness to overcome past barriers in keeping the cost down and bureaucracy unobtrusive" (Pahal 2013). Not all investors are convinced though, as demonstrated by the hesitation of financial institutions to back loans. The increase in business activity appears limited to handful of small, independent entrepreneurs.

The relocation of the city hall and other public offices to downtown would have brought more employees who could patronize downtown restaurants and shops during their lunch break or after work. The modest increase in pedestrian volume combined with a more attractive physical environment could have stimulated a clustering effect, attracting more businesses.

Even proponents of the planning efforts admit not all interventions had a major impact. Rezoning—a policy intervention common to many smart growth plans—had little effect in this case because the original zoning regulations were already permissive relative to demand. The 2003 Design Guidelines and Zoning Regulations, for example, while encouraging more attention to architectural detail and the historical character of the street, merely codified existing development patterns and therefore did not have much direct impact (Whitmore 2014; McGarry 2014). Building height limitations were not, and are not, restrictive (McGarry 2014). Similarly, changes in parking standards had no effect because, unlike in many cities, space for parking was plentiful. Most buildings in the downtown core did not have on-site parking, but ample on-street parking and public parking lots existed prior to the plan. The 2003 Guidelines did not require any off-street parking for businesses in the Downtown Core Overlay Zone, and reduced the required off-street parking by 50% in the Downtown Transition Overlay Zone (City of Turlock 2003). This reduction in requirements did not affected development, though, since, according to interviews, parking requirements were never an impediment to developers (Quintero 2014; Cooke 2014).

In the absence of the plan, the decline in retail and other establishments downtown would probably have still occurred, but in this case fewer businesses would have taken their place. Interviewees emphasized that, in the absence of the redevelopment efforts in particular, the downtown would have struggled with higher vacancy rates and lower rents (Cooke 2014; Pitcock 2014). In a site visit, we observed clustering of restaurants and bars on Main Street, which would have been less likely to occur without the downtown planning and investment. At the same time, although the perception of downtown improved, the changes reflected in employment and property value data are at present modest and only slightly offset the decline that lasted until the 1990s.

4.3.2 The “low-impact” estimate: minimal impacts

Although overall employment and the number of businesses in downtown Turlock increased during the two decades, so did employment and business activity in comparable downtowns, like Modesto and Merced. As discussed in the previous section, Modesto and Merced actually outperformed Turlock on many measures, such as retaining retail. On total employment and number of establishments, downtown Turlock is remarkably similar to downtown Merced.

It’s possible that, compared to Turlock, Modesto and Merced had somewhat more robust economies supported by government offices and health institutions, which boosted employment downtown in these sectors and services—whereas Turlock may have had to "work harder" to sustain downtown activity. It could be that planning interventions in Merced and Modesto—both had Redevelopment Agencies that coordinated investment in their respective downtowns—had a similar effect as in Turlock. Most likely, though, the changes in all three downtowns reflect larger economic shifts toward a service-oriented economy and more large-format retailers. In any case, the data does not provide strong evidence that Turlock's downtown planning initiatives had a unique impact. In this case, the city still would have spent $8 million on public investments and relocated public offices to downtown, but these actions would have had no further impacts.

There is no definitive way to determine what would have happened in the absence of the plan. We can only assume the truth lies somewhere between the interviewees' story—that the plan had large positive impacts—and the story suggested by the NETS data—that the changes in economic activity would have occurred regardless of the plan. In the following paragraphs we estimate quantitative economic impacts of the plan, considering the range of possible effects.

4.3.3 Quantifying the plan's impacts on employment and sales

Where would development have located if not downtown?

Assuming the plan did have impacts, in the absence of the plan, businesses observed in downtown could have instead (1) located downtown, (2) located elsewhere in the city or county, or (3) not formed at all. The answer likely varies by sector, as discussed in the following paragraphs.

Retail

Retail activity was shifting from downtown to more suburban, regional-serving locations, and this would have occurred with or without the plan. However, the smaller shops that replaced some of the departing retail may be attributable to the plan. These were independent shops that do not need large spaces but do depend on pedestrian activity downtown and thus may have been attracted by downtown improvements (McGarry 2014). This type of business may not be as successful in suburban commercial centers and therefore would likely not exist at all in the absence of the plan.

If the downtown initiatives had not been implemented, retail employment in the plan area may have continued to decline, to be replaced with fewer new commercial establishments. Downtown lost 256 retail jobs between 1991 and 2011. In the absence of the plan, it may have lost slightly more, we estimate up to 306, because a few of the small antique and boutique shops would not have opened downtown—or anywhere—at all. Retail sales in the plan area would have declined proportionally to employment. Retail in the rest of the city would probably have remained the same as observed. On the other hand, the plan may not have affected retail at all. Estimates of the plan's impact on employment are shown in Table 5 and 6. More detailed tables and calculations are available in the Appendix D.

Table 110: Estimates of plan's impacts on employment– Plan Area

	Observed Values			2011 Without Plan			Difference Observed – Without Plan		
	1991	**2011**	**2011-1991**	**Low**	**Mid**	**High**	**Low**	**Mid**	**High**
Jobs - Plan Area									
Total Employment	2,788	3,266	478	3,194	3,042	2,889	72	225	377
Real Estate	95	72	(23)	72	67	62	-	5	10
Public Administration	36	108	72	36	36	36	72	72	72
Retail	703	447	(256)	447	422	397	-	25	50
Arts, Entertainment, and Recreation	2	69	67	69	42	14	-	28	55
Accommodation and Food Services	215	308	93	308	284	260	-	24	48
Professional, Scientific, and Technical Services	131	374	243	374	303	232	-	71	142

Source: NETS (for observed values)

Only sectors affected by the plan are shown.

Table 111: Estimates of plan's impacts on commercial sales – Plan Area

	Observed Values			**2011 Without Plan**			**Difference Observed – Without Plan**		
	1991	**2011**	**2011-1991**	**Low**	**Mid**	**High**	**Low**	**Mid**	**High**
Sales - Plan Area (millions, nominal dollars)									
Total sales	342	559	217	559	546	532	-	13	27
Real Estate	5.7	5.0	(1)	5.0	4.7	4.3	-	0	1
Public Administration	0	-	-	0	-	0	-	-	-
Retail	88	64	(24)	64	60	57	-	4	7
Arts, Entertainment, and Recreation	0	9	9	9	5	2	-	3	7
Accommodation and Food Services	6	10	4	10	9	8	-	1	2
Professional, Scientific, and Technical Services	8	28	20	28	23	17	-	5	11

Source: NETS (for observed values)

Only sectors affected by the plan are shown.

Arts, Entertainment, and Recreation and Accommodation and Food Services

Similarly, the growth in arts, entertainment, and recreation and accommodation and food services may be a result of the downtown improvements. In the absence of the plan, growth in arts and food services downtown could have been slower. Without the plan, the arts, entertainment and recreation and accommodation and food service sectors downtown may have grown more slowly, so that they reached employment and sales levels observed in 2001 only in 2011. In other words, assuming the “high impact” story is correct, the downtown plans basically sped up employment and sales in the downtown by ten years.

Without these downtown businesses, people would have fulfilled their demand for these activities in other ways, such as eating in or watching movies at home. Most of the private investment downtown has been driven by independent investors, which suggests that the alternative to investment downtown might not be investment in suburban areas, but in other economic activities altogether. The “missing” jobs and sales would therefore be directed elsewhere in the economy and not necessarily to other establishments in the city. That means the entertainment and restaurant activity observed downtown would have instead occurred in another sector outside the city, which would reduce the city's total employment in these two sectors.

Real Estate and Profession, Scientific and Technical Services

The offices for real estate as well as professional, scientific, and technical services may have been attracted to downtown because of the investments and the presence of other businesses, but demand for them would have been the same without the plan, and could be fulfilled in more suburban locations. In absence of the plan, fewer jobs and sales in these sectors could be downtown, and would instead be located elsewhere in the city. We estimate the plan was responsible for up to 142 professional services jobs and up to ten real estate jobs; in the absence of the plan these jobs would instead be located elsewhere in the city.

Public Administration

One impact of the plan is certain: without their relocation to downtown, employees of the City Hall and the Police/Courthouse/Fire facility would have remained outside the plan area, so the 72 additional public administration jobs observed in the plan area would instead be located elsewhere in the city. Also, in no case did the plan affect economic activity in the region in general, so the total number of jobs and sales in Stanislaus County would have been the same even without the downtown plans.

Other Sectors

There is no evidence the plan affected other sectors such as manufacturing, construction, wholesale, health and education or other services.

To summarize, we estimate the plan was responsible for anywhere between 72 and 377 additional jobs in downtown Turlock (Table 7). Much of this would be redistributing jobs from elsewhere in Turlock; even in the "high estimate," the plan would have increased total employment in the city by 153.

Table 112: Estimates of the plan's impacts on employment and sales - City of Turlock and Stanislaus County

	Observed Values			**2011 Without Plan**			**Difference Observed – Without Plan**		
Outside plan area	**1991**	**2011**	**2011-1991**	**Low**	**Mid**	**High**	**Low**	**Mid**	**High**
Stanislaus county employment excluding plan area	101,514	176,077	74,563	176,077	176,077	176,077	-	-	-
Turlock City employment including plan area	18,153	23,197	5044	23,197	23,121	23,044	-	77	153
Total sales in Turlock including plan area	1,536	2,642	1106	2,642	2,634	2,627	-	8	16

4.4 The plan’s impact on commercial property

Property sales prices in the plan area declined over the study period. If the downtown planning initiatives did increase economic activity in the plan area, then in the absence of the initiatives property values would probably have declined even further. According to interviewees, the plans created amenities in the form of a more desirable public space and pedestrian environment. These amenities and reduced risk would be partly capitalized into higher land values. In this case, more businesses would have remained or opened in the area, probably leading to more foot traffic and lower vacancy rates.

We have already estimated the amount by which the downtown initiatives increased economic activity, in terms of employment and retail sales, above what it would have otherwise been. The same logic applies to the amount of commercial space. Assumptions about the development of commercial property in the absence of the plan are shown in Table 8. We estimated that the plan increased the number of jobs by 2% to 13% over what they would have been. Likewise, we estimated that the plan increased sales by 0% to 5%. We assume the amount of commercial floor space follows the same trend, and the plan increased the amount of floor space observed in 2010 by 0 to 13%. Therefore the plan was responsible for up to approximately 150,000 square feet of the commercial space observed in 2010.

Table 113: Assumptions about commercial property in the absence of the plan

Variable	Assumption		Explanation
	Low-impact	High-impact	
Increase in plan area employment due to plan	2%	13%	Calculated in employment analysis
Increase in plan area sales due to plan	0%	5%	Calculated in employment analysis
Increase in plan area commercial space due to plan	0%	13%	Based on plan area jobs and sales impacts
Vacant space that would have existed without the plan (sq ft)	39,012	150,109	Low: vacant space in 2010. High: amount of new commercial space created 2000 – 2010

We also need to estimate the amount of vacant space that would have existed in the absence of the plan. According to tax assessor records, 39,012 square feet of commercial properties was vacant in 2010. Without the plan, there may have been more vacant space, since fewer businesses would have been in the plan area. Unfortunately, the data on floor area by land use from 2000 are unreliable so we cannot calculate exactly how much was vacant before. However, our data do provide upper and lower bounds on amount of vacant space that would have existed without the plan. The lower bound is the 39,012 square feet of vacant space observed in 2010. We also know that the plan was responsible for up to roughly 150,000 additional square feet of space. Without the plan, a portion of that would probably be vacant; the 150,000 square feet is an upper bound.

Finally, in order to estimate costs and benefits we will need to know the amount of floor area in retail, restaurant, and office use that would have existed in the plan area in the absence of the plan. To estimate these values, we assume that for each sector the floor area per employee is the same as observed in 2010.

4.4.1 Benefits and costs of commercial changes

Retail

The more attractive environment, lower vacancy rate, and greater pedestrian activity would theoretically lead to higher property values. The literature on retail real estate suggests that stores located near other stores tend to attract more customers and have higher sales (Eppli and Benjamin 1994). Stores of similar types often benefit from clustering because the cluster allows customers to comparison shop, and smaller stores benefit from the demand spillover from nearby large “anchor” stores (Eppli and Benjamin 1994). Studies also suggest a “pleasant” atmosphere and ambiance on shopping streets are associated with higher customer-rated attractiveness (Teller and Reutterer 2008). Retailers tend to locate in clusters where they can take advantage of passing traffic from other stores and employers (Sevtsuk 2014).

Most studies on the determinants of retail rent are on suburban-style shopping centers, not downtown shopping streets. Sirmans and Guidry (1993) simultaneously estimated vacancy rates and rents for retail in shopping centers in Baton Rouge and found that high traffic locations (defined as a traffic count of more than 20,000 or more cars per day) had rents 20% to 22% higher than low traffic areas, controlling for other factors. The authors also found that rents decreased by about 1.3% for every 10,000 square feet of vacant space in the same shopping center. Studying shopping centers in Atlanta, Hardin and Wolverton (2000) estimated that proximity to shopping malls increased rents in nearby shopping centers by up to 25%, but the effect dropped off after about a half mile, at which point the effect was about 5%. These findings are from mainly automobile-oriented areas and it’s not clear whether they would apply to downtown areas with foot traffic. Nevertheless, we have reason to believe the same clustering forces are at work in downtown contexts and, in the absence of further evidence, we can apply the order of magnitude and direction of effects from the existing studies to Turlock.

We estimated the effect of lower vacancy and higher foot traffic using the assumptions shown in Table 9. Adjusting Sirmans and Guidry’s (1993) results for inflation, we assume each 10,000 square feet of vacant space is associated with a 1% to 3% decrease in rent. In Turlock, we hypothesize that the more attractive environment, more downtown employees, and presence of other stores and restaurants increased foot traffic over what it would have. Sirmans and Guidry (1993) found that high traffic increased monthly rents by 10% at the low end, as shown in Table 9. Extra traffic could be generated by nearby retail, as Hardin and Wolverton (2000) found, leading to an increase in rent of up to 25%. The increase in Turlock’s foot traffic is probably small in comparison to variation in car traffic in these studies, however the importance of foot traffic to these businesses is probably very great, so these considerations probably more or less offset each other. Our calculation also assumes that, in these studies, the observed rent increase is equal to the full value imparted by the amenities. In reality, only part of that value is capitalized into rent; thus the real value may be higher and our estimate is conservative.

Table 114: Assumptions for commercial property value impacts

	Assumption		Explanation
	Low	**High**	
Monthly retail rent premium expected from increased pedestrian activity	10%	25%	Estimated based on Sirmans and Guidry (1993) and Hardin and Wolverton (2000)
Monthly retail rent premium expected from lower vacancy in area (per 10,000 sq ft of vacant space)	1%	3%	Estimate based on Sirmans and Guidry (1993)
Elasticity: effect of professional employment density on office rent	0.0011	0.077	Estimate based on Bollinger et al. (1998) and Sivitanidou (1996)

Commercial rents for downtown Turlock are about $1/sq. ft. per month. Assuming $1 as the baseline rent, applied to the 630,231 square feet of retail space in the plan area, the lower vacancy and higher foot traffic would be expected to increase monthly rents by $0.30 to $4.89. Over all properties in the plan area, this would create a total value of between about $0.9 million and $5 million per year, a societal benefit (Table 10). It is important to note that this “total value” represents the value of increased amenities that, based on the literature, we would expect to be capitalized into rents. In other words, under conditions observed in the literature, we would expect landlords to raise monthly commercial rents by $0.30 to $4.89 to reflect the improved environment for retail and restaurants. We cannot measure the actual rent increase due to these impacts, but it would depend on how property owners expected tenants to react to a rent increase. In a strong market, landlords might easily raise rents and thus capture most of the amenities benefit for themselves. In a weaker market, landlords might be wary of raising rents, allowing commercial tenants to gain most of the benefit. Given downtown Turlock’s vacancy rate has been relatively high and the main tenants are local, independent establishments likely with relatively low margins, we should consider the local real estate market to be relatively weak, implying that commercial tenants would benefit more.

Table 115: Estimated benefits from amenity effects on retail and office property (per year)

	2010 Observed			Notes
Baseline commercial rent ($/sq ft/month 2011 USD)			$1.00	Source: McGarry (2014), loopnet.com
	Low-impact Estimate	**Mid**	**High-impact Estimate**	
Retail				
Monthly retail rent premium expected from increased pedestrian activity ($/sq ft/year)	$1.20	$2.10	$3.00	
Monthly retail rent premium expected from lower vacancy in area ($/sq ft/year)	$0.30	$1.93	$4.89	
Total value of rent increase over all retail properties ($/year)	$944,205	$2,539,540	$4,975,077	Applies to restaurant and retail uses
Office				
% change in professional employment caused by plan	0%	21%	52%	Include Professional Services and Real Estate jobs, estimated in employment section
Expected % difference in rent from change in professional employment	0%	1%	4%	% change in employment x elasticity
Expected change in office rent due to increased professional employment ($/sq ft/year)	$-	$0.10	$0.48	
Total value of rent increase over all office properties ($/year)	$-	$30,575	$152,651	Applies to all office properties

Office uses

The presence of other professional and technical service establishments likely created agglomeration effects that increased property values for offices. In L.A., Sitivanidou (1996) estimated the effect of employment in finance, legal, and business services per resident on assessed property values had an elasticity of 0.00110 to 0.00146. In Atlanta, Bollinger et al. (1998) estimated that the concentration of executive, managerial, and professional jobs influenced annual office rents with an elasticity of 0.0771 to 0.105. While Atlanta and LA are admittedly quite different contexts from Turlock, these studies at least provide an approximate order of magnitude and are the best estimates available.

In our estimates, we therefore use 0.0011 as a lower bound and 0.077 as an upper bound for the elasticity of office rent with respect to service employment density.[119] As mentioned before, we conservatively assume the observed increase in rent reflects the full value of the agglomeration benefit. These effects apply only to office space. Across the 319,544 square feet of office space in the plan area, we estimate the agglomeration effects total up to $152,651 per year in value, assuming the plan impacted the amount of professional service employment downtown (Table 10). In the case the plan did not impact professional service employment, the agglomeration benefit would be zero. Like the amenities impacts for retail, for professional office space, each the landlord and tenant capture some of the agglomeration benefit.

Construction costs

A final way in which the policy changes may have affected property values is by changing construction costs. The design standards in the Downtown Design Guidelines may have increased construction and development costs for new buildings and renovations. The guidelines prescribed design elements like articulated building fronts, architectural details, and appropriate signage. According to an interviewee, at least one new building was designed according to the guidelines, and others have updated their facades (M. Cooke). These improvements are a cost to the land owner, but may add to a property's value. If these changes are passed on from property owners to tenants or buyers, they would result in higher rents or sales prices. We assume the additional design standards added between 0 and 2% to per square foot construction cost for new and renovated buildings (Table 11). According to RS Means, a typical construction cost for a 1- to 4-story office building is $134/square foot, which, given our assumptions, means the design standards would have increased by $0 to 2.68/sq. ft. Applied to all new and renovated commercial buildings in the plan area, the additional design standards had a total cost of $0 to about $790,000. Applying a discount rate of 6% and building lifespan of 30 years, this is equivalent to $57,458 per year.

[119] An elasticity of 0.0011 means that a 1% increase in the density of professional services employment results in a 0.0011% increase in office rent.

Table 116: Construction cost impacts for commercial property

Element	**Low-impact Estimate**	**Midrange**	**High-impact Estimate**	**Source**
Construction and development cost ($/sq ft)	$134/sq ft			Source: RS Means. Construction cost for 1-4 story office
Assumed additional cost due to design standards, in % of per sq ft cost	0%	1%	2%	Higher design standards and increased complexity add to construction cost
Additional cost due to design standards ($/sq ft)	$0	$1.34	$2.68	
Total cost over all property in plan area (2011 USD)	$0	$395,450	$790,900	Applies to new and renovated buildings
Total annualized cost over all property in plan area (2011 USD)	$0	$28,729	$57,458	Assuming 6% rate and 30-year building lifespan

Comparing the potential amenity effects with the potential increased construction costs, in Table 12 we can see that the benefits of increased pedestrian activity, lower vacancy, and possible employment agglomeration resulting from the Turlock's planning initiatives likely outweigh the higher construction costs associated with tougher design requirements. Under the most generous assumptions, estimated benefits for amenities reach $5 million per year, much greater than our upper estimate for increased construction costs, $57,000 per year. Under the most conservative assumptions, there would still be a benefit of about $900,000 per year. The improved commercial property market would likely benefit both property owners and businesses locating downtown. As discussed earlier, the benefit to each depends on how commercial real estate demand responds to price changes. Given that the downtown Turlock real estate market is not particularly strong, we would expect property owners to resist raising rents and commercial tenants to secure more of the benefit.

Table 117: Summary of benefits and costs associated with the plan's impacts on commercial property (per year, in 2011 USD)

Benefit or Cost	Low-impact Estimate	Midrange	High-impact Estimate	Who is impacted?
Benefit for retail and restaurants due to increased pedestrian activity ($/year)	$944,205	$2,539,540	$4,975,077	Property owners and retail and restaurant establishments
Benefit due to agglomeration effects of more concentrated professional service employment ($/year)	$0	$30,575	$152,651	Property owners and professional services establishments
Increase in construction and development cost ($/year)	$0	$(28,729)	$(57,458)	Developers and new commercial property owners and renters
Total annual benefit (cost)	$944,205	$2,599,026	$5,185,186	Property owners and businesses benefit. The distribution of benefits depends on responsiveness of the local real estate market to price changes.

5 Municipal finance impacts

5.1 Property tax revenue

The plans for Turlock's downtown enabled the use of tax increment financing (TIF) for the study area. This meant that much more property tax revenue per acre flowed to the city to fund local improvement projects in redevelopment area than in other areas. Given county property tax rates, distribution formulas and tax increment finance, in 2010 the downtown generated an estimated $670,000 per year in property tax revenue for the City of Turlock. If the downtown were not in a redevelopment area, it would have generated only about $90,000 per year for the city's general fund (with the rest going to the county and other taxing jurisdictions).

Additionally, without the downtown plans, the city's share of property tax revenue would be lower for two other reasons. First, there would have been somewhat lower land use intensity because the plan area would have had between 91% and 98% of the combined population and employment as observed. Second, fewer utilized buildings and less renovation activity would result in lower assessed values, as discussed above. Given these factors, we estimate that assessed values would have been up to 20% lower in absence of the plan.

In all, given lower assessed values and the absence of the redevelopment financing mechanism, the city would have received between $571,000 and $592,000 less in property tax revenue annually without the downtown Turlock plans.

5.2 Capital expenditures

The Redevelopment project included a number of municipal capital expenditures, which interviewees have credited with sparking new private investment in the plan area (Cooke 2014; Pitcock 2014; Silva 2014). These investments include $8 million (1998 USD) in spending on water and sewer improvements, reconstruction of parking lots, landscaping; and streetscape improvements. These improvements were funded by the Turlock Redevelopment Agency through TIF bonds.[120] With TIF/redevelopment financing, California cities were able to use property tax revenue associated with an area to repay bonds issued for public improvements. In 2012, as Redevelopment Agencies were dissolved statewide, the successor agency (part of the City of Turlock) was responsible for nearly $4.4 million in enforceable obligations on the 1999 bond issue.[121]

A large part of the planning intervention was itself capital spending. In the absence of the plans, this spending would not have occurred. There may still have been a need for street and utility maintenance but without the Redevelopment financing mechanism and focus on Main Street as an impetus, this maintenance would have been unlikely to occur during our study period. (Maintenance would not be classified as a capital expenditure anyway.) Thus, without the plans, the Redevelopment-funded expenditures in streetscape improvements, landscaping, parking, and water and sewer would not have occurred. Development outside the plan area would have occurred in infill locations in the city that are already served by infrastructure. The net annual cost of the capital improvement in 2010 is reflected in the $332,000 (2010$) annual bond repayment (Turlock RDA, 2008). This annual cost is equivalent to $14 per household in Turlock.

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[120] Tax increment finance is a tool to fund public investments through future increases in assessed property value.

[121] The successor agency to the Turlock Redevelopment Agency is responsible for all outstanding debts: http://www.turlock.ca.us/pdf/successoragency.asp?id=1

5.3 Operating expenditures

Our methodology for estimating municipal operating expenditures is based on population density (because scholarly research has not studied employment density and municipal operating efficiency). In general, denser residential areas facilitate more efficient public service provision. Downtown Turlock actually has a 47% *lower* population density compared with the city as a whole.[122] Based on the literature, this would imply that serving a household in downtown Turlock is more expensive than serving the average city household. This is probably an unreasonable conclusion because most of downtown is commercial, not residential. When we consider the combined population and employment density of downtown compared with the entire city, we find that downtown has a 60% *higher* combined population and employment density than the entire city. Intuitively, we would expect service provision to be at comparable or lower cost. At least anecdotally, some public services may be provided at different times downtown. For example, later hours of some businesses might increase need for police service at night (Pitcock 2014). Lower intensity land uses without the plan (due to fewer commercial establishments) could result in marginally higher, or at least different, operating expenditures. Overall, we take the conservative approach and assume that the plan had no net benefits or costs in terms of municipal operating expenditures, due to lower residential densities and higher employment densities than the city as a whole.

5.4 Impact fees

If the plan increased commercial development, it may have resulted in increased municipal revenue through higher impact fees. The downtown has somewhat lower impact fees than other areas of the city, because the city exempts development in the area from service standards. We already estimated that of the approximately 300,000 square feet of commercial space added to the plan area, the plan was responsible for up to 121,920 square feet; the rest would have been added anyway. About 20,000 square feet was new office construction that triggered impact fee assessments. The remainder came from renovations of previously vacant space and conversions from residential or other commercial use. Some types of conversions required impact fees. Prior to 2013, if a building use changed, the city charged the difference in impact fees between the uses. For instance, converting office to retail would require impact fee payment because retail is a more intense land use, but the reverse change would not trigger an impact fee. We lack detailed data on specific change of use, but we can make reasonable estimates based on interviews and site visits, as shown in Table 13. Change of use downtown was from

[122] Residential densities have been dropping citywide and in downtown between 1990, although they declined more quickly citywide. Part of this may be due to the city's boundaries expanding through annexation.

residential to office was common, which would require an impact fee of roughly $300. Also common were retail to office conversions, which would not generate impact fee revenue. We assume in the "low estimate" that the plan did not generate any new impact fees and in the "high estimate" that the plan had the highest reasonable impact. Using the impact fees listed in Table 14, we estimate that new construction and renovations in the downtown attributable to the plan generated a total of between $0 and $380,000 more in capital facility development fees (2010$), compared to what would have been generated in the absence of the plan. These fees would be a benefit to the municipality and would also benefit individual taxpayers.

Table 118: Development program assumptions for impact fee estimates

	Low Estimate	**Midrange Estimate**	**High Estimate**	**Explanation**
Total new commercial space in plan area attributable to plan (sq. ft.)	-	75,054	150,109	Estimated in commercial property section
Greatest possible space converted from residential use (sq. ft.)	67,000	67,000	67,000	Estimated based on decrease in housing units in plan area
Estimated sources of new commercial space in plan area, attributable to plan (in sq. ft.)				
New office construction	20,000	20,000	20,000	We observed 20,000 sq. ft. of new office construction
New retail construction	-	-	-	There was no new retail construction
Renovation (no change of use)		20,000	20,000	Assumption based on observations
Residential --> office conversion	0	20,000	47,000	Assumption based on observations
Residential --> retail conversion	0	-	20,000	This type of conversion carries the highest impact fees, so assume more in high estimate
Office --> retail conversion	0	0	0	Assumption based on observations
Retail --> office conversion	0	15,054	43,109	Assign remainder of new commercial space to this type

Table 119: Estimated impact fees for various development types

Development type	Approximate Impact Fee (per 1000 sq. ft.)
New office construction	$6,096
New retail construction	$11,634
Renovation (no change of use)	$0
Residential --> office conversion	$272
Residential --> retail conversion	$12,464
Office --> retail conversion	$5,538
Retail --> office conversion	$0

Source: Turlock Development Impact Fee Schedule, 2014 Q1. Assumes fees for conversion are the difference between fees for each use. To calculate fees for conversion from residential use, assume a single-family unit is equal to 2,000 sq. ft. of commercial space.

5.5 Overall fiscal impacts

The plan incorporated downtown as a redevelopment area and led to increased commercial property values, the combination of which led to considerable increases in property tax revenue for Turlock. For municipal operations, the results are ambiguous though most likely neutral or slightly positive. In terms of costs, the city spent over $300,000 on bond payments for downtown-area capital improvements that would not have occurred in absence of the plan. Lastly, the city collected more impact fees as a result of the plan, mostly from fees assessed with a change in building use. Overall, we find that the plans led to municipal benefits on the order of $900,000 annually, as shown in Table 15. Individual households benefits roughly $40 per year.

Table 120: Summary of annual fiscal impacts (2011 USD)

	Net annual benefit (cost)		
	Low-impact Estimate	Midrange	High-impact estimate
Total Regional	**$903,805**	**$926,513**	**$962,147**
Property tax	$571,805	$581,777	$591,748
Operating expenditures	$-	$-	$-
Impact fees	$-	$12,736	$38,398
Capital expenditures	$332,000	$332,000	$332,000
Total Municipal	**$903,805**	**$926,513**	**$962,147**
Property tax	$571,805	$581,777	$591,748
Operating expenditures	$-	$-	$-
Impact fees	$-	$12,736	$38,398
Capital expenditures	$332,000	$332,000	$332,000
Total Household (all types)	**$39**	**$40**	**$42**
Property tax	$25	$25	$26
Operating expenditures	$-	$-	$-
Impact fees	$-	$1	$2
Capital expenditures	$14	$14	$14

6 Vehicle Travel

6.1 Travel behavior changes

Pedestrian trips

Virtually all travelers to downtown—whether workers or shoppers—drive from elsewhere to downtown, park, and then walk. This stems from the fact that there are only a few residential units downtown and two bus lines that serve the downtown area from the Bus Line Service of Turlock (BLAST), which had a system-wide daily ridership of 300 in 2009. Interviewees report more pedestrian activity in the Main Street area in recent years, indicating that, having arrived downtown, visitors often walk around on foot (McGarry 2014). Additionally, interviewees said that downtown is a regional destination, drawing people from Modesto and Merced for dining and from as far as the Bay Area for antiques shopping, implying a small share of visitors are make long trips. Data on shopping travel or walking activity in this area, however, are not available.

Parking

Changes in parking availability over time could influence travel to and from downtown Turlock. But in general, parking is easily found there and is not likely to have changed travel behavior over the course of the study period. During redevelopment, on-street parking spots at every intersection were replaced by wide sidewalk bulb-outs. Existing public parking lots before the Redevelopment Project started, but they were improved aesthetically. According to McGarry (2014), Main Street businesses initially expressed concerns when the Redevelopment Project reduced the number of on-street spots but the parking supply changes were small.

6.2 Vehicle travel impacts

The plan may have reduced vehicle travel slightly through increased employment density, which allowed more work-based trips by foot. There is little evidence of a major shift in travel mode, however. As previously mentioned, while the plan has appeared to increase pedestrian traffic downtown, these pedestrians are likely driving to downtown from other areas, as the plan did little to increase residential density in downtown Turlock. This is especially true considering that the Turlock public transit network has a daily ridership of only 300 users. Similarly, while the plan did remove some parking spaces downtown, shop owners suggested this had little impact on vehicle travel, as there was still a surplus of available parking even with the reduction.

The VMT impacts that can be measured are the reduction in vehicle trips related to the increase in employment density in the downtown area, compared to the likely level of employment without the plan. As previously discussed, the downtown policies likely led to more shops, restaurants, and downtown employees than there otherwise would have been. The Fire Department, City Hall, and several real estate offices moved downtown as a result of the plan. These workers may now walk to nearby restaurants for lunch, or visit nearby shops at the end of their workday. In the absence of the plan, these establishments would have likely remained in peripheral, less-dense locations in the absence of the plan, where workers would more likely make errand and lunch trips by car rather than by foot. For the purpose of quantifying the density in absence of the plan in order to estimate the change in vehicle miles travel (VMT), we assume these peripheral office locations would be scattered throughout the city such that their average employment densities would be represented by the city average, which was about 1,370 employees per square mile in 2010. This is significantly lower than downtown Turlock's 2010 employment density of 6,500 employees per square mile.

Residents' Personal Vehicle Travel

The plan slightly increased the number of jobs within a reasonable walking or biking distance for residents of the downtown area. In other words, the plan slightly increased local job access.[123] This was unlikely to have changed the commuting patterns of many residents, though, as many undoubtedly still retained their jobs in locations elsewhere in Turlock. The input values used in the VMT estimate are shown in Table 16. For downtown Turlock residents, we estimate the reduction in VMT to be on the order of 0.2 to 0.3 fewer miles per day per person.

[123] Due to data availability, we estimate change in residents' personal vehicle travel over the period 2000-2010, whereas we estimate the change in workers' vehicle travel over the period 1990-2010. We use a shorter time period for residents' travel because local jobs access is based on LEHD data, which is unavailable for 1990. Since impact on residents' travel is so small in comparison to that for workers' travel, and because our estimates are per year anyway, this does not affect the results very much.

Table 121: Figures used for VMT Impact Calculations

Variable	Value	Source
Per capita VMT in plan area, 2000 (veh-mi/day/person)	12.69	CHTS[124]
Per capita commercial VMT, plan area, 2000 (veh-mi/day/person)	4.58	CHTS[125]
Residents in plan area in 2010	1,073	Census
Workers in plan area in 2010, regardless of the plan	3,042	Estimated in employment section
Workers added as result of plan's policies	225	Estimated in employment section

Workers Personal Vehicle Travel

By increasing the number of jobs in the downtown area, the plan reduced the need for workers in the downtown area to drive for errands or shopping during the workday. Employment density in downtown was 6,500 workers per square mile in 2010. In the absence of the plan, the job density downtown would have been only 6,100 workers per square mile, given the assumptions laid out in the Section 4.3.3. These are both higher than the 1990 downtown employment density of 5,600 per square mile. To estimate the change in VMT with respect to employment density, we used coefficients measured by Chatman (2002), who found that each additional 1,000 employees per square mile in workplace density is associated with a decrease in personal workplace-based vehicle travel of 0.025 to 0.05 miles per day. For workers whose jobs moved to downtown during the study period, we estimate that each of these workers travel roughly 0.6 vehicle miles less per day as a result of their relocation downtown (Table 17). For those who already worked downtown, we estimate that the added commercial activity in the area reduced their daily vehicle travel by about 0.01 to 0.02 miles per day per person.

[124] Unique vehicle trips divided by persons living in plan area.

[125] Vehicle trips only counted when at least one trip activity was for personal commercial reasons

Table 122: Estimated impact of the plan on daily vehicle miles traveled, considering the period 2000-2010

	Estimated impact on vehicle travel (miles per day)		**Explanation**
	Low estimate	**High estimate**	
Downtown Residents (per person)	-0.016	-0.027	Calculated from elasticities, following Salon
Downtown Residents (total)	-18	-29	Above line multiplied over all downtown residents
Pre-existing Downtown Workers* (per person)	-0.009	-0.019	Calculated from elasticity measured by Chatman (2002)
Pre-existing Downtown Workers* (total)	-28	-56	Above line multiplied over all downtown workers, from employment calculations
Added Downtown Workers (per person)	-0.31	-0.63	Calculated from elasticity measured by Chatman (2002)
Added Downtown Workers (total)	-70	-140	Above line multiplied over all new downtown workers, from employment calculations
Total Net VMT Effect	**-128**	**-214**	

***** *Employees who worked downtown before the plan*

*** Employees whose jobs moved downtown during the study period*

Overall impact on vehicle travel

The total changes in VMT due to the plan amount to a fraction of a mile reduction in vehicle travel per person each day in the plan area. Overall, the residential and worker VMT changes sum to a total reduction of between 128 and 214 vehicle miles traveled per day in Turlock (Table 17). Given the lack of major land use changes, and presence of few alternatives to driving, the impact of the plan on VMT is small. It did enable more walking trips for the few downtown residents, and it enabled more walking trips for the employees in the plan area, both those who previously worked downtown, and those whose jobs moved there during the study period.

After converting the reduction in VMT into dollar amounts, we estimate that, in downtown Turlock, the reduction in VMT produced total societal benefits of about $1,600 to $32,000 per year, mostly due to reduced external costs of driving. As a “best guess," we use the midpoint of this range, or $16,940. Individual households benefitted about $4 to $7 per year, on average.

7 Discussion and conclusions

Our analysis suggests the planning interventions in downtown Turlock had overall positive effects for the region, largely because of commercial property value and property tax revenue increases (Table 18). The greatest benefits came in the form of increased economic activity downtown, which mainly arose from a more attractive environment, reduced development risk, and clustering of office and retail uses. The public investment and policy changes both improved the physical environment and signaled to investors that the city would support downtown development, which reduced risk and led to the opening of a few small-scale retailers and restaurants. The relocation of public buildings to downtown increased employment, which together with the existing small businesses increased foot traffic. New small businesses were attracted by the additional foot traffic. Without the planning interventions, downtown would have continued to lose jobs and retail activity. In the absence of the plan most of these businesses establishment would have located elsewhere in the city, although some demand would have been directed to other sectors. In that sense, some of the plans' impacts were merely redistributive, but some new economic activity was created from the commercial clustering. Incorporating downtown as a redevelopment area led to increased property values and tax increment finance. We estimate that together these effects produced a benefit for the region of about $1.8 to $6.2 million per year in 2011 dollars.

Table 123: Summary of net annualized benefits and costs from various perspectives (2011 dollars)

Perspective	Estimated benefit (cost) Low-impact estimate	Midrange	High-impact estimate	Description
Regional				
Residential property	$-	$-	$-	No impacts on residential property
Commercial property	$944,205	$2,599,026	$5,185,186	Benefits from improved pedestrian environment, retail clustering, and office agglomeration.
Fiscal	$903,805	$926,513	$962,147	Cost due to capital expenditures. Benefits from higher property tax revenue and impact fees.
Vehicle travel	$1,644	$16,940	$32,236	Lower personal and external costs from vehicle travel due to greater non-motorized job access and greater opportunities for work-based non-motorized travel.
Total regional	**$1,849,653**	**$3,542,479**	**$6,179,568**	
Total municipal				
Residential property		$-		Not applicable
Commercial property		$-		Not applicable
Fiscal	$903,805	$926,513	$962,147	Cost due to capital expenditures. Benefits from higher property tax revenue and impact fees.
Vehicle travel		$-		Not applicable
Total municipal	**$903,805**	**$926,513**	**$962,147**	
Household – all existing households				
Residential property		$-	$-	No impacts on residential property.
Commercial property		$-		Not applicable
Fiscal	$39	$40	$42	Cost due to capital expenditures. Benefits from higher property tax revenue and impact fees.
Vehicle travel	$7	$5	$4	Downtown households benefit from greater job access
Total household	**$46**	**$46**	**$46**	

The downtown interventions likely reduced vehicle travel a small amount by shifting some vehicle travel to downtown walking trips. With the increase in jobs and commercial businesses, more downtown workers could walk to more destinations during or after work, whereas they otherwise would have had to drive to eat out at lunch or go shopping after work. We estimate that these changes reduced the costs of vehicle travel from the point of view of the region by $1,600 to up to $32,00 per year. The downtown businesses may also attract more patrons from farther away, but these people may have otherwise traveled to other regional centers, so the overall impact on travel is unknown. One of the limitations of this study is that we are not able to estimate this impact on regional travel.

Our analysis suggests Turlock's downtown initiatives resulted in benefits for the region, the city and its households. Some might argue that the impacts on economic activity—and the benefits—were merely redistributive, and that they would have occurred elsewhere if not for the plans. From the point of the city, however, the fact that they occurred in Turlock is a positive. Our analysis shows the increased business activity was confined to local, independent investors and small-scale establishments. The impacts were modest compared to the apparent downtown plans' ambitions.

Some might also argue the benefits to the city and its residents are not fully captured in the available data. Perhaps the renewed downtown contributed to residents' sense of place and pride in the city that distinguishes Turlock from elsewhere in the Central Valley—and is difficult to quantify. Interviewees argued that, compared to other communities in the Central Valley, Turlock was able to recover from the recession faster and is now better positioned to take advantage of an anticipated future increase in demand for downtown living and shopping. According to these advocates, future benefits will be greater. The small uptick in commercial activity in the years since 2011 appears to support this hypothesis, although it is too soon to tell whether these predictions will bear out in the future.

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Appendix A: Plan area and Census tract boundaries

Appendix B: Interviewees

Name	Title	Organization
Michael Cooke	Director of Municipal Services	City of Turlock
Dana McGarry	Planner/Coordinator	Turlock Downtown Property Owners Association
Eric Picciano	Principal Civil Engineer/Chief Building Official	City of Turlock
Michael Pitcock	Director of Development Services	City of Turlock
Katie Quintero	City Planner	City of Turlock
Sharon Silva	CEO	Turlock Chamber of Commerce
Deborah Whitmore	Deputy Planning Director	City of Turlock

Appendix C: Additional employment, business activity and commercial property figures

Table 124: Employment by sector in plan area and Turlock

	Plan Area				City of Turlock (excluding plan area)			
	1991	2001	2011	% Change (2011-1991	1991	2001	2011	% Change (2011-1991
Total Employment	2,788	3,533	3,266	17%	15,365	18,912	19,931	30%
Construction	67	645	235	251%	660	943	1,255	90%
Real Estate	95	67	72	-24%	201	359	411	104%
Public Administration	36	120	108	200%	12	149	166	1283%
Retail	703	686	447	-36%	1339	2,131	3,326	148%
Arts, Entertainment, and Recreation	2	14	69	3350%	66	198	221	235%
Accommodation and Food Services	215	260	308	43%	770	1134	1464	90%
Professional, Scientific, and Technical Services	131	232	374	185%	141	285	638	352%
All other sectors	1,539	1,509	1,653	7%	12,176	13,713	12,450	-23%

Source: National Establishment Time Series (NETS)

Table 125: Number of establishments by sector in plan area and Turlock

	Plan Area				City of Turlock (excluding plan area)			
	1991	2001	2011	% Change (2011-1991	1991	2001	2011	% Change (2011-1991
Total Establishments	316	418	554	75%	866	1477	3312	282%
Construction	7	9	19	171%	95	128	330	247%
Real Estate	13	15	27	108%	53	83	129	143%
Public Administration	1	5	6	500%	1	6	8	700%
Retail	89	96	90	1%	135	228	396	193%
Arts, Entertainment, and Recreation	1	5	11	1000%	9	25	38	322%
Accommodation and Food Services	25	25	26	4%	46	80	97	111%
Professional, Scientific, and Technical Services	26	43	73	181%	45	106	299	564%

Source: NETS

Table 126: Sales by sector, plan area and Turlock (in millions, nominal dollars)

	Plan Area				City of Turlock (excluding plan area)			
	1991	2001	2011	% Change (2011-1991	1991	2001	2011	% Change (2011-1991
Total sales	342	397	559	63%	1193.2	1772.0	2083.2	75%
Construction	89	58	13	-85%	67.2	155.9	168.8	151%
Real Estate	6	5	5	-11%	19.5	37.0	35.9	84%
Public Administration	0	-	-	-	0.0	0.0	0.0	-
Retail	88	105	64	-28%	159.9	265.7	546.9	242%
Arts, Entertainment, and Recreation	0	1	9	-	3.2	34.1	15.2	376%
Accommodation and Food Services	6	9	10	57%	20.8	35.7	50.7	143%
Professional, Scientific, and Technical Services	8	17	28	242%	8.7	24.8	41.5	380%

Source: National Establishment Time Series (NETS)

Additional Employment and Commercial property figures: counterfactual

Table 127: Jobs in City of Turlock (excluding plan area) – observed and counterfactual

	1991	2011	Observed 2011-1991	% Change 2011-1991	Counter -factual 2011	Counter-factual 2011-1991	% Change 2011-1991	Difference Observed - Counter-factual
Total jobs in plan area	15,365	19,931	4,566	30%	20,155	4,790	31%	(224)
Construction	660	1,255	595	90%	1,255	595	90%	-
Real Estate	201	411	210	104%	421	220	109%	(10)
Public Administration	12	166	154	1283%	238	226	1883%	(72)
Retail	1,339	3,326	1,987	148%	3,326	1,987	148%	-
Arts, Entertainment, and Recreation	66	221	155	235%	221	155	235%	-
Accommodation and Food Services	770	1464	694	90%	1464	694	90%	-
Professional, Scientific, and Technical Services	141	638	497	352%	780	639	453%	(142)

Source: NETS

Table 128: Sales from establishments in City of Turlock (excluding plan area) - observed and counterfactual (in millions, nominal dollars)

	1991	**2011**	**Observed 2011-1991**	**% Change 2011-1991**	**Counter -factual 2011**	**Counter-factual 2011-1991**	**% Change 2011-1991**	**Difference Observed - Counter-factual**
Total sales	$1,193	$2,083	$890	75%	$2,095	$902	76%	$(11.56)
Construction	$67	$169	$102	151%	$169	$102	151%	$-
Real Estate	$20	$36	$16	84%	$36	$17	87%	$(0.54)
Public Administration	$-	$-	$-	0%	$-	$-	0%	$-
Retail	$160	$547	$387	242%	$547	$387	242%	$-
Arts, Entertainment, and Recreation	$3	$15	$12	376%	$15	$12	376%	$-
Accommodation and Food Services	$21	$51	$30	143%	$51	$30	143%	$-
Professional, Scientific, and Technical Services	$9	$42	$33	380%	$53	$44	507%	$(11.01)

Source: NETS

Table 129: Elasticity estimates from the literature for agglomeration effects on office space

Study	Context	Independent variable	Dependent variable	Elasticity (low)	Elasticity (high)
Sitivanidou (1996)	LA, office-commercial properties in commercial nodes	employment in finance, legal, and business services per resident	assessed property value per sq ft of land	0.00110	0.00146
		retail employment per resident	assessed property value per sq ft of land	-0.0306	0.0358
Bollinger et al. (1998)	Atlanta, office space, 1990, 1994, and 1996	executive, managerial, and professional jobs in tract/these jobs in region	quoted annual rent per sq ft	0.0771	0.105
		FIRE, business, and repair service jobs in tract/these jobs in region	quoted annual rent per sq ft	0.0981	-