

# Folsom Boulevard

## COMPLETE STREET MASTER PLAN



April 8, 2016

Prepared by:



*Made possible by a California Department of Transportation Community-Based Transportation Planning Grant*

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April 8, 2016

*Prepared for:*

Sacramento County  
Department of Transportation

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## EXECUTIVE SUMMARY

The Folsom Boulevard Complete Street Master Plan (FBCSMP) will provide guidance for the construction of Folsom Boulevard as a Complete Street from Watt Avenue to Bradshaw Road and from Hazel Avenue to the City of Folsom. The document will provide a planning foundation to increase mobility, safety and accessibility by advancing the community's vision to revitalize Folsom Boulevard as a compact, mixed use, transit rail corridor. The plan is funded by a Caltrans Community Based Transportation Planning Grant and will allow the County to apply for future design and construction funding.

The goals of the Folsom Boulevard Complete Street Master Plan are as follows:

- **Preserve the Transportation System:** Maintain, manage, and efficiently utilize the County's existing transportation system.
- **Improve Mobility and Accessibility:** Expand the existing transportation system and enhance multi-modal choices and connectivity to meet the County's future transportation demands.
- **Support the Economy:** Maintain, manage, and enhance the movement of goods and people to spur the economic development and growth, job creation, and trade.
- **Enhance Public Safety and Security:** Ensure the safety and security of people, goods, and services for all modes of transportation.
- **Reflect Community Values:** Provide smart growth transportation solutions that balance and integrate community values with transportation safety and performance, and encourage public involvement in transportation decisions.
- **Enhance the Environment:** Plan and provide transportation services while protecting environment, wildlife, historical and cultural assets.



*Currently Folsom Boulevard has minimal accommodations for bicycles and pedestrians*



*Figure 1 Rendering of Folsom Boulevard with complete street improvements looking east near the Aerojet Drive*

Folsom Boulevard's transition from an automobile-centric corridor to a local complete street to better accommodate active modes of transportation and transit oriented development is already underway. The City of Rancho Cordova has completed three phases of improvements to Folsom Boulevard with two more in the planning/design phase. Typical improvements with these projects include landscaped medians, continuous sidewalk improvements on both sides of the street, lighting, and bike lanes.

Recommendations from the FBCSMP have been crafted to perpetuate these improvements while being consistent with County design standards. Key recommendations include:



There are five light rail stations along RT's Gold Line within the project area

- Continuous sidewalks on the south side of Folsom Boulevard that are well-lit, connect existing light rail stations, and provide an alternate path of travel for pedestrians and bicyclists to avoid driveway conflicts on the north side of Folsom Boulevard.
- Continuous bike lanes on both sides of the street with a 3' painted buffer that separates bicyclists from automobile traffic.
- Raised medians that are landscaped to promote traffic calming and beautify the corridor. Median breaks will be identified in the design phases of work to provide access to existing businesses and emergency vehicles.
- Safer pedestrian crossings of Folsom Boulevard to provide better access to existing light rail stations and the American River Parkway. Intersections will be improved to provide U-turn movements where practical.
- Sidewalk gap closures on the north side of Folsom Boulevard and driveway consolidation to minimize conflict points between pedestrians, bicyclists, and automobiles.
- Landscaping throughout the corridor that will include shade trees, shrubs, and groundcover. The landscaping will make the corridor more inviting, add to the identity of the area, and serve as a buffer between pedestrian and vehicular areas.

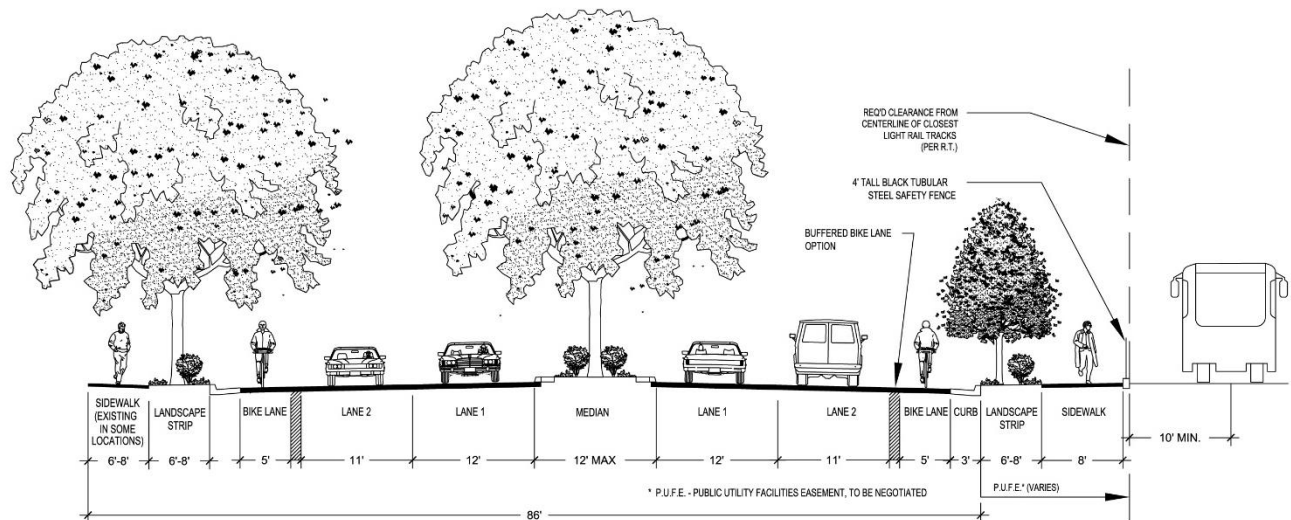


Figure 2- The proposed cross section of the FBCSMP



As part of the master planning effort, a community survey was circulated to help the project team identify existing activity on Folsom Boulevard and gauge interest in potential improvements. Responses to the preliminary concepts of the master plan were overwhelmingly positive. Over half of the respondents said they would frequent Folsom Boulevard businesses more often if the plan is implemented.

Preliminary cost estimates for all improvements identified in the Folsom Boulevard Complete Street Master Plan are approximately \$20M between Watt Avenue and Bradshaw Road and \$8M between Hazel Avenue and the Highway 50 interchange. With these costs it may not be practical to construct the project in its entirety as a single construction project. Instead, the project will likely have to be phased in segments similar to the approach taken by the City of Rancho Cordova.



*Attendees at the FBCSMP public workshop*



*Bifurcated sidewalk construction along Folsom Boulevard within Rancho Cordova*



*The Sacramento Regional Transit Gold Line runs parallel to Folsom Boulevard and creates opportunities for transit riders but also has challenges for automobiles at the various at-grade crossings.*

# Chapter 1

## INTRODUCTION

The Folsom Boulevard Complete Street Master Plan will provide guidance for the construction of Folsom Boulevard as a Complete Street from Watt Avenue to Bradshaw Road and from Hazel Avenue to the City of Folsom. The document will provide a planning foundation to increase mobility, safety and accessibility by advancing the community's vision to revitalize Folsom Boulevard as a compact, mixed use, transit rail corridor that blends residential development with employment and retail opportunities in a place where all transportation modes are safe, available, and interconnected for improved usability.

The planning area is located along Folsom Boulevard within the northeast area of unincorporated Sacramento County. The western limit begins at the intersection of Folsom Boulevard and Watt Avenue and extends east for approximately 2.5 miles to the intersection of Folsom Boulevard and Bradshaw Road, and for approximately 0.5 miles from Hazel Avenue to the Highway 50 interchange. The unincorporated County project includes plans for improved connectivity with adjacent transportation facilities in the cities of Sacramento, Rancho Cordova, and Folsom.

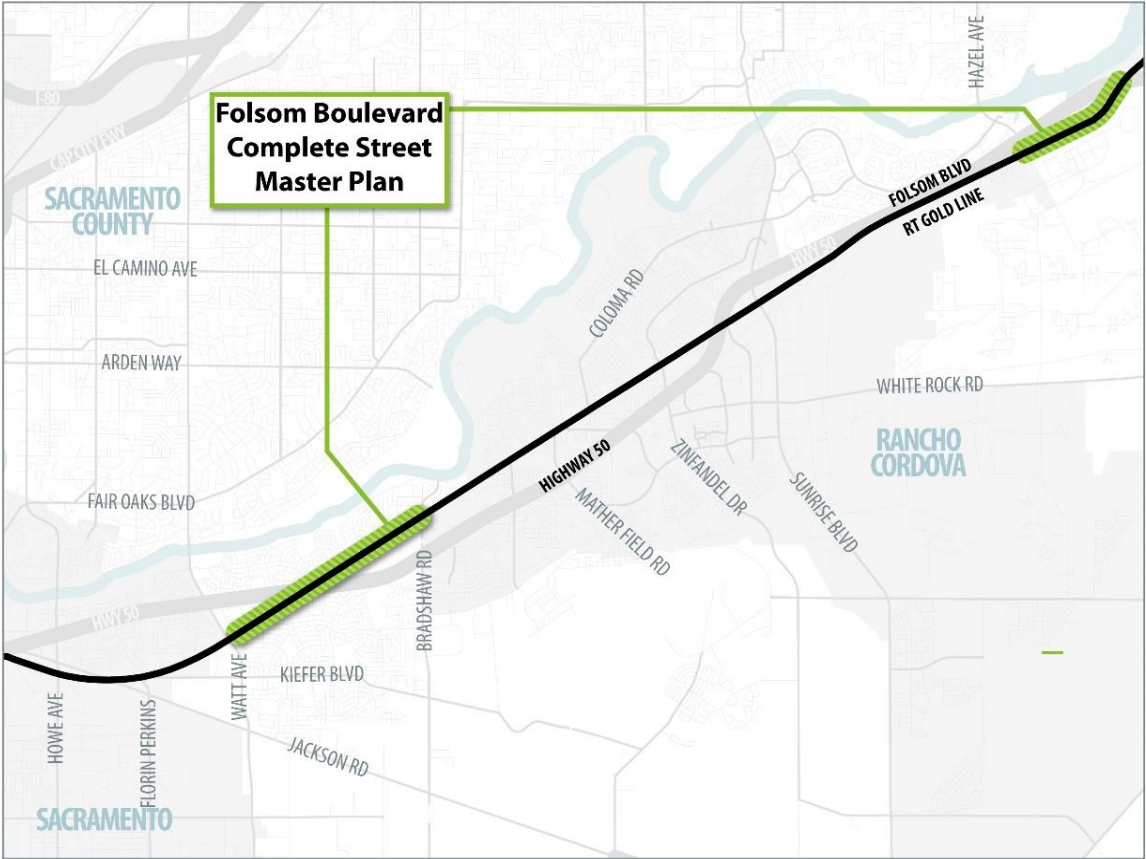


Figure 3 -The FBCSMP covers the portions of Folsom Boulevard in unincorporated Sacramento County between the Cities of Sacramento, Rancho Cordova, and Folsom.

The planning area has four east-west transportation routes accommodating various modes of travel including Folsom Boulevard, Highway 50, Union Pacific Rail Road heavy rail spur, and Regional Transit's light rail line. The Watt-Manlove and Butterfield Light Rail Stations, which are located within the project area, are the focus of a County-initiated plan for smart growth and transit oriented development.

The existing section of Folsom Boulevard within the FBCSMP area is four travel lanes with a center two-way left turn lane. Speed limits are between 35 and 45 miles per hour. Existing suburban communities have relatively low population density although plans for revitalization will allow higher densities to support and take advantage of the available transit. Existing facilities for bicycling and walking are deficient. The transit oriented mixed use development and flat topography will encourage walking and bicycling for transportation and transit access, especially if adequate access, bike lanes, and sidewalks are available.



*Folsom Boulevard at Hazel Avenue*

## Corridor History

Folsom Boulevard was originally a wagon and stagecoach route to and from Sutter's Fort and the town of Coloma. In 1856, the Sacramento Valley Railroad completed a rail corridor connecting Sacramento to Placerville, and shortly thereafter Folsom Boulevard was constructed parallel to the railroad tracks. Over the next fifty years, Folsom Boulevard slowly developed as an agricultural corridor with the cultivation of grain, grapes, and fruit orchards but remained sparsely populated.



*Historic Folsom Boulevard near Mather Field*

This changed during World War I with the construction of Mather Field near what is now Rancho Cordova. Mather Field provided a large employment center directly adjacent to Folsom Boulevard, and the corridor developed with residential and commercial businesses to support servicemen and their families. Folsom Boulevard became the "Main Street" for this development and served as part of the original Lincoln Highway.

In the 1970's, the Lincoln Highway was bypassed by Highway 50. This changed the character of Folsom Boulevard from an active "Main Street" to a local arterial

and the corridor began to change character. However, the corridor began to repurpose itself with the extension of Regional Transit's Gold Line to the Mather Field Station in 1998. This kick-started a significant amount of transit oriented development to capitalize on this new transit asset. Redevelopment of the corridor has already begun in Rancho Cordova, which constructed 3.5 miles of complete street improvements.

## Pedestrian Master Plan and General Plan Policy Documents

In November 2007, the Board of Supervisors approved the Sacramento County Pedestrian Master Plan (SCPMP) which establishes goals and strategies to increase pedestrian safety and improve walkability in the Sacramento County unincorporated area. Development of projects included in the SCPMP will enhance walking as a viable transportation alternative and help make Sacramento County a better place to live. Walkable communities add to personnel health and recreation, make neighborhoods more livable and help to reduce pollution.

In the SCPMP, Folsom Boulevard was identified as a Pedestrian District. The main purpose of Pedestrian Districts is to emphasize pedestrian needs along sections of road where pedestrian demand is or could be high, based on adjacent land uses and transit activity. Some of the treatments that could be used within Pedestrian Districts include:

- Bicycle lanes
- Sidewalk enhancements and curb extensions
- Longer pedestrian intervals at signalized intersections
- Midblock crossings
- On-street parking
- Lower speed limits to 30 miles per hour or lower
- Pedestrian-scaled lighting
- Road diets
- Street trees or bus shelters

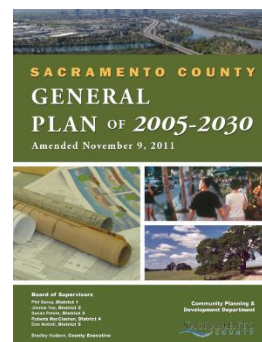


On November 9, 2011, the Sacramento County Board of Supervisors adopted an updated General Plan. The planning horizon of the County's previous General Plan was 1990 to 2010; the updated General Plan's planning horizon looks out to 2030. Key changes include a new growth management strategy, a stronger focus on addressing existing communities and revitalizing aging commercial corridors, a new Economic Development Element, and strategies to reduce greenhouse gas emissions consistent with state law.

The General Plan introduced "Smart Growth Streets" with the goal of enabling safe and efficient mobility and access for all users while positively contributing to adjacent corridors, the surrounding community, and the natural environment. In the 2030 General Plan Folsom Boulevard was identified as a possible smart growth street.

Smart growth design objectives include:

- Incorporate "green infrastructure" to the greatest extent feasible.
- Create and/or improve community identity by coordinating improvements to the streetscape and the surrounding corridor to achieve a consistent look and feel or carry through a specific "theme."
- Create an "outdoor room" along the street to establish a sense of place and improve the comfort and overall experience of all users, particularly pedestrians and bicyclists.
- Create communities and corridors using a holistic perspective when considering land uses and the design context of street and corridor improvements.
- Encourage the use of shared driveways to reduce the total number of driveways along a Smart Growth Street to improve overall mobility and safety for all modes of travel.
- Encourage the use of shared parking facilities and reduced parking requirements.
- Design corridors that equitably accommodate all users, and complement the unique characteristics of the surrounding community and mix of uses.



## Master Plan Goals

Today, concerns about air quality, public health, traffic congestion and climate change are directing local government to provide more non-motorized transportation choices in a "Complete Street" context. Folsom Boulevard has the advantage of being served by existing heavy and light rail lines; however, the critical bike lanes and sidewalks needed to connect the surrounding neighborhoods to transit stations and business have huge gaps impacting mobility and access for pedestrians and cyclists. The landscaping is sparse to nonexistent allowing no protection from the sun and heat or adjacent traffic. Masonry walls limit pedestrian access to transit and services and are often in poor condition, negatively impacting the aesthetics of the neighborhood.

The County's revitalization efforts to advance transit oriented development (TOD) along the Folsom Boulevard Corridor lack the needed non-motorized transportation infrastructure to support TOD projects. A number of land use plans have been prepared to change the corridor from its automobile-centric history to one where people can live, work and play without relying on the automobile. However, in order for those smart growth plans to be successful and support the County's efforts toward a healthy built environment, a Folsom Boulevard Complete Street Master Plan must be prepared and implemented.



*The existing transit stations along Folsom Boulevard create an opportunity for transit oriented development.*

The goals of the Folsom Boulevard Complete Street Master Plan are as follows:

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- **Enhance the Environment:** Plan and provide transportation services while protecting environment, wildlife, historical and cultural assets.

# Chapter 2

## PREVIOUS STUDIES

Folsom Boulevard is a corridor with regional significance to the Sacramento area. It served as the main automobile and commercial route between the City of Sacramento and the City of Folsom until the construction of Highway 50 in the 1970's. With the resulting changes in traffic patterns, the corridor is slowly being repurposed from an automobile-centric route to a multi-modal complete street.

As a result of this transition, the corridor has been studied extensively by the City of Sacramento, Sacramento County, and the City of Rancho Cordova as shown below in Figure 4 - Over the past decade multiple planning studies and construction projects have contributed to the transformation of Folsom Boulevard to an active complete street that can accommodate all modes of transportation.. The Folsom Boulevard Complete Street Master Plan addresses two of the last remaining segments of Folsom Boulevard within the unincorporated County limits that have not been previously studied. This includes Folsom Boulevard between Watt Avenue and Bradshaw Road, and from Hazel Avenue to the City of Folsom's limits at Highway 50.

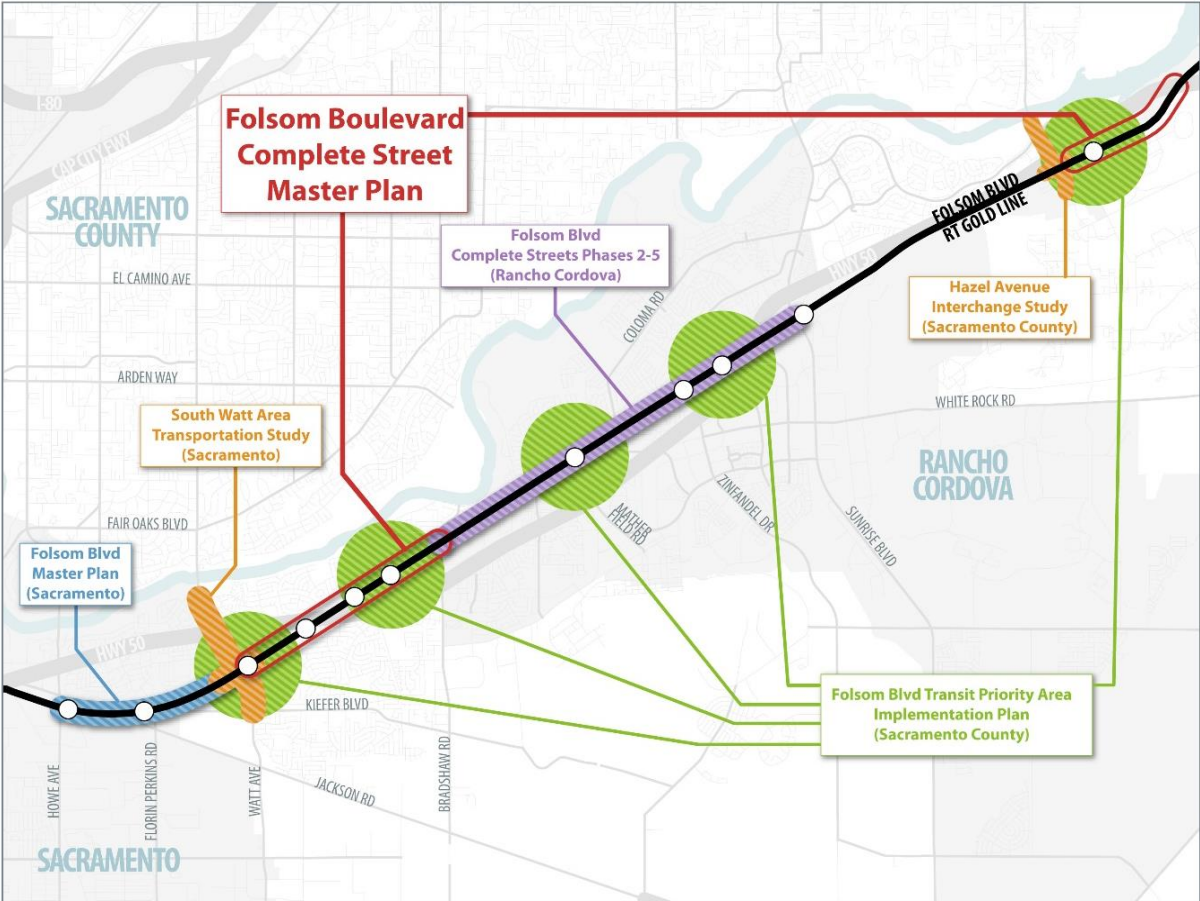


Figure 4 - Over the past decade multiple planning studies and construction projects have contributed to the transformation of Folsom Boulevard to an active complete street that can accommodate all modes of transportation.

In order to maximize the benefit of the FBCSMP, it will be critical that the document builds on the existing planning that has been done along the corridor with specific recommendations that are tailored to Sacramento County's design standards. However, the document must consider the regional development of the corridor in its entirety to ensure continuity with projects already completed by the County, the City of Sacramento, and the City of Rancho Cordova.

## SWATS Study (2002)

The South Watt Area Transportation (SWATS) Study analyzed operational deficiencies at the Folsom Boulevard/Watt Avenue intersection and identified a series of "near term" and "long term" solutions for improving intersection capacity and operations. This included a multi-agency, multi-modal review process that included recommendations for bicycle, pedestrian, and transit facilities, and improvements to light rail operations at the intersection.

Improvements identified in the study include:

- A grade separation of the light rail tracks crossing Watt Avenue along Folsom Boulevard.
- Improvements to the Watt Avenue/Highway 50 interchange to address operational deficiencies and improve bicycle and pedestrian access across Highway 50.
- A grade separation of the Watt Avenue and Folsom Boulevard intersection

The County of Sacramento completed the grade separation of the light rail tracks in 2009, and improvements to the Watt Avenue interchange in 2015. The study identified the grade separation of the Watt Avenue and Folsom Boulevard intersection as a "long term" improvement beyond the 2025 planning horizon.

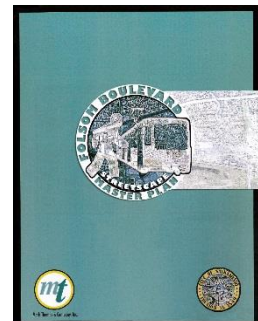
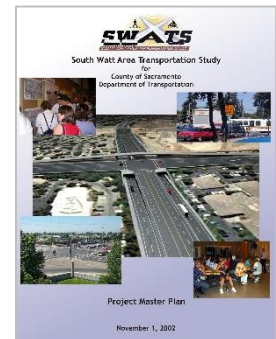
## Folsom Boulevard Master Plan (2007)

The Folsom Boulevard Master Plan was completed by the City of Sacramento in 2007 and identified improvements along Folsom Boulevard between Howe Avenue and Watt Avenue. Land use along this segment is predominantly industrial on the south side of Folsom Boulevard with mixed commercial and residential uses to the north. This segment of Folsom Boulevard was identified by the City as a key corridor for future redevelopment to address changes in traffic patterns and economic conditions.

The plan outlines comprehensive, multi-modal improvements to the corridor that are intended to improve bicycle, pedestrian, and motorist safety, enhance connectivity along Folsom Boulevard to existing Regional Transit facilities, and to beautify the corridor with streetscape enhancements that encourage future development. Specific recommendations in the plan include:

- Bike Lanes on Folsom Boulevard
- Bifurcated sidewalks on the north side of Folsom Boulevard from Power Inn Road to Watt Avenue, and on the south side of Folsom Boulevard from Power Inn Road to Julliard Avenue.
- Streetscape enhancements that include landscaping and hardscape improvements.
- Signal operation improvements including a new signal at the College Greens Shopping Center.
- A screening wall at the Power Inn Road PG&E substation
- Utility Undergrounding

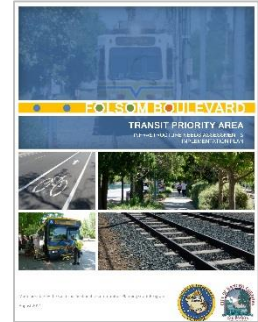
The improvements were vetted with the public through a series of focus group meetings, a public meeting, business and homeowner association meetings, and an extensive outreach effort with a questionnaire. The study includes



preliminary cost estimates, phasing recommendations, and recommendations for landscaping maintenance strategies.

## Folsom Boulevard Transit Priority Area Infrastructure Needs Assessment and Improvement Plan (2014)

The Folsom Boulevard Transit Priority Area (TPA) Infrastructure Needs Assessment and Implementation Plan identified existing infrastructure barriers to infill development at five existing light rail stations on Sacramento Regional Transit's Gold Line including the Watt/Manlove Station, Butterfield Station, Mather Fields/Mills Station, Cordova Town Center Station, and Hazel Station. Recommended infrastructure improvements from the study will position the stations areas for future redevelopment opportunities that are consistent with the Sacramento Region Blueprint vision that promotes compact, mixed-use development as an alternative to low-density development.

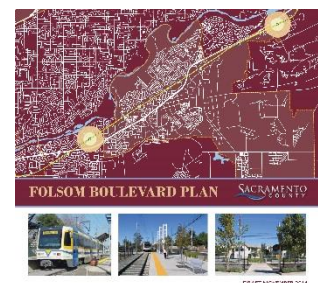


The study documents specific infrastructure improvements that build on the existing light rail station assets to advance and incentivize transit-oriented development and create a more compact and interconnected region. For each station, the following categories of infrastructure recommendations were identified:

- Circulation improvements that address bicycle and pedestrian connectivity issues between the light rail stations and surrounding areas, particularly access to the stations across barriers such as Highway 50 and railroad tracks. Recommendations are also made for enhanced bicycle and pedestrian facilities on Folsom Boulevard, the surrounding neighborhoods, and the station areas.
- Water infrastructure improvements that address updates to the potable water delivery system necessary to accommodate future development and fire flow requirements.
- Storm drainage improvements necessary to address future changes in impervious surfaces and storm water treatment associated with redevelopment.
- Sewer system upgrades to accommodate future development.

## Draft Folsom Boulevard Plan (2015)

The Folsom Boulevard Plan sets a framework for future transit-oriented development at the Butterfield and Hazel light rail stations that is consistent with Sacramento County's General Plan. The plan addresses land use, circulation, development, and implementation strategies for the two stations with the intent to transform Folsom Boulevard into a mixed-use, transit-supportive community.



The goal of the plan is to support transit ridership and compact development patterns that reduce greenhouse gas emissions. To meet this goal, the plan specifically addresses the following:

- Recommendations for multimodal transportation, land use, and greenhouse gas reduction strategies
- Corridor and streetscape improvements
- Safe station and neighborhood access
- Conceptual land use and transit-oriented opportunities at the Butterfield and Hazel light rail stations
- Recommendations for development standards and site development opportunities
- Identification and prioritization of infrastructure and facility investments
- Recommendations for funding and implementation



The plan sets a framework that integrates land use and transportation planning to encourage a mixed use of residential and commercial development, provide alternate housing choices for residents in Sacramento County, and encourage the use of transit, walking, and bicycling.

## Folsom Boulevard Complete Street Projects (Ongoing)

The City of Rancho Cordova has been at the forefront of redeveloping Folsom Boulevard. In 2005, the *Folsom Boulevard & Mather Field Road Streetscape Enhancement Master Plan* set a vision for the corridor within City Limits. This document was refined in 2006 with the *Folsom Boulevard Specific Plan*, which has served as the guiding document for five distinct construction projects within the City of Rancho Cordova. The first phase of work was completed in 2007, with the fifth and final phase having recently received funding for plan development and construction.

### Folsom Boulevard Complete Street Project, Phase 1 (2007)

Phase 1 Improvements on Folsom Boulevard included the installation of raised, landscaped center medians on Folsom Boulevard from Mather Field Road to Zinfandel Drive. While this first phase of work was limited to beautification and traffic calming along the corridor, it served as an important catalyst that built momentum for subsequent phases of work.

Left turn and U-turn lanes were included in the configuration of the medians. Right of Way Acquisition was necessary at some intersections to allow for U-turn movements. Each intersection affected by this construction was upgraded to meet ADA compliance. The project was designed and phased to minimize impacts to existing businesses and avoid utility relocations and the undergrounding of utility and power lines.



*Phase 1 median improvements*

### Folsom Boulevard Complete Street Project, Phase 2 (2010)

Phase 2 of the Folsom Boulevard Complete Street Project added sidewalks, bike lanes, lighting, and additional landscaped medians on Folsom Boulevard between Mather Field Road and Sunrise Boulevard.

Sidewalk gap closures were completed on the north side of Folsom Boulevard to provide a continuous path of travel along the length of the segment. These sidewalks were typically attached to the roadway along the existing path of travel, but bifurcated sidewalks were constructed in locations where there was sufficient right-of-way. Continuous bifurcated sidewalks were constructed on the south side of Folsom Boulevard and designed to avoid impacts to light rail operations, existing trees, and unnecessary utility impacts. The project included continuous bike lanes on both sides of Folsom Boulevard.



*Phase 2 complete street improvements*

### Folsom Boulevard Complete Street Project, Phase 3 (2012)

Phase 3 of the Folsom Boulevard Complete Street Project extended the improvements from Phase 2 from Rod Beaudry Drive to Mather Field Road. The improvements were instrumental to the development of the new Los Rios Folsom Lake Satellite Campus at Mather Field Road.

## Folsom Boulevard Utility Undergrounding Feasibility Memo (2013)

One of the recommendations from the *Folsom Boulevard Specific Plan* that the first three phases of work did not address was the undergrounding of communication and low-voltage utilities that run along the south side of Folsom Boulevard. In 2013 the City of Rancho Cordova prepared a memorandum outlining the process necessary to create an undergrounding district to successfully underground these facilities. While technically feasible, it was determined at that time the process was cost prohibitive for the City given the more pressing multi-modal needs of the corridor and the remaining phases of work to be constructed.



*Folsom Boulevard contains many underground and overhead utilities*

## Folsom Boulevard Complete Street Project, Phase 4 (Ongoing)

Phase 4 of the Folsom Boulevard Complete Street Project is currently being designed and will improve Folsom Boulevard between Horn Road and Rod Beaudry Road with the same improvements constructed in Phase 2 and Phase 3. The project will also enhance pedestrian accessibility to the future Horn Road light rail station.

## Folsom Boulevard Complete Street Project, Phase 5 (Ongoing)

The City of Rancho Cordova was recently successful in securing design and construction funding for the fifth phase of improvements between Bradshaw Road and Horn Road. The project will include sidewalk gap closures on the north side of Folsom Boulevard, bifurcated sidewalks on the south side, lighting, landscaped medians, and continuous bike lanes. When completed, Folsom Boulevard will be a complete street within the Rancho Cordova City limits.

## Hazel Avenue/Highway 50 Interchange Project

Sacramento County is currently preparing an Environmental Assessment/Environmental Impact Report (EA/EIR) for improvements to the Hazel Avenue/Highway 50 interchange. Multiple alternatives are being studied, but in general the project consists of an extension of Hazel Avenue south to a proposed intersection with the future Atlanta Street, a grade separation of Hazel Avenue over Folsom Boulevard and the Sacramento Placerville Transportation Corridor – Joint Powers Authority rail corridor, and modifications to Highway 50. The project will include approximately 2,300 feet of Folsom Boulevard corridor improvements including sidewalks, street lighting, and landscaping.



*Sketch of one of the concepts for the Hazel Avenue Interchange Project*

## Coincidence Matrix

In summary, there has been an extensive amount of work on the Folsom Boulevard corridor that precedes the FBCSMP. It will be important for the regional success of the corridor that the recommendations from this study are consistent with previous planning efforts and perpetuate recent improvements within the context of the County's roadway design standards and General Plan. A common element among most of these projects include recommendations for bicycle, pedestrian, and transit improvements. Other common elements include encouraging redevelopment opportunities, identifying future infrastructure needs, improving traffic operations, constructing landscaped medians, improving LRT operations, providing streetscape enhancements, and identifying utility conflicts:

### Bicycle Improvements

Almost all of the planning documents and construction projects identify the need for continuous and safe bicycle routes on Folsom Boulevard, and the need to provide convenient access to regional amenities like the American River Bike Trail, residential neighborhoods, and light rail stations.

### Pedestrian Improvements

Both the City of Sacramento and Ranch Cordova have similar cross sections for pedestrian improvements including closing existing gaps in the pedestrian path of travel on the north side of Folsom Boulevard, constructing a continuous and well-lit separated sidewalk on the south side, and identifying locations for improved pedestrian crossings.

### Transit Improvements

Although most of the planning and construction projects to date have been led by agencies without the jurisdictional responsibility to improve transit operations, a significant amount of coordination has been conducted with Regional Transit to maintain and improve access to their facilities.

### Encourage Redevelopment Opportunities

The changing nature of Folsom Boulevard from its original designation as a State Highway to its evolving status as a local "Main Street" should consider and encourage changes in land use in addition to roadway improvements. Multiple planning documents have identified the importance of higher density, mixed-use infill development to maximize the potential of the existing transit facilities along the corridor. The Folsom Boulevard Complete Streets Project has already attracted development projects such as the Los Rios Folsom Lake Satellite Campus, "The Landing" entertainment and retail project, and the residential mixed-use Kassis development.

### Identify Future Infrastructure

Multiple studies have been conducted within a quarter- and half-mile radius of existing light rail stations to identify the infrastructure improvements necessary to support future transit-oriented development. Given the extensive research done with these studies, it is not anticipated that additional infrastructure analysis will be required with this master plan. However, recommendations from the plan should be compatible with the findings of the previous studies.

### Improve Traffic Operations

Early planning projects on Folsom Boulevard were sensitive to impacts on traffic operations. The SWATS project in

particular had a stated objective to improve intersection capacity and operations with improvements to the Watt Avenue intersection and interchange. This methodology has changed slightly with the approval of the 2011 General Plan which identifies “Smart Growth Streets” and relaxes some of the LOS requirements on corridors like Folsom Boulevard that anticipate a significant amount of pedestrian, bicycle, and transit use. While it will be important in the master plan to consider automobile traffic operations in the recommendations, other factors should also be considered when determining the future development on the corridor.

### Landscaped Medians

Both the planning efforts of the City of Sacramento and construction efforts of the City of Rancho Cordova have included landscaped medians. Landscaped medians promote traffic calming, beautify the corridor, and improve traffic safety. When designing landscaped medians, it is important to consider access to businesses and include median breaks as necessary.

### LRT Operations

With the exception of the SWATS study which addressed light rail transit (LRT) operations across Watt Avenue, the specific operations of light rail are largely outside the jurisdiction of the lead agencies on previous projects. However, many of these projects have been sensitive to LRT operations including improving station access, station enhancements, ADA upgrades, and providing sufficient clearance from the center of the northernmost track to any proposed improvements.

### Streetscape Enhancements

Streetscape enhancements that have been recommended in past projects include landscaping adjacent to buffered sidewalks and in medians, pedestrian-scale lighting, wayfinding, and hardscape improvements.

### Utility Conflicts

Folsom Boulevard’s lengthy history includes use as a utility corridor connecting Sacramento to Folsom. Identifying and relocating utilities was identified by the City of Sacramento in their Folsom Boulevard Master Plan, and has proven difficult in the City of Rancho Cordova for some phases of construction. Undergrounding utilities has been analyzed by the City of Sacramento and Rancho Cordova, but deemed cost prohibitive for both jurisdictions at this time.

Project	Year	Bicycle Improvements	Pedestrian Improvements	Transit Access	Encourage Redevelopment	Identify Future Infrastructure	Improve Traffic Operations	Landscaped Medians	LRT Operations	Streetscape Enhancements	Utility Conflicts
SWATS	2002	X	X	X			X		X		
Folsom Boulevard Master Plan (Sacramento)	2007	X	X	X	X		X	X	X	X	X
Folsom Boulevard TPA	2014	X	X	X	X	X			X		
Folsom Boulevard Plan	2015	X	X	X	X	X			X	X	
Folsom Boulevard Complete Street Projects											
Folsom Boulevard and Mather Field Streetscape Enhancements	2005	X	X	X	X			X	X	X	X
Folsom Boulevard Specific Plan	2006	X	X	X	X			X	X	X	X
Phase 1	2007				X			X	X		
Phase 2	2010	X	X	X	X			X	X	X	X
Phase 3	2012	X	X	X	X			X	X	X	X
Utility Undergrounding Memo	2013								X		X
Phase 4	Ongoing	X	X	X	X			X	X	X	X
Phase 5	Ongoing	X	X	X	X			X	X	X	X
Hazel Avenue/Highway 50 Interchange	Ongoing	X	X	X	X	X		X	X	X	X

Table 1- Coincidence Matrix of planning and construction projects along Folsom Boulevard

# Chapter 3

## EXISTING CONDITIONS

Two separate walk audits were held on Wednesday January 13th and Saturday January 16th, 2016, to evaluate existing conditions, identify needs, and evaluate opportunities for improvement. The walk audits spanned the north side of the Watt Avenue to Bradshaw Road segment of the project as well as both sides of the Hazel Avenue to Highway 50 interchange segment. This findings of the walk audits are summarized in this chapter.

### Watt Avenue to Bradshaw Avenue

Folsom Boulevard between Watt Avenue and Bradshaw Avenue is bordered to the north with mixed use commercial, retail, residential, and office spaces, and to the south by four light rail stations, large office/industrial parks, and single family homes. Due to existing Union Pacific and Regional Transit rail facilities, residential and industrial areas to the south of Folsom Boulevard are either walled or fenced off from the corridor, and direct access to Folsom Boulevard is only available at existing roads. The largest employer along this portion of the project is the State of California’s Franchise Tax Board Headquarters with a campus fronting over one-half of a mile of Folsom Boulevard.



Community members along with WALKSacramento staff during the walk audit of Folsom Boulevard near Watt Avenue



Figure 5 - Land uses along Folsom Boulevard between Watt Avenue and Bradshaw Road

This existing project segment includes two twelve-foot wide vehicle lanes in each direction and a continuous two way left turn lane. The 24 Hour Traffic count varies between 25,600 and 26,400 vehicles per day along different

segments of the corridor, with a posted speed limit of 45 miles per hour and no on-street parking permitted. The corridor has intermittent sidewalks (predominantly on the north side of the road) and nearly continuous bicycle lanes which are often not standard widths, on both sides of the street. The grade is consistently flat throughout the entire stretch.

There are approximately fifty driveways on the north side of Folsom Boulevard that allow two-way traffic into and out of commercial properties. Unimpeded left turn movements from the two way left turn lane creates conflict points for pedestrians and cyclists crossing these driveways. Pedestrian travel is accommodated at the frontage of these locations with attached sidewalks with either rolled or vertical curbs. The only portion of the northern stretch with a detached sidewalk is for 180 feet at the corner of Folsom Boulevard and Watt Avenue. On the south side of Folsom Boulevard, the only sidewalks are at the four light rail stations. Throughout the corridor the sidewalks are in a general state of disrepair including occasional cracks, uneven surfaces, and obstructions in the ADA path of travel.



*The many driveways along the boulevard create an uncomfortable environment for pedestrians and bicycle riders.*

The corridor contains mostly continuous Class II bike lanes along the entire stretch. Similar to the pedestrian experience, the numerous driveways on the north side of Folsom Boulevard make continuous, unimpeded bicycle travel difficult. On the approaches to some right turn conflicts, bike lanes come to an abrupt stop without notice. On the south side of the road, the bike lanes vary in size due to limited shoulder width, existing light rail stations, and utility conflicts. Signage for the presence of cyclists and the designation of bike lanes is limited.



*Attached sidewalks and and minum width Class II bike lanes that exists on portions of the boulevard can be enhanced to promote more active transprotation uses.*

There are very few pedestrian amenities such as seating, trash cans, or pedestrian scale lighting along this portion of Folsom Boulevard. The landscaping pallet varies tremendously along the corridor with intermittent trees, shrubs, and grassy areas. In several areas the landscaping either encroaches into the pedestrian right of way and/or creates potential hiding places and conflict areas. On the north side of the corridor solid walls, wood fences, and large shrubs separate residential areas from the street right-of-way. These barriers often abut sidewalks, limiting the pedestrian “shy-distance” (the distance between oncoming pedestrians as they pass each other) and diminishing the amount of available walking room. Where present, benches are within the pedestrian right of way, limiting the available walking space. Lighting along the corridor is predominantly vehicle oriented except near light rail stations. There are no lit or sheltered bus stops other than at light rail stations. Bus Route 80 runs along Folsom Boulevard between Watt Avenue and La Riviera Drive.



*Beyond the light rail shown in gold, Folsom Boulevard is served by RT busses, shown in blue.*

Of the eleven intersections along this corridor segment, only the Watt Avenue and Bradshaw Road intersections have pedestrian crosswalks striped along each leg. Very few of the numerous T-intersections are marked with pedestrian crossings or pedestrian signage. At several intersections, turn radii are particularly high allowing for high speed right turns. Additionally, many curb ramps are often not aligned with the striped crosswalk.



*Many of the existing intersections along Folsom Boulevard do not have marked crossings for pedestrians, limiting access to transit for the residents that live north of Folsom Boulevard.*

## Hazel Avenue to Highway 50

Folsom Boulevard from Hazel Avenue to the Highway 50 interchange is bordered to the north and south by a combination of commercial, industrial, and residential uses. The land uses between Hazel Avenue and Aerojet Drive, are a mix of commercial and residential uses to the north of Folsom Boulevard and a Light Rail station to the south. From Aerojet Drive to the Highway 50 interchange, uses include an auto mall that contains several different retailers predominately on the north side of Folsom Boulevard. The remaining south side of Folsom Boulevard includes a single auto mall retailer, a large Aerojet industrial facility, two smaller office parks including the Folsom Cordova Unified School District offices, and several undeveloped parcels.



Figure 6 - Land uses along Folsom Boulevard between Hazel Avenue and the Highway 50 undercrossing.

This segment of Folsom Boulevard includes two twelve-foot travel lanes separated by a semi-continuous two-way left turn lane west of Aerojet Drive, and painted or raised medians east of Aerojet Drive. The Average 24 Hour Traffic count varies between 13,200 and 13,700 vehicles per day, increasing toward the Highway 50 interchange. The posted speed limit along the corridor is 35 miles per hour with no on-street parking allowed. Sidewalk improvements are limited to the north side of Folsom Boulevard between Hazel Avenue and Aerojet Drive, and adjacent to the Hazel Light Rail Station. The existing portions of sidewalk are in good condition with minimal cracks and few uneven surfaces. The overall grade of the corridor is flat with the exception of a slight uphill climb to the east of the study limits at the Highway 50 interchange.

The boulevard facilitates bicycle travel along continuous Class II bike lanes on both sides of the road. On the north side of the road the bike lane is consistently five feet wide except in areas where additional width is provided to facilitate right turns for motor vehicles. On the south side of the road, the bike lane is consistently seven feet wide and in relatively good condition free of debris.

Due to the limited sidewalks, there are few pedestrian amenities such as benches, lighting and trashcans. Large utility poles and light fixtures encroach upon the pedestrian zone in several areas where sidewalks are present. The majority of the corridor's landscaping is between Hazel Avenue and Aerojet Drive within two landscaped medians and along the north side of the road, and grassy areas separate Folsom Boulevard from the auto mall retailers where there are no pedestrian facilities.

This eastern portion of the study includes four major four-way intersections at Hazel Avenue, Aerojet Road, Birkmont Drive, and the eastbound ramps for US 50, as well as several T-intersections created by long driveways. Crossings of Folsom Boulevard are limited to the major intersections and a mid-block crossing near Rocket Circle leading directly to the Hazel Light Rail Station.



## Utilities

Folsom Boulevard's lengthy history has encouraged its development as a significant regional utility corridor connecting Sacramento to Folsom. As part of the FBCSMP process, Utility "A" letters were mailed to utility companies listed on the County's "ABC Plan Distribution List" as of October 16, 2015. Responses to the inquiry are summarized below:

### Communications

Responses from CenturyLink, Consolidated Communications, Integra Telecom OSP Engineering, Verizon, and XO Communications were received indicating active communication facilities within the project's limits. Although no response was received from AT&T, past experience on the corridor would indicate they have active facilities on the corridor as well. The majority of these communication facilities are located on the joint poles running along the south side of Folsom Boulevard, however some utilities are located underground. Detailed utility mapping for these companies should be completed in future phases of work to avoid or minimize impacts.

### Electrical

Sacramento Municipal Utility District (SMUD) provides electrical service within the project's limits. They have existing 69kv and 12kv electrical lines on joint poles on the south side of Folsom Boulevard running the entire length of both project segments.

### Gas

Pacific Gas and Electric (PG&E) has a high pressure gas distribution main on the north side of Folsom Boulevard between Watt Avenue and Bradshaw Road.

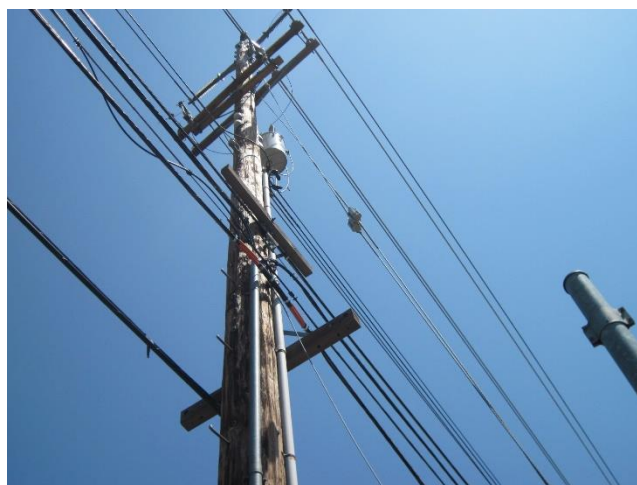
### Petroleum

Kinder Morgan has an existing 10" petroleum pipeline on the south side of the heavy rail tracks between Watt Avenue and Bradshaw. The utility mapping provided by Kinder Morgan indicates this pipeline was abandoned in 2009.

### Sewer

Both the Sacramento Area Sewer District (SASD) and Sacramento Regional County Sanitation District (SRCSD) have sewer facilities within the project's limits. SASD has a Vitrified Clay Pipe Sewer Main on the north side of Folsom Boulevard that varies from 24" and 36" between Butterfield Way and Watt Avenue. Between Highway 50 and Hazel Avenue, SASD has a 30" Vitrified Clay Pipe Sewer Main on the north side of Folsom Boulevard.

SRCSD has an interceptor line running along the south side of Folsom Boulevard between the roadway and light rail facilities. The interceptor line varies from 42" to 45" from Bradshaw Road to Butterfield Way before tying into another interceptor line and heading south outside of the project's limits. Between Highway 50 and Hazel Avenue, SRCSD has a reinforced concrete pipe mainline on the north side of Folsom Boulevard that varies between 66" and 69".



*High voltage, low voltage and communication lines are extensive on the existing pole line along the south side of Folsom Boulevard .*

## Stormwater

The County of Sacramento's Drainage Maintenance Engineering Department has extensive mapping for the conveyance of stormwater within the project's limits through drainage inlets, laterals, trunklines, and culverts. Future phases of work should be coordinated with this department to propagate existing drainage patterns and minimize impacts to the existing system. Existing roadside ditches along the light right lines will need to be analyzed for capacity to accommodate roadway widening, pedestrian improvements and water being intercepted by new curb, gutter or bio-swales.

## Water

The project is located within the service areas of California American Water Company (Watt Avenue to Bradshaw Road) and Golden State Water Company (Hazel Avenue to Highway 50). Utility mapping received from California American Water Company indicates there is a 10" water main running along the north side of Folsom Boulevard between Watt Avenue and Bradshaw Road. No utility mapping was received from Golden State Water Company.



*It is anticipated that utility relocations may be necessary during the design and construction phases of the complete street project.*

# Chapter 4

## PUBLIC SAFETY

As part of the master planning effort, a “Crime Prevention Through Environmental Design” (CPTED) assessment was completed by WALKSacramento to evaluate crime elements and the fear of crime along the Folsom Boulevard project area. The focus of this assessment was to make specific recommendations for the master plan with the goal of changing use patterns that lead to conflict and negative behaviors, and reducing opportunities for crime with implementation of the plan.

### Crime Prevention Through Environmental Design

CPTED is a crime prevention strategy based on the belief that the proper design and effective use of the built environment can lead to a reduction in the fear and incidence of crime, as well as an improvement in the quality of life and the creation of attractive, livable, and safe places. Although CPTED techniques have been used for many years to help design the built environment, it was not until more recently that a direct relationship between the design of urban spaces and criminal activities has been made. CPTED relies on four main strategies to reduce the fear and incidence of crime:

#### Natural Surveillance

Natural surveillance is the placement of physical features (windows, lighting, landscaping), activities (waiting for transit, sitting on a bench, walking), and people in a way that maximizes visibility of buildings, people, parking areas, and entrances. The objective is to increase the number of “eyes on the street” and create visual connections between the street, sidewalk, and nearby land uses. Natural surveillance can contribute to a reduction in crime because it increases the risk of being seen or apprehended. It can also reduce the fear of crime by reducing illegal activity and increasing lawful activity in an area.

#### Natural Access Control

Natural access control is a design strategy focused on decreasing the opportunity for crime by controlling access to and through a site by directing the flow of people. Sometimes physical barriers are used (fences, walls, doors, gates) but more often other features (walkways, lighting, signage, landscaping) are used to clearly guide users. Design elements can direct users to public routes and areas and discourage access to private areas.

#### Territorial Reinforcement

Territorial reinforcement uses physical attributes (fences, landscaping, sidewalks, and signage) to express ownership and distinguish between private and public space and define property lines. Lawful use of an area is encouraged while offenders are discouraged from using the space.



## Maintenance

Finally, maintenance allows the continued use of a space for its intended purpose; it can serve as an additional expression of ownership and can help maximize public safety and visibility of a space. Deterioration and debris can indicate lack of concern and control of the space, encouraging unintended uses while proper maintenance of a space

## CPTED Assessment

WALKSacramento performed the following assessments along Folsom Boulevard from Watt Avenue to Bradshaw Road, and from Havel Avenue to the Highway 50 interchange:

- CPTED Assessment on January 13, 2016, from 10:00AM to 12:00PM
- CPTED Nighttime Assessment on January 16, 2016, from 5:30PM to 7:30PM
- CPTED Afternoon Assessment on February 6, 2016, from 2:30PM to 3:30PM

In general, the north side of Folsom Boulevard between Watt Avenue and Bradshaw Road is lined with a mix of land uses including single family and multi-family residential, commercial, retail, and office developments, while the south side has light rail transit stations, single family homes, office parks, and storage facilities. Regional Transit (light rail) Gold Line runs parallel and has transit stations along the segment. Regional Transit bus service lines also serve both sides of Folsom Boulevard.



*WALKSacramento team performing a walk audit along Folsom Boulevard.*

This segment is characterized by long blocks with buildings set back and away from the sidewalk and street. The majority of buildings on the northern side are oriented to face the street and have entrances and windows facing the street and parking lots although retail and office parks have large parking lots separating buildings from the street. Wide planting strips with various types of plants separate the parking lots and residential areas from the sidewalks. On the south side, residential and industrial uses are separated from the street by fencing or concrete walls.

Folsom Boulevard from Hazel Avenue to the US 50 interchange has two lanes of traffic in both directions with a middle left turn lane and several intermittent center medians. The segment has limited sidewalks and is surrounded on the northerly frontage by residential and commercial land uses as well as large auto retailers. The southerly frontage has auto retailers, open space, office parks, and other commercial and industrial land uses.

Crime statistics from the Crime Reports database for the Sacramento County Sheriff's Department show the following crimes have been reported within the last six months on or within a half mile of the project sites:

- Assault-aggravated assault
- Assault- simple assault
- Breaking and entering-dwelling
- Burglary from a vehicle
- Burglary from a dwelling
- Weapons violation
- Theft from vehicle
- Unlawful camping
- Drugs/Narcotics
- Vandalism- Graffiti
- Vandalism- Defacing of property

## Light Rail Stations

Five light rail stations are located along the southern portion of Folsom Boulevard, four from Watt Avenue to Bradshaw Road and one at Hazel Avenue. The design of light rail stations can affect a person's decision to use transit. Several studies of transit users confirmed that safety is the highest priority at transit stations. Issues of safety may arise from known or perceived criminal activity or physical hazards, such as high volumes of vehicle traffic. These issues can be addressed by incorporating traffic calming strategies such as traffic lights, crosswalks, pedestrian islands, and physical barriers and/or separation between vehicles, bicyclists, and pedestrians.

If amenities are provided that improve comfort and safety and reduce the fear of crime, more people will be inclined to use transit. The light rail stations along Folsom Boulevard are located adjacent to the sidewalk and within view of the street but many have overgrown vegetation reducing visibility and natural surveillance, creating areas of concealment. Graffiti is found on utility boxes, ticket boxes, and signage. Benches are backless, flat, and solid concrete making them attractive for sleeping. The material and design also makes them an easy target for graffiti and skateboarding. Although, pedestrian-scale lighting is located at each transit center some trees are located next to light fixtures blocking the illumination of the area.

To improve safety at light rail stations, vegetation should be trimmed or planted away from pedestrian paths and sidewalks to avoid creating areas of concealment where a person could potentially hide. No vegetation should be taller than 2 feet above the ground and no tree canopy should be lower than 6 feet from the ground. Benches and seating areas should be designed to be comfortable for sitting so that transit users can observe activities in the immediate vicinity, but not encourage idling, sleeping, or skateboarding. Blank walls and utility boxes that are susceptible to graffiti should be minimized and coated with graffiti-resistant paint.



*Many residents reported not feeling safe waiting for light rail*



*Graffiti abatement is a constant maintenance challenge*



*Vegetation should be maintained to keep clear sight lines into the station areas.*

## Bus Stops

Similar to light rail stations, bus stop design can greatly affect a person's decision to ride the bus. Although, several Regional Transit bus service lines run along both the north and south side of Folsom Boulevard there is only one covered bus shelter near the Bradshaw Road intersection. All other bus stops are identified by only a bus stop sign post or have an uncovered, unshaded advertising bench. Several bus stops located adjacent to light rail stations are illuminated by pedestrian-scale lighting while all other bus stops rely on street lights for pedestrian lighting.

Bus stops can be improved by installing covered bus shelters with 360 degree visibility into and around each bus stop to minimize hiding places. Bus shelters should be oriented to ensure a clear line of sight from the direction of the approaching bus. Lighting fixtures should be covered, downward facing, pedestrian-scaled, and placed where they will not be blocked by vegetation or easily vandalized. Lighting levels should be consistent to minimize shadows. The design and placement of bus stop amenities such as signage, benches, trashcans, newspaper stands, and advertising should minimize hiding places. Minimize blank walls and utility boxes that are susceptible to graffiti or where possible use graffiti-resistant paint. Vegetation should be planted away from the sidewalk or bus shelters and should be taller than two feet above the ground with tree foliage no lower than six feet so as not to create areas of concealment.



*Some bus stops along the north side of Folsom Boulevard have been upgraded with shelters.*



*Many bus stops along the boulevard lack shelters and have only benches or just signs.*

## Vegetation

Overgrown trees and bushes were visible throughout the planning area. In many areas they obstruct house numbers and business names, street signs, light fixtures, sidewalks, and sightlines. They provide hiding areas being used for camping, illegal dumping, and alcohol and drug use and contribute to a fear of crime and sense of insecurity. See through fencing that would otherwise provide natural surveillance is covered by vines while vegetation areas adjacent to sidewalks encroach onto the sidewalk narrowing the walking path. In some instances, bushes have grown so tall and dense they completely block the view from the sidewalk, making it harder for patrons to locate businesses they might otherwise frequent.

Landscaping elements throughout the project area should observe the two-foot six-foot rule with no vegetation taller than two feet from the ground and no tree canopy lower than 6 feet from the ground to avoid blocking lights and to ensure clear lines of sight. Replace vegetation near blank walls, utility boxes, and other areas likely to be vandalized with ground level thorny vegetation. Remove vines and other vegetation covering fences to create clear

sight lines. Use vegetation to direct foot and vehicle traffic, express ownership, define private and public areas, and reduce opportunities for crime.



*The photos above demonstrate the overgrown or unmaintained vegetation along Folsom Boulevard*

## Signage

The FBCSMP area suffers from a lack of signage including address plaques for businesses, wayfinding and directional signs, and traffic signs. Pedestrian signage is only located at striped pedestrian crossings. Well designed and placed signage orients users, signals a transition from a public to a semi-private space, and reflects the intended uses of a space.

To improve signage along Folsom Boulevard, install wayfinding and directional signage near intersections, in parking lots, and on building facades to direct visitors to appropriate entrances and parking lots. Use signage to convey ownership and distinguish private and public areas, deterring would-be offenders. Install prominent signage near bus stops, transit stations, and emergency telephones. Include easy to read signs at all pedestrian crossings to direct pedestrians and caution to motorists to expect pedestrians. Ensure that all signs are appropriately sized and placed so they do not reduce visibility. All signs should be well-lit for nighttime viewing and made of graffiti-resistant materials.



*Existing signs are regularly vandalized*



*Well maintained private frontage conveys pride and ownership of the boulevard, creating a better environment for all users*

## Access Control

Various types of access control (fences, gates, walls, architectural barriers) are used throughout the project area to direct users and restrict access. Some chain link fences are covered with vines obstructing the view of the street and creating potential hiding areas. Along a residential segment, wooden fencing is dilapidated and has recess areas that once contained trees but are now possible hiding places. Several vacant lots are enclosed by chain link fences that have not been properly installed, making it easy to trespass and creating hiding areas along tall vegetation. On the walk audit community members expressed concern about two motor vehicle collisions that resulted in damage to residential fencing.



*Broken fences encourage trespassing*



Access control features should not obstruct open site lines of the street and adjacent land uses. Where privacy and noise mitigation is not necessary, properly install open fencing with no horizontal features such as chain link or wrought iron at least 6 feet in height to deter trespassing and graffiti. Plant thorny vegetation along walls and solid fencing to prevent trespassing and separate between private and public space. Replace overgrown sidewalk planter strips with low or see-through decorative fencing or other architectural barriers to distinguish between private and public space and avoid the negative effects of overgrown vegetation. Ensure timely replacement or reconstruction of damaged or missing fences and gates to deter trespassing and reduce blight.



*Vegetation can obstruct line of sight as easily as a solid wall.*



*Within the FBCSMP area, many residential properties back up to the boulevard with privacy fences*

## Lighting

Lighting is one of the most important CPTED elements in any site design. Proper lighting can improve facial recognition, decrease the likelihood of someone committing a crime, and provide a safe corridor for bicyclists and pedestrians on the street. Existing lighting fixtures throughout the corridor are primarily street lamps oriented towards vehicles. Light rail transit stations have pedestrian scale lighting, although not all lights are in working order and some are obstructed by trees. Only a few bus stops are illuminated by street lights or nearby properties. Lighting along the corridor is inconsistent and oriented towards vehicles rather than active modes of transportation. Sidewalks and walking paths are generally lit by street lights and adjacent properties with large gaps in lighting near vacant lots or where lighting is obstructed.

Lighting along the Folsom Boulevard corridor should meet standards set by the Sacramento County Standards (Chapter 5). Illuminate all exterior areas used by pedestrians with pedestrian scale lighting. Pedestrian scale lighting improves safety and reduces the fear of crime. It can protect pedestrians and cyclists by making them more visible to motorists. Ensure that lighting options allow for clear facial and color recognition up to 20 yards away and reduce contrasts between dark and illuminated areas to avoid creating areas of concealment. Orient lighting towards

Designated paths of movement, parking lots, and buildings to direct visitors. Avoid lighting isolated areas where pedestrian access is restricted at night to reduce trespassing and other illegal activity. Place lighting fixtures where they are not easily vandalized and use unbreakable materials.

### Parking Lots

Parking lots comprise a large volume of space along the Folsom Boulevard corridor with low levels of activity and few CPTED strategies. The majority of parking lots along the boulevard are open to the public with improper lighting and overgrown vegetation that creates hiding places for offenders. Parked vehicles and vegetation create areas of concealment and can obstruct lighting fixtures and light distribution creating shadows. The Bureau of Justice estimates that 1 in 10 property crimes takes place in parking lots or garages and violent crime is more likely in a parking facility than other commercial and retail areas. CPTED features are best incorporated into parking lots at the design and construction phases because it is difficult and often expensive to retrofit after construction.



*An example of a street light designed to accommodate drivers. Pedestrian scale lighting is needed to enhance the sidewalk*

Lighting is the most important safety feature in a parking lot. Lighting can deter crime and reduce the fear of crime, creating a more pleasant and safe environment. Lighting should meet standards set by the Sacramento County Standards (Chapter 5) and should provide both vertical illuminance for signs and entry ways and horizontal illuminance. Lighting in parking lots should reduce glare and be uniform throughout the site to avoid site users passing from light to dark areas, requiring eyes to adjust. Vegetation should follow the 2 foot-6 foot rule to eliminate hiding places and maintain visibility. Parking lots should be well maintained with trash, graffiti, and alcohol containers promptly removed to avoid the impression the parking lot is unused or unsafe. Pathways and parking stalls should be clearly marked and signage should clearly direct visitors through the parking lot.



*Vegetation obstructing the view from the parking to the roadway*



*This parking lot could be enhanced with additional lighting*

## Recommendations

This CPTED assessment was performed to improve safety and access along Folsom Boulevard and to inform the design and construction of the corridor through the Folsom Boulevard Complete Street Master Plan. The four CPTED strategies and recommendations outlined in this report (Natural Surveillance, Natural Access Control, Territorial Reinforcement, and Maintenance) are focused on reducing crime and the fear of crime, providing a more user friendly environment, and improving the image of the corridor. Recommendations for each strategy are shown below. A solid dot ● indicates a recommendation is highly applicable at each location, a white dot ○ indicates a recommendation is applicable, and a dash --- indicates a recommendation is not applicable.

Natural Surveillance							
<i>Natural surveillance is the placement of physical features, activities, and people in a way that maximizes visibility of buildings, people, parking areas, and entrances.</i>	Light Rail Stations	Bus Stops	Vegetation	Signage	Access Control	Lighting	Parking Lots
1 Plant vegetation away from light fixture.	○	○	●	---	---	●	●
2 Plant vegetation away from pedestrian paths and sidewalks.	○	○	●	---	○	---	○
3 Plant thorny vegetation near blank walls, utility boxes, and other restricted areas.	○	---	●	---	●	---	○
4 Use open fencing (chain link or wrought iron) where privacy or noise mitigation is not needed to allow for open sight lines.	---	---	---	---	●	---	○
5 Maintain open fencing by removing vines and other vegetation that block sight lines.	---	---	○	---	○	---	●
6 Replace bushes and trees with low or see through fencing between private buildings and public spaces.	---	---	---	---	●	---	○
7 Maintain ground vegetation no taller than 2 feet and tree canopies no lower than 6 feet from the ground.	●	---	●	---	●	○	○
8 Install anchored benches at transit stations oriented towards main activity areas.	○	---	---	---	---	---	---
9 Install anchored benches and bus shelters with 360-degree visibility at all bus stop.	---	●	---	---	---	---	---
10 Relocate bus stops near positive activity area.	---	●	---	---	---	---	---
11 Ensure retail signage covers no more than 15% of windows to allow for clear sight line.	---	---	---	●	---	---	○
12 Install signage with a light source and visibility from the street.	---	---	---	●	---	---	○
13 Provide appropriate lighting for night time visibility of road users.	---	○	---	---	---	●	○
14 Ensure signs have a source of light for nighttime viewing.	---	---	---	●	---	---	○
15 Ensure that lighting options reduce contrast and allow for clear facial and color recognition up to 20 yards away.	●	---	---	---	○	●	●
16 Direct lighting for parking lots, streets, and building facades downward.	---	---	---	○	---	○	●
17 Install pedestrian-scaled lighting along pedestrian paths and activity areas.	●	●	---	---	---	●	●
18 Place lighting fixtures where they will not be blocked by vegetation or easily vandalized.	---	○	---	○	---	●	○

Table 2 - CPTED recommendations related to Natural Surveillance

Natural Access Control							
<b>Natural access control is a design strategy focused on decreasing the opportunity for crime by controlling access to and through a site by directing the flow of people. Sometimes physical barriers are used to clearly guide users.</b>	Light Rail Stations	Bus Stops	Vegetation	Signage	Access Control	Lighting	Parking Lots
1 Install open fencing (chain link or wrought iron) that does not obstruct visibility, is not easily climbed, and is less susceptible to graffiti.	○	○	---	---	●	---	●
2 Fences, walls, and gates should be at least 6 feet tall.	○	---	---	---	●	---	●
3 Locate bus shelters away from parking lot entrances and exits to avoid conflicts between motorists and pedestrians.	---	●	---	---	---	---	---
4 Locate bus shelters at least six feet from the street so they are not barriers to bus boarding, sidewalk use and waiting areas.	---	●	---	---	---	---	---
5 Plant trees and bushes at ground level along sidewalks and not in raised planter beds.	---	---	●	---	○	---	---
6 Plant thorny vegetation along walls and utility boxes.	●	○	●	---	○	---	---
7 Include easy to read and well-lit signs at all pedestrian crossings.	○	---	---	●	---	---	○
8 Install way finding signs along the project area that call out major land marks or popular destinations.	---	---	---	●	---	---	○
9 Use signage to guide pedestrians through parking lots to building entrances.	---	---	---	---	○	---	●
10 Install signage where it is easily seen but difficult to vandalize.	○	---	---	●	---	---	○
11 Avoid lighting isolated areas where pedestrian access is restricted at night.	---	---	---	---	○	●	○
12 Use lighting to direct the movement of vehicles and people through the site.	---	---	---	---	○	●	○

Table 3 - CPTED recommendations related to Natural Access Control

Territorial Reinforcement							
<b>Territorial reinforcement uses physical attributes to express ownership and distinguish between private and public space and define property lines.</b>	Light Rail Stations	Bus Stops	Vegetation	Signage	Access Control	Lighting	Parking Lots
1 Design benches and seating areas to be comfortable for sitting but not for idling, sleeping, or skateboarding. Use materials that discourage graffiti.	●	●	---	---	---	---	---
2 Use thorny vegetation, T-walls, bollards, textured pavement or see-through fencing to distinguish between restricted and public areas.	○	○	○	---	●	---	●
3 Use blank walls and utility boxes as "blank canvases" for the art community.	●	●	---	---	---	---	○
4 Install posters and signs as a public outreach campaign to encourage transit riders to be aware of their surroundings and to report suspicious behavior.	●	●	---	---	---	---	---
5 Use signage to identify businesses and public entry points.	---	---	---	●	○	---	○
6 Address signage should be located at intersections, in parking lots, and on building facades to direct visitors.	---	---	---	●	○	---	○

Table 4 - CPTED recommendations related to Territorial Reinforcement

Maintenance								
<i>Maintenance allows for the continued use of a space for its intended purpose; it can serve as an additional expression of ownership and can help maximize visibility of a space.</i>		Light Rail Stations	Bus Stops	Vegetation	Signage	Access Control	Lighting	Parking Lots
1	<i>Minimize blank walls and utility boxes that are susceptible to graffiti.</i>	●	●	---	---	---	---	●
2	<i>Use anti-graffiti sign materials or remove graffiti from signs in a timely manner.</i>	○	○	---	●	○	---	---
3	<i>Remove faded posters, broken signs, and other outdated displays.</i>	●	---	---	●	---	---	---
4	<i>Install signs where they are not easily vandalized.</i>	●	●	---	●	---	---	○
5	<i>Maintain tree canopies at least 6 feet above ground and maintain lower ground cover to two feet or less in height.</i>	●	○	●	---	---	---	○
6	<i>Schedule regular transit center site visits to keep up with repair, replacement, landscaping, and trash removal needs.</i>	●	○	---	---	---	---	---
7	<i>Remove non-operating vending machines from transit centers.</i>	●	---	---	---	---	---	---
8	<i>Ensure proper and regular maintenance of newspaper and vendor boxes. Restrict vendor boxes with free material, they contribute to littering and</i>	●	●	---	---	---	---	---
9	<i>Properly install fencing and gates to prevent misuse (illegal dumping and camping and scavenging).</i>	---	---	---	---	●	---	●
10	<i>Ensure timely replacement or reconstruction of damaged or missing fences and gates.</i>	---	---	---	---	●	---	●
11	<i>Ensure that that lighting fixtures are protected from vandalism by placement, use of unbreakable materials and tamperproof hardware.</i>	●	○	---	---	---	●	○
12	<i>Ensure that lighting fixtures are properly maintained and replaced.</i>	●	○	---	---	---	●	○

Table 5 - CPTED recommendations related to Maintenance

# Chapter 5

## PUBLIC HEALTH

A Health Impact Assessment (HIA) provides information on how a project or policy might affect health, and quantifies the magnitude and probability of these impacts. The HIA process allows for the integration of science-based methods and input from the population affected by the decision so that pragmatic solutions can be developed to address common issues. A major benefit of a HIA is to bring public health issues to the attention of decision-makers in areas where they may not have been considered before.

Folsom Boulevard was selected for a HIA because of its currently underutilized auto-centric design, lack of bicycle and pedestrian facilities, access to public transit, and expected growth. Several planning documents, including this Folsom Boulevard Complete Street Master Plan, have studied transitioning Folsom Boulevard from an auto-centric boulevard into a complete street. Without considering the distribution of health impacts, a decision may unintentionally result in an unequal distribution of benefits and/or burdens.



*An active corridor contributes to a healthy community*

## Folsom Boulevard Assessment

The two study areas that were included in the HIA include the segments of Folsom Boulevard from Watt Avenue to Bradshaw and from Hazel Avenue to the Highway 50 interchange. In its current configuration Folsom Boulevard has four lanes and a middle two way left turn lane. On the Watt/Bradshaw segment there are sidewalks on the north side with some missing segments, and sidewalks are limited on the southern side to light rail stations only. Bike



*Safe rail crossings are an important component of the boulevard*

lanes are existing on both sides of the street in this segment. On the Hazel Avenue to Highway 50 section there are existing sidewalks on the north side of the road from Hazel Avenue to Aerojet Road, and no sidewalks to the east of Aerojet Road. There are bike lanes through this entire segment.

The complete streets plan analyzed includes removing the center two way left turn lane to add a 12 foot landscaped median, adding a 7 foot buffered bike lane on both sides, adding a 6 to 8 foot landscape strip adjacent to the curb and a 6 to 8 foot sidewalk on both sides of the road. In addition to the street scape design there are Specific Plans for Transit Orientated

Design (TOD) improvements around transit stations in order to create areas of high density that mix commercial, residential and employment areas. However, the goal of this Health Impact Assessment (HIA) is to examine the health implications of turning Folsom Boulevard into a complete street. Ten health outcomes were assessed including Physical Activity, Access to Green Space, Noise Pollution, Air Pollution, Water Pollution, Social Capital, Personal Safety, Injury, Access to Services/Goods/Jobs, and Economic Impacts.

All health outcomes were scored based on six criteria:

- **Direction:** Direction can either be positive such that the potential change to the health determinant will benefit health, negative in that the potential change to the health determinant will detract from health or both positive and negative impacts are expected.
- **Likelihood:** Likelihood refers to whether it is highly likely the project will impact health outcomes, plausible that it will impact health outcomes or unlikely that it will impact health outcomes.
- **Magnitude:** Magnitude is rated as high where the project will impact many people beyond those on the street, moderate where the project will impact mostly the people using the street or low such that the project will impact only a very few number of people.
- **Permanence:** Permanence is rated as long lasting (many years), moderate (a few years), or the effects can be quickly and easily reversed.
- **Distribution:** Distribution examines if vulnerable populations benefit or are harmed by the project.
- **Strength of Evidence:** The strength of evidence is considered strong when there are many consistent studies or a cause-effect pathway is generally accepted, limited where there are a few good studies showing an association between the factors but some controversy exists, or rated as lacking where the health impacts only follow a logical order.

## Physical Activity

One out of every two adults in the U.S. suffers from a chronic disease such as diabetes, heart disease or cancer (Ward, Shiller & Goodman, 2014). Physical activity can both help prevent and help treat chronic disease (Physical Activity Guidelines Advisory Committee, 2008; Centers for Disease Control and Prevention, 1996). It also assists with helping adults and children maintain a healthy weight (U.S. Department of Health and Human Services, 2008, Physical Activity Guidelines Advisory Committee, 2008). Furthermore, physical activity is associated with improved quality of life, emotional well-being and academic achievement (Physical Activity Guidelines Advisory Committee, 2008; Bize et al., 2007; Brown et al., 2014; Penedo & Dahn, 2005; Wingle et al., 2010; Rasberry et al., 2011; Centers for Disease Control and Prevention, 2010). Physical activity is also associated with reduced mortality. Individuals who are active have a 30% lower chance of premature death (Physical Activity Guidelines Advisory Committee, 2008).



*Discontinuous sidewalks and bike lanes are a deterrent to many users*

Street design is a key element to increasing active multimodal transportation. The presence of sidewalks, a gridded street pattern, crosswalks, traffic calming measures, lighting and aesthetics all increase the likelihood that someone will walk, cycle or take public transportation (Heath et al., 2006). A 5% increase in walkability was found to be associated with a 32% increase in time spent engaging in physically active travel, a 0.23 point reduction in BMI, and

6.5% fewer vehicle miles traveled in King County, WA (Frank et al., 2006). Saelens and colleagues (2003) found that people living in walkable neighborhoods averaged an additional 30 minutes of walking for transportation each week. Khattic and Rodriguez (2005) determined that people in traditional neighborhoods made 17.2% of their trips by walking compared to 7.3% in conventional neighborhoods.

Many aspects of the Folsom Boulevard Complete Street Master Plan are highly likely to increase physical activity including adding a green median, sidewalks, bike lanes, lighting, and a green buffer. The magnitude will be moderate and will likely only impact people who live or work adjacent to Folsom Boulevard, or use the improved multimodal points of access within their commute. The permanence will be long lasting provided the improvements are maintained. Vulnerable populations such as children, the elderly, people with disabilities, and low income individuals will also greatly benefit from the improvements.

## Access to Greenspace

Researchers are finding increasing evidence that the amount of nature or greenness in an area is linked to health status, especially among certain groups. According to Edward O. Wilson's biophilia hypothesis (Wilson, 1984), humans' have an innate attraction to nature. Researchers believe that the natural environment provides a form of involuntary attention requiring effortless interest, a sense of escape from one's usual settings, a sense of being part of a greater system, and compatibility with one's individual needs from that environment (Wilson, 1984, Frumkin, 2001). Aesthetically pleasing urban landscape with trees and greenness encourages social interaction and healthy behaviors and attitudes. The natural environment has been shown to have an independent influence on mental health and health behaviors (Mitchell & Pompham, 2008).

Access to greenspace is highly dependent on where people live and work. Both quality and availability of greenspace must be taken into consideration, especially in low income communities. Several equity issues have been found with access to parks and greenspace. The National Housing Federation found that those in less affluent areas had only one-fifth the access to local parks compared to those in more affluent areas (Wheeler, 2011). In addition to access, the quality of greenspace can also influence the utilization of that space (Lee & Maheswaran, 2010). This is critical since access to greenspace and health has been found to be stronger in children, the elderly and those with lower incomes, most likely because they spend more time closer to home and in their neighborhoods (Maas, van Dillen, et al. 2009). This is an important issue to address, considering those who would stand to benefit the most from high access to greenspace are typically those who also have the least access (Lachowycz & Jones 2014).



*Trees and landscaping along the boulevard create a more vibrant corridor.*

While the evidence linking green space to health is strong, it is very plausible that improved access to green space will have a positive impact on health. The health benefits associated with the Project are expected to last the life of the maintained greenspace. The people to most benefit will be those that work and live along Folsom Boulevard especially low-income households, young children, and older adults.



## Noise Pollution

According to the Commission of the European Communities (1996), ambient noise levels above 65 decibels are considered unacceptable by health experts due to the adverse impacts to behavior and attitudes, sleep disturbance, cardiovascular and psycho-physiological systems. Levels above 70 decibels have been found to induce hearing impairment, high blood pressure, changes in the cardiovascular system, interfere with communication and social behavior, increase annoyance and sleep disturbance, and lower performance and productivity (Passchier-Vermeer & Passchier 2000, Berglund & Lindvall 1995). Berglund and Lindvall (1995) concluded that “to protect the majority of people from being seriously annoyed,” sound pressure from steady, continuous noise in outdoor living areas should not exceed 55 decibels during the day and 45 decibels at night.

With the expected increases in population and employment, traffic volume is expected to increase. However, this will be mitigated if new residents and employees take public transit or walk and bicycle instead of driving to get to destinations. Traffic speed is expected to decrease since the new streetscape will create a sense of enclosure for drivers. The number of trucks on Folsom Boulevard will likely depend on what new businesses relocate to the area which is difficult to estimate. The vegetative plantings and landscaping will help buffer and lower traffic related noise from traveling into the adjacent community. However, it is unclear whether exiting traffic noise is an issue for current residents.

Over the long term it is expected the FBCSMP will help reduce exposure to environmental noise pollution emanating from vehicular traffic, which would translate into positive changes in the health of residents and workers who spend a substantial amount of time in the area. However, there are several uncertainties such as the current level of noise pollution, the increase in vehicular traffic and the change in the vehicle fleet. The likelihood is plausible since there are many uncertainties but the literature linking noise pollution to health is robust. Vulnerable populations would benefit most from the reduction in noise pollution.

## Air Pollution

There is sufficient evidence that supports the causal relationship between the quality of outdoor air and specific health outcomes. Air pollution has been linked to both morbidity and mortality in numerous studies. A study in Europe found that daily death rates rose by 0.3% overall and by 0.4% for deaths related to heart disease per 10 µg/m<sup>3</sup> increase in ozone exposure (WHO, 2006). The U.S. EPA performed an extensive review of the literature and found a positive link between short-term exposure to PM<sub>2.5</sub> and a number of health outcomes, including cardiovascular disease, respiratory symptoms and pre-mature deaths. Ozone has been linked to breathing problems and exacerbates symptoms of chronic respiratory diseases and reduced lung function (WHO, 2006).

It is highly likely that the proposed project will be able to reduce ambient air pollutants by adding green infrastructure along an urban corridor. The added trees, bushes and grasses provide natural mechanisms will filter some air pollutants from the adjacent street. However, the efficiency in removal of air pollutants depends on the species, number, and placement of the plants along the proposed project site. The ability of the plants to capture and/or filter pollutants from the air will last a long time if the vegetation is healthy and well maintained. There is strong causal evidence on the pathways of impact between the different air pollutants and health outcomes.

In addition, Folsom Boulevard will become more walkable which will likely lead to an increase in walking and cycling (Federal Highway Administration, 2014; Mumford et al., 2011). The Nonnotarized Transportation Pilot Project sponsored by the Department Of Transportation which invested \$100 million dollars in cycling and pedestrian improvements in 4 communities found that walking trips increased 16% and cycling trips increased 44% over 5 years. They concluded that shifting mode share could potentially result in lower emissions of carbon dioxide, hydrocarbons, nitrogen oxide, carbon monoxide and particulate matter. However, with the expected increase in

housing and employment there might still be an increase in air pollution even with the mode share shift and additional greenspace. Air pollution could also be affected by the percentage of the fleet are hybrid or electric cars which is difficult to estimate. The impact is expected to be moderate impacting mainly the people who live or work adjacent to Folsom Boulevard and the impacts will both be short term (during construction) and long term (after construction). Improving local air quality will have the greatest benefit for vulnerable populations including asthmatics those with pre-existing respiratory health conditions, the elderly and youths.

## Water Pollution

Factors that influence water quality include precipitation, presence of pollutants, landscape, presence of plants and animals and characteristics of the soil. The flow and volume of storm water runoff can influence the quality of water on the surface by mobilizing pollutants and/or diluting their concentration (Davis et al., 2009).

Impervious surfaces reduce the ability for storm water to infiltrate the ground. However, vegetation influences water quality through slowing of surface water flow, trapping of sediment, organic matter, and nutrients, absorption of water and heavy metals into the roots and stems. Green infrastructure affects water quality by reducing storm water runoff volume and flow and reducing nutrient and pollutant loading through increased filtration and absorption. Design elements of green infrastructure include using soil, vegetation, and natural processes to capture and filter storm water as it moves through a system. Using elements of green infrastructure has been shown to reduce capacity burden on existing infrastructure, improve urban ecosystems, and provide energy and maintenance savings.

With the increase in green infrastructure and decrease in impervious surfaces it is highly likely that the proposed project will improve the quality and reduce the amount of storm water runoff. However, since the area of the project is relatively small and drinking water is processed at a treatment plant before it enters the drinking system the project is expected to have a very low impact on people living in the area. As long as the green infrastructure is maintained it is expected to have a long-term impact. However, the improvement in water quality can be quickly and easily reversed if the underground pipes exceed capacity or if the green infrastructure elements are damaged and/or not maintained properly. Persons who are more susceptible to waterborne illness include young children, the elderly, individuals with compromised immune systems and low-income households and are likely to have the greatest benefit.

## Social Capital

Social capital refers to “the benefit that individuals and communities derive from having social contacts and networks throughout their communities and is based on the notion that individuals who interact with each other will support each other to the benefit of the entire community” (ENTRIX, Inc. 2010). There is an increase in research that ties economic development, economic inequality, and geopolitics as having direct effects on social capital as it relates to large-scale cooperation (Robbins 2013). Social capital has been defined by two categories – bridging and bonding social capital. Bridging capital is the existence of community linkages, while bonding capital concerns the trust, mutual help, and reciprocity in the community (Wind, Fordham & Komproe, 2011).

There are some contradictions in the literature regarding the effect of social capital on health outcomes. Some research shows that social capital acts as a buffer during economically difficult times regardless of social status of the public but there is not enough evidence upon which to make predictions. While the literature expresses the need for further research in aspects of social capital, the existing contradictions point to the complexity of social capital and how health outcomes may be dependent upon other variables. Although there is research that directly links social capital to health outcomes, some research has found that social capital has less direct contribution on

health than other variables. For example, when social capital is considered with greening the environment, the changes in health outcomes are more a result of the change in environment (Modie-Moroka, 2009).

With the mixed literature it is plausible, that the proposed project may improve social capital by making Folsom Boulevard a more pleasant place to walk, cycle and take public transportation as well as increasing vegetation. The proposed project could also help lead revitalization, which encourages further investment into the community. Strengthening social capital could have a positive health impact because a strong presence of social capital can protect individuals and a collective community against hardships and build capacity to address issues. Increasing the opportunity to develop social capital will affect a moderate number of people, specifically those who live in the proposed project site. The social benefits of the proposed project are expected to be long lasting as long as the infrastructure is maintained. Vulnerable populations who are more sensitive to social conditions and connectivity to other people and services, such as children and the elderly are expected to benefit.

## Personal Safety

Crime levels and insecurity are social factors that can influence mental stress which affects many physical and mental health outcomes. Increased social disorder has been linked to increased fear of crime, risk of mental health disorders, and the severity of depression among adults (Ross, 2000; Kim, 2008). Over time, the stress from crime or fear of crime in a community can cause poor physical health (e.g., hypertension, cardiovascular disease, immune dysfunction) (Latkin & Curry, 2003, McEwen 2008; Glaser & Kiecolt-Glaser, 2005). Fear of crime can also lead to decreased levels of physical activity for people who don't feel safe walking or cycling in their neighborhood.

In recognition that crime and perceived insecurity can act as a barrier to walking for physical activity, interventions which seek to increase social and physical order in high crime neighborhoods through physical design and/or infrastructure change have become popular. For example, the Crime Prevention through Environmental Design (CPTED) movement goals are to increase community accountability and to reinforce the boundaries of public and private space in order to discourage criminal activity and encourage safe, social interaction. Jane Jacobs (1961), was the first to describe the concept of "eyes on the street," where a greater density of residents and different land uses may enhance feelings of safety and deter criminal activity by increasing the presence of pedestrians and everyday visual surveillance. Ross and Mirowski (2000) found that people who lived in the city of Chicago were more likely to walk than were residents of the suburbs, small towns, and rural areas. She hypothesized that increased density allows for walking for transport and applied Jacobs' concept of "eyes on the street" to describe how community interaction and involvement works to counteract fear for personal safety. By decreasing crime and feelings of vulnerability, CPTED and similar programs encourage walking; reduction in crime coupled with increased community interaction both can have significant positive effects on social capital in a community.



*Community organization and surveillance can dramatically improve safety*

It is plausible that the proposed project will reduce the risk of crime by improving behaviors and attitudes through enhanced walkability, improved aesthetics, improved lighting, reducing surface temperatures and providing an appealing and natural landscape. Implementing measures to prevent crime and improve perceived security will promote health by reducing the risk of injury from crime, reduce stress and stress-related illness from a lack of

security, and improve perceived overall wellness. Improvements in actual and perceived crime will affect a moderate number of people, specifically those who pass along Folsom Boulevard and can visibly see the changes made to the area. If the landscaping is not properly maintained or CPTED measures are not adopted, the benefits of reducing crime can be quickly and easily reversed. Persons who are more vulnerable to crime are more likely to benefit from a reduction in crime due to lowered vulnerability and increased “eyes on the street.”



*The lack of signalized pedestrian crossings compel pedestrians to make unsafe crossings*

## Injury

There is growing awareness that transit corridors need to meet the needs of all modes of travel.

Researchers and city planners are finding that streets can be designed to help minimize adverse impacts to health and increase safety in addition to meeting transportation needs (CDC, 2011). The more cyclists and pedestrians in an area has also been linked to increased safety. This has been called the “safety in numbers” effect and is likely do to the fact that motorists are more likely to pay attention in areas where there are larger number of people walking and cycling (Jacobson, 2003; Pucher & Handy, 2010; Elvik, 2009). In addition, reducing the vehicular lane width can also serve to slow down traffic. USDOT (2007) found that decreasing a lane from 12 feet to 10 feet results in a 6.6 mph decrease in speed.

On Folsom Boulevard from Watt Avenue to Bradshaw Road there were 15 vehicular accidents in 2012. Five victims had visible injuries and 10 had complaints of pain. Three of the crashes involved alcohol and three of the vehicular accidents were hit and run. Two of the accidents involved cyclists but there were no fatalities. No unusual road conditions were reported with nine of the crashes occurring in daylight, one at dusk/dawn and five were at night located near street lights. In 2012 the segment of Folsom Boulevard from Hazel Avenue to the Highway 50 interchange there were four vehicular collisions, none of them included a cyclist or pedestrian, there was 1 severe injury and 3 injuries with a complaint of pain. Three of the crashes were due to unsafe speeds and one was for traffic signals/signs. None of the crashes involved alcohol or were hit and run. There were no unusual road conditions with two crashes occurring at daylight, one at dusk/dawn and one at night located near street lights.

The proposed project is very likely to reduce risk of crashes because lane width reductions, streetscape, adding medians, improved street and pedestrian lighting, adding sidewalks with buffers and adding bicycle infrastructure are effective ways to improve traffic safety, provided that the reduced lane widths can accommodate the traffic volume and not increase congestion. The proposed project is expected to have a positive impact affecting the people who live and work in the area as well as for individuals who use Folsom Boulevard to commute. Vulnerable people (cyclists, pedestrians, transit users, children, the elderly and those who do not have cars) will have the greatest benefit from the complete street. The evidence for benefits is strong and the changes are expected to be long lasting when the infrastructure is maintained

## Access to Services, Goods, and Jobs

Accessibility impacts individuals’ ability to get to jobs, acquire healthy food, and access healthcare, all of which can have significant impacts on health. Travel time has been related to negative health outcomes (e.g., blood pressure, cholesterol levels, etc.) and fewer visits to pharmacies and general practitioners (Hiscock, et al. 2008). The FBCSMP

will also provide improved access for the disabled community with curb ramps, pedestrian push buttons, obstruction removal, and other features to provide a complete accessible path of travel.

Quality of life for the Folsom Boulevard communities will improve by having a better-connected transportation network, improved public transit and increased safety access to every day destinations such as doctors, grocery stores and jobs. There are very few scientific studies, however, that have found a connection between features of the built environment and access to healthcare. This is due to the many additional factors that play a role in a person's ability to seek healthcare (e.g., affordability, employment status, network provider, etc.). Individuals without access to an automobile, the elderly and children often have limited access. Without a walkable/bikable community with access to transit they are often limited with respect to getting to important destinations.

It is plausible that converting Folsom Boulevard to a complete street will increase access and thereby support increased mobility and access to destinations. The project is expected to have a moderate magnitude mainly benefiting those that live and/or work in the area. The permanence of the project is long lasting given that adequate maintenance is continued.

## Economic Impacts

Walkable communities attract business which can help local economies thrive (US EPA, 2012; US EPA, 2014; Smart Growth America, 2015). Pedestrian friendly street, mixed land-use and access to transit have all been associated with economic benefits (US EPA, 2012; US EPA, 2014; Smart Growth America, 2015). Some of these benefits include higher levels of retail, employment, neighborhood revitalization and lower costs of delivering services (US EPA, 2012; US EPA, 2014; Smart Growth America, 2015). Communities designed to promote walking and cycling have been shown to have more successful businesses than those designed mainly for motorized traffic. The increased foot and bike traffic brings in more regular patronage and attracts new businesses, entrepreneurs, and customers to the area. When businesses do well in a community, it improves economic growth by creating new jobs and increasing access to amenities and services; this, in turn, can improve health in a community (e.g., access to healthcare and nutritious foods, mental health status, and the prevalence of chronic disease).

The landscaping, aesthetics, and improved biking and walking infrastructure are expected to positively impact business performance, which in turn can enhance economic growth and development and the creation of new jobs. Job creation will lead to improved health for people who are employed and will have the greatest benefit for those that are low income or currently unemployed. Improved business performance can, in turn, improve health in the community. However, this influx of new development and increase in housing prices could lead to some displacement of individuals and families because the cost of living becomes higher than what they can afford.

It is plausible that turning Folsom Boulevard from an auto-centric road into a complete street with sidewalks, bike lanes, and green infrastructure will have a significant improvement on economics of the area. There are numerous studies that have found a correlation between walkability, green infrastructure and economic development. While most of the benefits are expected to be positive there is also a chance for some negative health impacts. The overall impacts are likely to be positive and affect the individuals who live in the area and the businesses along Folsom Boulevard. As long as the improvements are maintained the impacts will be long lasting.

## Recommendations

The vast majority of the health outcomes related to redeveloping Folsom Boulevard are positive and grant funding should be secured to implement the complete streets plan to provide sidewalks, bike lanes, transit and green infrastructure. In order to implement the plan the County should continue to work with stakeholders to maximize

advantages and improvements such as working with property owners to promote shared parking and reduce the number of driveways along Folsom Boulevard.

Specific improvements should also be made to enhance the pedestrian and cyclist experience along Folsom Boulevard. In order to increase individuals' ability to walk to destinations benches and utility poles should be placed in locations that do not obstruct pedestrians. In addition, benches and trash cans could be installed along the corridor so that pedestrians have a place to rest and also to reduce litter. To encourage bicycling adequate bike parking could be provided at local businesses and at all transit stations. Wayfinding could also be added to the area to encourage walking and cycling to popular destinations.

Aesthetics can also be enhanced along the corridor by ensuring that all of the trees and green infrastructure that is added complies with County Standards. This green infrastructure will also provide shade and improve aesthetics for people walking and cycling. Specifically for pedestrians lighting should be at a pedestrian scale, mid-block pedestrian crossings should be considered where block lengths are greater than 800 feet and adequate crossing times for the elderly and those with disabilities should be incorporated at all signalized intersections. To enhance the safety of cyclists signage should be increased to alert drivers to the presence of bike lanes along the corridor and when right of way permits buffered bike lanes should be added. To further increase physical activity the FBCSMP should include an improved connection between Folsom Boulevard and the American River trail. Finally, education and encouragement could be provided to local residents, schools and businesses on how to safely walk or ride along the corridor.

Local stakeholders should be informed during the design, construction and maintenance of Folsom Boulevard. Construction should be limited to daylight hours in order to minimize noise pollution in the evening for residents. Mitigation measures should also be taken to reduce air pollution during construction. Specific mitigation measures could include water misting, plastic covers on rubble piles and the use of non-diesel construction machinery.

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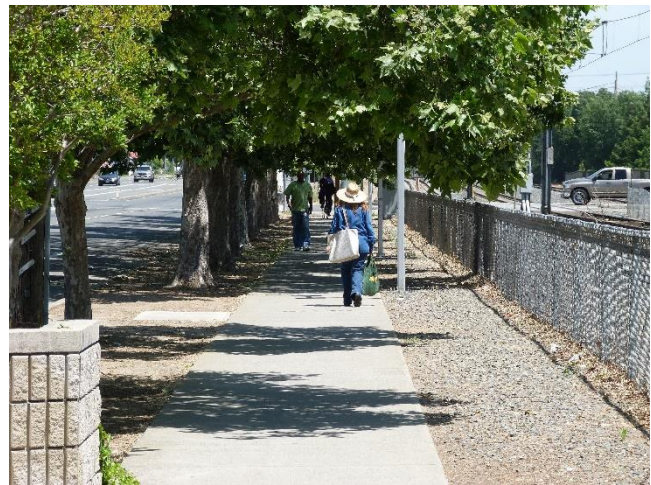
# Chapter 6

## SMART GROWTH STREET CLASSIFICATION

The County is currently evaluating the potential impacts of the proposed reclassification of Folsom Boulevard between South Watt Avenue and Bradshaw Road from a six-lane thoroughfare to a “Smart Growth Street.” This proposed amendment to the Sacramento County General Plan (November 9, 2011) would effectively retain the existing number of four travel lanes on this approximately 2.5 mile segment of Folsom Boulevard, and match the future number of travel lanes planned for the roadway within adjacent jurisdictions. Currently, the County’s Transportation Plan identifies the adjacent segments of Folsom Boulevard located west of South Watt Avenue and east of Bradshaw Road as four lane arterial roadways (located in the City of Sacramento and the City of Rancho Cordova, respectively), but calls for the widening of the portion of the roadway located within unincorporated Sacramento County to six travel lanes prior to the year 2030. The previous chapter of the Master Plan discussed the health benefits of Complete Street implementation on Folsom Boulevard and found that the majority of impacts were positive. This chapter addresses the traffic impacts of this Complete Street implementation, more specifically with the County’s “Smart Growth Street” classification.

### Smart Growth Streets

In years past, the predominant focus of transportation planning was to provide for the safe and efficient movement of vehicular traffic. The idea of Complete Streets responds to this vehicular traffic emphasis by striving to design and operate streets that improve mobility and access for all users. Successfully planned and constructed Complete Streets allow pedestrians, bicyclists, motorists and transit riders of all ages and abilities to safely move along and across the street. Sacramento County is committed to ensuring that all streets are built as Complete Streets.



*A holistic street design accommodates all users*

The concept of “Smart Growth Streets” expands upon the Complete Streets concept. While both Smart Growth Streets and Complete Streets are pedestrian, bicycle and transit friendly, Smart Growth Streets take a holistic view of the street, the adjacent corridor, the surrounding community and the natural environment to allow for more flexibility in the design of street and corridor improvements. A smart growth street balances the benefits associated with increased pedestrian, bicycle, and transit use with potential impacts to traffic operations. Analysis of smart growth streets identified in the General Plan may lead to the conclusion that a reduced LOS for motor vehicles is acceptable in certain instances provided that the land uses and enhancements to other modes of travel result in an overall positive benefit to mobility, access, and reduced vehicle miles traveled (VMT). This concept is vital to the County’s goal of implementing SACOG’s adopted Blueprint Vision and concepts related to smart growth and transit-oriented development promoted in the County’s General Plan.

Folsom Boulevard has been identified by the County as a candidate for a Smart Growth Street designation in the amended General Plan Circulation Element (May 28, 2014). Prior to this amendment, Folsom Boulevard was classified to be a six-lane arterial within County limits. At full build out this would not create an optimal environment for bicyclists, pedestrians and transit users by not encouraging active modes of transportation to and from light rail stations and bus stops. Furthermore, it could create a bottleneck at the City of Sacramento and City of Rancho Cordova which have both designated Folsom Boulevard as a four-lane corridor in their planning efforts.

It is the recommendation of this master plan that the County designate Folsom Boulevard as a Smart Growth Street with an ultimate build out of four lanes that is consistent with adjacent segments of the corridor. The enhanced bicycle and pedestrian amenities identified in this plan are consistent with the goals and objectives of the smart growth street classification by fostering active modes of transportation, supporting connections to existing transit amenities, and encouraging mixed-use infill development. With a Smart Growth Street classification, the streetscape improvements identified in this plan would be the ultimate build out on Folsom Boulevard and not an interim improvement until further widening is desired.

## Existing Traffic Conditions

To study the effects of a Smart Growth Street classification, the Sacramento County Department of Transportation conducted intersection turning movement counts at seven study intersections in April 2013:

TABLE 6: EXISTING CONDITIONS – INTERSECTION OPERATIONS					
Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1. Folsom Blvd / S. Watt Ave	Signal	53	D	85	F
2. Folsom Blvd / Manlove Rd	Signal	16	B	22	C
3. Folsom Blvd / Starfire Dr	Signal	11	B	10	A
4. Folsom Blvd / La Riviera Dr	Signal	26	C	23	C
5. Folsom Blvd / Tiber Dr	Signal	14	B	10	B
6. La Riviera Dr / SB Watt Ave Ramps	Signal	14	B	13	B
7. La Riviera Dr / NB Watt Ave Ramps	Signal	12	B	21	C

Notes: <sup>1</sup>For signalized intersections, the overall average intersection control delay is reported in seconds per vehicle.  
<sup>2</sup>Level of Service based on Highway Capacity Manual (Transportation Research Board, 2000).  
Source: Fehr & Peers, 2013

As shown in Table 6, all intersections operated at LOS D or better during the AM peak hour, with five of the seven study intersections operating at LOS B. With the exception of the Folsom Boulevard/South Watt Avenue intersection, all study intersections operated at LOS C or better during the PM peak hour. The Folsom Boulevard /South Watt Avenue intersection operated at LOS F during the PM peak hour.

In March 2013, the Sacramento County Department of Transportation conducted 24 hour Traffic Counts at key locations on the corridor:

TABLE 7: EXISTING CONDITIONS – ROADWAY SEGMENT OPERATIONS			
Segment	Roadway Classification	Average Daily Traffic (ADT) <sup>1</sup>	LOS
1. Folsom Blvd – S. Watt to Manlove Rd	4 lane Arterial, moderate access control	23,500	B
2. Folsom Blvd – Starfire Dr to La Riviera Dr	4 lane Arterial, moderate access control	18,200	A
3. Folsom Blvd – Tiber Dr to Mayhew Rd	4 lane Arterial, moderate access control	22,800	C
4. La Riviera Dr – Folsom Blvd to Tuolumne Dr	3 lane Residential Collector w/ frontage	8,100	D
5. La Rivera Dr – east of NB Watt Ave ramps	4 lane Residential Collector w/ frontage	16,000	E
Note: 1. Volumes represent both directions of travel and are rounded to the nearest 100. Source: Fehr & Peers, 2013			

All roadway segments along Folsom Boulevard operated at LOS C or better, while study segments on La Riviera Drive operated at LOS D and E. It should be noted that the analysis classified La Riviera as a “residential collector with frontage” due to the fact that the General Plan does not include this roadway as part of the County’s arterial system. If the study roadway segments of La Riviera Drive were analyzed with a low access control arterial designation, the reported operations on both of these segments would improve to LOS A existing conditions.

## Future Traffic Conditions

To quantify the effect of a smart growth street classification, forecasted traffic conditions for the year 2035 were modeled assuming a six-lane build-out per the original General Plan and a four-lane build-out per the recommendations of the amended Circulation Element.

The most recent version of the Sacramento Regional Activity-Based Simulation Model (SACSIM) regional travel demand model (TDM), developed and maintained by the Sacramento Area Council of Governments (SACOG), was used to forecast the cumulative traffic volumes in the study area. The cumulative version of this model accounts for the planned land use growth within Sacramento County, as well as within the surrounding region. The SACSIM model also accounts for planned improvements to the surrounding transportation system, and incorporates the current Sustainable Communities Strategy (SCS) and Metropolitan Transportation Plan (MTP) for the Sacramento region.

The study area itself is generally built-out, however large-scale development is planned immediately west of the study area along South Watt Avenue. According to the model, daily traffic is expected to increase by approximately 20 to 40 percent along the Folsom Boulevard corridor by 2035. The resulting traffic forecasts show higher levels of

growth toward the western end of the study corridor near planned development (approximately 40 percent), and lower growth towards the largely built-out eastern end of the corridor (approximately 20 percent). At the center of the study corridor just west of La Riviera Drive, Folsom Boulevard is forecasted to handle approximately 3,000 fewer vehicles a day with four travel lanes under Smart Growth Street conditions.

Table 8 summarizes the traffic operations at each of the study intersections if Folsom Boulevard is built out to six lanes by 2035. As shown in the Table, all study intersections are expected to operate at a LOS of C or better with the exception of Folsom Boulevard/South Watt Avenue intersection which operates at a LOS F during both the AM and PM peak hours.

TABLE 8: FUTURE SIX-LANE CONDITIONS – INTERSECTION OPERATIONS					
Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1. Folsom Blvd / S. Watt Ave	Signal	<b><u>123</u></b>	<b><u>F</u></b>	<b><u>140</u></b>	<b><u>F</u></b>
2. Folsom Blvd / Manlove Rd	Signal	16	B	28	C
3. Folsom Blvd / Starfire Dr	Signal	12	B	11	B
4. Folsom Blvd / La Riviera Dr	Signal	27	C	22	C
5. Folsom Blvd / Tiber Dr	Signal	14	B	11	B
6. La Riviera Dr / SB Watt Ave Ramps	Signal	16	B	14	B
7. La Riviera Dr / NB Watt Ave Ramps	Signal	13	B	22	C

Notes: <sup>1</sup>For signalized and all-way stop-controlled intersections, the overall average intersection control delay is reported in seconds per vehicle. For side-street stop control, the average control delay for the worst movement is reported in seconds per vehicle.  
<sup>2</sup>Level of Service based on Highway Capacity Manual (Transportation Research Board, 2000).  
<sup>3</sup>Bold and underlined text indicates unacceptable operations.

Source: Fehr & Peers, 2013

Table 9 summarizes traffic operations at each of the study intersections assuming a four-lane build out. Similar to the six-lane build out, all intersections would continue to operate at LOS C or better except for the intersection of Folsom Boulevard/South Watt Avenue which would continue to operate at LOS F.

**TABLE 9:  
FUTURE FOUR-LANE CONDITIONS – INTERSECTION OPERATIONS**

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1. Folsom Blvd / S. Watt Ave	Signal	<u>108</u>	<u>F</u>	<u>143</u>	<u>F</u>
2. Folsom Blvd / Manlove Rd	Signal	19	B	34	C
3. Folsom Blvd / Starfire Dr	Signal	12	B	12	B
4. Folsom Blvd / La Riviera Dr	Signal	28	C	23	C
5. Folsom Blvd / Tiber Dr	Signal	17	B	16	B
6. La Riviera Dr / SB Watt Ave Ramps	Signal	16	B	14	B
7. La Riviera Dr / NB Watt Ave Ramps	Signal	13	B	22	C

Notes: <sup>1</sup>For signalized and all-way stop-controlled intersections, the overall average intersection control delay is reported in seconds per vehicle. For side-street stop control, the average control delay for the worst movement is reported in seconds per vehicle.  
<sup>2</sup>Level of Service based on Highway Capacity Manual (Transportation Research Board, 2000).  
<sup>3</sup>Bold and underlined text indicates unacceptable operations.

Source: Fehr & Peers, 2013

Table 10 and Table 11 display the future six-lane and four-lane roadway segment analysis results, respectively. As shown in Table 10, all study segments of Folsom Boulevard would operate at LOS B or better under future six-lane conditions. Due to a slight increase in the forecasted traffic volume along La Riviera Drive by the year 2035, the segment of La Riviera Drive located at Tuolomne Drive is expected to operate at LOS D and the segment to the east of Watt Avenue is expected to operate at LOS F.



*Folsom Boulevard currently operates as a 4-lane arterial.*

**TABLE 10:  
FUTURE SIX-LANE CONDITIONS – ROADWAY SEGMENT OPERATIONS**

Segment	Roadway Classification	Average Daily Traffic (ADT) <sup>1</sup>	LOS
1. Folsom Blvd – S. Watt to Manlove Rd	6 lane Arterial, moderate access control	35,200	B
2. Folsom Blvd – Starfire Dr to La Riviera Dr	6 lane Arterial, moderate access control	30,200	A
3. Folsom Blvd – Tiber Dr to Mayhew Rd	6 lane Arterial, moderate access control	29,600	A
4. La Riviera Dr – Folsom Blvd to Tuolumne Dr	3 lane Residential Collector w/ frontage	8,200	D
5. La Riviera Dr – east of NB Watt Ave ramps	4 lane Residential Collector w/ frontage	16,100	F
Note: 1. Volumes represent both directions of travel and are rounded to the nearest 100. Forecast year 2035. Source: Fehr & Peers, 2013			

As shown in Table 11, all study segments on Folsom Boulevard would operate at LOS D or better while the segments of La Riviera Drive would continue to operate at LOS D and F

**TABLE 11:  
FUTURE FOUR-LANE CONDITIONS – ROADWAY SEGMENT OPERATIONS**

Segment	Roadway Classification	Average Daily Traffic (ADT) <sup>1</sup>	LOS
1. Folsom Blvd – S. Watt to Manlove Rd	4 lane Arterial, moderate access control	32,400	D
2. Folsom Blvd – Starfire Dr to La Riviera Dr	4 lane Arterial, moderate access control	27,200	C
3. Folsom Blvd – Tiber Dr to Mayhew Rd	4 lane Arterial, moderate access control	26,800	C
4. La Riviera Dr – Folsom Blvd to Tuolumne Dr	3 lane Residential Collector w/ frontage	8,200	D
5. La Riviera Dr – east of NB Watt Ave ramps	4 lane Residential Collector w/ frontage	16,100	F
Note: 1. Volumes represent both directions of travel and are rounded to the nearest 100. Forecast year 2035. Source: Fehr & Peers, 2013			

## Results

Policy CI-72 contained in the Sacramento County General Plan Amended Circulation Element sets forth guidelines for the traffic operations and capacity requirements for Smart Growth Streets.

*CI-72: On a Smart Growth Street, the County shall strive to maintain operations and capacity on urban roadways and intersections at LOS E or better, unless maintaining this LOS would, in the County's judgment, be infeasible and conflict with the achievement of other Smart Growth Street objectives. Congestion in excess of LOS E may be acceptable provided that provisions are made to improve overall mobility, reduce overall VMT and/or promote non-automobile transportation.*

This policy allows for traffic LOS to fall below the typical threshold of "E" if maintaining the higher LOS is infeasible and conflicts with the Smart Growth principals. Results from the traffic analysis show that the intersection of Folsom Boulevard/S. Watt Avenue and the roadway segment of La Riviera Drive east of the northbound Watt Avenue Ramps would fall below the LOS E threshold with a four-lane roadway configuration. However, the study also found that these locations have existing traffic deficiencies and will have comparable LOS deficiencies in the future even with a six-lane build out (albeit with an increase in intersection delay and roadway ADT).

In making a determination on the future classification of Folsom Boulevard, the active transportation and land use benefits of a four-lane configuration must be weighed against the nominal traffic improvements of a six-lane configuration. The significance of this standards change could be based on the thresholds found in Sacramento County's Traffic Impact Analysis Guidelines (July 2004). For the purposes of this analysis, the difference between the four- and six-lane configurations could be considered significant if the four-lane configuration would result in any of the following:

### Signalized Intersections:

- An intersection operating at an acceptable LOS (with six-lanes) deteriorates to an unacceptable LOS (with four-lanes).
- An increase in control delay of more than five seconds at an intersection already operating at an unacceptable LOS with six-lanes.

### Roadway Segments:

- A roadway segment operating at an acceptable LOS (with six-lanes) to deteriorate to an unacceptable LOS (with four-lanes).
- An increase in the volume/capacity ratio of more than 0.05 on a roadway segment already operating at an unacceptable LOS with six-lanes

Under these guidelines, all future impacts between the four- and six-lane alternatives can be considered less than significant. As a result of this finding, the benefits of limiting the width of Folsom Boulevard to four lanes likely outweighs the negligible improvements to traffic operations with a six-lane configuration. A narrower street meets the objectives of the Smart Growth classification to encourage transit services, active transportation, land use densities that support transit use, and mixed-use redevelopment. As a result, Folsom Boulevard meets the collective requirements of Policy CI-72 in the General Plan.

# Chapter 7

## PUBLIC ENGAGEMENT

The Folsom Boulevard Complete Street Master Plan continued ongoing dialogue with the community to identify improvements to the corridor that will address barriers to walking, bicycling, and transit use. Disadvantaged and low income communities were specifically targeted in outreach efforts and engaged in public workshops and meetings. Residents were asked why they do or do not walk, bicycle or use transit, and provided input on the physical improvements and programs that would facilitate more walking, cycling, and use of transit.

### Open House

On December 16, 2015, Sacramento County held a community workshop to validate information collected from previous planning efforts and to solicit feedback from the community on their specific needs along the corridor within the project's limits. The open house provided the community an opportunity to learn about the project and provide specific feedback on proposed project elements. There were six visioning boards, a strip map showing the project geometrics, and a PowerPoint presentation highlighting the key elements of the project, found in the Appendix of this plan. Community members were encouraged to review the visioning boards and geometrics, listen to the PowerPoint presentation, and provide their thoughts on comment cards. County staff and consultants were in attendance and available to answer questions.



*The community workshop was held at the Sacramento Library on Folsom Boulevard.*

### SACBAC

On January 12, 2016, the County of Sacramento presented the preliminary complete street concepts to the Sacramento City/County Bicycle Advisory Committee (SACBAC). The presentation was well received from the SACBAC members and was followed by a short question and answer period. The SACBAC member asked for clarification on the bikeway features for the project including the buffered bike lanes, connections to the American River Parkway, and the possibility of including a Class I or shared use facility within the corridor.

### Cordova Community Planning Advisory Council

On January 21, 2016, the County of Sacramento presented the preliminary concepts for the Folsom Boulevard Complete Street Master Plan to the Cordova Community Planning Advisory Council (CPAC). The meeting included a PowerPoint presentation, project boards, and strip maps. The project team's request of the CPAC included a request to review the project presentation, receive public comments, and take an action to submit these comments and



CPAC recommendations to the Planning Commission. A lack of a quorum prevented the CPAC from taking action on the item, but valuable comments were received by the Public and Council at the meeting.

## Community Association Monthly Board Meetings

The County of Sacramento presented refined concepts for the Folsom Boulevard Complete Street Master Plan to the Rosemont Community Association Executive Board on February 4<sup>th</sup> and again on March 22<sup>nd</sup> to the Butterfield-Riviera East Community Association (BRECA). Prior to the meetings, strip maps were laid out and attendees were encouraged to ask questions about the project and provide comments. Formal presentations during the meetings included a combination of a projected presentation, a project handout, project boards, and the project strip maps. Following the presentation, the attendees provided helpful comments regarding the redevelopment of Folsom Boulevard and specific items they would like addressed in the Master Plan.

## Planning Commission and Board of Supervisors

A Presentation of the draft FBCSMP was made to the County Planning Commission for review and comment on March 28th. The Commission reviewed the Plan and allowed for Public comments. No public comments were received. After a brief discussion, the Commission voted 4-0 (Commissioner Hom absent) to forward the Plan to the Board of Supervisors recommending endorsement of the Plan.

On April 5<sup>th</sup>, the Sacramento County Board of Supervisors heard a presentation of the draft FBCSMP and allowed for public comment. After no additional public comments were received the Board endorsed the document in a 4-0 vote (Supervisor McGlashan absent) and directed staff to pursue funding for implementation.



**Folsom Boulevard  
Complete Street Master Plan**

LEADING THE WAY TO GREATER MOBILITY

**Project Background:** The Plan will identify future design guidelines for roadway segments and intersections and will emphasize "Complete Street" ideals that accommodate sidewalks, bike lanes, medians, crossings, bus turnouts, lighting, landscaping and streetscape amenities. The Plan will identify sustainable features including energy efficient street lighting, low impact development (LID) green-scape and green-street elements as well as other improvements to enhance pedestrian and cyclist safety and health while benefiting the community's quality of life.

**Project Components:** 1) With the aid of the community, develop a multi-modal complete street master plan. 2) Prepare construction documents and plans for the future implementation of master plan projects.

**Complete Street Definition:** Complete Streets are streets for everyone. They are designed to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.

**Project Funding:** Project funding is being provided by a Community Based Transportation Planning grant from the California Department of Transportation (Caltrans).

**Special Accommodations:** Individuals requiring any accommodations — including but not limited to sign language interpreter, assistive listening devices, alternate formats of documents, etc. — are requested to contact Ron Vicari, Principal Civil Engineer at 916-874-5164 (CA Relay Service 711) or by e-mail at vicarir@sacounty.net at least seven (7) days prior to the scheduled meeting.

**Information:** If you have questions or need more information about the project, please contact:

**Ron Vicari, Principal Civil Engineer**  
Sacramento County Department of Transportation  
Email: vicarir@sacounty.net  
Phone: 916-874-5164

**Jim Schubert, Senior Landscape Architect**  
Sacramento County Department of Transportation  
Email: schubertj@sacounty.net  
Phone: 916-874-7911

SACDOT Mission Statement  
Our mission is to continuously improve, operate and maintain a safe and efficient transportation system that serves our citizens and commerce.



**Folsom Boulevard  
Complete Street Master Plan  
Project Open House Meeting  
-Watt Avenue to Bradshaw Road  
-Hazel Avenue East to County/City Boundary**

DECEMBER 2015

Dear Business, Property Owner or Resident:

The Sacramento County Department of Transportation (SACDOT) is developing a **Complete Street Master Plan** (Plan) for Folsom Boulevard from Watt Avenue to Bradshaw Road and Hazel Avenue to the County/City boundary. These portions of Folsom Boulevard are in the Sacramento County unincorporated area. The development of a "complete street" for Folsom Boulevard will benefit all roadway users: motorists, pedestrians, bicyclists and transit.

We are holding a project open house to provide information about the project and to discuss ideas for potential pedestrian, bicycle and roadway improvements for these stretches of Folsom Boulevard. Additional information about the project is included on the back page of this invitation.

We encourage you to attend the open house to learn more about the project and to share with us your thoughts on a vision for Folsom Boulevard.

Sincerely,



Michael J. Penrose, Director  
Department of Transportation

**You're Invited to Attend a  
Project Open House**

**Date: Wednesday, December 16**  
**Time: 6:30 to 8 p.m.**  
**Location: Rancho Cordova Library,  
9845 Folsom Boulevard**

Sacramento County  
Municipal Services  
Department of Transportation  
827 7th Street, Suite 304  
Sacramento, CA 95814  
Phone: (916) 874-6291

Board of Supervisors  
District 1: Phil Sierra  
District 2: Patrick Kennedy  
District 3: Susan Peters  
District 4: Roberta MacClashan  
District 5: Don Nottoli

Bradley J. Hudson, County Executive  
Rob Leonard, Chief Deputy County Executive  
Michael J. Penrose, Director - SACDOT



Flyers were mailed to residents and business owners along the corridor within the FBCSMP area

## Community Survey

As part of the master planning effort, a community survey was circulated to help the project team identify existing activity on Folsom Boulevard and gauge interest in potential improvements. The survey consisted of six multiple-choice questions and two open-ended questions and was available both in paper format and hosted electronically on the County’s website. Approximately 50 responses were collected with the following results:

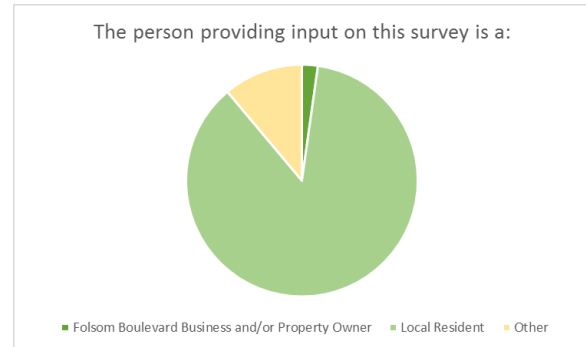


Figure 7

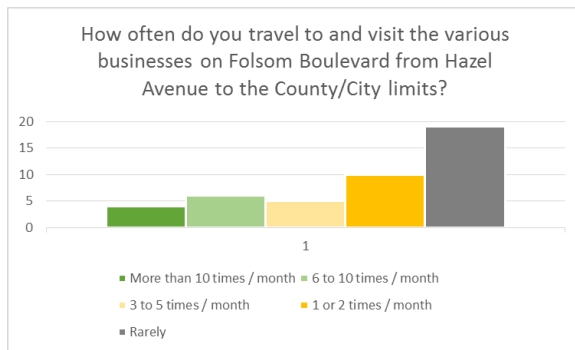


Figure 8

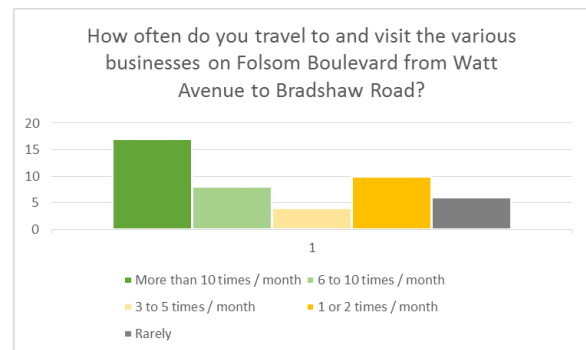


Figure 9

Based on the survey responses, the residents of the area generally supportive of complete street improvements that will improve access to transit and businesses. There were many responses that promoted better bicycle facilities along with better crossings of Folsom Boulevard.

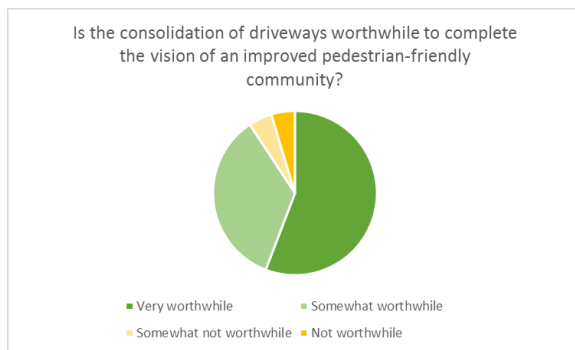


Figure 11

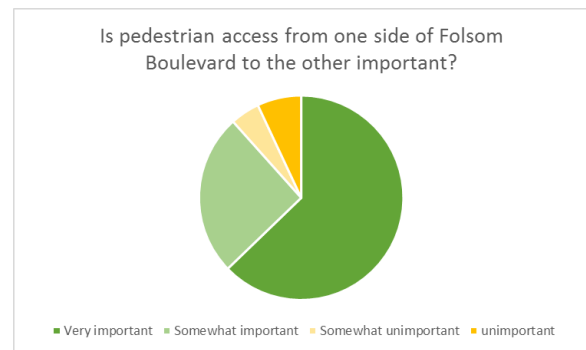


Figure 10

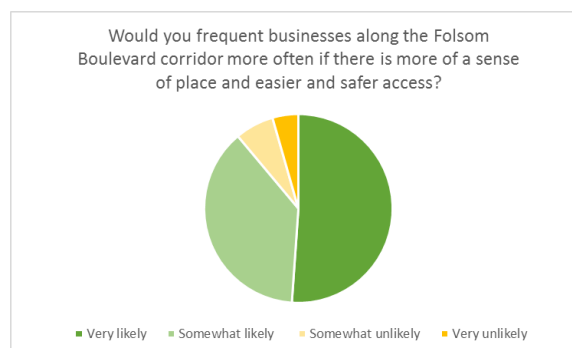


Figure 12

Responses to the following open ended questions included:

*What items would you definitely like to see in the streetscape of the Folsom Boulevard corridor? (such as lighting, public art, gathering places, banners, seating, pedestrian crossings, trees, etc.)*

*“Need to take a hard look at what will attract homeless camps/hangouts...low bushes allow for camping (i.e. at corner of Bradshaw/Business Park). While the idea of gathering places/seating sounds nice, it could just cause more problems with the homeless population.”*

*“More pedestrian friendly area between Butterfield and Mayhew: sidewalks and maybe a crossing to the station. Many people come from Mira Del Rio to the station and cross between the lights on Butterfield and Mayhew.”*

*“For me the most important feature that would attract me to this area would be bike lanes that are separated from automotive traffic. I find it very disappointing to see the wasted potential of a street redesign that follows the old idea of separating people on bicycles from automotive traffic by only a 4 inch strip of paint.”*

*Do you have any additional comments?*

*“Make it more user friendly such as safe walkways and bike areas.”*

*“Cultivating a sense of place and providing easy, non-car travel and access will increase my patronage of the businesses in this area.”*

*“This section of Folsom Blvd is one I frequently drive through rarely stop. Traffic speeds are too fast to really notice businesses so I tend to drive right through. I'm glad improvements will slow speeds and highlight history and community in design (fencing, crosswalk stripping, lighting and seating fixtures, and art)”*

*“We need a grade separation for Light Rail at Bradshaw!”*

*“I am concerned about the limited ability to make a u-turn between Bradshaw and Butterfield”*

The majority of respondents to the survey identified themselves as local residents. Responses to the survey indicate that most visits to businesses are on the west end of the project which is consistent with existing land uses. Reaction to the preliminary concepts of the master plan were overwhelmingly positive with over 60% of the survey responses indicating that access across Folsom Boulevard is very important and over 50% of the responses indicating that driveway consolidation is very worthwhile. Over 50% of respondents would frequent Folsom Boulevard businesses more often if there is a sense of place with safer and easier access.



*Sign demonstrates the lack of dedicated bike facilities*

# Chapter 8

## SUSTAINABLE DEVELOPMENT COMPONENTS

Consideration of low impact design and development helps the sustainability of both the built and natural environment. Striving for a balanced co-existence between natural and man-made systems is important to consider for social, economic and environmental endurance.

The Folsom Boulevard Complete Street Master Plan (FBCSMP) proposes several integrated design components to achieve low impact development associated with the roadway corridor improvements. “Low impact” generally refers to stormwater and water quality management, however this term can also be expanded to include preservation of existing resources and integrating design/development techniques and components in order to buffer or mitigate environmental impacts of the improvements.

In the case of FBCSMP, the biggest environmental impact will be installing impervious paved surfaces. Impervious paved surfaces cover over existing open ground. The following are impacts associated from roadway surfaces:

- The pavement typically re-directs rainwater and chemical spills into gutters and storm drains rather than absorbing the drainage into the existing soil.
- The paved surfaces collect and hold residue from vehicles (engine oils, anti-freeze, and rubber tire erosion). Then, when rain storms occur, this residue thus washes with the storm drainage into drainage pipes, often ending up directly into creeks, ponds and rivers. This residual pollution can concentrate exponentially as new development adjacent to the roadway expands. Rivers and lake water is the source of drinking water for humans and habitat for fish and other animals; therefore it should be kept as clean as possible.
- The paved asphaltic and cement based concrete surfaces absorb and reflect sunlight, causing ground temperature to increase. This temperature increase, when coupled with vehicle exhaust, combines to create air pollution and traps heat (the Green House Gas effect).
- When the roadway pavement temperature increase is added with other local heat islands (parking lots and roof-tops), it can cause a cumulative higher regional ambient temperature with associated ozone increases. This contributes to regional air quality concerns and a proportional rise in an urban community’s temperature. Rising temperatures require more energy to cool buildings down, with more fossil fuel resources consumed and more fossil fuel pollution produced. The air pollution triggers respiratory health



*Low Impact Development techniques like storm water capture and treatment can be implemented with the FBCSMP*

issues such as asthma, as well as results in acidic rain damage to natural and man-made structures and systems.

- Hard surface paving contributes to vehicular road noise as vehicle tires roll across it at high speeds, resulting in tire “whine” sounding.

The FBCSMP project promotes low impact design and development for sustainable objectives by providing:

- Multi-modal transportation options. The improvements of walking and bicycling facilities encourage healthy community goals and reduce automobile generated pollution.
- New or improved connections to Regional Transit buses and light-rail stations will promote ease of alternative transportation options, further reducing automobile emissions and congested commute times.
- The FBCSMP roadway corridor design will incorporate a tree and plant lined landscaped center median, as well as adjacent landscaped frontage planters (on both sides of the roadway). This creates a continuous band of vegetated greenspace which will serve to buffer the impervious roadway pavement.

- Access to greenspace within the urban community fabric can improve human health, resulting in fewer trips to health care facilities and reliance on manufactured pharmaceuticals.



*Greenspace can improve the pedestrian experience and the environment*

- Existing trees and vegetation shall be protected in-place if feasible.
- Trees, shrubs and vegetative groundcover work as natural “air conditioners” providing for carbon sequestration, rainwater absorption, and climate amelioration due to their shade cooling of pavement and the cooling effects derived from their leaf surface evapotranspiration process.
- Tree and plant respiration exchanges carbon dioxide for oxygen, sequestering harmful carbon from the atmosphere into plant tissues, while at the same time, releasing beneficial clean oxygen.
- Trees and plants also physically trap and hold harmful vehicular particulate exhaust matter onto their leafy surfaces. This leafy surface area also reduces storm water run-off by catching rainwater. The plants reduce erosion of roadway and soil surfaces by softening the direct impact of raindrops.
- Keeping pavements shaded by the overhanging tree “umbrella” canopy can reduce the pavement surface temperature, extending the pavement life, and reducing pavement produced petrochemical volatile emissions. This cooler pavement reduces pavement maintenance and pavement replacement intervals. Cooler paved surfaces also reduce regional ambient temperature accumulation.
- Water conservation is a priority in the Sacramento region, especially as drought conditions can persist unpredictably. Therefore, the FBCSMP landscaping and irrigation will be designed to meet or exceed the

State of California's Title 23, Division 2, Chapter 2.7 Model Water Efficient Landscaping Ordinance (MWELO), as adopted by the County of Sacramento.

- Organic mulch will be used to cover bare earth surfaces that are not covered by plants. Mulching performs as a "moisture blanket" to hold water within the soil and to keep soil temperatures cool. This results in water conservation as well as enhancing the growing conditions for the plants and allowing beneficial soil organisms to thrive.
- Mulch serves as a natural "sun block" for the soil surface, reducing weed growth and maintaining good soil tilth. Healthy, weed free soil reduces the need for chemical controls and/or fertilizers. Mulch reduces storm caused soil erosion.
- Sacramento's "Stormwater Quality Design Manual" and the companion reference document "River-Friendly Landscape Guidelines" will serve as the design references for stormwater and water quality management design.



*Example of a storm water retention at Freedom Park Drive in Sacramento County*

- Stormwater retention or detention devices shall be installed where plausible. Vegetated drainage swales (where feasible) and frontage and median landscaping have soil, root and leaf surfaces to slow and/or capture stormwater run-off and to absorb and filter road source pollutants. Keeping stormwater treatment localized in roadside landscaping reduces pollutants and sedimentation from entering the regional riverine system.

- Energy efficient street lighting will be used. Currently, light emitting diode (LED) traffic lights and street lights are the fixture of choice. This is due to LED low energy consumption and long service life. Energy efficiency reduces the

carbon footprint of the lighting system, while creating a well-lit corridor that encourages pedestrian and bicycle modes of transportation.

- Rubberized Asphalt Concrete (RAC) is a roadway paving product which incorporates rubber tire crumbs into the asphaltic concrete mix. The rubber infused paving reduces vehicle tire noise significantly. In addition, RAC is most often made from ground up recycled tires, thus reducing those used tire impacts by diverting them from landfills.
- Noise pollution will be further mitigated by having center medians and traffic signals directing traffic flow. Traffic signal synchronization and median channelization reduces "start and stop" engine noise at driveways and uncontrolled conflict points.

Incorporating low-impact design and development components in the FBCSMP improvements will help reduce the project's environmental impacts. The FBCSMP goals are to enhance human health, make the area more pleasant to live and visit, and to support businesses. This will be accomplished with social, economic, and environmental sustainability considered an important project objective.

# Chapter 9

## CORRIDOR VISION

Currently, the Folsom Boulevard corridor between Watt Avenue and the City of Rancho Cordova/Sacramento County border is an aged, under-improved corridor that connects many commercial and residential uses. The community would like to revitalize the area with additional shops, restaurants, cafes, and boutiques that could potentially serve more of the community. They would like a Smart Growth walkable, pedestrian and bicycle friendly “complete street” corridor to encourage more people to spend time in the business district while providing a more livable community.

Many of the concepts and ideas for this streetscape master plan have been successfully implemented in other County corridors. The public outreach process served to engage the community, generate interest, and introduce long term visioning and multi-modal improvements to meet their specific transportation needs.

As a multi-modal transportation corridor, Folsom Boulevard is an integral “thread” running through the fabric of the community. The look and texture of that thread can be described as the “streetscape”. A streetscape is what the community interacts with (visually and physically) as they travel to their homes, businesses and civic sites. A streetscape is essentially a walking, bicycling and driving experience. Another way to describe it is as the “central spine” which connects the surrounding body of residents and businesses, using both circulation and perception. The surrounding land uses grow off of this roadway backbone, influenced by the corridor’s look and accessibility. The streetscape is made up of several components, working together, to create a characteristic “sense of place”.

The vision for the streetscape for Folsom Boulevard is to apply streetscape development components that support and enhance the look and function of the corridor, while allowing “complete street” accessibility for vehicles, pedestrians, cyclists and buses.

The streetscape development components are generally described as:

- Landscaping (trees, shrubs, and groundcovers)
- Hardscaping (sidewalks, plazas, bicycle lanes, vehicle lanes)
- Lighting (street lights, traffic signals, pedestrian level bollard lighting)
- Architectural features (signage, monuments, gateways, detailed surfaces, art work)
- Effective use of space (travel paths, open area, “safe haven” zones, gathering points)



*Freedom Park Drive, Sacramento County successful complete street implementation*

By incorporating these streetscape development components and complete street accessibility, the streetscape vision for Folsom Boulevard will continue to be the thread that connects the surrounding land uses, in a more distinctive and functional way .

Ultimately, the Streetscape can help create a community destination that one wants to “go-to” rather than simply “drive-through”.

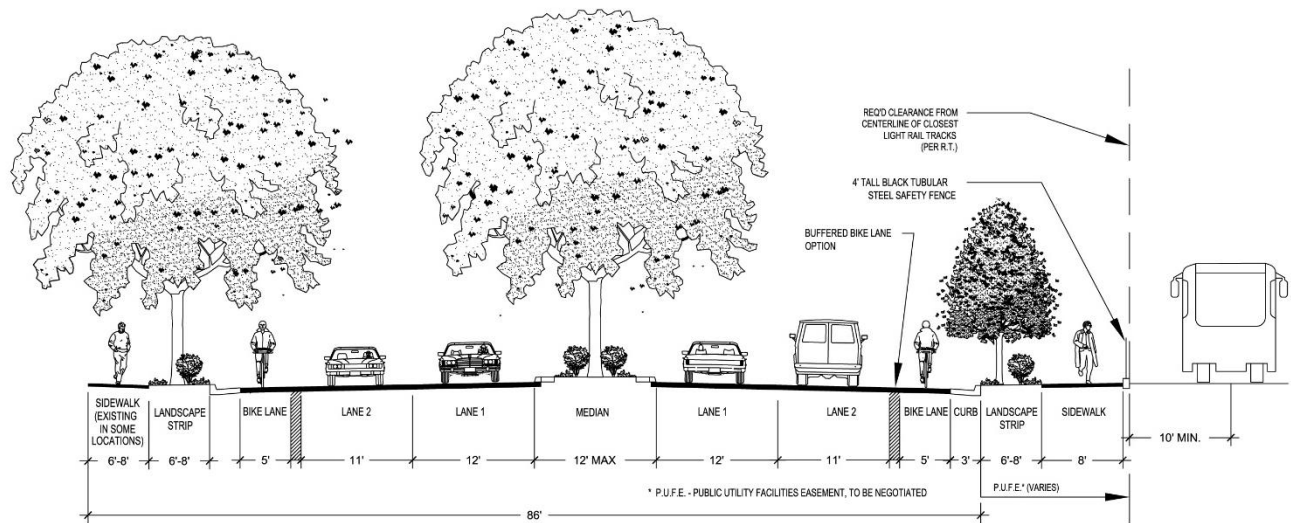


Figure 13 - Proposed FBCSMP cross section

The complete street area should feel like a “promenade” for pedestrians to walk about and for travelers in vehicles or on bicycles to notice business storefronts. To this end, two standard-width vehicle lanes in each direction are represented in the cross-section above, as well as a center median that will channelize traffic towards focused access points. Center medians also “calm” traffic speed and help reduce vehicular conflicts with the promenade pedestrians, cyclists, and other vehicles (all vying to turn in and out, or crossing over the numerous drive ways currently lining the north side of Folsom Boulevard). The median can be enhanced with landscaping and shade trees to cool the paved environment while adding aesthetic value to the corridor.

Because of the multiple, sometimes redundant, existing driveways serving the same business, driveway consolidation is recommended in the project area to improve pedestrian mobility and improve traffic flow and circulation. The driveway consolidation will be considered in conjunction with the use of median channelization.

Because of the perceived inconvenience to existing businesses, there are proponents within the community for absolutely no medians. Because of the potential benefits to business, there are proponents for a fully landscaped continuous median. Therefore, the concept of a partial-median was introduced from this community process. The partial-median concept will provide a left-hand turn pocket approximately mid-way between major intersections, where practical and within safe design requirements. The location of the median break will depend on the consolidation of driveways, multiple-accessible businesses, and cross access between properties.



For pedestrians, there will be a 6 to 8' wide sidewalk providing ample room to walk and congregate in front of businesses on the north side of Folsom boulevard. On the south side, an 8' wide continuous sidewalk is shown that connects to existing light rail stations and accommodates pedestrians with no conflicts with driveways.

On both sides of the boulevard, an adjacent 6 to 8' wide landscape strip between the sidewalk promenade and the street would provide shade trees, shrubs and groundcover to further create the outdoor space. This landscape strip serves to make the area more inviting, provide shaded travel-ways, add to the identity of the area, and also serve as a buffer area between the pedestrian and vehicular traffic. To reduce impacts to existing businesses, the landscape strip width requirement will be flexible and possibly differ from the typical 8 foot wide County Improvement Standard by decreasing the landscape strip width by 2', thus reducing the right-of-way requirement.

A standard 5' bicycle lane is proposed to give adequate consideration to alternative modes of transportation. Coincident to the bicycle lane is proposed a 2 to 3' wide "buffered" area, adding separation between bicycles and vehicles. This buffered area is simply a painted striping pattern on the roadway to clearly demarcate the space between the cars and bicycle lanes.

Within the corridor, there is a strong community desire to underground the overhead utility lines. There will be a need to designate a PUF (Public Utilities Facilities Easement) during the design phase of the project. The exact dimensions will be negotiated at the time of right-of-way acquisition, dependent upon the needs for utility facilities.



*Rendering of the interface between complete street improvements and businesses*

## Design Guidelines

### Vehicular Traffic Calming Measures and Signalization

Raised partial medians should be utilized throughout the study area to improve safety for oncoming and cross-traffic. Partial medians should be planted with trees, shrubs and groundcover where allowed by existing regulations to reduce night-time glare, improve shading of pavement, capture rainwater and street drainage, and enhance aesthetics.

The partial median concept differs from the County of Sacramento Transportation Improvement Standard. The Improvement Standard requires a continuous median on arterial roadways. The partial median concept will allow left hand turns at channelized locations, mid-way between signalized intersections. This concept was developed pending the consolidation of driveways and a definite, localized location for the left hand turn pocket. The driveway receiving the left hand turn pocket traffic should serve multiple businesses and properties. Cross access agreements and considerable driveway consolidation should play a role in the location of the receiving driveway.

Pedestrian mobility is further increased with driveway consolidation and the increased use of landscaping for shade.

### Pedestrian Promenade and Amenities

Eight foot or wider sidewalks are recommended in the commercial districts and pedestrian districts per the Pedestrian Master Plan recommendations. They should be divided from the curb with a raised planting bed between the sidewalk and the street where feasible. Sidewalks should be shaded where possible. The Folsom Boulevard section has been designated a “Pedestrian District” in the Pedestrian Master Plan, the Sacramento County General Plan, and the Sacramento County Improvement Standards. Sidewalks and other amenities should conform to the design guidelines presented in the Pedestrian Master Plan, which includes bus shelters, street trees, and pedestrian scale lighting, longer pedestrian intervals at signalized intersections, mid-block crossings, reduced traffic lanes, and sidewalk enhancements.



*A robust pedestrian realm increases business and social activity*

### Hardscape, Fences, and Barriers



*Examples of crosswalk treatments*

Typically, textured roadway pavement could be utilized at cross walks to both slow traffic and create a more aesthetic environment. Examples of a thermoplastic imprint system are shown in the following figure

Colored concrete is used as a tool to create visual interest as well as alert a pedestrian to an intersection (conflict zone) and in pedestrian entry plazas. A 2’x2’ score pattern is used in the sidewalk design to create an inexpensive urban and business aesthetic.

## Street Furniture and Fixtures

Benches, trash receptacles, bus stops, and street lights should be provided at regular intervals on both the north and south sides of Folsom Boulevard throughout the study area. Street furniture and fixtures should project the desired character of the corridor. Cobra-head lights are present throughout the study area as well as street lights mounted on utility poles. However, decorative human-scale streetlights should be located every 120 feet throughout the corridor area. Benches and trash receptacles should be placed approximately every 500 feet. All elements should be selected from a common design theme and be compatible with each other.

## Street Trees and Landscape Planting

The landscape plants provide a variety of attributes within the streetscape. Plants are often the closest thing to the pedestrian, finding groundcover at our feet, shrubs near our hands, and trees near our shoulders and right above our heads. Our eyes and nose see and smell plants, while our hands reach to touch them for an instinctual connection to our natural world. We are naturally familiar with the plants in the streetscape, which gives the streetscape a “user friendly” appeal which offsets the strict forms and function of the surrounding roadway and adjacent structures, creating a balanced experience.

Streets without landscaping are more auto oriented and are not perceived as approachable, accessible, safe or aesthetically pleasing as a streetscape with landscaping. Studies have documented that shade trees and other associated landscaping entice users to visit businesses more often, to stay longer, to spend at higher price points, and to recommend the area to other people.

Besides their aesthetic appeal, plants also provide functions that create inviting places to work, shop, dine and travel through. These functions include:

- Plants “soften” the hard edges of our urban environment with pliable and natural forms next to the solid geometric forms of buildings, concrete pavement, roadways, and utility lines.
- Plants provide a perception that gives human scale amidst vast expanses of pavement and tall structures.
- Plants provide cooling shade and environmental mitigation to people and the buildings, hardscape and roadway surfaces they interact with. Plants and the soil they grow in act as a sponge to absorb pollutants, stormwater discharge, direct sun, reflected heat, wind, and noise. They give back cooler, cleaner air and water, while filtering wind and noise.
- Plants provide an indicator of the seasons with pleasant, colorful flowers in spring and summer, with autumn colors, and winter structure.
- Plants create outdoor “living rooms”, using trees overhead as roofs, shrubs as space dividers and groundcover as floors.
- Plants paint a picture around us with their forms, colors, textures and sizes.
- Street trees and plants adjacent to roadways tend to “calm” traffic and reduce speeds by indicating to motorists that they are travelling through an inhabited area shared with pedestrians and cyclists. Plant lined streets present an enclosed space to cautiously navigate through, in contrast to a roadway without plants which appears to be “wide open” and to be sped through.

The plant palettes in the following tables have been created for the study area to enhance the desired character of the streetscape and should be used in the medians and planting beds between the sidewalk and street. Distinctive palettes should be used for the corridor. Median plantings must be suitable for the harsh conditions often found in medians.

## Signature Trees



Trees and landscaping are a subtle yet consistent component along the streetscape which establishes the “outdoor room” and the downtown sense of place. One tool to identify the unique aspects of an area is to use “Signature Trees”. The trees are distinguished from the other trees, which are typically used for shade and aesthetics, as they also provide a unique identity or “signature” of the Folsom Boulevard corridor. These trees are often taller and more distinctive, and can stand alone or in groupings to draw attention to them, thus further giving Folsom Boulevard a “you are here” signature.

On Folsom Boulevard, there were historically local plantings of Walnut Trees that were associated with the early development of the area.

**Table 12 Recommended Street Trees**

LATIN NAME or COMMON NAME	IMAGE	TREE CHARACTERISTICS (MATURE HEIGHT, SPREAD, GROWTH RATE)	RECOMMENDED APPLICATION / NOTES
<b>Street and Frontage Trees</b>			
<b>Quercus coccinea</b> <b>Scarlet Oak</b>		Height: 60-80 feet Spread: 40-50 feet Moderate growth	Deciduous Large scale. Street/Shade/accent (fall color) tree Not under powerlines. In median. Some maintenance to prune when young and acorn drop.
<b>Valley Oak</b> <b>Quercus Lobata</b>		Height: 50 feet Spread: 50 feet Moderate growth	Deciduous Large scale. Street/Shade tree Not under powerlines. In median. Some maintenance to prune when young and acorn drop.
<b>Tilia Americana</b> <b>American Linden</b>		Height: 70 feet Spread: 40 feet Moderate growth	Deciduous Large scale. Street/Shade tree Not under powerlines. In median. Some maintenance to prune when young.






**Table 12 Recommended Street Trees**

<p><b>Acer truncatum</b> Shantung Maple</p>		<p>Height: 30 feet Spread: 30 feet Moderate growth</p>	<p>Deciduous Medium scale Street/shade/accent tree (fall color) Under taller powerlines In median. Some maintenance to prune</p>
<p><b>Pistacia chinensis</b> Chinese Pistache</p>		<p>Height: 30 feet Spread: 30 feet Moderate growth</p>	<p>Deciduous Medium Scale Street/Shade/Fall color accent Under taller powerlines In median/ frontages Minimal maintenance, small berries drop once per year, but not messy</p>
<p><b>Arbutus "Marina"</b> Marina Strawberry Tree</p>		<p>Height: 40 feet Spread: 35 feet Moderate growth</p>	<p>Evergreen Medium Scale Shade and accent tree Under taller powerlines In median/ frontages</p>
<p><b>Pyrus calleryana</b> "Chanticleer" Chanticleer Pear</p>		<p>Height: 40 feet Spread: 15 feet Moderate growth</p>	<p>Deciduous Medium Scale Narrow shape Not under powerlines Shade/Accent (Fall leaf/winter flower color) accent tree In median/ frontages</p>
<p><b>Desert Willow</b> Chilopsis Linearis 'Burgundy'</p>		<p>Height: 20 feet Spread: 20 feet Fast growth</p>	<p>Evergreen Small Scale Shade and accent tree Under powerlines In median/ frontages Minimal maintenance</p>

**Table 12 Recommended Street Trees**

<p><b>Orange Tree</b> Citrus 'Washington' (Naval)</p>		<p>Height: 20-25 feet Spread: 20-25 feet Moderate growth rate</p>	<p>Evergreen Small scale Shade and accent tree (historical to Orangevale) Under powerlines In frontage landscapes Requires some maintenance to prune/harvest fruit</p>
<p><b>Lagerstroemia hybrid</b> Crepe Myrtle</p>		<p>Height: 20 feet Spread: 15 feet Moderate growth</p>	<p>Deciduous Small Scale Shade/Accent (summer flower color) accent tree Under powerlines In median/ frontages</p>
<p><b>Cercis canadensi</b> Easter Redbud</p>		<p>Height: 20 feet Spread: 15 feet Moderate growth</p>	<p>Deciduous Small Scale Shade/Accent (spring flower color) accent tree Under powerlines In median/ frontages Attracts pollinators</p>
<p><b>Laurus nobilis</b> Sweet Bay Laurel</p>		<p>Height: 20 feet Spread: 15 feet Moderate growth</p>	<p>Evergreen Small Scale Shade and accent tree (fragrant flowers) Under powerlines In median/ frontages</p>
<p><b>Heteromeles arbutifolia</b> Toyon, Christmas Berry</p>		<p>Height: 10 feet Spread: 10 feet Moderate growth</p>	<p>Evergreen Small Scale Shade and accent tree (winter berries flowers) Under powerlines In median/ frontages</p>

Shrubs provide form, texture, color, scent and buffering next to roads and buildings, serving to create spaces by dividing the hardscape into outdoor rooms and bordering travel paths.

Table 13 Recommended Shrubs			
LATIN NAME or COMMON NAME	IMAGE	TREE CHARACTERISTICS (MATURE HEIGHT, SPREAD, GROWTH RATE)	RECOMMENDED APPLICATION / NOTES
<b>Shrubs and Groundcover</b>			
Sageleaf Rockrose Cistus Saviifolius		Height: 2 feet Spread: 5 feet Fast growth	Median Minimal maintenance
Deer Grass Muhlenbergia Rigens		Height: 4 feet Spread: 4 feet Moderate growth	Median Minimal maintenance
Cherry Bomb Barberry Berberis Thunbergii		Height: 4 feet Spread: 3 feet Fast growth	Median/ frontage Minimal maintenance
Winfred Gilman Sage Salvia Clevelandii		Height: 3 feet Spread: 3 feet Fast growth	Median Minimal maintenance
Emerald Carpet Manzanita Artostaphylos		Height: 8 feet Spread: 4 feet	Median Minimal maintenance

As named, accent plantings accentuate and highlight themselves at focal points to break up the monotony and give character and identity to the streetscape.

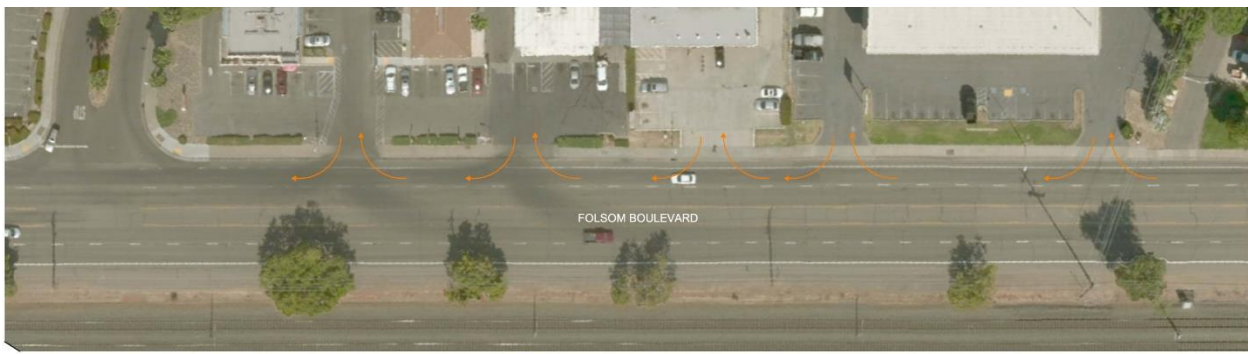
Table 14 Recommended Accent Plantings			
LATIN NAME or COMMON NAME	IMAGE	TREE CHARACTERISTICS (MATURE HEIGHT, SPREAD, GROWTH RATE)	RECOMMENDED APPLICATION / NOTES
<b>Shrubs and Groundcover</b>			
Hidcote Blue Lavander <i>Lavandula Angustifolia</i>		Height: 1.5 feet Spread: 1.5 feet Fast growth	Frontage Minimal maintenance
Blue Oat Grass <i>Helictotrichon Sempervirens</i>		Height: 2 feet Spread: 2 feet Fast growth	Frontage
California Fuschia 'Bowman' <i>Zauschneria Californica</i>		Height: 2 feet Spread: 2 feet Moderate growth	Frontage Minimal maintenance
Color Guard Yucca <i>Yucca Filamentosa</i>		Height: 2 feet Spread: 5 feet Fast growth	Median
<i>Lippia nodiflora</i> "Kurapia"		Height: 4 inches Spread: 12 inches Fast growth	Groundcover in medians and frontages



## Driveway Consolidation

Driveway consolidation is the process of reducing the density of driveways along a major roadway by closing unnecessary or redundant driveways, creating alternative access ways, creating shared driveways, relocating entrances to side streets, or promoting cross access. Such projects are generally done to improve frontage roadway safety but can also improve traffic flow. Driveway consolidation can be applied as an individual access management strategy, but it is most often done in conjunction with the installation of medians, two-way-left-turn lanes, and/or frontage roads.

While driveways may provide some convenience for motorists to access their businesses, a higher density of driveways, and driveways with excessive width creates many potential points of conflicts when vehicles turn into the driveway thereby crossing over the sidewalk and bike path. Consolidating driveways help reduce points of conflict for pedestrians and bicyclists, provide more space for trees and landscaping (thereby more shade), and create more area for parking stalls.



*Driveways along Folsom Boulevard*

### Driveway consolidation reduces points of conflict with bicyclists and driveways

Studies have shown that as the number of driveways along a street increases, so does the number of accidents. On a street with many driveways, through traffic has to slow and stop often to accommodate vehicles pulling in and out of the driveways resulting in more accidents. Reducing the number of driveways and/or creating shared driveways are ways to make traffic flow more smoothly and consolidate vehicular points of conflict with bicyclists and pedestrians. In addition to the number of driveways, the location of driveways is also important. Driveways should be located to assure proper sight distances and channelization of through traffic.



*Example of consolidate driveways on Watt Avenue*

## Driveway consolidation can improve access for businesses

In recent case studies, businesses along streets with a properly designed driveway consolidation had similar or better retail sales than businesses on streets with more driveways. Motorists generally try to avoid streets where they have to regularly slow down or stop for vehicles that are pulling in and out of driveways.

### Driveway consolidation considerations

- The type of business, is it a destination business or an impulse business?
- A destination business could be defined as one that a customer is specifically looking for.
- An impulse business could be defined as one that a potential customer will be driving by and will impulsively stop, if there are convenient accessible options.
- Cross—street attractors, whether the business or light rail station across the street would attract pedestrians/customers
- Could cross-access movement from one property to the next be accomplished?
- Are there redundant driveways, or driveways with excessive widths that could be consolidated?

During the design process, every effort will be made to consolidate driveways in conjunction with the median placement. Cross access agreements will be negotiated with the frontage improvements proposed with streetscape design.

## Utility Undergrounding

There is a strong desire by the local communities to underground the utilities along the FBCSMP segment. While many grants will not allow utility undergrounding to be a part of the grant funding, alternative funding sources will be explored to fund the undergrounding process. The utility undergrounding process involves detailed coordination and space allocation for existing and future utility service needs.

The Underground Process consists of five stages:

1. Public Hearings
2. Design and environmental Coordination
3. Notification
4. Construction of Undergrounding
5. Construction of Public Improvements

# Chapter 10

## RECOMMENDED IMPROVEMENTS

Folsom Boulevard's transition from an automobile-centric corridor to a local complete street to better accommodate active modes of transportation and transit oriented development is already underway. The City of Rancho Cordova has already completed three phases of improvements to Folsom Boulevard with two more in the planning/design phase (as described on page # of this report). Typical improvements with these projects include landscaped medians, continuous sidewalk improvements on both sides of the street, lighting, and bike lanes. These are the same base improvements that are proposed on Folsom Boulevard within the City of Sacramento's jurisdictional limits to the west of the project.

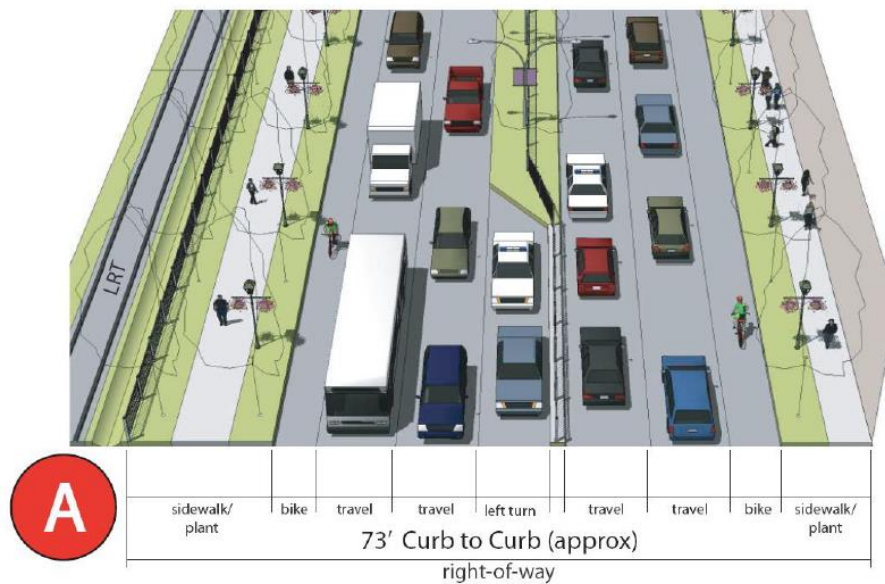


Figure 14 - Cross section from the Rancho Cordova Folsom Boulevard Specific Plan (2006)

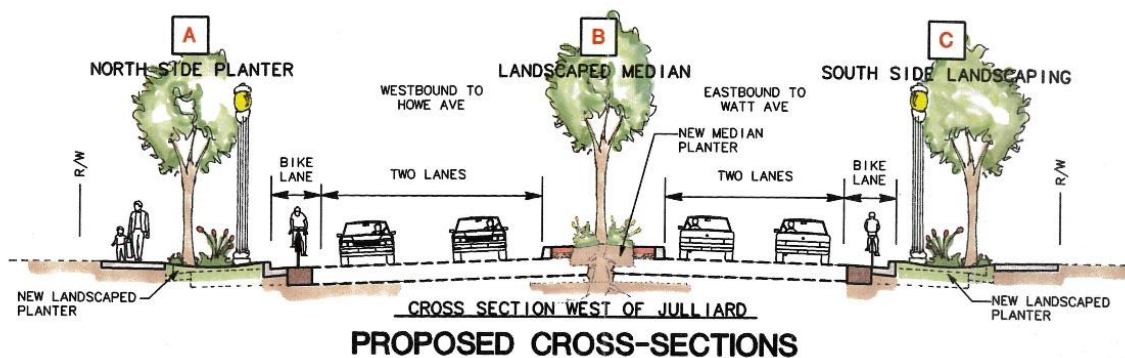


Figure 15 - Cross section from the City of Sacramento Folsom Boulevard Master Plan (2007)

It will be important that the recommendations from this plan consider previous planning and construction efforts on the corridor to avoid unnecessary gaps in bicycle and pedestrian improvements, but are consistent with Sacramento County's Improvement Standards.

## Transportation Improvement Standards

Sacramento County Improvement Standards provide the requirements and standards that are to be applied to facilities proposed to be constructed within public rights-of-way within unincorporated areas. The Improvement Standards serve to regulate and guide the design and preparation of plans for streets, major roadways, drainage facilities, sewage, traffic signals, street lighting, water supply facilities, landscaping and related public improvements. Street Improvement Standards regarding roadways, sidewalks, bicycle lanes, traffic signs, traffic signals, and street trees are provided in Section 4 of the County Improvements Standards.

All street design and construction must follow the current Street Improvement Standards. However, through the streetscape master plan process, public input, and community consensus, the Sacramento Department of Transportation can agree to incorporate different components to the roadway. This FBCSMP will serve as a guideline for any modifications to existing standards.

Based on the County Standards, previous studies on the corridor, lessons learned from construction efforts in Rancho Cordova, and previous public engagement efforts, the following are recommended improvements for consistency on the corridor:

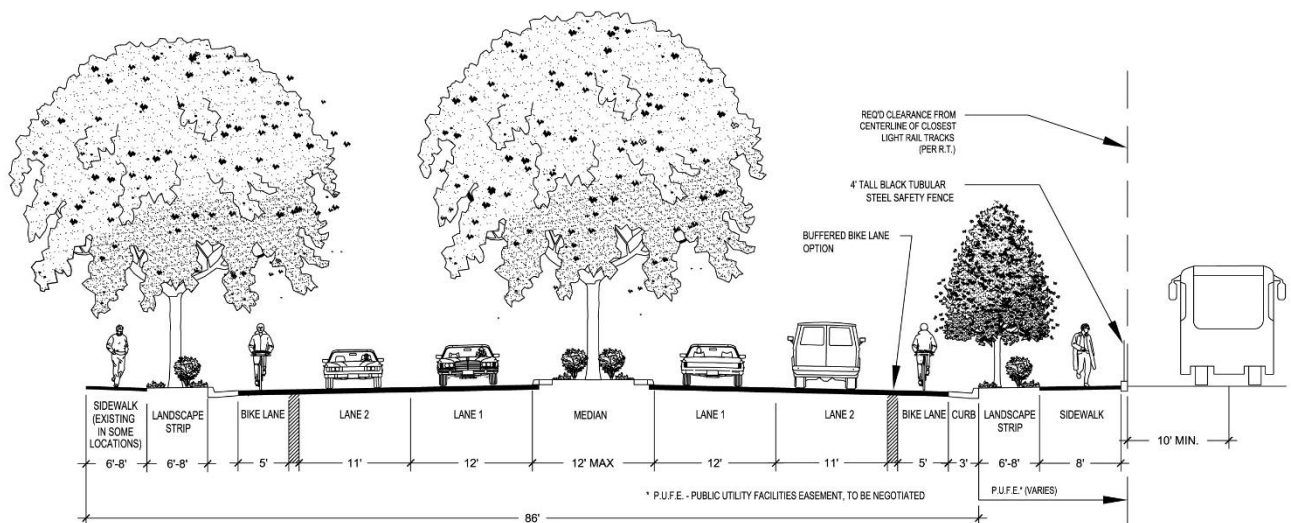
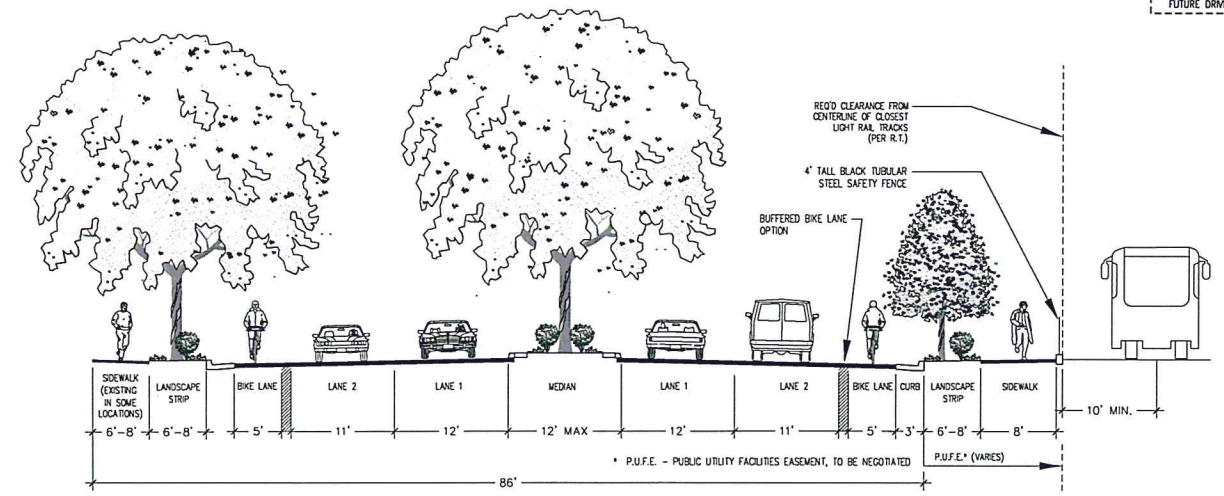
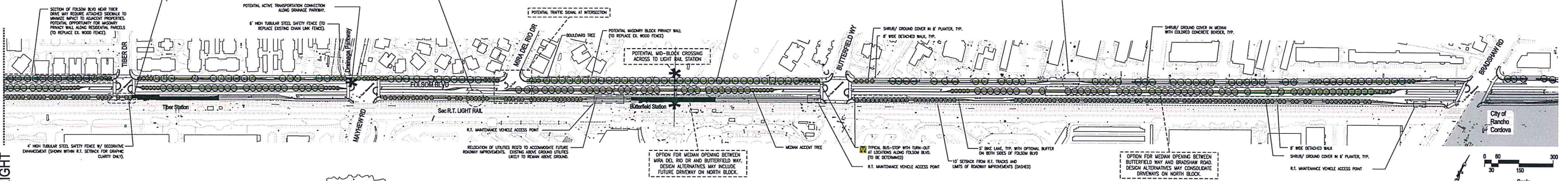
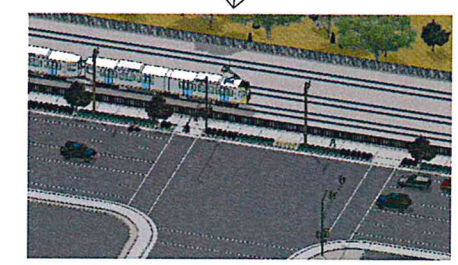
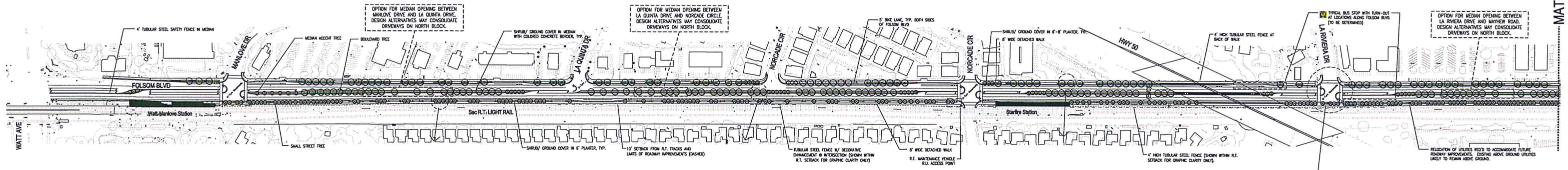


Figure 16 - Proposed FBCSMP cross section



# FOLSOM BOULEVARD- COMPLETE STREET MASTER PLAN EXHIBIT

## WATT AVENUE TO BRADSHAW ROAD/ WEST CORRIDOR



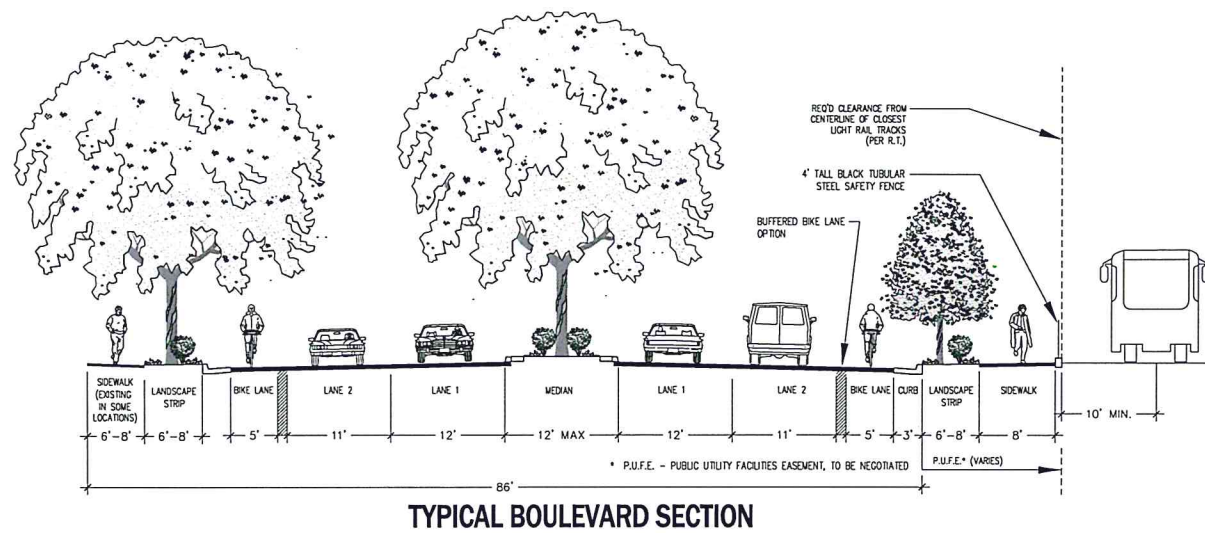
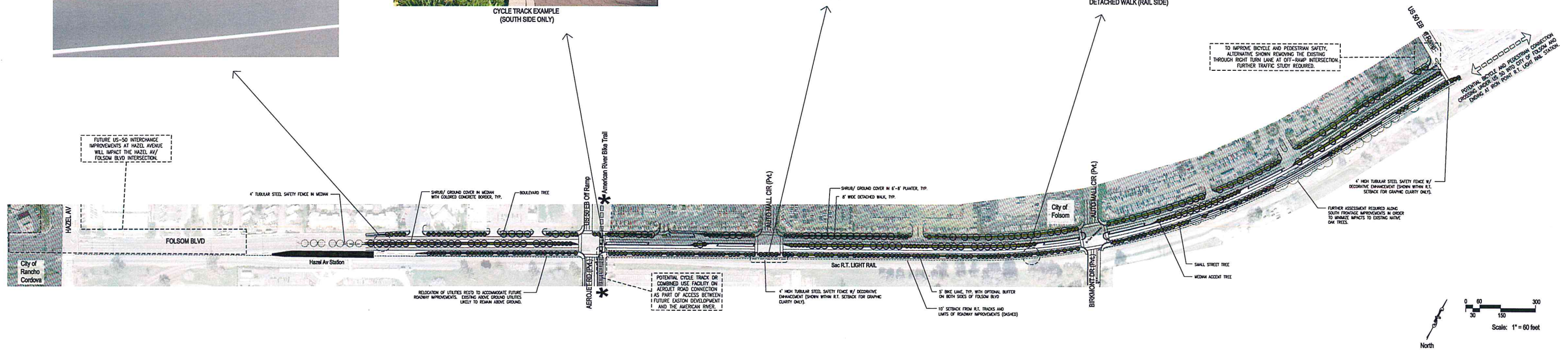
CYCLE TRACK EXAMPLE (SOUTH SIDE ONLY)



DECORATIVE FENCE OPTIONS



DETACHED WALK (RAIL SIDE)



TYPICAL BOULEVARD SECTION

# FOLSOM BOULEVARD- COMPLETE STREET MASTER PLAN EXHIBIT

## HAZEL AVENUE TO EAST COUNTY LINE/ EAST CORRIDOR

## Southern Sidewalk

The south side of Folsom Boulevard has very limited pedestrian connectivity, yet it is the side of the street with light rail facilities. Providing a continuous sidewalk between light rail stations is important to the success of the FBCSMP project. The south side of Folsom Boulevard also has fewer driveway conflicts than the north side, making it a more desirable pedestrian path with fewer potential points of vehicular conflict. Anecdotal evidence from previous phases of work in Rancho Cordova indicate that some pedestrians prefer to use the southern sidewalk instead of navigating the multiple driveway conflict points on the north side.



*Example of a sidewalk with landscape buffer on the south side of Folsom Boulevard*

Folsom Boulevard is an identified Pedestrian District in the Pedestrian Master Plan and the County's Improvement Standards, therefore sidewalks should be 8' wide on the south side. The back of walk of the southern sidewalk must be located to provide a 10' from the centerline of the nearest light rail track to meet Regional Transit's requirements.

The sidewalk should be bifurcated from the roadway throughout the length of the corridor with a landscaping strip. The landscaped strip should be 8' wide when possible, but can be reduced to 6' where there are right-of-way conflicts, re-alignment of the sidewalk is needed to avoid significant utility impacts, or the 10' buffer from light rail facilities cannot otherwise be maintained. Landscaping in this strip must be sized appropriately to avoid conflicts with the overhead utility lines while maintaining clear sight lines from Folsom Boulevard to the sidewalk and light rail stations. The County may underground these utilities at a later date when funding is available. Landscaping along the south side should be augmented with adequate pedestrian-scale lighting to improve pedestrian access during the non-daylight hours.

## Bike Facilities

Folsom Boulevard has existing bike lanes on the north and south sides of the street that vary in width and comfort for the bicyclist. It is important that the proposed improvements standardize these bike lanes with proper signing and striping, especially on the south side of Folsom Boulevard with the construction of new curb and gutter.

Per County standards, bike lanes should be a minimum of 5' measured from the edge of traveled way to the lip of gutter. Consideration in the final design should be given to painting a buffer between the bike lanes and traveled way per the National Association of City



*Proposed buffered bike lanes along Folsom Boulevard*

Transportation Officials (NACTO) guidelines. A 2' buffer is allowed per these guidelines but a 3' buffer is preferred. If a 3' buffer is selected, consideration should be given to widening the bike lane to 6' and making adjustments to the proposed traveled lanes or landscaping.

The bike lanes should be continuous throughout the limits of the project to match existing facilities in Sacramento and Rancho Cordova. Connections to the American River Parkway should be considered at Mayhew Road and Aerojet Road. At Aerojet Road to compliment the current connection at Folsom and Watt, it will be critical to provide a clear connection to the existing bicycle and pedestrian bridge over Highway 50. A separate crossing of Folsom Boulevard marked exclusively for bicyclists with high visibility markings should be included with any improvements east of Hazel Avenue. Consideration should also be given to providing a Class 1 bicycle and pedestrian path from the Aerojet Road intersection into the Easton development.

## Medians

Landscaped medians promote traffic calming and beautify the corridor. They also improve traffic safety when there are high traffic volumes. The proposed median widths in the Master Plan are 12' to meet County Standards and provide sufficient space for landscaping. Travel lanes adjacent to the median should be 12', although outside lanes have been reduced to 11' to further promote traffic calming adjacent to bike lanes. Landscaping in the median should be drought tolerant and consistent with the County's River-Friendly Landscape Guidelines.

When designing raised medians in future phases of work, it will be critical to consider access to businesses and include median breaks as necessary. Coordination with business owners and stakeholders along the corridor is strongly encouraged to identify locations where driveway consolidation can create logical locations for median breaks while providing a safer environment for bicyclists and pedestrians. These breaks must also consider the County's maximum distance of 1,000 feet between median breaks for emergency vehicle access.

To minimize the access impacts caused by medians, U-turn movements should be accommodated at signalized intersections unless otherwise prohibited by right-of-way conflicts such as light rail stations. Initial intersections that have been identified for U-turn movements include Manlove Road, Norcade Circle, La Riviera Drive, Tiber Drive (EB only), Mayhew Road (WB only), Butterfield Way, Bradshaw Road, and Birkmont Drive.



*Rendering of the proposed complete street improvements*



## North Side Improvements

Improvements to the north side of Folsom Boulevard include a continuous separated sidewalk. The sidewalk should be 8' wide when possible and bifurcated with an 8' landscaping strip unless adjacent to a right turn pocket or bus pull out. Existing street lighting should be supplemented with pedestrian-scale lighting as deemed necessary from a lighting analysis. Driveway consolidation should be considered to reduce the number of conflict points between drivers, bicyclists and pedestrians.



*Rendering of improvements to the frontage of existing businesses and parking lots on the north side of Folsom Boulevard.*

## Improvements related to Light Rail

During the planning process and in coordination with Sacramento Regional Transit (RT) improvements were identified near the transit corridor that would benefit both agencies. As discussed in the public engagement chapter above, a grade separated crossing at Bradshaw Road has been identified as a long term project that should be pursued as it has some of the highest potential volumes on both the roadway and the Gold Line. In addition, American with Disabilities Act (ADA) improvements are being made at many of the at-grade crossings over the next couple of years and can be included in future streetscape projects or accommodated in the design if previously implemented by the transit agency. Finally, RT staff identified the benefits of upgrading the signal controllers at all of the major intersections along Folsom Boulevard to be able to coordinate with the track signal infrastructure. Upgrading the signal controllers can increase performance for all modes of travel.



*Rendering of improved pedestrian crossing and possible safety railing installed between the sidewalk and light rail tracks.*

# Chapter 11

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## FUNDING AND IMPLEMENTATION

The Folsom Boulevard Complete Street Master Plan is a long range planning document that has taken a holistic look at access and mobility on Folsom Boulevard within unincorporated County limits. The recommendations described in the document do not have specific funding sources identified for implementation like those in typical Capital Improvement Programs or Regional Transportation Plans. However, there are a number of ways that the improvements in the Plan can be implemented with assistance from both public and private entities.

### Project Costs and Phasing

Preliminary cost estimates for all improvements identified in the Folsom Boulevard Complete Street Master Plan are approximately \$20M between Watt Avenue and Bradshaw Road and \$8M between Hazel Avenue and the Highway 50 interchange. With these costs it may not be practical to construct the project in its entirety as a single construction project. Instead, the project will likely have to be phased in segments similar to the approach taken by the City of Rancho Cordova.

### Private Investment

Private developers can be responsible for the design and construction of some of the improvements outlined in the Plan as redevelopment on Folsom Boulevard occurs. The advantage of this approach is that it reduces the amount of public money used to implement these improvements. The Plan is critical in this case as it will help ensure that property owners are developing their frontage to the same ultimate roadway cross section. Likely projects, which could contribute to Folsom Boulevard streetscape include The Landing, Riverstone, and Easton Place. The challenge with relying solely on developer driven projects is that the improvements will be constructed segmentally over a potentially much longer timeframe and will be limited to property frontages only.

### Public Investment

The advantage of the publicly funded projects is that they can be built on a set timeline based on available funding and span multiple property or jurisdictions. The challenge with public funding projects is that they are dependent on the project competing well for local, regional, State, or Federal grants or qualifying for some sort of financing district, tax or bond program. As listed below, there are many funding sources that may be applicable for Folsom Boulevard. The Folsom Boulevard Complete Street Master Plan is a critical piece in being competitive for these various regional funding sources through their funding programs. Most of the funding sources below are available through SACOG's Regional Flexible Funding Programs including the Regional Bicycle & Pedestrian, Community Design, and Regional/Local Programs.

### Federal Funding

Federal funding provides a significant proportion of transportation funding throughout the United States. In December 2015, The Fixing America's Surface Transportation Act or "FAST Act" bill was signed into law. FAST Act covers a variety of transportation related issues including financing, congestion relief, improved safety, improved efficiency (such as coordinated planning and environmental streamlining), environmental stewardship, and

transportation related research and studies. One key provision of FAST Act is that funding for bicycle and pedestrian transportation was reduced and consolidated into the "Transportation Alternatives Program" (TAP). The TAP provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, enhanced mobility, community improvement activities, environmental mitigation; recreational trail program projects; and safe routes to school projects to name a few. Potential funding sources include the Transportation Investment Generating Economic Recovery (TIGER) grant and Congestion Mitigation and Air Quality Program (CMAQ).

Federal funding is generated almost entirely by a motor fuel tax and distributed through over twenty different programs that control application by facility type, permitted use, and geographic location. Through the local Metropolitan Planning Organization, Sacramento Area Council of Governments (SACOG), federal transportation programs available for Folsom Boulevard may include the Congestion Mitigation and Air Quality Program (CMAQ) and Regional Surface Transportation Program (RSTP).

### ***Congestion Mitigation and Air Quality Program (CMAQ)***

CMAQ was established by the 1991 Federal Intermodal Surface Transportation Efficiency Act (ISTEA) and was reauthorized with the passage of TEA-21, SAFETEA-LU, MAP-21, and FAST Act. Funds are directed to transportation projects and programs which contribute to the attainment and maintenance of National Ambient Air Quality Standards in non-attainment or air quality maintenance areas for ozone, carbon monoxide, or particulate matter under provisions in the Clean Air Act. As part of the Sacramento Valley air basin, which is in non-attainment for ozone, Sacramento County is eligible for CMAQ funds.

### ***Regional Surface Transportation Program (RSTP)***

RSTP was established by the 1991 Federal Intermodal Surface Transportation Efficiency Act (ISTEA) and continued with the passage of TEA 21 in 1997, SAFETEA-LU in 2005, MAP-21 in 2012, and FAST Act in 2015. RSTP is the most flexible of the transportation funding programs. A variety of transportation projects and modes, including streets and roads, are eligible.

Examples of projects eligible for RSTP include highway projects; bridges (including construction, reconstruction, seismic retrofit, and painting); transit capital improvements; carpool, parking, bicycle, and pedestrian facilities; safety improvements and hazard elimination; research; traffic management systems; surface transportation planning; transportation enhancement activities and control measures; and wetland and other environmental mitigation.

Eighty percent of the apportionment is distributed among the urbanized and non-urbanized areas of the State through Metropolitan Planning Organizations and Regional Transportation Planning Agencies. The remainder goes directly to counties in a formula equal to 110% of the Federal Aid Urban/Federal Aid Secondary funding in place prior to 1991.

## **State Funding**

State funding also comes largely from the fuel tax, though recent changes in law now provide for some contribution from the state sales tax on motor fuel. State funds are combined with funding from various federal programs through the biennial State Transportation Improvement Program programming process and apportioned to the state highway system projects, and other projects throughout the state formulaically based on the geographic distribution of population and lane miles. Cap-and-Trade Program revenues also provide future funding opportunities for infill and affordable housing development projects.

### ***Active Transportation Program (ATP)***

Prior to the passage of MAP-21, non-motorized transportation was funded in the state through a suite of programs that included State Safe Routes to School, Bicycle Transportation Account, and the Recreational Trails Program. MAP-21 collapsed those programs into single funding program called the Transportation Alternatives Program or TAP. Federal TAP funding was allocated through MAP-21 to individual states, and on September 26, 2013, Governor Brown signed legislation creating the Active Transportation Program (ATP) in the Department of Transportation (Senate Bill 99, Chapter 359 and Assembly Bill 101, Chapter 354). The ATP consolidates existing federal and state transportation programs, including the Transportation Alternatives Program (TAP), Bicycle Transportation Account (BTA), and State Safe Routes to School (SR2S), into a single program with a focus to make California a national leader in active transportation. The ATP is administered by the Division of Local Assistance, Office of Active Transportation and Special Programs.

### ***Affordable Housing and Sustainable Communities Program (AHSC)***

Administered by the Strategic Growth Council, the Affordable Housing and Sustainable Communities Program collects and distributes Cap-and-Trade Program revenues for land use, housing, transportation, and land preservation projects. This program strives to reduce greenhouse gas emissions by providing funding for infill and compact development, including a portion dedicated to affordable housing near major transit lines. Every year, 20% of proceeds from the Greenhouse Gas Reduction Fund are to be allocated to the AHSC.

# Appendices

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APPENDIX 1: PUBLIC OUTREACH MATERIAL – POWERPOINT AND BOARDS

APPENDIX 2: PUBLIC OUTREACH MINUTES / BOARD OF SUPERVISORS ITEMS

APPENDIX 3: FULL SURVEY RESPONSES

APPENDIX 4: PLANNING LEVEL COST ESTIMATES

APPENDIX 5: WALKSACRAMENTO COMMUNITY LIVABILITY ASSESSMENT

APPENDIX 6: TRAFFIC REPORT

