Appendix O: Safe Routes to School Bicycling and Walking Audit Report

City of Davis
Draft Walk and Bike Audit Report

November 2013

alta
PLANNING + DESIGN

Davis
California

City of Davis

Walk and Bike Audit Report

Draft November 2013

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City of Davis

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Purpose

The City of Davis and the Davis Joint Unified School District encourage safe access and active transportation to school. While the City of Davis is known as a walkable and bikable community, there is always room for improvement.

The project goal is to:

Support healthy children and families and promote a thriving environment by providing the necessary tools and infrastructure to support everyday active forms of transportation

The purpose of this report is:

- To identify potential infrastructure projects as well as education and encouragement programs that could improve student safety and support walking and biking to school.
- To identify and promote suggested walking and biking routes for students and parents to and from school.
- To prepare a grant-ready document for school and City staff to use as funding becomes available.

There are 11 project schools:

- Birch Lane Elementary
- Cesar Chavez Elementary
- Emerson/da Vinci Junior High
- Harper Junior High
- Holmes Junior High
- Korematsu Elementary
- Montgomery Elementary
- North Davis Elementary
- Patwin Elementary
- Pioneer Elementary
- Willett Elementary

Outreach

The Davis community played a key role in understanding the existing conditions and developing the recommendations contained in this report. Through a variety of venues the Davis community was able to share concerns and possible solutions. Outreach included:

- City-wide Community Forum
- Farmer's Market booth
- Davis Bike Fun Fest booth
- Walk & bike audits at all 11 project schools
- Project website with online mapping tool

Summary of Engineering Recommendations

While engineering recommendations are specific to the conditions at each school, a holistic approach must be taken when envisioning the plan's recommendations. The recommendations in this plan go a long way toward providing safer and inviting corridors for people of all ages and abilities walking and biking throughout the City of Davis.

Due to the closely spaced neighborhoods of Davis and the larger enrollment areas for the junior high schools, many of the identified recommendations are to the benefit of students from multiple schools. Additionally, there are a number of universal recommendations the City of Davis and the Davis Joint Unified School District can take to improve comfort and safety for walking and bicycling throughout the City. These universal improvements are:

- **Accessibility Improvements:** Curb ramps, tactile domes
- **Intersection Improvements:** All bicycle or pedestrian phases, curb extensions, high visibility crosswalks, advance stop bars
- **Environmentally Sensitive Design:** Bioswales and other bio-retention elements (see Appendix A)
- **Bicycle Parking Improvements:** Upgrade to meet current City bike parking type and spacing standards
- **Bicycle and Pedestrian Wayfinding:** Wayfinding with special emphasis on connecting students with schools via the on- and off-street bikeway network

Improved bicycle parking increases security and keeps parking organized.

Summary of Program Recommendations

Beyond infrastructural improvements, making program and policy changes at the city, district, individual school, and classroom level is key to reinforcing walking and biking as well as instilling in students safe roadway habits that will often last a lifetime. There are a number of policy and program recommendations that can enhance the effectiveness of all infrastructure recommended in this plan. Key program elements recommended to be continued or implemented include:

- **Safe Routes to School Coordinator funded position**
- **Reduced School Zone Speed Limits analysis and resolution**
- **Education**
  - Student pedestrian and bicycle traffic safety education
  - Street Smarts Education Campaign
  - City-wide Wayfinding
- **Encouragement**
  - Suggested Walking and Biking Routes to School Maps
  - Back to School Encouragement Marketing
  - Weekly Walk and Bike to School Days
  - Rainy Day Carpool Program
- **Enforcement**
  - Speed Feedback Signs
  - School Crosswalk Stings/Enforcement Campaigns
- **Evaluation**
  - Student Walking and Biking Counts

Davis Bicycle Rodeo where students learn traffic safety knowledge and skills

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1. Introduction

The City of Davis and the Davis Joint Unified School District encourage safe access and active transportation to school. The purpose of this report is:

1. To identify potential infrastructure projects and education and encouragement programs that could improve student safety and support walking and biking to school.
2. To identify and promote suggested walking and biking routes for students and parents to and from school.
3. To prepare a grant-ready document for school and City staff to use as funding becomes available.

This report presents recommendations to improve bicyclist & pedestrian safety and access to eleven Davis schools:

- Birch Lane Elementary
- Cesar Chavez Elementary
- Emerson/da Vinci Junior High
- Harper Junior High
- Holmes Junior High
- Korematsu Elementary
- Montgomery Elementary
- North Davis Elementary
- Patwin Elementary
- Pioneer Elementary
- Willett Elementary

Davis Street Smarts Traffic Safety Poster Contest Winner

1.1. What is Safe Routes to School?

Safe Routes to School is a program designed to create safer, convenient and fun opportunities to walk, bicycle, take transit, and carpool to school. This program is intended to be a collaborative effort with participation from the City, School District, Police Department, parents and the community.

Successful Safe Routes to School programs incorporate the following Five E's:

- **Engineering** includes bicycle facilities, bicycle parking, crosswalks, as well as signage and maintenance.
- **Education** programs improve safety and awareness. These may be delivered in schools as pedestrian or bicycle knowledge and skills programs, or provided at low or no cost through non-profit organizations.
- **Encouragement** programs such as suggested routes to school maps and events such as Walk or Bike to Work and School Day reward current walkers and bicyclists and motivate more people to try walking or bicycling.
- **Enforcement** programs that reinforce legal and respectful driving, bicycling, and walking make walking and bicycling families feel more secure.
- **Evaluation** programs provide a method for monitoring improvements and informing future investments.

1.2. Project Goal

This project is an important opportunity to identify ways to improve walking and biking access to schools for students and their families. The project goal is to:

Support healthy children and families, and promote a thriving environment, by providing the necessary tools and infrastructure to support everyday active forms of transportation

The City of Davis has identified this as a goal for a number of reasons:

- Reducing the number of cars on the road during the morning commute to school makes transportation safer for children and improves air quality.
- Walking or riding a bike or scooter to school is good exercise, improves fitness, and has been demonstrated to positively impact school performance.
- Walking or biking to school promotes community and enables students to become more familiar with navigation of their school neighborhood.
- Students who are responsible for getting themselves to school have lower rates of tardiness, and develop a sense of independence and confidence.
- The use of fossil fuels is one of the leading contributors to global warming; an increased use of active forms of transportation helps our planet.

1.3. Community Participation

The Davis community played a key role in understanding the existing conditions and developing the recommendations contained in this report. Through a variety of venues, the Davis community was able to share concerns and possible solutions.

Open Houses & Community Events

The project began with a city-wide community forum where over 20 members of the community provided input on challenges and opportunities for improvement.

In addition to the community forum, the project team staffed a booth at the Davis Farmer's Market on May 25, 2013 and at the Davis Bike Fun Fest on August 18, 2013, to invite community members to share information and participate in the process.

Walk & Bike Audits

Walking and biking audits were held at all eight elementary schools and all three junior high schools in the Davis Joint Unified School District system. Extensive outreach was done with both the school communities and community at-large before each walking and biking audit; flyers were distributed to parents, notices were posted on the Davis Safe Routes website, and a large listserv of interested stakeholders were emailed prior to each audit.

Online Outreach and Input

The project team built a website for the project (www.saferoutesdavis.org), containing information on upcoming walking audits, relevant planning documents, and opportunities for stakeholders to get notified of new developments.

The website included an online mapping tool that allowed stakeholders to provide input. Tool users could identify their school, draw their preferred walking or biking routes to school, and identify any concerns they had along the routes they drew. This tool allowed stakeholders to have a voice in the process even if they were unable to attend the in-person events. Over 100 challenge areas were identified with this tool.

Community members sharing their thoughts during a public working session after a school audit

1.4. How to Use This Report

At the heart of every successful Safe Routes to School program is a coordinated effort by parent volunteers, school and District staff, City staff, and law enforcement personnel.

For each school within this report, potential engineering recommendations are presented in graphic improvement plans with accompanying tables that identify the agency intended to implement the recommendation. Some recommendations are on school district property, while other recommendations in City or County right-of-way must be implemented by the respective agency.

Parents can use this report to understand the conditions at their children's school and to become familiar with the ways the Safe Routes program can work to make walking and biking safer and easier.

School District and School staff can use this report to prioritize potential improvements identified on District property and develop programs that educate and encourage students and parents to seek alternatives to single family automobile commutes to school. In many cases, education and encouragement programs require dedicated parent volunteers to carry them out.

City staff can use this report to identify issues and opportunities related to walking and biking and to prioritize potential short-term and long-term infrastructure improvements. Staff can also use this report to support Safe Routes to School funding opportunities.

Law Enforcement agencies can use this report to understand issues related to walking and biking to school and to plan for and prioritize enforcement activities that may make it easier and safer for students to walk and bike to school.

1.5. Report Organization

This report includes the following sections:

2. Recommended Engineering Improvements

The following chapter presents the recommended engineering improvements in school areas for each of the eleven project schools. The recommendations are based on community, School District, and City Staff input gathered through:

- A community forum (March 18, 2013)
- Walk audits at each school (April-May 2013)
- Comments submitted through the project website (www.saferoutesdavis.org)
- Previously identified challenges submitted by community members to City staff

Each school section is meant to function independently, though many contain recommendations from other schools whose recommended improvements overlap. Each school section contains a short description of the school environment, followed by a table listing reported or observed challenges and recommended improvements with priority for implementation. The table is followed by a school improvement plan and a suggested route to school map. Further descriptions of the engineering improvements are listed in **Appendix A Engineering Toolkit**.

Elementary school recommendations are presented first, followed by the junior high schools.

Chapter Organization:

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2.1. Birch Lane Elementary

Principal:	Kathleen Tyzzer
Grades:	K-6
Number of Students:	598 students
Arrival:	Morning K – 8:15 AM
	Afternoon K – 11:50 AM
	Grades 1-6 – 8:30 AM
Departure:	Morning K – 11:35 AM
	Afternoon K – 3:10 PM
	Grades 1-3 – 2:30 PM
	Grades 4-6 – 3:05 PM
	Wednesdays – 1:30 PM

2.1.1 School Layout

Birch Lane elementary is located on Birch Lane, northeast of downtown Davis. Birch Lane is a local street, intersecting to the south with Pole Line Road and to the north with East Covell Boulevard. The loading zone for the school is on-street on Birch Lane, with signage indicating the parking lot is for staff parking only. There are uncontrolled crosswalks at the north and south ends of the school on Birch Lane.

There are only two access points to the school: via Birch Lane and via a pathway from Baywood Lane at Clemson Drive into the rear of the school. Bicycle parking is located behind the school buildings and can be accessed via the rear pathway or from a fire lane at the north end of the school extending from Birch Lane.

East Covell Boulevard, Pole Line Road, and Loyola Drive are adjacent streets with bike lanes, though all three streets have high traffic volumes that can discourage students and parents from arriving by bicycle. At the north end of the intersection of Birch Lane at East Covell Boulevard is a connection to a network of off-street pathways. The intersection of Loyola Drive, Pole Line Road, and Clara Lane has bicycle/pedestrian cut-throughs at Clara Lane and at the west end of the intersection, to Drexel Drive. This signalized intersection has a bicycle phase with a "no right turn on red" illuminated sign for drivers on Loyola Drive.

2.1.2 Crossing Guards

There are two crossing guards (paid for by DJUSD) for Birch Lane Elementary, both stationed at the mid-block crosswalk at the school grounds.

2.1.3 Related City of Davis Projects

The City is implementing a bicycle boulevard project on Drexel Drive from J Street to Pole Line Road. The City is in the midst of a planning process for East Covell Boulevard and its east terminus at Pole Line Road.

2.1.4 Audit

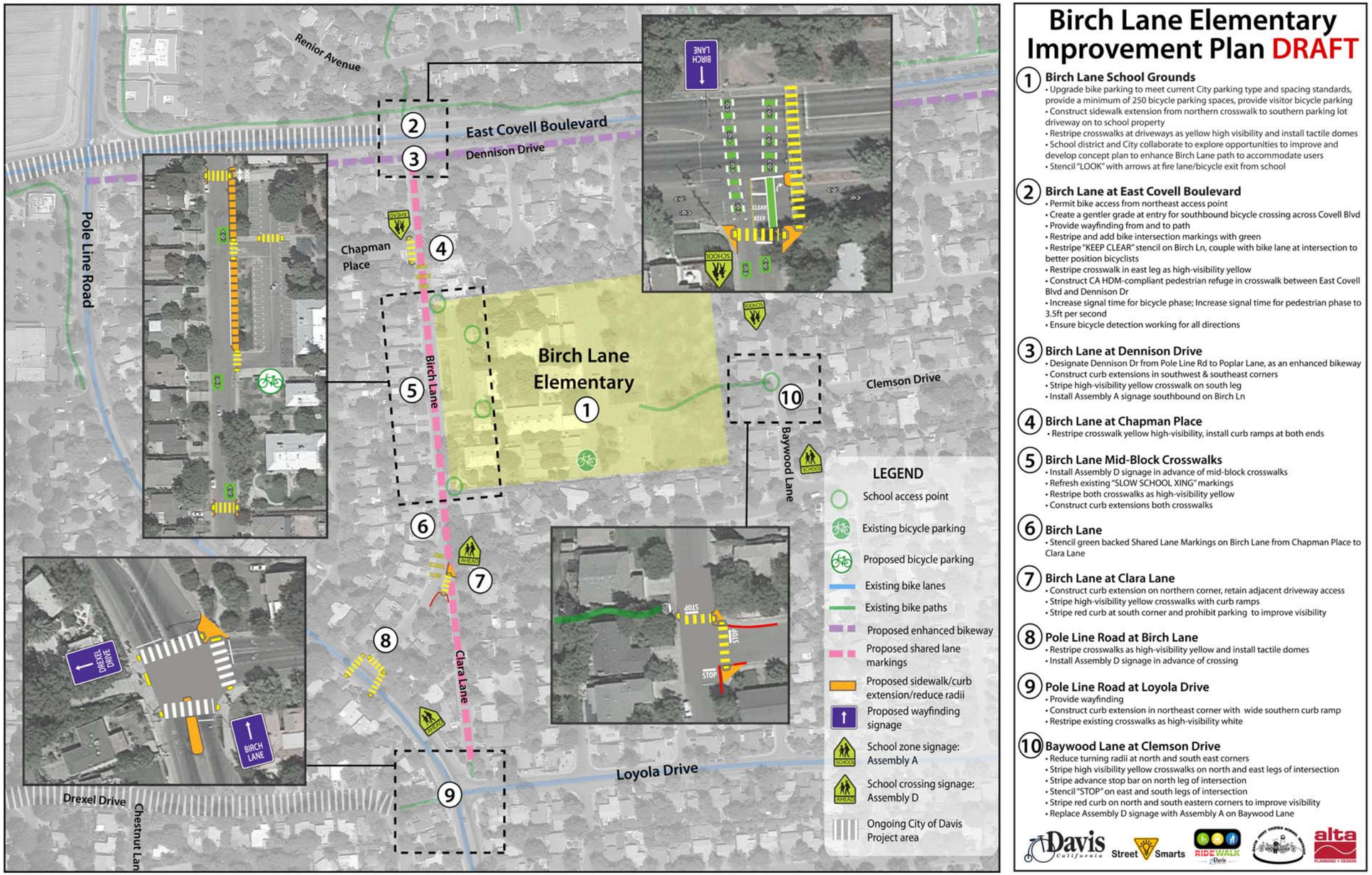
The audit took place on the morning of April 15th, 2013. There were fifteen attendees at the audit, including representatives from the City, from Birch Lane Elementary, and from the community. Participants observed conditions at five locations: on Birch Lane in front of the school, at Birch Lane at Clara Lane, at Pole Line Road at Loyola Drive, at Birch Lane at East Covell Boulevard, and at the rear pathway at Baywood Lane at Clemson Drive. Afterward, participants reconvened to discuss their observations and potential improvements.

2.1.5 Opportunities and Recommended Improvements

Location	Reported or Observed Challenge	Recommended Improvement
1. School Grounds Priority: Medium	• Bicycle parking does not meet current standards, providing only one point of contact with bicycle, and does not provide enough maneuvering space • Recent counts show 239 students bicycle to school • Parent/visitor bicycle parking is not provided • Narrow, rolled sidewalks provide little space for walking • Crosswalks at school lot driveways are non-standard and faded • Parents are concerned about bicyclists exiting the fire lane from school without looking for cross-traffic before entering the street	• Upgrade to meet current City bike parking type and spacing standards, provide a minimum of 250 bicycle parking spaces, and provide visitor bicycle parking • Construct sidewalk extension from northern crosswalk to southern parking lot driveway on to school property • Restripe crosswalks at school driveways as yellow high visibility and install tactile domes • School district and City collaborate to explore opportunities to improve and develop concept plan to enhance Birch Lane path to accommodate users • Stencil "LOOK" with arrows at fire lane/bicycle exit from school
2. Birch Lane at East Covell Boulevard/ Dennison Drive Priority: High	• Path entrance at northwest does not address northbound access from Birch Lane • Configuration of south end of intersection doesn't provide clear pathway/positioning for northbound bicyclists • Long distance for pedestrians crossing between Dennison Drive and East Covell Blvd • Insufficient signal time for bicycle phase and pedestrian crossing • Bicycles not detected in all directions of intersection	• Permit bike access from northeast access point • Create a gentler grade at entry for southbound bicycle crossing across Covell Blvd • Provide wayfinding from and to path • Restripe and add bike intersection markings with green • Restripe "KEEP CLEAR" stencil on Birch Ln, couple with bike lane at intersection to better position bicyclists • Restripe crosswalk in east leg as high-visibility yellow • Construct CA HDM-compliant pedestrian refuge in crosswalk between East Covell Boulevard and Dennison Dr • Increase signal time for bicycle phase; Increase signal time for pedestrian phase to 3.5ft per second • Ensure bicycle detection working for all directions
3. Birch Lane at Dennison Drive Priority: High	• There is a gap in the bike path on the south side of East Covell Boulevard between Pole Line Rd at Poplar Ln, where Dennison Drive parallels East Covell Blvd • The southern side of the intersection has wide curb radii and makes the crossing of East Covell Boulevard challenging • There is no school zone signage for southbound drivers on Birch Lane	• Designate Dennison Drive from Pole Line Rd to Poplar Lane as an enhanced bikeway with traffic calming treatments • Construct curb extensions in southwest and southeast corners of BirchLane at Dennison Dr • Stripe high-visibility yellow crosswalk on south leg • Install Assembly A signage southbound on Birch Lane

Location	Reported or Observed Challenge	Recommended Improvement
4. Birch Lane at Chapman Place Priority: High	• Crosswalk is standard despite key school routes; no curb ramps	• Restripe existing crosswalk with yellow high-visibility crosswalk, install curb ramps at both ends
5. Birch Lane Mid-Block Crosswalks Priority: High	• Crosswalks lacking advance warning signage • Reduced pedestrian visibility for drivers due to parked cars on the street • Crosswalk pavement markings are faded and cracked • Narrow sidewalks leave little space for pedestrians waiting to cross the street • Crossing guards provided by school; The effectiveness of a crossing guard can be the deciding factor in a parent feeling comfortable enough to let their child walk or bike to school.	• Install Assembly D signage in advance of mid-block crosswalks on Birch Lane. • Refresh existing "SLOW SCHOOL XING" markings • Restripe both crosswalks as high-visibility yellow • Construct curb extensions both crosswalks • City to consider funding and training all crossing guards to provide standardized crossing guard training according to best practices.
6. Birch Lane Priority: Medium	• Parents are concerned about bicyclists being visible when riding on the street, especially during drop-off and pick-up	• Stencil green backed Shared Lane Markings on Birch Lane from Chapman Place to Clara Lane
7. Birch Lane at Clara Lane Priority: Medium	• No defined crossing for students at intersection • Parked cars at intersection reduces visibility of crossing pedestrians and bicyclists	• Construct curb extension on northern corner, retain adjacent driveway access • Stripe high-visibility yellow crosswalks with curb ramps • Stripe red curb at south corner and prohibit parking to improve pedestrian visibility
8. Birch Lane at Pole Line Road Priority: Medium	• Crosswalks are not high-visibility • Crosswalks lack advance warning signage	• Restripe crosswalks as high-visibility yellow and install tactile domes • Install Assembly D signage in advance of crossing
9. Pole Line Road at Clara Lane/Loyola Drive Priority: High	• Intersection causes student confusion for the proper way to cross the street when accessing the cut-through to Clara Lane or to Drexel Drive • Wide curb radii on northeast corner encourages fast right turns and leaves little room for bicycle/pedestrian waiting area • "No turn on red" illuminated sign is difficult to discern due to position and style of sign	• Install wayfinding • Construct curb extension in northeast corner with 8-foot wide southern curb ramp • Restripe existing crosswalks as high-visibility white

Location	Reported or Observed Challenge	Recommended Improvement
10. Baywood Lane at Clemson Drive Priority: Low	• Pathway from school has abrupt exit onto sidewalk immediately north of the intersection • Wide curb radii at intersection • Crosswalks are not high-visibility, no curb ramps • Poor sight lines when approaching on Clemson Drive • Incorrect school zone signage on Baywood Lane	• Reduce turning radii at north and south east corners • Stripe high visibility yellow crosswalks on north and east legs of intersection • Stripe advance Stop bar on north leg of intersection • Stencil 'STOP' on east and south legs of intersection • Stripe red curb on north and south eastern corners to improve pedestrian visibility • Replace Assembly D signage with Assembly A on Baywood Lane



Birch Lane Elementary Improvement Plan DRAFT

1 Birch Lane School Grounds
- Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 250 bicycle parking spaces, provide visitor bicycle parking
- Construct sidewalk extension from northern crosswalk to southern parking lot driveway on to school property
- Restripe crosswalks at driveways as yellow high visibility and install tactile domes
- School district and City collaborate to explore opportunities to improve and develop concept plan to enhance Birch Lane path to accommodate users
- Stencil "LOOK" with arrows at fire lane/bicycle exit from school

2 Birch Lane at East Covell Boulevard
- Permit bike access from northeast access point
- Create a gentler grade at entry for southbound bicycle crossing across Covell Blvd
- Provide wayfinding from and to path
- Restripe and add bike intersection markings with green
- Restripe "KEEP CLEAR" stencil on Birch Ln, couple with bike lane at intersection to better position bicyclists
- Restripe crosswalk in east leg as high-visibility yellow
- Construct CA HDM-compliant pedestrian refuge in crosswalk between East Covell Blvd and Dennison Dr
- Increase signal time for bicycle phase; Increase signal time for pedestrian phase to 3.5ft per second
- Ensure bicycle detection working for all directions

3 Birch Lane at Dennison Drive
- Designate Dennison Dr from Pole Line Rd to Poplar Lane, as an enhanced bikeway
- Construct curb extensions in southwest & southeast corners
- Stripe high-visibility yellow crosswalk on south leg
- Install Assembly A signage southbound on Birch Ln

4 Birch Lane at Chapman Place
- Restripe crosswalk yellow high-visibility, install curb ramps at both ends

5 Birch Lane Mid-Block Crosswalks
- Install Assembly D signage in advance of mid-block crosswalks
- Refresh existing "SLOW SCHOOL XING" markings
- Restripe both crosswalks as high-visibility yellow
- Construct curb extensions both crosswalks

6 Birch Lane
- Stencil green backed Shared Lane Markings on Birch Lane from Chapman Place to Clara Lane

7 Birch Lane at Clara Lane
- Construct curb extension on northern corner, retain adjacent driveway access
- Stripe high-visibility yellow crosswalks with curb ramps
- Stripe red curb at south corner and prohibit parking to improve visibility

8 Pole Line Road at Birch Lane
- Restripe crosswalks as high-visibility yellow and install tactile domes
- Install Assembly D signage in advance of crossing

9 Pole Line Road at Loyola Drive
- Provide wayfinding
- Construct curb extension in northeast corner with wide southern curb ramp
- Restripe existing crosswalks as high-visibility white

10 Baywood Lane at Clemson Drive
- Reduce turning radii at north and south east corners
- Stripe high visibility yellow crosswalks on north and east legs of intersection
- Stripe advance stop bar on north leg of intersection
- Stencil "STOP" on east and south legs of intersection
- Stripe red curb on north and south eastern corners to improve visibility
- Replace Assembly D signage with Assembly A on Baywood Lane

Figure 2-1: Birch Lane Improvement Plan

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2.2. Cesar Chavez Elementary

Principal:	Denise Beck
Grades:	K-6
Number of Students:	628 students
Arrival:	Morning K – 8:25 AM
	Afternoon K – 12:00 PM
	Grades 1-6 – 8:25 AM
Departure:	Morning K – 11:45 AM
	Afternoon K – 3:20 PM
	Grades 1-3 – 2:35 PM
	Grades 5-6 – 3:05 PM
	Wednesdays – 1:30 PM

2.2.1 School Layout

Cesar Chavez Elementary is located on Anderson Road, a busy north/south arterial roadway in central Davis, northwest of downtown. Redwood Park is located along the entire southern edge of the school. The loading zone for Cesar Chavez is along Anderson Road, with the parking lot reserved for staff and closed to through traffic. The curb along the school is striped white for loading. There is one signal controlled crosswalk across Anderson Road at Rutgers Drive at the north of the school and another uncontrolled crosswalk at Amherst Drive to the south of the school in Redwood Park. Anderson Road is signed for a 30 mph speed limit with posted 25 mph during school hours.There are speed feedback signs on Anderson Road around the school.

There are three access points to the school: via Anderson Road and via two rear pathways connecting to Redwood Park from Linden Lane to the south and from Cornell Drive to the southwest. Bicycle parking is located at the north end of the school parking lot adjacent to Anderson Road at Rutgers Drive and at the southwest corner of the school, with easy access to the rear pathways through Redwood Park.

Anderson Road, Villanova Drive, and 8th Street all have bike lanes, but their high volumes of vehicle traffic can discourage students and parents from bicycling to school. Cesar Chavez Elementary is a Spanish-language magnet school that draws students from the entire district, meaning there is a larger potential for vehicle trips to Cesar Chavez Elementary than other schools. Rutgers Drive and Pine Lane are popular low-stress alternatives to bicycling on the parallel arterial roadways.

2.2.2 Crossing Guards

There is one crossing guard for Cesar Chavez Elementary at Anderson Road at Rutgers Drive.

2.2.3 Audit

The audit took place on the morning of Thursday, April 15th, 2013. There were ten stakeholders at the audit including representatives from the City, Davis PD, the school, the community, and interested parents. The audit stakeholders observed conditions at eight locations: along the loading zone on Anderson Road, at Anderson Road at Rutgers Drive, at Anderson Road at Amherst Drive, at Rutgers Drive at Oeste Drive, at the Redwood Park pathway from Linden Lane, at the Redwood Park pathway from Cornell Drive, at Cornell Drive at Pine Lane, and at Sycamore Lane at Cornell Drive. Afterward, stakeholders reconvened to discuss their observation and brainstorm possible improvements.

2.2.4 Opportunities and Recommended Improvements

Location	Reported or Observed Challenge	Recommended Improvement
1. School Grounds Priority: Low	• Bicycle parking does not meet current standards, providing only one point of contact with bicycle and does not provide enough maneuvering space • Recent counts show 175 students bicycle to school • Parent visitor bicycle parking is not provided Crosswalks/marked walking paths through the school parking lot are faded and narrow	• Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 200 bicycle parking spaces • Provide visitor bicycle parking near office • Restripe walkways in the parking lot as high-visibility yellow • Stripe a high-visibility crosswalk at driveway and install tactile domes
2. Pine Lane Priority: Medium	• Families use Pine Lane as a north/south alternative route to Sycamore Lane, accessing Cesar Chavez via Redwood Park • Parents reported high driver speeds on Pine Lane, which has high volumes of student bicyclists and pedestrians	• Designate Pine Lane, Villanova Drive to West 8th Street, as an enhanced bikeway with traffic calming treatments
3. Pine Lane at Cornell Drive Priority: Medium	• Intersection has stop signs in only two directions, making through traffic and turns in the north/south direction difficult • No curb ramps at intersection and high volume of bicyclists, especially southbound bicyclists on Pine Lane turning left onto Cornell Drive • No signage or warning for cross traffic about high volumes of turning bicyclists	• Conduct stop sign analysis to determine if all-way stop signs are warranted • Install curb ramps on all 4 corners • Stencil 'STOP' and stripe stop bars at all stop signs • Stripe a white high-visibility crosswalk at northern leg • Provide wayfinding and directional sharrows for southbound bicyclists
4. Access to Redwood Park – Linden Lane and Cornell Drive Priority: High	• Park entrances on curves and have poor visibility • Faded crosswalks at park entrances • Missing crosswalk signage	• Restripe crosswalks (2) as high-visibility yellow • Install ADA compliant curb ramps at both ends of both crosswalks • Update Assembly B signage and install Assembly D signage • Linden Lane: expand path at park entrance • Cornell Drive: stripe red curb on either end of curb ramps
5. Anderson Road at Villanova Road Priority: High	• Southbound 2-to-1 merge takes place after intersection resulting in lane confusion at school	• Conduct analysis of moving southbound 2-to-1 merge north of Villanova Drive with the outside southbound lane converted to right-turn only • Restripe crosswalks as high-visibility yellow

Location	Reported or Observed Challenge	Recommended Improvement
6. Anderson Road at Rutgers Drive Priority: High	• A closed school parking lot driveway on the west side of the intersection leaves an unnecessary curb cut in the sidewalk • Crosswalks are not high-visibility • Sidewalk is too narrow for volume nearby the bicycle parking area, no continuous barriers between parking lot and sidewalk makes walking on the sidewalk uncomfortable. • Positioning for bicyclists on Rutgers is unclear when trying to access the school and could conflict with right-turning drivers	• Construct vertical curb on the sidewalk south of the intersection where the school closed a parking lot driveway • Construct curb extension along western side of intersection in the parking lane • Restripe crosswalks as high-visibility yellow and install tactile domes • Construct continuous curbing between sidewalk and parking lot • See Rutgers Drive recommendation
7. Rutgers Drive Priority: Medium	• Key bicycle route to school	• Designate Rutgers Drive as an enhanced bikeway with traffic calming treatments
8. Anderson Road Priority: High	• Bike lane conflict in loading zone with loading parents pulling in and out • Reported high driver speeds on Anderson Road	• Enhance bike lane with markings and green paint along loading zone • Long-term consider roadway reconfiguration that may include travel lane width reduction, buffered bike lanes, or other treatments
9. Anderson Road at Amherst Drive Priority: High	• The pathway from Redwood Park forces difficult 90 degree angle turns by bicyclists to reach the crosswalk • Poor visibility of pedestrians entering the crosswalk because of parking lane • Uncontrolled crosswalk has no pedestrian refuge • Advance crossing signage needed on Anderson Road	• Construct curb extensions into parking lane on both ends of crosswalk • Expand pathway for direct line of travel to crosswalk • Refresh high-visibility yellow crosswalk, stripe yield lines • Install Assembly D signage in both directions • Install RRFB • Stencil 'STOP' and stripe stop bar at Amherst

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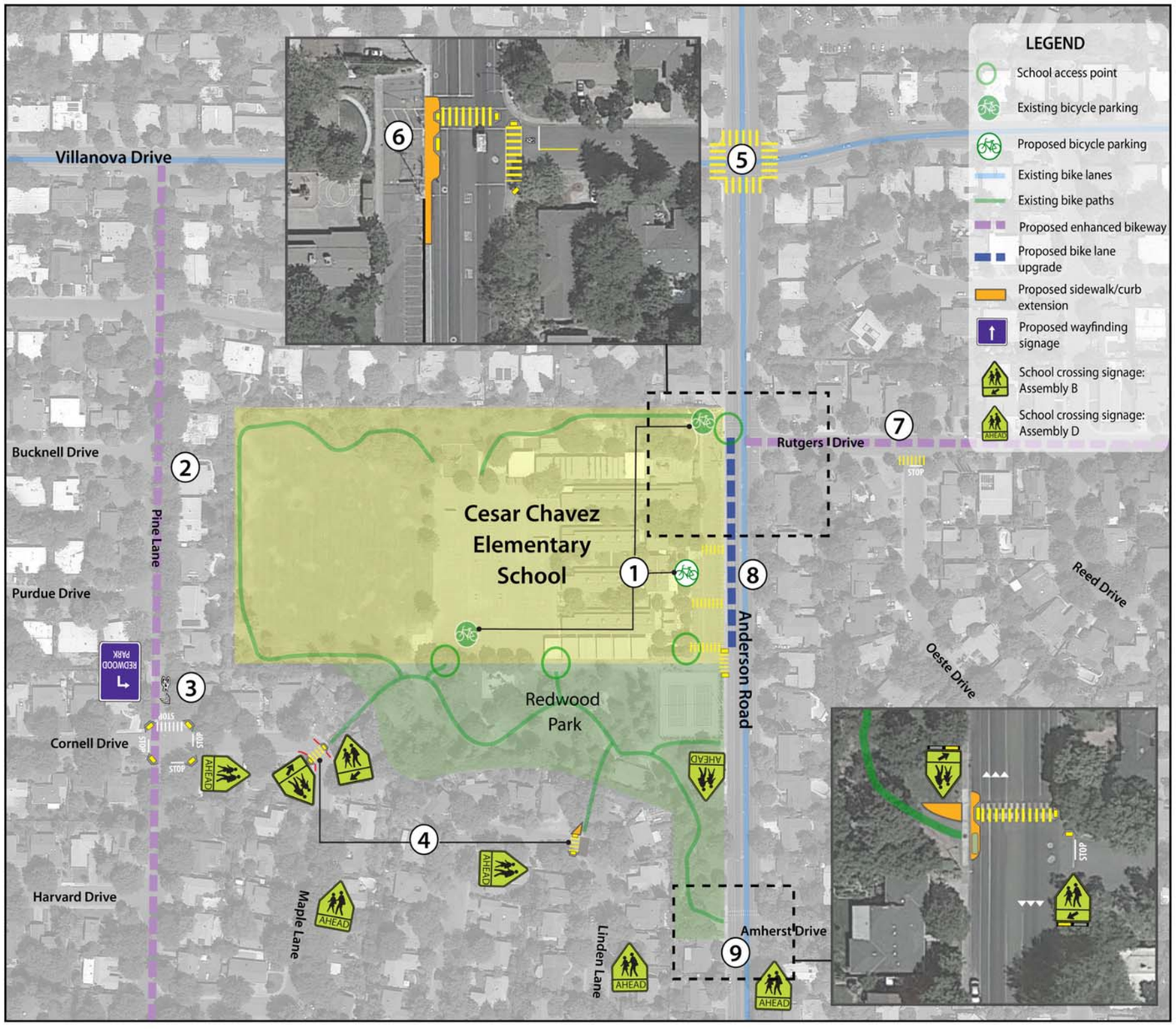

Cesar Chavez Elementary Improvement Plan DRAFT

1 School Grounds
- Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 200 bicycle parking spaces
- Provide visitor bicycle parking near the office
- Restripe walkways in the parking lot as high-visibility yellow
- Stripe a high-visibility crosswalk at driveway and install tactile domes

2 Pine Lane
- Designate Pine Lane, Villanova Drive to West 8th Street, as an enhanced bikeway with traffic calming treatments

3 Pine Lane at Cornell Drive
- Conduct stop sign analysis to determine if all-way stop signs are warranted
- Install curb ramps on all 4 corners
- Stencil "STOP" and stripe stop bars at all stop signs
- Stripe a white high-visibility crosswalk at northern leg
- Provide wayfinding and directional sharrows for southbound bicyclists

4 Access Points to Redwood Park
- Restripe crosswalks (2) as high-visibility yellow
- Install ADA compliant curb ramps at both ends of both crosswalks
- Update Assembly B signage and install Assembly D signage
- Linden Ln: expand path at park entrance
- Cornell Dr: stripe red curb on either end of curb ramps

5 Anderson Road at Villanova Drive
- Conduct analysis of moving southbound 2-to-1 merge north of Villanova Drive with the outside southbound lane converted to right-turn-only
- Restripe crosswalks as high-visibility yellow

6 Anderson Road at Rutgers Drive
- Construct vertical curb on the sidewalk south of the intersection where the school closed a parking lot driveway
- Construct curb extension along western side of intersection in the parking lane
- Restripe crosswalks as high-visibility yellow and install tactile domes
- Construct continuous curbing between sidewalk and parking lot
- See Rutgers Dr recommendation

7 Rutgers Drive
- Designate Rutgers Dr as an enhanced bikeway with traffic calming treatments

8 Anderson Road
- Enhance bike lane with markings and green paint along loading zone
- Long-term consider roadway reconfiguration that may include travel lane width reduction, buffered bike lanes, or other treatments

9 Anderson Road at Amherst Drive
- Construct curb extensions into parking lane on both ends of crosswalk
- Expand pathway for direct line of travel to crosswalk
- Refresh high-visibility yellow crosswalk, stripe yield lines
- Install Assembly D signage in both directions.
- Install RRFB
- Stencil "STOP" and stripe stop bar at Amherst

Figure 2-2: Cesar Chavez Improvement Plan

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2.3. Korematsu Elementary

Principal:	Mary Ponce
Grades:	K-6
Number of Students:	525 students
Arrival:	Morning K – 8:30 AM
	Afternoon K – 11:15 AM
	Grades 1-6 – 8:30 AM
Departure:	Morning K – 11:50 AM
	Afternoon K – 2:35 PM
	Grades 1-3 – 2:35 PM
	Grades 5-6 – 3:05 PM
	Wednesdays – 1:30 PM

2.3.1 School Layout

Korematsu Elementary is located in east Davis at the intersection of Loyola Drive and Alhambra Drive. To the south and southwest of the school is Mace Ranch Park. This area of Davis hosts a robust network of multi-use paths, which can allow students to avoid traveling on the street on their way to school. The loading zone for the school is inside the school's parking lot, which is accessed from Loyola Drive. To the east, a tunnel under Alhambra Drive creates a grade-separated connection to neighborhoods to the north. There is a similar tunnel under Loyola Drive to the west and under 5th Street to the south.

There are three access points to Korematsu Elementary: the main entrance at the parking lot/loading loop, at the rear parking lot on Loyola Drive, and from the shared use path at the rear of the school.

5th Street, Alhambra Drive, and Loyola Drive are the primary roadways in this area of Davis. Despite their having only one lane of travel in each direction, the lack of street parking and driveways on each street can induce high driver speeds. Each street has bike lanes and some segments have parallel pedestrian paths. There is bicycle parking in three locations at Korematsu: various racks near the school office, a small number of racks near the rear parking lot on Loyola Drive, and a large bike parking area on the playground, accessed from a gate into Mace Ranch Park. Students entering from Mace Ranch Park with their bicycles must dismount at the school gate then walk their bicycles a few hundred feet to the bicycle parking area.

2.3.2 Crossing Guards

There is one crossing guard at the intersection of Alhambra Drive at Loyola Drive.

2.3.3 Audit

The audit took place on the morning of Thursday, May 16th, 2013 There were ten stakeholders at the audit, including representatives from the City (including a City engineer), the school, the District, the community, and interested parents. Stakeholders observed conditions at ten locations: in the school parking lot/loading zone, at Alhambra Drive at Loyola Drive, at Conquistador Way at Arena Drive, at the multi-use pathway tunnel under Alhambra Drive, at 5th Street at Alhambra Drive, at 5th Street at Entrada Drive, at multiple pathway intersections in Mace Ranch Park, at Loyola Drive at Santa Cruz, and at the terminus of a pathway on Ponteverde Drive to the west. Afterward, stakeholders reconvened to discuss observations.

2.3.4 Opportunities and Recommended Improvements

Location	Observed concern/opportunity	Recommendations
1. School Grounds Priority: Low	• Bicycle parking does not meet current standards, providing only one point of contact with bicycle and does not provide enough maneuvering space • Recent counts show 186 students bicycle to school • The student bicycle parking location is not easily accessible from the school yard gate, requiring students to walk their bikes a long distance • Adult visitor bicycle parking is not well located • Parent drivers load at entrance of loading loop and do not utilize full length of loading zone • No clear or visible walking or biking space at entrance on Loyola Drive	• Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 200 bicycle parking spaces • Provide visitor bicycle parking near the office, use asphalt pad at eastern end of school for additional bicycle parking, Screen bike parking from the sidewalk on Alhambra Drive • Construct a connector from the bike path directly to the new bike parking • If suggested location is infeasible, relocate existing student bicycle parking to location with more direct access from Mace Ranch Park or provide connection from Park path • Provide visitor bicycle parking near office • Install "Pull Forward" signage to encourage full use of loading zone • Construct a path from Loyola Drivepast parking lot to campus
2. Alhambra Drive at 5th Street Priority: Medium	• Reported high driver speeds approaching intersection • Right turn slip-lanes may encourage higher-speed turns and creates greater crossing distance for pedestrians and bicyclists • Reported low rate of yielding to bikes or pedestrians in crosswalks • Unclear connection to multi-use path	• Evaluate impacts of closing the right-turn slip lanes to auto traffic, allow through traffic for turning bicyclists • Reduce turning radii on northeast corner, align crosswalk • Restripe existing white transverse crosswalks as high-visibility yellow • Install wayfinding
3. Alhambra Drive at Loyola Drive Priority: Medium	• Standard crosswalks on western, northern, and eastern legs, no crosswalk on southern leg	• Stripe all legs with high-visibility yellow crosswalks • Outfit all curb ramps with tactile domes
4. Loyola Drive at Santa Cruz Priority: High	• Transverse crosswalks at uncontrolled crossing • Missing advance crossing signage for crosswalks • Vegetation blocking visibility of existing crossing signage, missing red curb • Crossing guards provided by school; the effectiveness of a crossing guard can be the deciding factor in a parent feeling comfortable enough to let their child walk or bike to school.	• Replace existing crosswalks as high-visibility yellow • Trim vegetation from existing Assembly B signage. • Install Assembly D signage in both directions • Stripe red curb within the intersection • City to consider funding and training all crossing guards to provide standardized crossing guard training according to best practices
5. 5th Street at Entrada Drive Priority: Medium	• No dedicated crossing of 5th Street at Entrada Dr • Reduced visibility due to turning angle of 5th Street roadway	• Stripe high visibility white crosswalk in eastern leg of intersection with yield lines • Install pedestrian crossing signage

Location	Observed concern/opportunity	Recommendations
6. Mace Ranch Park Priority: Medium	• Pathway intersections have little to no signage, unclear how to reach destinations • Uneven pavement on many paths, conflicts between bicyclists and pedestrians	• Provide wayfinding signage at decision and entrance points • Repair path pavement
7. Tulip Lane Shared Use Path Priority: Medium	• Multi-use path ends at elbow in the road on Ponteverde Lane– which many drivers use as a cut through for north/south travel • No marked crossing of Tulip Lane to the west • No clear path of travel to enter the bike path from Ponteverde Lane	• Construct path extension to Tulip Lane, cross Tulip Lane to meet the cut through to Mesquite Drive • Stripe a white high-visibility crosswalk across Tulip Lane with curb ramps and pedestrian crossing signage

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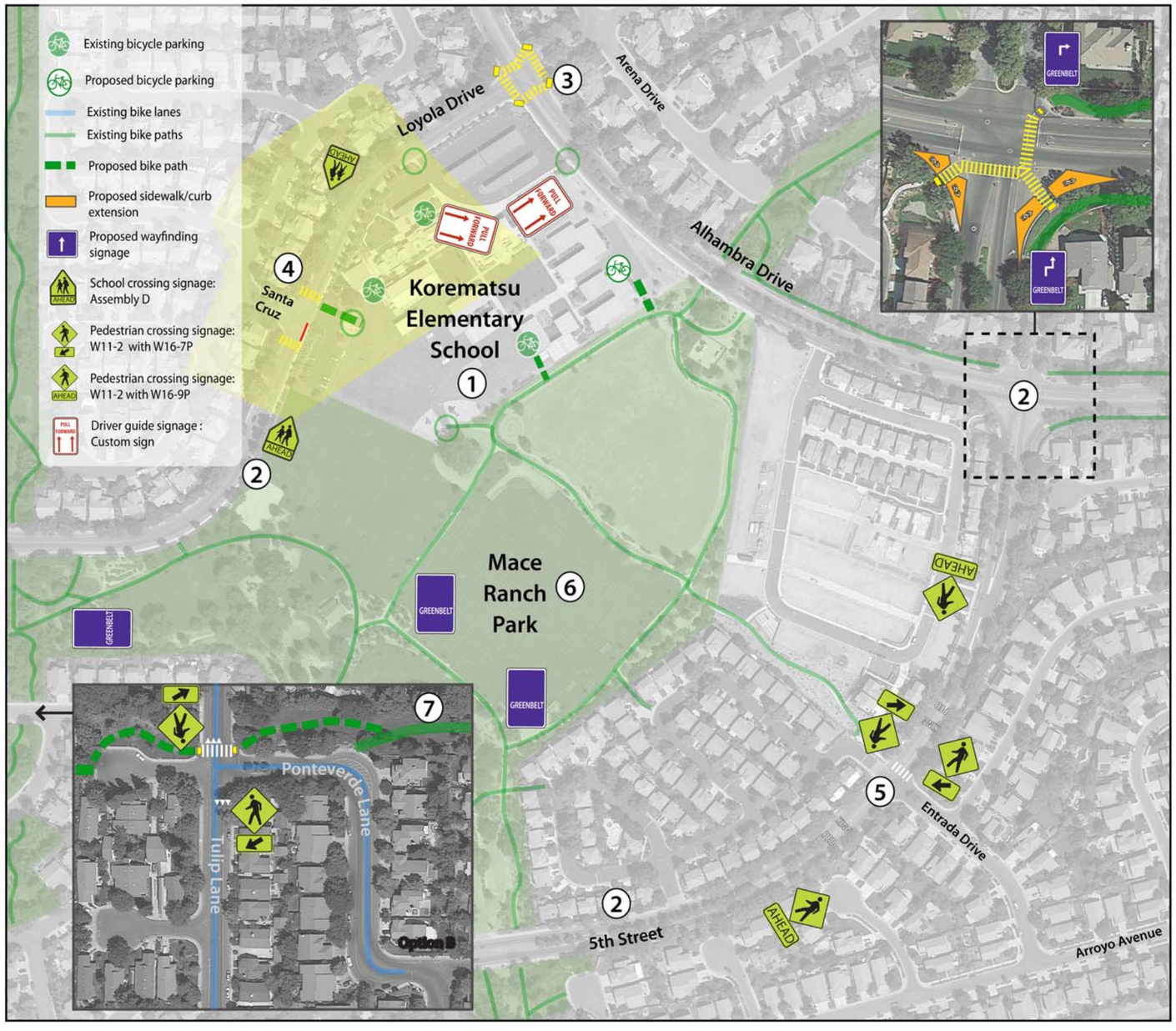

Koremastu Elementary Improvement Plan DRAFT

1 School Grounds
- Upgrade bike parking to meet current City parking type and spacing standards; provide a minimum of 200 bicycle parking spaces
- Provide visitor bicycle parking near the office
- Use asphalt pad at eastern end of school for additional bicycle parking, screen bike parking from the sidewalk on Alhambra Drive
- Construct a connector from the bike path directly to the new bike parking
- If suggested location is infeasible, relocate existing student bicycle parking to location with more direct access from Mace Ranch Park or provide connection from Park path
- Provide visitor bicycle parking near office
- Install "pull forward" signage to encourage full use of loading zone
- Construct a path from Loyola Dr past parking lot to campus

2 Alhambra Drive at 5th Street
- Evaluate impacts to closing the right-turn slip lanes to auto traffic, allow through traffic for turning bicyclists
- Reduce turning radii on northeast corner, align crosswalk
- Restripe existing white transverse crosswalks as high-visibility yellow
- Install wayfinding

3 Alhambra Drive at Loyola Drive
- Stripe all legs with high-visibility yellow crosswalks
- Outfit all curb ramps with tactile domes

4 Loyola Drive at Santa Cruz
- Replace existing crosswalks as high-visibility yellow
- Trim vegetation from existing Assembly B signage.
- Install Assembly D signage in both directions
- Stripe red curb within the intersection

5 5th Street at Entrada Drive
- Stripe high visibility white crosswalk in eastern leg of intersection with yield lines
- Install pedestrian crossing signage

6 Mace Ranch Park
- Provide wayfinding signage at decision and entrance points
- Repair path pavement

7 Tulip Lane Greenbelt
- Construct path extension to Tulip Lane, cross Tulip Lane to meet the cut through to Mesquite Drive.
- Stripe a white high-visibility crosswalk across Tulip Lane with curb ramps and pedestrian crossing signage.

Figure 2-3: Koremastu Improvement Plan

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2.4. Montgomery Elementary

Principal:	Sally Plicka
Grades:	K-6
Number of Students:	402 students
Arrival:	Morning K – 8:30 AM
	Afternoon K – 11:50 AM
	Grades 1-6 – 8:30 AM
Departure:	Morning K – 11:50 AM
	Afternoon K – 3:10 PM
	Grades 1-3 – 2:35 PM
	Grades 5-6 – 3:05 PM
	Wednesdays – 1:30 PM

2.4.1 School Layout

Montgomery Elementary is located in south Davis at the intersection of Lillard Drive and Danbury Street. To the west is Walnut Park and to the east is Putah Creek Park. Both parks connect with the shared use path. South of Putah Creek is unincorporated county, but all students here attend Montgomery Elementary. In addition to the path, there is a robust network of multi-use paths connecting this area across Interstate 80 to the north. The loading zone for the school is within the school's parking lot, accessed from Danbury Street. The shared use path has a tunnel under Danbury Street adjacent to Montgomery Elementary.

There are three points of access to Montgomery Elementary: the main entrance at the school parking lot/loading zone, a rear parking lot that serves Walnut Park and the adjacent child development center, and from the shared use path- which runs along the south side of the school.

Lillard Drive is the primary roadway in this area, and becomes Pole Line Road to the west after crossing Cowell Boulevard. Most major roadways in this area also have bike lanes, though many have traffic speed and volumes that might discourage students and parents from bicycling. There are grade-separated pathway crossings where pathways meet large roads throughout this area of Davis, providing a comfortable off-street network. The primary bicycle parking at Montgomery is located on the south side of the school beside the shared use path. There is a small amount of bicycle parking in the front of the school beside the library.

2.4.2 Crossing Guards

There is one crossing guard at the intersection of Lillard Drive at Danbury Street.

2.4.3 Audit

The audit took place on the morning of Tuesday, May 14th, 2013. There were sixteen stakeholders at the audit, including representatives from the City, the school, the District, the community, and interested parents. Stakeholders observed conditions at twelve locations: in the school parking lot/loading zone, at three multi-use path tunnels along the shared use path, at three intersections along Lillard Drive, at the bike parking area on the south side of the school, at Pole Line Road at Cowell Boulevard, and at Danbury Street at Montgomery Avenue. Afterward, stakeholders reconvened to discuss observations and opportunities for improvements.

2.4.4 Opportunities and Recommended Improvements

Location	Reported or Observed Challenge	Recommendations
1. School Grounds Priority: Low	• Bicycle parking does not meet current standards, providing only one point of contact with bicycle and does not provide enough maneuvering space • Recent counts show 78 students bicycle to school • The student bicycle parking location is too close to the shared use path and the "dismount here" stencil places students in the path of through traffic • Parent visitor bicycle parking does not meet current standards • Signage in the loading zone is outdated, parents double-park in the loading loop and do not use the far end of the loop • Crosswalks in parking lot are faded • Crosswalk in south end of parking lot ends at landscaped area providing no pedestrian access across • Crosswalk across access lane is narrow and has no ramps • Sidewalk along driveway exit to Danbury Street is narrow and has no curb ramps	• Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 100 bicycle parking spaces • Provide visitor bicycle parking near the office • When bicycle parking is upgraded, provide a dismount zone on school grounds off the path • Restripe all crosswalks as high-visibility yellow • Update Loading Zone signage in the parking loop • Construct curb ramp for middle crosswalk • Construct curb ramps on both sides of southern crosswalk and path through landscaping • Construct sidewalk extension from crosswalk to Danbury Street
2. Walnut Park Parking Lot Priority: Medium	• Parents use park's parking lot for drop off • Loading area has fade curb striping • Curb striping in loading zone is faded; there is no curb ramp access in the loading zone.	• Refresh existing white curb in loading zone
3. Lillard Drive Priority: High	• Vegetation encroaches on sidewalks near the school	• Trim vegetation
4. Lillard Drive at Cowell Boulevard Priority: High	• Wide intersection with right turn slip-lanes • Conflicts between turning vehicles and the bike path crossings of intersection • Reported poor yield rate by drivers in right turn lanes	• Evaluate impacts to closing the right-turn slip lanes to auto traffic, allow through traffic for turning bicyclists • Restripe all crosswalks as high-visibility white, move back to accommodate two-stage turn boxes • Install two stage turn boxes
5. Lillard Drive at Faragut Circle Priority: High	• Existing uncontrolled crossing has standard crosswalk and no crossing signage • Reported poor yield rate • Reported fast vehicle speeds	• Replace existing white transverse crosswalks with high-visibility white • Install tactile domes on all three curb ramps • Install pedestrian crossing signage • Install Rapid Rectangular Flashing Beacon (RRFB)

Location	Reported or Observed Challenge	Recommendations
6. Danbury Street Priority: Low	• Bike lane markings are faded	• Refresh bike lane markings
7. Danbury Street at Lillard Drive Priority: Medium	• Wide intersection, drivers don't always see pedestrians or bicyclists • Northwest corner does not have a curb ramp • Stop sign in bike lane	• Restripe crosswalks as high-visibility yellow • Install curb ramp • Relocate stop sign outside bike lane
8. Lillard Drive at Drummond Avenue	• Wide intersection	• Restripe crosswalk as high-visibility • Stencil STOP and stripe stop bars at all stop signs • Construct curb extension on all four corners
9. Path behind School Priority: Medium	• High use and reported user conflicts	• Add striping and signage to path at Danbury St/ Putah Creek Crossing • Mark conflict points at path intersections • Create 'bicycle slow zone' near school bike parking area • Install wayfinding
10. Putah Creek Crossing Priority: Medium	• Informal crossing across Putah Creek connects the shared use path to the north with Willowbank Road in unincorporated county to the south but does not meet standards and accesses private property	• Study the feasibility of constructing a formal crossing of Putah Creek
11. Erma Lane at Path Priority: High	• No path access from Erma Lane and Royal Oak Mobile Home area	• Study the feasibility of constructing a path connection from Erma Lane
12. Willowcreek Park	See Pioneer Elementary	See Pioneer Elementary

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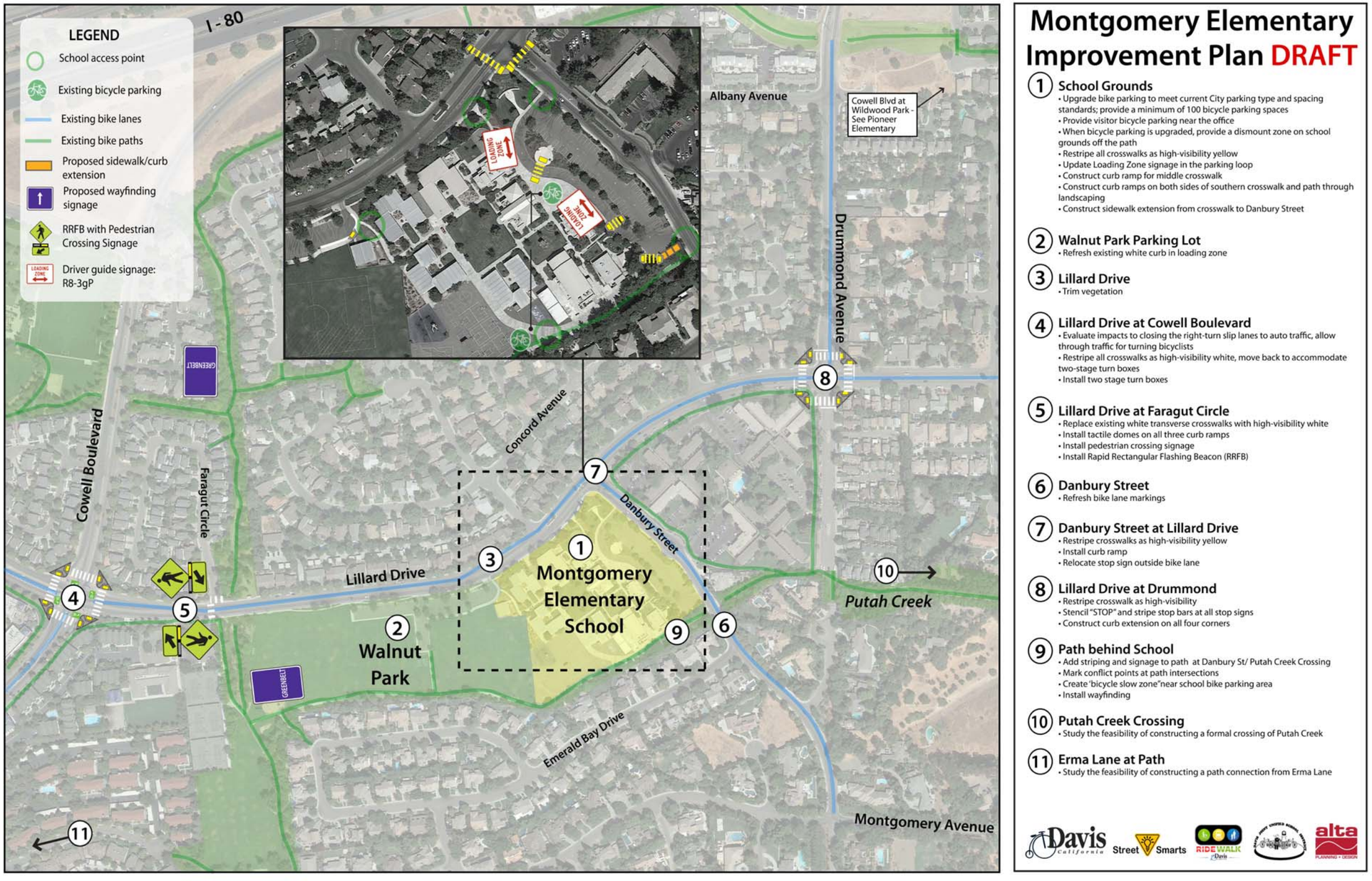

Montgomery Elementary Improvement Plan DRAFT

1 School Grounds
- Upgrade bike parking to meet current City parking type and spacing standards; provide a minimum of 100 bicycle parking spaces
- Provide visitor bicycle parking near the office
- When bicycle parking is upgraded, provide a dismount zone on school grounds off the path
- Restripe all crosswalks as high-visibility yellow
- Update Loading Zone signage in the parking loop
- Construct curb ramp for middle crosswalk
- Construct curb ramps on both sides of southern crosswalk and path through landscaping
- Construct sidewalk extension from crosswalk to Danbury Street

2 Walnut Park Parking Lot
- Refresh existing white curb in loading zone

3 Lillard Drive
- Trim vegetation

4 Lillard Drive at Cowell Boulevard
- Evaluate impacts to closing the right-turn slip lanes to auto traffic, allow through traffic for turning bicyclists
- Restripe all crosswalks as high-visibility white, move back to accommodate two-stage turn boxes
- Install two stage turn boxes

5 Lillard Drive at Faragut Circle
- Replace existing white transverse crosswalks with high-visibility white
- Install tactile domes on all three curb ramps
- Install pedestrian crossing signage
- Install Rapid Rectangular Flashing Beacon (RRFB)

6 Danbury Street
- Refresh bike lane markings

7 Danbury Street at Lillard Drive
- Restripe crosswalks as high-visibility yellow
- Install curb ramp
- Relocate stop sign outside bike lane

8 Lillard Drive at Drummond
- Restripe crosswalk as high-visibility
- Stencil "STOP" and stripe stop bars at all stop signs
- Construct curb extension on all four corners

9 Path behind School
- Add striping and signage to path at Danbury St/ Putah Creek Crossing
- Mark conflict points at path intersections
- Create 'bicycle slow zone"near school bike parking area
- Install wayfinding

10 Putah Creek Crossing
- Study the feasibility of constructing a formal crossing of Putah Creek

11 Erma Lane at Path
- Study the feasibility of constructing a path connection from Erma Lane

Figure 2-4: Montgomery Improvement Plan

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2.5. North Davis Elementary

Principal:	Ramon Cusi
Grades:	K-6
Number of Students:	602 students
Arrival:	Morning K – 8:30 AM
	Afternoon K – 11:15 AM
	Grades 1-6 – 8:30 AM
Departure:	Morning K – 11:50 AM
	Afternoon K – 2:35 PM
	Grades 1-3 – 2:35 PM
	Grades 5-6 – 3:05 PM
	Wednesdays – 1:30 PM

2.5.1 School Layout

North Davis is located in north-central Davis on East 14th Street, just east of the Yolo County Library and Davis Senior High School. To the north is Davis Community Park, which has a bridge connecting over East Covell Boulevard to a network of pathways to the north. To the east is a bicycle/pedestrian tunnel under the railroad between H Street and J Street.

There are two points of access for North Davis Elementary: the parking lot and on-street loading zone along East 14th Street and a pathway from Davis Community Park at the northwest corner of school.

East Covell Boulevard, to the north of the school, is the primary east/west street in this area. F Street and East 14th Street also carry a significant amount of traffic. All three streets have bike lanes, as well as bike lanes on B Street that convert to street parking on weekends and evenings. There are two student bicycle parking areas on the west side of the school, one near East 14th Street and one in the northwest corner of the school. Both parking areas are accessible from the Davis Community Park pathway. There is a path on the north side of East 14th Street from the west end of North Davis Elementary west to B Street.

2.5.2 Crossing Guards

There are three crossing guards for North Davis Elementary, at Cedar Place at East 14th Street, at B Street at East 14th Street, and at a mid-block crossing on F Street north of the school.

2.5.3 Other City of Davis Projects

The City is the process of a planning project on East Covell Boulevard, with the western terminus at F Street.

2.5.4 Audit

The audit took place on the morning of Friday, April 12th, 2013. There were sixteen stakeholders at the audit, including representatives from the City, the school, the school district, the community, and interested parents. Stakeholders observed conditions at nine locations: in the school parking lot/loading zone, at the school bicycle parking areas, at five locations along East 14th Street, at the mid-block crosswalk on F Street north of the school, at the H Street/J Street Tunnel, and at Catalina Drive at the path to the north. Afterward, stakeholders reconvened to discuss their observations and possible improvements.

2.5.5 Opportunities and Recommended Improvements

Location	Reported or Observed Challenge	Recommendations
1. School Grounds Priority: Low	• Bicycle parking does not meet current standards, providing only one point of contact with bicycle and does not provide enough maneuvering space • Recent counts show 206 students bicycle to school • Parent visitor bicycle parking is not provided • Wide driveways at entrance and exit of parking lot, pedestrian/driver conflict at driveways • Incorrectly striped yellow curb in loading area • Narrow crosswalk in the middle of the parking lot	• Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 250 bicycle parking spaces • Provide visitor bicycle parking near the office • Reduce driveway entrance and exit width • Stripe high-visibility yellow crosswalks across driveways • Stencil 'STOP' and stripe stop bars at driveway exits • Restripe parking loop as white • Construct raised crossing in parking loop at current crosswalk
2. Catalina Drive at Shared Use Path Priority: Medium	• Students north of East Covell Boulevard use the path to get to school, the crossing at Catalina Drive has a faded crosswalk and is located on a curve in the road • Bicyclists must make 90 degree turns because the curb ramps don't line up with the pathway	• Restripe crosswalk as high-visibility yellow, add yield lines • Re-stencil "Bike X-ing" stencil • Consider raised crossing
3. F Street Mid-Block Crossing at the Little League Fields Priority: High	• 2-to-1 southbound lane merge south of East Covell Boulevard is challenging for bicyclists along the corridor and at the midblock crossing • Reports that the mid-block crossing does not provide enough protection even with the existing pedestrian refuge island and curb extensions	• Install RRFB at the mid-block crossing • Refresh crosswalk striping, install yield lines • Relocate southbound 25 mph signage to the north of the crosswalk • Study removal of 2-to-1 southbound merge on F Street in favor of only one southbound travel lane south of East Covell Blvd • Evaluate impacts to closing the right-turn slip lanes to auto traffic, allow through traffic for turning bicyclists at East Covell Blvd
4. F Street at East 14th Street Priority: High	• Parallel bike path meets intersection with no warning to drivers • It is difficult for northbound bicyclists to make a left turn onto East 14th Street, the signal phase is too short for crossing pedestrians	• Replace existing crosswalks with high-visibility yellow • Shift bicycle lane on east leg to curb, provide queuing area for left-turning bicyclist on northeast corner
5. 14th Street Priority: High	• Parents pulling in and out of loading zone conflict with bike lane users • Reported speeding, illegal u-turns and double parking in bike lane	• Provide green bike lane striping alongside loading zones • Install buffered bike lanes from Oak Ave to F Street • Long term: consider streetscape and corridor improvements to reduce roadway width with elements such as landscaped medians

Location	Reported or Observed Challenge	Recommendations
6. East 14th Street at Cedar Place Priority: High	• Reported low rate of drivers yielding to pedestrians in the crosswalk, even when crossing guard is present • In-pavement signage for crosswalk is not enough, principal requests a stop sign at this crossing	• Refresh existing high-visibility yellow crosswalk • Construct curb extension on north side of the street in parking lane • Construct raised pedestrian refuge in center lane • Provide tactile dome strips for all curb ramps • Install Assembly D signage in both directions
7. East 14th Street at B Street Priority: Medium	• Difficult access between side path on the north side of the street and bike lanes on B Street south of the intersection, bicyclists must ride onto sidewalk to access path and make 90 degree angle turns • Wide intersection makes intersection management difficult for crossing guard	• Construct sidewalk extension in parking lane on the north side of the street extending east, construct connector with adjacent bike path • Restripe existing crosswalks as yellow high-visibility yellow • See recommendation for corridor improvement considerations including landscaped median
8. B Street Priority: Low	• Bike lanes on B Street are temporary and serve as a parking lane during evenings and weekends, uncomfortable for bikes	• Remove temporary bike lanes and transition street into an enhanced bikeway with additional traffic calming treatments
9. H & J Street Tunnel	See Holmes Junior High School	See Holmes Junior High School

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North Davis Elementary Improvement Plan DRAFT

1 School Grounds
- Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 250 bicycle parking spaces
- Provide visitor bicycle parking near the office
- Reduce driveway entrance and exit width
- Stripe high-visibility yellow crosswalks across driveways
- Stencil "STOP" and stripe stop bars at driveway exist
- Restripe parking loop as white
- Construct raised crossing in parking loop at current crosswalk

2 Shared Use Path at Catalina Drive
- Restripe crosswalk as high-visibility yellow, add yield lines
- Re-stencil "Bike X-ing" stencil
- Consider raised crossing

3 F Street Mid-Block Crossing to Little League Field
- Install RRFB at the mid-block crossing
- Refresh crosswalk striping, install yield lines
- Relocate southbound 25 mph signage to the north of the crosswalk
- Study removal of 2-to-1 southbound merge on F Street in favor of only one southbound travel lane south of E Covell Blvd
- Evaluate impacts to closing the right-turn slip lanes to auto traffic, allow through traffic for turning bicyclists at E Covell Blvd

4 F Street at 14th Street
- Replace existing crosswalks with high-visibility yellow
- Shift bicycle lane on east leg to curb, provide queuing area for left turning bicyclist on north east corner

5 14th Street
- Provide green bike lane striping alongside loading zones
- Install buffered bike lanes from Oak Ave to F St
- Long term: consider streetscape and corridor improvements to reduce roadway width with elements such as landscaped medians

6 14th Street at Cedar Place
- Refresh existing high-visibility yellow crosswalk
- Construct curb extension on north side of the street in parking lane
- Construct raised pedestrian refuge in center lane
- Provide tactile dome strips for all curb ramps
- Install Assembly D signage in both directions

7 14th Street at B Street
- Construct sidewalk extension in parking lane on the north side of the street, extending east, construct connector with adjacent bike path
- Restripe existing crosswalks as yellow high-visibility yellow
- See recommendation for corridor improvement considerations including landscaped median

8 B Street
- Remove temporary bike lanes and street into enhanced bikeway with additional traffic calming treatments

Figure 2-5: North Davis Improvement Plan

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2.6. Patwin Elementary

Principal:	Nicole Smith
Grades:	K-6
Number of Students:	427 students
Arrival:	Morning K – 8:30 AM
	Afternoon K – 11:15 AM
	Grades 1-6 – 8:30 AM
Departure:	Morning K – 11:50 AM
	Afternoon K – 2:35 PM
	Grades 1-3 – 2:35 PM
	Grades 5-6 – 3:05 PM
	Wednesdays – 1:30 PM

2.6.1 School Layout

Patwin Elementary is located in west Davis on Shasta Drive. To the east is Arroyo Park and a shared use path runs along the southern side of the school. Emerson Junior High is located just south of Patwin Elementary. The loading zone for Patwin Elementary is along Shasta Drive, with a small loading loop at the school entrance and a larger parking lot to the east. There is a raised crosswalk across Shasta Drive in close proximity to the school entrance.

There are two points of access for Patwin Elementary: the main entrance on Shasta Drive and from the path on the south side of the school.

Shasta Drive, Denali Drive, and Arlington Boulevard are major streets nearby Patwin Elementary. Each street has bike lanes, and parts of Arlington Boulevard have parallel bike paths. Humboldt Avenue, to the south of the school, also has bike lanes and street parking. The path runs east/west along the south end of the school and there is a robust network of bike paths (with grade separated crossings at most major streets) to the east, west and north of the school. There is student bicycle parking in the rear of the school next to the shared use path and there is visitor bicycle parking in the front of the school.

2.6.2 Crossing Guards

There is one crossing guard for Patwin Elementary, at the intersection of Shasta Drive, Arlington Boulevard, and the shared use path.

2.6.3 Audit

The audit took place on the morning of Tuesday, April 9th, 2013. There were eight stakeholders at the audit, including representatives from the City, the school, and the community. Stakeholders observed conditions at nine locations: along the shared use path and in Arroyo Park, at Arlington Boulevard at Shasta Drive, at Shasta Drive at Denali Drive, along the loading zone on Shasta Drive, and a mid-block crosswalk on Shasta Drive east of the school. Afterward, stakeholders reconvened to discuss their observations and possible improvements.

2.6.4 Opportunities and Recommended Improvements

Location	Reported or Observed Challenge	Recommendations
1. School Grounds Priority: Low	• Bicycle parking does not meet current standards, providing only one point of contact with bicycle and does not provide enough maneuvering space • Recent counts show 247 students bicycle to school • Small size of school loading loop reduces its utility for drivers but access needed for bus access • Pedestrian crossing through parking loop is faded	• Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 250 bicycle parking spaces • Provide visitor bicycle parking near the office • Close parking loop during drop-off and pick-up, with a movable barrier to allow bus access • Restripe crosswalk in parking loop as high-visibility yellow
2. Shasta Drive: Denali Drive to 275 ft. north of Arlington Blvd Priority: Low	• Reported that wide street encourages fast driving	• Construct median between Denali Drive and 275ft north of Arlington Blvd
3. Arlington Boulevard at Shasta Drive & the Path Priority: High	• Key intersection, however crosswalks are not high visibility • Right turning drivers conflict with bicyclists during bicycle signal phase • Confusing to navigate intersection and stay on the shared use path • Not enough room for waiting bicycles at the south end of the intersection; bicycles entering intersection from pathways must use curb ramps used for crosswalks, and backed up bicycles at intersection blocks the pathway along Arlington Boulevard	• Restripe existing crosswalks as yellow high-visibility crosswalks, install tactile domes • Evaluate prohibiting right turns on red • Install wayfinding signage to help bicyclists stay on the shared use path • Pave space between crosswalks in the south end of the intersection for bicycle travel, with directional stencils and loop detection (requires moving signal pole) • Stencil "PED ONLY" at curb ramps for accessing the crosswalks
4. Shard Use Path at Shasta Drive Priority: High	• Vegetation at path and Shasta impairs visibility • General low visibility at sidewalk and path intersection • No clear direction for bicyclists exiting the path	• Trim vegetation at path exit on sidewalk • Install convex mirror facing path to improve pedestrian cross-traffic visibility • Stencil "LOOK" pavement markings on path in advance of exit • Install path wayfinding signage
5. Denali Drive at Shasta Drive Priority: Medium	• Reported that drivers do not look for pedestrians or come to a full stop when making a right turn • No curb ramp on southwest corner	• Restripe existing crosswalks as high visibility yellow • Stripe stop bars at all stop signs • Install curb ramp on southwest corner
6. School Frontage Priority: Low	• Curb in front of school striped green for temporary parking, white curb for loading is striped on the curb further east	• Restripe the green curb fronting the parking loop as white curb

Location	Reported or Observed Challenge	Recommendations
7. East of School Frontage Mid-block Crossing Priority: Low	• Crosswalk east of the school on Shasta Drive is staggered with a pedestrian refuge island, but is faded and white	• Restripe existing crosswalk as high-visibility yellow add yield lines • Replace white curb east of the school with green curb
8. Shared Use Path Priority: Low	• Vegetation reduces available space for use • Pedestrian and bicyclist conflicts • No clear signage	• Trim vegetation on path between Patwin Elementary and Shasta Drive • Stencil share the path messaging • Provide wayfinding signage at decision and entrance points • Create 'bicycle slow zone' near school area
Arlington Boulevard Corridor	See Emerson Junior High School	See Emerson Junior High School
Path Access Points	See Emerson Junior High School	See Emerson Junior High School

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Patwin Elementary Improvement Plan DRAFT

1 School Grounds
- Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 250 bicycle parking spaces
- Provide visitor bicycle parking near the office
- Close parking loop during drop-off and pick-up, with a movable barrier to allow bus access
- Restripe crosswalk in parking loop as high-visibility yellow

2 Shasta Drive
- Construct median between Denali DR and 275ft north of Arlington Blvd

3 Arlington Boulevard at Shasta Drive & Shared Use Path
- Restripe existing crosswalks as yellow high-visibility crosswalks, install tactile domes
- Evaluate prohibiting right turns on red
- Install wayfinding signage to help bicyclists stay on the path
- Pave space between crosswalks in the south end of the intersection for bicycle travel, with directional stencils and loop detection (requires moving signal pole)
- Stencil "PED ONLY" at curb ramps for accessing the crosswalk

4 Shared Use Path at Shasta Drive
- Trim vegetation at path exit on sidewalk and
- Install convex mirror facing path to improve pedestrian cross-traffic visibility
- Stencil "LOOK" pavement markings on path in advance of exit
- Install path wayfinding signage

5 Shasta Drive at Denali Drive
- Restripe existing crosswalks as high visibility yellow
- Stripe stop bars at all stop signs
- Install curb ramp on southwest corner

6 Shasta Drive School Frontage
- Restripe the green curb fronting the parking loop as white curb

7 East of School Frontage Mid-Block Crossing
- Restripe existing crosswalk as high-visibility yellow add yield lines
- Replace white curb east of the school with green curb

8 Shared Use Path
- Trim vegetation on path between Patwin Elementary and Shasta Drive
- Stencil share the path messaging
- Provide wayfinding signage at decision and entrance points
- Create 'bicycle slow zone' near school area

Figure 2-6: Patwin Improvement Plan

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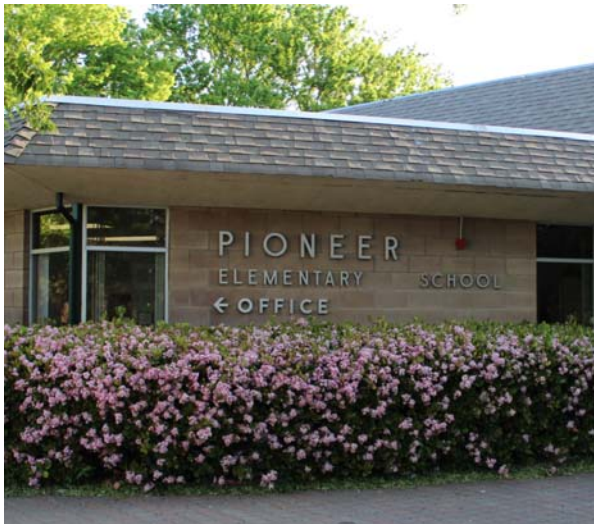
2.7. Pioneer Elementary

Principal:	Deborah Brayton
Grades:	K-6
Number of Students:	520 students
Arrival:	Morning K – 8:15 AM
	Afternoon K – 11:50 AM
	Grades 1-6 – 8:30 AM
Departure:	Morning K – 11:35 AM
	Afternoon K – 3:10 PM
	Grades 1-3 – 2:35 PM
	Grades 5-6 – 3:05 PM
	Wednesdays – 1:30 PM



2.7.1 School Layout

Pioneer Elementary is located in southeast Davis on Hamel Street, with Pioneer Park adjoining school grounds to the west. The loading zone for Pioneer Elementary is along the street on Hamel Street as well as a loading loop in the school parking lot accessed from Hamel Street. Driver circulation to access the school moves counter-clockwise from Cowell Boulevard to Schmeiser Avenue to Hamel Street.

The only point of access to the school is from Hamel Street.

Mace Boulevard, Chiles Road, and Cowell Boulevard are major streets nearby Pioneer Elementary. Each street has bike lanes, as does El Cemonte Avenue and Glide Drive. There are no significant off-street pathways near the school, though there is a robust network further to the west. At Willowcreek Park to the west is a connection to a bike/ped bridge over Interstate 80. There is student bicycle parking in the rear of the school, which is accessed via a fire lane on the east side of the school. There is a mid-block crosswalk across Hamel Avenue adjacent to where the fire lane/bike parking path meets the street.

2.7.2 Crossing Guards

There are two crossing guards serving Pioneer Elementary. One is at the mid-block crosswalk on Hamel Street on the eastern side of the school. The other is at Mace and Cowell Boulevards.

2.7.3 Other City of Davis Projects

The City is moving forward with a corridor project on Mace Boulevard, the northern boundary of which is at Mace Boulevard at Chiles Road. The project will include cycle tracks along Mace Boulevard and reconfiguring the intersection of Mace Boulevard at Cowell Boulevard.

2.7.4 Audit

The audit took place on the morning of Thursday, April 11th. There were eleven stakeholders at the audit, including representatives from the City, the school, the community, and interested parents. Stakeholders observed conditions at eight locations: three locations along Cowell Boulevard, two locations on Swingle Drive, Hamel Street at Schmeiser Avenue, at the mid-block crosswalk on the eastern side of the school, and in the parking lot/loading loop area. Afterward, stakeholders reconvened to discuss their observations and possible improvements.

2.7.5 Opportunities and Recommended Improvements

Location	Reported or Observed Challenge	Recommendations
1. School Grounds Priority: Low	• Bicycle parking does not meet current standards, providing only one point of contact with bicycle and does not provide enough maneuvering space • Recent counts show 169 students bicycle to school • White in loading zone and faded red curb around driveways • Faded white high visibility and yellow standard crosswalk to and from parking lot • No clear delineation between travel lanes and loading zone	• Move bicycle parking to front of school • Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 200 bicycle parking spaces • Provide visitor bicycle parking near the office • Restripe white and red curbs • Restripe crosswalks (2) high visibility yellow • Stripe travel lane lines and directional arrows in loading loop
2. Cowell Boulevard Crossing at Willowcreek Park Priority: High	• Existing bike path connection to Interstate 80 bike/pedestrian bridge forces awkward turns by bicyclists at the staggered crosswalk across Cowell Boulevard • Observed crossings at unmarked intersection with Ohlone Street • Bicyclists unclear on how to safely transition to on-street bike lanes on Cowell Boulevard when exiting bike path	Option A • If pedestrian crossings warrant, move existing crossing to Ohlone Street. Stripe a high-visibility crosswalk with a large curb ramp • Install crossing signage • Install Rapid Rectangular Flashing Beacon (RRFB) Option B • Pave space around the north end of the existing crossing and provide directional striping to assist bicycles in making wide turns • Provide wayfinding signage
3. Mace Boulevard at Cowell Boulevard Priority: High	• City planning underway to reconfigure intersection as part of Mace Boulevard Project, including reducing through lanes to one lane in all directions, removing slip-lane right turn lanes, upgrading/enhancing existing bike lanes, and upgrading crosswalks	• In addition to draft City recommendations, set the north and south crosswalks back from the intersection to accommodate two-stage left turn boxes
4. Swingle Drive at El Cemonte Ave Priority: High	• Reported speeding cars • Reported turning cars do not yield to pedestrians in the crosswalks • Southern crosswalk conflicts with driveway on the west side of the street	• Restripe crosswalks (2) as high-visibility white • Shift southern crosswalk south to remove conflict with driveway • Construct curb extensions into the parking lane on El Cemonte Ave • Construct pedestrian refuge for southern crosswalk, stripe left turn pocket at northern crosswalk • Install pedestrian crossing signage
5. Cowell Boulevard at El Cemonte Avenue Priority: Medium	• Wide intersection • Narrow sidewalks • Vegetation obstructs signage	• Construct curb extensions on all four corners on to Cowell Blvd • Restripe crosswalks (4) as high-visibility white • Stripe advance stop bars on all legs • Trim vegetation

Location	Reported or Observed Challenge	Recommendations
6. Cowell Boulevard at Schmeiser Avenue Priority: Medium	• Wide intersection • Existing white transverse crosswalks are faded • Eastbound bicyclists turn left here to access Pioneer Elementary	• Restripe crosswalks (4) as high-visibility yellow • Stripe advance stop bars on west and east legs
7. Swingle Drive at Hamel Street Priority: Low	• Only one marked crosswalk, it is faded • No curb ramps on southwest and southeast corners	• Restripe existing crosswalk with yellow high-visibility crosswalk, stripe high visibility yellow crosswalk on southwest leg • Install curb ramps at southwest and southeast corners
8. Schmeiser Avenue at Hamel Street Priority: High	• No stop control for northbound travel however eastbound and southbound is stop controlled • Lack of stop control for northbound travel makes a challenge for bicyclists making left turn to school challenging • Key school intersection but has standard crosswalks	• Conduct stop sign analysis to determine stop sign is warranted for northbound travel • Restripe crosswalks as high-visibility yellow
9. Mid-Block Crosswalk on Hamel Street Priority: High	• Crosswalk is faded • Crosswalk does not align with school pathway • No curb ramp on south end • No advance yield lines • Faded crosswalk does not align with fire lane/bike parking pathway • Advance pavement markings faded	• Relocate crosswalk to align with path • Restripe crosswalk as high-visibility yellow • Construct curb ramp on both ends • Stipe advance yield lines • Stencil "SLOW SCHOOL XING"
10. Bikeway Improvements Priority: High	• Improve bikeways as per the Bicycle Master Plan	• Glide Drive: Install double striped bike lanes El Cemonte Ave to Schmeiser Ave • Swingle Drive: Install shared lane markings El Cemonte Ave to Hamel St • Schmeiser Avenue: Install shared lane markings Glide Driveto Cowell Blvd • Hamel Street: Install green backed shared lane markings Swingle Drive to Schmeiser Ave • Cowell Boulevard: Install buffered bike lanes from Washoe Street to Schmeiser Avenue • El Cemonte Avenue: Install double striped bike lanes

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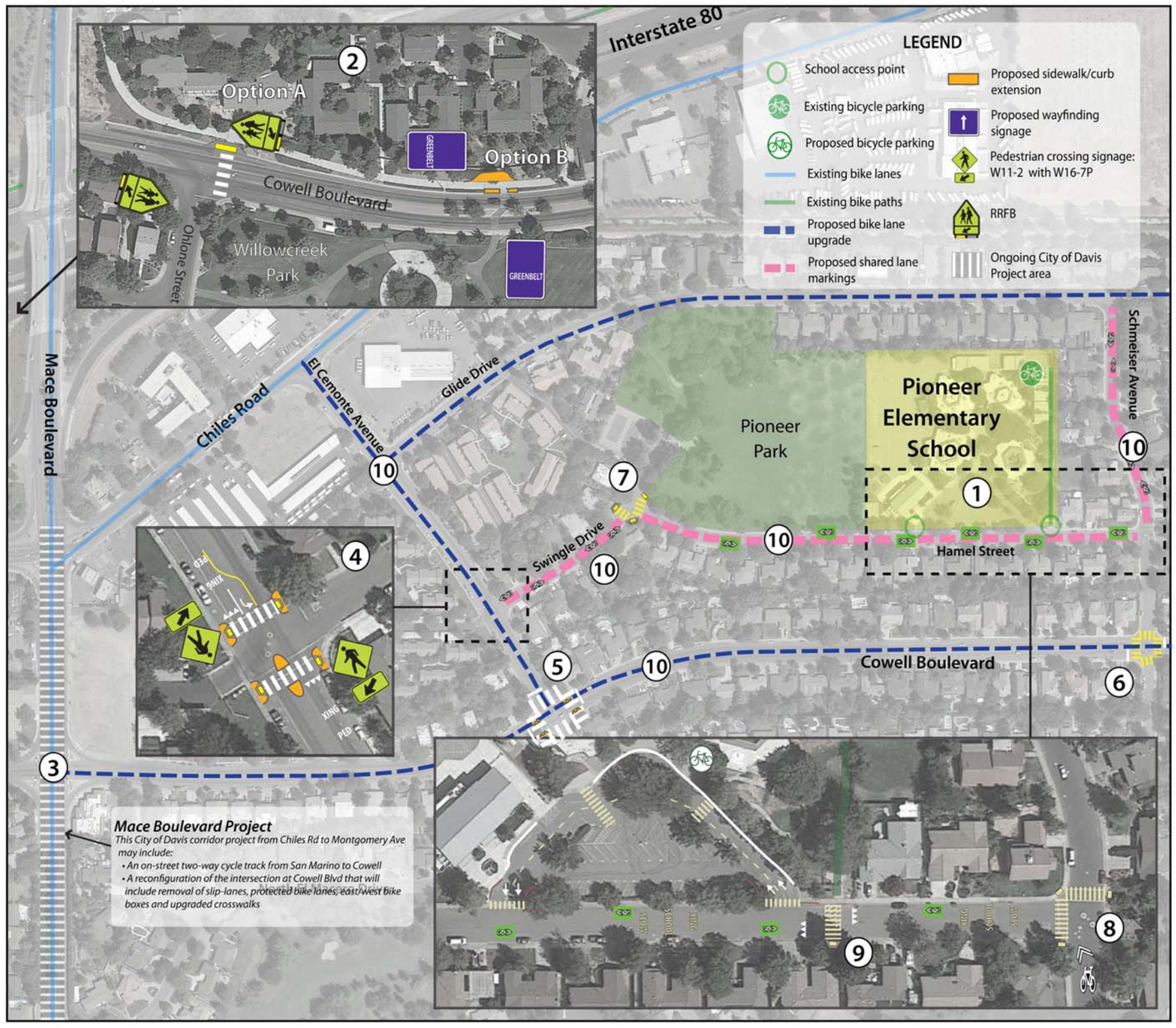

Pioneer Elementary Improvement Plan DRAFT

1 School Grounds
- Move bicycle parking to front of school; Upgrade bike parking to meet current City parking type and spacing standards; Provide a minimum of 200 parking spaces; Provide visitor bicycle parking near office
- Restripe white and red curbs
- Restripe crosswalks (2) high visibility yellow
- Stripe travel lane lines and directional arrows in loading loop

2 Cowell Boulevard Crossing Improvements

Option A
- If pedestrian crossings warrant, move existing crossing to Ohlone Street. Stripe a high-visibility crosswalk with a large curb ramp; Install crossing signage
- Install Rapid Rectangular Flashing Beacon (RRFB)

Option B
- Pave space around the north end of the existing crossing and provide directional striping to assist bicycles in making wide turns
- Provide wayfinding signage

3 Cowell Boulevard at Mace Boulevard
- In addition to draft City recommendations, set the north and south crosswalks back from the intersection to accommodate two-stage left turn boxes

4 El Cemonte Avenue at Swingle Drive
- Restripe crosswalks as high-visibility white
- Shift southern crosswalk south to remove conflict with driveway
- Construct curb extensions into the parking lane on El Cemonte Ave
- Construct pedestrian refuge for southern crosswalk, stripe left turn pocket at northern crosswalk
- Install pedestrian crossing signage

5 Cowell Boulevard at El Cemonte Avenue
- Construct curb extensions on all four corners on to Cowell Blvd
- Restripe crosswalks as high-visibility white; Stripe advance stop bars on all legs
- Trim vegetation

6 Cowell Boulevard at Schmesier Avenue
- Restripe crosswalks as high-visibility yellow
- Stripe advance stop bars on west and east legs

7 Swingle Drive at Hamel Street
- Restripe existing crosswalk with yellow high-visibility crosswalk, stripe high visibility yellow crosswalk on southwest leg
- Install curb ramps at southwest and southeast corners

8 Hamel Street at Schmeiser Avenue
- Conduct stop sign analysis to determine stop is warranted for north travel
- Restripe crosswalks as high-visibility yellow

9 Mid-Block Crosswalk
- Relocate crosswalk to align with path; Restripe as high-visibility yellow
- Construct curb ramp on both ends
- Stipe advance yield lines
- Stencil "SLOW SCHOOL XING"

10 Bikeway Improvements
- Glide Dr: Install double striped bike lanes El Cemonte Ave to Schmeiser Ave
- Swingle Dr: Install shared lane markings El Cemonte Ave to Hamel St
- Schmeiser Ave: Install shared lane markings Glide Dr to Cowell Blvd
- Hamel St: Install green backed shared lane markings Swingle Dr to Schmeiser Ave
- Cowell Blvd: Install buffered bike lanes from Washoe St to Schmeiser Ave
- El Cemonte Ave: Install double striped bike lanes

Figure 2-7: Pioneer Improvement Plan

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2.8. Willett Elementary

Principal:	Heidi Perry
Grades:	K-6
Number of Students:	530 students
Arrival:	Morning K – 8:30 AM
	Afternoon K – 11:50 AM
	Grades 1-6 – 8:30 AM
Departure:	Morning K – 11:50 AM
	Afternoon K – 3:10 PM
	Grades 1-3 – 2:35 PM
	Grades 5-6 – 3:05 PM
	Wednesdays – 1:30 PM

2.8.1 School Layout

Willet Elementary is located in central-west Davis, with Sycamore Park adjoining the school grounds to the north and west. Cesar Chavez Elementary is located nearby to the east. The school frontage is on Sycamore Lane, which also serves as the school's only loading zone. The school parking lot is accessed from Sycamore Lane, but is not used for loading. There is a mid-block uncontrolled crosswalk across Sycamore Lane at the northern end of the school with an overhead flashing light and a school zone speed limit sign that can be folded closed during non-school hours. There is another uncontrolled crosswalk across Sycamore Lane to the south at Purdue Lane.

There are two access points to the school: from Sycamore Lane; and from Sycamore Park to the north, which has a pathway going into Willett Elementary.

Sycamore Lane and Villanova Drive are the major streets nearby Willett Elementary. Each street has bike lanes and street parking, as does 8th Street to the south of Willett Elementary. The pathway through Sycamore Park leads to a bike/pedestrian bridge over Highway 113 to the west, which connects to a robust network of off-street paths. There is student bicycle parking in the northeast corner of the school, with the path from Sycamore Park leading directly into the bike parking area.

2.8.2 Crossing Guards

There is one crossing guard for Willett Elementary, stationed at the mid-block crosswalk on Sycamore Lane at the northern end of the school.

2.8.3 Audit

The audit took place on the morning of Thursday, May 9th, 2013. There were ten stakeholders at the audit, including representatives from the City, the school, the community, and interested parents. Stakeholders observed conditions at seven locations: at Sycamore Lane at Villanova Drive, at the mid-block crosswalk on Sycamore Lane, at Sycamore Lane at Purdue Drive, at Sycamore Lane at 8th Street, along the loading zone and bicycle parking area, on the pathways in Sycamore Park, and at the pathway intersection west of the bike/pedestrian bridge over Highway 113. Afterward, stakeholders reconvened to discuss their observations and possible improvements.

2.8.4 Opportunities and Recommended Improvements

Location	Reported or Observed Challenge	Recommendations
1. School Grounds Priority: Low	• Bicycle parking does not meet current standards, providing only one point of contact with bicycle and does not provide enough maneuvering space • Recent counts show 156 students bicycle to school • Parent visitor bicycle parking is not provided • Faded, narrow high-visibility crosswalk in the southern part of the parking lot	• Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 200 bicycle parking spaces • Provide visitor bicycle parking near the office • Stripe dismount zone on school grounds for traffic from both Sycamore Lane and from Sycamore Park • Refresh and expand striping for the pedestrian walkway through the southern end of the parking lot
2. Shared Use Path Intersection, West of Highway 113 Priority: Low	• The paved area at the intersection is not wide enough to easily accommodate easy bicycle turns • Inconsistent striping on the pathway creates confusing for turning bicyclists and pedestrians	• Expand the paved area at the path intersection with the bicycle bridge to allow broader turning movements • Provide directional striping on all approaches to the intersection • Consider either signage or stencil striping, advising users on how to share the path when making turns
3. Sycamore Park Priority: Medium	• Awkward intersection where four paths meet in the center of the park • Pathways too narrow for volume of bicyclists and pedestrians • High volume pathway that is congested at peak school times	• Construct a bicycle roundabout at the 4-way shared path intersection in the park • Install wayfinding • Consider widening the path to accommodate higher user volumes
4. Sycamore Lane, North of Villanova Drive Priority: High	• Assembly A signage is currently south of Villanova Drive intersection • Some bicyclists use pathway into Sycamore Park via Brown Lane, while others continue south on Sycamore Lane when accessing Willett Elementary	• Relocate Assembly A sign to the north of Villanova Drive • Install wayfinding signage before Brown Lane for southbound bicyclists headed to the Park Brown Lane
5. Sycamore Lane at Villanova Drive Priority: High	• Offset intersection with Brown Lane • Key school crossing with only one marked crosswalk • No curb ramp on western end of existing crosswalk • No connection between the pathway exit in Sycamore Park to the south and the bike lanes on Villanova Drive; many bicyclists reported and observed riding on the wrong side of the street to access Villanova Drive	• Restripe existing crosswalk with yellow high-visibility crosswalk, install curb ramps at both ends • Add high visibility yellow crosswalk across Villanova Dr • Install a two-way cycle track on the west side of Sycamore Lane to encourage students to cross at the intersection

Location	Reported or Observed Challenge	Recommendations
6. Sycamore Lane Villanova Drive to Purdue Drive Priority: High	• Drivers pulling in and out of loading area and curb near park do not always look for or see bicyclists	• Enhance bike lane with markings and green paint along loading zone and at park near school
7. Mid-Block Crosswalk on Sycamore Lane Priority: Medium	• Limited visibility of pedestrians entering the crosswalk due to street parking between crosswalk and Bucknell Drive. • Missing curb ramps for crosswalk on west end	• Construct curb extension on east side of Sycamore Lane at end of crosswalk • Refresh existing high-visibility yellow crosswalk
8. Sycamore Lane at Purdue Drive Priority: Medium	• Vegetation encroaches on sidewalk and blocks existing crosswalk signage • Faded crosswalks	• Trim vegetation • Restripe existing transverse yellow crosswalks as high-visibility yellow • Outfit curb ramps with tactile domes • Relocate Assembly D & B signage to improve visibility
9. Sycamore at 8th Street Priority: High	• No marked crosswalks	• Stripe white high-visibility crosswalks in all intersection legs of the intersection
Cornell Drive at Pine Lane	See Cesar Chavez Elementary	See Cesar Chavez Elementary
Pine Lane Enhanced Bikeway	See Cesar Chavez Elementary	See Cesar Chavez Elementary

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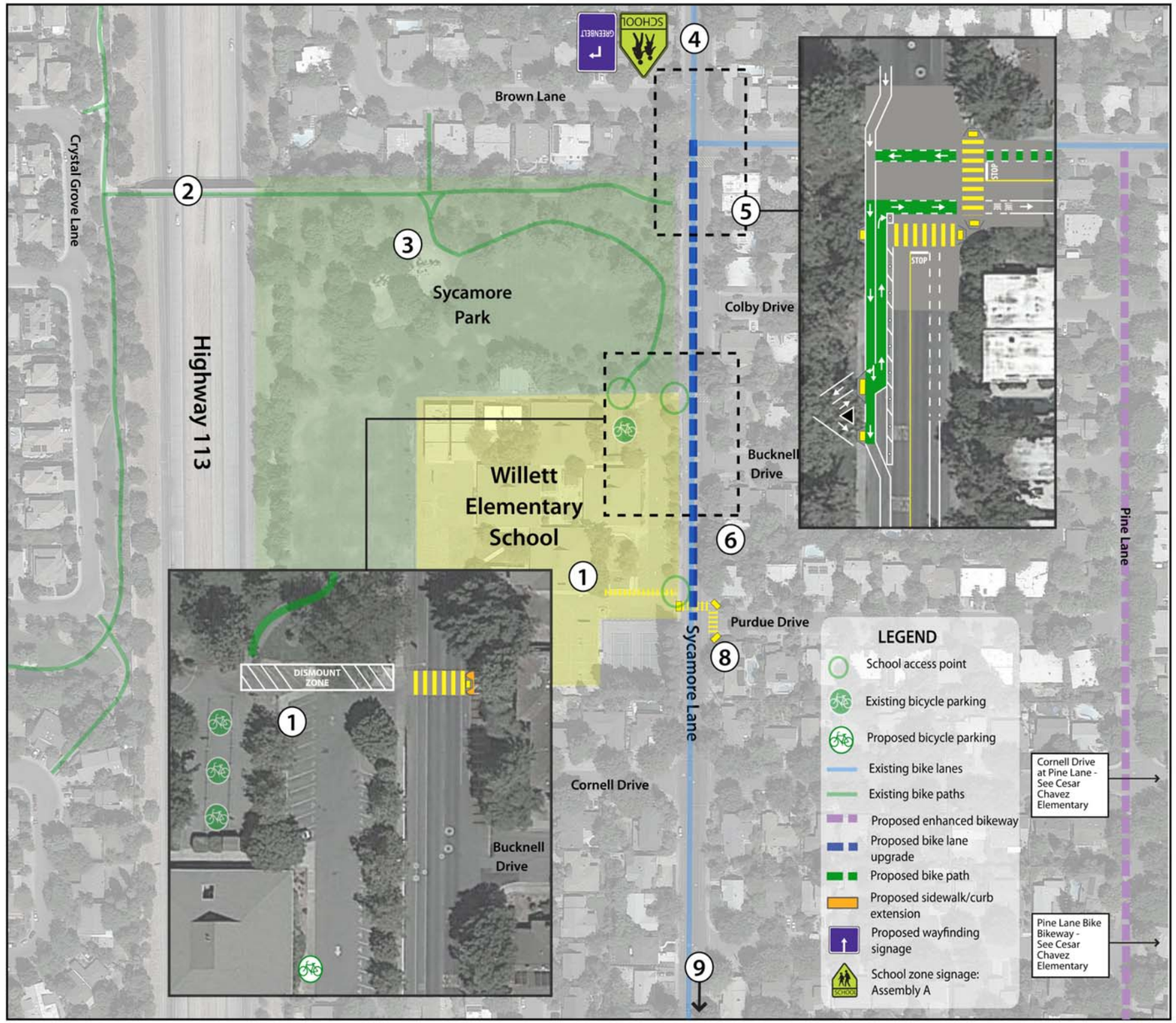

Willett Elementary Improvement Plan DRAFT

1 School Grounds
- Upgrade bike parking to meet current City parking type and spacing standards; provide a minimum of 200 bicycle parking spaces
- Provide visitor bicycle parking near the office
- Stripe dismount zone on school grounds for traffic from both Sycamore Lane and from Sycamore Park
- Refresh and expand striping for the pedestrian walkway through the southern end of the parking lot

2 Highway 113 Bike Bridge
- Expand the paved area at the path intersection with the bicycle bridge to allow broader turning movements
- Provide directional striping on all approaches to the intersection
- Consider either signage or stencil striping, advising users on how to share the path when making turns

3 Sycamore Park
- Construct a bicycle roundabout at the 4-way shared path intersection in the park
- Install wayfinding
- Consider widening the path to accommodate higher user volumes

4 Sycamore Lane, North of Villanova Drive
- Relocate Assembly A sign to the north of Villanova Drive
- Install wayfinding signage before Brown Lane for southbound bicyclists headed to the Park Brown Lane

5 Villanova Drive at Sycamore Lane
- Restripe existing crosswalk with yellow high-visibility crosswalk, install curb ramps at both ends
- Add high visibility yellow crosswalk across Villanova Dr
- Install a two-way cycle track on the west side of Sycamore Lane to encourage students to cross at the intersection, buffer with bollards and paint

6 Sycamore Lane Villanova Drive to Purdue Drive
- Enhance bike lane with markings and green paint along loading zone and at park near school

7 Sycamore Lane at Bucknell Drive & Mid-Block Crosswalk
- Construct curb extension on east side of Sycamore Lane at end of crosswalk
- Refresh existing high-visibility yellow crosswalk

8 Sycamore Lane at Purdue Drive
- Trim vegetation
- Restripe existing transverse yellow crosswalks as high-visibility yellow
- Outfit curb ramps with tactile domes
- Relocate Assembly D & B signage to improve visibility

9 Sycamore Lane at West 8th Street
- Stripe white high-visibility crosswalks in all intersection legs of the intersection

Figure 2-8: Willett Improvement Plan

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2.9. Emerson Junior High/Da Vinci Charter Academy

Principal:	Alicia Cummings
Grades:	7-8
Number of Students:	404 students (Emerson), 165 students (Da Vinci)
Arrival:	Regular Day 8:05 AM Wednesday 9:25 AM Minimum Day 8:05 AM
Departure:	Regular Day 3:15 PM Wednesday 3:15 PM Minimum Day 12:30 PM

2.9.1 School Layout

Emerson Junior High is located in west Davis and shares a campus with the middle school students attending Da Vinci Charter Academy, which goes through high school grades. The school is bounded by Calaveras Avenue to the south, Arlington Boulevard to the west and Humboldt Avenue to the north. The school's parking lot and loading zone is accessed from Calaveras Avenue.

There are two access points to the school: from the parking lot/loading loop off Calaveras Avenue, and a rear bicycle and pedestrian entry point on Humboldt Avenue. There is an uncontrolled crosswalk across Calaveras Avenue at Eisenhower Street to the east of the parking lot and there is an uncontrolled crosswalk across Humboldt Avenue at Imperial Avenue to the west of the bicycle & pedestrian access point.

Arlington Boulevard is the major street nearby Emerson Junior High and merges into Russell Boulevard to the south of the school. Arlington Boulevard has bike lanes, as does Humboldt Avenue, Eisenhower Street, and Arthur Avenue further to the west. Arlington Boulevard also has no street parking. The shared use path is located just north of the school in Arroyo Park and provides access to the bicycle and pedestrian bridge over Highway 113 to the east. Paralleling the Lincoln Highway/Russell Boulevard to the south is another bike path. There is student bicycle parking in the rear of the school, alongside a pathway that runs from Calaveras Avenue to Humboldt Avenue. The bicycle parking is in a fenced-off area that has few access points and is unpaved. Many students were observed locking their bike to the fence because of the difficulty maneuvering into a bike rack space.

2.9.2 Crossing Guards

There is one crossing guard at the intersection of Arlington Boulevard at Shasta Drive, which is also used by students at Patwin.

2.9.3 Audit

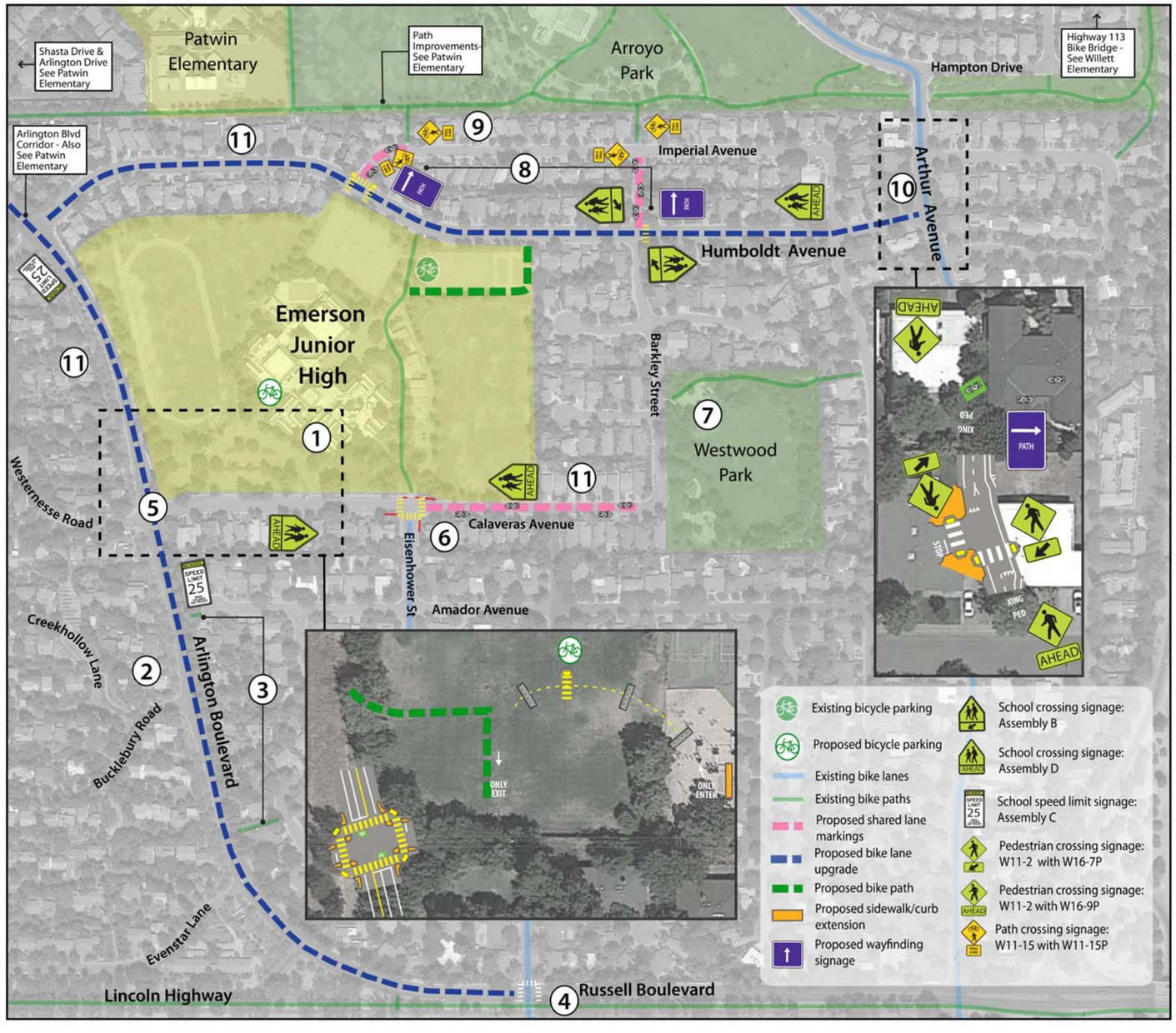
The audit took place on the morning of Friday, May 17th, 2013. There were eleven stakeholders at the audit, including representatives from the City, the school, the community, and interested parents. Stakeholders observed conditions at ten locations: along Arlington Boulevard, at Arlington at Calaveras, at Calaveras at Eisenhower, at Russell at Eisenhower, at the school parking lot, at Westwood Park, at Humboldt at Imperial, at Humboldt at Arthur, and at the pathway intersection west of the bike/pedestrian bridge over Highway 113. Afterward, stakeholders reconvened to discuss their observations and possible improvements.

2.9.4 Opportunities and Recommended Improvements

Location	Reported or Observed Challenge	Recommendations
1. School Grounds Priority: High Except bike parking (low priority)	• Bicycle parking does not meet current standards, providing only one point of contact with bicycle and does not provide enough maneuvering space • Recent counts show 243 students bicycle to school • Parent/visitor bicycle parking is not provided • The bike path exit onto Humboldt Avenue is on a curve in the road that reduces visibility. Many bicyclists ride the wrong-way in the bike lane to a more visible crossing location • Students access school from Arlington Boulevard via grass and western parking lot • There are no pedestrian facilities connecting parking lot sidewalk to Calaveras Ave • The path to the sidewalk at the parking lot exit ends before reaching Calaveras Avenue • Reported cars drive too fast in loading loop • Paint in parking lot is faded	• Upgrade bike parking to meet current City parking type and spacing standards; provide a minimum of 300 bicycle parking spaces • Pave bicycle parking area • Provide visitor bicycle parking near the office • Construct pathway around and to east of the tennis courts • Construct a pathway from Arlington Boulevard north of parking lot • Connect parking lot sidewalk to Calaveras Ave at the parking lot entrance and exit • Install speed humps in loading loop • Stripe loading lane marking at north end of loading loop • Stripe high visibility crosswalk from parking area across loading loop
2. Arlington Boulevard Priority: Medium	• Reported speeding cars • Location of school zone signage is not optimal for visibility and distance • Southbound bike lane drops at Buckleburry Road	• Conduct a speed survey • Relocate School Zone Speed Limit signage to more visible location • Restripe approach to Bucklebury Road to continue bike lane and right turn lane to right of bike lane
3. Alameda Avenue & Amador Avenue Access to Arlington Boulevard Priority: Medium	• Arlington Boulevard from Amador Avenue and Alameda Avenue cul-de-sacs have connector pathways but no curb ramps	• Construct curb ramps on either end of both connector paths
4. Arlington Boulevard, Russell Boulevard at Eisenhower Street Priority: High	• Current bicycle path crossing of Russell Boulevard (west of intersection) provides no access to northbound bike lane on Arlington Boulevard • Crossing at Eisenhower Street has transverse crosswalks with reported low yielding rates by drivers and high driver speeds	• Install wayfinding • Sign the connector from Arlington Boulevard bikes lanes onto Russell Boulevard bike path as one-way southbound • Restripe all three crosswalks as high visibility white • Repave all three path connectors • Conduct a study to evaluate Russell Boulevard, Lincoln Highway, Arlington Boulevard intersection reconfiguration, consider standard intersection design • Conduct analysis to see if HAWK, RRFB or other treatment is warranted at Russell Boulevard and Eisenhower Street

Location	Reported or Observed Challenge	Recommendations
5. Arlington Boulevard at Calaveras Avenue Priority: High	• Arlington Boulevard widens at intersection increasing pedestrian crossing distance • Low rates of right-turning drivers coming to full stops, conflicting with pedestrians	• Construct curb extensions in all corners • Stripe advance stop lines on all four legs • Restripe all crosswalks (4) as high visibility yellow • Install 2-stage left turn boxes on Arlington Boulevard
6. Calaveras Avenue at Eisenhower Street Priority: High	• Uncontrolled crossing • Standard crosswalks • Missing crossing signage • Drivers park in the intersection	• Restripe existing crosswalks as high-visibility yellow • Install Assembly D signage in advance of the crosswalks on Calaveras Avenue • Prohibit parking and stripe red curb on the north leg and adjacent to all curb ramps
7. Westwood Park Priority: Low	• Vegetation encroaching on pedestrian path • No lighting	• Trim vegetation • Consider low level lighting for path
8. Humboldt Avenue Priority: Medium	• Reported speeding cars • Few marked pedestrian crossings • Unclear route to shared use path	• Conduct a speed survey • Restripe existing crosswalks at Humboldt Avenue and Imperial Avenue as high visibility yellow • Stripe new high visibility yellow crosswalks (2) across Humboldt Avenue & Barkley Street, install Assembly D & B signage • Install wayfinding between Humboldt Avenue and path
9. Imperial Avenue	• Drivers do not expect students to enter street from paths	• Install path crossing signage
10. Arthur Avenue at Humboldt Avenue Priority: Medium	• Key school and shared use path connector • Arthur Avenue is uncontrolled • Reported speeding cars and low yield rates • No marked crosswalks	• Reduce curb radii on northwest and southwest corners • Stripe high visibility white crosswalk with yield lines on southern leg • Install pedestrian crossing signage and pavement markings on Arthur Avenue • Install wayfinding and sharrows to connect Arthur Avenue to path • Install pedestrian crossing signage • Install wayfinding and sharrows to connect Arthur Avenue to path

Location	Reported or Observed Challenge	Recommendations
11. Bikeway Improvements Priority: Medium	• Improve bikeways as per the Bicycle Master Plan	• Install shared lane markings on Calaveras Avenue between Eisenhower Street and Barkley Street • Install shared lane markings on Imperial Avenue between Humboldt Avenue and path access • Install share lane markings on Barkley Street between Imperial Avenue and Humboldt Avenue • Install double stripe bike lanes on Humboldt Avenue between Arlington Boulevard and Arthur Avenue • Install buffered bike lane on Arlington Boulevard between Lake Boulevard and Russell Boulevard
12. Shasta Drive/Arlington Boulevard	See Patwin Elementary	See Patwin Elementary
13. Shared Use Path	See Patwin Elementary	See Patwin Elementary
14. Highway 113 Bicycle and Pedestrian Bridge	See Willett Elementary	See Willett Elementary



Emerson Junior High Improvement Plan DRAFT

1 School Grounds
- Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 300 bicycle parking spaces, pave bicycle parking area; Provide visitor bicycle parking near the office
- Construct pathway around and to east of the tennis courts
- Construct a pathway from Arlington Blvd north of parking lot
- Connect parking lot sidewalk to Calaveras Ave at the parking entrance & exit
- Install speed humps in loading loop
- Stripe loading lane marking at north end of loading loop
- Stripe high visibility crosswalk from parking area across loading loop

2 Arlington Boulevard
- Conduct a speed survey
- Relocate School Zone Speed Limit signage to more visible location
- Install buffered bike lane from Lake to Russelll
- Restripe approach to Bucklebury Rd to continue bike lane

3 Amador Avenue & Alameda Avenue Access
- Construct curb ramps on either end of both connector paths

4 Arlington Blvd/ Russell Blvd/ Eisenhower St
- Install wayfinding
- Sign the connector from Arlington Blvd bikes lanes onto Russell Blvd bike path as one-way southbound
- Restripe all three crosswalks as high visibility white
- Repave all three path connectors
- Conduct a study to evaluate Russell Blvd, Lincoln Hwy, Arlington Blvd intersection reconfiguration, consider standard intersection design
- Conduct analysis to see if HAWK, RRFB or other treatment is warranted at Russell Bvld and Eisenhower St

5 Calaveras Avenue at Arlington Boulevard
- Construct curb extensions in all corners
- Stripe advance stop lines, restripe crosswalks as high visibility yellow
- Install 2-stage left turn boxes on Arlington Blvd

6 Calaveras Avenue at Eisenhower Street
- Restripe existing crosswalks as high-visibility yellow
- Install Assembly D signage in advance of the crosswalks on Calaveras Ave
- Prohibit parking, stripe red curb on north leg and adjacent to all curb ramps

7 Westwood Park
- Consider low level lighting for path, trim vegetation

8 Humboldt Ave
- Conduct a speed survey
- Restripe crosswalks at Humboldt Ave & Imperial Ave as high visibility yellow
- Stripe new high visibility yellow crosswalks (2) across Humboldt Ave & Barkley St, install Assembly D & B signage
- Install wayfinding between Humboldt Ave & Greenbelt

9 Imperial Avenue - Install path crossing signage

10 Humboldt Avenue at Arthur Avenue
- Reduce curb radii on northwest and southwest corners
- Stripe high visibility white crosswalk with yield lines on southern leg
- Install pedestrian crossing signage & pavement markings on Arthur Avenue
- Install wayfinding and sharrows to connect Arthur Avenue to Greenbelt
- Install pedestrian crossing signage

11 Bikeway Improvements
- Install shared lane markings on Calaveras Ave btwn Eisenhower and Barkley
- Install shared lane markings on Imperial Ave btwn Humboldt and path access
- Install share lane markings on Barkley St btwn Imperial and Humboldt
- Install double stripe bike lanes on Humboldt Ave btwn Arlington and Arthur
- Install buffered bike lane on Arlington Blvd between Lake and Russell

Figure 2-9: Emerson Improvement Plan

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2.10. Harper Junior High

Principal:	Zena Ingles
Grades:	7-8
Number of Students:	659 students
Arrival:	Regular Day 8:20 AM
	Wednesday 9:40 AM
	Minimum Day 8:20 AM
Departure:	Regular Day 3:30 PM
	Wednesday 3:30 PM
	Minimum Day 12:30 PM

2.10.1 School Layout

Harper Junior High is in northeast Davis on the edge of the city. East Covell Boulevard is located to the north and east of the school, a bike path is to the west, and undeveloped land is to the south. The school's parking lot and loading zone is accessed from East Covell Boulevard. The Unitrans bus stop serving Harper Junior High is also on East Covell Boulevard.

There are two access points to the school: from the parking lot/loading loop off of East Covell Boulevard, and from a bicycle and pedestrian path to the west of the school. The bicycle & pedestrian path extends north from the intersection of Alhambra Drive at 5th Street and there are access points to the pathway from every side street in the adjacent Lake Alhambra Estates neighborhood. Many students bicycle up the parallel Oceano Drive rather than bicycle on the congested pathway.

East Covell Boulevard is the major arterial roadway nearby Harper Junior High, with Alhambra Drive, 5th Street, and Loyola Drive also in proximity the school. Each street has bike lanes and no on-street parking. East Covell Boulevard has an off-street path on the south side of the road to the west of the school. Alhambra Drive has paths on both sides of the street east of 5th Street. The bicycle & pedestrian path west of the school connects to a robust network of pathways with grade-separated crossings at major streets. The bicycle parking is located in the southwest corner of the school within a fenced area and is accessible from the bicycle and pedestrian pathway.

2.10.2 Crossing Guards

There are no crossing guards in close proximity to Harper Junior High.

2.10.3 Audit

The audit took place on the morning of Friday, May 10th, 2013. There were twenty-eight stakeholders at the audit, including representatives from the City, the school, the community, interested parents, and fifteen students. Stakeholders observed conditions at seven locations: at the school loading zone at the front of the school, at the bicycle parking area in the southwest corner of the school, at the pathway intersection that leads onto school grounds, at the intersection of Arena Drive at Oceano Drive, along the bicycle and pedestrian pathway, at the bike path intersection leading to Mace Ranch Park, and at the intersection of Alhambra Drive at Arroyo Avenue. Afterward, stakeholders reconvened to discuss their observations and possible improvements.

2.10.4 Opportunities and Recommended Improvements

Location	Reported or Observed Challenge	Recommendations
1. School Grounds Priority: High Bike parking priority: Low	• Bicycle parking does not meet current standards, providing only one point of contact with bicycle and does not provide enough maneuvering space • Recent counts show 312 students bicycle to school • Parent/visitor bicycle parking is not provided • Pathway from shared use path to campus: -- Narrow for the volume of bicyclists and pedestrians -- School path/path intersection is narrow, resulting in confusion and conflict -- Dismount stencil location reduces backup -- Pathway not along desire lines • Northern and southern loading zone with a narrow median in between them • Many parents in the northern loading zone unload in the travel lane • Many parents unload in the red curb zone • All crosswalks striped as white despite being in a school zone	• Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 300 bicycle parking spaces • Provide visitor bicycle parking near the office • Widen pathway • Construct path intersection roundabout to encourage predictable turning movements • Pave wider staging area at entrance from campus • Stencil dismount zone at campus • Install wayfinding • Study feasibility of construction alternative pathway the path to the bicycle parking south of the solar panel array • Restripe all school property crosswalks as high visibility yellow • Expand the island between the two drop-off zones to accommodate pedestrian travel, convert the northern drop-off zone to unload on the passenger side
2. East Covell Boulevard Path Priority: Medium	• Path west of the school has uneven, broken pavement where tree roots have caused damage • Undeveloped lot to the east of the school has no path, which could connect to a path on Mace Boulevard	• Prioritize maintenance of existing bike path • Ensure that when the property to the east is developed, the bike path is extended to meet the bike path on Alhambra Drive
3. Path Priority: Medium	• Many parents drop off in adjacent cul-de-sacs and block the access points/curb ramps to the path • Existing crosswalk across Oceano Drive is faded • Vegetation encroaches on path • Path is narrow for the volume of bicyclists and pedestrians	• Refresh red curb at bike path access points (6) • Refresh existing high-visibility yellow crosswalk across Oceano Drive • Trim vegetation along path • Consider widening pathway, including a DG-pathway for pedestrian use beside the existing pathway, provide signage and striping along the path to delineate directions of travel
4. Oceano Drive Priority: High	• Popular bicycling route to school however not designated as a bikeway	• Stencil green backed Shared Lane Markings on Oceano Drive from Alhambra Drive to Arena Drive • Install wayfinding
5. Arena Drive at Conquistador Drive Priority: High	• Popular bicycling route however intersection is not controlled and is difficult to cross	• Conduct stop sign analysis to determine if stop signs are warranted

Location	Reported or Observed Challenge	Recommendations
6. Alhambra Drive at Arroyo Avenue Priority: Medium	• Existing crosswalk has bend in it • Existing crosswalk is key path and school connector but has only standard striping	• Straighten crosswalk and realign curb ramps • Restripe crosswalk as high visibility white
7. David Pelz Bike Bridge Priority: Low	• Students congregate on bridge and block travel in both directions	• Install signage to encourage students to keep moving
Alhambra Drive at 5th Street	See Korematsu Elementary	See Korematsu Elementary
Area Bike Lanes	See Korematsu Elementary	See Korematsu Elementary
Cowell Boulevard at Willowcreek Park	See Pioneer Elementary	See Pioneer Elementary

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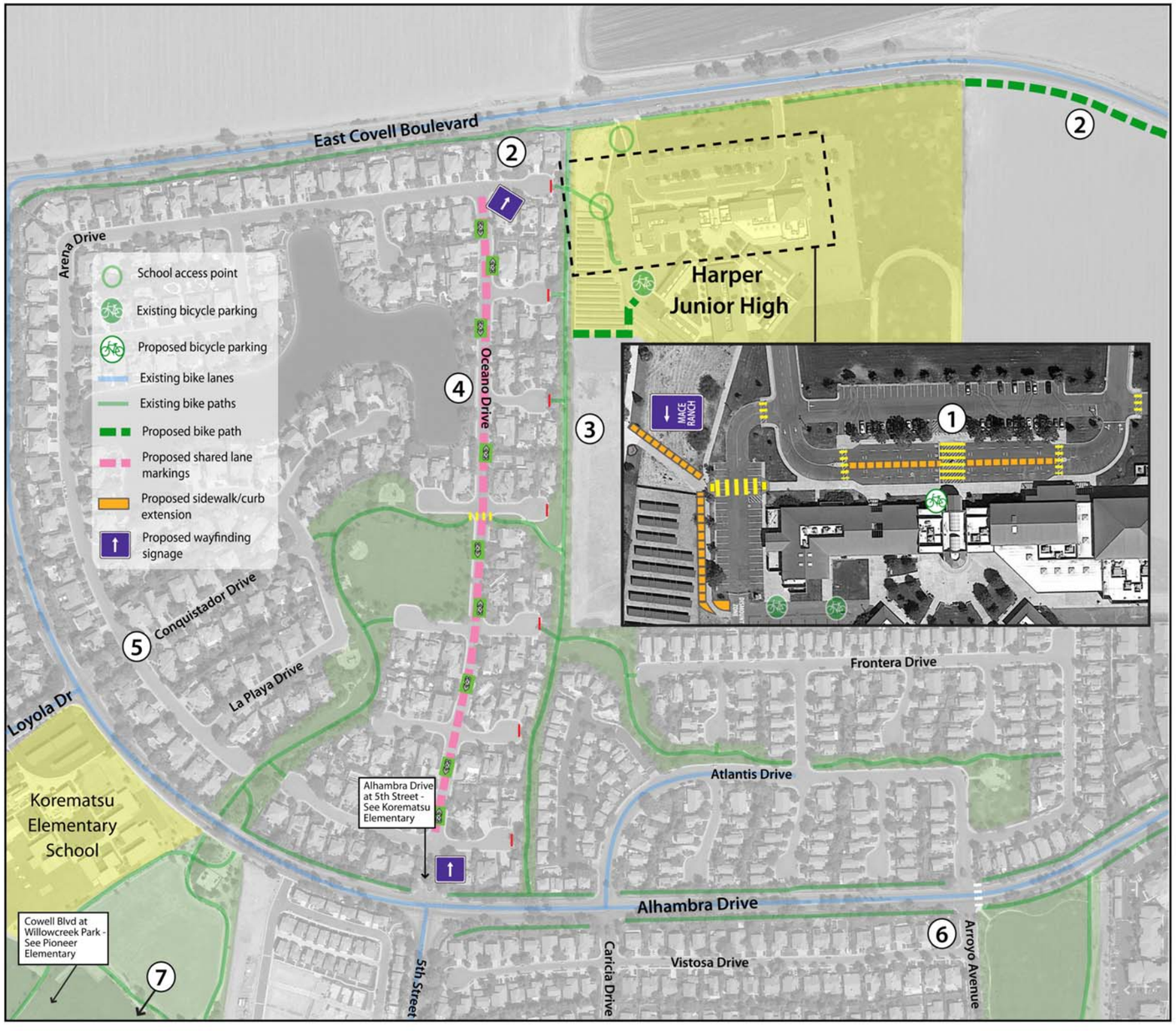

Harper Junior High School Improvement Plan DRAFT

1 School Grounds
- Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 300 bicycle parking spaces
- Provide visitor bicycle parking near the office
- Widen pathway
- Construct Greenbelt intersection roundabout to encourage predictable turning movements
- Pave wider staging area at entrance from campus
- Stencil dismount zone at campus
- Install wayfinding
- Study feasibility of construction alternative pathway the Greenbelt to the bicycle parking south of the solar panel array
- Restripe all school property crosswalks as high visibility yellow
- Expand the island between the two drop-off zones to accommodate pedestrian travel, convert the northern drop-off zone to unload on the passenger side

2 East Covell Boulevard Path
- Prioritize maintenance of existing bike path
- Ensure that when the property to the east is developed, the bike path is extended to meet the bike path on Alhambra Drive

3 Path
- Refresh red curb at bike path access points (6)
- Refresh existing high-visibility yellow crosswalk across Oceano Dr
- Trim vegetation along path
- Consider widening pathway, including a DG-pathway for pedestrian use beside the existing pathway, provide signage and striping along the path to delineate directions of travel

4 Oceano Drive
- Stencil green backed Shared Lane Markings on Oceano Dr from Alhambra Dr to Arena Dr
- Install wayfinding

5 Arena Drive at Conquistador Drive
- Conduct stop sign analysis to determine if stop signs are warranted

6 Alhambra Drive at Arroyo Avenue
- Straighten crosswalk and realign curb ramps
- Restripe crosswalk as high visibility white

7 David Pelz Bike Bridge
- Install signage to encourage users to not stop on bridge

Figure 2-10: Harper Improvement Plan

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2.11. Holmes Junior High

Principal:	Derek Brothers
Grades:	7-8
Number of Students:	723 students
Arrival:	Regular Day 8:08 AM
	Wednesday 9:28 AM
Departure:	Regular Day 3:20 PM
	Wednesday 3:20 PM

2.11.1 School Layout

Holmes Junior High is located in central Davis along Drexel Drive, which is the only street that fronts the school. The school's parking lot is accessed from Drexel Drive and the loading zone is along the street.

There is one access points to the school: Drexel Drive. There are two uncontrolled crosswalks across Drexel Drive on the east side of the school. One crosswalk is at Hemlock Drive and provides access to the main pedestrian walkway. The other crosswalk is located slightly to the east, providing access to the fire lane and the eastern bicycle parking area. There is a path along Drexel Drive where the school's playing fields front the street.

Both J Street and L Street have bike lanes and on-street parking, while East Covell Boulevard to the north has bike lanes, no street parking and a path on the south side of the street. To the west is a bicycle/pedestrian tunnel under the railroad tracks between H Street and J Street. There is student bicycle parking the northeast corner of the school grounds and on the west side of the school buildings. Both bicycle parking areas are fenced in with outdated racks and limited access points.

2.11.2 Crossing Guards

There are no crossing guards that serve Holmes Junior High students.

2.11.3 Other City of Davis Projects

Between the audit and the writing of this report, the City implemented an enhanced bikeway project on Drexel Drive, including a two-way cycle track on J Street from Drexel Drive to the train tunnel pathway, two speed tables on Drexel Drive, curb extensions and new crosswalks at L Street, new crosswalks at Holmes Junior High, and sharrows along the length of the route.

The City is in the midst of a planning process to reconfigure East Covell Boulevard, to the north of the school.

2.11.4 Audit

The audit took place on the morning of Tuesday, May 7th. There were twelve stakeholders at the audit, including representatives from the City, the school, the school district, the community, and interested parents. Stakeholders observed conditions at seven locations: at the H Street/J Street train tunnel, at J Street at Drexel Drive, along the frontage of the school on Drexel, at Hemlock Lane at Drexel, at L Street at Drexel, at L Street at East Covell Boulevard and at J Street at East Covell Boulevard. Afterward, stakeholders reconvened to discuss their observations and possible improvements.

2.11.5 Opportunities and Recommended Improvements

Location	Reported or Observed Challenge	Recommendations
1. School Grounds Priority: High	• Bicycle parking does not meet current standards, providing only one point of contact with bicycle and does not provide enough maneuvering space • Recent counts show 414 students bicycle to school • Parent/visitor bicycle parking is not provided • Sidewalk to western bicycle parking area is narrow for volume of bicycle and pedestrian activity; no curb ramp for on-street bicyclists to access • Eastern bicycle parking area does not have enough access points to meet demand • Pathway around western side of campus has poor pavement quality	• Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 450 bicycle parking spaces • Provide visitor bicycle parking near the office • Construct a shared use pathway with curb ramp from street to western bicycle parking • Construct additional gate in eastern parking area for more access points to bicycle parking • Widen walking path on the west side of the eastern parking area • Repave existing path around western side of campus
2. H Street/J Street Train Tunnel Priority: High	• Western approaches to tunnel often covered in debris • Western intersection is at right angle with recessed storm drain in the center • Difficult sight-lines • Faded crosswalks on H Street where approaches meet the street	Short-Term • Ensure pathway maintenance is conducted on a regular basis • Repair storm drain so it is level with pathway • Install mirror at tunnel intersection to improve sightlines • Restripe crosswalks across H Street as high-visibility yellow and install crossing signage Long-Term • Study feasibility of reconfiguration of western end of tunnel to improve bicycle access, reduce conflict, and improve sight lines
3. East Covell Boulevard at J Street Priority: High	• Unitrans bus drops off Holmes students on the north side of the street and the signal phase is not long enough for students to clear the intersection	• Reconfigure pedestrian crossing time to 3 or 3.5 feet per second
4. East Covell Boulevard Path Priority: Medium	• Sections of E Covell Boulevard path in need of repair due to tree roots • Transition from path to driveways has a vertical drop	• Conduct repairs along path to root damage • Repair path transitions to driveways

Location	Reported or Observed Challenge	Recommendations
5. East Covell Boulevard at L Street & Claremont Drive Priority: High	• Wide intersection with right turn slip lanes at E Covell Boulevard and L Street make bicycle and pedestrian crossing challenges • Two intersections close to each other (E Covell Boulevard and Claremont Drive) • Bike lanes on L Street end at Claremont Drive before reaching Covell • Southbound bicyclists coming from westbound E Covell Boulevard often ride the wrong-way on L Street before reaching the bike lanes	• Evaluate impacts to closing the right-turn slip lanes and installation of standard intersection • Extend L Street bike lanes north from Claremont Drive to East Covell Boulevard • Construct a sidewalk western side of L Street between E Covell Boulevard and Claremont Drive
6. Auburn Drive Priority: Medium	• Parents suggest using Auburn Drive as a remote drop-off location	• Encourage parents to use Auburn Drive as a remote drop-off point
7. Drexel Drive at School Priority: Low	• School frontage is striped green for temporary parking	• Restripe curb white

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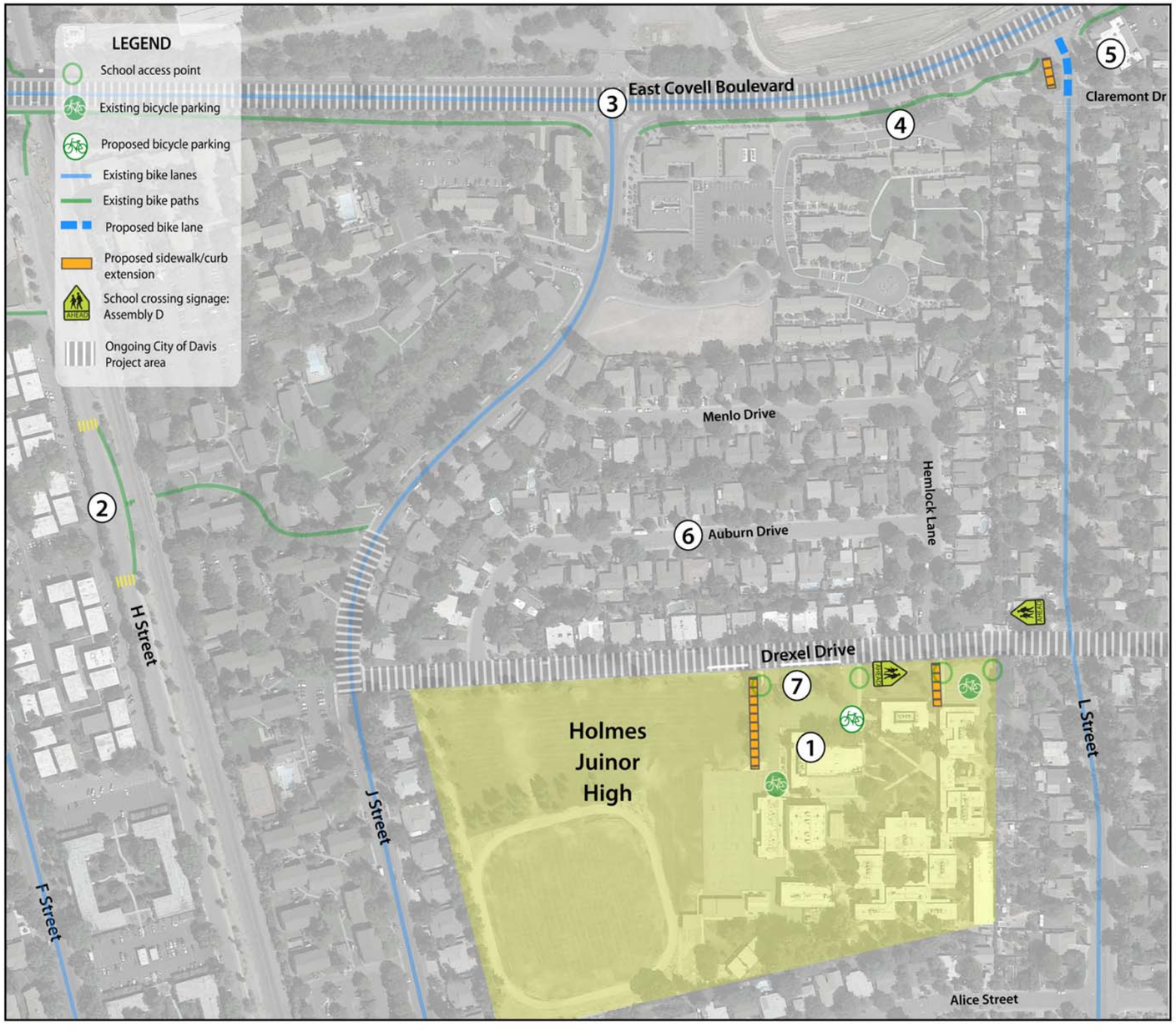

Holmes Junior High School Improvement Plan DRAFT

Drexel Drive Bike Boulevard Project

During this project , the City of Davis has implemented a bicycle boulevard project on Drexel Drive from J Street to Pole Line Road, including:

- A 2-way cycle track on J Street between Drexel Drive & H Street Tunnel
- Two speed tables on Drexel Drive
- Curb extensions in all four corners on Drexel Drive at L Street
- New crosswalks in front of Holmes Junior High
- Sharrows along the length of the bike boulevard

1 School Grounds

- Upgrade bike parking to meet current City parking type and spacing standards, provide a minimum of 450 bicycle parking spaces
- Provide visitor bicycle parking near the office
- Construct a shared use pathway with curb ramp from street to western bicycle parking
- Construct additional gate in eastern parking area for more access points to bicycle parking
- Widen walking path on the west side of the eastern parking area
- Repave existing path around western side of campus

2 H Street/J Street Tunnel

Short-Term

- Ensure pathway maintenance is conducted on a regular basis
- Repair storm drain so it is level with pathway
- Install mirror at tunnel intersection to improve sightlines
- Restripe crosswalks across H Street as high-visibility yellow and install crossing signage

Long-Term

- Study feasibility of reconfiguration of western end of tunnel to improve bicycle access, reduce conflict, and improve sight lines

3 East Covell Boulevard at J Street

- Reconfigure pedestrian crossing time to 3 or 3.5 feet per second

4 East Covell Boulevard Path

- Conduct repairs along path to root damage
- Repair path transitions to driveways

5 East Covell Boulevard/L Street/Claremont Drive

- Evaluate impacts to closing the right-turn slip lanes and installation of standard intersection
- Extend L Street bike lanes north from Claremont Drive to East Covell Blvd
- Construct a sidewalk western side of L St between E Covell Blvd and Claremont Dr

6 Auburn Drive

- Encourage parents to use Auburn Drive as a remote drop-off point

7 Drexel Drive at School

- Restripe curb white

Figure 2-11: Holmes Improvement Plan

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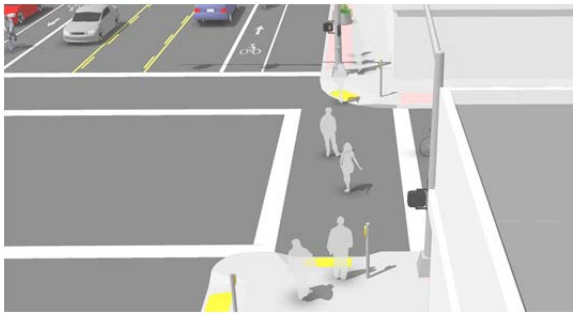
Appendix A. Engineering Toolkit

This toolkit is intended to provide an introduction to the specific infrastructure improvements commonly used for Safe Routes to School and recommended in this report. Not all treatments are appropriate at every school location. In all cases engineering judgement should be exercised when determining the best infrastructure solution.

Crossings at Signalized Intersections

There are numerous design treatments that can make intersection crossings as safe as possible and improve conditions for students walking to school. Some treatments apply to all crossings, others only at road intersections, and others at midblock crossings. The measures described in the next few pages range from simple signs and striping to more complex interventions that may be appropriate only for problematic or high-volume crossings. Knowing all the options for safe roadway crossings can facilitate good decisions when creating safe routes to school.

These pages illustrate different traffic control treatments that might be used to help bicyclists and pedestrians to safely cross at intersections.

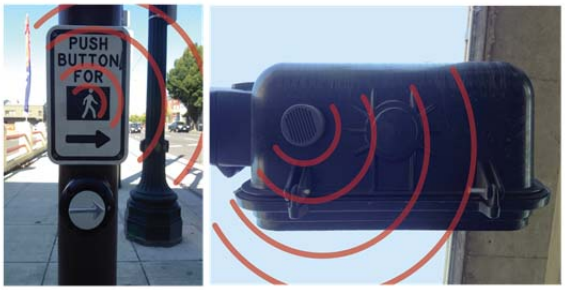


Traffic Signal Timing

Traffic lights must assume that pedestrians walk a certain speed to calculate the time needed to cross at a light, often 4 feet per second. However, children may require more time to cross an intersection than adults. Re-timing signals to 3.5 or even 2.8 feet per second at crossings used by large numbers of students and seniors can ensure that everyone has time to cross the intersection safely.

Pedestrian Countdown Heads

Pedestrian heads are the "walk/don't walk" signal boxes instructing pedestrians at intersections. A walking person indicates that it is safe to cross the street, followed by a blinking red hand with a number counting down the seconds until the signal changes.



Audible Signals

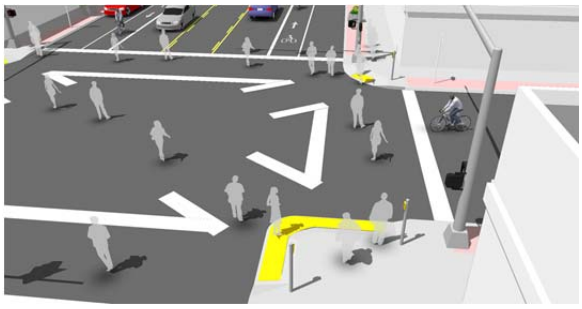
In addition to the visual cues provided by signal heads, audible signals provide guidance for vision-impaired pedestrians. Different audible signals should be used for different crossing directions to inform the pedestrian which intersection leg has a walk signal. Sounds should be activated by the pedestrian push-button.

Leading Pedestrian Interval

The Leading Pedestrian Interval (called "LPI") gives pedestrians a walk signal a few seconds before motorists receive a green light, which makes pedestrians more visible to motorists making right turns.

Advance Stop Lines

Advance stop lines are a painted stripe in the roadway set back from the crosswalk, directing drivers to stop at least 4 feet before the crosswalk. On multi-lane roads advance stop lines increase pedestrian visibility for drivers in other travel lanes, especially important around schools, as students are harder to see than adults. Advance stop lines also discourage encroachment upon the crosswalk at a red light, leaving more free space for pedestrians to cross.



All Way Pedestrian Crossing Phase

All way pedestrian crossing phase, also referred to as a *scramble signal*, is a signal phase where all vehicle movements are stopped, and all pedestrian movements are permitted. Pedestrians may travel along all crosswalk legs and potentially even in a diagonal movement across the intersection.

Right turn on red should be prohibited during all way pedestrian crossing phases. This treatment is most appropriate in areas of high pedestrian crossing demand.

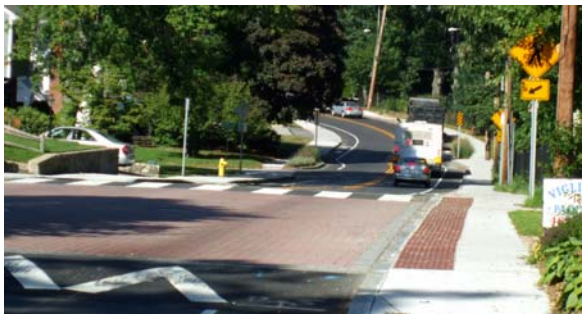
Painted Intersections

Painted intersections, sometimes called street murals or "Intersection Repair" are volunteer driven efforts to transform an intersection into a plaza like community space by painting artistic imagery on the street.

Painted intersections generally require permission from the transportation department and majority support from the adjacent neighbors.

Bicycle Signal Phase

A bicycle signal is an electrically powered traffic control device that should only be used in combination with an existing conventional or hybrid signal. Bicycle signal heads may be installed at signalized intersections to indicate bicycle signal phases and other bicycle-specific timing strategies. Bicycle signals can be actuated with bicycle sensitive loop detectors, video detection, or push buttons.



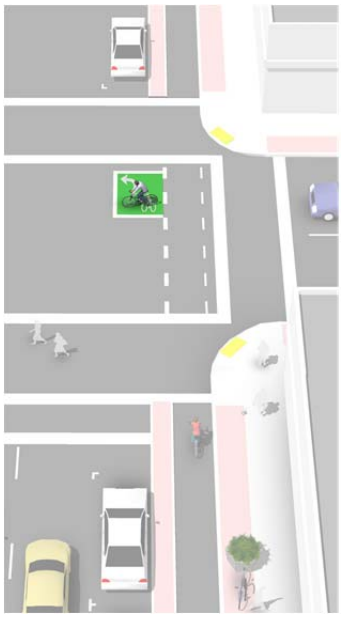
Raised Intersections

Raised intersections are a type of traffic calming and placemaking treatment where an entire intersection are is elevated to sidewalk height. This acts as a speed table, slowing approaching traffic in all directions.

Pedestrian crossings are improved by remaining level with the sidewalk throughout the crosswalk.

Special paving is often used in raised crosswalks to draw attention to the treatment and create a more plaza like atmosphere.

2-Stage Left Turn Boxes



Two-stage turn queue boxes offer bicyclists a safe way to make left turns at multi-lane signalized intersections from a right side cycle track or bike lane.

On right side cycle tracks, bicyclists are often unable to merge into traffic to turn left due to physical separation, making the provision of two-stage left turn boxes critical.

Crosswalks, Pedestrian Landings, and Crossbikes

These pages describe crossing treatments at intersections. A legal crosswalk may be unmarked, striped with standard transverse white lines, painted yellow to indicate a school zone, or otherwise striped to increase visibility. Each treatment serves a different role in the pedestrian network. These pages also describe treatments used to enhance a crosswalk to give pedestrians a better sense of safety, such as pedestrian refuge islands.

Transverse Crosswalks

The simplest form of marked crosswalk is two transverse lines, indicating the crossing area. A marked crosswalk signals to motorists that they must stop for pedestrians and encourages pedestrians to cross at designated locations. Installing crosswalks alone will not necessarily make crossings safer especially on multi-lane roadways.

School Zone Crosswalks

Where a crosswalk is painted yellow, it indicates to drivers that they are within 500 feet of a school boundary or on a designated route to school and should be especially attentive to the possibility of smaller people crossing the street.

High Visibility Crosswalks

For locations with higher pedestrian volumes or traffic speeds, crosswalk styles other than transverse crosswalks can be more visible to motorists. These high-visibility crosswalk styles include Continental, Ladder, or Zebra striping.

ADA Compliant Curb Ramps

Curb ramps allow all users, including people in wheelchairs and using mobility aids, to make the transition from the street to the sidewalk. Truncated domes on curb ramps help people with sight impairments find the safest place to cross the street.

Median Refuge Islands

Median refuge islands are protected spaces placed in the center of the street to facilitate bicycle and pedestrian crossings. Crossings of two-way streets are simplified by allowing bicyclists and pedestrians to navigate only one direction of traffic at a time. This treatment is most useful on high-volume multi-lane roadways that otherwise would be difficult to cross. Recommended minimum width for pedestrian refuge islands is 6 feet.

Crossbikes

Crossbikes are a type of pavement marking designed to direct bicyclists through an intersection area or midblock crossing, similar to a crosswalk for pedestrians.

Most commonly, crossbikes are made up of simple dotted lines or "Elephant's Feet" extending from bike lane lines. More sophisticated treatments include bicycle markings or green colored pavement within the crossing area.

Curb Extensions

Curb extensions shorten pedestrian crossing distance, increase visibility, and encourage turning vehicles to slow down. They can be used at any marked crossing where the parking lane can absorb the extension of the curb.

Curb extensions may be built with drainage channels that do not impact existing stormwater flow, or with integrated bioswales that filter stormwater and facilitate infiltration. Curb extensions should not encroach on bike lanes.

Midblock Crossings

In addition to the intersection improvements shown in the previous pages, a number of other treatments can help to improve pedestrian safety. These pages illustrate pedestrian crossings at midblock locations or "uncontrolled crossings" where cross traffic would not otherwise be required to stop. A simple mid-block crossing may be sufficient for pedestrian safety at some locations, but stronger treatments, such as Rectangular Rapid Flashing Beacons (RRFBs) or pedestrian bridges or tunnels may be warranted at crossings with multiple travel lanes, high volumes of traffic or high-speed traffic.

In-Street Yield to Pedestrian Sign

In-street pedestrian crossing signs reinforce the presence of crosswalks and remind motorists of their legal obligation to yield for pedestrians in marked or unmarked crosswalks. This signage is often placed at high-volume pedestrian crossings that are not signalized. On streets with multiple lanes in each direction, additional treatments such as median islands or active warning beacons may be more appropriate.

Advance Yield Lines

Advance yield lines are similar to the advance stop lines described earlier, except they are used for crosswalks at mid-block crossings. Often called "shark teeth," these advance yield lines are a row of white isosceles triangles at least four feet away from the crosswalk. Setting these markings further back on multi-lane roadways can reduce the possibility of yielding drivers in one lane obstructing the visibility of the crosswalk for drivers in other lanes.

Rectangular Rapid Flash Beacons

Rectangular Rapid Flash Beacons (RRFB) are user actuated illuminated devices designed to increase motor vehicle yielding compliance at crossings of multi-lane or high volume roadways. Paired with pedestrian crossing signs, they provide a high-visibility signal of pedestrians in the crosswalk.

Overpass

Overpasses provide critical non-motorized system links by joining areas separated by barriers such as deep ravines, waterways or major streets or freeways. A Crime Prevention Through Environmental Design (CPTED) lens should be followed when designing the overpass.

Bicycle and Pedestrian Hybrid Beacons

Hybrid beacons are traffic control signals commonly used to stop traffic along a major street to permit safe crossing by pedestrians or bicyclists. The signals provide very high levels of compliance by using a red signal indication, while offering lower delay to motorized traffic than a conventional signal.

Underpass

Underpasses provide critical non-motorized system links by joining areas separated by barriers such as railroads and highway corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist. A Crime Prevention Through Environmental Design (CPTED) lens should be followed when designing the underpass.

Signage, Stencils, and Parking Control

Improving signage can be a relatively simple and inexpensive strategy to enhance pedestrian and bicyclist safety. Especially at mid-block crosswalks or high-volume streets, signage that warns drivers of school-aged pedestrians can increase driver awareness and compliance with safety regulations. School zone signage is used within 500 feet of a school boundary or along a designated walking route to school.

Signs are regulated by the Manual on Uniform Traffic Control Devices (MUTCD), which is created by the Federal Highway Administration (FHWA). California (Caltrans) has its own manual (CA MUTCD), which is a supplement to the federal one. Currently, California has a 2012 version of the CA MUTCD, which is based on the 2009 version of the FHWA MUTCD.

Assembly A

Assembly B

Assembly D

School Zone Signage

The Assembly A sign is used to indicate to motorists that they have entered a school zone, generally defined as 500 feet or less from a school boundary.

School Crossing Signage

Two other street signs are used to indicate an uncontrolled pedestrian crossing within a school zone. The Assembly B sign is placed right at the crosswalk, and the Assembly D sign is placed in advance to provide warning to motorists to expect children in a crosswalk.

Assembly C

School Speed Limit Signage

A special set of street signs can only be used around schools. The "Assembly C" sign indicates a reduced speed limit within the school zone. While school zone speed limits are typically 25 mph, Assembly Bill 321 (2008) allows cities to reduce school zone speeds to 15 mph.

Over 95% of pedestrians survive when struck by a car traveling less than 20 mph. At 40 mph, only 15% of struck pedestrians survive.

Stencils

Street markings are another tool to appropriately warn drivers of the presence of school children. Usually stencils consist of markings like "SLOW SCHOOL XING" at least 100 feet in advance of an uncontrolled school crosswalk. Most street markings are done in white paint, but the use of yellow paint for street markings is allowed within school zones.

Wayfinding Signage

A bicycle wayfinding system consists of comprehensive signing and/or pavement markings to guide bicyclists to their destinations along preferred bicycle routes. There are three general types of wayfinding signs: Confirmation Signs, Turn Signs, and Decision Signs.

Curb Color

Cities in California use colors painted on the curb to designate which behaviors are legal for motorists. Red zones indicate areas where it is illegal and unsafe to park. White zones designate passenger loading zones. Green zones indicate temporary parking zones. Ensuring that the appropriate curb color is painted at your school can help motorists behave safely around children.

Sidewalks

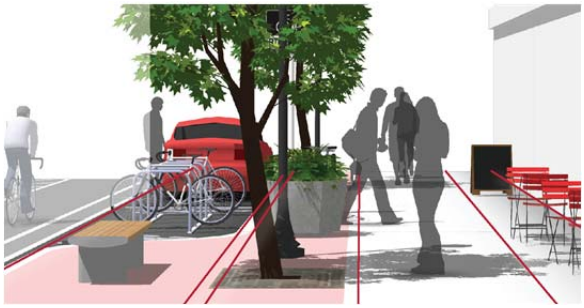
Sidewalks are the fundamental element of a sidewalk network, providing dedicated space for students and parents walking to school. An effective network of sidewalks includes standards to ensure adequate width and connectivity, dedicated space for landscaping and street furniture as appropriate, and the design elements for crossings described earlier.

A Continuous Network

The most important element of a good sidewalk network is continuity. Closing gaps in sidewalk networks can both significantly improve pedestrian mobility and enhance safety in a community. Sometimes pedestrians will use a street regardless of whether or not facilities are provided, so filling key network gaps can reduce instances walking in the roadway and crossing the street outside of designated crosswalks.

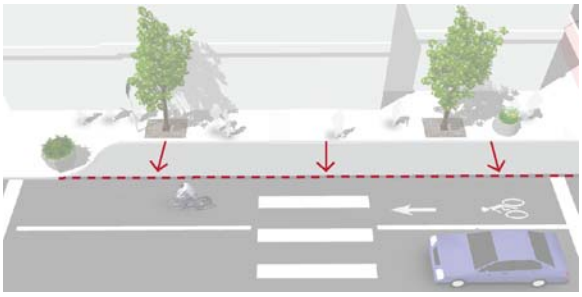
Vertical Curb

Vertical curbs clearly differentiate the street from the sidewalk. Unlike rolled curbs, which may be seen by drivers as an invitation to enter the pedestrian zone, vertical curbs present a clear barrier for cars.



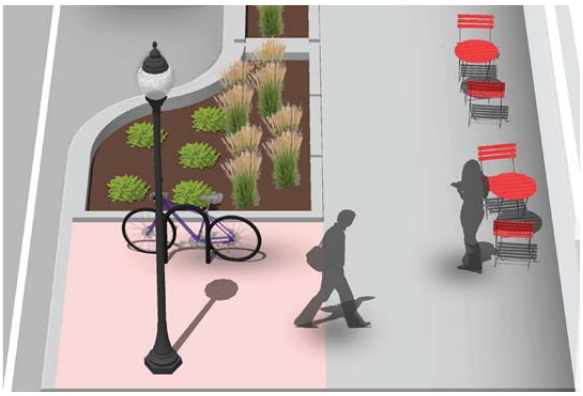
Sidewalk Standards

A usable sidewalk will be *at least* 4' wide and be free of obstructions, including utility poles, poorly placed street furniture, substandard width, missing curb ramps, overly tilted surfaces, and roots uplifting sidewalk tiles. The Americans with Disabilities Act provides specific standards to make sidewalks accessible to everyone.



Sidewalk Widenings

In areas with high pedestrian volumes, widening the sidewalk can increase pedestrian comfort. Sidewalks with substandard width near schools should be retrofitted to accommodate demand at arrival and dismissal.



Pedestrian Scale Lighting

Personal safety is often as important to pedestrians as traffic safety. Sidewalks must feel safe for pedestrians during all hours of use. Smaller lighting features, called "pedestrian-scale" lighting can minimize light pollution and establish a street as appropriate for pedestrians.

Traffic Calming

The term "traffic calming" describes a range of improvements that reduce traffic speeds or traffic volumes intended to improve safety for all road users. Treatments are mostly appropriate for local streets not meant for through traffic. Some traffic calming seeks to slow down through traffic, while other traffic calming seeks to divert through traffic and reduce traffic volumes.

Securing community support before proceeding with a traffic calming project can help to make it more successful. Benefits to local residents may include a safer neighborhood to walk and bicycle in, though sometimes at the cost of driving convenience.

Traffic calming measures in the context of a Safe Routes to School program can help reduce driving speeds near schools, discourage dangerous or illegal driving maneuvers, and encourage the use of appropriate routes when driving to or from school. They should be combined thoughtfully with the other improvements described in this toolkit.

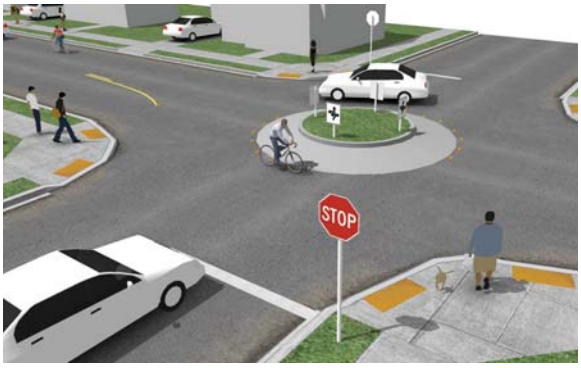
Chicanes

A chicane is a curb extension, usually built in alternating patterns or with intermittent median strips, that creates an S-shaped curve on a street. These minor curves require motorists to proceed with greater caution and slower speeds. They may also provide additional space for landscaping or pedestrians. Some chicanes are concrete curbs, while others are painted on the roadway.

Speed Humps & Speed Tables

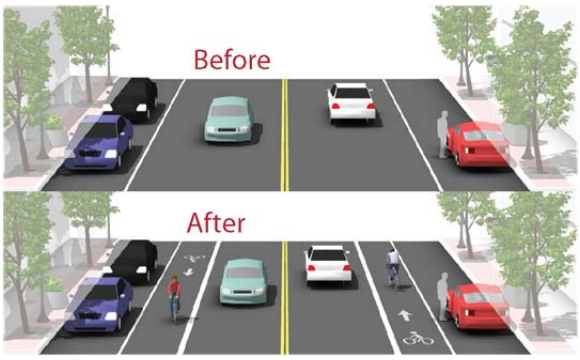
Speed humps are rounded vertical traffic calming features common on residential streets, and may be used to control speed along a corridor.

Speed tables are similar mesa-shaped features that may be configured as raised crossings, as shown above. If configured as a raised crossing, the speed table should be elevated so that it is flush with the sidewalk and/or multi-use trail.



Traffic Circles

Traffic circles are generally used to replace a 4-way-stop intersection. Traffic circles can improve safety as well as travel times and intersection efficiency. Many drivers are not familiar with traffic circles so signage can help them to navigate the intersection. Many traffic circles are built with mountable curbs so that emergency vehicles may quickly and easily proceed through the intersection.

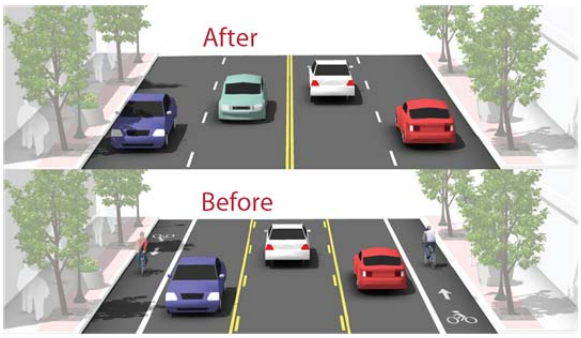


Lane Narrowing

Lane narrowing utilizes roadway space that exceeds minimum standards to provide the needed space for bike lanes. Many roadways have existing travel lanes that are wider than those prescribed in local and national roadway design standards, or which are not marked.

Diverters

A diverter diverts motor vehicle traffic from one street to another while allowing pedestrian and bicycle traffic to proceed normally. They are most common parallel to arterial streets where congestion may lead motorists to seek alternative routes on local streets through a neighborhood. Common on bike routes, diverters are the most intense traffic calming treatment applied and should be implemented only after study and community outreach.



Road Diets

The removal of a single travel lane will generally provide sufficient space for bike lanes on both sides of a street. Streets with excess vehicle capacity provide opportunities for bike lane retrofit projects.

Green Stormwater Features

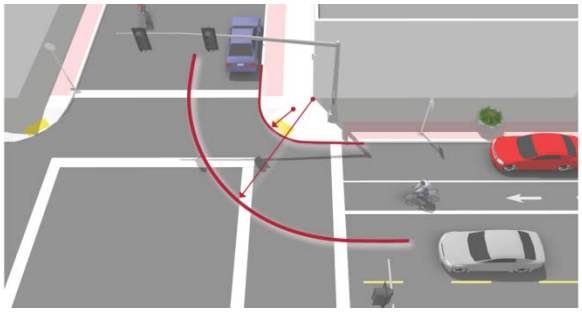
Green stormwater strategies may include bioretention swales, rain gardens, tree box filters, and pervious pavements (pervious concrete, asphalt and pavers).

Bioretention swales are natural landscape elements that manage water runoff from a paved surface. Plants in the swale trap pollutants and silt from entering a river system.

These elements may be integrated into curb extensions, chicanes, traffic circles, and other traffic calming features.

Landscaped Traffic Calming Features

Landscaping adds visual interest to the streetscape and may encourage people to slow down. Plantings with descriptive signage can add an educational element for students walking to school. Native species should be encouraged to promote a sense of place and decrease maintenance needs.



Minimize Corner Radii

The size of a curb's radius can have a significant impact on pedestrian comfort and safety. A smaller curb radius provides more pedestrian area at the corner, allows more flexibility in the placement of curb ramps, results in a shorter crossing distance and requires vehicles to slow more on the intersection approach. During the design phase, the chosen radius should be the smallest possible for the circumstances.

Bicycle Facilities

The following pages describe a range of bikeway types for on-street and off-street application. Bicycle facility selection depends on a variety of factors including motor vehicle speeds and volumes, topography, adjacent land use, available right of way, and expected bicycle user types. Children and their parents/guardians may prefer lower stress bikeways such as bicycle boulevards, buffered bike lanes, cycle tracks, and multi-use paths compared to shared roadways without traffic calming features or conventional bike lanes.

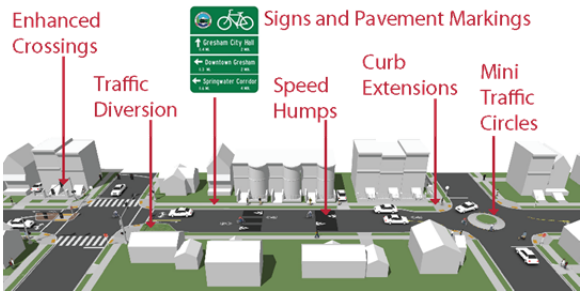
Marked Shared Roadway

A marked shared roadway is a general purpose travel lane marked with shared lane markings (SLM) used to encourage bicycle travel and proper positioning within the lane.

In constrained conditions, the SLMs are placed in the middle of the lane to discourage unsafe passing by motor vehicles. On a wide outside lane, the SLMs can be used to promote bicycle travel to the right of motor vehicles.

In all conditions, SLMs should be placed outside of the door zone of parked cars.

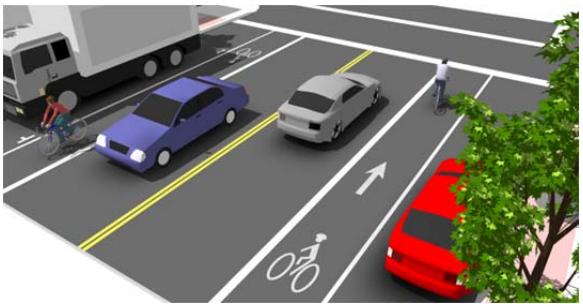
Marked Shared Roadways may be signed with Bike Route and/or May Use Full Lane signage.



Bicycle Boulevard

Bicycle boulevards are low-volume, low-speed streets modified to enhance bicyclist comfort by using treatments such as signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic.

Streets should contain a minimum of three traffic calming enhancements if they are to be considered bicycle boulevards.

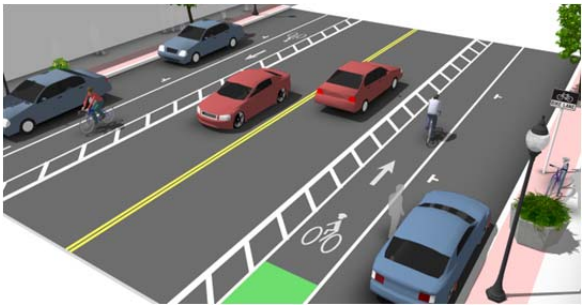


Bike Lanes

Bicycle lanes designate an exclusive space for bicyclists with pavement markings and signage. The bicycle lane is located adjacent to motor vehicle travel lanes and bicyclists ride in the same direction as motor vehicle traffic. Bicycle lanes are typically on the right side of the street (on a two-way street), between the adjacent travel lane and curb, road edge or parking lane.

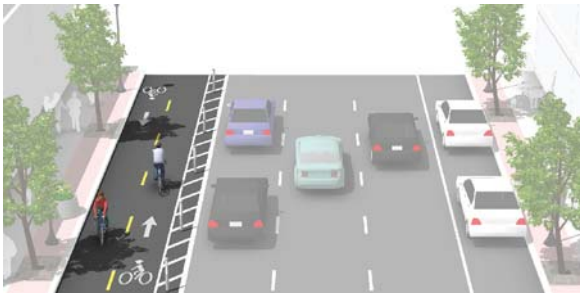
One-way Cycle Tracks

One-way cycle tracks are physically separated from motor traffic and distinct from the sidewalk. Cycle tracks are either raised or at street level and use a variety of elements for physical protection from passing traffic. They are typically implemented on roadways with higher vehicle volumes and/or speeds. Driveways and minor street crossings are a unique challenge for cycle tracks and require extra consideration.



Buffered Bike Lanes

Buffered bicycle lanes are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.



Two-Way Cycle Tracks

Two-way cycle tracks are physically separated cycle tracks that allow bicycle movement in both directions on one side of the road. Two-way cycle tracks require extra consideration at all crossings, both roadway and driveway crossings.

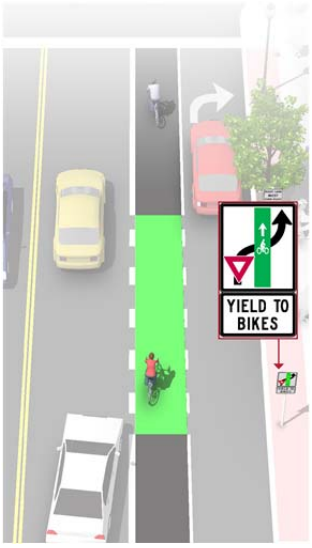
Colored Bike Lanes and "Super Sharrows"

Colored pavement within a bicycle lane increases the visibility of the bicycle facility. Use of color is appropriate for use in areas with pressure for illegal parking, frequent encroachment of motor vehicles, clarify conflict areas, and along enhanced facilities such as contra-flow bicycle lanes and cycle tracks.

Color has also been used in conjunction with shared lane markings to create a "lane within a lane" or "Super Sharrows" to further clarify proper bicyclist positioning on shared roadway streets.

Colored Bike Lanes in Conflict Areas

Colored pavement within a bicycle lane increases the visibility of the facility and reinforces priority of bicyclists in conflict areas.



Multi-Use Paths

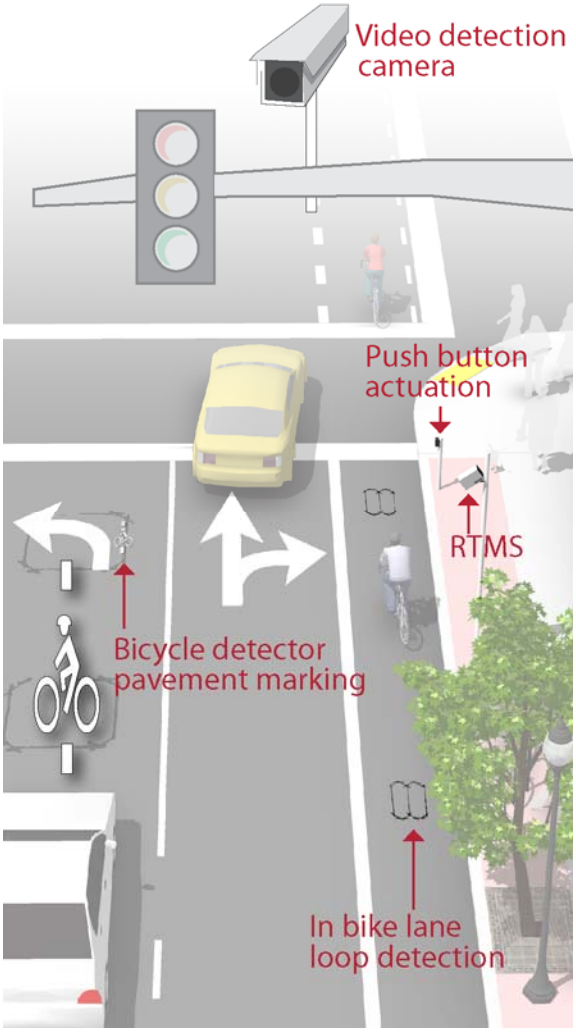
Multi-use paths may be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. These facilities are frequently found in parks, or as neighborhood cut-throughs to shorten connections and offer an alternative to busy streets.

Multi-use paths should be minimum of 8 ft wide for two-way bicycle travel and is only recommended for low traffic situations. 10 ft is recommended in most situations and will be adequate for moderate to heavy use. 12 feet is recommended for heavy use with high concentration of multiple users. A separate track (5' minimum) can be provided for pedestrian use.

When striping is required, use a 4-inch dashed yellow centerline stripe with 4 inch solid edge lines. Solid centerlines can be provided on tight or blind corners and on approaches to roadway crossings.

Appropriate signage includes wayfinding signs and trail crossing signs like the one shown below:

For more detailed information on multi-use path design see: AASHTO's Guide for the Development of Bicycle Facilities (2012).



Bicycle Detection and Actuation

Proper bicycle detection should meet two primary criteria: 1) accurately detects bicyclists and 2) provides clear guidance to bicyclists on how to actuate detection (e.g., where to stand). In California, push buttons are not permitted as the sole method of actuation. There must be passive detection.

Methods for bicycle detection and actuation at signals include in-pavement loop detection, video detection, Remote Traffic Microwave Sensor Detection (RTMS), and infra-red detection.