Brawley Main Street Plan

A Report to the City of Brawley, California

February 2007

Prepared by
Local Government Commission
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Views and opinions presented in this report do not necessarily represent the views or opinions of the California Department of Transportation (Caltrans) or the California Business Transportation and Housing Agency.

BRAWLEY MAIN STREET PLAN
CHAPTER 1: INTRODUCTION

Introduction:

Within the next two to four years, the California Department of Transportation (Caltrans) will relinquish portions of Highways 78, 86, and 111 to the City of Brawley as a bypass highway system is completed. This process will begin with the state highway right-of-way (ROW) that includes Brawley's Main Street in its entirety. The relinquished area will include the city's traditional commercial core, Plaza Park, and east and west Main Street.

This project was funded by a Caltrans Transportation Planning Grant, in the Economic Justice category for context-sensitive planning. That grant program's goals are to:

- Strengthen the economy
- Promote infill development and social equity
- Protect the environment
- Encourage efficient development practices
- Promote jobs and affordable housing balance
- Link housing, transportation, and land use planning
- Increase community livability

This project and the implementation activities that will follow advance all of these goals. The goals related to infill, affordable housing, and linking jobs and housing were often ignored by transportation planning activities in the past. By including recommendations for changes in land use and zoning in the core area and the eastern and western portions of Main Street, this project advances those goals as well as those related to economic vitality, the environment, and the transportation system.

This effort is focused around Brawley's Main Street, of course, so a description of the community should begin there. Main Street, approximately two miles long, is currently characterized by:

- High office and commercial vacancy rates
- Economic instability
- A deficient pedestrian environment with many sidewalks missing or in poor condition
- Difficulty for pedestrians crossing Main Street
- A complete lack of bicycle facilities
- Heavy volumes of truck traffic (up to several hundred trucks per day)
- Problem intersections with high numbers of vehicle, bicycle, and pedestrian accidents

Anticipating the completion of the Highway 111 Bypass and subsequent reduction in through truck traffic, the City of Brawley sought and received funding from Caltrans for a project to develop a vision for transforming Main Street from a car and truck-oriented highway to an economically-revitalized boulevard that safely accommodates all modes of travel. This was done through a highly participatory process called a charrette that engaged residents, business operators, local elected officials, city staff, and schools. The result is a detailed plan using context-sensitive design principles to redesign this auto-oriented highway into a Main Street that also accommodates transit, pedestrians, and cyclists, and creates a revitalized, lively town center for the residents of Brawley.

Additionally, two school neighborhoods plagued by accidents and vehicle/pedestrian conflicts were evaluated by the design team. Suggestions to improve safety at those locations are included in Chapter 3 of this report.

This project funded by a Caltrans Community Design grant.

Post Office in Plaza Park.

Plaza Park area commercial buildings.

New development on West Main Street with good sidewalks.

Background:

The City of Brawley lies 25 miles north of the border between the United States and Mexico and about 120 miles east of San Diego, in Imperial County. El Centro, the Imperial County seat, is 15 miles to the south. Brawley has 22,000 residents, roughly 75 percent Latino.

Imperial County's per capita personal income is well below that of neighboring San Diego County, and is 41% lower than the state average. According to 1999 Bureau of Economic Analysis (BEA) data, per capita personal income in Imperial County stood at $17,550. According to the California Department of Motor Vehicles, only 13,500 residents of Brawley hold a drivers license. This points to a young population with many children in the community. Access to schools and other locations for these children became a significant component of this design project.

Brawley's economy is primarily agricultural, but tourist traffic passing through town to nearby desert recreation areas also contributes to a significant portion of local revenues. Imperial Sugar, one of the major employers in the county, recently filed for Chapter 11 bankruptcy. Unemployment rates rose throughout the area, especially in Brawley.

The study area for this project is the two-mile plus stretch of Main Street in the Highway 111/86/78 corridor that runs east/west through the City of Brawley. The exact distance in the initial grant proposal that secured funding for this project is from Las Flores Drive in the west to Best Road at the eastern city limits. After initial discussions with residents and City staff, the project team extended their design efforts. This report now includes the New River arroyo to the west of Las Flores Drive, and an additional segment of East Main Street between Best Road and the Highway 111 bypass.

This entire corridor is currently a four-lane street with most sections having curbside parking. It lacks bicycle lanes. Crosswalks are in mostly good condition in the commercial core/Plaza area and near newer development. In other locations, they are in need of repair, or missing entirely.

In the middle of the corridor, Main Street cuts through the community's centrally located Plaza

Heavy mid-day commercial vehicle traffic.

Old theater is a prime renovation opportunity.

Park, which contains a bandstand gazebo, Post Office, and Sheriff's sub-station on the north, and City Hall and the public library on the south. Other community offices and attractions are located facing the Plaza, such as the Police Department, Chamber of Commerce, Elks Lodge, Elks Youth Building, and satellite City offices. Main Street, with its four lanes of heavy traffic, currently splits Plaza Park into two pieces and makes pedestrian access between those pieces difficult. This issue was a major concern of residents and City staff, and is addressed in this report.

Existing development on the corridor is very mixed. Many once-grand buildings from the turn of the last century are located near the City Hall area, several with the covered arcade sidewalks that are a hallmark of Imperial Valley architecture. One of the most significant, the Ciudad Plaza building at the corner of Highway 111 North and Main Street, has benefited from a recent renovation effort and once again provides an activity center in the core area. Another, the Planters Hotel at Main Street and West Plaza, is now largely vacant. The Newberry's department store in the same stretch of Main Street was recently closed down, as was a former grocery store on West Main. Many other commercial spaces along Main Street are vacant and available for leasing.

The only major grocery stores in town are at the west end of Main Street, but a large lower income residential area lies at the eastern end of the corridor, south of Main Street. With limited automobile ownership, many residents of this neighborhood must walk the length of Main Street's hostile pedestrian environment to buy groceries, and carry them home on foot. Residents who make this trip on bicycle must choose between riding in the vehicle lanes with numerous cars and large trucks, or riding on the sidewalks intended for pedestrians.

Overview of this Report:

This report consists of five chapters, and two appendices. The first two chapters have information on Brawley, this project, its funding, and issues this project addresses. Chapter 3 is the core of the street design component of this report, outlining the proposal for Main Street block-by-block as well as the two school areas evaluated. Chapter 4 spells out the steps to preparing amendments to the zoning code which will cover east and west Main Street, and bring about significant changes in the core area. Chapter 5 discusses potential funding sources.

The first appendix concisely covers the "Complete Streets" concept — with streets that serve all potential users: young, old, affluent, poor, drivers, bicyclists, pedestrians, ill, and disabled. The second appendix is a compilation of related documents that will assist the community as it implements the details of the recommended plan, from providing bike lanes to selecting street trees.

Turn the page to begin with a description of the process that led to the project team's recommendations for street design and zoning code changes, and the preparation of this report.

BRAWLEY MAIN STREET PLAN
CHAPTER 2: CHARRETTE PROCESS

Steps in the Brawley Project

Charrettes are an increasingly popular tool for neighborhood and street design programs that should be done with meaningful public input. This format allows residents, users of a street, or whatever population is targeted to be the primary force behind the designs. They are typically pulled together for several sessions over a short period of time, before the charrette project team cleans up the designs and prepares a final report like this one. In the case of this project in Brawley, the first visiting team member arrived on Tuesday and didn't depart until lunch time on the following Wednesday, eight days later.

Most participants in charrettes following this format strongly prefer it to the more conventional approach where a consultant team visits the community, meets with a few chosen officials over a day or two, then returns to a distant place to write up a report which will appear in the mail many months later. The process used for this project in Brawley gives the public more meaningful involvement, and rewards the effort with a glimpse of the final design at the end of the week.

A charrette is a multi-day event that takes months of planning and organizing to bring to life. Aside from obvious things like when and where to hold the events, unseen details are just as critical. For many of these details, the Local Government Commission (LGC) was fortunate to be able to rely on people in the community with a strong interest in seeing a successful design exercise kick-start a renewal of the Main Street corridor.

Project Team Meetings

Once funding for this program had been secured, the project team met to begin laying out a timeline, choosing a location for the charrette events, and assigning duties for the months ahead.

After initial meetings to set up the structure of the project team, City of Brawley staff, Local Government Commission project managers, private sector representatives from the Brawley community, and consultants communicated via phone and email. This coordination effort eventually grew to include other interested parties in Brawley, such as the local school districts, the Elks Club, and the Chamber of Commerce.

March 14, 2006 — Initial Project Team meeting:

- Oscar Rodriquez, City Manager.
- Teri Nava, Community/Economic Development Director.
- Yazmin Arrelano, Public Works Director.
- Gordon Gaste, Planning Director.
- Ted Riley, Main Street Committee.
- Steve Tracy, Local Government Commission.
- Dan Burden, Glatting Jackson and Walkable Communities, Inc.

Ayúdenos a Transformar la Calle Main en un Centro Más Atractivo de Brawley

REUNIONES Y TALLERES DE LA COMUNIDAD

- Participe con Dan Burden, un experto a nivel nacional en planeación y diseño, en buscar la manera de mejorar la seguridad del tráfico y peatones, y mejorar la apariencia y economía de la calle Main.
- Participe con sus amigos y vecinos en crear un plan para mejorar las condiciones de la calle Main.

Local Government Commission

Para más información comuníquese con
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¡Favor de Participar!

jueves, 12 de octubre
APERTURA—REUNIÓN DE LA COMUNIDAD
Elks Lodge Hall
161 South Plaza
➢ 6 a 8 de la noche

sabado, 14 de octubre
CAMINATA DE INVESTIGACIÓN DE LA CALLE MAIN Y TALLER DE DISEÑO
Elks Lodge Hall
161 South Plaza
➢ 9 de la mañana a 2 de la tarde
¡Comida, refrescos y rifa!

martes, 17 de octubre
REUNIÓN DE LA COMUNIDAD PARA VER EL PLAN PARA MEJORAR A BRAWLEY
Elks Lodge Hall
161 South Plaza
➢ 5:30 a 6:30 de la noche

CITY COUNCIL PRESENTATION
Council Chambers
Lions Recreation Center
225 A Street
➢ 7:00 - 7:30 p.m.

Refrescos en todos los eventos.

Organizado por la Local Government Commission, la Ciudad de Brawley, Camara de Comercio, Comité de Desarrollo Económico, Comité de la calle Main, Brawley Elementary School District, Brawley Union High School District y el Elks Club. Financiado por el Departamento de Transporte de California (Caltrans).

This meeting laid out responsibilities for all the individuals involved for tasks that included publicity, gathering maps and aerial photographs, collecting City documents, and securing a venue for the charrette events. LGC team members coordinated this information.

Before and after this meeting, Local Government Commission staff and Dan Burden photographed and made a detailed survey of the western and central portions of Main Street, and walked the neighborhoods off Main Street in the core area.

September 11, 2006 — Final Project Team meeting:

- Oscar Rodriquez, City Manager.
- Teri Nava, Community/Economic Development Director.
- Yazmin Arrelano, Public Works Director.
- Gordon Gaste, Planning Director.
- Lorena Savala, Administrative Secretary.
- Ted Riley, Main Street Committee.
- Steve Tracy, Local Government Commission.

This meeting finalized many details, including using the Elks Lodge Hall for the charrette events, and how to provide food and beverages for people attending. The design team secured lodging and working space for the week-long charrette.

Outreach Efforts

Publicity is critical to getting enough people to a charrette event for the design exercise to be meaningful. This task was shared among the project team members, who also reached out to community organizations and other public entities.

For example: Once "fliers" were prepared in Spanish and English, the Brawley Chamber of Commerce used email to notify the entire membership, asking them to print out the fliers and post them in business windows. Similarly, the Superintendent of the Brawley Elementary School District agreed to distribute several thousand fliers to the families of school children in the community.

The City Manager contacted the media, providing information about the public events for newspaper articles and public service announcements.

Local Government Commission staff gave brief presentations about the upcoming charrette to the Brawley Rotary Club and to a noontime gathering at the Senior Center (also translated into Spanish with the help of Senior Center staff).

Hidalgo Elementary School Visit

One special outreach opportunity was provided by Brawley Elementary School District Superintendent Terri Decker, Principal Calia Santana, and the teacher and students of Ms. Duarte's 5th Grade class at Hidalgo Elementary School.

At Hidalgo Elementary, a simple exercise with the students was very revealing. They were given large, blank pieces of paper, and each child was asked how they typically get to school, and to please draw the route they take. It is sad that even in a small, gentle town like Brawley, less than half of the students walk or bike to school.

But those that are not driven to school show a much stronger awareness of their surroundings as they get there. Maps drawn by the children who walk or bike were full of details about buildings, homes of friends, stores, and dogs. In contrast, the children who were isolated in cars showed the effects of that distance from their surroundings with simple drawings that often included their house, the school, and a line connecting them.

Focus Group Meetings

Several "focus group" meetings were held in Brawley over a period of two days. Focus groups are meetings with individual stakeholder groups.

These groups ranged from five to twenty individuals, a size that allows for comfortable communication about people's personal feelings about Main Street, the downtown area in general, school site traffic, or other issues. Further broadening participation, Spanish translation services were provided at all of these meetings, if called for, by either the project team or members of the community.

Comments made by individuals at these meetings are transcribed in detail in Appendix Two at the end of this report. Those comments are condensed and repeated within the yellow-shaded boxes in Chapter 3. Those boxes highlight residents' issues with each segment of Main Street, the core area of downtown Brawley, and the two school sites evaluated by the design team.

Full lists of the participants of each focus group meeting can be found in Appendix Two, and the meetings are listed below.

- Schools — Both public school districts, PTA and Site Council groups, and parents.
- Chamber of Commerce Board of Directors/ Business Community representatives — Both groups, and Brawley Beautification, Inc. at back-to-back meetings.
- Hispanic Groups — American Citizens Club and Hidalgo Society.
- Transportation Agencies—Caltrans, Imperial Valley Association of Governments (IVAG), and Imperial County.
- Emergency Responders— Brawley City Manager, Brawley Fire Department, and Police Department.

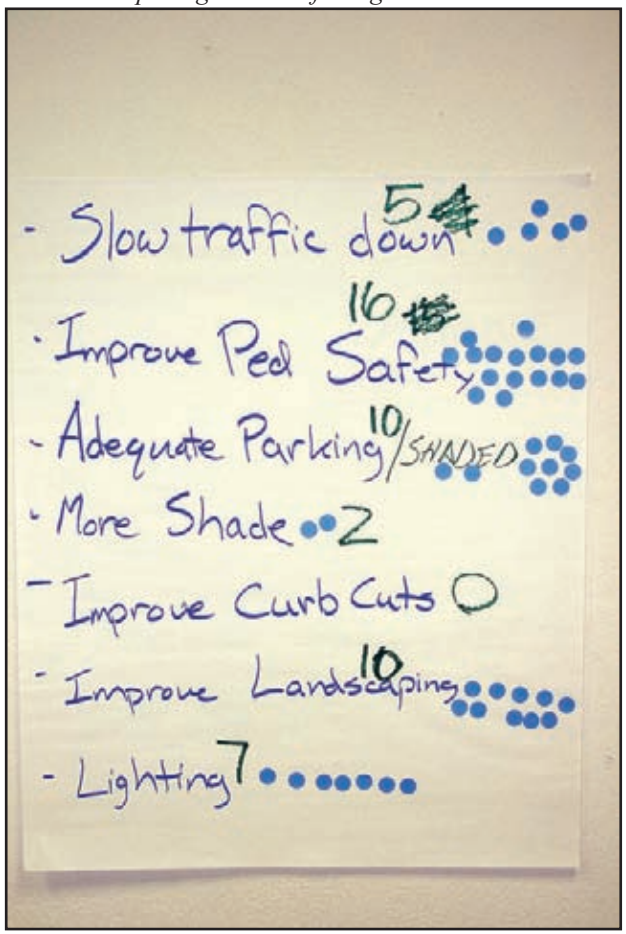
Additionally, design team members made multiple visits to the areas near Willer Elementary School, Barbara Worth Jr. High School, and Brawley Union High School during peak student arrival times, lunch breaks, and the end of the school day.

Ms. Duarte and students at Hidalgo Elementary.

Fifth grade students drawing their route to school.

Morning rush hour at Brawley Union High School.

Opening session of design charrette.



Opening session tally of votes for street characteristics.

Public Charrette Events

Opening Session — On Thursday evening, October 12, 2006, the Brawley Main Street Program opened with the first public event, held at the Elks Lodge Hall. LGC Program Director Paul Zykofsky gave an overview of what lies ahead in the project, and a short overview on the techniques and benefits of traffic calming and complete streets that work for everyone, not just drivers.

The 40 or so participants were then asked to take part in two simple exercises. First, they used sticky notes to write down the values they think are critical for a community and stick them in similar groupings on a wall in the auditorium. The high level of agreement on the values that a successful, happy community needs was pleasing to see.

In the second exercise, participants were asked to call out things they would like to see changed or improved on Main Street, while a moderator recorded their issues on a large easel tablet. Those sheets of paper were then taped to the auditorium wall.

Next, participants were each given half a dozen adhesive dots to use as votes for the values they feel are the most important. They were allowed only one dot per item, no doubling of votes. The results are shown in the sidebar to the left.

This information was used by the design team as recommendations for a revitalized Main Street and downtown were prepared. These comments and those made in the focus group meetings are highlighted in the yellow-shaded boxes that appear at the beginning of the section of Chapter 3 that covers each intersection on Main Street and the other areas of Brawley reviewed by the team.

BRAWLEY RESIDENTS' DESIRED STREET DESIGN FEATURES

Comment	Votes
• Improve pedestrian safety	16
• High visibility crosswalks	14
• Close through traffic on Plaza	12
• Gateways at entries to town	12
• Business façade improvement	11
• Improve landscaping	10
• Adequate parking (shaded)	10
• Lighting	8
• Paseos to parking in rear	7
• Improve crossing at railroad	6
• Study road diet	6
• Better code enforcement	6
• Slow traffic down	5
• Landscape medians	5
• Attractive, readable signs	5
• Mixed use housing	4
• More shade	2
• Improve curb cuts	0
• Better looking sidewalks	0

October 12, 2006 Opening Session of Main Street Charrette

Residents at the opening session.

Design Session — On Saturday morning, October 14, 2006, three dozen charrette participants gathered for a review of street design principles, a walking tour of downtown Brawley, lunch, and a hands-on design session.

The most important piece of this week-long process is this session, where the "public" part of public participation becomes real. Simply put — residents of Brawley designed their own Main Street.

The day began in the Elks Lodge Hall with a quick review of the street design principles from the opening session, and a review of successful redesign projects in other communities.

Participants then walked around central Main Street to review sidewalks, landscaping, medians, buildings, alleys, crosswalks, and especially vehicle activity and driver behavior.

Among the things noted by participants and the design team are:

- Even in the central portion of Brawley, sidewalks are deficient in places.
- Crosswalks are faintly striped and too often end at vertical curbs without ramps.
- Vehicles speed around corners in the Plaza area.
- The shaded arcades are impacted by the noise of heavy vehicles close to the sidewalks.
- The potential for parking behind businesses is limited by the shabby appearance of the alleys.
- Even the light traffic of a Saturday morning is a serious hazard crossing Main Street in the Plaza.
- Except for sidewalks, the emphasis is all on motor vehicles, not pedestrians or bicyclists.

After the walking tour, participants carried this fresh knowledge back to the Elks Lodge Hall for snacks and some design work. Participants broke out into two large design groups, each with a complete set of large-scale aerial photographs of Main Street to work with.

Charrette participants prepare for the walking audit of Main Street and the Plaza area with Dan Burden (right).

Participants drew specific design features on the images, and made notes in the margins explaining their intention. After each table had discussed the entire length of Main Street, a spokesperson from each table shared the group's comments and recommendations with the room. Those comments are repeated at length at the end of this chapter.

The sharing of design recommendations concluded the Saturday event, as the design team collected maps and other materials. For the next 3-1/2 days, the team worked in space provided at the Brawley Inn to refine the Main Street design, develop solutions for school areas, and explore land use recommendations for the central district. Multiple trips were made back to the streets and neighborhoods the project covers to photograph, observe vehicle traffic, and take measurements. By Tuesday afternoon, the recommendations were taking shape, and a final presentation was prepared that would give the community an overview.

Design Team Dan Burden, Kendra Stevens, Paul Zykofsky, Tony Leonard, and Steve Tracy (from left).

Recording comments on desired features for Main Street.

Closing Session — Tuesday evening, October 17, 2006, the charrette concluded with two closing presentation of preliminary design recommendations: one at the Elks Lodge Hall to charrette participants, and the second to the Brawley City Council at a regularly scheduled meeting. The entire City Council was also present at the Elks Lodge presentation, which had been announced as a special meeting of the Council (although they conducted no business.)

Once these wrap-up events were finished, the design team departed. Then began many long hours to refine the details of the recommendations, produce the large-scale images that grace Chapter 3 of this report, and write the text that describes the process and the design.

Resident Design Table Recommendations

The following material is gleaned from the margin notes on the large-scale aerial phographs that the two design groups drew their recommendations on, and their presentations to the room that explaned their design features and reasoning. As will be the progression for the rest of this report, these details are discussed west-to-east along Main Street.

Las Flores Drive

Table One:

- Begin western entrance features and flashing warning lights in median at the bottom of the New River arroyo dip.
- Minority opinion to place narrowing features at the outside edge of the roads instead of the center.
- Slow vehicles before they get into town by reducing speed limit to 35 MPH west of Las Flores.
- Install large, visible "Welcome to Brawley" gateway just west of Las Flores.
- Begin narrowing of curb-side lanes at appropriate spot on west edge of town using 10 inch white stripe and colorization.
- Continue this colorization all the way to 1st Street, possibly as a bike lane.

Table Two:

- Landscaped median from New River arroyo bottom to Vons.
- “Welcome to Brawley” sign at the top of the hill coming up out of the arroyo, with drop in speed limit at that point.
- Directional signs along Main Street to Post Office, Police Station, etc. to let people know there's a lot here.
- Add bike lane all along Main Street beginning at Las Flores and continuing east.

Marjorie Avenue

Table One:

- Install median to prevent left turns into westernmost driveway to Von's for eastbound traffic.
- "Jog" straight north from Marjorie into Von's parking lot is OK.
- Install safe pedestrian crossing features at the west side of this intersection using that median as soon as possible.
- Reduce speed limit at Von's.
- Begin road diet at Von's.
- Begin striping bike lane at Von's.

Table Two:

- Install safe pedestrian crossing features at the west side of this intersection using that median as soon as possible.

Rio Vista Avenue

Table One:
- Install high visibility crosswalks.
- Continue reduced speed, road diet, and bike lane.

El Cerrito Drive

Table One
- Continue reduced speed, road diet, and bike lane.

Western Avenue

Table One:
- Continue reduced speed, road diet, and bike lane.
- Install high visibility crosswalks.

First Street/Highway 86 South

Table One:
- Continue reduced speed, road diet, and bike lane.
- Install diagonal parking from here to 8th Street.
- Remove center medians to gain room for pedestrian and bike access, and more parking.
- Install high visibility crosswalks at all intersections from here to 8th Street.
- Begin curb extensions at 1st Street and carry them east from here.

Third Street

Table One:
- Continue reduced speed, road diet, and bike lane.

Table One finds inspiration in converting Main Street through central Plaza to parking and festival area.

- From this point to tracks mark all crosswalks with high visibility treatment.
- Future—possible roundabout here and at other intersections if bypass removes enough heavy traffic.

Table Two:
- Begin facade and lighting improvement program from here to 8th Street.

West Plaza

Table One:
- Continue reduced speed, road diet, and bike lane.
- Install raised, high visibility, crosswalk with flashers between Post Office and City Hall.
- Modify ADA ramps around Plaza to meet code.
- Install countdown pedestrian signals at intersections.

Table One explains their recommendations.

Table Two follows with their solutions.

Hands-on designers during Saturday charrette session.

- Mark bike route through Plaza area.
- Future lighting in colonnades, plaza, and around windows; street lighting improvements.
- When ROW is City-owned, convert plaza to angle parking on both sides with turn-around in center.
- Preserve focus on City Hall and Post Office buildings designed to front onto Main Street.
- If Plaza is closed, install traffic circles at both ends and middle of Plaza, at 2nd Street by the church, and at 6th Street.

Table Two:

- Remove Truck Route sign.
- Install high visibility crosswalks on west and south sides of intersection, and between Post Office and City Hall.

North Plaza

Table One:

- Install traffic islands.

Table Two:

- Install curb extensions at 5th and North Imperial.
- Landscape back alley parking lots.
- Install angle of straight-in parking on northeast side and between E Street and North Imperial.

South Plaza

Table Two:

- High visibility crosswalks at G and 5th Streets.
- Install angled or straight-in parking.
- Install curb extensions at G, South Imperial, and 5th.
- Maybe a traffic island at south tip of Plaza.

West Plaza

Table One:

- Need workshop and gallery spaces for artists.
- Improve façades of existing buildings.
- Add paseos between alleys and Main Street through appropriate spaces north and south in 500 block.
- Improve parking areas in back alleys (lighting, landscaping).
- Investigate ownership of possible parking locations.
- Consider removing medians in 500 and 600 blocks to move traffic farther from sidewalks and arcades.
- 1st to 8th and Plaza area, require 7 foot sidewalks with 2 foot shy zone, and 5 foot where shy zone not required.
- Pull sidewalks back from curbs.

Table Two:

- Add high visibility crosswalks on north, east, and south sides of intersection.
- Add paseos to rear parking in 500 block.
- Improve parking areas in back alleys (lighting, landscaping).

Railroad Tracks

Table One:

- Continue to stripe all crosswalks from here to the east gateway.

Eastern Avenue

Table Two:

- Install proper sidewalks from Eastern Avenue to Best Road.

Highway 111 Bypass

Tables One and Two:

- Move forward with eastern gateway as soon as possible (Caltrans).

Summary of Charrette

Visual images of the resulting designs are spread throughout the next Chapter of this report. The residents, officials, and City staff who contributed their time and expertise to this project deserve the gratitude of the entire Brawley community.

One fifth grader's map for getting to school.

BRAWLEY MAIN STREET PLAN
CHAPTER 3: STREET DESIGN

Overview

The design recommendations are the heart of this report. This section details the current status of Main Street, and recommendations for short and long term designs, for the entire length — over two miles from the New River arroyo to the new Highway 111 bypass. Particular attention has been paid to the area near the Plaza.

Although design improvements away from Main Street were not originally part of this project, the design team also evaluated two problem areas after listening to parents and educators. Those areas — Brawley Union High School and Witter Elementary School — are discussed at the end of this section.

The design plan for Main Street is described in a methodical fashion, from the New River arroyo at the western end of Brawley, block by block, through downtown to the new Highway 111 bypass at the eastern edge of town. All of the critical areas are featured in the accompanying images that detail design recommendations. These recommendations are not the product of the design team working in isolation. Factors leading to these recommendations include:

- Most important, the suggestions made by Brawley residents at the Saturday design session.
- Effective solutions used in similar situations in other cities.
- Current and projected traffic volumes.
- Accident types and frequency.
- Flexibility for future changes.
- Simplicity and cost.

The discussion of each section of Main Street begins with a short description of the current situation. This information will include:

- Section Width — the measurement across the street, curb to curb.
- Average Daily Traffic (ADT) — recent 24 hour weekday vehicle counts in both directions on Main Street.
- Accident history — from January 1, 2005 to March 31, 2006, City of Brawley data.
- Issues — comments made by residents in the charrette sessions.
- Resident recommendations — made by design table groups at the Saturday workshop.

Short-term solutions should be undertaken as soon as possible by the City of Brawley, in coordination with Caltrans. Most of these solutions can be accomplished by simply removing existing lane striping and reapplying paint to match the new configuration. This is quick and inexpensive, and consistent with City policies and plans. After striping, concrete blocks can be placed to separate travel lanes from bike lanes through the arroyo and outline median areas everywhere. The medians will be mostly symbolic until raised and landscaped medians can be installed.

Planning and budgeting for the long-term solutions should also begin immediately. This will have the City prepared for action once the right-of-way for Main Street has been turned over by Caltrans, and as funding becomes available. Possible funding sources are discussed in Chapter 5 of this report.

One long-term solution should wait a bit longer, to a date that is not certain at this time. Until the Highway 111 bypass is completed, there will likely still be a significant volume of truck traffic from the Highway 86 expressway on the west side of Salton

City Hall and Post Office — prominent public buildings.

It's difficult to cross from one to the other.

Main Street speed limits are too high for urban areas.

Trucks enter Brawley at highway speeds...

Sea passing through Brawley. Once a large portion of that traffic is diverted, West Main Street can be narrowed to two lanes through the last few blocks from the New River arroyo to 1st Street. This is a sound recommendation for the following reasons:

- Considerable through truck traffic will use the new bypass.
- Much of the remaining truck traffic on Highway 86 will be oriented to Interstate 8 via Road S30.
- The lane reduction will provide the type of street that will foster redevelopment and reuse of the west end of Main Street into a vibrant, walkable, storefront environment.

Although this recommendation is not diagrammed in this report, it can be achieved by extending the configuration recommended east of 1st Street (Figure 3-5) to the western edge of town.

Street design highlights include:

- Continuous pedestrian walkways from the western edge of the New River arroyo to the Highway 111 bypass.
- Repairs and upgrades to existing sidewalks, for compliance with Americans with Disability Act (ADA) standards.
- Curb extensions to reduce pedestrians' vulnerability when crossing streets.
- A complete set of highly visible crosswalks at every intersection the full length of Main Street.
- Seven foot wide bicycle lanes the full length of Main Street except for: a) the block between Marjorie Avenue and Rio Vista Avenue where they are reduced to six feet wide to allow for a 4 foot median, and b) in the mid-Plaza parking area (long term recommendation) where bicycles will share space with vehicles. (Note: An approximately one-foot wide stripe to separate the bike lane is included in the width.)
- The speed limit reduced to 25 miles per hour the entire length of Main Street.
- Vehicle lanes narrowed to 11 feet wide.
- The vehicle lane count reduced to one through lane in each direction from First Street to the Highway 111 bypass.
- Ultimately, this two-lane-with-turn-lane configuration can be extended through the remaining (western) portion of Main Street when the Highway 111 bypass is completed.
- Improved landscaping along Main Street, including landscaped medians which will ultimately grace the entire length of the street.
- Improved street furniture such as street lighting, shaded bus shelters, resting benches, public art, and trash and recycling receptacles.
- Attractive directional signs to public buildings and facilities such as schools, Cattle Call Park, City Hall, Lions Field, etc.
- Prominent gateways at the East Main and West Main entries into Brawley.


...encouraged by the open highway look of Main Street.

WEST MAIN STREET

1. New River Arroyo Gateway (Figure 3-1)

- Section Width — 90 feet.
- ADT — 19,000.
- Accidents — None in the 15-month data period Jan 2005 through Mar 2006.
- Issues — Speed. Not designed for bicyclists or pedestrians.
- Resident recommendations — West gateway in arroyo, slow vehicles before they get into town, narrow vehicle lanes, add bike lanes.

Discussion

Dangerously high speeds dominate people's concerns about this area. In particular, people fear heavy trucks traveling at near-highway speeds. While there are no reported accidents in the arroyo in the 15-month history provided by the City, vehicles speeding eastbound through this section have caused accidents in the past.

Therefore, this section of Main Street is very critical. It must be designed as a transition zone between the rural highway and the city street network. It must provide subtle features and bold signals that tell drivers they are entering an active urban zone and must slow down. Nothing in the current roadway at this time gives those signals. In fact, the down slope on the west side of the arroyo serves as a counter to slowing that would otherwise occur as drivers lift off the throttle entering Brawley. The residents working in the design session agreed that the rural appearance of Main Street must change at the top of the slope on the west side of the arroyo.

Short Term Solution

This begins by defining a roadway that is consistent with the lane dimensions at Las Flores Drive. At that point the pavement is 90 feet across, the same width as the New River bridge. The difference is that sidewalks near Las Flores are off the roadway behind curbs, while on the bridge they must be accommodated within the roadway. This isn't a problem, given the 90 foot width of the existing bridge structure.

Through the arroyo and over the bridge, the recommended short-term configuration of Main Street west of Las Flores should include:

- Two 8-foot pedestrian ways at the edge of the existing pavement, 16 feet total.
- Two 8-foot wide bike lanes (including 1 foot wide separator stripes with low concrete blocks), 16 feet total.
- Two 11-foot wide travel lanes in each direction, 44 feet total.
- A 14-foot wide median, boldly striped.

Figure 3-1: Example for Western Gateway at New River Arroyo.

Gateway example from Holtville.

Beginning at the western side of the arroyo, vehicle travel lanes should be narrowed two feet from the open highway lane width of 13 feet. The bike lanes and pedestrian walkways at this point should be separated from the vehicle lanes not just by paint, but also by low cement bumpers like those in the photo below. This is necessary for safety reasons, because of the expected higher speeds of the adjacent traffic, but will not prevent those areas from being used for emergency parking. Between the bridge and Las Flores Drive, curbs will eventually appear. At that point pedestrians will move off the pavement shoulder walkway and onto sidewalks behind the curbs.

The median will grow at this same point to take up the width vacated as the pedestrian walkways become sidewalks. This will cause the vehicle lanes to shift 8 feet to adjust. This type of chicane treatment is commonly used to catch drivers' attention and reduce speeds.

Except for the addition of low concrete blocks to outline the future median and to separate vehicle lanes from non-vehicle space, these short-term changes require only simple application of paint.

Long Term Solution

In time, the short-term design will be improved by a raised median, full landscaping, artwork, flashing warning lights, and an attractive entryway treatment. Figure 3-1 shows one example, although it depicts the four-lane short term configuration of the vehicle lanes. The exact nature of the entryway can be determined later, after community discussion. It should be located to the west of Las Flores, with a design that clearly signals the beginning of town. Monuments in medians are the most typical design, but overhead archways are also common. They are eye-catching, and more effective at reducing vehicle speeds. An overhead obstruction, even one with more than sufficient clearance, somehow induces most motorists to slow down.

Whatever design for the gateway is selected, it will be matched at the far east end of Main Street near the Highway 111 bypass. This same theme could also be used for gateways on north 8th Street/ Highway 111, and near the hospital on Highway 86 South.

Trucks also increase speed leaving town...

...as they see open highway ahead.

Low concrete pucks can enhance bike lane visibility.

2. Las Flores Drive (Figures 3-2 and 3-3)

- Section Width — 90 feet on the west, 100 feet on the east.
- ADT — 19,000.
- Accidents from January 2005 through March 2006 — One.
- Issues — High speeds, seniors crossing with canes and wheelchairs, very wide lanes, wide street.
- Resident recommendations — Improve pedestrian crossing safety with better crosswalk warnings, add directional signs (Post Office, schools, etc.) all along Main Street, landscaped medians.

Discussion

The intersection of Las Flores Drive with Main Street is one of the more complicated areas evaluated in this project. As discussed above, there are long-standing safety issues related to vehicles carrying near-highway speeds into this developed portion of Brawley as they enter town from the west. Similarly, the design team repeatedly observed eastbound drivers between the Vons market and Las Flores Drive accelerating well above the in-town speed limit as they headed for the open highway.

There are also design complications with the physical layout of the intersection. The segments of Las Flores Drive north and south of Main Street do not line up, but are offset 35 feet. This requires drivers crossing Main Street on Las Flores Drive to weave as they cross, and complicates crosswalk designs. Also, the curbs on the north side of Main Street are ten feet closer to the center line of the street on the west side of Las Flores Drive than on the east side.

East of Las Flores Drive, Main Street gradually tapers down from the 100-foot width to the approximately 70-foot width that it carries through most of Brawley.

Short Term Solution (Figure 3-2)

In the short term, and before Las Flores Drive can be realigned as described below, the excessive width still represents a problem for pedestrians. At the same time new striping is laid down for vehicle travel lanes and bike lanes, full crosswalks at the intersection and a mid-block crossing should be striped and prominently signed. The mid-block crossing in front of the Brawley Inn, shown in Figure 3-2, addresses an extreme danger. Seniors from the housing facility on the south side of Main Street cross to Vons market and other attractions north of Main Street. During their time in Brawley, the design team witnessed frequent hazardous journeys at this location by individuals slowed by age, wheelchairs, or canes.

Providing this crosswalk away from the intersection brings pedestrians farther into Brawley where vehicle speeds are lower. It also removes them from the complication of vehicles crossing or turning on or off of Main Street at Las Flores Drive. This crossing should be offset 10 or 20 feet in the median like the example in the photo on the next page and shown in Figure 3-2, so that drivers and pedestrians have eye-to-eye contact before the pedestrian completes the second leg of the crossing.

Las Flores Drive entryway can be improved.


Streetscape is more rural highway than city street.


Little attention is given to pedestrian safety.

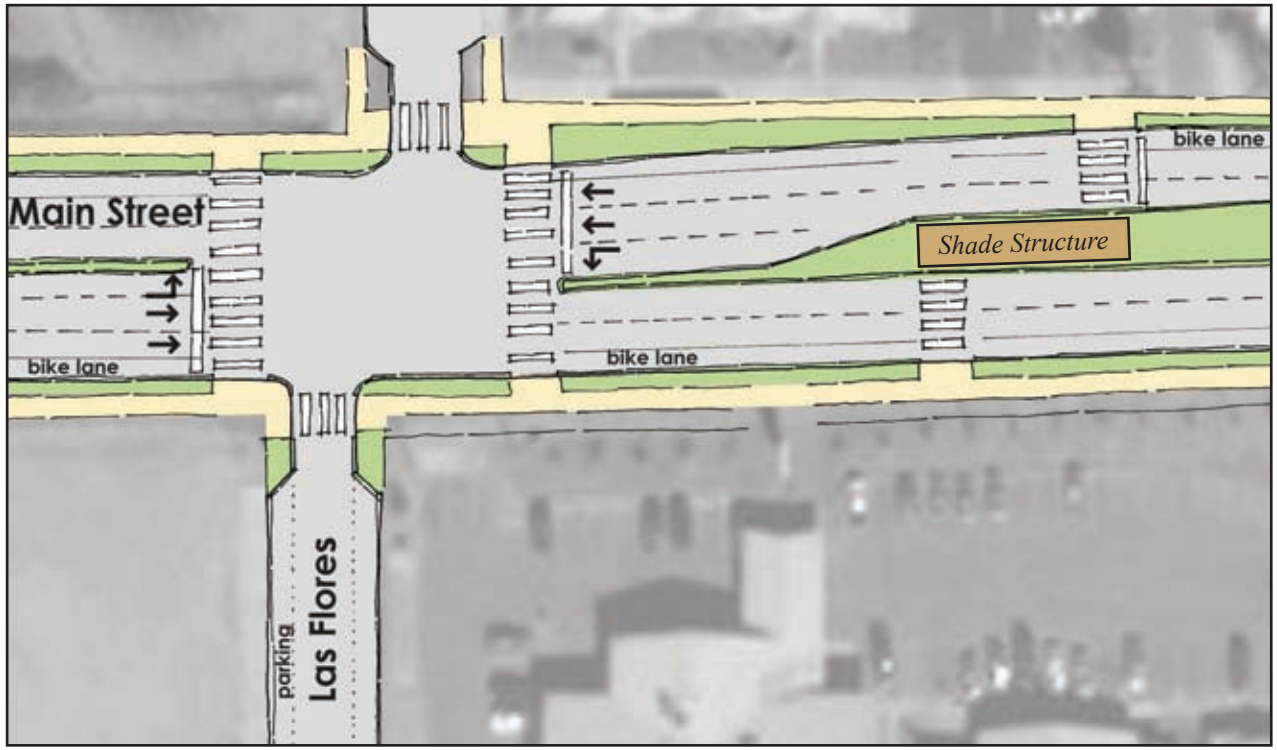


Figure 3-2: Short-term recommendation for Las Flores Drive intersection.

Offset crosswalks like this one on loan from Tucson, Arizona, force pedestrians to face oncoming traffic.

Long Term Solution (Figure 3-3)

Correcting the misalignment of Las Flores Drive is a fairly simple task. The property at the northwest corner of this intersection is currently undeveloped, and used intermittently for overflow parking from events at the Brawley Inn complex. Curving Las Flores Drive across this vacant lot 35 feet to the west will correct the misalignment. A land swap will provide room for the new Las Flores Drive alignment, and give the Brawley Inn owners paved property immediately adjacent to the restaurant and meeting hall that can be restriped for parking free of dust and mud.

A curb extension on the northeast corner of the realigned intersection will reduce pedestrian crossing distance and line up with the configuration west of the intersection.

After the realignment, this intersection should be configured as it appears in Figure 3-3, with curb extensions, raised medians, and crosswalks with the full complement of signs, flashers, and paint connecting all four corners.

The 10 foot wide parking area indicated on Figure 3-3 should be striped for parking, possibly restricted to large trucks and RVs. A less useful alternative would be to fill in that space with sidewalk and landscaping, moving the curbs out 10 feet to line up with those west of the intersection, as shown in Figure 3-2.

The width of the vehicle and bike lanes will remain unchanged from Las Flores Drive to Marjorie Avenue. As the curbs come closer together, the north side parking will disappear and the median will shrink.

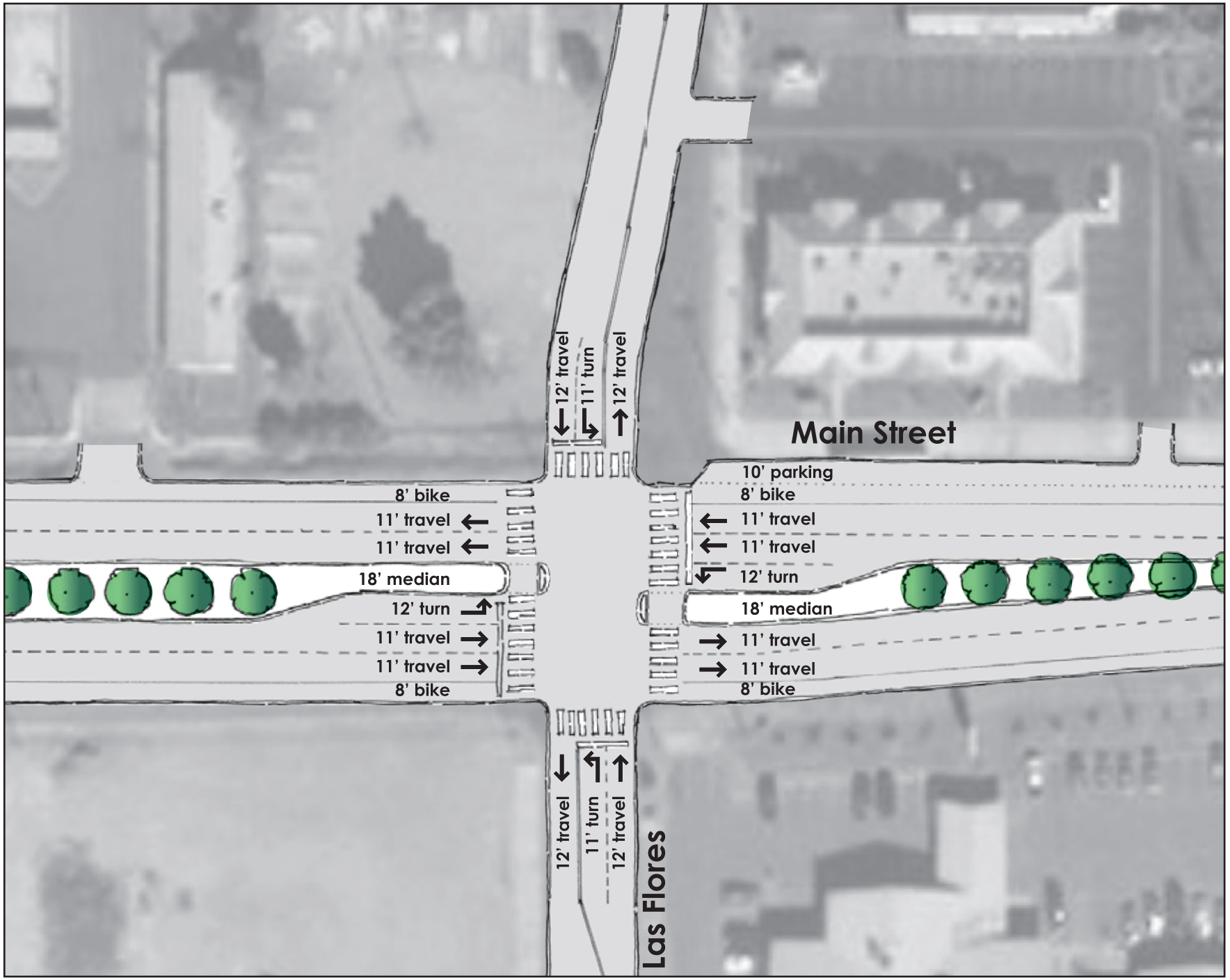


Figure 3-3: Long-term recommendation with realignment of Las Flores Drive.

Marjorie Avenue does not line up with the Vons driveway...

...so vehicles turning into driveway block left turn lane...

...and cross oncoming traffic speeding up leeaving town.

3. Marjorie Avenue - Rio Vista Avenue (Figure 3-4)

- Section Width — 70 feet.
- ADT — 19,000.
- Accidents from January 2005 through March 2006 — Three.
- Issues — Speeding, especially trucks. Dangerous offset between Marjorie Avenue and Vons market driveway.
- Resident recommendations — Prevent left turns into western Vons driveway, install crosswalks at Marjorie, reduce number of lanes, lower speed limit, add bike lanes on Main Street.

This section of Main Street begins the configuration that will extend east to the junction of southbound Highway 86 at First Street. It is complicated only by the unsafe driver behavior caused by the awkward offset of Marjorie Avenue and the western driveway into the Vons market parking lot.

The only viable solution for that problem is the continuous median, as shown in Figure 3-4. Pedestrians would have improved crosswalk access at Marjorie Avenue. Drivers would be directed to the eastern driveway and the protected left turn lane to wait in until oncoming traffic clears.

Short Term Solution

In the short term, the configuration in Figure 3-4 should be created with paint and the median outlined with concrete blocks. Only in the area in front of the western driveway into the Von's Market parking lot are more substantial features required. A long oval of curb-height concrete blocks (common in parking lots) can block left turns from Marjorie Avenue, and left turns into and out of the parking lot. This oval should extend at least 25 feet beyond the edges of the driveway and Marjorie Avenue, or about 150 feet. This isn't the most attractive solution, but it will solve this particular problem until funds become available for full landscaped medians.

At this time, the design team is recommending that left turns be allowed out of this eastern driveway. This requires incoming and outgoing drivers to be alert and share crossing opportunities that gaps in westbound traffic create. If this proves problematic, this driveway should be restricted to inbound vehicles only. Then drivers departing the Vons lot heading east on Main Street would be directed

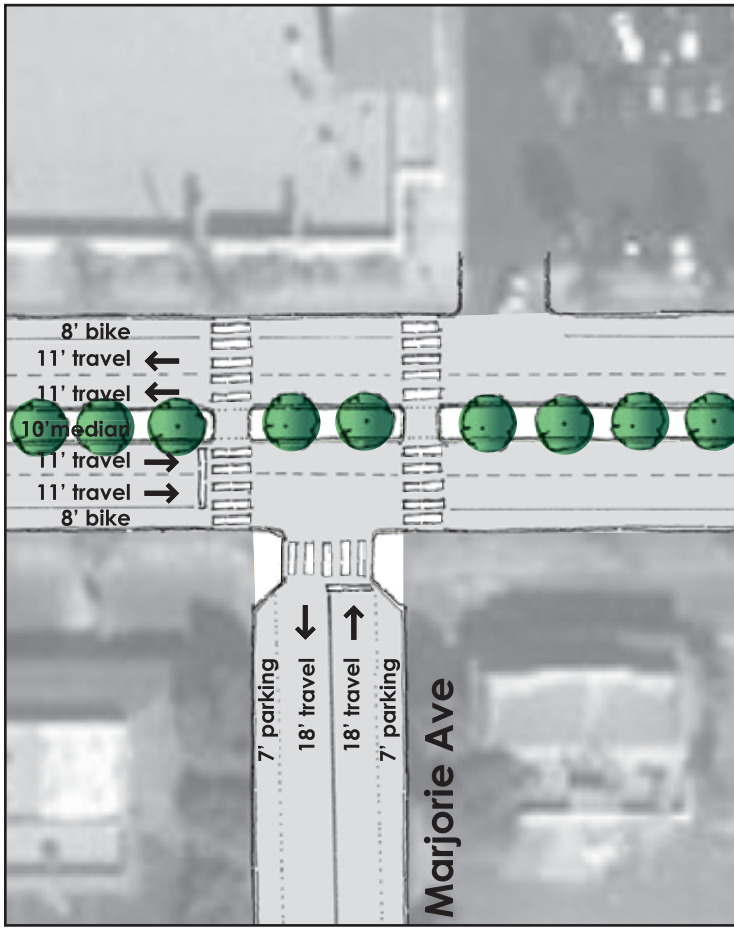


Figure 3-4 (portion).

to exit the parking lot to the east and access Main Street at the Rio Vista Avenue signals. The median would then be expanded to the full width from the inbound left turn pocket to the beginning of the left turn lane for northbound Rio Vista Avenue.

The 8-foot wide (with 1-foot stripe) bicycle lanes that began on the west side of the New River arroyo must be narrowed to only six feet wide a bit east of Marjorie Avenue. This width still exceeds the five foot minimum standard for Class II bicycle facilities. Until the lane reduction is done for this section of Main Street, it will have to suffice.

Long Term Solution

In time, all the features shown on Figure 3-4 should be installed. The temporary barrier blocking left turns into the Vons driveway will be replaced with a full median. The design shown for Main Street at Rio Vista Avenue will continue eastward past El Cerrito Drive and Western Avenue to 1st Street. Those two intersections were the scenes of 7 accidents in the 15 months of available data. Resident comments for these intersections repeat the themes of speeding vehicles, unsafe pedestrian conditions, and no bike lanes. Design table groups recommended familiar solutions for these locations: speed reduction measures, lane reductions, adding bicycle lanes, and improved crosswalks.

In the long term, bypass highway solutions will reduce vehicle traffic on Highway 86, especially heavy truck traffic. At that time, Main Street west of First Street should be reconfigured for only one lane in each direction, matching the recommended configuration for the rest of Main Street. Then the bicycle lanes could be restored to the full 8-foot width, including striping, and curbside parking added.

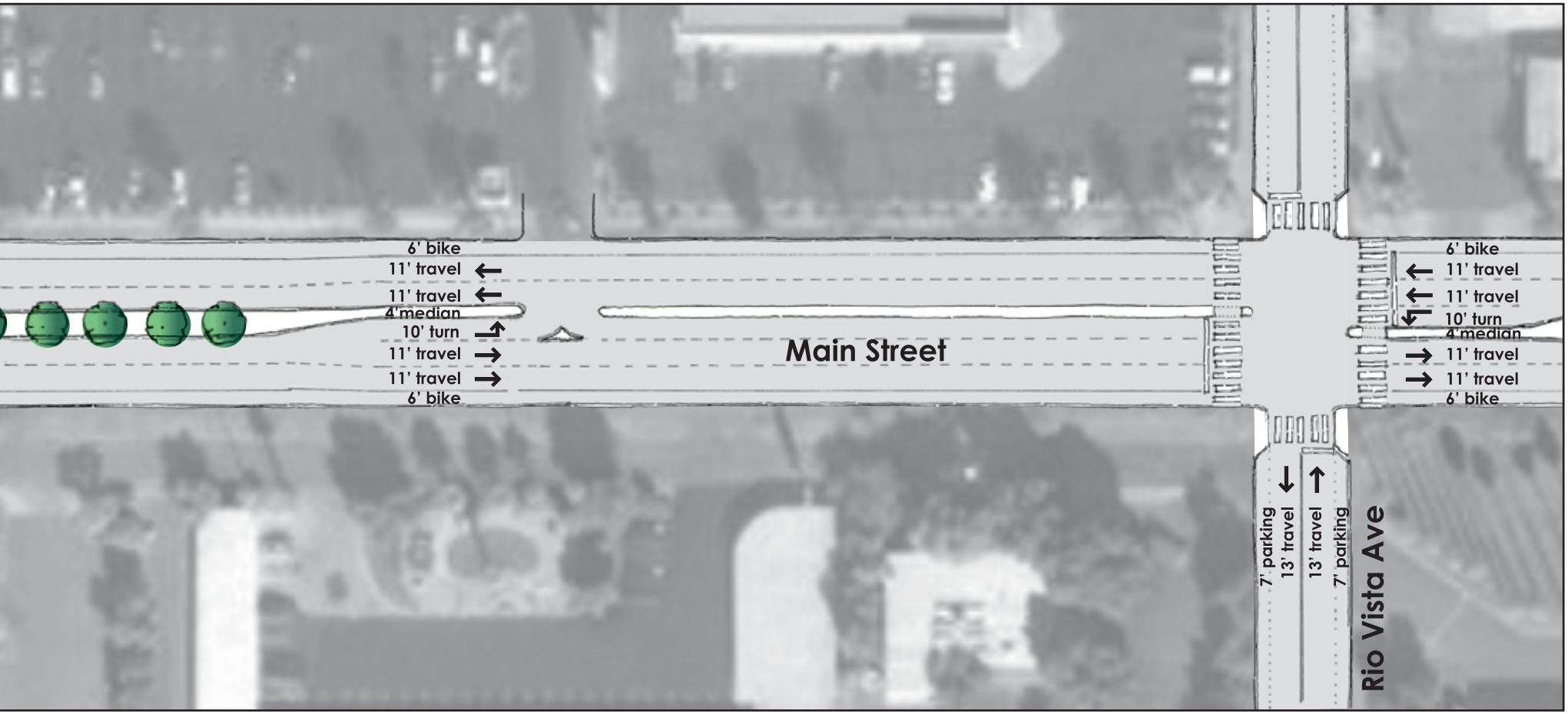


Figure 3-4: Long-term recommendation for the area from Marjorie Avenue to Rio Vista Avenue.

First Street/Highway 86 South intersection.

Left turns onto Highway 86 South.

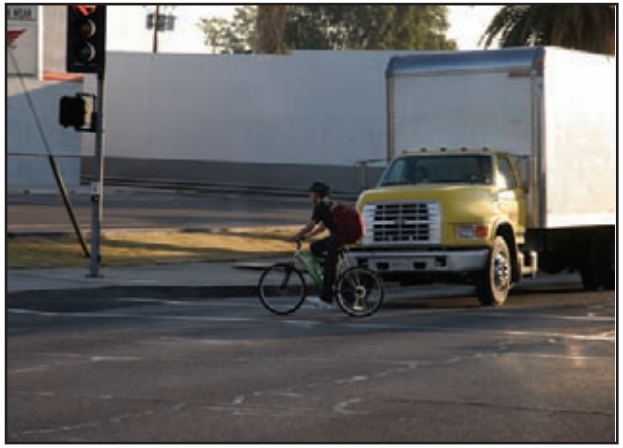
This portion of Main Street will get lane reduction.

4. First Street/Highway 86 South (Figure 3-5)

- Section Width — 72 feet west of 1st, 70 feet east.
- ADT — 21,000.
- Accidents from January 2005 through March 2006 — Three.
- Issues — Speed, pedestrian safety.
- Resident recommendations — Road diet, reduce speeds, add bike lanes; add diagonal parking, highly visible crosswalks, and curb extensions from 1st to 8th Street; remove medians to add parking (conflict with road diet solution).

Short Term Solution

As Figure 3-5 shows, the design team recommends a dramatic change in the configuration of Main Street at this point. Beginning at the 1st Street intersection and continuing to the east, through lanes are reduced to one in each direction. This frees up sufficient room within the existing curbs to create a "complete street" that will serve all users of this public space. As stated earlier, these changes can initially be done just with the application of fresh paint. There are so many benefits to this lane reduction that it should be done as soon as possible.



Many school-age children use the First Street crossing.

Here are the details:

- For eastbound vehicle traffic, the right hand lane will require a forced right turn onto 1st Street/Highway 86 south. Through traffic in the center lane will proceed eastward.

- Westbound vehicle traffic will have two lanes available, once west of 1st Street. Signage, the street design, and enforcement will continue to remind drivers that reduced speeds are still the rule between this point and the open highway beyond the arroyo.

- Curbside parking on both sides of Main Street will be marked with 8 foot wide spaces.

- Bicyclists will benefit from the redesign in two ways. First, the bike lanes will be two feet wider from this point eastward. Second, the speed and intensity of vehicle traffic to their left will be reduced with the single-lane design. Both factors will make for safer and more pleasant bicycle travel.

A glance at the design for 1st Street shown on Figure 3-5 shows features not typical of the other side street intersection designs along Main Street. Because 1st Street/Highway 86 will still handle more truck traffic than most other side streets, lane widths are increased near the intersection with Main Street. Once away from the intersection, lane widths should be reduced to 11 feet. This is a width

more suitable for urban areas, and endorsed by national street engineering groups.

It should also be noted that 1st Street/Highway 86 to the south is shown on Figure 3-5 with only one through lane in each direction. This lane reduction is appropriate in this urban setting, even for a state highway. Traffic volumes are well below levels requiring the four existing lanes, and are projected to remain so in the future. Reducing the lane count on this street is also critical to improving safety at two very dangerous intersections a few blocks to the south — K Street and Malan Street — which are discussed later in this report.

Long Term Solution

Curb extensions will be added to all corners of the intersection. These will be a regular feature at intersections from this point eastward, serving to restrict vehicle space to the proper width, and reduce the time and distance for pedestrians to cross the street.

Curb extensions on the west side of 1st Street will not protrude into Main Street beyond the existing curbs until the lane reduction is extended west from 1st Street. East of the intersection, and beyond, most crosswalks will feature curb extensions the same width as the curbside parking stalls.

The full set of streetscape features shown on Figure 3-5 will create a boulevard feel that will be carried through the core of downtown Brawley. While the basic reconfiguration can be done with paint, the complete set of improvements is necessary to finish the treatment. Full raised medians, landscaping, curb extensions, and other improvements can be done in stages as funding becomes available.

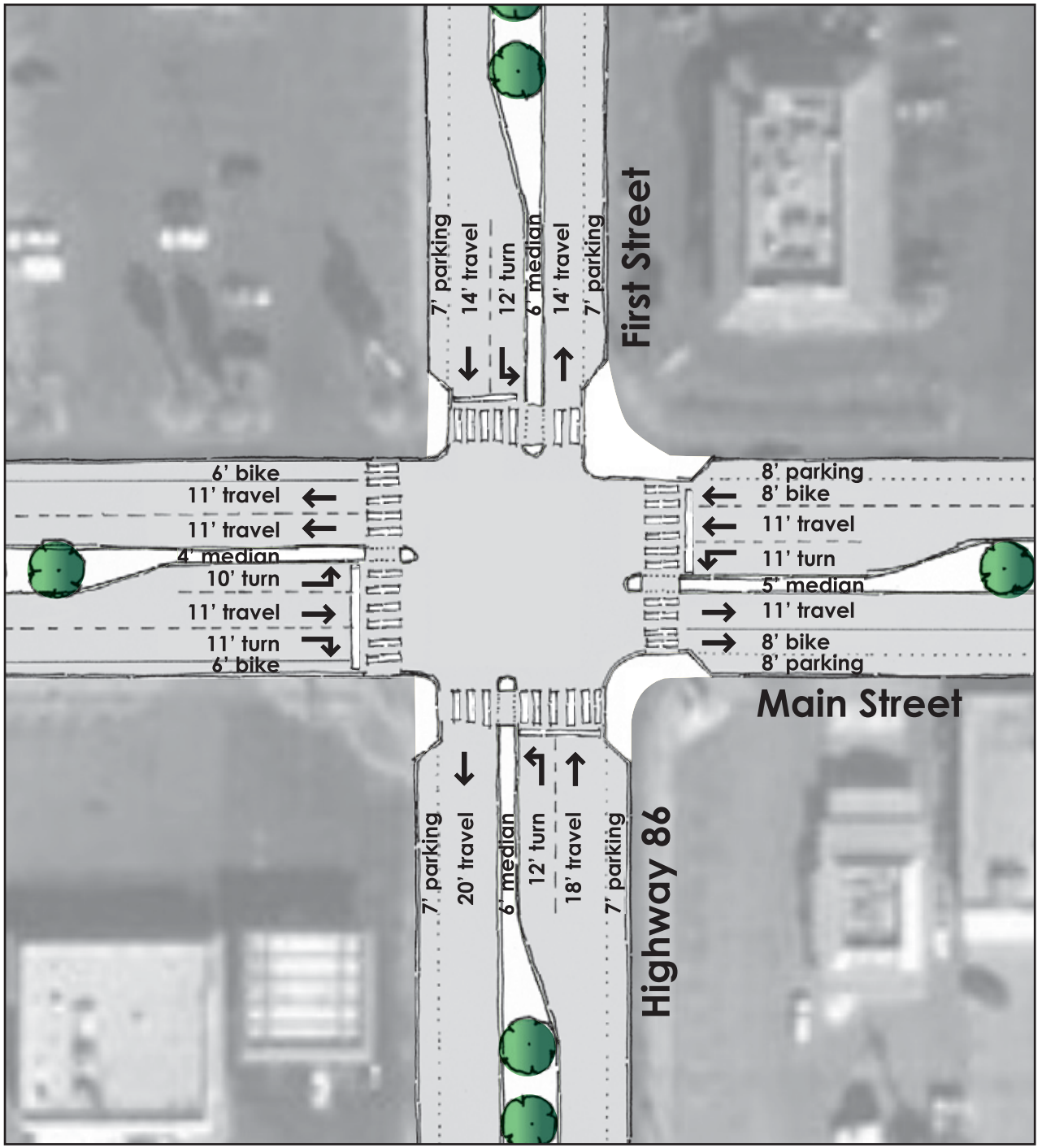


Figure 3-5: First Street (Highway 86) transition between 4 through lanes and 2 through lanes.

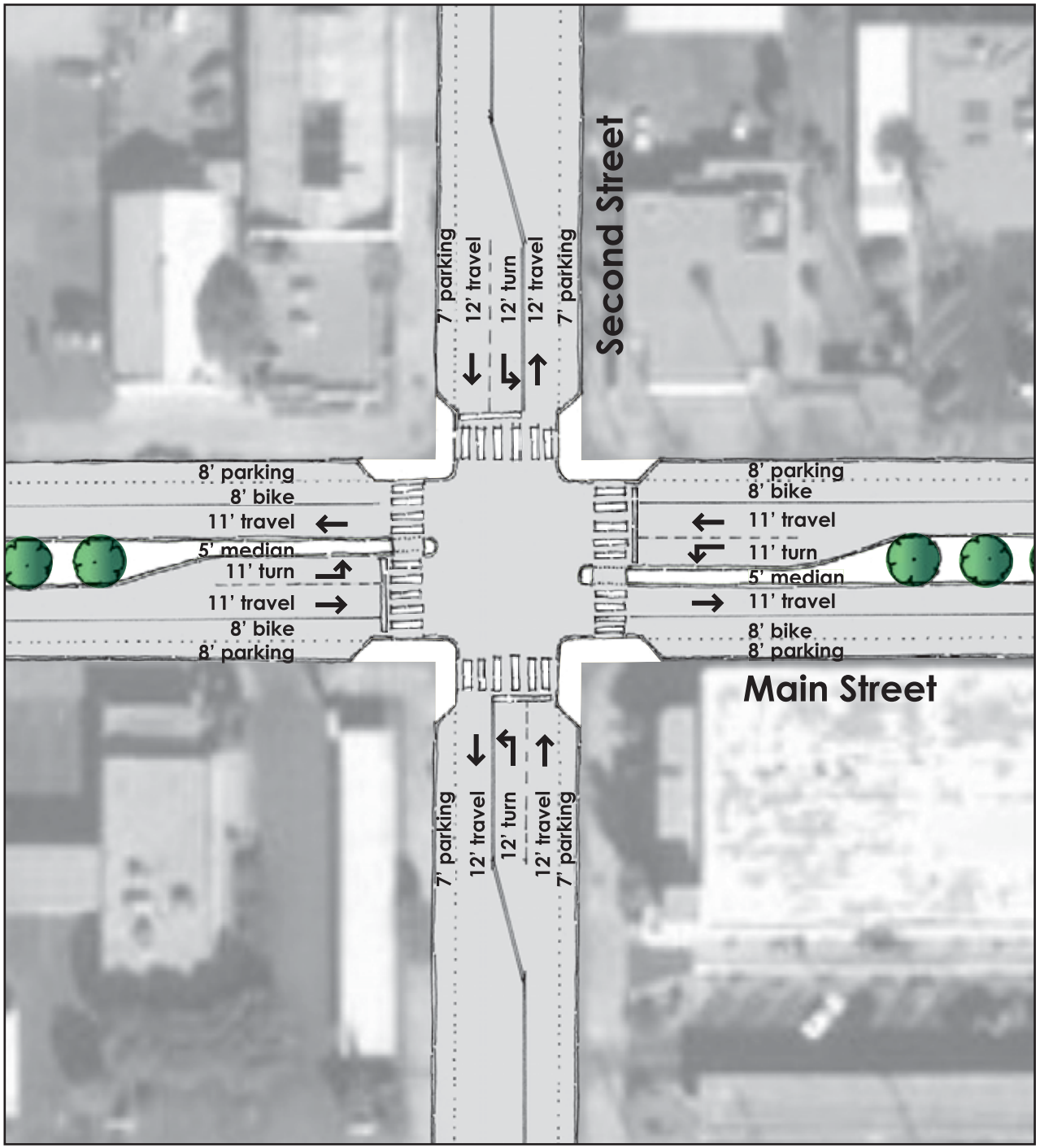


Figure 3-6: Second Street intersection after removal of left turn barriers.

CENTRAL MAIN STREET PLAZA PARK & COMMERCIAL CORE

5. Second Street to Plaza Park (Figure 3-6)

- Section Width — 70 feet.
- ADT — 20,000.
- Accidents from January 2005 through March 2006 — Seven.
- Issues — Left turns are now prohibited.
- Resident recommendations — Continue road diet treatment.

Short Term Solution

Implement the lane reduction configuration in Figure 3-6 immediately by restriping the street without more expensive improvements such as landscaped medians and curb extensions. The City should also consider removing the recently installed islands that prevent left turns from Second Street onto Main Street and painting left turn lanes as shown. Although the recent accident history clearly demonstrates the safety issues at this intersection, the lane reduction design will reduce through traffic speeds and make these left turn movements safe again.

Long Term Solution

Continue the design started at First Street with the lane reduction, bicycle lanes, improved crosswalks, and fully landscaped medians. The design shown on Figure 3-6 should be extended to Plaza Park and beyond as soon as funding for the full improvements can be found.

6. Plaza Park and Vicinity (Figures 3-7 to 3-14)

- Section Width — Main Street, 75 feet, peripheral streets, 60 feet.
- ADT — 20,000.
- Accidents from January 2005 through March 2006 — Eight total, three at each Main Street corner (east and west), and one at each Imperial Avenue corner (north and south).
- Issues — Crossing Main is dangerous at east and west corners, trucks ignore truck route signs, pedestrians need safety education.
- Resident recommendations — Reduce speeds, continue bike lanes, road diet, pedestrian improvements; better crosswalks all around the plaza, high visibility crosswalk with flashers at City Hall; ADA ramps all around the Plaza; install countdown pedestrian signals at intersections; divert through traffic and convert Main Street Plaza to parking; install traffic circles at east and west corners of Plaza; consider traffic circles at 2nd Street and 6th Street intersections.

Short Term Solution (Figures 3-7 to 3-14)

The Plaza and blocks surrounding it mean more to the community than any other part of Brawley (with the possible exception of the arena during Cattle Call). The town's signature Planters Hotel is here. It is home to City Hall, the Post Office, Sheriff's substation and the Police Department, other public facilities, and the Main Street commercial core with its arcades and storefront shops.

All the concepts applied to Main Street west of the Plaza come to a focus here. Vehicle traffic will be slower, quieter, and safer. Bicycle and pedestrian activity will increase. Plaza Park will be transformed into a better refuge, a proper setting for the public buildings sited there, and focal point for community activities.

Of course, the complete makeover is only possible once the City of Brawley has full control over the Main Street right-of-way. Until that occurs, planning for the ultimate design should proceed, and near-term measures should be implemented to advance this project's goals.

There are five components to these early steps:

- First, restripe this section of Main Street to match the lane reduction design, and add bicycle lanes. The bike lanes are narrower than the vehicle lanes they will replace, so the extra street width can buffer parked cars. Reducing conflicts with opening car doors is important at this location due to the heavy parking activity during the day and through traffic (in the short term). This configuration is shown in Figure 3-7 on the following two pages.

Redesigned Plaza will improve walking conditions.

Left turns should again be safe after lane reduction.

The Planters Hotel holds potential for renovation.

Planters Hotel will benefit from reduced truck traffic.

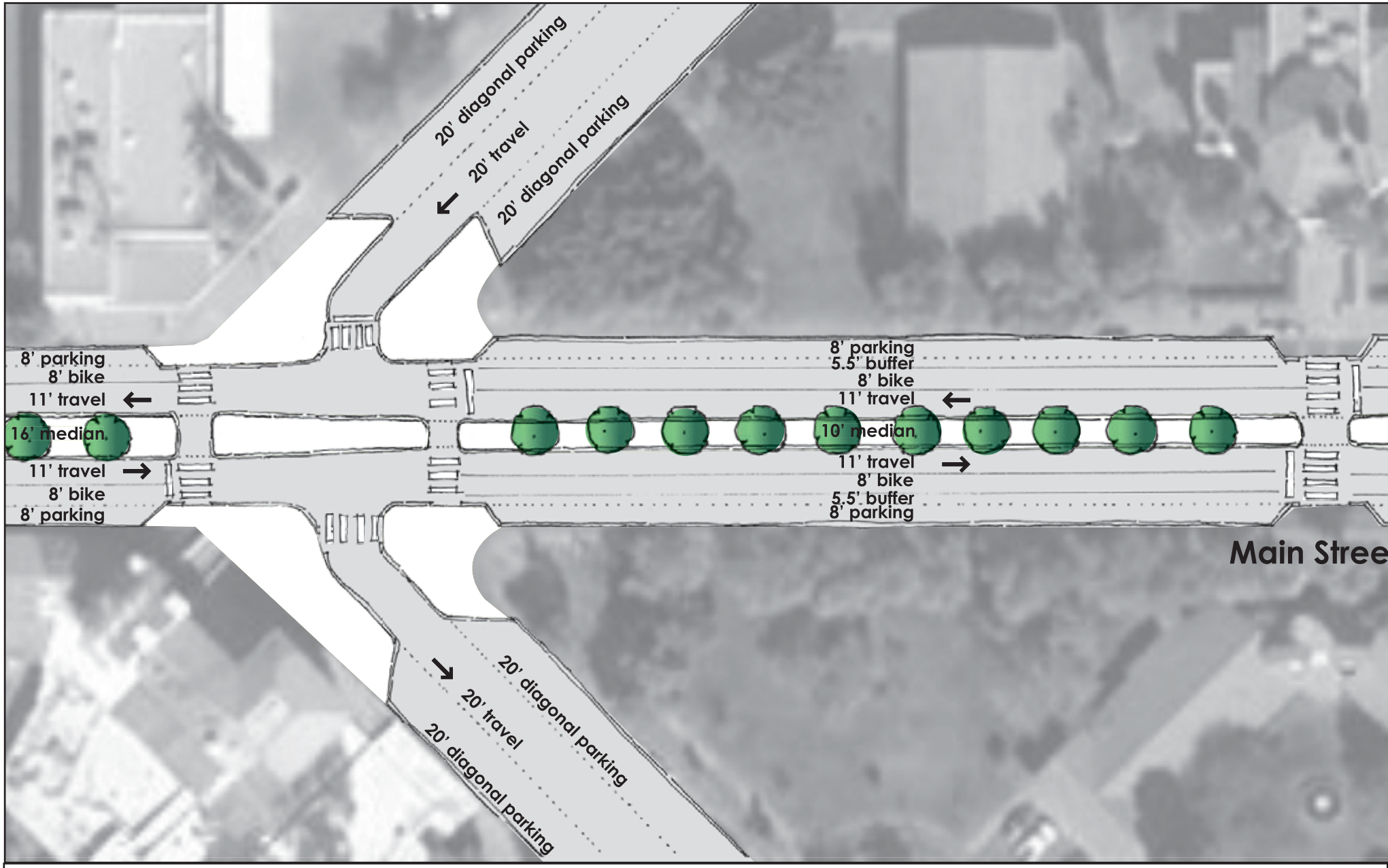


Figure 3-7: Short-term recommendations for Main Street through Plaza Park.

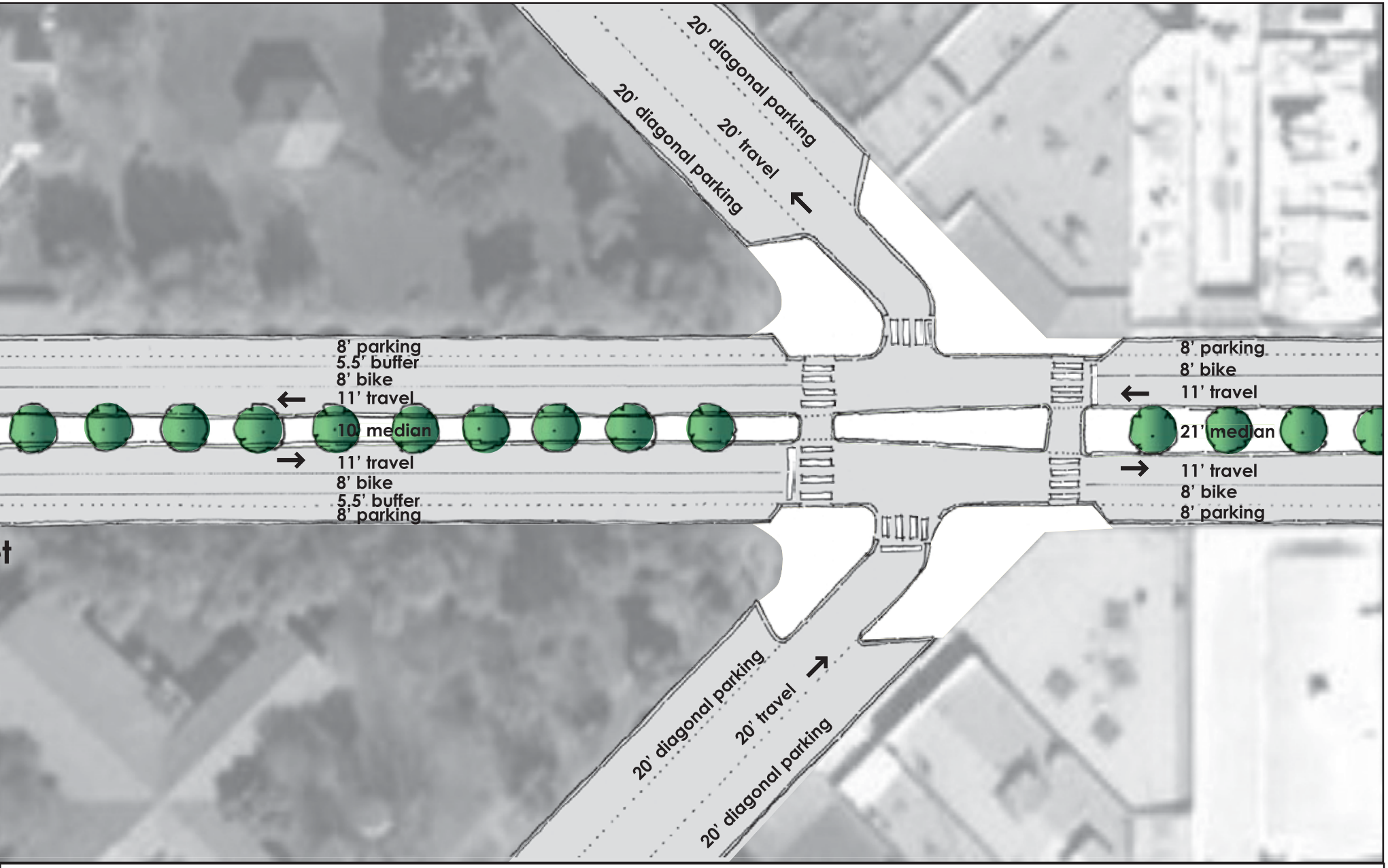


Figure 3-7: Short-term recommendations for Main Street through Plaza Park.

Posts with "knock down" capability for emergencies.

"Jersey" barriers (above) and planter median (below).

Three examples of temporary median barricades.

- Second, is a temporary measure until the long-term solution routes through traffic around the Plaza. The hazard to vehicles crossing Main Street is best dealt with by redirecting that traffic to signals at 2nd and 6th Streets. Temporary median barriers as shown in Figure 3-7 will prevent traffic from crossing Main Street. Three examples are shown in the photos at the left, each with different advantages. The "jersey" barriers are effective and easy to remove, but block emergency access. Posts require boring holes in the street, but can provide "knock down" access for police and fire vehicles. The last barrier is attractively landscaped, but much more expensive and not easily removed.

- Next are short-term recommendations for curb extensions and improved crosswalks at many areas around the Plaza and in front of City Hall. Figure 3-8 is the design for the crosswalk in front of the Post Office that was shown at the closing charrette session.

Figure 3-8: Mid-Plaza crossing connecting the Post Office and Brawley City Hall.

- Fourth, are changes for pedestrian and vehicle safety at the east and west corners of the Plaza. Temporary curb extensions can be outlined with parking lot bumper blocks, as recommended for interim medians in other places on Main Street. Later these areas will get full curbs and landscaping. Curb extensions slow traffic and assist pedestrians walking along Main Street. Figures 3-9 and 3-10 are designs for both sides of the Main Street and West Plaza intersection.

- Finally, a solution for the large expanses of open asphalt at the north and south Plaza corners. They bake in the heat, encourage speeding, and are a hazard to pedestrians. One solution is curb extensions to narrow vehicle space as shown in Figure 3-11. This increases landscaping areas, "chokes" traffic down, and shortens crosswalk distances. An alternative design could include a large triangular island at these locations as shown in Figure 3-12. This requires pedestrians to use two crosswalks, but would minimize vehicle conflicts. It also allows large vehicles rounding the Plaza corner to make that turn in two 45 degree movements, rather than a single, sharper, 90 degree turn.

Figure 3-9: Outline of curb extensions on West Plaza corner near the Police Station.

Figure 3-10: Outline of curb extensions on West Plaza corner near the Planters Hotel.

Long Term Solution (Figures 3-13 and 3-14)

The most important long term change is to route Main Street traffic around the Plaza so that east/west traffic behaves like north/south traffic currently does. Circles, curb extensions and islands will transform the Plaza into a large traffic circle.

Once the street through the center of the Plaza is closed to through traffic, it becomes available for other uses. It was noted at the resident design session that City Hall, the Post Office, and the Sheriff's Station all have entryways oriented towards the current Main Street. A Brawley resident suggested a concept that retains street-frontage access, and adds parking. This idea proves the value of local design workshops. It would consist of two long "U"-shaped sets of parking stalls, with through access only for bicycles and emergency vehicles, as shown in Figure 3-13. Bike lanes would not be painted in this area, but "sharrow" stencils on the asphalt would instruct drivers and bicyclists to share the lanes.

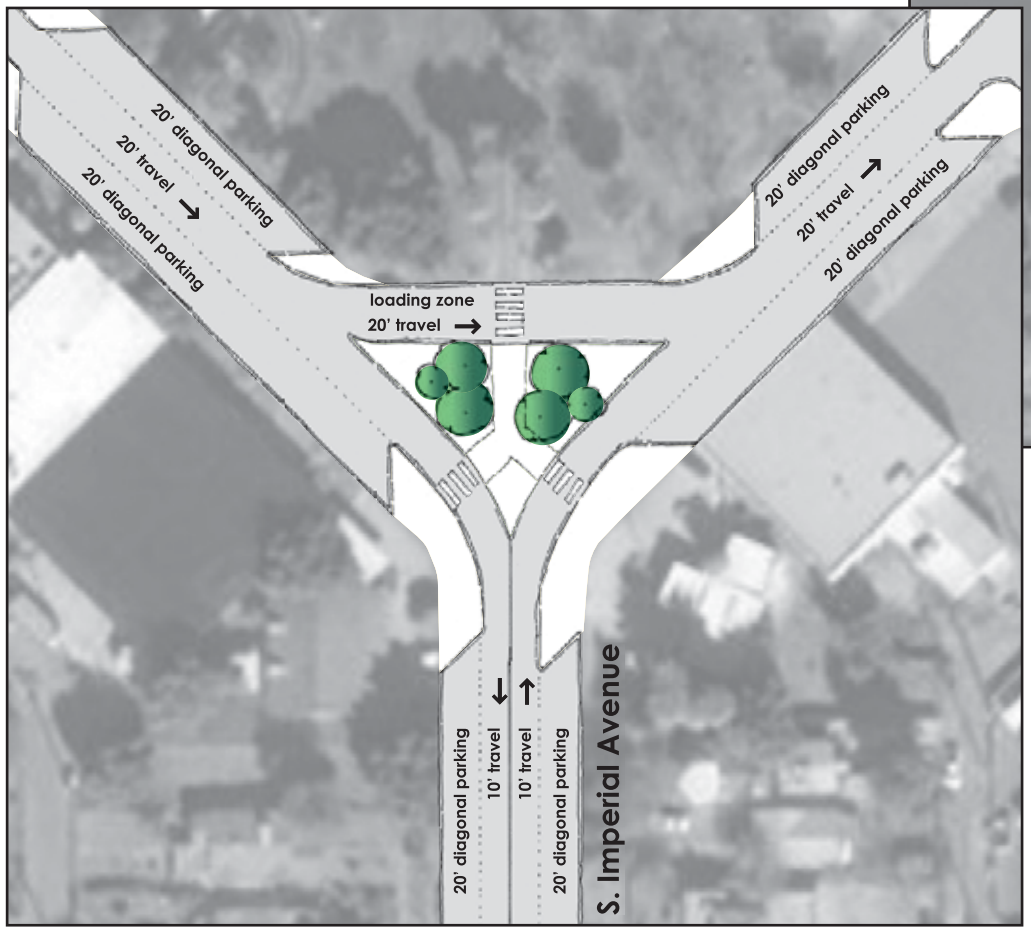


Figure 3-11: Center island alternative.

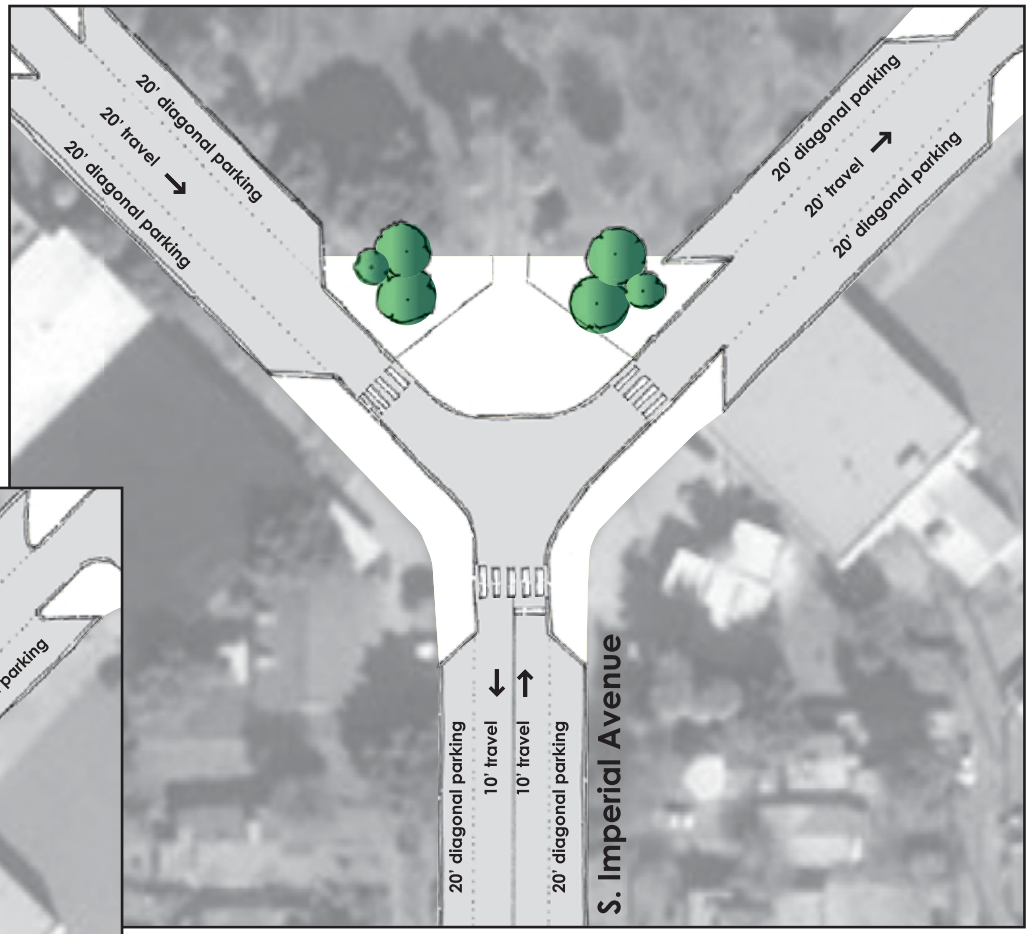


Figure 3-12: Curb extension alternative.

During festivals, farmers markets, or other events, this area could be closed to parking. The community should consider large shade structures to cover parked cars, farmers market stands, or festival booths. This would transform this once busy expressway into the kind of functional public plaza that is part of the town's heritage. Figure 3-14 on the next page highlights that solution. Inset photos show a "sharrow"example, two shade structures, and a possible move to a mid-Plaza location for the horse and cowboy sculpture now on the corner nearest the Planters Hotel.

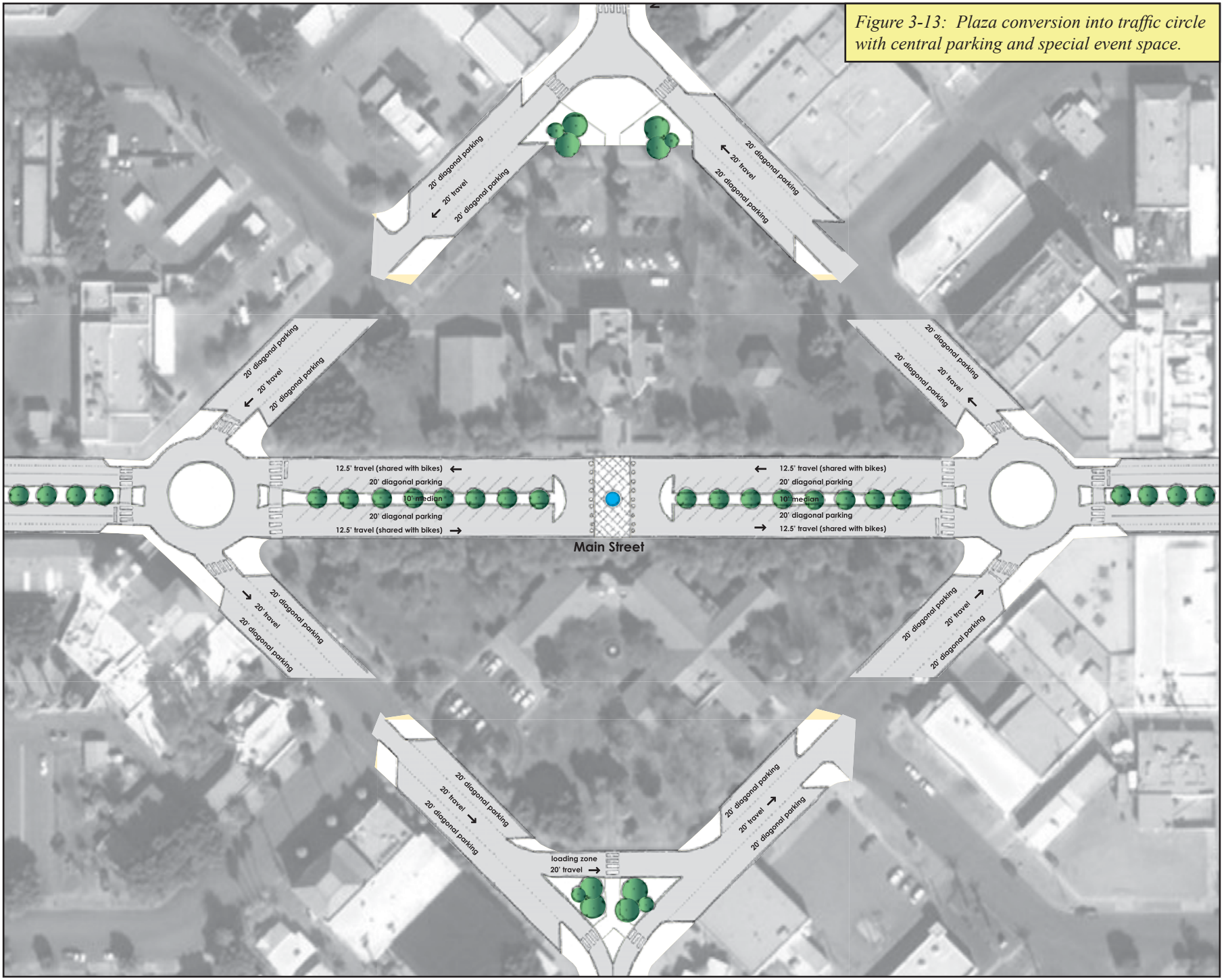


Figure 3-13: Plaza conversion into traffic circle with central parking and special event space.

Figure 3-14: Central Plaza area detail with possible centerpiece sculpture or fountain, shade structures, and sharrow stencil.

Mid-Plaza Fountain Example.

20' diagonal parking
20' travel
20' diagonal parking
12.5' travel (shared with bikes)
20' diagonal parking
10' median
20' diagonal parking
12.5' travel (shared with bikes)
Main Street
20' diagonal parking
20' travel
20' diagonal parking

Farmers Market shelter in Davis, California.

Candidate for relocation to Mid-Plaza?

20' diagonal parking
20' travel
20' diagonal parking

12.5' travel (shared with bikes)
20' diagonal parking
10' median
20' diagonal parking
12.5' travel (shared with bikes)

Parking lot shade structure in Yuma, Arizona.

20' diagonal parking
20' travel
20' diagonal parking

Share the lane "sharrow" in San Francisco, CA.

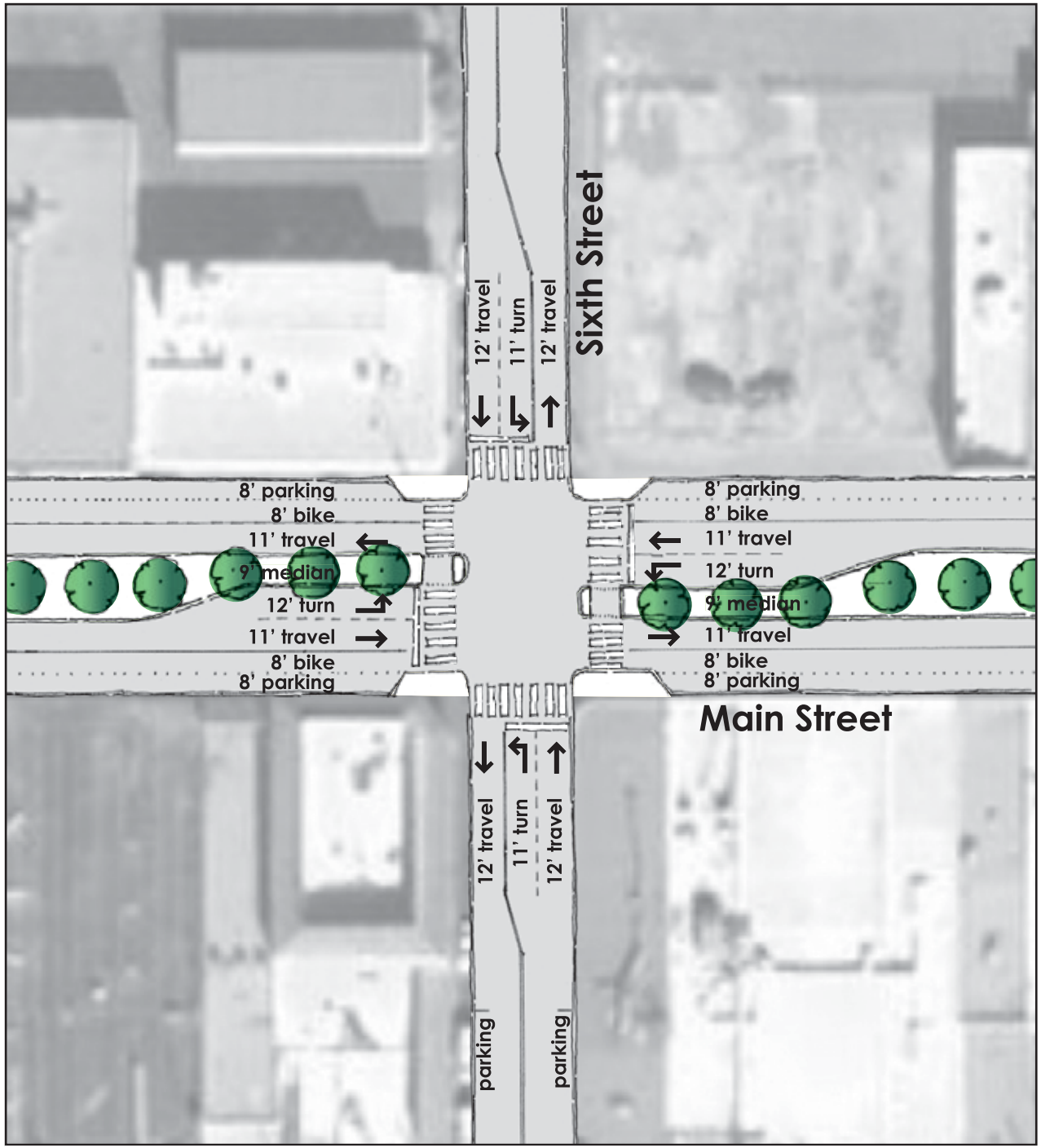


Figure 3-15: Sixth Street and Commercial Core.

7. 6th Street and 500 and 600 Blocks (Figures 3-15 and 3-16)

- Section Width — 75 feet.
- ADT — 19,000.
- Accidents from January 2005 through March 2006 — Five.
- Issues — Light cycles are too fast for pedestrians crossing Main Street.
- Resident recommendations — Medians are good. Other view: remove medians to move traffic away from parking and sidewalks.

Short Term Solution

Once past the Plaza area, the recommended design for Main Street continues with two through lanes, left turn lanes, bike lanes, medians, and curbside parking. Removing one through lane on each side of the median provides room for the bike lanes, which moves traffic away from the shops and sidewalks (one of the design table objectives). This extra distance, the expected reduction in heavy truck traffic, and the lower speeds of passing vehicles will all combine to reduce noise levels in the arcade passageways. This change will bring about an immediate improvement in the "feel" of these two central commercial blocks.

Long Term Solution

As with the intersections discussed above, for these blocks on either side of 6th Street the long-term solution is to follow up with the median and curb extension improvements as funding becomes available. In this busy and important part of downtown, and elsewhere on Main Street, lessons

learned while the short-term solutions are painted on the street may lead to refinements in the design.

A slight modification would leave the median a bit narrower than the design shown in Figure 3-15. If the left turn lane was reduced to the 10 foot width of the existing median, and no median nose was provided at the corners, 11 feet of width would be available on the existing asphalt. That could be split to widen the sidewalks 5.5 feet on either side of the street as shown in Figure 3-16. This would make curbside ingress and egress from parked vehicles easier, and also move through-traffic further from the shops and arcades.

Additional recommendations for these core blocks are in the land use section of this report. They also respond to issues raised during the charrette process and recommendations from the citizen design groups. It is important to note that in other communities in America, redesigned streets have been the catalyst for economic revival. After the streetscape is improved, property owners in the area make improvements, businesses thrive, and people come to the street to socialize and shop.

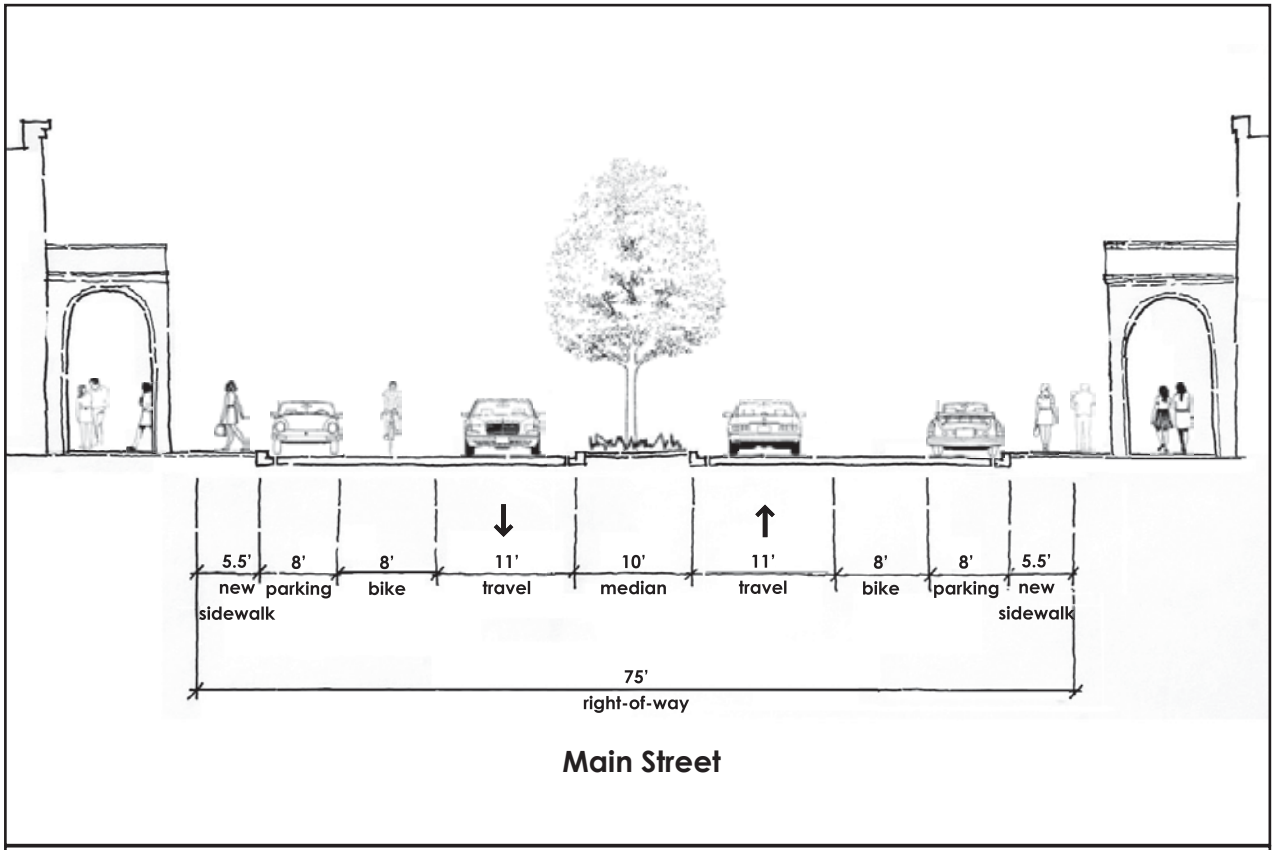


Figure 3-16: Main Street arcades with wider sidewalk option.

City officials reviewing commercial district.

Traditional arcades in Brawley core area.

A variety of goods are available in core area.

The Ciudad Plaza building is frequently damaged as large trucks negotiate the tight right turn onto Main Street.

The renovated arcades of the Ciudad Plaza building.

8. 8th Street/Highway 111 North (Figure 3-17)

- Section Width — 75 feet.
- ADT — 18,000.
- Accidents from January 2005 through March 2006 — Seven.
- Issues — Many accidents. Trucks turning from southbound 8th Street to westbound Main Street running over the Main Street median, or hitting the Ciudad Plaza building.
- Resident recommendations — Continue lane reduction design.

Short Term Solution

This is a problem intersection in many ways. It has the highest number of accidents of any intersection on Main Street, now that the left turn issue at 2nd Street has been addressed. The Ciudad Plaza building has been scraped many times. This damages not only the vehicles and building, but the traffic signals attached to the building.

Recently, a truck making a very wide right turn onto westbound Main Street became stuck on top of the median in the middle of Main Street. This blocked traffic on Main Street for a lengthy period of time until a towing service could extract the truck. This was not the first occurence of this type.

The difficulty lies in balancing pedestrian safety and traffic calming designs that narrow vehicle spaces down, with the wide lanes necessary for large trucks to turn at this location. The first action should be to install the curb extension on the northwest corner to protect the Ciudad Plaza building, as shown in Figure 3-17. This will also require the cooperation of Caltrans for immediate restriping of 8th Street at this point to reflect the new lane configuration. This will move trucks farther away from the 8th Street curb and the Ciudad Plaza building when they initiate the turn, and give them more room to swing wide onto Main Street.

This same curb and median strategy should be done on the southeast corner of this intersection, even though there is much less truck traffic at that point. However, only the northwest corner by the Ciudad Plaza building will require the additional protection of steel posts or similar devices as a last defense for the building.

Long Term Solution

Long-term, this intersection should get a more thorough treatment. Curb extensions should appear at three corners, and the existing raised medians will be redesigned as shown in Figure 3-17. Except for the immediate protection of the Ciudad Plaza building discussed above, this work and the accompanying landscaping must wait until funding is available.

At the northeast corner, a different approach is necessary to give trucks turning from westbound Main Street onto northbound 8th Street the room they need. A new "pork chop" island on the northeast corner near the fire station, as shown on Figure 3-17, will protect pedestrians as they cross either way from that corner and still allow a wider turn radius for large vehicles. Please note that this island is not symmetrical, but is more sharply pointed on the eastern corner. This is necessary to keep vehicles from sweeping around the corner as if it were a freeway onramp, endangering pedestrians.

The recommendation does not include small median extensions (median noses) beyond the crosswalks as are found in the other designs, because these may impede truck turning movements at this busy location. If the wider sidewalk option discussed above is chosen for the 500 and 600 blocks of Main Street, it would be prudent to remove the median noses completely at this intersection for compatibility with that design and to eliminate another obstacle to trucks. Curb extensions and crosswalk improvements will help offset the loss of the pedestrian refuge.

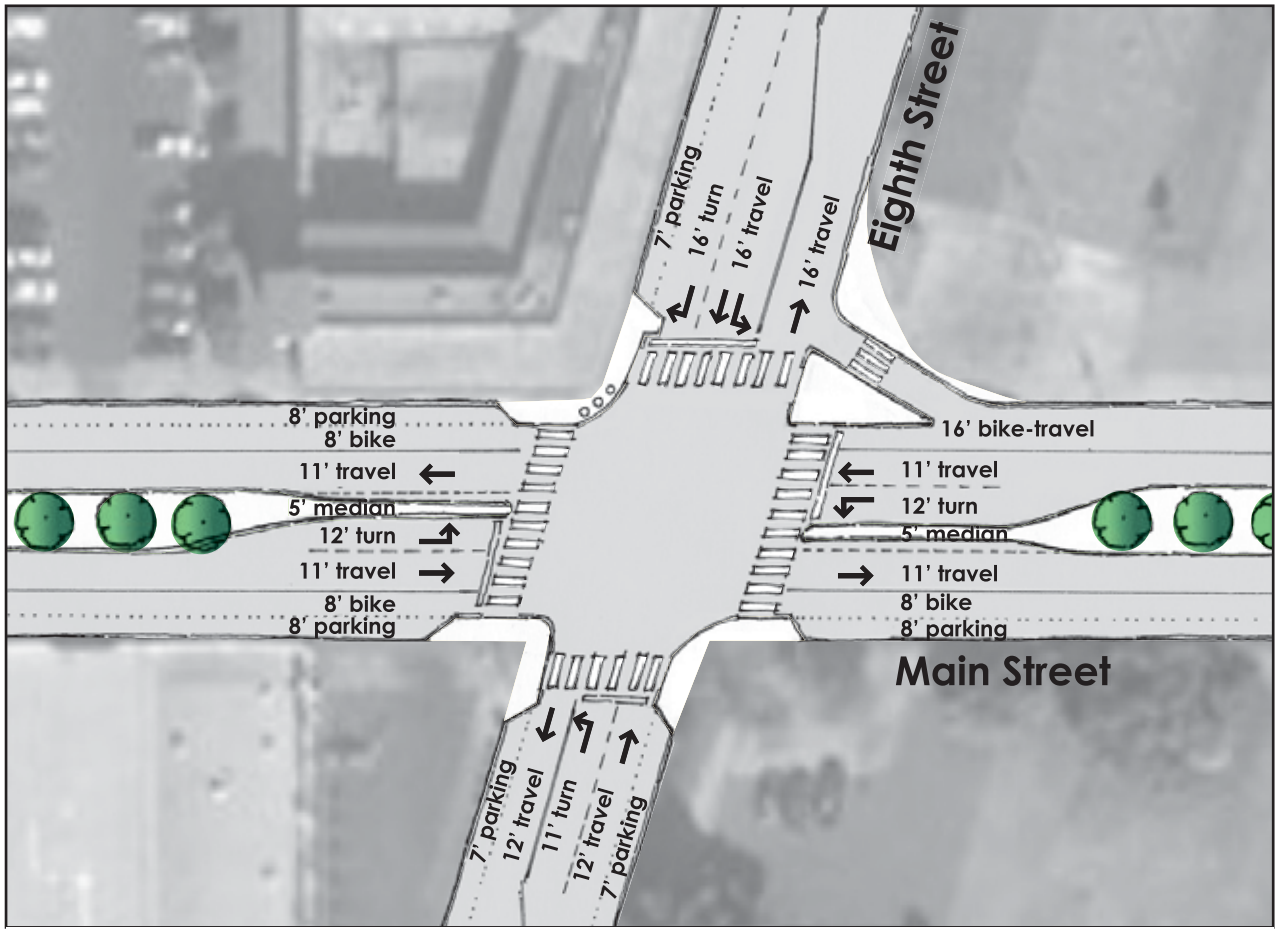


Figure 3-17: Long-term redesign for Eighth Street intersection.

Pedestrians feel vulnerable in exposed crosswalks.

Excess width on Eighth Street that can be closed in with curb extensions.

Pedestrian and wheelchair obstacles on sidewalks.

EAST MAIN STREET

9. Eastern Avenue (Figure 3-18)

- Section Width — 69 feet.
- ADT — 4,000 to 16,000.
- Accidents from January 2005 through March 2006 — twenty between 9th Street and Best Road.
- Issues — The design of East Main Street invites speeding. Meat plant employees speed on Best Road, especially leaving work in the evening. A request not to install continuous medians, because many of the businesses on East Main Street either service or have deliveries by large vehicles. Another request to complete the sidewalks further east on Main Street to Best Road.
- Resident recommendations — Continue lane reduction design.

Short Term Solution

The width of Main Street narrows back to the 69 or 70 feet at the railroad tracks near 8th Street, continues unchanged from that point to Best Road, and eventually on to the Highway 111 Bypass. The design of Main Street simplifies east of the railroad tracks, with the intersections farther apart as the central Brawley grid system of short blocks and frequent cross streets decays into the superblock, collector, and arterial style street system.

The recommended configuration for the Eastern Avenue intersection is shown in Figure 3-18. It is representative of other intersections between 9th Street and the Highway 111 Bypass (9th Street, Cesar Chavez Avenue, Palm Avenue, and Best Road).

Short-term, changes to the roadway will be done primarily with paint: lane narrowing, and adding bike lanes. Future curb extensions can initially be outlined with low concrete blocks.

Brawley Fire Department headquarters.

The streetscape of East Main has its own feel.

The roadway is more open, with businesses set back.

Long Term Solution

Over time, continuous sidewalks, center medians, curb extensions, and landscaping can be added to East Main Street. Note the comment from one participant in the charrette who asked that continuous raised medians not be installed east of the tracks. Many of the businesses along that portion of Main Street either service, or require deliveries by, large trucks or RVs. Larger vehicles cannot negotiate u-turns or other maneuvers to access these driveways like smaller vehicles can.

Additional "greening" of the street can be done over time as driveway access is better controlled, and as experience indicates where landscaped medians should be. These medians could be "islands" with trees and other landscaping. Even though they would not be continuous, the same beautification and traffic calming benefits would occur. An example of a street tree retrofit accomplished by boring holes through existing asphalt is shown in the photograph at the upper right on this page. Safety concerns about trees in the street are minimal with a 25 MPH speed limit.

Food stands and cafes tend to front on the sidewalk.

10. Highway 111 Bypass

Because work on the immediate area of the intersection of Main Street and Highway 111 would occur in the Caltrans right-of-way, no image was prepared for this area. The East Main Street configuration is carried to this point, with possible changes at the intersection to aid heavy vehicle traffic. Additionally, a gateway should be created a short distance west of the intersection, as discussed earlier in this Chapter.

Inexpensive tree addition with new holes in street.

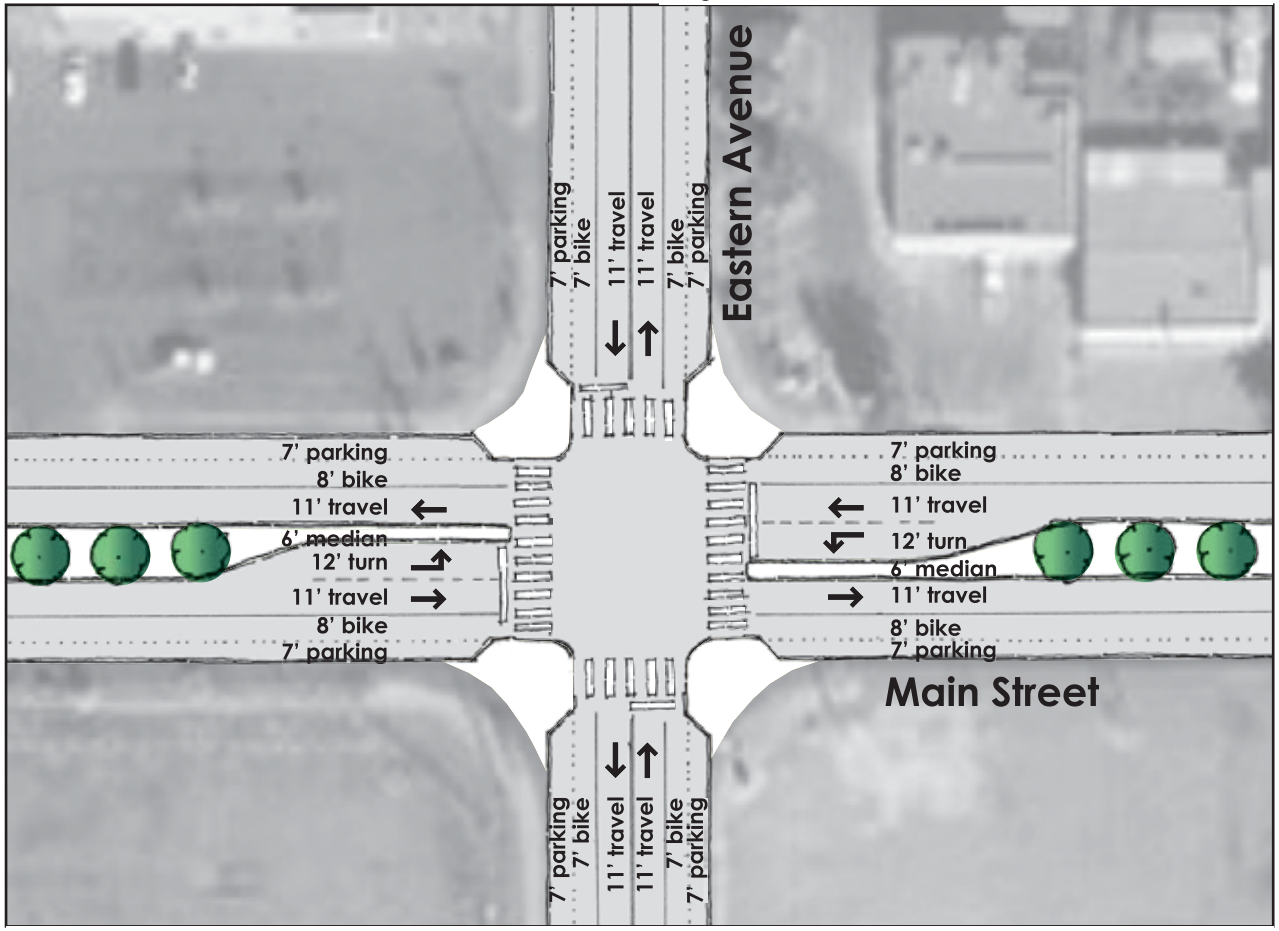


Figure 3-18: Eastern Avenue, as prototype for other East Main intersections.

While some buildings sit neglected...

...others show the results of renovation and care.

While some sidewalks need repair...

...others are in excellent shape in pleasant environments.

While portions of central Brawley are uninviting...

...other spots invite a relaxing sit to watch traffic go by.

11. Streetscape

At this time, the "streetscape" along Main Street sends mixed images to the community and visitors. By streetscape, we mean all the visible features between the front portions of properties on either side of the street.

"Streetscape" includes:

- Building facades — materials and paint, awnings, signs, windows, displays, and lighting
- Street lighting — poles and lamps
- Sidewalks — also crosswalks and ramps
- Landscaping — street trees, bushes, flowers, and grassy areas
- Public art, fountains, statues, sculptures, etc.
- Street furniture — benches, tables, trash and recycling receptacles, newspaper racks, bike racks, etc.

Work on refreshing Main Street must include as many of these elements as possible, in addition to the basic changes in the design of the street itself. Much of this work can be done in conjunction with the long-term measures recommended in this chapter. This is economically efficient, and spares residents the inconvenience of sequential construction projects.

One neighborhood in Orlando, Florida, took a comprehensive approach to install, build, or plant everything in the streetscape one block at a time. That strategy generated support for the project as each "unveiling" showed the potential for the entire package of improvements.

A broad mix of funding programs is often used to rework streets in this fashion. Chapter 5 of this report offers suggestions for funding sources, along with internet links to funding program websites.

SCHOOL ZONE RECOMMENDATIONS

Although this project is focused on Main Street, two school sites were examined after parents and educators expressed concerns. The project team visited the Brawley Union High School and Barbara Worth Jr. High School locations several times, observing student drop-off behavior and general activity. This was repeated at Witter Elementary School near south Highway 86. Both areas have seen an unfortunate number of accidents, several involving young children on foot or on bicycles.

One quick and inexpensive suggestion is to install 4-way stop signs at all intersections near Brawley's schools, unless other design measures are better. If vehicles blocking bicycle lanes become a problem, those lanes could be highlighted with colored paint as shown in the photo below.

While the design team offered recommendations at two areas, it should be understood that school access safety is a complex topic best addressed by a design effort focused around that topic. Good design is enduring. Safe streets reduce City costs for education, and enforcement.

School children of varying ages congregate happily near Barbara Worth Jr. High School.

Bike lanes can be highlighted with colored paint.

Some children are escorted by parents or friends.

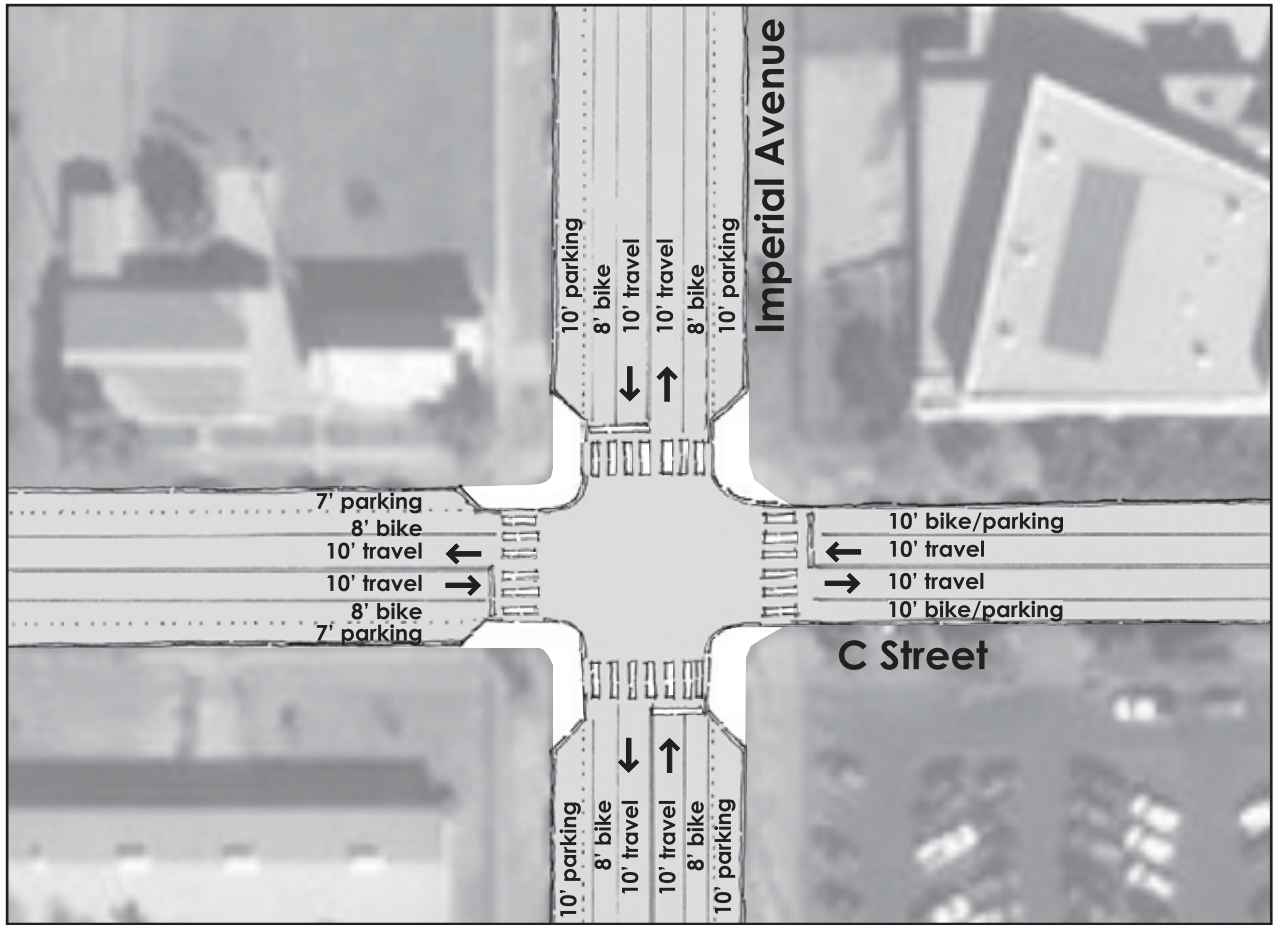


Figure 3-19: Imperial Avenue and C Street near Brawley High School and Barbara Worth Jr. High School.

12. Brawley Union High School (Figure 3-19)

In the 15 months from January 1, 2005 to March 31, 2006, City records show thirteen accidents on the streets bordering Brawley High School and Barbara Worth Jr. High School. Other accidents were reported in the general vicinity of these schools during the time immediately before and immediately after school hours. This is an accident frequency that must be addressed. The most serious threat is to young students on foot or riding bicycles.

Figure 3-19 is an example treatment for intersections around the high school. The curb extensions minimize the time students are exposed to vehicle traffic while crossing streets, and channel that vehicle traffic into narrower single-file lanes. This provides room for clearly striped bike lanes, which should be on all approaches to the high school and other schools in the community. The precise configuration and lane widths will change as existing street widths vary.

Crosswalks are difficult to see and often not respected by drivers.

Although students often ignore them as well.

13. Witter Elementary School (Figure 3-20)

In the 15 months from January 1, 2005 to March 31, 2006, City records show six accidents on the streets near Witter Elementary School. Several of these accidents involved bicyclists or pedestrians, adults as well as students.

The situation near this school is complex, due to the proximity of the heavy vehicle traffic on Highway 86. One obvious danger is the unnecessary street width and lane count on Highway 86. The highest traffic volumes projected for Highway 86 south of Main Street are barely half the vehicle count that could be served by a single through lane in each direction.

Therefore, 1st Street/Highway 86 should get the same lane reduction treatment that is recommended for Main Street — one through lane in each direction, left turn pockets at corners, raised and landscaped medians, and bike lanes. This design should extend to the south at least as far as Pioneers Memorial Hospital, where gateway features as described above should announce the entry into Brawley and tell drivers it is time to slow down.

Second, single-lane roundabouts as depicted in Figure 3-20 should be designed and installed at the 5-way intersections of Hwy 86/Malan Street/Western Avenue and Hwy 86/K Street/1st Street. These will smoothly regulate traffic flow without the delays of signals, reduce vehicle speeds as drivers slow to negotiate the system, and improve pedestrian safety. The designs shown on Figure 3-20 are schematic only, not final.

Multiple safety issues on this trip to school.

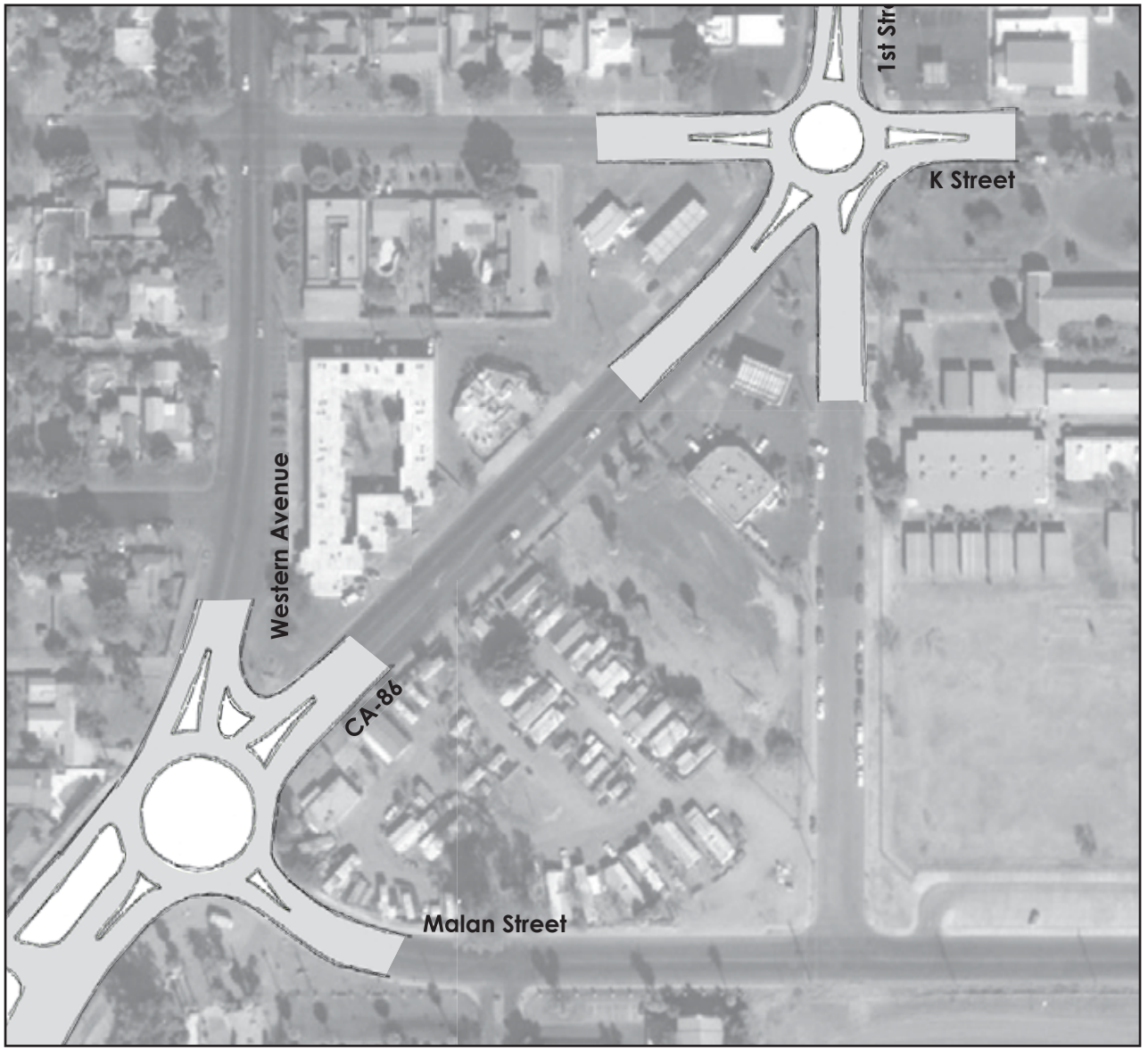


Figure 3-20: Recommendation for roundabouts on Highway 86 near Witter Elementary School.

Better than 45 MPH, but 30 MPH is still too fast.

Crossing streets will be safer for everyone.

SUMMARY OF DESIGN RECOMMENDATIONS

Short Term

Because of funding limitations, right-of-way ownership, and external projects (completion of the Highway 111 bypass), the initial phase of the Main Street improvements will be done primarily with paint and other inexpensive methods. The complete list is as follows:

- Work with Caltrans to reduce the speed limit on all of Main Street to 25 MPH.
- Mark curbside parking on Main Street from 1st Street/Highway 86 South to Best Road.
- Mark continuous bicycle lanes from the west side of the New River Arroyo to Best Road with a 10 to 12 inch wide separator stripe.
- Separate bicycle lanes from vehicle lanes in the arroyo with low concrete pucks.
- Stripe a 3-foot buffer between the bike lanes and parking stall through the Plaza.
- Stripe two 11-foot wide through lanes in each direction from the west side of the arroyo to 1st Street/Highway 86 South.
- Stripe only one 11-foot wide through lane in each direction from 1st Street to Best Road.
- Outline future curb extensions with paint and low concrete pucks.
- Stripe center medians and turn lanes as depicted in the images in this chapter.
- Outline the medians with concrete pucks.
- Use more prominent median barriers to prevent crossing and turning near Marjorie Avenue (Figure 3-4) and the East and West Plaza crossings (Figure 3-7).
- Outline traffic control curb extensions or islands at the north and south Plaza corners with low concrete pucks. Two optional designs are shown in Figures 3-11 and 3-12. Perhaps experimentation during this phase will reveal which design works best.
- Install the measures shown in Figure 3-17 on the Ciudad Plaza corner of 8th Street and Main Street to protect the building.
- Begin work on curb extensions, additional stop signs, and other safety measures in the area around Brawley Union High School and Barbara Worth Jr. High School.
- Begin discussions with Caltrans about traffic calming and safety improvements in the area of Witter Elementary School on Hwy 86.

Many large vehicles will divert to bypass routes.

Businesses thrive as streets get calm and quiet.


Business interiors will also be quieter.

Long Term

The following additional improvements can be made as funding becomes available, as the Highway 111 bypass is completed, and as experience with the short-term design dictates.

- Use colored paint if necessary to highlight bicycle lanes.
- Widen the short-term 6-foot bicycle lanes near the Vons market to 8 feet.
- Reduce through lanes to one 11-foot lane in each direction through the arroyo and on to 1st Street/Highway 86 South.
- Install permanent raised and landscaped medians as depicted in the images in this chapter.
- Install intermittent raised landscaped median islands on East Main Street in locations where they will not interfere with heavy vehicle movements.
- Install a gateway west of Las Flores Drive.
- Replace the temporary median barriers at the East and West Plaza crossings with traffic circles and curb extensions as depicted in Figure 3-14.
- Close the central Plaza to through vehicle traffic and reconfigure the area as shown in Figure 3-14 into angled parking and shared travel lanes indicated by sharrows.
- Place a prominent feature such as a fountain, archway, or statue in the exact center of the Plaza. Perhaps the bronze cowboy near the Planters Hotel could be moved to this location.
- After evaluating the designs shown in Figures 3-11 and 3-12, select the best choice for raised and landscaped traffic control measures at the north and south corners of the Plaza.
- Decide if the extra street width through the 500 and 600 blocks should be used for wider medians, or new sidewalk width and build accordingly.
- Complete the curb extensions shown on all long-term images in this chapter.

Main Street Design Cross Sections (Figure 3-21)

Figure 3-21 details the vehicle lane, turn lane, bicycle lane, parking, and median configurations for each of the distinct segments in the design recommended for Main Street. It was prepared to assist City of Brawley staff in striping and engineering work for the new designs. Two designs are shown for the Las Flores intersection, because the existing east and west side roadway widths differ by ten feet. For the 500 and 600 blocks of the commercial core, three designs are shown. One is for immediate striping, and two long-term designs. The first long term design has wide medians as shown in Figure 3-15, and the second the wide sidewalk option shown in Figure 3-16 (pages 22 and 23).

Existing medians will be landscaped.

At last — the proper speed limit for Main Street.

Healthy streets attract renovation investments.

Crosswalks will be enhanced for improved safety.

Figure 3-21 BRAWLEY MAIN STREET CROSS-SECTIONS

Arroyo at New River Bridge--90 feet wide

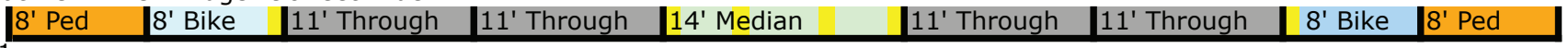


Figure 1

West side of Las Flores--90 feet wide

Figure 2

East side of Las Flores (100 feet wide)

Figure 2

Brawley Inn to Von's Market--Narrows from 100 feet to 70 feet--mid-point shown

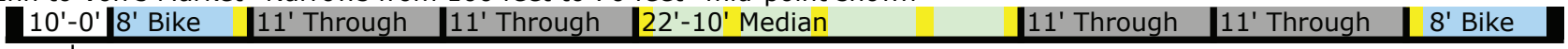


Figure 3 edge

Von's Market to east Von's Market driveway--70 feet wide

Figure 3

East Von's Market driveway to west side of First Street--70 feet wide

Figure 4

East side of First Street to West Plaza--70 feet wide

Figures 4 and 5

Central Plaza Short Term--75 feet wide

Figure

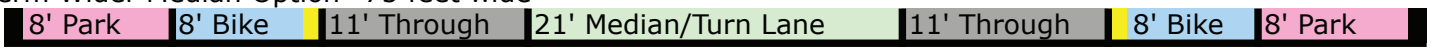
Central Plaza Long Term--75 feet wide

See Figure

500 Block--Short Term--75 feet wide

Figure

500 Block Long Term Wider Median Option--75 feet wide

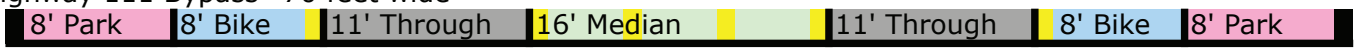


Figure

500 Block Long Term Wider Sidewalks Option--75 feet wide

Figure

Railroad Tracks to Highway 111 Bypass--70 feet wide



Figure

KEY-- Curb Parking Turn Lane Through Lane Bike Lane Pedestrian Area Painted Buffer Landscape Mixed

BRAWLEY MAIN STREET PLAN
CHAPTER 4: LAND USE

Main Street Corridor

This chapter addresses land use and zoning for properties on or near the Main Street corridor. The primary focus is the several blocks from the Planters Hotel to the Ciudad Plaza building (3rd Street to 8th Street), but the eastern and western stretches of Main Street are also touched upon. What follows is not the code for regulating land use along the Main Street corridor, but rather an outline of the steps necessary to develop and adopt that code.

The core area of downtown Brawley has a long tradition with its distinctive arcade-style architecture. These covered walkways shelter residents from winter rains and intense summer heat, and are also used for merchandise display. They are the signature architectural feature of commercial development in Brawley. Similar arcades should be required as appropriate for any future development on Main Street or the nearby streets in the core area.

Figure 4-1 outlines the district the project team recommends for initial redevelopment and renovation efforts. This area was selected after considering the following factors:

- It contains Brawley's commercial center.
- A redesigned Main Street will improve the area's environment, promoting investment.
- It is small enough to concentrate attention without diluting resources.
- It encompasses the "back alley" areas useful for employee and customer parking.
- Possible expansion zones are immediately adjacent to the district, for example west on Main Street or north along 8th Street.
- The boundary is generally the back sides of properties, leaving both sides of streets within the district with compatible zoning rules.

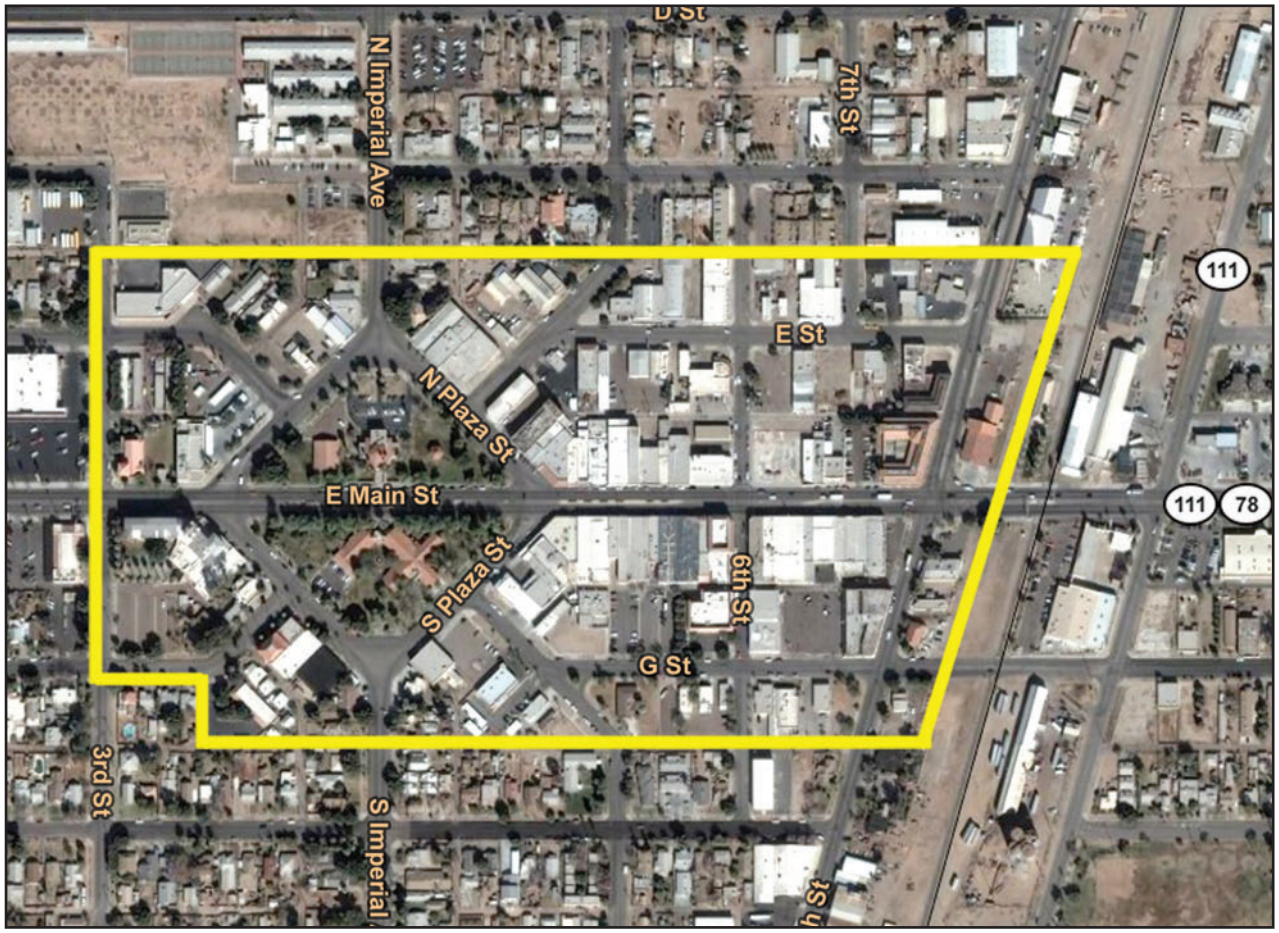


Figure 4-1 Proposed Core Area Form-Based Code Overlay Zone.

As a new code for this area is developed we recommend that the City use a relatively new approach referred to as a form-based code. A form-based code will help insure that the vision that emerged from the charrette is implemented as new development takes place.

The information that follows is from a recent Local Government Commission (LGC) document on form-based codes, which is available for download without charge at the LGC website:

www.lgc.org/freepub/land_use/factsheets/form_based_codes.html

Form-based codes place less emphasis on uses and more emphasis on building types, dimensions, parking location, and façade features. They stress the appearance of the streetscape, or public realm, over long lists of different use types.

THE CHARACTERISTICS OF FORM-BASED CODES

Modified from a definition by Paul Crawford, AICP

- **Zoning Districts —** Form-based codes are defined around districts, neighborhoods and corridors where conventional zoning districts may bear no relationship to the transportation framework or the larger area.
- **Regulatory Focus —** Form-based codes de-emphasize density and use regulation in favor of rules for building form. They recognize that uses may change over time, but the buildings will endure.
- **Uses —** Form-based codes emphasize mixed use and a mix of housing types to bring destinations into close proximity to housing and provide housing choices to meet many individuals' needs at different times in their lives.
- **Design —** Greater attention is given to streetscape and the design of the public realm, and the role of individual buildings in shaping the public realm.
- **Place —** Form-based codes recognize how critical these public spaces are to defining and creating a "place."
- **Public Participation —** A design-focused public participation process is essential to insure thorough discussion of land use issues as the code is created. This helps reduce conflict, misunderstanding and the need for hearings as individual projects are reviewed.
- **Understandable Format —** Form-based codes address one of the most insidious evils of conventional codes — which are often so complex, full of technical terms, cross-referenced, and confusing that they do not serve the general population well. Form-based codes are greatly simplified, and make extensive use of charts, graphics, and photographs. They are user-friendly, as they should be, since a zoning code is the primary tool that shapes a community for its residents.

Why are form-based codes effective?

The focus on building and street design in form-based codes allows graphics and photos – instead of lengthy, repetitive text – to explain the details of zoning requirements. In turn, these codes are much more democratic instruments, because they are more readily understood by residents who are not otherwise involved in land use or development professions.

Pictures tell the story

Form-based codes can greatly reduce discussions about the meaning of zoning terms and arguments over the interpretation of code language, allowing everybody involved in a public participation process to focus their time and energy on the essence of the regulations, rather than on "wordsmithing." Using form-based codes, a picture really can be worth a thousand words.

Information is easy to find

Another improvement offered by form-based codes is that they contain all relevant information in a concise format. By contrast, conventional codes usually include this information in several different sections of the code, sometimes even in side documents that may not be readily apparent or available to the inexperienced user.

By consolidating information and using a simple pictorial style that avoids jargon and complex, repetitive language, form-based codes offer a much more accessible format.

They work great for mixing uses

Another key characteristic of form-based codes is the way they treat different use types. Since the dawn of zoning, conventional codes were built around the concept of separating uses. They seldom allow uses from a different category (retail, single-family, multi-family, office, etc.) within the same zoning district.

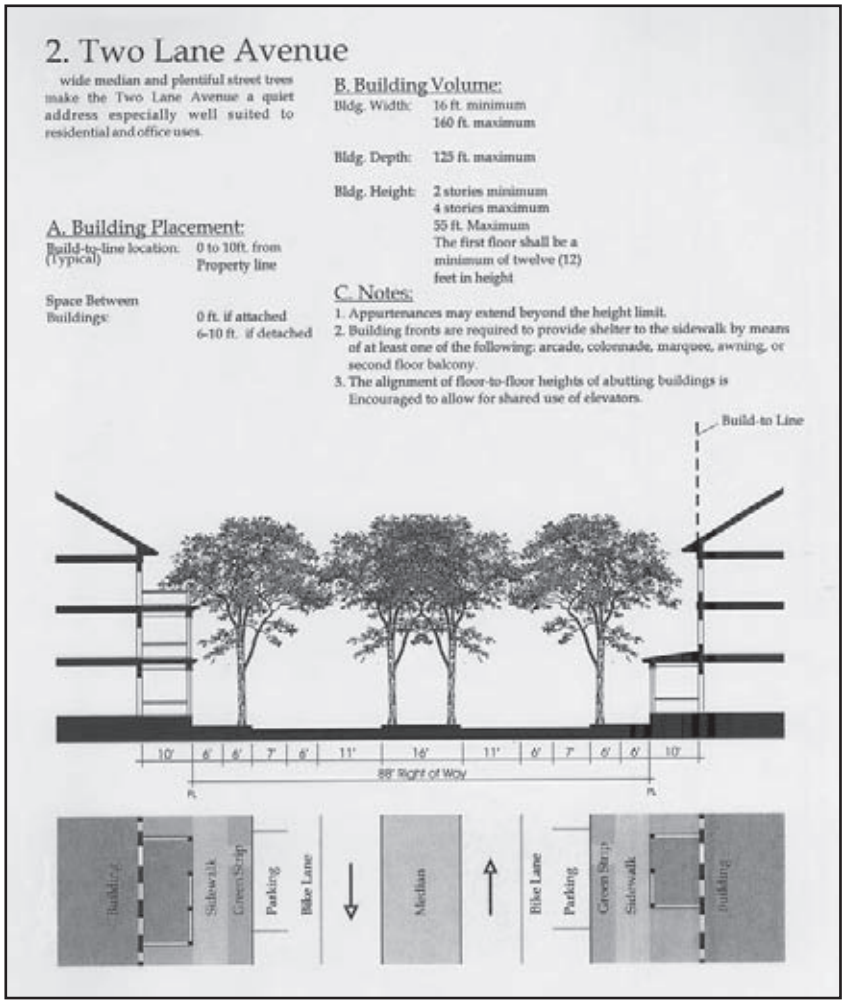
When uses from different categories are proposed by project developers, extra processes and additional hearings are often required. In contrast, form-based codes assume a mix of uses, especially in neighborhood or town centers.

They bring a better, faster, cheaper process

This clarity of format and intent can lead to a shift in approval processing from a hearing-heavy process to one that is largely administrative. Simply put, if all the details are discussed and clarified when the code is developed, and if they are accurately represented in a format that leaves no doubt as to the requirements, then a "build-by-right" approach is possible.

This means the review of a project application follows procedures similar to those for obtaining building permits. If the proposed project meets all of the code's requirements, the application can be approved administratively.

Obviously, this reduces time, expense and uncertainty for the developer, but it also reduces processing and hearing costs for the jurisdiction involved. This can free up staff time for more proactive planning.



Example form-based code page regulating properties fronting on a two-lane avenue.

RECENT CHANGE IN STATE LAW AUTHORIZES THE USE OF FORM-BASED CODES

Like many unconventional ideas, form-based codes were at first met with skepticism in many communities. At times it was argued they were not even a legal means of regulating land use. To clarify that issue, the California legislature weighed in by adopting legislation specifically authorizing form-based codes. Assembly Bill 1268 was signed into law in July 2004 by Governor Schwarzenegger, resulting in clear language in the state's General Plan Guidelines and the statutes governing zoning that allow form-based codes.

Alleys need to be cleaned up.

Opportunity for infill on vacant lot at 6th Street and Main Street.

Excess parking lot reuse opportunity on East Main Street.

Plaza fronting business will benefit.

Opportunity to develop frontage and sidewalks on East Main Street.

Reuse parking lots.

Steps for preparing a form-based code

How does a community go about preparing a form-based code? What are the steps that need to be taken to prepare a form-based code?

According to planner Paul Crawford, a national expert on form-based codes, the typical steps required to prepare this type of code include:

1: Existing conditions analysis and inventory

Before embarking on development of the code it is critical to understand clearly what the existing patterns of development are in a community. This record of existing conditions – especially of areas that the community identifies as special, or significant – can help planners develop a code that fits local characteristics.

Using diagrams and notes, a typical analysis will look at:

- Street types (by setback, walkway, roadway, and landscape)
- Block types (shape, size, alleys, parcelization)
- Building types (footprint, profile, streetfront, access by car or pedestrian, service areas)
- Open space types (front, back and side yards, squares and parks, undeveloped parcels with urban zoning)
- Parking types and location (parallel, diagonal, lots)
- Natural features (creeks, significant trees, views, hills, etc.)

2: Public visioning and charrette sessions

Input from the community is gathered early through a public visioning and charrette process similar to that held for this Brawley Main Street redesign

project. This will require individual sessions for the distinct portions of Brawley where this new code will be applied. Based upon the nature of the existing development along Main Street, and feedback from residents and city officials during the charrette process, this report assumes the areas are:

- Main Street west of 3rd Street to the western side of the New River arroyo. This district would include only properties that front directly on Main Street.

- The commercial core, which includes the Plaza, properties east and west of the Plaza that front on Main Street, and a broader area that extends 1-1/2 blocks north and south of Main Street, as shown in Figure 4-1.

- East Main Street, from the railroad tracks to the new Highway 111 bypass. Like West Main Street, this district would include only properties that front directly onto Main Street.

As the community begins to develop this code, the exact boundaries of these three districts should be discussed and adjusted if that seems appropriate.

The charrette is a collaborative planning process that brings together residents and design professionals in an intensive multi-day process that typically includes focus group meetings, workshops, presentations, and public engagement exercises to develop a feasible plan for future revitalization and development.

3: Determine the appropriate spatial basis for regulation (districts, transect, streets or special zones)

There are a number of different approaches that can be taken in determining how the form-based code will be defined and regulated. Although there is some overlap between these approaches, Crawford describes four basic alternatives that are typically used by different practitioners:

- Neighborhoods, districts, corridors
- Transect
- Street-based regulating plan
- Special purpose zones

This process entails identifying which parts of the community are appropriate for different types of development. In Brawley's case, the central area would be covered by a neighborhood-type code, while a street-based approach fits best for West and East Main Street.

4: Develop urban standards (streets, blocks, building placement, height, land uses, etc.)

The next step is to define and code the urban standards for the different parts of the community mapped in Step 3. The result will be a set of diagrams for each zone that clearly establish standards for some of the following key ingredients of an urban place: street and sidewalk widths, building placement, building height and profile, and, the location of on-site parking if it is a relevant issue.

5: Develop architectural standards (building or frontage types, etc.)

The inventory conducted in Step 1 and the public visioning and charrette process in Step 2, help to identify the different types of buildings and how they front the street to define the public realm.

The form-based code builds on this information to define what types of buildings fit into different parts of the community. For example, the form-based

The Hercules, CA code specifies every architectural detail.

Mixed-use live-work development in Hercules, CA.

Mixed-use at Stapleton Airport redevelopment, Denver, CO.

Current renovation in progress in Brawley.

Potential opportunity for renovation.

Another potential opportunity for renovation.

code for the City of Ventura, California, identifies the following types of buildings as appropriate for different parts of the community: single family, carriage house, duplex, triplex, quadplex, mansion apartment, bungalow court, townhouse, sideyard housing, live/work, courtyard, stacked flats, commercial block, and blended development.

The code then lays out very clearly which types of buildings are appropriate in the different districts for different lot widths through a table.

6: Allocate and illustrate standards

The final step in the process is to prepare the standards in a format that is rich in graphics, well-illustrated, jargon-free, and easy to understand.

This format should include all information and regulation relevant to each of the districts in Brawley in one concise piece. This avoids the confusion that cross-referencing, scattered requirements, side documents, and obscure terms can introduce.

Side street businesses will benefit from a form-based code.

Other Points to Consider

Large-scale revisions of zoning codes always have the potential for unanticipated problems, whether a form-based approach, or a more conventionally structured code built around smart growth principles, is used. The need to monitor and revise these new codes after they are adopted must not be overlooked with any format. With form-based codes, these problems will likely surface when the underlying basis for regulation is changed from a focus on uses within and around buildings to a focus on the structures first.

Form-based codes require re-educating everyone in the community — elected and appointed officials, planners, engineers, developers, and residents.

This begins with a broad public participation effort as the code is developed, of course, but it must also continue after the code is adopted. Code modifications should be expected over time, and must be explained to everyone involved.

Some cities have hired an architect or urban designer to work with builders and developers to help implement the code's objectives. This education – particularly of staff – will help reassure developers and the public that application approvals will meet the code's intent.

If code reform streamlines the process in a way that eliminates hearing check-points, people must be confident that staff are trained to properly assess whether proposed projects comply with the detail requirements in the code.

Conclusion

Brawley's downtown and the two Main Street corridors on either side of it should have similar architecture at the street frontages. The design team suggests a requirement to continue the covered sidewalk arcades. There should be a two-story minimum height along Main Street and throughout the core area, with a maximum of three or four stories.

Mixed use should be required in all Main Street frontage development, unless there is a compelling reason not to. Ground floor uses should be community-serving, both retail and office uses. Second stories could be either office or residential. Any additional floors should be residential. Bringing a 24-hour people presence downtown is important to improving the safety and economic vitality of the area.

Parking standards should be less than conventional standards. Do not let parking requirements prevent a desired use from locating downtown. Shared parking arrangements must be included in all project approvals. Nearby curb-side parking should be counted in a project's supply (this requires some monitoring). Other parking should be away from the street frontages as much as possible. Basically, have less parking and hide it.

Work to clean up the alley areas for parking, security, and access through paseos to Main Street.

To summarize, the rules for zoning to revitalize the downtown and Main Street corridor areas are:

1. Make new development denser than existing development.
2. Require a mix of uses.
3. Improve connections to and along Main Street.
4. Streamline the process and remove barriers for the desired type of development.

New mixed-use development in Petaluma, CA

Example of live-work development in Hercules, CA

BRAWLEY MAIN STREET PLAN
CHAPTER 5: IMPLEMENTATION

This report outlines an ambitious plan that includes a full makeover of Main Street, changes in zoning requirements for the core area, and safety improvements to streets near Brawley's schools.

Funding limitations alone require a gradual approach, as do right-of-way ownership issues and external projects like the completion of the Highway 111 bypass.

So the sensible approach is to start with the easiest and least expensive improvements, and work up to more complicated and costly investments. Almost all of the short term recommendations can be done with paint.

Funding opportunities

A number of funding sources could help implement report recommendations. They offer alternatives for street design, community facilities, and other infrastructure. Some sources for funding are:

- City road maintenance and construction funds
- Development fees
- Special districts
- Community Development Block Grant (CDBG)
- California Trade and Commerce Agency
- Proposition 12 Tree Planting Grant Program
- Volunteer initiatives and private donations
- State and federal transportation funds

Each of these funding sources is subject to changes in state and federal law, budget levels, and target project priorities. A summary of the situation for each as it existed at the time of this writing follow below.

City road maintenance and construction funds

Brawley can add striping, traffic calming, sidewalks, curbs and similar elements to other projects that already involve digging up or rebuilding street sections in the downtown area. For example, storm drain and sewer improvements, utility undergrounding projects, and routine street resurfacing are all possibilities.

The greater the extent of the reconstruction, the greater the opportunity for adding elements such as bulbouts and medians at a fraction of the cost of a stand-alone project. Also, communities avoid the disruption, noise and expense of repeatedly digging up a street and detouring traffic.

Such combination projects will require coordination between departments and capital improvement projects whose schedules and budgets are often separate.

Many cities have incorporated traffic calming into street reconstruction projects. In Venice, FL, for example, officials added $80,000 to a previously planned Main Street resurfacing project that provided for intersection bulbouts, mid-block bulbouts, median crossings, and crosswalks of colorful paver stones.

Seattle has added planted medians to several streets at reduced cost as part of sewer upgrade projects. County transportation sales tax measures can provide substantial funding for city street maintenance and rehabilitation.

Development fees

Some cities require developers to install or help pay for infrastructure improvements (streets, sidewalks, trails, landscaping, etc.) through individual development agreements. On a larger scale, Brawley could explore using development fees with a capital improvements program to help fund recommendations.

Special districts

A special district such as a Business Improvement District (BID) can provide up-front and on-going funding for projects benefiting the downtown area. Business-Based Improvement Districts are best suited for marketing, special events, and smaller expenditures like signage. Property-Based BIDs typically generate more revenues and are better suited for more expensive projects like landscaping. Landscaping and lighting districts are also sometimes established for streetscape improvements and maintenance.

Other types of facilities and infrastructure districts are sometimes created for parks, drainage and sewage. Special districts generally assess a charge levied upon parcels of real property within the district's boundaries to pay for "local improvements." So unlike redevelopment, to fund such a district it is necessary to charge an assessment or fee to property owners and/or merchants.

Community Development Block Grants (CDBG)

Under the State Small Cities Community Development Block Grant (CDGB) Program, cities and counties may seek funding for a broad range of activities ranging from establishment and operation of revolving loan funds and construction of infrastructure improvements to construction of new housing and community facilities.

Applicants may also seek funding for planning studies and writing grant applications relating to these activities. Funding programs under the CDBG Economic Development Allocation include the Economic Enterprise Fund for small business loans, Over-the-Counter Grants for public infrastructure associated with private-sector job creation, and Planning and Technical Assistance Grants.

Applications under the Economic Development Allocation will require a job creation/retention component. Potential projects include street and traffic improvements, water system expansion and improvements, and sewer system expansion and improvements. For more information: www.hcd.ca.gov/fa

California Trade and Commerce Agency

The TCA administers a revolving fund program for local governments to finance infrastructure improvements, including city streets. This is a loan program for which the City can apply and receive funding from $250,000 to $10 million with terms of up to 30 years for a broad range of projects.

For more information: commerce.ca.gov/state/ttca/ttca_homepage.jsp

The California Main Street program is currently in limbo, without a formal agency structure to house it. The non-profit California Main Street Association (CAMSA) is the best resource for programs in California at this time. They recently assisted the City of Redding in setting up a new Main Street program.

The National Main Street organization is also a resource, and it may bring pressure to bear on the current situation in California which has left Main Street programs unsupported by state government.

Proposition 12 Tree Planting Grant Program

This California Department of Urban Forestry program provides over $1 million per year in grants to cities, counties, districts and nonprofit organizations for planting, and three years of maintenance of trees in urban public settings.

The maximum award is $25,000 for a "small population community" and $50,000 for "regular Proposition 12 applicants." For more information: www.ufei.org/files/grantinfo/Prop12Planting-Grants.html For other possible funding sources for downtown trees: www.californiareleaf.org/grants_guide.html

Volunteer initiatives and private donations

In addition to funding sources, programs can be created for volunteer initiatives such as "Adopt-a" programs where individuals or groups engage in beautification projects such as tree plantings. A program can also fund some projects, such as public art, by enlisting private donors to sponsor downtown enhancement activities. These programs can be administered by the City or by other community organizations.

State and federal transportation funds

Major state and federal transportation funding resources are outlined below. For more information on these funding programs, visit Caltrans' Division of Local Assistance website: www.dot.ca.gov/hq/LocalPrograms

State Transportation Improvement Program (STIP)

Funded at $8.3 billion over 1999-2005, this program represents the lion's share of California's state and federal transportation dollars. Three-quarters of the program's funds were earmarked for improvements determined by locally adopted priorities contained in Regional Transportation Improvement Programs (RTIP), submitted by regional transportation planning agencies from around the state.

STIP funds can be used for a wide variety of projects, including road rehabilitation, road capacity, intersections, bicycle and pedestrian facilities, public transit, passenger rail and other projects that enhance the region's transportation infrastructure.

The 2004 STIP was adopted by the California Transportation Commission, the body that ultimately programs projects by adopting the STIP, on August 5, 2004.

Transportation Enhancement Activities

Federal Transportation Enhancement funds are for construction projects that are "over and above" normal types of transportation projects. These projects may include street trees and landscaping along roadways, pedestrian and bicycle access improvements and other scenic beautification. These are apportioned throughout the county.

Hazard Elimination Safety Program (HES)

The Hazard Elimination Safety Program is a federal safety program that provides funds for safety improvements on all public roads and highways. These funds serve to eliminate or reduce the number and/or severity of traffic accidents at locations selected for improvement. Some of the street design elements recommended may be eligible for funding if the site selected is considered a high hazard location. Caltrans solicits applications for projects. Any local agency may apply for these safety funds.

Safe Routes to School

Caltrans administers state and federally funded programs to improve walking and bicycling conditions in and around schools. Projects for federal funding must fall under infrastructure (capital) or non-infrastructure (education and encouragement) categories.

A standardized statewide SRTS training program with promotional materials and school resources will be developed to help communities implement programs.

The program seeks to fund projects that incorporate engineering, education, enforcement, encouragement and evaluation components.

For more information: www.dot.ca.gov/hq/LocalPrograms/saferoute2.htm

Bicycle Transportation Account (BTA)

This state fund, administered by the Caltrans Bicycle Facilities Unit, can be used to aid cyclists, including median crossings, bicycle/pedestrian signals and bike lanes. After 2005-06, annual BTA funding will be $5 million.

To be eligible for BTA funds, a city or county must prepare and adopt a Bicycle Transportation Plan. Adoption of a plan establishes eligibility for five consecutive funding cycles.

Transportation Development Act (TDA)

TDA provides for two sources of funding: Local Transportation Funds (LTF) and State Transit Assistance (STA). The TDA funds a wide variety of transportation programs, including planning and program activities, pedestrian and bicycle facilities, community transit services, public transportation, and bus and rail projects.

Providing certain conditions are met, counties with a population under 500,000 (according to the 1970 U.S. Census) may also use the LTF for local streets and roads, construction and maintenance. The STA fund can only be used for transportation planning and mass transportation purposes. Annual apportionments of TDA funds for Imperial County average around $4 million and are distributed to transportation projects by the Imperial Valley Association of Governments (IVAG).

California State Parks Recreational Trails Program (RTP)

The Recreational Trails Program provides funds annually for recreational trails and trails-related projects. The program provides funding for acquisition of easements and fee simple title to property for recreational trails, development of trailside and trailhead facilities, and construction of trails.

The maximum amount of RTP funds allowed for each project is 88% of the total project cost. The applicant is responsible for obtaining a match amount that is at least 12% of the total project cost. The grant cycle ends in early October of each year. For more information: www.parks.ca.gov

Additional federal funding resources are explained in Appendix Two of this report.

NEXT STEPS FOR BRAWLEY

Work on the recommended changes can begin immediately and proceed in phases. They will move forward on several fronts:

- Changes to the basic design of Main Street and its streetscape features that are the primary focus of this program.
- Redesigning the central Plaza portion of Main Street for parking, bicycle access, and special event space while rerouting east/west through traffic around the Plaza.
- Changes to land use requirements and building standards for future development along and near the improved Main Street.
- Safety improvements near Brawley's schools.

Main Street Improvements

Work on these improvements should begin immediately. The long-term recommendations must wait until the bypass is completed and heavy vehicle traffic has diminished. But the short-term changes can still make an impact, very quickly, for a minimal expenditure.

The biggest improvement will come from the simple re-striping of the lanes on Main Street to reduce through lanes from First Street/Highway 86 South through the Plaza area and on to East Main Street. Bike lanes and parking will be added, again with simple paint.

More involved work like constructing curb extensions and converting the Plaza center to space for parking and special events must wait.

Even the lane re-striping must be done with the cooperation and consent of Caltrans. Discussions on that topic were part of the coordination for the charrette in October, and should continue for the duration of this project.

Brawley has the advantage of following in the footsteps of dozens of communities nationwide that have started with simple lane reductions and turned a once dysfuntional street into a centerpiece for neighborhood revitalization.

Caltrans staff will be able to look to the agency's experience with similar programs on current and former state highways in developed areas as they assist Brawley in this endeavor.

Land Use and Zoning

As Main Street begins to feel more like a people-friendly boulevard, it creates an opportunity for development, redevelopment, and renovation of the properties along and near the street. This new investment should be carefully guided into building forms that are a proper match with the improved street, and uses that can bring people downtown for all kinds of activities.

Chapter 4 of this report outlines the process to evaluate existing conditions, discuss the future the community would like to see, and write zoning code amendments that will make it happen. Three zoning districts should be created:

- West Main Street from the Arroyo to 1st or 2nd Streets.
- The central business district around Plaza Park.
- East Main Street.

Each of these areas has unique challenges and opportunities that must be addressed separately.

Improved School Safety

This topic comes last in this report because it was added to the project team's tasks at the request of the community, but it should be the first priority. Brawley has an unfortunate recent history with accidents near schools, many involving children. This problem should be addressed as soon as possible before worse tragedies occur.

The first thing to do is fairly simple, after the necessary procedural steps have been taken. Every intersection near a school with uncontrolled vehicle movements (no traffic signals or stop signs) should get stop signs. Better long-term solutions may come later, but this will lower the immediate danger.

Second, a citywide program on safe routes to school should be sought. Possible funding sources are indicated earlier in this chapter and in Appendix Two. Safer streets can make parents more comfortable allowing their children to walk or bike to school, which can be a positive thing for the child's health and social well-being. (As well as freeing the parent from taxi duties.)

Education and enforcement programs will be more effective with safer streets. They complement, but can never be a substitute for, good street design.

BRAWLEY MAIN STREET PLAN
APPENDIX ONE:
COMPLETE STREETS

After years of neglect, street design is re-emerging as a major element of neighborhood street engineering, town planning, and real estate development. The desire for healthy streets and neighborhoods is not something new, but recently real estate marketers have started to promote walkable and neighborly streets as an amenity that establishes a difference from what is usually offered in the real estate market. Pedestrians in most cities say they want well-designed neighborhood alleys, lanes, and streets that keep motorists speeds between 10 and 25 mph, and provide on-street parking, sidewalks, shade, benches, street lamps, and other community amenities. All these elements create a friendly environment that invites people to be on the street, reducing unnecessary car trips and traffic volume, and strengthening bonds between neighbors as they interact more frequently in the public realm.

What is Walkability?

To understand the value of this planning activity, it is a good start to discuss walkability itself. To be safe and comfortable as pedestrians, we need facilities to complement our streets and built environment. The design and construction of sidewalks, paths, and crossings determines how effectively we can get where we want and need to go by walking.

What truly makes communities walkable is the relationship between the way its people move around on foot and the destinations and attractions to which they are moving. The nature of pedestrian facilities may be different based on what part of our community we are in, but we need to provide good infrastructure for walking throughout.

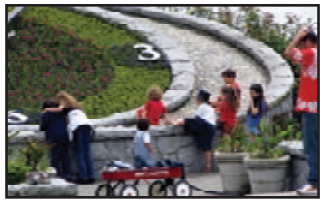
People created cities and towns to minimize the need for and distance of travel and to maximize exchange: of people, goods, services, culture, information and wisdom. The best cities and towns are places that are fully accessible by the most basic form of transportation — our feet.



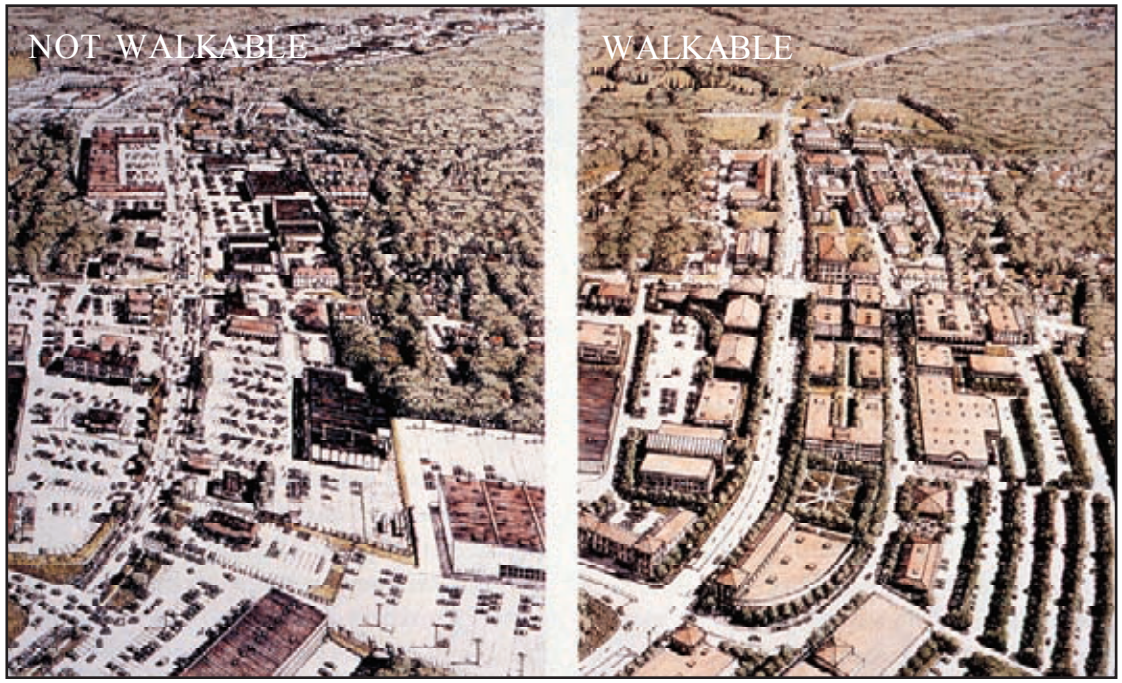








Walkability and the Success of Place

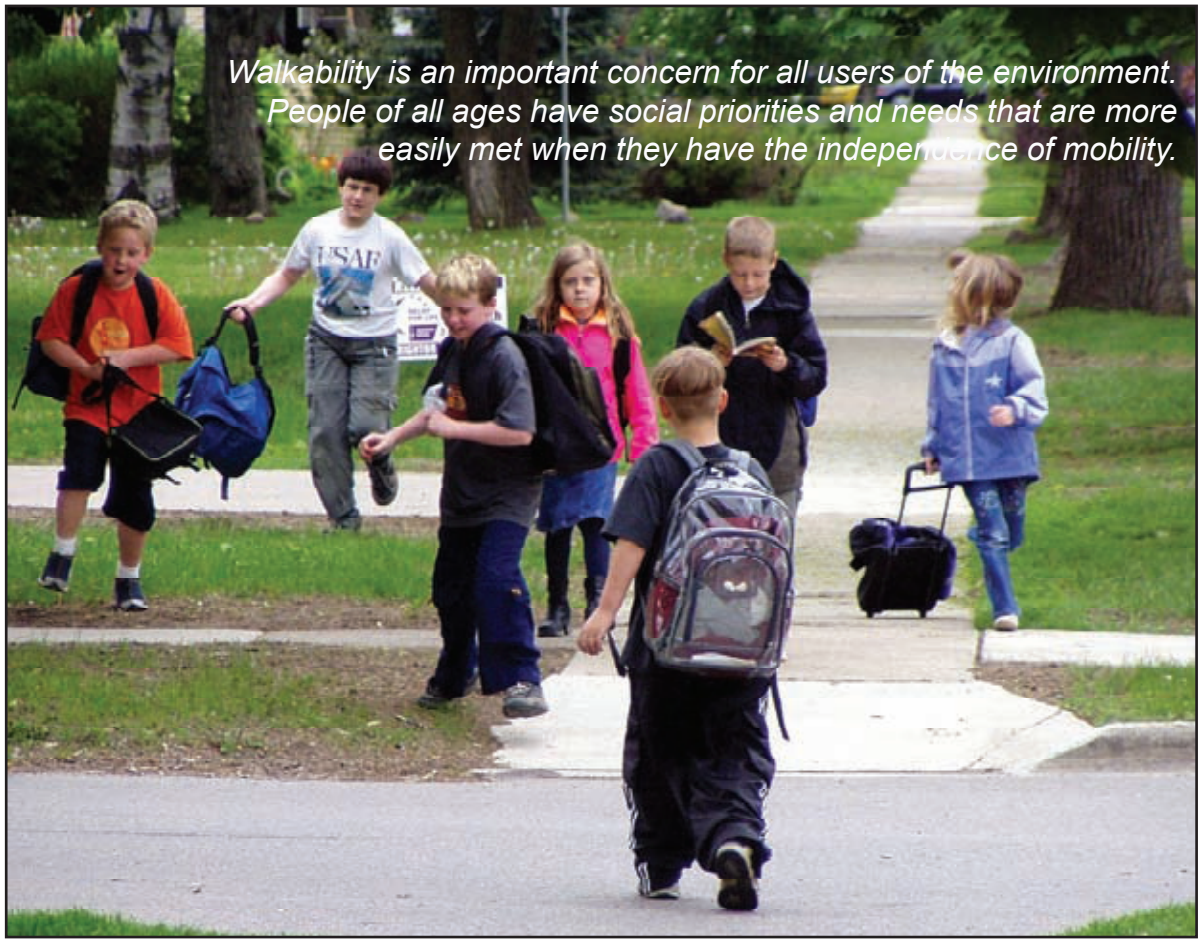


The most walkable communities are those that have succeeded at bringing all of these elements together. When land use and development are coordinated and ordered to allow the pedestrian as much comfort in reaching their destinations as the driver, the community is truly open and accessible to everyone. Adjacency and a human scale are part of the design of these places, not a need to accommodate the automobile.

Walkability and the Success of Place

As much as walkability promotes independence, it is also an important contributor to the strength of our sense of community— namely, of interdependence, social interaction, and common ownership of our cities and towns. Only in walkable environments do streets truly become public space, the incubator of cities' imperative for exchange.

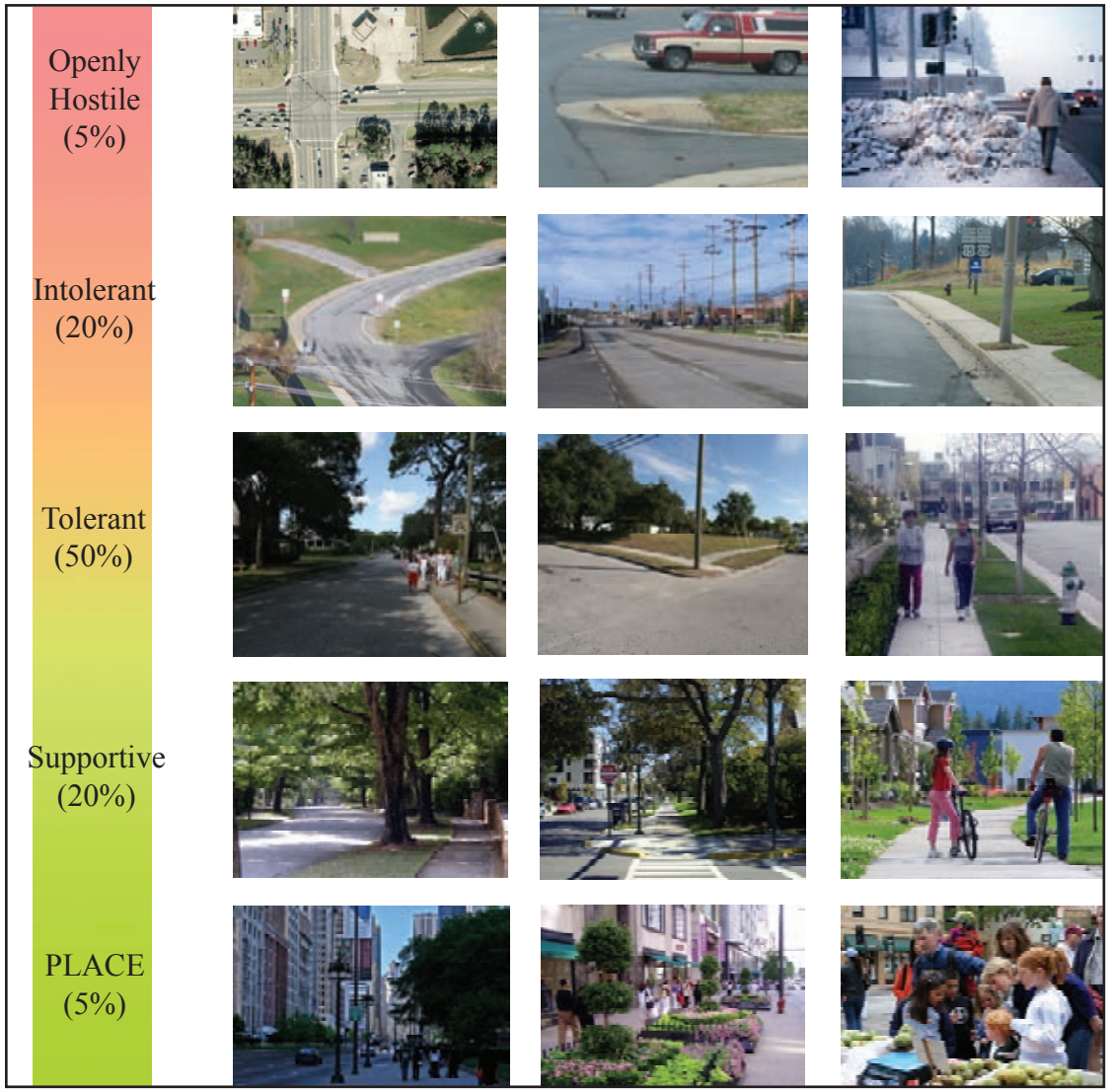
While this design workshop process focused on the technical aspects of the pedestrian environment throughout the corridor, it asked larger questions of how pedestrians could understand and navigate their community and the nature of the community itself.



Walkability is an important concern for all users of the environment. People of all ages have social priorities and needs that are more easily met when they have the independence of mobility.

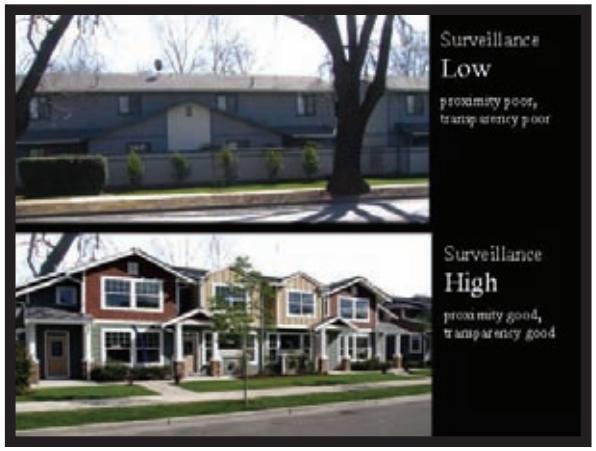
Walkability and the Success of Place

Understanding walkability means that we recognize how our towns and cities work for or against us in walking, bicycling and living. The built environment ranges widely in its safety, security and friendliness to pedestrians. The illustrations at the right demonstrate this wide range. Today as much as a quarter of the built environment is not friendly to pedestrians, providing no walking facilities and no eyes on the street. This makes these areas inconvenient or uncomfortable for walking. Much of what we have around us is tolerant, yet not supportive of walking. These are places where we can walk, but where walking might not be as rewarding as it could be. Environments that create "place" are the prize of walkability. Not everywhere will fully reach this level: Quality place locations generally make up only five or ten percent of our towns and cities. Communities that actively promote walkability understand that walking-tolerant environments can always be improved and made to be walking supportive. Creating walkability often starts with one model project. A mix of uses, improved connectivity, aesthetics and pedestrian scale are essential to these models.



Walkability Principles

Security — Surveillance. People choose not to walk in those places where they do not feel secure. Design of facilities is not the only consideration. Pedestrians are most often traveling along streets and roads along with vehicles; even if their paths are separated, streets will not be amenable to pedestrians unless their design reflects the scale and needs of people.



Eyes on the street is a very important component of providing safety to the public realm. Having porches and windows close to the street not only define the edge of the public space, but also provide surveillance and opportunities for interaction.

Revitalization and redevelopment along Nord Avenue in Chico, CA, should incorporate design for pedestrian dimensions and distances through compact form, layout, and streetscape characteristics. Similar strategies for new development can work in Brawley.

Buildings should be built in close proximity to the street with their "prime" façade facing the main travel way. Secondary sides should also provide surveillance.

Convenience — Mixed Use. The more stores, services, entertainment and places to meet people exist in a place the more that place gets used. The most walkable communities are the least auto dependent and have succeeded by honoring historic town making principles of: (1) mix of land uses, (2) high connectivity, (3) proper density, size and placement of buildings, (4) aesthetics (place-making), and (5) quality street making. When land use and development are coordinated and organized to allow pedestrians as much comfort in reaching their destinations as drivers, the community is truly open and accessible to everyone. Adjacency and human scale drive the design of these places, not a need to overly accommodate and incentivize the automobile. As towns shift incentives from one mode of travel to many, more balanced communities result, and it is possible to provide relief for auto congestion.

Walkability Principles

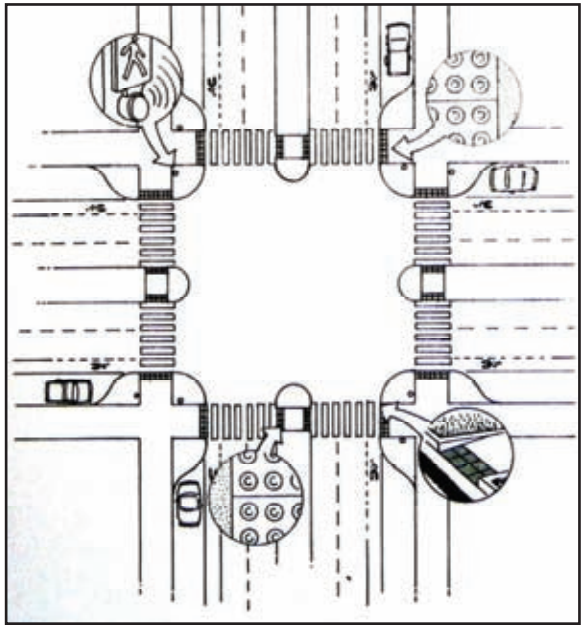
Efficiency — Places that Work. People seek to spend time in places that work; where they can get back and forth across streets, travel up and down a street without vehicle conflicts, have easy access to stores, plazas and other places. The alignment of sidewalks and paths should allow pedestrians to find their path intuitively.

Comfort — Green, Sense of Place. People choose to walk in those places they find most comfortable, attractive, cared for and special. Street trees are a way to provide comfort to pedestrians. The presence of street trees provides a sense of enclosure, shade, protection for pedestrians, beauty, and environmental benefits such as the reduction of heat.

Welcome — Inviting. People will walk to and in an area if they find it to be a positive and rewarding experience. These areas typically have many other people present and are fun places to see and be seen. Places to sit, vegetation, rest rooms make people feel welcome.

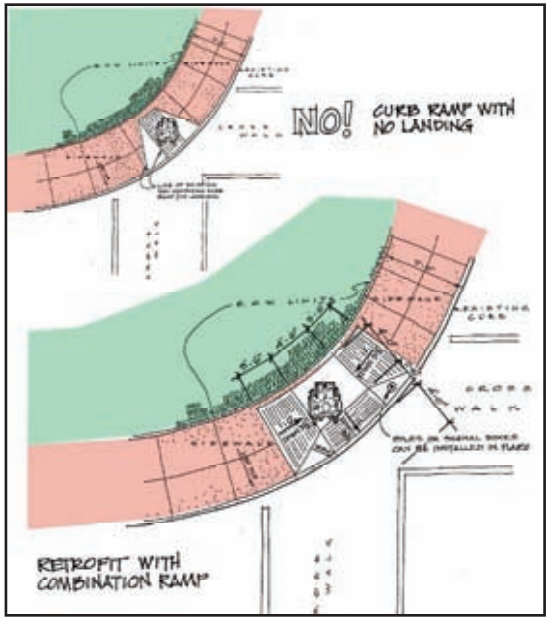
Street Design Features: Accessibility

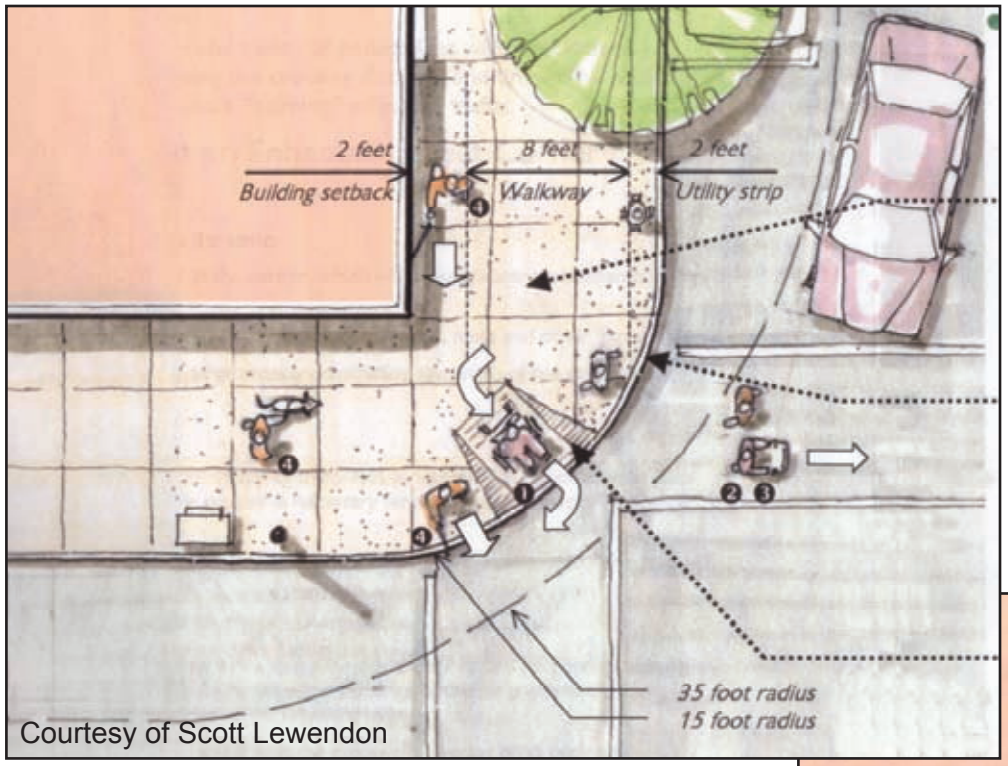
All parts of all communities must be accessible to all users. Today many locations in American communities are inaccessible to people with disabilities. This section summarizes measures to be taken along walkways, at transit stops, signalized intersections, roundabouts, along corridors, midblock crossings, driveways and other locations. The goal is to have communities become barrier-free places for people of all abilities to get around in. Prioritizing change is necessary.



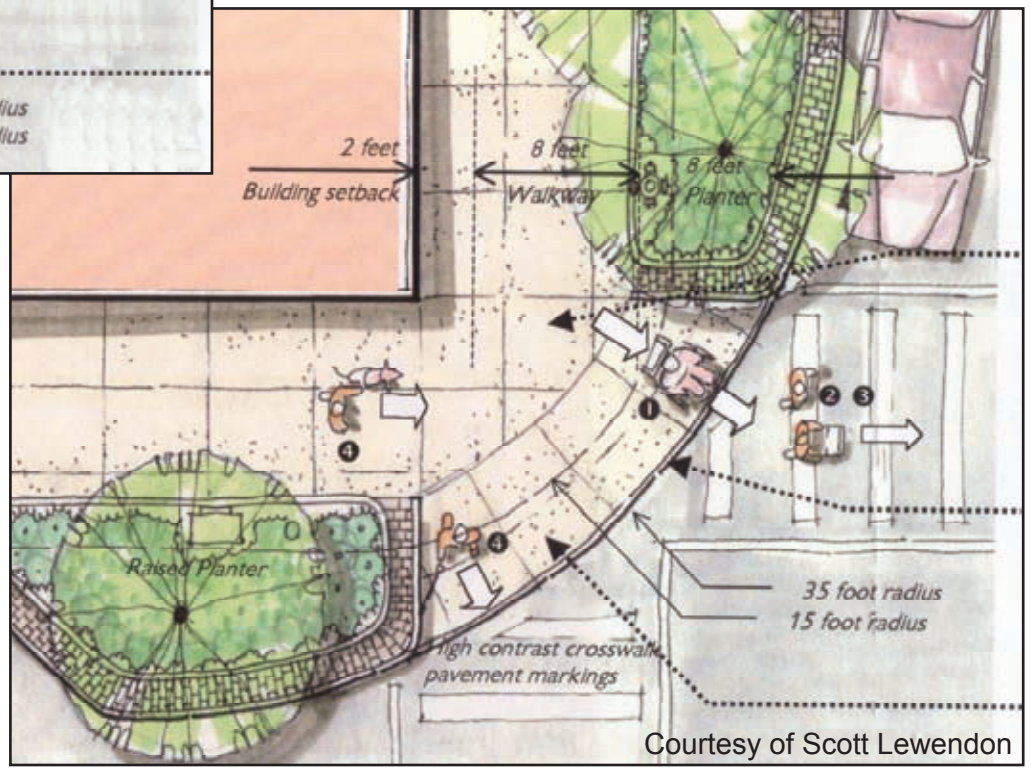
Specific universal design objectives of this plan are to:

1. Provide full accessibility to all areas of the community, including all buildings, parks, plazas, trails and open space.
2. Provide the highest quality tactile and contrast materials to help guide all street users around obstacles, and alert people when they are entering and leaving motorized or bicycle conflict areas.
3. Provide curb extensions on many corners to minimize crossing distances, create greater sight distances and increase the numbers of locations where two ramps are used on corners.
4. Minimize the numbers of driveways and reduce crossing distances of driveways throughout the community.
5. Eliminate or minimize the creation of temporary barriers, especially along popular routes of travel.
6. Create frequent midblock crossings to keep people along their desired line of travel.





Courtesy of Scott Lewendon

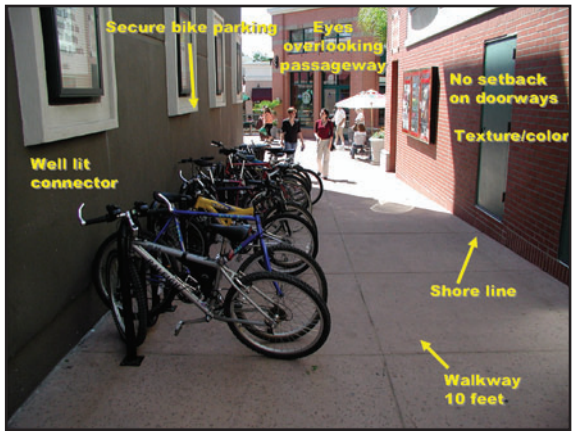


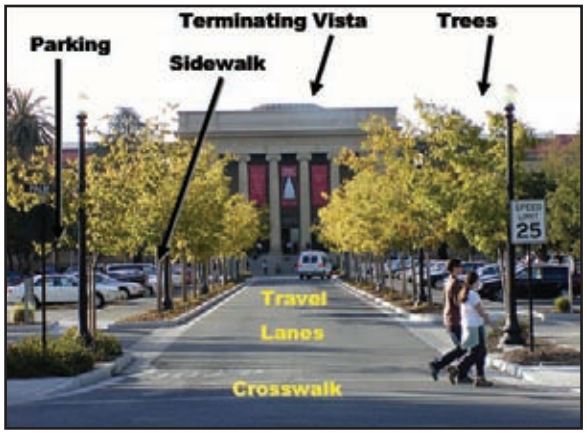
Courtesy of Scott Lewendon

Street Design Features

Sidewalks and walking spaces have names and parts, just as buildings do. These images establish a working vocabulary for important parts in communities and urban retail streets. Omitting "eyes on the street" or leaving out a terminating vista or vertical wall of street trees that guide the eye down a street leads to a place that feels incomplete or uncomfortable.

Street furniture should be coordinated, just as it is in a living room. Comfort is achieved by having the right parts in the right place.





Not all elements of a street come together in its initial design. For this reason a working group should remain active to evaluate and give input on what changes are needed. The best remade places in North America are organic, tinkered with on a steady basis. Santa Barbara's State Street has seen changes each year or two for two decades now, and continues to evolve as it matures.

Street Design Features

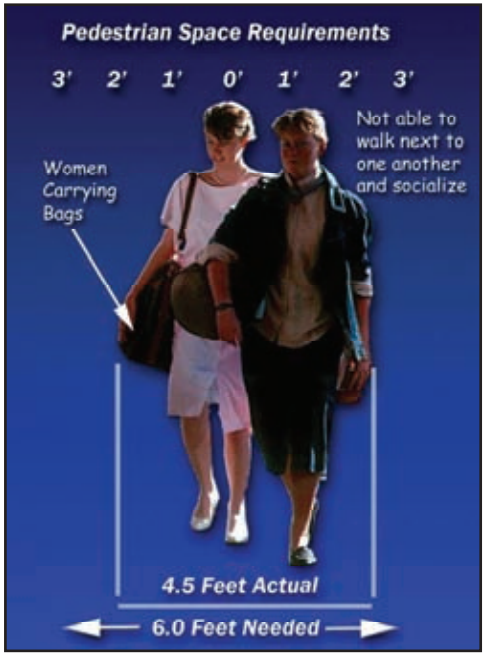
The area of urban streets generally referred to as the "sidewalk" is actually composed of different parts, each of which serves its own function and defines the amenities and comforts of the pedestrian environment.

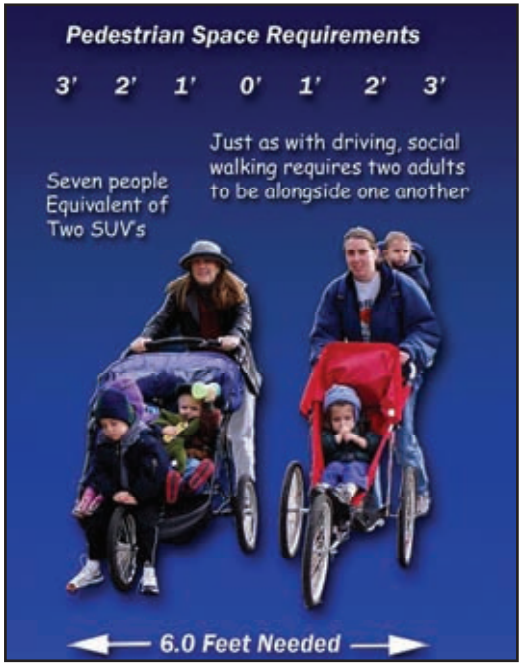
The "shy zone" is the portion of the sidewalk within two to three feet of the building where pedestrians may not feel comfortable walking due to the possibility of opening doors or decorative features on the building (it should be noted that these decorative features may include awnings and other overhead canopies, which can make the unused "shy zone" into the much-used "dry zone" in rainy weather).

The walk-talk zone is the part of the sidewalk accommodating the most activity, where people move and have room to stop and socialize. In healthy urban pedestrian environments, the width of this zone varies but always includes sufficient space for the volumes of pedestrians to move without needing to be diverted onto the street or other zones of the sidewalk.

The furniture zone is the part of the streetscape where trees and plants are placed, as well as benches, bus shelters, and other functional items allowing pedestrians to sit and wait or to connect to the other functions of the street.

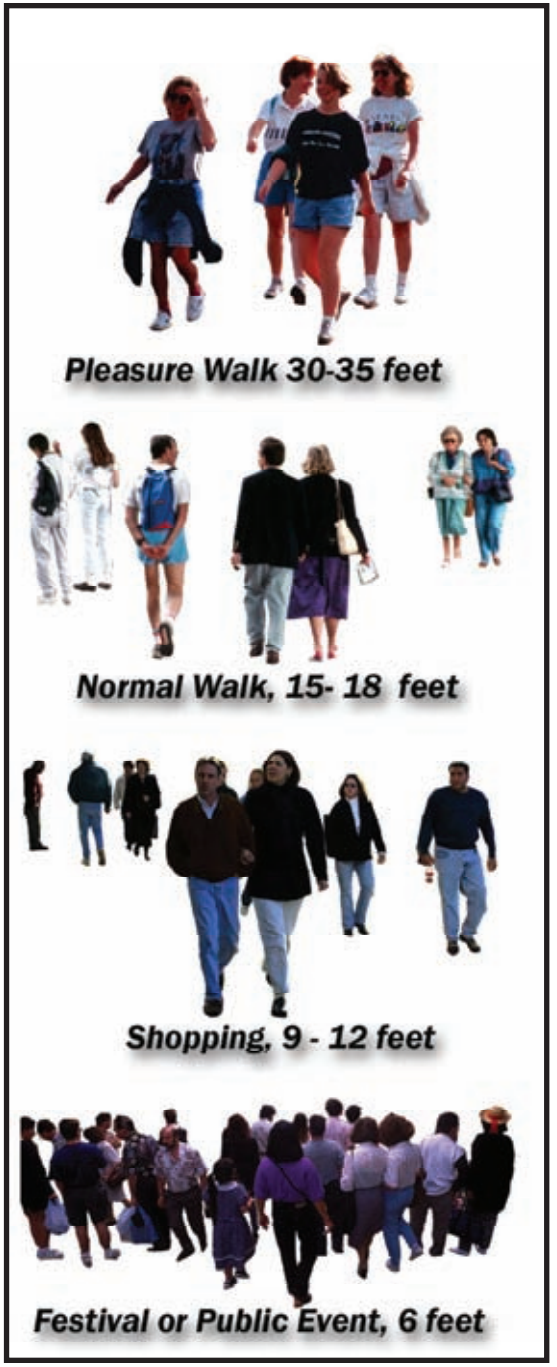
Street Design Features: Walking Dimensions





Space Needs. *There is no "perfect" sidewalk dimension. Each street and sidewalk is unique. Meanwhile, it is important to know the minimal space needs of people. Too little space at certain times creates discomfort. Too much space at other times and a person feels lost and alone. At different times of day we use the same walkway for different purposes, and need more or less space. There are times of day where a walkway feels "just right" or leaves us with a desire to come back when more people are present.*

The images at the right show how people have different preferences or tolerances for spacing in different circumstances. In general, as the pedestrian activity becomes less private and more public, people are more willing to accept others in closer proximity.



Pedestrian Levels of Quality

A walkable system relies on proper levels of quality and place.

Five Levels of Quality (LOQ) are specified. The Pedestrian Spine is the highest quality and walking experience, known as "place." This pedestrian spine corridor is the location where people want to linger and spend the greatest amount of time, and where the highest levels of association occur.

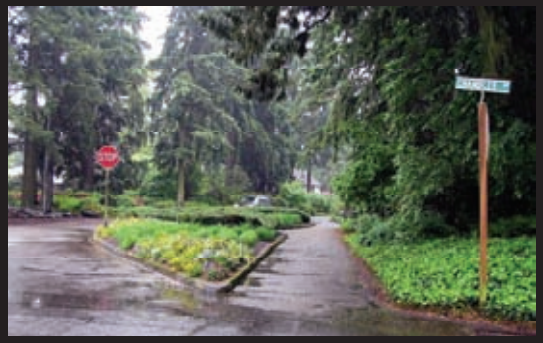
"A" quality is designated as "Place." Added sidewalk width, color, texture and great, actively used buildings create place. Traffic speeds and noise are under high levels of control. Crossing streets is safe and easy.
"B" and "C" quality streets provide highly desirable walking conditions. These areas are considered complete. They have high levels of building surveillance, 8 foot wide or wider sidewalks in most locations, shade and other qualities, such as ease of street crossings, low noise and well behaved traffic.
Quality "C" sidewalks are desirable, supportive walking environments with 6-8 foot widths, planter strips, trees and good building surveillance. These walkways offer a variety of connectivity to the spine, and to popular destinations found en route.
Quality "D" streets and walkways make up the bulk of other walking (50% or more) places, and form all areas not highlighted in A, B and C designations. Sidewalks are 5-6 feet wide, and usually detached from the curb. D streets and walkways will have comfortable and adequate walking conditions. Surveillance will be good to high, and walkways will be comfortable. Buildings watch over walking spaces.
"E" locations in the chart are not graded. "E" walkways are trails and other open locations.

"A" Quality Place

"B" Quality High Support

"C" Quality Strong Support

"D" Quality Fair Support



"E" Special Trails (Other)

Pedestrian Levels of Quality

Comfortable B and C quality sidewalks and walking spaces meet minimum dimensional needs. Each of these walkways are comfortable for two people to walk side-by-side, and allow the occasional person coming the other way to pass. If walking volumes are moderate or high, added width is used to increase comfort.

Main street sidewalks: Main streets require that shy zones, furniture zones and walk-talk zones are adequate. When one of the zones does not exist, or is too narrow, comfort is decreased.

Neighborhood sidewalks: Fence heights are established to create a sense of public vs. private space, and to give psychological comfort when a significant drop off is encountered.

Pedestrian Levels of Quality: Transforming Streets

At left, Existing Streetscape vs Ideal Streetscape at right.

These examples show how a road with intolerant pedestrian conditions can be turned around into a focal point for the community. Creating places for people, not just cars, benefits everyone by increasing the potential of the local economy, providing transportation options, and strengthening the social fabric of the community.

Bicycle Friendly Streets

Specific bicycling objectives of this plan are to:

1. Develop a bicycle-friendly system of trails, bike lanes, shared routes, connectors and links.
2. Integrate the City's bicycle-friendly roads and bikeways with surrounding bicycle-friendly roads and bikeways to maximize connectivity.
3. Develop bicycle-friendly roads and bikeways that serve the full spectrum of bicyclists, from the most youthful to the most senior.
4. Provide clear bike route information to bicyclists by installing adequate signs along bikeways. Signage should be specific. A route numbering system should be used, and signs should guide cyclists to key locations such as the Plaza or Cattle Call Park.
5. Build new bicycle paths on separate rights-of-way to transit stops, schools, the SDSU satellite campus, and other places where it can be done, with convenience to bicyclists and in a cost effective way.
6. Build appropriate bridges and connection systems.
7. Build high quality trails to protect and preserve public access to open space.
8. Plan and configure undeveloped land to maximize bicycle transportation and recreation.
9. Each time arterial and collector streets are resurfaced they should be re-striped to add bike lanes where there is enough width. Travel and turn lanes should be narrowed to as little as 11 or 10 foot widths in order to make these accommodations.
10. When any road work repairs are done by the City or other agencies such as utilities, the road shall be restored to its original quality, with particular attention to surface smoothness and re-striping suitable for bicycling.

Bicycle Facilities and Shared Use Trail Definitions:

Bikeway – Any of a number of facilities designed, constructed and operated for support of bicycling. Bikeways can be either on-road or off-road facilities.
Multi-Use Trail – A pathway fully separated from a highway right-of-way traveled by pedestrians, bicyclists, inline skaters and other non-motorized vehicles and devices.
Bike Lane – An exclusive lane of a roadway fully dedicated for bicycling and sometimes other non-motorized vehicle movement, such as inline skaters.
Wide Curb Lane – Many roadway lanes are wider than the standard 12 foot lane width. Many are as wide as 20 feet. When wide lanes are used to support bicycling they are often signed as bike routes. A minimum width for a wide curb lane is 14 feet.
Paved Shoulder – On highways in many suburban and rural areas paved shoulders of 4 or more feet are added to each side. These are either left unmarked, or may be marked as bike lanes or bike routes.
Bike Route – Bike routes are travel ways shared by bicyclists and motor vehicles that are signed as a navigational aid for bicyclists. Generally bike routes should have a secondary sign such as, "To Library."
Bicycle Boulevard – Bicycle boulevards are generally a single or a series of local streets that are connected to form a throughway for bicycling and walking. These boulevards often include tree canopies, occasional diverters to keep motorists from using them for direct travel, and some connectors, bridges and other methods to provide trip continuity.
Greenway – A wide corridor of open space traversing long sections of land. Often multi-use trails are built in greenway systems to help protect and preserve them and to allow bicyclists and pedestrians to enjoy their features.

— Walkable Communities

Brawley Main Street Plan
Appendix Two

A. Definitions and Glossary

B. Funding and Federal Programs

C. Context-Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities

D. Crash Typing

E. 22 Benefits of Paved Shoulders and Bicycle Lanes

F. 22 Benefits of Urban Street Trees

G. Street Tree Selection Guide

H. Focus Group Meeting Notes

APPENDIX TWO-A: DEFINITIONS AND GLOSSARY

Accessibility: The ability to physically reach desired destinations, services and activities.
Access Management: The management of the interference with through traffic caused by traffic entering, leaving and crossing thoroughfares. It is also the control and regulation of the spacing and design of driveways, medians, median openings, traffic signals and intersections on arterial streets improve safe and efficient traffic flow on the road system.
Amenity Zone: A hardscaped extension of the sidewalk to the back-of-curb, typically used instead of, or alternating with, a planting strip. Provides space for street furnishings (benches, trashcans, etc.) and street trees outside of the unobstructed walking space for pedestrians.
Bicycle Lane: The portion of the street specifically designated for the use of bicyclists by pavement markings or other means of delineation on the street. Provides a clearly marked area of the street for bicycle travel and separates cyclists from motor vehicles, and helps reduce conflicts between motor vehicles and bicycles.
Block Length: The longest dimension of a block, from intersection to intersection. Smart Growth Guidelines recommend relatively short block lengths for most street types. Block lengths help determine the overall "density" of the street network, with shorter blocks generally creating a denser network. Shorter blocks (and a denser network) help disperse traffic through the network, rather than focusing it on a few routes. The fewer route choices, the greater the likelihood that the routes will become congested. A denser network provides more route choices for all travelers by all modes and helps keep traffic speeds low.
Connectors, Links, Paseos Trails: Any travelway that links pathways, walkways or sidewalks between properties, available for use by all people. In town centers these paseo (passageway) travelways are highly formalized, while in suburban or rural areas these connecting spaces are quite informal public ways. Many times rural spaces are not paved.
Context Sensitive Solutions: CSS is the result of developing transportation projects that serve all users and are compatible with the surroundings through which they pass—the community and environment. Successful CSS results from a collaborative, multidisciplinary and holistic approach to transportation planning and project development.
Conventional Neighborhood Development (CND) Pattern: Current planning and zoning practices dictate separations of land uses, wide, long curvilinear streets, broken connectivity, with a strong prevalence of single family housing. Due to size, scale, broken connectivity and

lack of neighborhood diversity Conventional Land Development is not considered walkable.

Traditional Neighborhood Development (TND) Pattern: Historic planning based on high connectivity, mixed land uses, significant open space, narrow streets, short blocks, diversity of housing stock and walking scale for most travel. New Urbanism is comprised of TND style development. Wheeled uses are restricted to certain ages, speeds or uses.

Crosswalks: The crosswalk generally refers to the most direct pedestrian pathway across a given leg of an intersection, whether marked or unmarked. For the purposes of these Guidelines, however, "crosswalk" refers to the marked portion of the street that is specifically designated for pedestrian crossing, whether at an intersection or a mid-block crossing. Crosswalks clearly define the pedestrian space, enhancing safety and comfort for all users. Crosswalks are an important part of the pedestrian network - they form a continuation of the pedestrian's travel path and enhance pedestrian connectivity. Crosswalks support the overall transportation system because other users, such as motorists, bicyclists and transit users will be pedestrians at some point during their trip and may need to cross the street.

Curb extension: A feature that extends from the sidewalk into the pavement at an intersection or at a mid-block crossing (also sometimes called a "curb bulb", "neckdown" or "bulbout"). A curb extension can be hardscape, landscaped, or a mix of both. Reduces street width both physically and visually, thereby shortening pedestrian. Reduced crossing distance at crosswalks and potentially helping to reduce traffic speeds. Provides increased visibility for pedestrians and motorists. Moves parked vehicles away from street corners, improving visibility and access for large vehicles.

Curb Radius: The curved section of the curb connecting the curb lines of two intersecting streets. The curb radius measurement is taken from the back of the curb. Defines the space for (and helps direct) vehicle turning movements at intersections. The curb radius dimension can affect ease and speeds of vehicular turning movements.

Healthy Streets: Streets designed specifically to "complete" a street. Speeds are kept under control. The desired speed (e.g. 25 mph) is maintained through design features that include streetscape, use of parking, bike lanes, travel lane widths, wide edge stripes, block lengths, intersection treatments, number of lanes and other controls.

Healthy Intersection: Any intersection where motorist and pedestrian behaviors are highly predictable, safe and comfortable. Effective designs keep motorists in motion at low to moderate speeds. High levels of access are provided on all

corners. Sight lines are appropriate to the desired and actual running speed.

Leading Pedestrian Interval (LPI): Used at signalized intersections, the Leading Pedestrian Interval (LPI) is a signal phase that provides a pedestrian crossing signal a few seconds before the green signal for vehicles. Allows pedestrians to enter the crosswalk ahead of turning vehicles, thereby establishing their right-of-way. Improves visibility of pedestrians by providing them with a "head start" before vehicles are allowed to move. Reduces potential conflicts with turning vehicles.

Median: A raised barrier that separates traffic flows. Generally used to control access and reduce vehicular turning movements. Separates opposing traffic flows, reducing or eliminating vehicular conflicts. Can be used for access management, by restricting turning movements into driveways or side streets. If properly designed, can provide a pedestrian and bicycle refuge on wider streets. If properly designed, can provide a landscaped element to the streetscape.

On-Street Parking—Generally refers to space for parking cars within the street right-of-way (between the curbs), as opposed to off-street parking areas accessed via driveways. Provides improved access to nearby land uses, especially in higher density neighborhoods and commercial areas. Reduces the need for large, off-street parking areas. Provides a buffer between moving vehicles and pedestrians on the sidewalk. On-street parking can narrow the perceived right-of-way width and help reduce traffic speed.

Planting Strip: An unpaved area within the right-of-way that separates the street from the sidewalk. Serves as a buffer between vehicles and pedestrians. Trees in the planting strip provide shade and additional buffering for pedestrians. This unpaved area can enhance the storm-water drainage system by helping to reduce run-off. If properly designed, the planting strip can soften the appearance of the streetscape, enhance aesthetics, and contribute to an increased sense of safety and identity along the street. Planter strips also allow space to take up elevation changes to driveways for added ADA compliance.

Road Diet: A physical conversion of the street, wherein one or more travel lanes is converted to another use, often to support the use of other modes. A "narrowing" of the motor vehicle travelway. Converts excess vehicle capacity on a street into useable space for other modes. For example, a four-lane street might be narrowed to two lanes, with bike lanes and a median. When a street is dieted to two lanes, this helps to calm traffic, in part by eliminating the opportunity for passing, thus allowing the prudent driver to set the speed. Can enhance aesthetics and livability of adjacent land uses.

Roundabout: A circular island located at the convergence of two or more roadways that takes the place of traffic signals or stop signs. Traffic circulates around the island, rather than through the intersection. Can be used to improve traffic flow, by eliminating the need to come to a complete stop when the intersection is clear and/or reducing the delay if other vehicles are in the intersection. May be used as a gateway feature to a neighborhood or a commercial area. This usually entails the use of landscaping or public art in the island. May be used to improve safety (80-90% reduction in personal injury crashes, and a 50% reduction in pedestrian crashes), and to keep roadways to a lower number of lanes. Small roundabouts, known as traffic circles, mini circles or mini roundabouts, can also be used for traffic calming because, even though relatively free flow is maintained, the island deflects traffic, requiring that motorists slow before entering the traffic circle.

Sight Distance: The length of roadway that is visible to the driver traveling on a street or approaching (or waiting to enter) an intersection. More generally, sight distance refers to the ability of motorists to see one another as they approach an intersection or enter a street. Increased sight distance improves safety for motorists and pedestrians, by providing visibility and increasing the amount of time to respond to other vehicles and pedestrians on or entering the street. Increased sight distance for motorists entering the street allows the motorist to feel more comfortable and better judge "gaps" in the stream of approaching vehicles. Adequate sight distance improves safety for pedestrians and cyclists by making them more visible to drivers and by allowing them to see approaching vehicles, as well.

Street Lighting: Refers to the illumination of a street's travel lanes. Other portions of the street right-of-way may also be illuminated by the street lighting and/or by pedestrian-scale lighting, which specifically illuminates the sidewalk or other pedestrian areas. Street lighting enhances safety for all travelers, by illuminating hazards, curves, and other travelers in the street. Lighting can also improve safety and security around buildings and in parking areas. This may best be accomplished by a mix of street and pedestrian-scale lighting, depending on the context.

Streetscape: The combination of the physical elements installed within and along the street right-of-way that impact its usability, functionality, appearance and identity. Streetscape elements include medians, trees in planter strips, curb extensions, parking, bike and travel lanes. Colorized, textured or patterned streets, or portions of streets are also considered part of a streetscape. Good streetscapes enhance a street's functionality and aesthetics. Good streetscapes enhance the community environment by providing access to land uses, locations for social interaction, and sites for locating and maintaining infrastructure and amenities.


Street Lighting


Roundabout


Mini-Circle


Sight Line and Curb Extension


Streetscape

Street, Roadway: Public ways designed to carry all types of movements; including pedestrians, bicycles, motor vehicles. All space inside curbs or paved edge.

Highway: Total right-of-way of a public way; some or all of which may be paved. Sidewalks and many trails are included in highway rights-of-way.

Posted Speed: Actual signed and legal maximum speed of a roadway section.

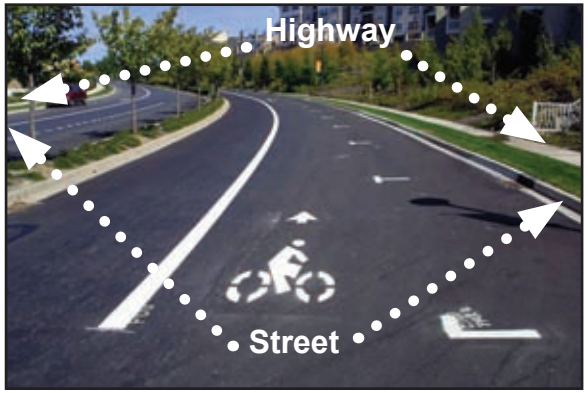
Design Speed: the design speed of a roadway is the speed selected by the street designer to allow for various geometric features, including sight lines. There has been a general practice to use a higher design speed (5-10- mph higher than the posted legal) speed)). This has the unintended consequence of creating comfort to travel faster, and hence induce speed.

Desired Speed: That speed appropriate to the land use and travel setting. Many specialists recommend that street elements (lane widths, number of lanes, trees, building placements) should create a comfort level for the speed desired for the mission of a roadway, including pedestrian comfort and safety.

85th Percentile Speed: A term used to explain a new posting of a speed along a roadway based on that percentage of motorists (85 percent) traveling at or below this speed. If 85 percent of motorists are at or below 40 mph, it is general practice to post the speed at this level. Citizens are often concerned when this happens, since they know it is difficult to write a ticket in their neighborhood until a motorist exceeds the posted speed by 6-9 mph. Often the 85th percentile speed and the desired speed can be 5-15 mph apart.

Running Speed: Long term actual speed of motorists using a roadway section. Many specialists call for working out designs to get the running speed and desired speed within 1-3 mph of one another.

Traffic Calming and Traffic Management: Any single or series of treatments used to distribute traffic volumes and control the speed of traffic. Most traffic calming should be visual (treescapes, on-street parking, lane widths and striping). Horizontal deflection (curb extensions, medians are used to slow traffic in some cases where visual effects are insufficient, and in fewer cases Vertical deflections (speed tables, raised intersections and speed humps) are used to control speed.



Walkways: All pathways, sidewalks, trails, bridges, and connections, whether improved or not allowing a person to travel from one area to another.

Sidewalks: Formal designated place for walking; most often along a roadway. No motorized vehicle of any kind is permitted to use sidewalks. Bicycles and other nonmotorized

Walkable: Streets and places designed or reconstructed to provide safe and comfortable environments for pedestrians, and are safe and easy to cross for people of all ages and abilities. Walkable streets and places provide a comfortable, attractive and efficient environment for the pedestrian including an appropriate separation from passing traffic, adequate width of roadside to accommodate necessary functions, pedestrian-scaled lighting, well-marked crossings, protection from the elements (such as, street trees for shade, awnings or arcades to block rain), direct connections to destinations in a relatively compact area, facilities such as benches, attractive places to gather or rest such as plazas and visually interesting elements (such as, urban design, streetscapes, architecture of adjacent buildings).

Walkable Communities: Walkable communities are desirable places to live, work, learn and play, and therefore a key component of smart growth. Their desirability comes from two factors. First, locating, within an easy and safe walk, goods (such as housing, offices and retail) and services (such as transportation, schools, libraries) that a community resident or employee needs on a regular basis. Second, by definition, walkable communities make pedestrian activity possible, thus expanding transportation options and creating a streetscape that better serves a range of users—pedestrians, bicyclists, transit riders and drivers. To foster walkability, communities must mix land uses and build compactly, provide connectivity, a diversity of land use and ensure safe and inviting pedestrian corridors.

Additional Sources of Definitions:

Victoria Transport Policy Institute. TDM Encyclopedia Glossary. May 10, 2005. www.vtpi.org/tdm/tdm61.htm.

Federal Highway Administration. FHWA Functional Classification Guidelines, Section II. Concepts, Definitions, and System Characteristics. April 2000. www.fhwa.dot.gov/planning/fcsec2_1.htm.

Metropolitan Transportation Commission (San Francisco Bay Area). Arterial Operations Program Ped/Bike Safety Toolbox. April 2003. www.bayareatrafficsignals.org/toolbox/Tools/BikeBlvd.html

APPENDIX TWO-B:
FUNDING AND FEDERAL PROGRAMS

Bicycle and Pedestrian Provisions of the Federal-aid Program

Section 217 of Title 23 of the U.S. Code calls for the integration of bicycling and walking into the transportation mainstream. Importantly, it enhances the ability of communities to invest in projects to improve the safety and practicality of bicycling and walking for everyday travel.

In 1991, Congress passed landmark transportation legislation, the Intermodal Surface Transportation Efficiency Act (ISTEA), that recognized the increasingly important role of bicycling and walking in creating a balanced, intermodal transportation system.
The National Bicycling and Walking Study, published by the U.S. Department of Transportation in 1994, translated this renewed interest in nonmotorized travel into two specific goals: to double the percentage of trips made by foot and bicycle while simultaneously reducing the number of crashes involving bicyclists and pedestrians by 10 percent.

Subsequent legislation provides the funding, planning, and policy tools necessary to create more walkable and bicycle-friendly communities.

A bicycle transportation facility is "a new or improved lane, path, or shoulder for use by bicyclists and a traffic control device, shelter, or parking facility for bicycles." The definition of a pedestrian includes not only a person traveling by foot but also "any mobility impaired person using a wheelchair." *23 USC Section 217 (j)(1)*

Funding Sources for Bicycle and Pedestrian Projects

Bicycle and pedestrian projects are broadly eligible for funding from almost all the major Federal-aid highway, transit, safety, and other programs. Bicycle projects must be "principally for transportation, rather than recreation, purposes" and must be designed and located pursuant to the transportation plans required of States and Metropolitan Planning Organizations.

Federal-aid Highway Program

National Highway System funds may be used to construct bicycle transportation facilities and pedestrian walkways on land adjacent to any highway on the National Highway System, including Interstate highways. *23 USC Section 217 (b)*

Surface Transportation Program (STP)

STP funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways, or non-construction projects (such as maps, brochures, and public service announcements) related to safe bicycle use and walking. TEA-21 added "the modification of public sidewalks to comply with the Americans with Disabilities Act" as an activity that is specifically eligible for the use of these funds. *23 USC Section 217 (a)*

Transportation Enhancement Activities (TEAs)

Ten percent of each State's annual STP funds are set-aside for TEA projects. The law provides a specific list of activities that are eligible TEAs and this includes "provision of facilities for pedestrians and bicycles, provision of safety and educational activities for pedestrians and bicyclists," and the "preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian and bicycle trails)." *23 USC Section 109 (a)(35)*

Hazard Elimination and Railway-Highway Crossing programs

Another 10 percent of each State's STP funds is set-aside for these projects, which address bicycle and pedestrian safety issues. Each State is required to implement a Hazard Elimination Program to identify and correct locations which may constitute a danger to motorists, bicyclists, and pedestrians. Funds may be used for activities including a survey of hazardous locations and for projects on any publicly owned bicycle or pedestrian pathway or trail, or any safety-related traffic calming measure. Improvements to railway-highway crossings "shall take into account bicycle safety." *23 USC Section 152*

Congestion Mitigation and Air Quality Improvement Program

These funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways, or non-construction projects (such as maps, brochures, and public service announcements) related to safe bicycle use. *23 USC Section 217 (a)*

Recreational Trails Program

These funds may be used for all kinds of trail projects. Of the funds apportioned to a State, 30 percent must be used for motorized trail uses, 30 percent for nonmotorized trail uses, and 40 percent for diverse trail uses (any combination). *23 USC Section 206*

Federal Lands Highway Program

Provisions for pedestrians and bicyclists are also eligible under various categories of this program, in conjunction with roads, highways, and parkways. Priority for funding projects is determined by the appropriate Federal Land Agency or Tribal government. *23 USC Section 204*

National Scenic Byways Program

These funds may be used for "construction along a scenic byway of a facility for pedestrians and bicyclists." *23 USC Section 162 (c)(4)*

Job Access and Reverse Commute Grants

These grants are available to support projects, including bicycle-related services, designed to transport welfare recipients and eligible low-income individuals to and from employment. *TEA-21 Section 3037*

High Priority Projects and Designated Transportation Enhancement Activities

Identified by Section 1602 of TEA-21, these include numerous bicycle, pedestrian, trail, and traffic calming projects in communities throughout the country.

Federal Transit Program

Title 49 U.S.C. (as amended by TEA-21) allows the **Urbanized Area Formula Grants, Capital Investment Grants and Loans,** and **Formula Program for Other than Urbanized Area** transit funds to be used for improving bicycle and pedestrian access to transit facilities and vehicles. Eligible activities include investments in "pedestrian and bicycle access to a mass transportation facility" that establishes or enhances coordination between mass transportation and other transportation. *49 USC Section 5307*

TEA-21 also created a **Transit Enhancement Activity** program with a one percent set-aside of Urbanized Area Formula Grant funds designated for, among other things, pedestrian access and walkways, and "bicycle access, including bicycle storage facilities and installing equipment for transporting bicycles on mass transportation vehicles". *49 USC Section 5307(k)*

Highway Safety Programs

Pedestrian and bicyclist safety remain priority areas for **State and Community Highway Safety Grants** funded by the Section 402 formula grant program. A State is eligible for these grants by submitting a Performance plan (establishing goals and performance measures for improving highway safety) and a Highway Safety Plan (describing activities to achieve those goals). *23 USC Section 402*

Research, development, demonstrations and training to improve highway safety (including bicycle and pedestrian safety) is carried out under the Highway Safety Research and Development (Section 403) program. *23 USC Section 40.*

Federal/State Matching Requirements

In general, the Federal share of the costs of transportation projects is 80 percent with a 20 percent State or local match. However, there are a number of exceptions to this rule.

- Federal Lands Highway projects and Section 402 Highway Safety funds are 100 percent Federally funded.
- Bicycle-related Transit Enhancement Activities are 95 percent Federally funded.
- Hazard elimination projects are 90 percent Federally funded. Bicycle-related transit projects (other than Transit Enhancement Activities) may be up to 90 percent Federally funded.
- Individual Transportation Enhancement Activity projects under the STP can have a match higher or lower than 80 percent. However, the overall Federal share of each State's Transportation Enhancement Program must be 80 percent.
- States with higher percentages of Federal Lands have higher Federal shares calculated in proportion to their percentage of Federal lands.
- The State and/or local funds used to match Federal-aid highway projects may include in-kind contributions (such as donations). Funds from other Federal programs may also be used to match Transportation Enhancement, Scenic Byways, and Recreational Trails program funds. A Federal agency project sponsor may provide matching funds to Recreational Trails funds provided the Federal share does not exceed 95 percent.

Planning for Bicycling and Walking

States and Metropolitan Planning Organizations (a planning agency established for each urbanized area of more than 50,000 population) are required to carry out a continuing, comprehensive, and cooperative transportation planning process that results in two products.

- A long range (20 year) transportation plan provides for the development and integrated management and operation of transportation systems and facilities, including pedestrian walkways and bicycle transportation facilities. Both State and MPO plans will consider projects and strategies to increase the safety and security of the transportation system for nonmotorized users.
- A Transportation Improvement Program (TIP) contains a list of proposed federally supported projects to be carried out over the next three years. Projects that appear in the TIP should be consistent with the long range plan.
- The transportation planning process is carried out with the active and on-going involvement of the public, affected public agencies, and transportation providers.
- Bicyclists and pedestrians must be given due consideration in the planning process (including the development of both the plan and TIP) and that bicycle facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities except where bicycle use and walking are not permitted. Transportation plans and projects must also consider safety and contiguous routes for bicyclists and pedestrians. Safety considerations may include the installation of audible traffic signals and signs at street crossings. *23 USC Section 217 (g)*

Policy and Program Provisions

State Bicycle and Pedestrian Coordinators

Each State is required to fund a Bicycle and Pedestrian Coordinator position in its State Department of Transportation to promote and facilitate the increased use of nonmotorized transportation, including developing facilities for the use of pedestrians and bicyclists and public educational, promotional, and safety programs for using such facilities. Funds such as the CMAQ or STP may be used for the Federal share of the cost of these positions. In most States, the Coordinator position is a full-time position with sufficient responsibility to deal effectively with other agencies, State offices, and divisions within the State DOT.

Protection of Nonmotorized Transportation Traffic

The Secretary shall not approve any project or take any regulatory action that will result in the severance of an existing major route, or have an adverse impact on the safety of nonmotorized transportation traffic and light motorcycles, unless such project or regulatory action provides for a reasonable alternate route or such a route already exists.

Users of a Bicycle and Pedestrian Facility

Motorized vehicles are not permitted on trails and pedestrian walkways except for maintenance purposes, motorized wheelchairs, and--when State or local regulations permit--snowmobiles and electric bicycles. Electric bicycles are defined for the purposes of this Act as a bicycle or tricycle with a low-powered electric motor weighing under 100 pounds with a top motor-powered speed not in excess of 20 miles per hour.

Facility Design Guidance

The design of bicycle and pedestrian facilities is determined by State and local design standards and practices, many of which are based on publications of the American Association of State Highway and Transportation Officials (AASHTO) such as the *Guide to the Development of Bicycle Facilities* and *A Policy on Geometric Design of Streets and Highways*.
The Federal Highway Administration developed guidance on the various approaches to accommodating bicycles and pedestrian travel, in cooperation with AASHTO, the Institute of Transportation Engineers, and other interested organizations. The guidance included recommendations on amending and updating AASHTO policies relating to highway and street design standards to accommodate bicyclists and pedestrians.

Bridges

When a highway bridge deck-on which bicyclists are permitted or may operate at each end of the bridge-is being replaced or rehabilitated with Federal funds, safe accommodation of bicycles is required unless the Secretary of Transportation determines that this cannot be done at a reasonable cost. *23 USC Section 217 (e)*

Railway-Highway Crossings

When improvements to at-grade railway-highway crossings are being considered, bicycle safety must be taken into account. *23 USC Section 130*
Research, Special Studies, and Reports

TEA-21 continues funding for highway safety research (Section 403), the National Cooperative Highway Research Program (NCHRP) and Transit Cooperative Research program (TCRP), all of which have funded research into pedestrian and bicycle issues. In addition, the legislation creates a number of new research areas, special studies, reports, and grant programs including:

- A new Surface Transportation-Environment Cooperative Research Program is established to evaluate transportation control measures, improve understanding of transportation demand factors, and develop performance indicators that will facilitate the analysis of transportation alternatives.
- $500,000 is made available for the development of a national bicycle safety education curriculum.
- $500,000 per year is made available for grants to a national not for profit organization engaged in promoting bicycle and pedestrian safety to operate a national clearinghouse, develop informational and education programs, and disseminate techniques and strategies for improving bicycle and pedestrian safety.
- $200,000 is made available for a study of the safety issues attendant to the transportation of school children to and from school and school-related activities by various transportation modes. TRB is identified as the manager of the study, which must be done within 12 months and the panel conducting the study must include bicycling organizations. (Section 4030)
- A study of transit needs in National Parks and related public lands includes a requirement that the study assess the feasibility of alternative transportation modes. (Section 3039)
- The Bureau of Transportation Statistics is charged with establishing and maintaining a transportation database for all modes of transportation that will include “information on the volumes and patterns of movement of people, including local, interregional, and international movements, by all modes of transportation (including bicycle and pedestrian modes) and intermodal combinations, by all relevant classifications. (Section 5109)

Conclusion

Bicycling and walking are important elements of an integrated, intermodal transportation system. Constructing sidewalks, installing bicycle parking at transit, teaching children to ride and walk safely, installing curb cuts and ramps for wheelchairs, striping bike lanes and building trails all contribute to our national transportation goals of safety, mobility, economic growth and trade, enhancement of communities and the natural environment, and national security.

All of these activities, and many more, are eligible for funding as part of the Federal-aid Highway Program. Federal legislation clearly confirms the place of bicycling and walking in the mainstream of transportation decision-making at the State and local level and enables communities to encourage more people to bicycle and walk safely.

For More Information

The Transportation Equity Act for the 21st Century, PL-105-550. Available from the Government Printing Office or on-line at www.fhwa.dot.gov/legsregs/legislat.html

Title 23, United States Code. Available from the Government Printing Office

Three-in-one trash can: functional, attractive, and inspirational.

Woodland, California: 4-lane state highway is now a 2-lane main street.

APPENDIX TWO-C: CONTEXT-SENSITIVE SOLUTIONS IN DESIGNING MAJOR URBAN THOROUGHFARES FOR WALKABLE COMMUNITIES

Principles for CSS in Urban Walkable Communities

The 225 page 2006 document shown to the right was created through the cooperative effort of the Federal Highway Administration (FHWA) Office of Infrastructure, Office of Environment and Planning and the and the U.S. EPA (Office of Policy, Economics and Innovation. It was assembled by professional planners and engineers and published by the Institute of Transportation Engineers (ITE).

It provides recommended policies for bringing back walkability to communities.

"This report provides guidance on how walkability principles can be applied in the design of networks and major thoroughfares in places where the qualities of walkable communities are a high priority objective. This report supports excellence in transportation with additional principles specific to context sensitivity in these places. These principles are:

1. Urban circulation networks should accommodate pedestrians, bicycles, transit, freight and motor vehicles, with the allocation of right-of-way in individual streets determined through the CSS process.

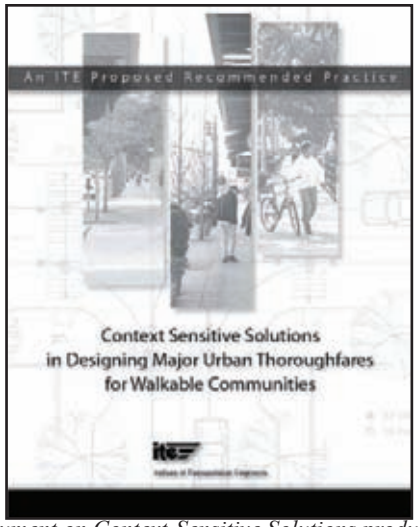
2. The larger network, including key thoroughfares, should provide safe, continuous and well designed multimodal facilities that capitalize on development patterns and densities that make walking, transit and bicycle travel efficient and enjoyable.

3. Thoroughfare design should complement urban buildings, public spaces and landscape, as well as support the human and economic activities associated with adjacent and surrounding land uses.

4. Safety is achieved through thoughtful consideration of users' needs and capabilities, through design consistency to meet user expectations and selection of appropriate speed and design elements.

5. Thoroughfare design should serve the activities generated by the adjacent context in terms of the mobility, safety, access and place-making functions of the public right-of-way. Context sensitivity sometimes requires that the design of the thoroughfare change as it passes through areas where a change in character is desired.

6. System-wide transportation capacity should be achieved using a high level of network connectivity and appropriately spaced and properly sized thoroughfares, along with capacity offered by multiple travel modes, rather than by increasing the capacity of individual thoroughfares."



A Document on Context-Sensitive Solutions produced by the Institute of Transportation Engineers (ITE)

Walkability along North American collector and arterial roads has historically run the gamut of "challenging and discouraging", to "supportive." Unfortunately only a few of these places were planned for walking.

APPENDIX TWO-D: CRASH TYPING

A crash type describes the pre-crash actions of the parties involved. When crashes in a database are "crash typed," a patter noften emerges that helps safety officials identify what the problem is and what countermeasures are generally related to each crash type. The six crash types in the diagram to the right are some of the most common pedestrian crash experiences.

Other crash types include Working/Playing in roadway, Backing Vehicle, Bus-related, Crossing an Expressway, and Unique Midblock. For more details on the crash types and related countermeasures, see Chapter 3 of "PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System" or find the "Crash Analysis" section in the on-line version at

http://www.walkinginfo.org/pedsafe.

1. Dart/Dash
The pedestrian walked or ran into the roadway at an intersection or midblock location and was struck by a vehicle. The motorist's view of the pedestrian may have been blocked until an instant before the impact.

2. Multiple Threat/Trapped
The pedestrian entered the roadway in front of stopped or slowed traffic and was struck by a multiple-threat vehicle in an adjacent lane after becoming trapped in the middle of the roadway.

3. Through Vehicle at Unsignalized Location
The pedestrian was struck at an unsignalized intersection or midblock location. Either the motorist or the pedestrian may have failed to yield.

4. Turning Vehicle
The pedestrian was attempting to cross at an intersection, driveway, or alley and was struck by a vehicle that was turning right or left.

5. Through Vehicle at Signalized Location
The pedestrian was struck at a signalized intersection or midblock location by a vehicle that was traveling straight ahead.

6. Walking Along Roadway
The pedestrian was walking or running along the roadway and was struck from the front or from behind by a vehicle.

APPENDIX TWO-E: 22 BENEFITS OF PAVED SHOULDERS AND BICYCLE LANES

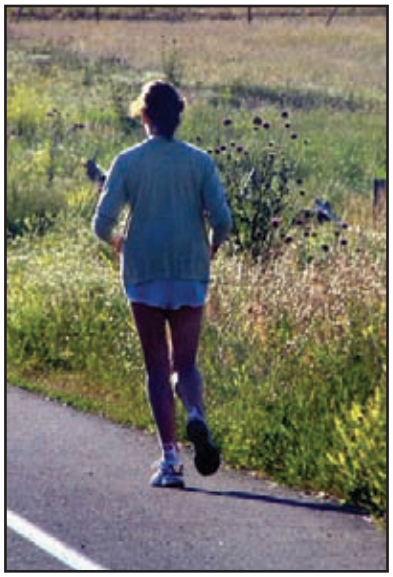
Prepared by Michael Ronkin, Bicycle and Pedestrian Program Manager & Members of the Preliminary Design Unit, Oregon Department of Transportation

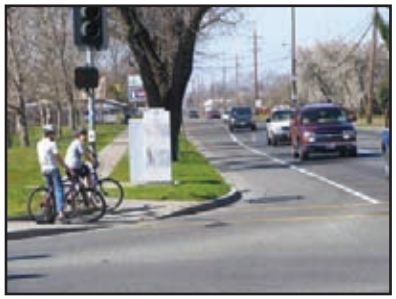
Before the 1971 "Bike Bill" was passed, and the terms "shoulder bikeways" or "bike lanes" were commonly used, the Oregon Highway Division advocated (1) building paved shoulders when constructing roads and (2) adding paved shoulders to existing roads. These were often referred to as "safety shoulders." There are good reasons for this term.

The following reasons are what AASHTO has to say about the benefits of shoulders in three important areas: safety, capacity and maintenance. Most of these benefits apply to both shoulders on rural highways and to marked, on-street bike lanes on urban roadways. See other side for other benefits specific to urban areas.

Safety - highways with paved shoulders have lower accident rates, as paved shoulders:

1. Provide space to make evasive maneuvers;
2. Accommodate driver error;
3. Add a recovery area to regain control of a vehicle, as well as lateral clearance to roadside objects such as guardrail, signs, and poles (highways require a "clear zone," and paved shoulders give the best recoverable surface);
4. Provide space for disabled vehicles to stop or drive slowly;
5. Provide increased sight distance for through vehicles and for vehicles entering the roadway (rural: in cut sections or brushy areas; urban: in areas with many sight obstructions);
6. Contribute to driving ease and reduced driver strain;
7. Reduce passing conflicts between motor vehicles and bicyclists and pedestrians
8. Make the crossing pedestrian more visible to motorists;
9. Provide for storm water discharge farther from travel lanes, reducing hydroplaning, splash and spray to following vehicles, pedestrians and bicyclists; and
10. Provide added separation between motorists and pedestrians, creating greater comfort and safety for pedestrians.





Capacity - highways with paved shoulders can carry more traffic, as paved shoulders:

1. Provide more intersection and safe stopping sight distance;
2. Allow for easier exiting from travel lanes to side streets and roads (also a safety benefit);
3. Provide greater effective turning radius for trucks;
4. Provide space for off-tracking of truck's rear wheels in curved sections;
5. Provide space for disabled vehicles,
6. Provide space for mail delivery
7. Provide space for bus stops; and
8. Provide space for bicyclists to ride at their own pace;

Maintenance - highways with paved shoulders are easier to maintain, as paved shoulders:

1. Provide structural support to the pavement;
2. Discharge water further from the travel lanes, reducing the undermining of the base and subgrade;
3. Provide space for maintenance operations and snow storage;
4. Provide space for portable maintenance signs;
5. Facilitate painting of fog lines.

APPENDIX TWO-F: 22 BENEFITS OF URBAN STREET TREES

By Dan Burden, Senior Urban Designer
Glatting Jackson and Walkable Communities, Inc. May, 2006

U.S Forest Service facts and figures and new traffic safety studies detail many urban street tree benefits. Once seen as highly problematic for many reasons, street trees are proving to be a great value to people living, working, shopping, sharing, walking and motoring in and through urban places.

For a planting cost of $250-600 (includes first 3 years of maintenance) a single street tree returns over $90,000 of direct benefits (not including aesthetic, social and natural) in the lifetime of the tree. Street trees (generally planted from 4 feet to 8 feet from curbs) provide many benefits to those streets they occupy. These trees provide so many benefits that they should always be considered as an urban area default street making feature. With new attentions being paid to global warming causes and impacts more is becoming known about the many negative environmental impacts of treeless urban streets. We are well on the way to recognizing the need for urban street trees to be the default design, rather than a luxury item to be tolerated by traffic engineering and budget conscious city administrators.

The many identified problems of street trees are overcome with care by designers. Generally street trees are placed each 15-30 feet. These trees are carefully positioned to allow adequate sight triangles at intersections and driveways, to not block illumination of the street from overhead lamps, and not impact lines above or below ground. Street trees of various varieties can be used in all climates, including semi-arid and even arid conditions.

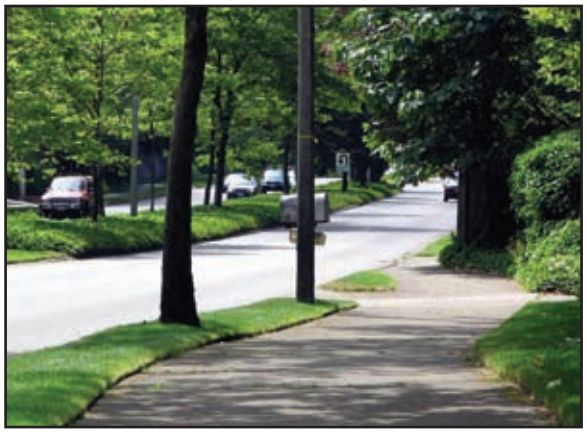
The science of street tree placement and maintenance is well known and observed in a growing number of communities (i.e. Sacramento, and Davis, CA; Eugene, Oregon; Chicago, IL: Seattle, Redmond, Olympia and Issaquah, WA; Charlotte, NC). Although maintenance and care of trees in urban places is costly, the value in returned benefits is so great that a sustainable community cannot be imagined without these important green features.

Properly placed and spaced urban street trees provide these benefits:

Increased motorized traffic and pedestrian safety (contrary to popular myths). See the article below for details on mode safety enhancements. Note especially the compilation of safety benefits detailed in, *Safe Streets, Livable Streets*, by Eric Dumbaugh Journal of the American Planning Association, Vol. 71, No. 3, Summer 2005. One such indication of increased safety with urban street trees is quoted from this document:

"Indeed, there is a growing body of evidence suggesting that the inclusion of trees and other streetscape features in the roadside environment may actually reduce crashes and injuries on urban roadways. Naderi (2003) examined the safety impacts of aesthetic streetscape enhancements placed along the roadside and medians of five arterial roadways in downtown Toronto. Using a quasi-experimental design, the author found that the inclusion of features such as trees and concrete planters along the roadside resulted in statistically significant reductions in the number of mid-block crashes along all five roadways, with the number of crashes decreasing from between 5 and 20% as a result of the streetscape improvements. While the cause for these reductions is not clear, the author suggests that the presence of a well defined roadside edge may be leading drivers to exercise greater caution."

1. Reduced and more appropriate urban traffic speeds. Urban street trees create vertical walls framing streets, and a defined edge, helping motorists guide their movement and assess their speed (leading to overall speed reductions). Street safety comparisons show a reduction of run-off-the-road crashes and overall crash severity when street tree sections are compared with equivalent treeless streets. (Texas A and M conducted simulation research which found people slow down while driving through a treed scape. These observations are also noted in the real world when following motorists along first a treed portion of a street, and then a non treed portion. Speed differentials of 3 mph to 15 mph are noted.



2. Create safer walking environments, by forming and framing visual walls and providing distinct edges to sidewalks so that motorists better distinguish between their environment and one shared with people. If a motorist were to significantly err in their urban driving task, street trees can deflect or fully stop a motorist from taking another human life.

3. Trees call for planting strips, which further separate motorists from pedestrians, buildings and other urban fabric.

4. Increased security. Trees create more pleasant walking environments, bringing about increased walking, talking, pride, care of place, association and therefore actual ownership and surveillance of homes, blocks, neighborhoods plazas, businesses and other civic spaces.

5. Improved business. Businesses on treescaped streets show 20% higher income streams, which is often the essential competitive edge needed for main street store success, versus competition from plaza discount store prices.

6. Less drainage infrastructure. Trees absorb the first 30% of most precipitation through their leaf system, allowing evaporation back into the atmosphere. This moisture never hits the ground. Another percentage (up to 30%) of precipitation is absorbed back into the ground and taken in and held onto by the root structure, then absorbed and then transpired back to the air. Some of this water also naturally percolates into the ground water and aquifer. Storm water runoff and flooding potential to urban properties is therefore reduced.

7. Rain, sun, heat and skin protection. For light or moderate rains, pedestrians find less need for rain protection. In cities with good tree coverage there is less need for chemical sun blocking agents. Temperature differentials of 5-15 degrees are felt when walking under tree canopied streets.

8. Reduced harm from tailpipe emissions. Automobile and truck exhaust is a major public health concern and contains significant pollutants, including carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NOx), and particulate matter (PM). Tailpipe emissions are adding to asthma, ozone and other health impacts. Impacts are reduced significantly from proximity to trees.

9. Gas transformation efficiency. Trees in street proximity absorb 9 times more pollutants than more distant trees, converting harmful gasses back into oxygen and other useful and natural gasses.

10. Lower urban air temperatures. Asphalt and concrete streets and parking lots are known to increase urban temperatures 3-7 degrees. These temperature increases significantly impact energy costs to homeowners and consumers. A properly shaded neighborhood, mostly from urban street trees, can reduce energy bills for a household from 15-35%.

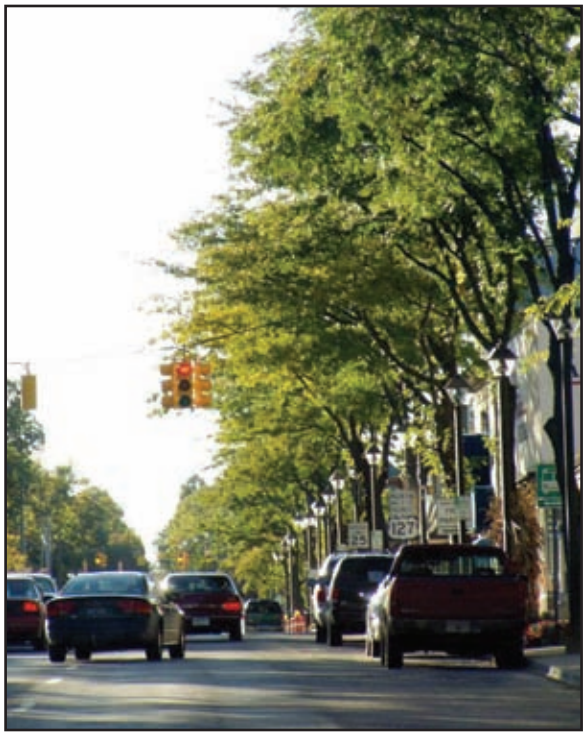
11. Lower Ozone. Increases in urban street temperatures that hover directly above asphalt where tailpipe emissions occur dramatically increase creation of harmful ozone and other gasses into more noxious substances impacting health of people, animals and surrounding agricultural lands.

12. Convert streets, parking and walls into more aesthetically pleasing environments. There are few streetmaking elements that do as much to soften wide, grey visual wastelands created by wide streets, parking lots and massive, but sometimes necessary blank walls than trees.

13. Soften and screen necessary street features such as utility poles, light poles and other needed street furniture. Trees are highly effective at screening those other vertical features to roadways that are needed for many safety and functional reasons.

14. Reduced blood pressure, improved overall emotional and psychological health. People are impacted by ugly or attractive environments where they spend time. Kathlene Wolf, Social Science Ph.D. University of California gave a presentation that said "the risk of treed streets was questionable compared to other types of accidents along with the increased benefit of trees on human behavior, health, pavement longevity, etc." She noted that trees have a calming and healing effect on ADHD adults and teens.

15. Time in travel perception. Other research and observations confirm that motorists perceive the time it takes to get through treed versus non-treed environments has a significant differential. A treeless environment trip is perceived to be longer



than one that is treed (Walter Kulash, P.E.; speech circa 1994, Glatting Jackson).

16. Reduced road rage. Although this may at first seem a stretch, there is strong, compelling research that motorist road rage is less in green urban versus stark suburban areas. Trees and aesthetics, which are known to reduce blood pressure, may handle some of this calming effect.

17. Improved operations potential. When properly positioned and maintained, the backdrop of street trees allow those features that should be dominant to be better seen, such as vital traffic regulatory signs. The absence of a well developed Greenscape allows the sickly grey mass of strip to dominate the visual world. At the same time, poorly placed signs, signals, or poorly maintained trees reduces this positive gain, and thus proper placement and maintenance must be rigidly adhered to.

18. Added value to adjacent homes, businesses and tax base. Realtor based estimates of street tree versus non street tree comparable streets relate a $15-25,000 increase in home or business value. This often adds to the base tax base and operations budgets of a city allowing for added street maintenance. Future economic analysis may determine that this is a break-even for city maintenance budgets.

19. Provides a lawn for a splash and spray zone, storage of snow, driveway elevation transition and more. Tree lawns are an essential part of the operational side of a street.

20. Filtering and screening agent. Softens and screens utility poles, light poles, on-street and off-street parking and other features creating visual pollution to the street.

21. Longer pavement life. Studies conducted in a variety of California environments show that the shade of urban street trees can add from 40-60% more life to costly asphalt. This factor is based on reduced daily heating and cooling (expansion/contraction) of asphalt. As peak oil pricing increases roadway overlays, this will become a significant cost reduction to maintaining a more affordable roadway system.

22. Connection to nature and the human senses. Urban street trees provide a canopy, root structure and setting for important insect and bacterial life below the surface; at grade for pets and romantic people to pause for what pets and romantic people pause for; they act as essential lofty environments for song birds, seeds, nuts, squirrels and other urban life. Indeed, street trees so well establish natural and comfortable urban life it is unlikely we will ever see any advertisement for any marketed urban product, including cars, to be featured without street trees making the ultimate dominant, bold visual statement about place.

APPENDIX TWO-G: STREET TREE SELECTION GUIDE

The following material is excerpted in its entirety from the document "Desert Southwest Community Tree Guide: Benefits, Costs, and Stategic Planting" with permission from the U.S. Forest Service Center for Urban Forest Research at UC Davis. This is Chapter 7 of the document, which is available from the Urban Forest Center website at http://www.fs.fed.us/psw/programs/cufr/.

TREE SELECTION LIST FOR DESERT SOUTHWEST COMMUNITIES

Desert Southwest landscapes

In this chapter, recommended trees and their attributes are presented to help select the right tree for specific planting situations throughout the Desert Southwest region.

For the purpose of this chapter, desert southwestern communities include the lower desert regions of southern California, central and southern Arizona, southern Nevada, southern New Mexico and the deserts of southwestern Utah. We have selected these areas as they share many similarities in climate, rainfall, soil conditions, water quality, horticultural practices and have within their borders some of the fastest growing cities in the nation.

Reliable information on the selection, growth and care of landscape trees in the desert southwest comes from scientific research and field experience gathered in a relatively small number of cities and institutions. Within this region the major metropolitan areas include the Coachella Valley, California (Palm Springs/Palm Desert), Phoenix and Tucson, Arizona and Clark County, Nevada (Las Vegas, Henderson, Boulder City). Institutions like the University of Arizona, Tucson, Arizona, Desert Botanical Garden, Phoenix, Arizona, College of the Desert, Palm Desert, California, University of Nevada, Las Vegas, Nevada, the various municipal water conservation authorities and professional and trade organizations have been instrumental in the development and dissemination of information on desert landscape horticulture.

Historically the population growth of this region was significantly driven by immigration of people from other, less arid parts of the country. Landscape designs at all levels, residential, commercial and municipal, attempted to deny the presence of the desert in favor of a more lush and non-indigenous landscape palette. In the last two decades a desert landscape aesthetic has emerged. Driven in part by the need to conserve scarce water, these designs are ultimately inspired by a desire to create a unique and inviting sense of place and to help build communities that embrace rather than mask the beauty of the surrounding deserts.

What is the geographic scope?

The Desert Southwest is a large and enormously diverse region with elevations ranging from near or below sea level (Coachella Valley) to 3,000 feet (914 m) and temperature extremes from single digit winter lows and occasional snow to summer highs of 110 to 115 degrees oF (43-46 oC). The harshness of these conditions is often amplified by low relative humidity coupled with high winds. Additionally, dramatic temperature swings of 30 to 40 degree oF (-1-4 oC) can occur within a single day in the transitions from spring to summer and fall to winter.

Soils can be generally characterized as alkaline and containing little (typically less than 1%) organic matter. Water penetration and water holding capacity of soils varies widely, sometime within very small areas. Blow or dune sands commonly found in California's Coachella Valley afford rapid water penetration with limited water retention. By contrast some southern Nevada soils have a calcareous cap layer that almost precludes water penetration and must be fractured or removed prior to tree planting. In alluvial areas, like central Arizona's Salt River Valley, loam and sandy clay loam soils can be found but these are not typical of the region as a whole.

Annual rainfall ranges from 2 to 3 inches (51-76 mm) in the Lower California desert and southern Nevada to 8 to 12 inches (203-305 mm) in parts of southern Arizona. Water conversation efforts through out the region are focused on landscape water use, as the overwhelming majority of landscape trees, shrubs and turf are irrigated. The demand to use water efficiently in the landscape has encouraged the introduction, and in many instances re-introduction, of increasing numbers of desert native and desert adapted trees, the use of state-of-the-art irrigation technologies and the application of organic and inorganic surface mulches.

What are the selection criteria?

The trees described below are a reasonably complete, but not an exhaustive listing, of trees adapted to the Desert Southwest. Species listed are well-documented, widely used, and generally available for purchase by the public. Given the region-wide issues associated with water conservation in the landscape, particular emphasis was given to desert native and desert adapted species but other "traditional" landscape trees are also included.

HOW TO MATCH THE TREE TO THE SITE

Selection and placement of landscape trees

Proper placement of trees in the landscape is key to vigorous growth, reduced maintenance and long-term survival. Environmental and physical factors surrounding landscape trees can have dramatic effects on tree health, and appearance. These factors may include reflected heat and light, wind, shade, availability of water, presence or absence of hardscape elements, and the horticultural requirements of the surrounding landscape.

In desert climates, the potential detrimental effects of reflected sunlight and heat on trees cannot be exaggerated. Mirrored or tinted glass used on many mid-rise and high-rise commercial building, large masonry and stucco framed walls and asphalt, paved surfaces reflect and "re-radiate" tremendous amounts of heat. These physical elements in the landscape can, in the protracted heat of a long summer day, add stress and increase transpiration of trees.

Another common problem is mixing trees and shrubs that have widely differing water requirements. This typically involves trees with low water requirements planted either in turf or with high water demanding under-story shrubs. Dense shade generated by mature specimens may adversely affect the growth of surrounding turf and reduce growth and flowering of under-story shrubs and ground covers.

Consider the mature height and width of trees when placing them in the landscape and allow sufficient space between trees to optimize long-term growth without the risk of tangled branches or overlapping canopies. Tree placement should also take into account all the uses of the landscape by pedestrian, bicyclists, motorized vehicles and children.

The presence or absence of thorns is obviously a consideration in the placement of some desert species. The nature, amount and seasonal distribution of leaf, flower and seed pod litter will determine the appropriateness of tree placement near patios, pools, playground equipment, and pedestrian areas.

What information is included in the chart?

Physical characteristics and definitions used for this matrix are listed below.

Tree Form: These are the basic shapes of the trees at maturity.

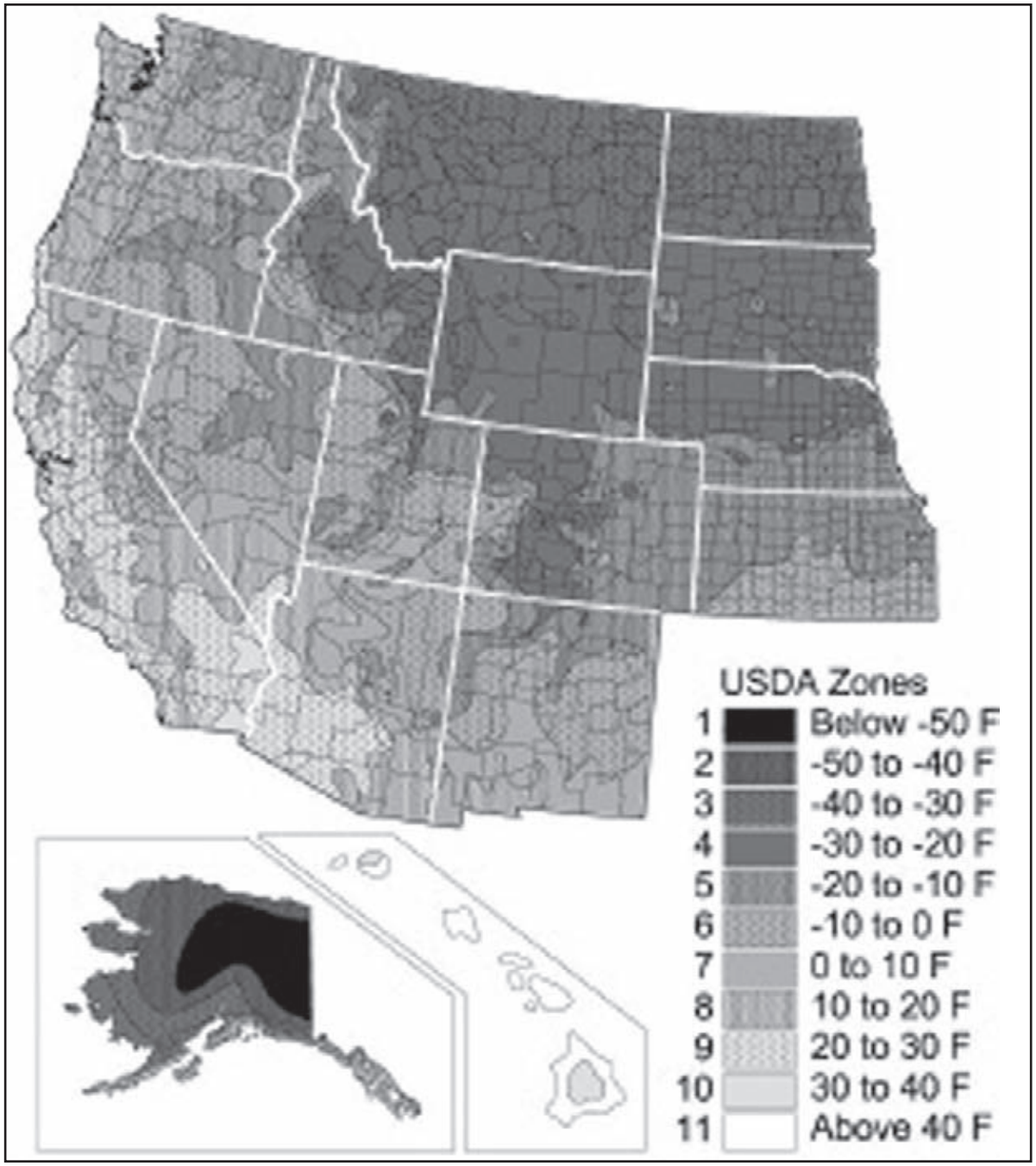
Pyramidal - common in excurrent type trees with a main, central stem.
Oval- elliptical in a vertical fashion.
Round - self-explanatory.
Vase - multi-stemmed, decurrent, wider at top than at the base.
Irregular - no fundamental shape
Columnar - very upright in its growth.
Shrub Like - small tree, often multi-stemmed.

Hardiness Zone: The United States Department of Agriculture's hardiness zone map was used. Range of zones in the Desert Southwest Region is 8 to 10. Except where noted trees listed are generally cold hardy across these regions. Given the lack of genetic uniformity within some desert adapted species grown from seed, and the existence of some uncharacteristically cold micro-climates within some desert communities, contact local horticulture professionals about conditions in your area.

The symbol (a) indicates that the species may be cold tender in some desert locations, consult local horticulture professionals before planting.

Growth rate: Height growth was judged based on the ranges set below. Growth rates are markedly lower than in most other areas of the United States.

Fast - more than 2 feet (> 0.6 m) per year
Medium - 1 foot to 2 feet (0.3-0.6 m) per year
Slow - less than 1 foot (< 0.3 m) per year.



Relative size: This is the relative size of the tree at maturity.

Small - less than 25 feet (7.6 m) tall and wide. Trunk diameters are probably less than 20 inches (51 cm).
Medium - 25-40 feet (7.6-12.2 m) tall and wide. Trunk diameters can be 20 - 30 inches (51-76 cm).
Large - greater than 40 feet (. 12.2 m) tall and wide. Trunk diameters are commonly over 30 inches (> 76 cm).

Exposure: Indicates sun exposure tolerated by the tree.

FS Full Sun
PSPartial Shade
STShade Tolerant

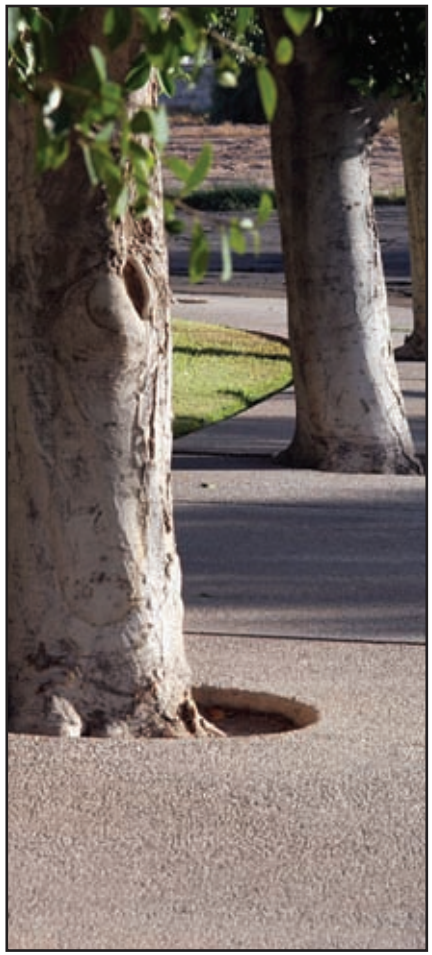
BVOC: Biogenic Volatile Organic Compounds are hydrocarbon compounds from vegetation (e.g., isoprene, monoterpene) that exist in the ambient air and contribute to the formation of smog. We identify their potential to adversely affect air quality in ozone non-attainment areas if large numbers are planted:

L= low, < 1;
M= moderate, 1-10;
H= High, > 10 _g/g dry leaf wt/hr

(Benjamin et al. 1996; Karlik and Winer 2002). NA means no emission rate data are available for members of this family.

TREE SELECTION LIST FOR DESERT SOUTHWEST COMMUNITIES

BOTANICAL NAME	COMMON NAME	FORM	GROWTH RATE	SIZE	EXPOSURE	BVOC
Conifers						
Cedrus atlantica	Blue Atlas Cedar	C	S/M	L	FS	L
Cupressus arizonica	Arizona Cypress	C	M	M	FS, PS	L
Cupressus sempervirens	Italian Cypress	C	M	L	FS	L
Pinus canariensis	Canary Island Pine	O	M	L	FS	M
Pinus eldarica	Afghan Pine	P	F	L	FS	M
Pinus halepensis	Aleppo Pine	I	F	L	FS	L
Pinus pinea	Italian Stone Pine	P	M	L	FS, PS	L
Pinus roxburghii	Chir Pine	O	M	M	FS	M
Pinus thunbergiana	Japanese Black Pine	O	M	L	FS	M
Palms						
Chamaerops humilis	Mediterranean Fan Palm	R	S	S	FS, PS, ST	M
Brahea armata	Mexican Blue Palm	R	S	S	FS	M
Butia capitata	Jelly Palm	R	S	M	FS	M
Phoenix canariensis	Canary Island Date Palm	R	S	L	FS	M
Phoenix dactylifera	Date palm	R	S	L	FS	M
Syagrus romanzoffianum	Queen Palm	R	M	M	FS, PS	M
Washingtonia filifera	California Fan Palm	R	S	L	FS	M
Washingtonia robusta	Mexican Fan Palm	R	F	L	FS	H
Other Trees						
Acacia aneura	Mulga	O	M	S	FS	M
Acacia farnesiana a	Sweet Acacia	O	F	M	FS	M
Acacia pendula	Weeping Myall	V	M	M	FS	M
Acacia rigidula	Black Bush Acacia	O	S	S	FS	M
Acacia salicina	Willow Acacia	O	F	S	FS, PS	M
Acacia schaffneri	Twisted Acacia	I	F	S	FS	M
Acacia stenophylla a	Shoestring Acacia	C	M	L	FS, PS	M
Acacia willardiana	Palo Blanco	C	S	S	FS, PS	M
Albizia julibrissin	Silk Mimosa Tree	O	M	M	FS, PS	H
Bauhinia lunarioides	Anacacho Orchid Tree	O	S/M	S	FS	NA
Brachychiton populneus	Bottle Tree	O	M	M	FS, PB	NA
Caesalpinia cacalaco	Cascalote	V	M	M	FS, PS	M
Caesalpinia mexicana	Mexican Bird of Paradise	V	F	S	FS, PS	M
Callistemon citrinus	Lemon Bottlebrush	C	M	S	FS, PS	H
Callistemon viminalis	Weeping Bottlebrush	C	F	M	FS, PS	H
Casuarina spp.	Beefwood, She Oak	C	M	L	FS	NA

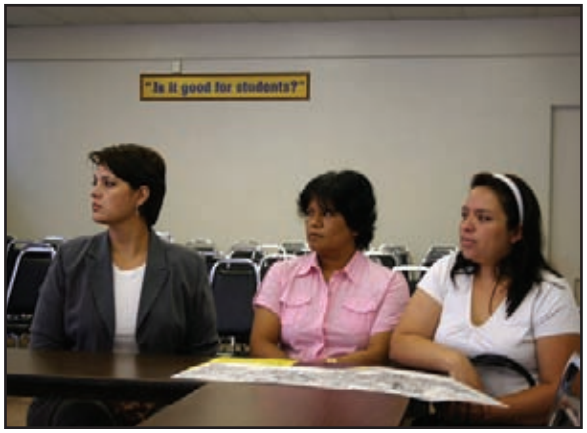


BOTANICAL NAME	COMMON NAME	FORM	GROWTH RATE	SIZE	EXPOSURE	BVOC
Celtis reticulate	Western or Canyon Hackberry	I	M	M	FS, PS	L
Ceratonia siliqua a	Carob Tree	O	S	L	FS	M
Cercidium floridum (Parkinsonia florida)	Blue Palo Verde	O	F	M	FS	M
Cercidium Hybrid	Thornless Hybrid Palo Verde	V	F	M	FS	M
Cercidium microphyllum (Parkinsonia microphylla) [a]	Foothill or Little Leaf Palo Verde	V	S	M	FS	M
Cercidium praecox (Parkinsonia praecox)	Palo Brea	I	F	M	FS	M
Cercis canadensis v. mexicana	Mexican Redbud	O	M	M	FS, PS	L
Cercis canadensis v. texensis	Texas Redbud	O	M	M	FS, PS	L
Cercis occidentalis	Western Redbud	O	M	M	FS, PS	L
Chilopsis linearis	Desert Willow	O	S	M	FS, PS	M
XChitalpa tashkentensis	Chitalpa	O	F	M	FS	M
Chorisia speciosa	Floss Silk Tree	C	M	M	FS, PS	NA
Citrus spp. [a]	Citrus	O	M	S	FS	M
Cotinus coggygria	Smoke Tree	I	M	S	FS	M
Dalbergia sissoo [a]	Indian Rosewood Tree	I	F	M	FS	NA
Elaeagnus angustifolia	Russian Olive	S	M/F	M	FS	NA
Eriobotyra japonica	Loquat	I	M	M	FS, PS	L
Eucalyptus camaldulensis	Red Flowered Mallee	O	F	L	FS	H
Eucalyptus erythrocorys	Red Cap Gum	O	F	M	FS, PS	H
Eucalyptus erythronema	Red flower Mallee	O	F	M	FS, PS	H
Eucalyptus formanii	Feather Gum	O	F	M	FS, PS	H
Eucalyptus leucoxylon	White Ironbark	O	F	M	FS, PS	H
Eucalyptus coolibah	Coolibah	O	F	L	FS	H
Eucalyptus pauciflora	Ghost Gum	O	F	L	FS, PS	H
Eucalyptus polyanthemos	Silver Dollar Gum	O	F	M	FS	H
Eucalyptus rudis	Flooded Gum	O	F	L	FS	H
Eucalyptus sideroxylon	Pink or Red Ironbark	O	F	M	FS, PS	H
Eucalyptus spathulata	Swamp Mallee	I	F	M	FS, PS	H
Eucalyptus torquata	Coral Gum	O	F	M	FS, PS	H
Eysenhardtia orthocarpa	Kidneywood	I	M	M	FS	NA

BOTANICAL NAME	COMMON NAME	FORM	GROWTH RATE	SIZE	EXPOSURE	BVOC
Ficus carica	Fig Tree	O	M	M	FS, PS	H
Ficus nitida ª	Indian Laurel Fig	O	M	L	FS, PS	H
Fraxinus greggii	Littleleaf Ash	O	M	S	FS	L
Fraxinus raywoodii	Raywood Ash	O	F	M	FS	L
Fraxinus uhdei	Shamel or Mesquite Ash	O	F	M	FS	L
Fraxinus velutina	Arizona Ash	O	F	M	FS	L
Fraxinus v. fantex	Fantex Ash	O	F	M	FS	L
Fraxinus v. modesto	Modesto Ash	O	F	M	FS	L
Geijera parviflora	Wilga or Australian Willow	SL	M	S	FS, PS	M
Ginkgo biloba	Maidenhair Tree	I	S	L	FS	M
Gleditsia triacanthos inermis	Honey Locust	O	M	M	FS	M
Grevillea robusta	Silk Oak	C	M	L	FS, PS	NA
Jacaranda mimosifolia	Jacaranda	O	M	L	FS, PS	L
Koelreuteria paniculata	Goldenrain Tree	O	M	M	FS	H
Laurus nobilis	Bay Laurel	I	M	S	FS, PS	L
Leucaena retusa	Golden Ball Lead Tree	I	M	S	FS, PS	M
Lysiloma microphylla v. thornberi ª	Fern of the Desert, Feather Bush	I	S	M	FS, PS	M
Malus spp.	Apple Tree	O	M	S	FS	L
Melia azedarach	Texas Umbrella Tree, Chinaberry	O	M	L	FS	NA
Olea europaea	Olive	O	S	M	FS	L
Olneya tesota ª	Desert Ironwood	V	S	M	FS	NA
Parkinsonia aculeata	Mexican Palo Verde	V	F	M	FS	M
Paulownia tomentosa	Sapphire Dragon, Empress Tree	O	F	M	FS	M
Pistacia chinensis	Chinese Pistache	O	S	L	FS	M
Pithecellobium flexicaule (Ebenopsis ebano)	Texas Ebony	O	S	M	FS, PS	NA
Pithecellobium mexicanum (Harvardia mexicana)	Mexican Ebony	V	M	M	FS, PS	NA
Pithecellobium pallens (Harvardia pallens)	Tenaza	I	M	M	FS, PS	NA
Pittosporum phillyraeoides	Willow Pittosporum	C	S	S	FS, PS	L
Platanus racemosa	California Sycamore	O	M	L	FS	H
Platanus wrightii	Arizona Sycamore	O	M	L	FS	H

BOTANICAL NAME	COMMON NAME	FORM	GROWTH RATE	SIZE	EXPOSURE	BVOC
Pithecellobium mexicanum (Harvardia mexicana)	Mexican Ebony	V	M	M	PS, PS	NA
Pithecellobium pallens (Harvardia pallens)	Tenaza	I	M	M	PS, PS	NA
Pittosporum phillyraeoides	Willow Pittosporum	C	S	S	PS, PS	L
Platanus racemosa	California Sycamore	O	M	L	PS	H
Platanus wrightii	Arizona Sycamore	O	M	L	PS	H
Populus fremontii	Fremont or Western Cottonwood	O	M	L	PS	H
Prosopis spp.	Thornless Hybrid Mesquite	O	F	M	PS	M
Prosopis glandulosa	Honey Mesquite	O	F	M	PS, PS	M
Prosopis pubescens	Screwbean Mesquite	O	M	M	PS	M
Prosopis velutina	Velvet Mesquite	O	M	M	PS	M
Prunus dwarf	Dwarf Fruit Tree	R	M	M	PS, PS	L
Prunus mume	Japanese Flowering Apricot	R	M	M	PS	L
Prunus triloba	Almond	O	M	M	PS	L
Pyrus calleryana	Bradford Pear	O	M	M	PS, PS	L
Pyrus kawakamii	Mesquite Pear	O	M	M/S	PS	L
Quercus buckleyi	Texas, Spanish	O	S	M	PS	H
Quercus fusiformis	Escarpment Live Oak	O	S/M	L	PS	H
Quercus ilex	Holm, Holly Oak	O	S	M	PS	H
Quercus lobata	Valley Oak	O	S	L	PS	M
Quercus muhlenbergia	Chinquapin Oak	O	S	M	PS	H
Quercus suber	Cork Oak	O	S	M	PS	M
Quercus virginiana	Southern Live Oak	O	S	M	PS	H
Rhus lancea	African Sumac	I	M	M	PS, PS	L
Rhus lanceolata	Prairie Flameleaf Sumac	I	M	M	PS	L
Robinia pseudoacacia	Black Locust	O	M	L	PS	H
Salix babylonica	Weeping Willow	O	M	M	PS, PS	H
Salix matsudana	Hankow or Navajo Globe Willow	O	M	M	PS, PS	H
Sambucus mexicana	Mexican Elderberry	S	M	S	PS, PS	L
Schinus molle	California Pepper Tree	I	M	M	PS	M
Schinus terebinthifolius	Brazilian Pepper Tree	I	S	M	PS	M

BOTANICAL NAME	COMMON NAME	FORM	GROWTH RATE	SIZE	EXPOSURE	BVOC
Tipuana tipu	Tipu Tree	O	M	L	PS, PS	NA
Ulmus parvifolia	Chinese Elm	R	F	L	PS	L
Ungnadia speciosa	Mexican Buckeye	S	S	S	PS, PS	H
Quercus buckleyi	Texas, Spanish	O	S	M	PS	H
Quercus fusiformis	Escarpment Live Oak	O	S/M	L	PS	H
Quercus ilex	Holm, Holly Oak	O	S	M	PS	H
Quercus lobata	Valley Oak	O	S	L	PS	M
Vitex agnus-castus	Chaste Tree or Monk's Pepper	I	S	M	PS, PS	NA
Zelkova serrata	Sawleaf Zelkova	O	F	L	PS	L
Zizyphus jujuba	Chinese Jujube	O	M	M	PS	H



APPENDIX TWO-H
FOCUS GROUP MEETING NOTES

SCHOOLS FOCUS GROUP

October 12, 2006, 9AM
Brawley Elementary School District Board Room

Attendees:

School Superintendents:

Terri L. Decker, Brawley Elementary School District
Roberto Moreno, Brawley Union High School District Superintendent

J.W. Oakley/Phil D. Swing Schools:

Monica Kenagy, School Site Council
Cindy Hickingbottom, PTA
Araceli Morales, English Learner Advisory Committee

Miguel Hidalgo/Myron D. Witter Schools:

Jane Rodriguez, School Site Council
Liz Gonzales, PTO

Barbara Worth Junior High School:

Cindy Verdugo, School Site Council
Martha Beltran, English Learner Advisory Committee

Also in Attendance:

Mikey Garcia
Rosemarie Wood – BUHS
Mark Saracusa
Paul Zykofsky
Steve Tracy

Comments and Issues:

Brawley Union High School:

One attendee's son was hit by a car near the High School. A Street near the High School has bus and truck traffic. Trucks ignore truck route signs and drive on other streets. Need four-way stops at all intersections near these schools, with peak hour red/green lights and off-peak red flashers.

North Imperial and C Street near Jr. High and High School:

Junior High and High School students on North Imperial and streaming through Plaza area. Johnny Burritos swarming with High School students at lunch with only a 2-way stop. Need a 4-way stop at that location. Poor visibility in this area.

Witter Elementary School at K Street and 2nd:

Witter Elementary School is the biggest problem. Needs a crosswalk with flashing lights. Two bad accidents there. It is just off Highway 86. K Street traffic is an issue for two elementary schools. Close K Street? Bus stops in front of schools at Witter, blocking visibility.

Bus stop should be moved forward. Traffic is dangerous on K Street by Witter Elementary and Hidalgo Elementary. General acceptance of roundabout concept on Highway 86.

Phil Swing Elementary School:

1st Street and A Street near school, no stops are required. Western Avenue is a north/south corridor. Dangerous crossing Western Avenue. Poor visibility with dip in road. Need better signs and crosswalks at River Drive and Western Avenue.

Busing of students:

All elementary school children who need to cross Main Street are on buses. Oakley Elementary School is isolated. Witter Elementary School is K – 3 only. Hidalgo serves a small area, new school. Phil Swing and Hidalgo lend themselves to walking.

Other Comments:

West Main Street By Vons — Trucks blow through stops. Crossing to Vons parking lot is dangerous. Dangerous for seniors from the retirement home crossing Main Street with wheelchairs. Drivers often have the sun in their eyes. The last set of traffic lights is at Rio Vista Avenue, so this sets up speeding between there and the edge of town.

Plaza area and Main Street — Plaza area is a big problem with students on foot and heavy traffic. Semi trucks in the Plaza are dangerous. One person at meeting was hit crossing Main Street at Plaza in 1991. Need a pedestrian bridge going north and south. Angles of Plaza streets and Main Street make it hard to look and find traffic. Difficult to twist neck far enough to see over your shoulder. Need a safe crossing. Visibility at 3rd Street and Main Street is poor, and there was a very serious accident there involving a High School student. Now there is a light at that intersection.

6th Street and Main Street intersection — The traffic signal changes too quickly, improve timing. This intersection gets a D + grade.

8th Street and Main Street — Revamping Ciudad Plaza building at 8th Street, but trucks are driving over the curb.

East Main Street — It doesn't feel like part of the City. It needs a gateway. Satellite of SDSU – High School – new edge of Brawley will be there .

Best Road — Speeds are 10 – 20mph faster there. Meat plant traffic is a problem. Cars speed drastically on East Main Street.

Parking — One area is behind Newberrys. Can't get to Main Street from that area. El Centro has good parking behind Main Street.

General — Hopefully this street design project will also look off of Main Street to school problem areas. Truck routes need improvement. Relinquishment won't solve the problem, traffic is growing.

BUSINESS COMMUNITY FOCUS GROUP

Chamber of Commerce conference room
October 12, 2006, 2PM

Attendees:

Scott Webster — 1200 block of East Main Street
Jesse Enriques — East Main Street businessman
Jay Kruger — Brawley Beautification
Nicole Nicholas Gilles — Brawley Chamber of Commerce
Ryan Brand — Irish Pub
Richard Mendezo — Pioneers Hospital
George Nava — Brawley Main Street
Mary Miller — 500 Block business owner
Paul Chonet — Brawley Elementary School District
Greg Smith — 510 W Main business owner
Ted Riley — Brawley Main Street, businessman
Norma Jaurequi — Brawley Economic Development Department
Erasamo Gonzalez
Tony Leonard — Local Government Commission (LGC)
Paul Zykofsky — LGC
Steve Tracy — LGC
Kendra Stevens — Downtown Solutions

Comments and Issues:

Plaza Area:

The Plaza is an asset we should beautify, and take ownership of. It's difficult to cross the street. Plaza and surrounding area are too dark at night. Cars speed around angled corners in Plaza area. The Plaza area is a corridor for school kids, but needs safety improvements. Need better medians and more greenery, and graffiti abatement.

1200 Block of West Main Street:

Median won't work on that block. Attendee's business has a fuel station. Large tractor-trailer rigs are in and out of East Main Street businesses, and large RVs also.

Redesign and Traffic Calming:

Need to slow speeding vehicles down. Slowing vehicles is not a problem. Build on what is there already. Brawley Beautification supports a redesign. We need better crosswalks. Whole traffic flow pattern should be looked at. Lots of traffic going through downtown. Cars are going 70 MPH near Las Flores Drive. Dangerous to wheelchairs. Vons driveway doesn't line up with Marjorie Avenue. It's difficult to work with Caltrans, even to get a "Welcome" sign put up.

Land Use, Renovation, and Redevelopment:

Downtown looks bad. We need incentives to bring businesses in. Parks and water, greenery, trees. We need to address the issue of absentee building owners with poor maintenance habits who keep buildings as tax write off. We need more businesses in Downtown. The Planters Hotel needs to be preserved. Downtown needs to become a destination. It needs energy, better sidewalks, lighting, fresh paint, and a good cleaning. The 300/400 blocks are full of weeds and need cleaning up.

Alleys and Breezeways:

Alleys can be used, but must be well lighted and safe. We need rear access to businesses, but it must be clean and well lighted. There has been talk of breezeways. Once money was set aside.

Parking Downtown:

Need more. Need safe parking behind businesses like in El Centro. Owners need to stop parking in front of their own businesses.

Economic Development:

We need to plan for what type of business should be downtown. We need funding to do this plan. The City needs to work with downtown businesses. Opening a Super Walmart will hurt. Main Street is not kid friendly. Kids need things to do so parents will come downtown and shop.

HISPANIC COMMUNITY FOCUS GROUP

Brawley Public Works Department Conference Room
October 12, 2006, 4PM

Attendees:

Manuel Avila — Brawley American Citizens Club
Jesse Enriques— Hidalgo Society
Tony Leonard — Local Government Commission
Steve Tracy — Local Government Commission

Comments and Issues:

There used to be more parking, and angle parking downtown.

The vacant lot at 6th and Main could be a parking structure.

Parking in back of businesses is not appealing. It is lucky a kid has not been seriously hurt or killed yet.

Must park in back, not enough in front. Lunch traffic people short on time.

Kids' security was an issue around high school "El Campo", is better now.

Strong-arm robberies by kids, gangbanger wannabes were a problem in the past. It is safer now than the 80's.

TRANSPORTATION AGENCY FOCUS GROUP

Brawley Public Works Department Conference Room
October 13, 2006, 11AM

Attendees:

Yazmin Arrelano — Director, Brawley Public Works Department
Alan Chan — Brawley Public Works Dept.
Jo Shields — Brawley City Council
Rosa Lopez — Imperial Valley Association of Governments
Frank Fiorenza — Imperial County Public Works Department
Jacob Armstrong — Caltrans Planning
Bob Corbin — Caltrans Operations
Dan Burden — Glatting Jackson
Tony Leonard — Local Government Commission (LGC)
Paul Zykofsky — LGC
Steve Tracy — LGC
Kendra Stevens — Downtown Solutions

Comments and Issues:

Main Street design project:

Caltrans wants to improve the quality of life in the cities. Narrow lanes and other changes may require a design exception from Caltrans, so that review should be planned for. Brawley should have development project environmental analyses look at Main Street impacts.
Caltrans will review the Main Street project report, which should have recommendations for with and without the bypass.

Caltrans will not allow any changes to Main Street until the bypass is complete, but there is a pedestrian crossing problem, but not a big one. Caltrans priority is keeping vehicle speeds up.

LGC projects increase safety, lower speeds, but improve vehicle flow. Many short-term safety improvements are cheap and won't hurt Caltrans operations.

Brawley was denied Post Office to City Hall crossing improvements because they were not allowed to work within the Caltrans ROW.

Caltrans removed some mid-block crosswalks we used to have. Caltrans feels mid-block crossings are an accident waiting to happen.

We need better connectivity downtown. It is hard to get across Main Street with 45 MPH traffic. We need high-visibility crosswalks. It is hard for cars to get across, also. The traffic signals are not coordinated for slower speeds.

Negative comments about the Main Street project in El Centro, and desire not to repeat those mistakes in Brawley.

Highway 111 Bypass:

Bypass completion is in ROW and engineering phase now, but plan for completion no sooner than late 2009. Citizens are concerned about the bypass, but generally in favor of it. There is also concern about the impact on sales tax revenues

when traffic is diverted to the bypass.

Downtown Brawley:

Desire for a family destination downtown like San Luis Obispo and other communities have. Downtown now is in sad shape. It needs outside seating. We don't have all-weather gathering places. Brawley needs a farmers market. Main Street is very dated.

The County has no responsibility in Brawley, but would like to see an activity center downtown with historic preservation, landscaping, and better maintenance.

Other Transportation:

Brawley needs pedestrian only signals, to implement the Bikeway Master Plan, and shuttle transit in addition to large buses. IVAG has short and long range transit plans that might bring people downtown. Shuttle service just started in El Centro. IVAG also has bike and pedestrian projects in the funding process.

Transit serves mainly the south side of Brawley: Main Street, J and K, not the north side.

Other Comments:

The Imperial Valley College Museum at 8th Street and Highway 111 has old photographs.

Drivers speeding and cutting through neighborhoods is an issue many places in the City.

EMERGENCY RESPONDERS FOCUS GROUP

Brawley Public Works Department Conference Room
October 13, 2006, 3PM

Attendees:

Oscar Rodriguez — Brawley City Manager
Mark Gilmore — Brawley Police Chief
Frank Contreras — Brawley Fire Chief
Dan Burden — Glatting Jackson, Inc., Walkable Communities
Steve Tracy — Local Government Commission

Comments and issues:

Typical vehicle speed in the central part of Main is 35 MPH.

The buildings downtown are old, burn easy, not seismic safe, prone to collapse. Bigger problem, they share a common soffit (attic) which allows fires to spread rapidly in the ceiling spaces above businesses.
Fire code requirements would require updating with retrofit? Building code does.
Issue with arcades and goods display? Yes, too much stuff, possibly ADA code violation.
As far as streets go, we block the whole block if there's a fire.
Doesn't want streets narrower, too narrow now with median.
Department parks across from fires.
Staff is 12 perm 10 co-paid, EMS too.
2 on crew on first response for "still call".