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Emmanuel Mekwunye, Project Manager

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Alicia Aguirre, City Councilmember
Peter Ingram, City Manager
Magda Gonzalez, Assistant City Manager

**Community Development Services Department**
Chu Chang, Acting Community Development Director
Peter Vorametsanti, Supervising Civil Engineer
Peter Delgado, Associate Engineer
Jill Ekas, Planning Manager
Blake Lyon, Senior Planning/Zoning Administrator
Susan Wheeler, Management Analyst II

**Parks and Recreation Services Department**
Teri Chin, Human Services Manager
Jodi Fernandez, Recreation Supervisor

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Marilyn Harang, Public Works Superintendent
Dave Larson, Public Works Supervisor

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Officer Jamie Mateo

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Beatriz Rodriguez, Community School Coordinator
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Maria Diaz Vivian, Chairperson

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**Consultant Team**
Diana Sherman, Project Manager, MIG
Colin Burgett, Transportation Analyst, Fehr & Peers
Maria Landoni de Rose, Urban Designer, MIG
Patricia Algara, Outreach Specialist, MIG

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Over the course of the mobility study, Agency and City staff and consultants conducted four rounds of outreach with community members from throughout the project area. Partners from the Multicultural Institute, Hoover School, the Boys and Girls Club, the Fair Oaks Senior Center, and the Fair Oaks Community Center also participated in the outreach process to reach residents across the community. Multiple means of outreach ensured that residents from across the community had opportunities to participate meaningfully in the planning process, which ultimately involved over 250 community members. Some residents attended only one meeting, while others participated in multiple outreach activities.

The first round of outreach and community workshops for the mobility study began in January 2008 and concluded in April 2008. The goal of these workshops and meetings was to gather critical information from the community on existing conditions, assets and opportunities, neighborhood vision and goals, and other information key to completing the existing conditions analysis and formulating project objectives. Round One workshops included a large kick-off community workshop, a mothers’ cafecito at Hoover School, youth workshops, and a lunch meeting with seniors.

The second round of outreach and community workshops for the mobility study began in late April 2008 and concluded in June 2008. Round Two set out to develop preliminary solutions and strategies to address the many concerns residents voiced.

A third round of workshops was held in fall 2008 to further explore and prioritize potential solutions. During Round Three, a second mothers’ cafecito, second church stakeholder workshop, and third large community workshop were held. At a final large community workshop held in December 2008, community members reviewed the draft mobility plan for the neighborhood.

community outreach process

Top: A resident presents her group’s findings on community needs.
Bottom left: Facilitators record group comments on flip charts.
Bottom right: Residents listen to a presentation about the project.
OUTREACH AND MARKETING
Community workshops and meetings were advertised in a number of ways, including:

- Emails to community lists;
- Notices on the City website;
- Hand delivered or mailed flyers to homes within the study area;
- Flyers to the parents of children at Hoover School and members of a local church;
- Advertisements through the Boys and Girls Club, the Fair Oaks Community Center, the Fair Oaks and Main Libraries, local businesses, and City Hall; and
- Media releases to the local press.

Targeted outreach for specific project events was also done through Hoover School, Iglesia San José Obrero, the Fair Oaks Senior Center, and the Redwood Village Neighborhood Association.

Translation and Interpretation
Because many residents in the project area speak Spanish at home, all workshop materials and advertisements were bilingual (or, in select cases, Spanish-only) to ensure that all members of the community felt included in the outreach process. The workshops and meetings used either asynchronous translation—side-by-side English and Spanish facilitators who took turns speaking—or were conducted entirely in Spanish or English, as appropriate to each group.

WORKSHOP PROCESS
Large Community Workshops
Each round of outreach included a large community-wide workshop where residents and other stakeholders from throughout the community could learn more about the project and participate in interactive exercises to help identify key concerns, refine ideas and generate new solutions.

Round One
The first community workshop, held from 6:30 pm to 8:30 pm on January 16, 2008, provided community members with an introduction to the mobility study and an opportunity to weigh in on key neighborhood needs and opportunities. The 20 community members who attended also participated in small group exercises conducted in English and Spanish to provide project team members with feedback on neighborhood assets, issues, and opportunities.

Round Two
The second community workshop was held from 10 am to 12 pm on Saturday, April 26, 2008 at the Fair Oaks Community Center. The workshop offered community members an opportunity to review and discuss the results of the first round of outreach and begin to craft solutions to some of the challenges identified.

At the second workshop, community members took part in a map exercise conducted simultaneously in Spanish and English. Staff and consultants facilitated the exercise, which asked participants to select cards that presented potential transportation...
solutions and to place these on a large map of the project area.

Potential solutions on the cards included the following:

- Pedestrian crosswalks or improved intersections and train track crossings
- Pedestrian lights, stop signs, and traffic slowing
- Improved sidewalks and street amenities such as trees, benches, sitting areas, trash cans, drinking fountains, and public art
- Bike lanes, transit, and bus stops
- Street lighting
- Other

Approximately 11 participants and six children attended the second workshop. Of these participants, most were Spanish-speaking. The participants were initially divided into one English-speaking small group and one Spanish-speaking small group for the exercise, but a member of the Spanish-speaking group requested that the participants all work together, given that they were all part of one community. The exercise was then modified to use synchronous translation.

At the workshop, a breakfast spread that included juice, coffee, bagels, and fruit was provided. Two child care workers led arts and crafts activities for young children in an adjacent room, while some older children chose to participate in the workshop.

**Round Three**

The third community workshop, held on October 29, 2008 from 6 to 8:30 pm at the Boys and Girls Club, invited participants to take part in a charrette-style exercise to design three key street segments that had been identified as particularly problematic through the earlier outreach processes. Four small groups—three conducted in Spanish and one in English—worked on maps of Charter Street near Hoover School, Middlefield Road, and Woodside Road at Middlefield Road. Consultants and staff reviewed proposed solutions to some of the challenges identified at previous meetings and workshops. Community members then built upon these ideas, suggesting alternative plans or additional areas to include on the maps. Each group worked together to shape a plan for the three streets. Approximately 21 adults and 11 teens attended the third community workshop. As at the second workshop, child care was provided in an adjacent room, and dinner was provided.

**Round Four**

The final community workshop, held on Thursday, December 11, 2008
from 6 to 8:30 pm at the Boys and Girls Club, provided an opportunity for the community to review staff and consultant recommendations for mobility improvements in the neighborhood based on the year of outreach activities and transportation studies. Nine adults and 14 youth attended the workshop.

Two of the street segments from the third round of outreach—the intersection of Woodside and Middlefield Roads and the intersection of Charter and Stambaugh Streets—remained focus areas in the final plan, while a third area, Chestnut Street, was added at the request of the community. Improvements along Middlefield Road itself were deemed less critical for overall community mobility, although many residents nonetheless pointed to these improvements as key quality of life factors.

At the final workshop, community members learned more about how different design decisions had been made, and had a chance to provide final feedback on the ideas presented. Dinner and child care were provided for participants as well.

**Youth Workshops**

On March 25, 2008, members of the study team met with youth from the Hoover Elementary School Leadership Program, the Park and Recreation Department after school program and the Boys and Girls Club Teen Group. The two English-language meetings were designed to gather input from youth to help shape the Hoover Area Connection mobility plan.

Specifically, the youth completed activities to provide input on three areas:

- Where do you live, play, and work? How do you get there?
- What are the community strengths and weaknesses?
- Where do you feel safe or unsafe?

The first workshop, with the Leadership Program and the Recreation Department, was with youth who were between the ages of eleven and fourteen. The second workshop, with the Boys and Girls Club, was with youth ages 13 to 21. In total, approximately 50 youth participated. The workshop was facilitated by the consultant team, with support from the youth group leaders.

**Mothers’ Cafecitos**

The project team also participated in two cafecitos with mothers of students attending Hoover School as part of the school’s monthly Spanish-language program for mothers. The first cafecito was held...
on April 4, 2008 from 9:30 am to 10:45 am, while the second was held on November 4, 2008 from 8:30 am to 9:30 am. Both cafecitos were conducted entirely in Spanish, with breakfast provided.

At the first cafecito, facilitators asked the women to consider a series of questions similar to those asked at the youth focus group:

- How do you get to and from the places you live, play and work (if you have jobs)?
- What would make getting to and from places for living, working, and playing easier?
- What are the best things about our community?
- What would you miss most if it were taken away?
- What is too far away or missing from our community?
- Where do you feel safe?

Facilitators also asked the women to discuss some of the concerns they had for their children and as female members of the community.

The second cafecito addressed solutions to many of the issues the women had identified at the earlier session. Facilitators brought maps of the neighborhood, and the women discussed three key areas: the intersection of Woodside and Middlefield Roads, Middlefield Road itself, and Charter Street, where Hoover School is located. The women also suggested additional streets for further study.

In all, over 20 women took part in each cafecito. Members of the consultant team facilitated the cafecitos, with support from the school family services staff.
Lunch with Older Residents
The fourth small-group meeting conducted as part of the first round of outreach was a lunchtime conversation at Fair Oaks Senior Center. Facilitators spoke in Spanish and English to older residents of the community to identify some of the unique needs of this population. The event was held on Friday, April 4, 2008 during the lunch hour, and 36 seniors participated in the conversations.

Stakeholder Workshops at Iglesia San José Obrero
To supplement feedback and ideas generated by the second community-wide meeting, members of the study team also hosted two conversation in Spanish at Iglesia San José Obrero, a church located at the edge of the project area. Fathers James García and Fabio Medina, the church’s past and present leaders, allowed the project team to hold two conversations after the church’s final Sunday services on May 2 and October 26, 2008, both from 12:45 to 1:45 pm. The church announced the events to parishioners at services on the two Sundays preceding each workshop. At the first workshop, 18 adults and 11 youth participated while 10 adults and 6 youth attended the second workshop. Many parishioners at the church live within or near the project area, and offered a number of creative ideas to meet transportation challenges in the neighborhood.

At the first church workshop, participants reviewed the maps created at the community workshop a week earlier and provided additional feedback on the improvement ideas using Post-It sticky notes.

The second church workshop provided an opportunity for participants to work with potential design and streetscape improvements in an exercise similar to the Round Three community-wide workshop exercise. Using a large map of the study area, participants placed key amenities, suggested improvements to problem areas, and provided other feedback to help shape the design of the Hoover Area.

Redwood Village Neighborhood Meeting
Redwood City staff also met with two representatives of the Redwood Village Neighborhood Association to ensure that residents from that area felt well represented in the mobility study. The small group meeting, held in English, occurred on Tuesday, June 10, 2008 from 6:30 to 8 pm.

Because the participants had not attended the first round of meetings for this project, staff asked them to address both the Round Two concerns and a series of questions used at the Round One meetings, which included:

- How do you get to and from the places you live, play and work (if you have jobs)?
- What would make getting to and from places for living, working, and playing easier?
- What are the best things about our community?
The group also brainstormed some creative outreach strategies to involved more residents from the Redwood Village neighborhood.

**Community Outreach Process**

The project team also participated in the 7th Annual North Fair Oaks Community Festival, a summer event held in the unincorporated area of San Mateo County in a neighborhood adjacent to the study area. The Redevelopment Agency sponsored a booth to inform and educate residents about the mobility study. An estimated 35,000 people attended the event, including many local residents. Over the course of the day, staff and consultants spoke with nearly 100 people about the project. Discussion focused primarily on a map of the study area and attendees were asked to share their thoughts about safety and mobility, particularly solutions to improve mobility for pedestrians and cyclists in the neighborhood. More than half of the festival attendees who stopped to learn about the project provided input, and 14 expressed interest in receiving more information, specifically about future project meetings and events.

**Community Survey**

A community survey was conducted at key neighborhood gathering spots in summer 2008. During August and September 2008, consultants asked residents a series of questions as they visited Hoover Park, local stores, and other community locations. Residents also had the option of completing the questionnaire at the Fair Oaks Community Center, Fair Oaks Library, Iglesia San José Obrero, or Hoover School. A total of 67 individuals participated in the survey; 23 participants completed the questionnaire in English and 44 in Spanish. Close to 75 percent of all respondents were female. To encourage survey participation, the project team awarded $50 Target gift cards to two randomly-selected participants.

**Survey Questions**

The survey, which was provided to residents in written form at community destinations but was also conducted orally, gathered key data such as age, gender, and street. Questions included:

- What is your primary means of transportation?
- What are your regular neighborhood destinations?
- How do you travel to destinations within the neighborhood? To Woodside Road?
- How often do you ride a bicycle within the neighborhood? Do you ride on the sidewalk or on the street?
- What are the biggest obstacles for bicycling in the area?

Above: At Iglesia San José Obrero, church members participate in a stakeholder conversation.
• Would you ride more often if bicycle lanes were provided?
• How often do you drive a car to destinations within the neighborhood? Please indicate any traffic concerns that you have in the Hoover area.
• How often do you walk to destinations within the neighborhood?
• How often do you cross Woodside Road on foot? Please indicate the times of day you typically cross Woodside on foot and the location where you typically cross during each time period.
• Is it convenient for you to use the Stambaugh Street pedestrian bridge to cross Woodside Road? At which location would you prefer to cross Woodside Road?
• How often do you ride public transit? Please indicate where you usually catch the bus or train.
• What kind of transit improvements would be most beneficial to you?
• What type of transportation improvements should be the top priority for improving mobility within the neighborhood?

Survey takers had an opportunity to record how they travelled to a series of common destinations: by automobile, by bicycle, by bus, or by foot. The survey also asked participants to indicate their regular destinations on a map and to note whether travel to those destinations required crossing Woodside Road. Those who walked or bicycled in the neighborhood were asked to list which streets they most frequently used.

ROLE OF OUTREACH RESULTS
Community outreach findings were used to identify the key community issues, obstacles, and opportunities in the Hoover Area. Residents had an opportunity to review the findings of meetings, surveys, and workshops both online and at subsequent outreach events. This information was then used to develop and refine potential physical and policy solutions to improve mobility in the neighborhood. Outreach findings are outlined in Chapter Four: Opportunities and Needs, while solutions developed from these findings are presented in Chapter Five: Suggested Mobility Solutions.
This chapter describes the existing transportation facilities (including the roadway network and transit, pedestrian, and bicycle facilities) serving the Hoover Area of Redwood City.

The assessment of existing mobility conditions in the Hoover Area is based on the following:

- Initial identification of mobility issues, concerns and priorities, identified by members of the community at the Round One Workshop held in January 2008.
- Observations of mobility conditions, conducted during site visits held on multiple days throughout the first two quarters of 2008.
- Review of previous transportation studies, transit service, and transportation facilities planned or proposed in the area.
- Traffic and pedestrian counts conducted at the Woodside Road/Middlefield Road intersection, and adjacent Stambaugh Street pedestrian bridge, on Thursday, March 13, 2008.

**ROADWAY NETWORK**

Figure 3-1 on the following page shows the boundaries of the Hoover Area in relation to the key roadways serving the neighborhood and adjacent areas.

**Internal Circulation**

The following roadways in the Hoover Area provide circulation within the neighborhood, to and from adjoining areas such as downtown Redwood City and connect with regional transportation facilities:

- **Charter Street** is a collector street that runs in an east-west direction between Middlefield Road and its terminus adjacent to US 101. Charter Street is the primary street serving Hoover School (kindergarten through eighth grade), and it is one of the primary streets providing access to Sigona’s Farmers Market and Costco. This roadway has one unmarked through-lane in each direction.

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Top: Pedestrians cannot legally cross at the intersection of Woodside and Middlefield Roads, but many do nonetheless.

Bottom: Signs warn bridge users of criminal activity.

Left: The Stambaugh Street pedestrian bridge.
FIGURE 3-1: KEY ROADWAYS
direction, with sidewalks and on-street parking on both sides.

**Chestnut Street** is a collector street that serves residential and industrial uses and runs in an east-west direction from El Camino Real to Veterans Boulevard. This roadway has the only at-grade pedestrian crossing of the Caltrain tracks bordering the Hoover Area, and also has at-grade train tracks (a “spur” from the main line to serve local industrial uses) in its median for most of its length. Chestnut Street has one through-lane in each direction, with sidewalks, intermittent center left-turn lanes and on-street parking. For most of the street’s length, an approximately two-foot wide raised curb is located on either side of the railroad tracks; the raised curbs change configuration at each intersection to allow for left-turning movements.

**Middlefield Road** is a major arterial street that serves as the primary commercial corridor within the Hoover Area and provides direct access to the Fair Oaks Library, Fair Oaks Community Center, Costco, Sigona’s Farmers Market, and other local establishments, as well as the main gateways to Downtown from the east side of the city. A number of residents also live along the Middlefield corridor. Middlefield Road runs in a north-south direction from Veterans Boulevard in Redwood City to Mountain View (to the southeast). It has one to two through-lanes in each direction, is served by two SamTrans bus routes, and has sidewalks. On-street parking is permitted on some segments, but not on the segments closest to the intersection with Woodside Road. Near the intersection with Woodside Road, a raised median is provided. Pedestrians who wish to cross Middlefield Road are currently limited to crosswalks at Chestnut Street (four blocks north of Woodside), Buckeye Street (two blocks north of Woodside) or Charter Street (three blocks south). The portion of Middlefield Road between Main Street and Woodside Road includes bicycle lanes in each direction.

**Manzanita Street** is a short local street that begins just west of Middlefield Road and terminates at Hilton Street, a small spur between Laurel and Manzanita Streets near the Boys and Girls Club. This roadway has one unmarked through-lane in each direction, with sidewalks and on-street parking on both sides.

**Spring Street** is a collector street that runs in a general north-south direction from Main Street to Bay Road. This roadway serves a mixture of residential and light industrial land uses, and also provides access to Hoover Park, the Boys and Girls Club, and Hoover School. At its intersection with Woodside Road, vehicles traveling north or south on Spring Street must execute a right-turn movement and merge with traffic on Woodside; those motorists wanting to cross Woodside Road to continue on Spring Street must utilize Bay Road or Middlefield Road. Similarly, pedestrians using this roadway cannot cross Woodside Road. This roadway has one through-lane in each direction, with sidewalks and on-street parking on both sides.

**MANZANITA STREET** is a short local street that begins just west of Middlefield Road and terminates at Hilton Street, a small spur between Laurel and Manzanita Streets near the Boys and Girls Club. This roadway has one unmarked through-lane in each direction, with sidewalks and on-street parking on both sides.

**Spring Street** is a collector street that runs in a general north-south direction from Main Street to Bay Road. This roadway serves a mixture of residential and light industrial land uses, and also provides access to Hoover Park, the Boys and Girls Club, and Hoover School. At its intersection with Woodside Road, vehicles traveling north or south on Spring Street must execute a right-turn movement and merge with traffic on Woodside; those motorists wanting to cross Woodside Road to continue on Spring Street must utilize Bay Road or Middlefield Road. Similarly, pedestrians using this roadway cannot cross Woodside Road. This roadway has one through-lane in each direction, with sidewalks and on-street parking on both sides.

**STREET CLASSIFICATIONS**

The current General Plan classifies streets in Redwood City in the following ways:

**Limited Access**: Multi-lane divided highways with full or partial grade separation of cross traffic, limited access roads are designed to accommodate many vehicles at high speeds.

**Hoover Area limited access road**: Woodside, El Camino Real

**Arterials**: Typically four to six lanes in width, arterials are designed to carry 10,000 to 50,000 vehicles per day. They run continuously through the city connecting with freeways, other arterials, and major employment and retail areas.

**Hoover Area arterial**: Middlefield

**Collectors**: These streets are usually two lanes, and connect neighborhoods to arterials and to one another.

**Hoover Area collectors**: Spring, Charter, Chestnut

**Local Streets**: Local streets primarily provide access to individual homes and businesses. These streets carry slow-moving traffic and are relatively short in length. Many are residential in nature.

**Hoover Area local streets**: Stambaugh, Manzanita, others
Spruce Street is a residential local street that directly borders Woodside Road on its northern side. The Stambaugh Street pedestrian bridge terminates on Spruce Street. To the west, a pedestrian ramp from Spruce Street, near Chew Street, provides access to a pedestrian crossing over the Caltrain tracks adjacent to Woodside Road.

Stambaugh Street is a local residential street that extends both north and south of Woodside Road. This roadway provides access to the Stambaugh Street pedestrian bridge, which is owned by the California Department of Transportation (Caltrans) and crosses over Woodside Road to connect the northern and southern portions of the neighborhood. Stambaugh Street has one unmarked through lane in each direction, with sidewalks and on-street parking on both sides.

Regional Access
Regional vehicle access to the Hoover Area is provided by the following Caltrans (State-owned) facilities:

Woodside Road (State Route 84) is a high-volume roadway that runs in an east-west direction from US 101 (to the east) to Interstate 280 (to the west), where it becomes a smaller roadway that continues until it splits into La Honda and Portola Roads in San Mateo County. Within the Hoover Area, this roadway has two through lanes in each direction and a raised center median. No on-street parking or sidewalks are provided. Pedestrians are prohibited from crossing at most locations within the Hoover Area, with the exception of...
the Stambaugh Street pedestrian bridge one block east of Middlefield Road at Stambaugh Street. Pedestrians are prohibited from crossing Woodside Road at grade at the intersection with Middlefield Road.

**US 101** is an eight-lane freeway that crosses over Woodside Road less than one mile east of the Hoover Area. US 101 is oriented in a north-south direction and connects San José and surrounding areas to the south with San Francisco and Marin County to the north.

**El Camino Real (State Route 82)** is a four- to eight-lane roadway that has intermittent on-street parking on both sides, with a raised median at its center. This is a regional-access roadway that extends from Santa Clara to Daly City, where it merges with Mission Street. Within the Hoover Area, this roadway has sidewalks on both sides, but has no dedicated bicycle facilities. El Camino Real is fronted by many commercial uses, and passes downtown Redwood City a short distance from the Caltrain Station. El Camino Real crosses Woodside Road at a grade-separated intersection that features an off-ramp that leads to westbound Woodside, while access to eastbound Woodside is via Hazel Avenue.

**Travel Characteristics**
Based on Census 2000 data derived from information on the census tracts that overlap the study area, approximately 14 percent of households in the area do not own a vehicle, which is twice the average in Redwood City. Of those without vehicles, walking, bicycling, and riding public transit are the primary ways of getting to and from school, work, and running errands.

According to the 2000 Census, approximately 11 percent of residents in the study area commute to work by walking or riding a bicycle on a regular basis, which is significantly higher than...
chapter three

FIGURE 3-2: PEDESTRIAN NETWORK

Hoover Area Connection: Linking for Your Neighborhood

LEGEND:
- Hoover Study Area Boundary
- Pedestrian Paths
- Pedestrian Barriers
- Stambaugh Pedestrian Overpass
- Spruce Street Pedestrian Ramp
- School
- Library
- City Hall
- Community Center
- Boys & Girls Club
the San Mateo County average of 0.7 percent and the Redwood City average of 4.6 percent. Similarly, 8.7 percent of residents utilize public transit when traveling to and from work, nearly twice the citywide average.

**WALKING IN THE COMMUNITY**

Pedestrian facilities within the Hoover Area include:

- Sidewalks on both sides of most roadways (but not on Woodside Road)
- The pedestrian bridge at the intersection over Woodside Road at Stambaugh Street
- Pedestrian signals at several locations
- Pedestrian paths between buildings, within parks and other public facilities, and within parking lots
- Streetlights on portions of some streets in the area (but generally lacking on neighborhood streets near Hoover School)

As the legal pedestrian crossing over Woodside Road, the Stambaugh Street pedestrian bridge is of particular importance to this study. The current bridge was constructed following the passage of a 1965 City resolution highlighting the need for safe pedestrian access across Woodside Road. The structure is aging, lacks adequate signage and lighting, and is not fully ADA compliant, although some ramps are provided. In addition, the design of the bridge creates concerns around visibility and safety both on and near the bridge. Whether the bridge is seismically sound is not known.

Although a significant number of residents within the Hoover Area utilize walking as their primary transportation mode for trips to work, to school, to run errands, and for other purposes, pedestrians face many challenges. There are several busy roadways that bisect this neighborhood, forming natural barriers for most walking trips. In addition, ADA-compliant paths and curb ramps are lacking on some routes. At some locations, telephone poles obstruct pedestrians on narrow sidewalk segments (such as on Middlefield Road near Woodside Road).

**Pedestrian Paths and Barriers**

Figure 3-2, opposite, shows the pedestrian network and barriers to pedestrian movement within the Hoover Area. As shown, the neighborhood is served by a grid of streets that includes sidewalks that provide circulation for pedestrians. However, the two major streets bisecting the Hoover Area—Woodside and Middlefield Roads—also serve as barriers to pedestrian movement, as do the existing conditions.

Above: Because parking in the neighborhood is difficult and there are no clear curbs on some streets, residents often park on sidewalks, making pedestrian access extremely difficult.
adjacent railroad tracks to the west. Since provisions for pedestrian circulation across these two streets are limited to just a few locations (in some cases, spaced more than one-quarter mile apart), the Hoover Area is essentially divided into four quadrants, with limited connections between each.

BICYCLING IN THE COMMUNITY

Bicycle Facilities

Types of Facilities

Bicycles may travel on all public roads (including all streets in downtown Redwood City and adjacent neighborhoods) except where they are specifically prohibited (such as on sidewalks or designated highway or freeway segments). Dedicated bicycle facilities, known as “bikeways,” are often provided to help facilitate bicycle travel. The three main types of bikeways defined by the Caltrans Highway Design Manual (Chapter 1000, Bikeway Planning and Design):

- **Class I bicycle paths**, or multi-use trails, provide for bicycle travel on a paved right of way that is separated from motor vehicle travel.
- **Class II bicycle lanes** use lane striping to delineate a travel lane (generally five feet wide) for exclusive use of bicyclists, accompanied by signage and lane markings.
- **Class III bicycle routes** are facilities in which bicyclists share travel lanes with motorists, and are designated by signage only. Class III bicycle routes should follow the superior through route for cyclists. Curb lanes that are wider than standard are often provided, unless roadway volumes are relatively low such that additional width is unnecessary.

Existing Facilities

Figure 3-3 on the opposite page shows existing and proposed bikeways serving the area. As shown, there is one currently designated bicycle route within the Hoover Area (Class II bicycle lanes on Middlefield Road, between Cassia Street and Woodside Road). In addition, several streets near the Hoover Area are striped with Class II bicycle lanes and provide access to the area for cyclists:

- Bicycle lanes are provided on Arguello Street, north of Brewster Avenue, on both sides of the roadway that continue for just over one-quarter mile, terminating at the intersection of Arguello Street and Whipple Avenue.
- Bicycle lanes are also found on Main Street, from Veterans Boulevard to Brewster Avenue. At the intersection of Main Street and Brewster Avenue, the bicycle lanes shift onto...
FIGURE 3-3: BIKEWAYS

DESIGNATED BIKEWAYS
Brewster Avenue and terminate at Veterans Boulevard, forming a half-loop pattern.

- Hopkins Avenue has four-foot bicycle lanes on both sides of the roadway that extend just less than one mile, from El Camino Real to Nevada Street, and one side of the roadway between Duane and Elwood Streets. (This portion of Hopkins Avenue becomes one-way eastbound, with a bicycle lane on the northern side.)
- Broadway Street, between Brewster Street and Hopkins Avenue, has four-foot bicycle lanes in both directions that connect with the bicycle lanes on Hopkins Avenue.

Proposed Facilities

The Costco planned improvements on Middlefield Road, between Woodside Road and Charter Street, include a striped shoulder on both sides of Middlefield Road. Although this shoulder will be less than five feet wide—not wide enough to be designated as a Class II bike lane—it will provide space on the roadway that could be used by cyclists desiring greater separation from adjacent motor vehicle traffic.

ACCESS TO PUBLIC TRANSIT

Two transit agencies provide public transit within or near the Hoover Area, as do several other service providers:

- The San Mateo County Transit District (SamTrans) operates buses, shuttles, and Redi-Wheels paratransit service throughout San Mateo County in addition to providing bus service to and from downtown San Francisco.
- The City of Redwood City operates a free, on-demand shuttle service, launched in June 2008, that provides residents with door-to-door shuttle service to address mid-day transportation needs in the Hoover Area, Fair Oaks Community and surrounding area. The service is funded by the City, the Metropolitan Transportation Commission, and City/County Association of Governments of San Mateo County, and is a pilot program to serve the transportation needs of low income residents.
- The Fair Oaks Intergenerational Senior Center facilitates Redi-Wheels transportation for qualifying seniors and disabled individuals to travel to and from their homes to the center.
- Caltrain is an intercity commuter rail line that operates along the San Francisco Peninsula, with San Francisco at its northern terminus and Gilroy at its southern terminus. Caltrain is jointly funded by the San Mateo County Transit District, the City
FIGURE 3-4: PUBLIC TRANSIT

Hoover Area Connection: Linking for Your Neighborhood
and County of San Francisco, and the Santa Clara Valley Transportation Authority via the Peninsula Corridor Joint Powers Board. Average system-wide weekday ridership in February 2008 was approximately 33,840 daily riders.

Figure 3-4, opposite, provides a map of existing transit routes serving the study area.

**Bus Service**

Bus service within the project study area is provided by SamTrans, which operates local, express, and BART- and Caltrain-bound bus routes. Each bus route operating within or near the Hoover Area is described below:

- **Route #296** provides service between the Redwood City Caltrain Station and East Palo Alto. Buses operate every 30 minutes on weekdays, with service beginning at 6:15 AM and terminating at 10:15 PM. Route #296 also provides Saturday and Sunday service, with buses running once per hour from 10:00 AM to 7:00 PM.

- **Route #297** provides once-hourly “night owl” service between Redwood City and Palo Alto, from 10:45 PM to 4:45 AM. This route runs parallel to SamTrans Route #397, which continues on to San Francisco. Early morning and late evening weekend service is provided on an hourly basis from 3:45 AM to 7:45 AM, and from 6:45 PM to 11:45 PM.

- **Route #397** provides “night owl” service from Palo Alto to downtown San Francisco, with stops in Redwood City, San Carlos, San Mateo, Burlingame, Millbrae, San Francisco International Airport, and Brisbane. This bus route provides connections to Caltrain stations from Palo Alto to the south to the Transbay Terminal to the north. This route provides approximately three buses in each direction between the hours of 1:30 AM and 3 AM on weekdays, as well as on weekends.

- **Redwood City’s free, on-demand community shuttle service** operates Tuesday through Saturday from 10 am to 5 pm in the eastern part of Redwood City, which includes Downtown Redwood City, Hoover Area/Fair Oaks, Friendly Acres, Kaiser Hospital, Marsh Manor, Redwood Village and Stambaugh/Heller. The service also includes two stops outside of the eastern part of the city at the Veterans Memorial Senior Center and Woodside Plaza.

Additional bus routes operating near the Hoover Area include:

- **Route #270** provides service within Redwood City, with stops at the Redwood City Caltrain Station, City Hall, Kaiser Hospital, Seaport Village, and Harbor Village. Weekday bus service runs once per hour from 6:35 AM to 4:35 PM, and once per hour between 5:10 PM and 6:10 PM. Saturday service is provided once per hour between 9:35 AM and 5:35 PM.

- **Route KX** provides express and local bus service from Palo Alto to downtown San Francisco, with stops in Redwood City, San Carlos, Belmont, and San Francisco International Airport.
Weekday headways on this route average 30 minutes to an hour, with service beginning at 5:00 AM and terminating at 11:40 PM. This route provides weekend service as well, with average headways of 30 minutes to an hour, from 6:15 AM to 10:00 PM.

- Route PX provides express bus service during the AM and PM peak periods, from Redwood City to downtown San Francisco, with stops in San Carlos, Belmont, and San Mateo. AM services run northbound every 30 minutes beginning at 5:45 AM and terminating at 7:15 AM, while PM service runs southbound every 30 minutes beginning at 3:45 PM and terminating at 5:20 PM.

- Route RX provides express bus service from Palo Alto to downtown San Francisco, with stops in Redwood City, San Carlos, Belmont, and San Mateo. This route shares many of the same stops with Route PX, but runs only once during the AM and PM peak periods, traveling northbound from Palo Alto at 6:30 AM and returning from downtown San Francisco at 5:00 PM.

- Route #271 provides service within Redwood City, with stops at the Redwood City Caltrain Station, in Westwood Terrace, Roosevelt, downtown Redwood City, County Government Center, and Woodside Plaza. Service headways range between 30 minutes and one hour, with service beginning at 6:30 AM and terminating at 6:30 PM.

- Route #274 provides service within Redwood City, from the Redwood City Caltrain Station to Cañada College. Weekday service runs every 30 minutes, beginning at 6:15 AM and terminating at 10:15 PM, while Saturday service runs once per hour from 8:00 AM to 5:00 PM.

- Route #295 is a provides service to and from San Mateo, Belmont, San Carlos, Redwood City, and Menlo Park, with stops at each service city’s Caltrain station. Average headways on this route equal one hour, with service beginning at 6:00 AM and terminating at approximately 7:50 PM.

- Route #72 provides local service to the Woodside Plaza Shopping Center, with stops in Redwood City, Fair Oaks, Marsh Manor, and Atherton. Limited service is provided along Connecticut and Serrano Drives. This route runs on weekdays only, with one-time service during the 8:00 AM hour, and approximately five buses running from 1:45 PM to 3:45 PM.
Caltrain
Caltrain provides rail service from San Francisco to San José (with additional commute-hour service to Gilroy). The Hoover Area is located approximately one-half mile from the Redwood City Caltrain station located on James Avenue, adjacent to a large retail shopping plaza. This station is the fifth busiest station in the Caltrain network, accounting for 5.7% of all weekday Caltrain trips (1,929 daily riders). Approximately 80% of all weekday Caltrain trips are taken during the AM and PM peak periods. If ridership patterns at the Redwood City Caltrain station mimic system-wide patterns, then approximately 1,540 of the station’s daily riders utilize the station during the AM and PM peak hours.

Trains serve this station approximately twice per hour between 5:00 AM and 11:00 PM, with three additional “Baby Bullet” (express) trains providing express service during the AM and PM peak periods.
This section provides an assessment and recommendations pertaining to the key issues constraining mobility within the Hoover Area. Key issues were identified based on public input, meetings with Agency and City staff, and field observations, and are presented graphically in Figure 4-1 on the following page. Residents also identified desired mobility improvements, which are presented in Figure 4-2 on page 27.

**KEY ASSETS AND CHALLENGES**

During the public outreach process, Hoover Area residents identified key assets and challenges in their community. Key assets related to mobility include:

- Many destinations and services are located within walking distance, including Hoover School, the Fair Oaks branch of the Redwood City Public Library, Hoover Park, clinics, and local stores
- Limited through streets help to reduce the volume of through-traffic on local residential streets
- The Hoover Area is conveniently located near downtown Redwood City
- The neighborhood has a strong sense of community and a vibrant culture

Residents identified the following key challenges:

- The design and location of the Stambaugh Street pedestrian bridge
- Barriers to connectivity, such as Woodside Road and the railroad tracks
- Lack of bicycle and pedestrian access to downtown Redwood City and El Camino Real
- Poor pedestrian connections across Middlefield Road
- The lack of information and bilingual signage at bus stops
- Limited access to banks and financial services, health care, grocery stores and other shopping, community facilities, and other services
- Bicycle safety, security, and access

Above: The Boys and Girls Club is a popular community destination for youth, but pedestrian access is difficult.

Left: Bus information and signage is provided only in English.
FIGURE 4-1: COMMUNITY-IDENTIFIED ISSUES AND OPPORTUNITIES

Community Workshop Summary of Issues and Opportunities

Redwood City: Hoover Area Connection

Revised 06-25-08
FIGURE 4-2: COMMUNITY’S IMPROVEMENT WISH LIST

Community’s Improvement Wish List

Redwood City Redevelopment Agency - Hoover Area Connection: Linking for Your Neighborhood

Revised 12-18-08
• Walking concerns, including problematic or lack of crosswalks and intersections, inadequate sidewalks, and lack of streetscape amenities
• Driving and parking concerns, especially residential parking availability, parking violations, and speeding
• Lack of safety at parks and public spaces
• Youth safety and gang problems
• Infrequent or unreliable public transit service

MAJOR COMMUNITY NEEDS
The following major community needs were identified during the extensive outreach process. Each need is addressed in more detail in the sections that follow. Key needs include:
• Safe crossing of Woodside Road
• Safe crossing of Middlefield Road
• Safe crossing of railroad tracks
• Bicycle safety and access
• Public transit improvements
• Safer conditions for all who move through the community, particularly for pedestrians

CROSSING WOODSIDE ROAD
Woodside Road represents a significant barrier to travel within the Hoover Area. Pedestrians are prohibited from crossing Woodside Road at the ground level within the Hoover Area, even at the signalized intersection with Middlefield Road. Instead, pedestrians are required to cross Woodside Road by using the pedestrian bridge located on Stambaugh Street adjacent to Woodside Road. However, survey findings during this study revealed that the majority of community residents cross Woodside Road illegally at the Middlefield Road intersection. Over half of survey respondents noted that the pedestrian bridge was not convenient for them because it was significantly out of their travel path, a sentiment echoed by workshop participants throughout the outreach process. Safety was also identified as a major concern on the bridge.

Based on the survey, most community residents must cross Woodside Road in order to get to places of employment, services, transit, and other destinations. Currently, residents either walk across illegally or drive in order to cross safely.

Figure 4-3, opposite, summarizes the key issues facing pedestrians crossing Woodside Road on the Middlefield corridor—particularly due to lengthy crossing distances—and presents the results of traffic volume counts that were conducted in March 2008. Volume counts were conducted of motor vehicles, bicyclists and pedestrians during the AM (7:00–9:00) and PM (4:00–6:00) periods at the Woodside Road/Middlefield Road intersection and on the Stambaugh Street pedestrian bridge. The peak hour volume was determined for each travel mode.

Travel Mode for Trips Across Woodside Road
Based on the volume counts described above, the volume of traffic crossing Woodside Road within the Hoover Area was determined. Excluding vehicles entering or exiting the
For pedestrians on the west side of Middlefield Road, the walking distance from Spruce Street to Manzanita Street is approximately 3,800 feet (via the Stambaugh Street pedestrian bridge, with crossings of Middlefield Road at Buckeye Street and Charter Street crosswalks), or 260 feet (following a direct path that requires an illegal crossing of Woodside Road).

Pedestrians prohibited from crossing Woodside Road. To reach the pedestrian bridge, pedestrians must first cross Middlefield Road. Nearest marked crosswalk is located 970 feet to the southeast at Charter Street.

For pedestrians on the east side of Middlefield Road, the walking distance from Spruce Street to Manzanita Street is approximately 1,380 feet (via the Stambaugh Street pedestrian bridge), or 230 feet (following a direct path that requires an illegal crossing of Woodside Road).

For pedestrians on the east side of Middlefield Road, the walking distance from Spruce Street to Manzanita Street is approximately 1,380 feet (via the Stambaugh Street pedestrian bridge), or 230 feet (following a direct path that requires an illegal crossing of Woodside Road).

Pedestrians required to use crosswalk at Buckeye Street.
neighborhood via Woodside Road, the counts indicated that 614 vehicles crossed Woodside Road on Middlefield Road during the AM peak hour, while 759 vehicles crossed during the PM peak hour. Pedestrians crossing Woodside Road via the Stambaugh Street pedestrian bridge during the same periods averaged 215 during the AM peak hour and 106 during the PM peak hour. In addition, field observations indicate that some pedestrians regularly bypass the pedestrian bridge and take a more direct route by crossing illegally at the Woodside Road/Middlefield Road intersection at-grade. An average of seven pedestrians during the AM peak hour and nine pedestrians during the PM peak hour illegally cross the intersection. Including those pedestrians, a total of 222 pedestrians cross Woodside Road during the AM peak hour, and 115 pedestrians cross during the PM peak hour.

As shown in Table 4-A on the opposite page, this equates to a pedestrian mode share of 26 percent and 13 percent of AM and PM peak hour traffic, respectively, while bicyclists represent 2 percent of traffic during the same periods. These data indicate that a significant share of trips across Woodside Road occur on foot (approximately one fourth of north-south trips during the AM peak hour). Since these mode split data also include vehicle trips that begin and end out of the area, it is likely that the mode share for internal trips (within the Hoover Area) would include an even higher share for pedestrian trips.

Stambaugh Street Pedestrian Bridge
The Stambaugh Street pedestrian bridge was constructed approximately four decades ago and is owned by the State highway department (Caltrans). The bridge was initially constructed in response to community outcry for an above grade access point because residents felt unsafe walking at-grade across Woodside Road. However, the location and design of the bridge created new problems, including crime, safety concerns, and homeless encampment issues. The bridge has a number of constraints, including:

1) **Distance from Middlefield Road**: The pedestrian bridge is approximately 430 feet from the intersection of Woodside and Middlefield Roads. According to feedback gleaned from local residents at public meetings, it is too far out of the way to be
considered practical. The overcrossing is approximately one and one-half blocks from the Woodside Road/Middlefield Road intersection; pedestrians must therefore go at least three blocks out of their way (one and one-half blocks to and from the bridge on either side) to use the overcrossing instead of crossing at the intersection. Because pedestrians are prohibited from crossing Middlefield Road at its intersection with Woodside Road, however, the walking distance is actually greater, as the nearest crosswalk is located on Laurel Street two blocks away.

2) **Crime, loitering and vandalism:** Police reports indicate that criminal activity and loitering occurs on the bridge, including drug dealing and reported muggings. In addition, existing pedestrian lights are frequently broken. This creates an intimidating and unsafe environment for local residents who depend on the bridge as their primary means of crossing Woodside Road. In particular, many participants at community workshops, particularly women with young children, indicated that they avoided using the bridge because they felt unsafe on it.

3) **Bridge design:** The pedestrian bridge contains multiple switchbacks that result in lengthy crossing distances, and blind corners that contribute to concerns about personal safety. For pedestrians traveling to and from the northeastern side of the intersection, the walking distance from Spruce Street to Manzanita Street is approximately 1,380 feet, as measured by walking over the Stambaugh Street pedestrian bridge. This same trip would require a walking distance of 230 feet if an at-grade crosswalk were available at the intersection. Pedestrian crossing distances between these locations are significantly longer using the pedestrian bridge because:

- The nearest marked crosswalks on the southern side of the intersection are located 970 feet south of Woodside Road, at Charter Street;
- The pedestrian bridge is located 430 feet east of Middlefield Road. For many pedestrians, this requires an additional walking distance of 860 feet, when considering the walk to the bridge and back to Middlefield Road once they’ve crossed the bridge;
- Lighting and signage for the bridge are poor, especially at night; and
- Switchbacks on both sides of Woodside Road add approximately 400 feet to

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¹The information reported includes all northbound and southbound traffic only.
²Total for the Stambaugh Street bridge and at-grade crossings at the Woodside/Middlefield intersection (including illegal pedestrian crossings).

FIGURE 4-4: MIDDLEFIELD ROAD—DISTANCE BETWEEN MARKED CROSSWALKS
pedestrian crossing distance when using the pedestrian bridge.

**Intersection of Woodside and Middlefield Road**

The Woodside Road/Middlefield Road intersection is used as a local and regional thoroughfare for those traveling to and from US 101 and Interstate 280 as well as through the City of Redwood City to surrounding areas. The high traffic volumes on Middlefield and Woodside Roads, however, present an obstacle to pedestrians who need to cross these roads to access the schools, jobs, stores, services, and places of worship that are located on either side of the intersection.

As shown in Figure 4-4 on the previous page, pedestrians traveling along the west side of Middlefield Road, between Spruce and Manzanita Streets, must walk a distance of approximately 3,800 feet, as measured by walking from Spruce Street to Manzanita Street via the Stambaugh Street bridge, with at-grade crossings of Middlefield Road via crosswalks at Buckeye Street to the north and Charter Street to the south. If at-grade crosswalks were installed on all legs of the Woodside Road/ Middlefield Road intersection, this same trip would be reduced to just 260 feet to get from the northern to the southern edge of the intersection (reducing over half a mile from the trip).

**Traffic Signal Phasing and Pedestrian Crossing Time**

Traffic signal phasing for this intersection is provided on Figure 4-4. A key reason for the prohibition on pedestrian crossings at the Woodside Road/Middlefield Road intersection is the lengthy crossing distance (103 feet for the east leg) that requires 30 seconds to cross at a walking speed of 3.5 feet per second. Since the traffic signals are set to facilitate east-west movement on Woodside Road, the amount of “green time” allocated to side-street movements from Middlefield Road is not adequate to allow pedestrians to cross.

Accommodating at-grade pedestrian crossing at the Woodside/Middlefield intersection would require one of the following measures:

1) Increase the amount of “green time” when pedestrians are crossing (which would impact upstream traffic operations at the Woodside/101 interchange); or

2) Reduce the pedestrian crossing distance, so that pedestrians can make it within the allotted amount of “green time.”

**Traffic Operations**

In order to assess the likelihood of traffic impacts resulting from a change to signal operations at the Woodside Road/Middlefield Road intersection, an analysis of traffic operations was conducted. Traffic operations are typically described in terms of “Level of Service” (LOS). LOS is a qualitative measure of the effect of several factors on traffic operating conditions, including speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort, and convenience. It is generally measured...
quantitatively in terms of vehicular delay and described using a scale that ranges from LOS A to LOS F, with LOS A representing free-flow conditions and LOS F representing over-capacity conditions with substantial congestion and delay.

Redwood City considers intersections to operate acceptably at LOS D or better, while San Mateo County requires that Woodside/Middlefield intersection operate at LOS E or better as part of the Congestion Management Program.

LOS was analyzed using methods described in the 2000 Highway Capacity Manual (HCM). At signalized intersections, LOS is based on “control delay,” which is defined as the delay directly associated with the traffic control device (e.g., a stop sign or a traffic signal) and specifically includes initial deceleration delay, queue move-up times, stopped delay, and final acceleration delay. These delay estimates are considered meaningful indicators of driver discomfort and frustration, fuel consumption, and lost travel time. Table 4-B, above, presents the relationship between LOS and control delay for signalized intersections.

Table 4-C, presented on the opposite page, shows the existing and future LOS at the Woodside Road/Middlefield Road intersection. As shown, the intersection operates at LOS D during the AM peak hour. During this period, those motorists approaching from the north or south on Middlefield Road experience the greatest amount of vehicle delay. During the PM peak hour, this intersection operates at LOS E, with the longest vehicle delays occurring on the northbound approach. Future (year 2020) forecasts developed during a previous study of the proposed Costco expansion anticipate intersection operations will degrade to LOS F due to increased through traffic on Woodside Road. As a result, operations would fail to meet Redwood City or San Mateo County standards.

**CROSSING MIDDLEFIELD ROAD**

Middlefield Road is a primary circulation route for pedestrians within the Hoover Area, given the many destinations on the
corridor. However, this roadway also presents another major barrier to pedestrian movement, given the lengthy distances between marked crosswalks. As a general rule, in areas with significant volumes of pedestrians, the nearest pedestrian crossing should be within 300 feet.

Figure 4-4 shows the distance between the existing and planned marked crosswalks on Middlefield Road. As shown, marked crosswalks are as much as 1,400 feet apart, forcing pedestrians desiring to cross at a marked and/or controlled crosswalk to walk up 700 feet.

CROSSING THE RAILROAD TRACKS
An additional constraint noted by Hoover Area residents at the community workshops is the lack of access to El Camino Real. Crossing the Caltrain tracks at grade is limited to just one location, at Chestnut Street (at the northwest corner of the Hoover Area). A grade-separated crossing is provided adjacent to the Woodside Road overpass. However, since there are no sidewalks along Woodside Road, access to the overpass requires use of a steep pedestrian ramp from Spruce Street. Due to the grade, this ramp does not provide adequate access for persons with disabilities. Furthermore, public input received at the final workshop in December indicated that some members of the public prefer to walk on the shoulder of the roadway, rather than on the pedestrian overpass, since the pedestrian overpass is difficult to access from adjacent streets, and is not visible from the adjacent roadway.

COLLISION LOCATIONS
Figure 4-5 on the following page shows the number of collisions that have been reported at locations on Woodside and Middlefield Roads from 1997 to 2007. Most of the collisions recorded in the study area involved motor vehicle collisions, primarily rear-end collisions approaching signalized intersections such as Woodside Road/Middlefield Road.

As shown, the majority of collisions occur at or near intersections, with the exception of instances involving pedestrians which occurred at mid-block locations. The lack of marked crosswalk locations on the Middlefield corridor may, in some cases, lead to an increased tendency to cross mid-block, rather than at an intersection. A review of the collision data indicated that:

- 687 collisions were reported during that period that were limited to motor vehicles colliding with other motor vehicles or fixed objects (an average of just over 60 collisions per year)

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FIGURE 4-5: COLLISION LOCATIONS

REPORTED COLLISION LOCATIONS
MIDDLEFIELD AND WOODSIDE ROADS (1997-2007)

Hoover Area Connection: Linking for Your Neighborhood
• 21 motor vehicle/bicycle collisions were reported (an average of two per year)
• 12 motor vehicle/pedestrian collisions were reported (an average of one per year)

The greatest number of motor vehicle/bicycle collisions were reported on Middlefield Road near the Woodside Road intersection (a total of 8 collisions, an average of nearly one collision per year). As noted previously, there are no bicycle lanes within the project study area, although lanes were recently striped on Middlefield Road between Woodside Road and Cassia Street.

BICYCLES

Despite the relative lack of officially designed bicycle facilities, bicyclists may not feel quite as constrained in the Hoover Area as pedestrians. This is primarily because bicyclists have the same rights and responsibilities as motor vehicle operators, and therefore, are not excluded from crossing at-grade intersections such as Woodside Road/Middlefield Road. However, many cyclists likely feel intimidated by riding on many of the roads in the study area because of high traffic volumes—particularly at the intersection of Woodside Road/Middlefield Roads. These roadways are wide and have very few access points across them, and due to the absence of bike lanes or extra-wide curb lanes, cyclists may be reluctant to ride on these streets.

Cyclists face many of the same concerns that pedestrians do when using the Stambaugh Street pedestrian bridge. Additionally, because of the relatively steep grade and the numerous switchbacks required to ascend and descend the bridge, many cyclists may prefer to cross at grade. Field observations confirm this, as over one-third of the cyclists crossing Woodside Road used Middlefield Road, rather than the Stambaugh Street bridge.

Residents attending community workshops during the study expressed the sentiment that the Hoover Area is a “bicycling and walking community.” However, many residents feel that it is not safe to ride in the area, and identified the following key constraints to cycling:

• Lack of bicycle lanes on streets such as Middlefield Road
• Unsafe bicycle riding; some residents recommended education programs to promote safe riding

Above: In order to reach the pedestrian crossing of the railroad tracks adjacent to Woodside Drive, pedestrians must first climb this steep ramp from Spruce Street.
• Lack of bicycle parking at Hoover School creates a disincentive for students to ride their bikes

PUBLIC TRANSIT
Within the Hoover Area, pedestrian circulation is a key constraint to transit access. Many of the same constraints identified earlier in this report with respect to pedestrian barriers also create barriers to transit access, since residents generally walk to and from bus stops. Furthermore, narrow sidewalks (particularly on the east side of Middlefield Road) and lack of curb ramps further inhibit transit access in some cases.

Additional public transit-related constraints identified by community members during the public outreach process include:
• Lack of safety on buses
• Inconvenient bus routes, stop locations, and scheduling
• Added time required for bus travel
• Lack of bus schedules or maps in Spanish
• Difficulty understanding the bus system

ADDITIONAL NEEDS
In addition to these needs, residents at the community outreach gatherings identified a number of additional priority issues:
• Gang activities
• Safety for children, especially near schools and parks
• Street lights
• Traffic calming on side streets
• Code enforcement
• Parking enforcement

Participants also raised concerns about overall connectivity within the neighborhood and to shopping and schools; traffic congestion; street amenities; maintenance of parks; traffic congestion; needed stop signs and stoplights; and more.
This chapter presents conceptual design recommendations and policy solutions for improving pedestrian and bicycle circulation in the Hoover Area, including provision of an at-grade pedestrian crossing at the intersection of Middlefield and Woodside Roads. General solutions for walking, bicycling, and transit are presented first, followed by location-specific design solutions for Charter and Stambaugh Streets; Woodside and Middlefield Roads; and Chestnut Street.

Based on the existing conditions assessment, the analysis of community needs, a review of the principles of Crime Prevention Through Environmental Design (CPTED), and extensive community engagement, consultants and staff worked with community members to develop the following suggestions for improving mobility in the Hoover Area. Some recommendations address specific concerns presented by community members, while others propose design solutions for key streets and intersections. Areas identified for improvement by residents are presented in Figure 5-1 on page 41.

CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN
Underlying many of the suggested improvements are the Crime Prevention Through Environmental Design (CPTED) principles. Throughout the mobility study, CPTED principles were considered and applied wherever possible to create a safer physical environment.

Key CPTED principles present in the following plans and policies are:

- **Eyes on the Street**: Using design, lighting, landscaping, and activity to ensure that public spaces are visible from buildings and other areas wherever possible.

- **Defensible Space**: Clearly delineating public and private space, eliminating
hiding spaces, and promoting maintenance and upkeep so that spaces are “owned” by the community.

- **Pathways:** Providing clear signage and lighting and connecting sidewalk and street grids wherever possible so that residents have safe, obvious, and visible direct routes to their destinations.

- **Access Control:** Providing single points of entry for key neighborhood destinations, and ensuring that other entrances or private areas are made inaccessible and protected.

- **Maintenance:** Caring for the neighborhood, working to deter graffiti and vandalism, and correcting unsafe conditions to provide residents with a strong sense of community.

- **User-Sensitive Design:** Creating designs and policies to acknowledge and accommodate common paths and uses of space and eliminate incompatible activities so that residents feel safe and welcome in all areas of the neighborhood.

**BICYCLING IMPROVEMENTS**

Based on community input, the project team developed the following suggestions to improve neighborhood mobility. A number of improvements could benefit bicycling in the neighborhood, enhance bicycle circulation, and make streets more amenable to cyclists.

**Specific Solutions**

- Improve the existing and planned bicycle lanes on Middlefield Road south of Woodside Road. Near the intersection with Woodside Road, “high-visibility” bicycle lanes could be provided for one block north and south of Woodside Road. The planned Costco improvements will improve a narrow, striped shoulder between Manzanita and Charter Street. Potentially, the planned shoulder could be utilized by cyclists, while future improvements could include consideration of widening the shoulder to a width of five feet (thus meeting standards for a Class II bicycle lanes. Additional details related to the accommodation of bicycle lanes are provided in the following section.

- Develop a bicycle education program, such as a “bike rodeo,” which uses a series of bike handling drills and the simulation of traffic situations to teach children about helmet usage, basic safety strategy, laws and regulations. This program could be administered by Hoover School or by one of the local community centers or the Boys and Girls Club. Federal funding for such programs could be pursued through development of a “Safe Routes to School” plan.

- Pursue funding for bicycle parking. Parking could be installed at public locations such as the school, library, park and community center, as well as sidewalk locations near businesses on Middlefield Road.

- Install bicycle lanes or a designated bicycle route along Woodside Road to connect existing bicycle networks to and from Downtown Redwood City. Additional details related to the accommodation of bicycle lanes are provided in the sections on specific street improvements.
FIGURE 5-1: IDENTIFIED IMPROVEMENT AREAS

LEGEND
- Project Area
- City Boundary
- Improvement Area
- Stambaugh Pedestrian Bridge

Potential mobility solutions

Improvement Areas
Redwood City: Hoover Area Connection
Revised 12-10-08
WALKING IMPROVEMENTS

Overall Goals
- Improve visibility of pedestrian crosswalks near Hoover School and along Chestnut Street and Middlefield Road.
- Ensure that all sidewalks in the community are ADA-accessible and in good repair.
- Employ traffic calming measures on Chestnut, Stambaugh, and Charter Streets.
- Improve the existing railroad crossing near Woodside Road.

Specific Solutions
- Provide marked crosswalks and pedestrian signals at additional locations on the Middlefield corridor, including the intersection with Woodside Road as outlined later in this report.
- Develop a “Safe Routes to School” plan for Hoover School in order to qualify the Hoover Area for potential federal funding sources to study and/or design and implement physical improvements and educational programs aimed at enhancing safety at or near school locations. See the Charter-Stambaugh Street Potential Improvements section for additional details.
- Install marked crosswalks and pedestrian signals at locations between key pedestrian destinations on Middlefield Road, such that pedestrians would not have to walk more than 300 feet to reach the nearest marked crosswalk from most locations on the Middlefield corridor. (Installation of a marked and signal-controlled crosswalk is already planned at Willow Street as part of the Costco project.)
- Create an at-grade pedestrian crossing at the intersection of Woodside and Middlefield Roads.
- Explore a traffic light at the intersection of Cedar and Stambaugh Streets.

PUBLIC TRANSIT IMPROVEMENTS

The pedestrian improvement recommendations described elsewhere in this report would address some of the constraints related to transit access. In addition, bus stop improvements should be pursued, such as bus shelters to replace the benches at stop locations within the Hoover Area, and the installation of bilingual signs and schedules.

Specific Recommendations
- Develop multilingual maps and signage for SamTrans routes and stops.
- Consider adding bus stops on Middlefield at Willow and in front of the Fair Oaks Library.
- Provide shade and shelter at bus stops wherever possible.
LOCATION-SPECIFIC IMPROVEMENTS

Based on community feedback, the project team identified three key areas where specific design interventions were needed to improve mobility: Charter and Stambaugh Streets, Woodside and Middlefield Roads, and Chestnut Street.

Woodside Road Crossing

The community outreach process identified crossing Woodside Road as the single highest priority concern for the neighborhood. Residents reported a wide array of concerns about the Stambaugh Street Pedestrian Bridge, currently the designated legal pedestrian crossing point, and strong community consensus favored an at-grade pedestrian crosswalk at the intersection of Woodside and Middlefield Roads as an alternative to the bridge.

The following potential improvements, presented in Figure 5-2 on the following page, Figure 5-3 on page 47, and Figures 5-4 and 5-5 on pages 48 and 49, address both the pedestrian crossing concerns and additional issues regarding bicycle use of Woodside and Middlefield Roads and pedestrian/bicycle access to shops and other amenities to the east of Woodside Road.

Potential Modifications to the Existing Pedestrian Bridge

While replacing or retrofitting the Stambaugh Street pedestrian bridge could eliminate the switchbacks and “blind corners,” many of the concerns described in Chapter Three would persist. In addition, modifications to the bridge would be extremely costly, relative to improvements that would allow pedestrians at-grade at the intersection of Middlefield and Woodside Roads. Therefore, the recommended immediate improvement strategy is to focus on improvements to pedestrian and bicycle circulation along the Middlefield corridor. The long-term strategy—achievable within six to ten years—is to pursue an at-grade pedestrian crossing at the intersection of Woodside and Middlefield Roads.

Woodside Road Crosswalks and Bicycle Lanes

Figure 5-3 on page 47 shows a conceptual design for providing crosswalks and bicycle lanes at the intersection of Woodside/Middlefield Road. The proposed crosswalk design would allow pedestrians to cross each legs of the intersection without requiring modifications to east-west traffic signal phasing or timing. Technical information related to signal timing, design options and effect on level of service are described in a technical memorandum that will be submitted to Caltrans. Key aspects of the desired design include:

- Pedestrian crossing distance on the east and west legs of the intersection would be reduced to minimize impacts to signal operations
- On the north and south legs, signal phases allow ample time for pedestrians to cross, without reducing the crossing distances.
- As shown in Figure 5-3, Spruce Street could be separated from Middlefield Road by a new sidewalk. Given the need
FIGURE 5-2: WOODSIDE ROAD—POTENTIAL IMPROVEMENTS

Woodside Road @ Middlefield: Potential Improvements (CPTED)

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Revised 12-18-08

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Revised 12-18-08
to accommodate emergency vehicle access, and the limited ability of large trucks to turn around on Spruce Street, the proposed sidewalks could be designed to be “mountable,” so that vehicles could cross the sidewalk for occasional ingress and egress. This section of the sidewalk would essentially serve as a “raised pedestrian crossing” across the ends of Spruce Street.

The desired design concept includes the following elements:

- Advance stop lines in advance of each crosswalk. These have been proven to reduce the percent of vehicles that block the crosswalk.
- Right-turn “slip lanes” designed to slow the speed of vehicles making a right-turn (approaching crosswalks). In addition, the angle of entry is intended to ensure that motorists’ line of sight is oriented towards the upcoming crosswalk.
- Pedestrian refuge areas within the “pork chop” islands and center median.
- Pedestrian-actuated signals, with pedestrian “countdowns” during the “flashing don’t walk” phase.
- “High-visibility” bicycle lanes through potentially dangerous areas (within one block north and south of the intersection) to enhance motorists’ awareness of bicyclists.

### Woodside Road Traffic

Based on the traffic operations analysis described above, reducing the amount of “green time” for through traffic on Woodside Road, in order to accommodate pedestrian crossings, would likely result in significant impacts to traffic operations. Based on this finding, pedestrian crossings of Woodside Road at Middlefield Road should be designed to allow pedestrians to cross within the current amount of “green time” provided to the northbound and/or southbound movements. This could be accomplished by reducing the crossing distance on the east leg of the intersection by at least 16 feet (to 87 feet or less), since that leg of the intersection has 25 seconds of “green time.” On the west leg, just 20.5 seconds of “green time” is provided, thus requiring a crossing distance by nearly 50 feet (to 71 feet or less) in order for pedestrians to make it across in time. Installation of a crosswalk on the east leg would require fewer modifications to the intersection.

### Woodside Road Railroad Crossing

The following measures would provide access for persons with
disabilities and address the community desire for an improved pedestrian crossing over the railroad tracks to/from El Camino Real:

- Install an ADA-accessible sidewalk along Woodside Road between the Middlefield Road intersection to the pedestrian overpass of the Caltrain tracks. Further study would be needed to determine the feasibility of this improvement option. Redesign of the pedestrian path across the tracks may also be warranted since it is not visible from the street and has some of the same design issues as the Stambaugh Street bridge due to blind corners and lack of visibility from the roadway.

- Investigate provisions to enhance bicycle circulation across the Caltrain overpass on Woodside Road, as outlined in Figure 5-2.

**Specific Streetscape Improvements**

In addition to the more technical elements of the at-grade crossing, the pedestrian experience crossing Woodside Road can be greatly enhanced by the addition of streetscape amenities, changes to landscaping, and other improvements, especially to the streets immediately adjacent to Woodside Road that can provide alternative pedestrian paths. These include:

- Increased lighting
- New landscape with low vegetation
- Where appropriate, trimmed existing vegetation to provide visibility
- Trash receptacles
- Raised walkway surface (leveled with cars)

**At Intersection of Spruce and Heller Streets:**
- New crosswalk
- Trash receptacles
- Additional lighting

**At Intersection of Woodside and Middlefield Roads:**
- New crosswalks
- Pedestrian refuges and islands
- New sidewalk
- Trash receptacles
- Pedestrian count-down signal

**Middlefield Road**

Excessive distances between marked crosswalks and the lack of bicycle lanes east of Woodside Road were identified by the project transportation consultant
FIGURE 5-3: WOODSIDE ROAD CROSSING—POTENTIAL PEDESTRIAN CROSSING IMPROVEMENTS

LEGEND:

- High Visibility Crosswalk
- Pedestrian Refuge
- Stop Bar (13 feet from crosswalk)
- Curb/Edge of Sidewalk
- Curb Ramp
- Existing Median
- Centerline Striping (Replaces existing median)
- Standard Marked Crosswalk

Pedestrian crossing distance

North leg
64’

77.5’

South leg

89’

Hoover Area Connection: Linking For Your Neighborhood

WOODSIDE ROAD CROSSING
RECOMMENDED CROSSWALKS
FIGURE 5-4: WOODSIDE ROAD AT MIDDLEFIELD ROAD—ILLUSTRATION OF EXISTING CONDITIONS
Woodside @ Middlefield Rd: Proposed Improvements (CPTED)

Redwood City Redevelopment Agency - Hoover Area Connection: Linking for Your Neighborhood

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as constraints to circulation along Middlefield Road. Figure 5-6 on page 51 summarizes potential street design changes that could improve pedestrian and bicycle travel on the corridor.

Specific Solutions
For the segment of Middlefield Road north of the Woodside Road intersection, and south of Costco, traffic volumes are relatively low for a four-lane street (and volumes are not forecasted to increase significantly in the future). Due to this excess street capacity, a reduction in travel lanes could be accommodated on most of the corridor without significantly impacting traffic operations. For those segments, the recommended street design consists of a “road diet” (as already proposed for the segment from downtown to Chestnut Street):

- Extend the recent “road diet” that was implemented north of Woodside Road to include a second segment of Middlefield Road south of Costco, between Charter and Douglas Streets. The number of motor vehicle travel lanes could be reduced from four to two in order to accommodate Class II bicycle lanes and a center left-turn lane. This would also allow on-street parking to be provided on both sides of the southernmost section.

- Provide marked crosswalks and pedestrian signals at Middlefield intersections with Woodside Road and Flynn Avenue.

- Consider additional improvements to the Middlefield Road/Flynn Avenue intersection, including an improved crosswalk, if congestion worsens as a result of improvements to Charter and Stambaugh Streets.

- Install a bicycle lane or alternate facility on Middlefield Road south of Woodside Road. Improvements planned as part of the Costco project will include a marked shoulder that could provide refuge for cyclists, but would not be wide enough to be considered a “Class II” bicycle lane. Provision of a Class II bicycle lane south of Woodside Road would likely require relocation of portions of the center median (between Buckeye and Charter Streets), and/or relocation of some portions of the curb on the west side of Middlefield Road (near Costco). Alternatively, narrowing the motor vehicle travel lanes to 10 feet would allow bicycle lanes to be installed in most locations without modifying the median or curb. For the segments
FIGURE 5-6: MIDDLEFIELD ROAD—POTENTIAL IMPROVEMENTS

LEGEND:
- Hoover Area Boundary
- Existing Bus Stop
- Stambaugh Pedestrian Overpass
- School
- Library
- Community Center
- Existing Marked Crosswalk
- Planned Marked Crosswalk
- Suggested Marked Crosswalk
- Pedestrian Crossing Prohibited
- Existing Traffic Signal
- Proposed Traffic Signal

Distance Between Marked Crosswalk

500'

Existing Bicycle Lanes
Suggested Bicycle Lanes

0 500 feet
north of Buckeye Street, and south of Charter Street, traffic volumes are lower; therefore, a “road diet” (reduction in the number of travel lanes) would be feasible, in which two travel lanes would be removed, and a two-way center turn-lane and bicycle lanes could be installed in their place.

In order to ensure that most locations on Middlefield Road are within approximately 300 feet of a pedestrian crossing, the installation of pedestrian signals and marked crosswalks is recommended at the following locations:

- Middlefield Road/Woodside Road (described in the previous section)
- Middlefield Road/Willow Street (signalized intersection and marked crosswalk is already planned as part of the Costco project, which will result in the Costco vehicle entrance being relocated to Willow Street)
- Middlefield Road/Flynn Avenue, in order to ensure that pedestrians on the segment of Middlefield Road near Flynn Avenue do not have to walk more than 300 feet to cross Middlefield Road

At crosswalk locations, design elements such as high-visibility treatments, medians and the provision of curb extensions (“bulbouts”) to reduce crossing distances, are recommended, except where such treatments would impact bicycle or transit circulation. The removal of impediments to pedestrian travel is also recommended for existing sidewalks on the east side of Middlefield Road. Several sidewalk segments, particularly on the east side of Middlefield Road near the intersections with Spruce and Manzanita Streets, are extremely narrow due to telephone poles and other obstructions that would be relocated. In addition, bus stop benches could be set-back several feet further from the curb.

**Charter and Stambaugh Streets**

Suggested improvements to Charter and Stambaugh Streets, outlined in Figure 5-7 on the opposite page and in Figures 5-8 and 5-9 on the following spread, are designed to address key pedestrian and traffic issues that affect children as they travel to and from Hoover School, Hoover Park, and the Boys and Girls Club. These improvements will also reduce speeding on Charter Street and reinforce the residential nature of the street. The potential improvements are based on community concerns and evaluation of key needs by staff and consultants.

Suggested improvements include:

- Bulbouts at intersections throughout the school area.
- School signs and flashing school lights adjacent to Hoover School.
- Pedestrian amenities, an enhanced crosswalk, and a potential bulbout at the mid-block crossing in front of Hoover School.

**At Charter and Spring Streets:**

- New traffic signal with
FIGURE 5-7: CHARTER AND STAMBAUGH STREETS—POTENTIAL IMPROVEMENTS

Charter-Stambaugh Street: Potential Improvements (CPTED)
Redwood City Redevelopment Agency - Hoover Area Connection: Linking for Your Neighborhood

Potential Mobility Solutions

Legend:
- Improvement Area
- Existing Sidewalk
- Existing Tree
- Existing Street Light
- Existing Stambaugh Pedestrian Bridge
- Potential Crosswalk
- Existing (E)/Potential (P) Traffic Light
- Existing (E)/Potential (P) Pedestrian Countdown Signal
- Potential Street Light
- Potential School Light
- Potential School Sign
- Potential Stop Sign
- Potential Bulbouts/Traffic Calming
- Potential Improvement to Existing Crosswalk: Raised Crosswalk
- Potential Streetscape Amenities: Trash Receptacle, Bench & Landscaping
- Potential Street Tree
- Potential Trash Receptacle
FIGURE 5-8: CHARTER STREET AT STAMBAUGH STREET—ILLUSTRATION OF EXISTING CONDITIONS

Charter @ Stambaugh St: Existing Conditions
Redwood City Redevelopment Agency - Hoover Area Connection: Linking for Your Neighborhood

Revised 12/18/08
Charter @ Stambaugh St: Proposed Improvements (CPTED)

Redwood City Redevelopment Agency - Hoover Area Connection: Linking for Your Neighborhood

FIGURE 5-9: CHARTER STREET AT STAMBAUGH STREET—ILLUSTRATION OF POTENTIAL IMPROVEMENTS
pedestrian count-down light, enhanced existing crosswalks, trash receptacles, traffic calming, and additional lighting.

At Charter Street and Middlefield Road:
- Enhanced existing crosswalks
- Trash receptacles
- Traffic calming

At Stambaugh and Willow Streets:
- New crosswalks
- Trash receptacles
- Traffic calming
- Additional lighting

At Stambaugh and Manzanita Streets:
- New crosswalks
- Trash receptacles
- Traffic calming
- Additional lighting

At Stambaugh and Laurel Streets:
- Stop signs
- Raised crosswalk
- Enhanced existing crosswalks
- Trash receptacles
- Traffic calming
- Additional lighting

During the community outreach process, Chestnut Street between Spring and Hiller Streets was identified as a particular concern for pedestrians in the Hoover Area. Potential improvements, presented in Figure 5-10, opposite, and Figures 5-11 and 5-12 on pages 58 and 59, address both the pedestrian experience along Chestnut and the safety of crossing Chestnut at key intersections.

Suggested improvements for the Chestnut Street corridor include:

At Chestnut and Hiller Streets:
- Enhanced existing crosswalks
- Trash receptacles

At Chestnut Street and Middlefield Road:
- New left-turn lane at intersection
- Enhanced existing crosswalks with special paving
- Trash receptacles
- Streetscape amenities
FIGURE 5-10: CHESTNUT STREET—POTENTIAL IMPROVEMENTS

Chestnut Street: Potential Improvements (CPTED)

Redwood City Redevelopment Agency - Hoover Area Connection: Linking for Your Neighborhood

Revised 12-18-08
FIGURE 5-11: CHESTNUT STREET—ILLUSTRATION OF EXISTING CONDITIONS

Chestnut @ Middlefield Rd: Existing Conditions
Redwood City Redevelopment Agency - Hoover Area Connection: Linking for Your Neighborhood
At Chestnut and Stambaugh Streets:
- Enhanced existing crosswalks
- Stop signs
- Trash receptacles

At Chestnut and Hilton Streets:
- Enhanced existing crosswalks
- Trash receptacles

At Chestnut and Spring Streets:
- Enhanced existing crosswalks with special paving
- Trash receptacles
A key step in implementing the Hoover Area Community Mobility Plan is identifying and obtaining funding for each improvement. A number of resources are available at the county, state, and federal levels, and many grant-making organizations in the Bay Area also fund the types of projects proposed in this plan. This chapter outlines strategies for obtaining outside funding and notes specific agencies and organizations engaged in funding mobility improvements in local communities.

**IMPLEMENTATION STEPS**

In order to implement the proposed mobility improvements included in this plan, it is recommended that the City or Agency use this master list of recommended improvements in conjunction with the data on resident priorities, needs, and costs presented in this report to apply for grants and other available sources of funding. In cases where potential implementation constraints are already known, they are noted in this report, but as projects move forward, additional limitations may arise.

The City or Agency should use the information contained in this report as a starting point to pursue funding for this work. The prioritized list should be used only as a guide, as some projects identified by residents as lower priority may be more feasible than higher priority projects in the short-term due if funding or resources become available in these areas. Residents should be kept up-to-date on how and why the City and Agency reach decisions on which improvements to pursue and which to delay or forego.

**COST ESTIMATES**

Estimates of probable cost were developed for each of the suggested design improvements along Charter, Stambaugh, and Chestnut Streets and Woodside and Middlefield Roads. These costs are approximate construction costs based on current conditions at the writing of this report in December.
Below: City and Agency staff meet with residents of Redwood Village.

2008. Labor and material costs may change over time, so these estimates should be repeated as each project moves forward.

Cost estimates are provided in an itemized format by street to allow the City, Agency, and community members to better understand the costs of specific amenities, how to fund these suggested improvements in stages, and how to allocate cost among various funding sources.

**FUNDING PRIORITIES**

Residents of the Hoover Area identified the intersection of Woodside and Middlefield Roads as the highest priority pedestrian concern, and it is recommended that the City and the Agency actively pursue improvements to this intersection. However, as time and funds allow, other short-term improvements may be possible in the interim. Completing short-term improvements is particularly critical because longer term solutions may take many years to implement, and residents can feel frustrated if they do not feel that progress is being made. The City and Agency should highlight small victories in this process, and should update the community on the implementation process.

**Short-Term Solutions**

Short-term solutions that may be implemented in the next one to three years include the following:

- Safe Routes to School plan for Hoover School
- Bicycle parking
- Bicycle education programs
- Increased maintenance and police presence
• Trimming of existing landscaping
• ADA improvements to area sidewalks
• Crosswalk improvements
• Stop signs in select locations
• Multilingual maps for SamTrans routes and stops
• Street trees

Medium-Term Solutions
Solutions that may be achievable within the next four to six years include:
• Traffic calming on residential streets
• Bicycle lanes in most locations
• New landscaping, street furniture, and other amenities
• New pedestrian signals at crosswalks and intersections
• Bus shelters
• Additional bus stops
• Pedestrian lighting

Long-Term Solutions
Finally, a number of the highest priority solutions presented in this plan will take many years to implement given the complexity of the work and the number of agencies involved in that work. The City and Agency should nonetheless begin work on these long-term projects, which may take six to ten years or more, as soon as possible and should continue to provide status reports to community members as the projects move forward.

Long-term projects proposed in this plan that are expected to require extensive funding and supplementary planning or engineering include:
• At-grade pedestrian crossing at the intersection of Woodside and Middlefield Roads, as outlined in Chapter Five
• Improvements to the pedestrian railroad crossing on Woodside Road that provides pedestrian access to El Camin Real, as outlined in Chapter Five
• Bicycle lanes in select locations where current street configuration does not accommodate them
• Other projects that require extensive supplementary planning processes before they can be implemented

### SUMMARY OF PROBABLE PROJECT COSTS

<table>
<thead>
<tr>
<th>AREA</th>
<th>TOTAL COST</th>
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<tbody>
<tr>
<td>Area 1: Woodside Road at Middlefield Road</td>
<td>$409,750.25</td>
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<tr>
<td>Area 2: Spruce Street along Woodside Road</td>
<td>$1,278,527.25</td>
</tr>
<tr>
<td>Area 3: Stambaugh Street between Charter Street and Woodside Road</td>
<td>$963,803.75</td>
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<td>Area 4: Charter Street between Middlefield and Spring Street</td>
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<td>Area 5: Chestnut Street between Heller and Spring Streets</td>
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<td>Overall Cost:</td>
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### FUNDING OPPORTUNITIES

A number of sectors offer funding opportunities for streetscape and community improvement projects.

**Public Sector Funding, including Caltrans**

The Redwood City Redevelopment Agency successfully wrote and won a grant from Caltrans to develop this plan, and staff can build upon this success by continuing to submit grants to Caltrans and other governmental and quasi-governmental funding partners to pursue implementation of this plan. There may also be opportunities to pursue funding through programs such as Safe Routes to School, given that Hoover School forms the center of this study area.
Fundraising efforts should be coordinated across city departments to ensure that projects share funding and resources wherever possible and achieve common goals. Caltrans may also evaluate projects that emerge from this planning process for future funding.

**Foundation Support**

Several Bay Area foundations have missions that involve addressing challenges such as those faced by the Hoover Area community, and opportunities may arise to implement some of the suggested improvements through grants from these organizations, which are listed later in this report.

In particular, because the mobility recommendations relate directly to public health and active living, foundations with interests in enhancing the health of traditionally underserved communities may take a special interest in improving walking and bicycling in this neighborhood under the auspices of improving

### Table: Woodside Road Improvements at Middlefield Road: Cost Estimate

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<th>Improvement</th>
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<th>Quantity</th>
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<td>– Water Pollution Control</td>
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<td><strong>H. Contractor’s Overhead and Profit (10%)</strong></td>
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<td><strong>I. Design Contingency (25%)</strong></td>
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<td>$409,750.25</td>
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community health. Similarly, organizations with emphases on children and health may consider funding improvements related to providing safe access to Hoover School and the Boys and Girls Club.

**Redevelopment Agency Funds**

Because the project area is within the redevelopment area, projects within the neighborhood are eligible for Redevelopment Agency funding if monies become available. This may provide a source of primary or matching funding for some of the proposed projects.

**POTENTIAL FUNDING SOURCES**

**Federal Funding Sources**

Typically, federal grant programs require a local match, usually 20 percent of the total project cost. However, in some cases such as hazard elimination programs, this match is only 10 percent. All federal programs should be monitored for changes as significant new funding sources and opportunities are expected in mid-2009.

### SPRUCE STREET IMPROVEMENTS ALONG WOODSIDE ROAD: COST ESTIMATE

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<th>IMPROVEMENT</th>
<th>COST</th>
<th>QUANTITY</th>
<th>TOTAL</th>
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<td>A. TREES, LANDSCAPE AND IRRIGATION</td>
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<td>B. LANDSCAPE RENOVATION</td>
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<td>- Combination of Pedestrian Light and Pole</td>
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<td>F. PEDESTRIAN OVERPASS IMPROVEMENTS</td>
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<td>- New Ramps and Raise (e) Pedestrian Overpass</td>
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<tr>
<td>G. CONTRACTOR GENERAL CONDITIONS (20% of subtotal cost)</td>
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<td>- Mobilization</td>
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<tr>
<td>- Traffic Control</td>
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<tr>
<td>- Water Pollution Control</td>
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<tr>
<td>H. CONTRACTOR’S OVERHEAD AND PROFIT (10%)</td>
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<td>I. DESIGN CONTINGENCY (25%)</td>
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<tr>
<td>J. DESIGN FEES (10%)</td>
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<tr>
<td>K. CONST ADMIN/MGMT (30%)</td>
<td>$273,970.13</td>
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<td><strong>TOTAL:</strong></td>
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### CHARTER STREET IMPROVEMENTS BETWEEN MIDDLEFIELD ROAD AND SPRING STREET: COST ESTIMATE

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<th>COST</th>
<th>QUANTITY</th>
<th>TOTAL</th>
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<tbody>
<tr>
<td><strong>A. BULBOUTS (10) (+/- $20,000 EA)</strong></td>
<td>$151,250.00</td>
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<td>– Demolition</td>
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</tr>
<tr>
<td>– Drainage Improvements</td>
<td>$10,000/LS</td>
<td>1</td>
<td>$10,000.00</td>
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<tr>
<td><strong>B. TREES, LANDSCAPE AND IRRIGATION</strong></td>
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<td>– Trees</td>
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<td>$31,350.00</td>
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<tr>
<td>– Landscaping and Irrigation</td>
<td>$10/SF</td>
<td>1,260 SF</td>
<td>$9,900.00</td>
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<td><strong>C. TRAFFIC SIGNALS AND SIGNS</strong></td>
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<td>– Signs</td>
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<td><strong>D. STREET LIGHTING</strong></td>
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<td>$80,000.00</td>
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<tr>
<td>– Combination of Pedestrian and Pole Light</td>
<td>$13,000 EA</td>
<td>2</td>
<td>$26,000.00</td>
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<td><strong>E. SITE FURNISHING</strong></td>
<td>$13,260.00</td>
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<tr>
<td>– Benches</td>
<td>$1,600 EA</td>
<td>3</td>
<td>$4,800.00</td>
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<tr>
<td>– Trash Receptacles</td>
<td>$940 EA</td>
<td>9</td>
<td>$8,460.00</td>
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<td><strong>F. CROSSWALKS</strong></td>
<td>$15,200.00</td>
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<tr>
<td>– Raised Crosswalk (Special Paving)</td>
<td>$20/SF</td>
<td>700 SF</td>
<td>$14,000.00</td>
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<tr>
<td>– Striping</td>
<td>$4/LF</td>
<td>300 LF</td>
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<tr>
<td><strong>G. CONTRACTOR GENERAL CONDITIONS (20% of subtotal cost)</strong></td>
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<tr>
<td>– Mobilization</td>
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<tr>
<td>– Traffic Control</td>
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</tr>
<tr>
<td>– Water Pollution Control</td>
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<tr>
<td><strong>H. CONTRACTOR’S OVERHEAD AND PROFIT (10%)</strong></td>
<td>$71,381.00</td>
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<td><strong>I. DESIGN CONTINGENCY (25%)</strong></td>
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<td><strong>J. DESIGN FEES (10%)</strong></td>
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<td><strong>K. CONST ADMIN/MGMT (30%)</strong></td>
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<td><strong>TOTAL:</strong></td>
<td>$1,623,917.75</td>
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</tbody>
</table>

- U.S. Department of Transportation programs:
  - National Highway System funds (may fund bicycle transportation facilities or pedestrian walkways on land adjacent to federal highways)
  - Surface Transportation Program (STP) funds (may fund both construction costs and nonconstruction projects related to safe bicycle use and walking; ten percent of these funds in each state are dedicated to a Hazard Elimination Program to improve pedestrian highway and rail crossings)
  - Congestion Mitigation and Air Quality Improvement Program
  - Public Transportation Research
  - Job Access: Reverse Commute
  - New Freedom Program
  - State and community highway safety grants funded by Section 402 (may fund pedestrian and bicycle improvements to reduce highway deaths)
### U.S. Department of Housing and Urban Development programs:
- Community Development Block Grants

### U.S. Department of Commerce Economic Development Administration (EDA) programs:
- Public Works and Economic Development Program
- Local Technical Assistance Program
- Economic Adjustment Assistance Program

### U.S. Department of Health and Human Services programs:
- Health Disparities in Minority Health
- Bilingual/Bicultural Service Demonstration Grants
- Community Programs to Improve Minority Health Grant Program
- State Partnership Grant Program to Improve Minority Health
- Healthy Communities Access Program (HCAP) Demonstration Authority
- Additional opportunities through Centers for Disease Control and Prevention (CDC)

### STAMBAUGH STREET IMPROVEMENTS BETWEEN CHARTER STREET AND WOODSIDE ROAD: COST ESTIMATE

<table>
<thead>
<tr>
<th>IMPROVEMENT</th>
<th>COST</th>
<th>QUANTITY</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. BULBOUTS (10) (+/- $20,000 EA)</strong></td>
<td>$240,700.00</td>
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<tr>
<td>– Demolition</td>
<td>$1/SF</td>
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<td>$13,300.00</td>
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<td>– Concrete and Landscape</td>
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<td>– Curb and Gutter</td>
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<td>$2,500 EA</td>
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<td>$25,000.00</td>
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<tr>
<td>– Drainage Improvements</td>
<td>$10,000/LS</td>
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<td>$10,000.00</td>
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<td><strong>B. TREES, LANDSCAPE AND IRRIGATION</strong></td>
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<tr>
<td>– Trees</td>
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<td>$31,350.00</td>
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<tr>
<td>– Landscaping and Irrigation</td>
<td>$10/SF</td>
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<td>$9,900.00</td>
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<td>– Pedestrian Light</td>
<td>$10,000 EA</td>
<td>8</td>
<td>$80,000.00</td>
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<tr>
<td>– Combination of Pedestrian and Pole Light</td>
<td>$13,000 EA</td>
<td>3</td>
<td>$39,000.00</td>
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<td><strong>E. SITE FURNISHING</strong></td>
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<td>– Trash Receptacles</td>
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<td>$4,700.00</td>
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<td><strong>F. CROSSWALKS</strong></td>
<td>$15,600.00</td>
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<tr>
<td>– Raised Crosswalk (Special Paving)</td>
<td>$20/SF</td>
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<td>$14,000.00</td>
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<td>– Striping</td>
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<td>400 LF</td>
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<td>– Mobilization – Traffic Control – Water Pollution Control</td>
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<td><strong>H. CONTRACTOR’S OVERHEAD AND PROFIT (10%)</strong></td>
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<td><strong>I. DESIGN CONTINGENCY (25%)</strong></td>
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<td><strong>TOTAL: CONSTRUCTION SUBTOTAL:</strong></td>
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<td><strong>J. DESIGN FEES (10%)</strong></td>
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<td><strong>K. CONST ADMIN/MGMT (30%)</strong></td>
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<td><strong>TOTAL:</strong></td>
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## CHESTNUT STREET IMPROVEMENTS BETWEEN HELLER AND SPRING STREETS: COST ESTIMATE

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<th>QUANTITY</th>
<th>TOTAL</th>
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</thead>
<tbody>
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<td>A. TREES, LANDSCAPE AND IRRIGATION</td>
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<tr>
<td>– Trees</td>
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<td>– Traffic Signal/Left Turn</td>
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<td>– Signs</td>
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<td>C. SITE FURNISHING</td>
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<td>$9,400.00</td>
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<td>– Tree Grates</td>
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<td>– Traffic Control</td>
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<td>– Water Pollution Control</td>
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<tr>
<td>F. CONTRACTOR’S OVERHEAD AND PROFIT (10%)</td>
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<td>G. DESIGN CONTINGENCY (25%)</td>
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<td>CONSTRUCTION SUBTOTAL:</td>
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<td>TOTAL:</td>
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### State and Regional Funding Sources
- Caltrans Local Assistance programs:
  - Safe Routes to School
  - Transportation Enhancement Activities (TEA)
- Hazard Elimination Safety Program
- Discretionary Programs
- Additional District 4 funding opportunities

### Foundation Funding Sources
- The San Francisco Foundation
- Richard and Rhoda Goldman Fund
- The California Endowment
- The California HealthCare Foundation
- The California Wellness Foundation
- Robert Wood Johnson Foundation
- Union Pacific Foundation Community-Based Grant

### City/County Association of Governments of San Mateo County (may administer grant funds to support projects within the County as monies become available)

### San Mateo County Transit Authority (SamTrans) (may administer grant funds to support projects within the County as monies become available)