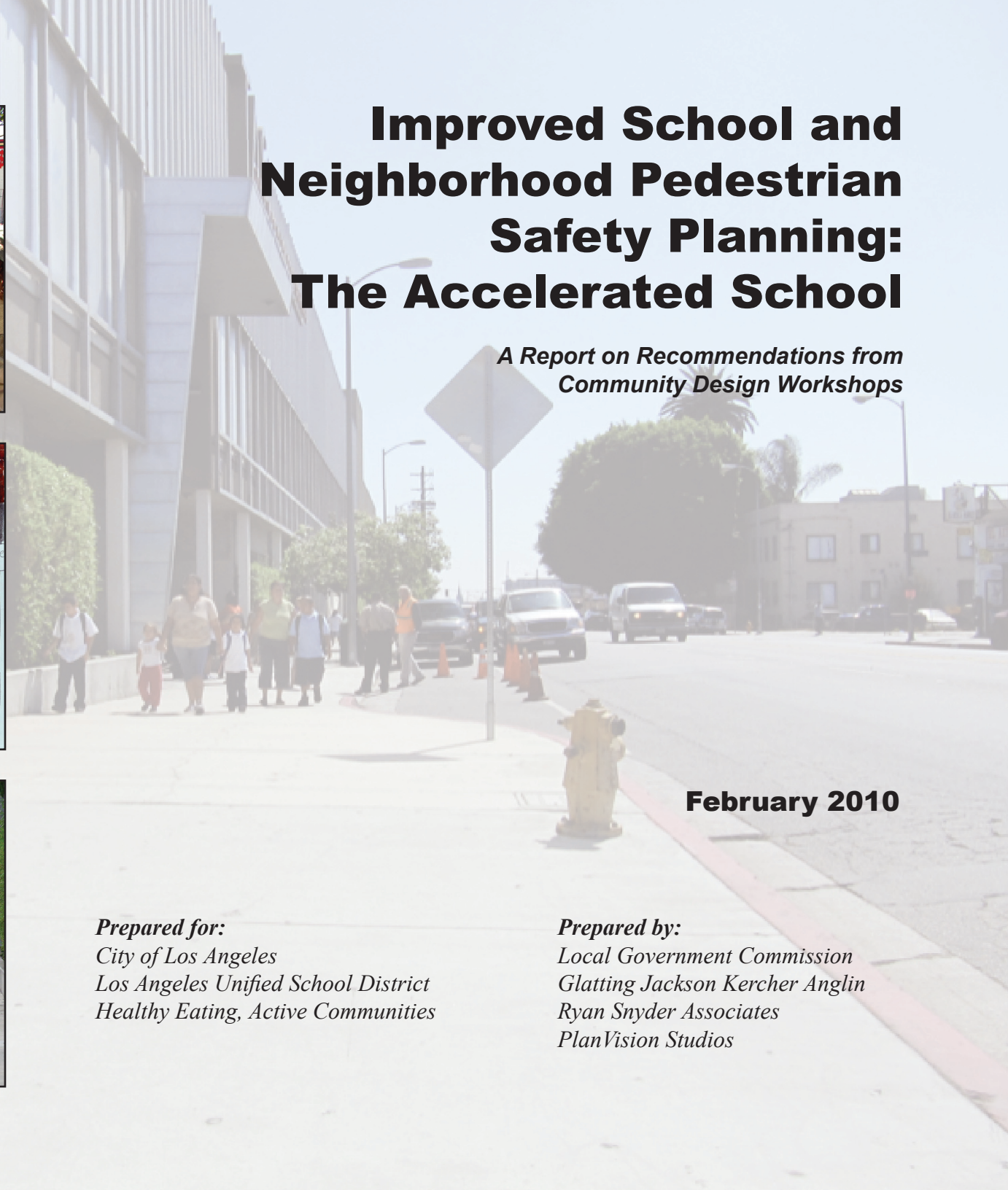
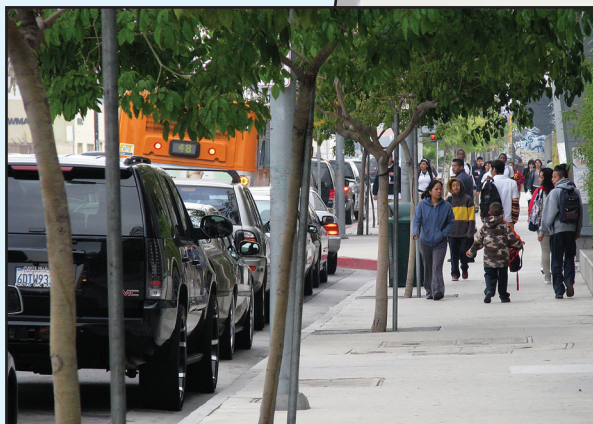


Improved School and Neighborhood Pedestrian Safety Planning: The Accelerated School

*A Report on Recommendations from
Community Design Workshops*

February 2010



Prepared for:
City of Los Angeles
Los Angeles Unified School District
Healthy Eating, Active Communities

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Disclaimer

Adherence to the principles found in this report can lead to an overall improvement in neighborhood safety and livability. This report does not constitute a standard, specification or regulation, and is not intended to be used as a basis for establishing civil liability. This report is not a substitute for sound engineering judgment. The decision to implement any particular measure should be made on the basis of engineering studies of the location.

Funding provided by a California Department of Transportation (Caltrans) Environmental Justice: Context-Sensitive Transportation Planning Grant and by Healthy Eating, Active Communities, a project funded by The California Endowment. Views and opinions expressed in this report do not necessarily represent the views of opinions of the California Department of Transportation (Caltrans) or the California Business, Transportation, and Housing Agency.

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INTRODUCTION

Project Description and Goals

In California as many as 5,000 child pedestrians are injured each year. Pedestrian accidents are the second leading cause of fatal injuries among 5-12 year olds statewide. Additionally, childhood obesity is becoming an increasing problem in the state of California. Of the children in Assembly District 46, 36.8% of them are overweight, which is the highest percentage in the state of California. This project aims to reduce these figures by working with three elementary schools: The Accelerated School, 20th Street Elementary School, and Norwood Elementary School. All of the schools are located in the Los Angeles Unified School District. The Accelerated School (a charter school) is in Local District R; 20th Street Elementary is part of Local District 5; and Norwood Elementary is part of Local District 7.

The project area includes the neighborhoods immediately surrounding the aforementioned schools. Initial work with the three schools has already begun under the Healthy Eating, Active Communities' (HEAC) South Los Angeles Childhood Obesity Brain Trust (COBT). This project will build on efforts to date and provide much needed technical support to advance solutions to infrastructure inadequacies in these underserved neighborhoods.

The project is funded through an Environmental Justice: Context Sensitive Planning grant from the California Department of Transportation. Lead partners include the Local Government Commission (LGC), Glatting Jackson/Walkable Communities, Ryan Snyder Associates, PlanVision Studios, and Healthy Eating, Active Communities (HEAC). Matching funds were provided by Healthy Eating, Active Communities, a project funded by The California Endowment.





The Charrette Process

From September 21 - 24, 2009, project partners held a series of interactive neighborhood planning exercises at The Accelerated School involving students, parents, teachers and community leaders.

Outreach

The LGC and members of HEAC extended outreach efforts to parents of the Accelerated School students, and residents and businesses in the surrounding neighborhood. English and Spanish flyers were sent home with students, and directly mailed to residences and businesses within half a mile from the school. Email versions of the flyers were also distributed to different community groups with an interest in pedestrian and child safety. Perhaps the best method of outreach was through word of mouth by HEAC members.



Walk Audit and Design Session

Activities kicked off at The Accelerated School with a Walk Audit and Design Session on September 21. Dan Burden of Glattig Jackson/Walkable Communities and Paul Zykofsky of the LGC conducted a bilingual (English/Spanish) presentation on the principles and elements of walkability and safe routes to school. This was followed by a walk audit of the surrounding neighborhood, where at numerous stops along the way the group assembled around the design team to discuss mobility issues at each location, look at traffic on the streets, and listen as possible solutions to improve conditions at each location were considered.

After the walk audit, participants broke into three table groups and began the complex task of discussing how to improve students' routes to the school. Each table group held energetic conversations as they discussed detailed recommendations and general concerns. These thoughts were then translated into their own design recommendations, which they drew on large aerial maps.

Copies of the Table Maps are included in the Appendix.



Focus Groups

Focus group meetings were also held with stakeholders who have a common interest relevant to the project. These groups typically range from five to ten individuals, a size that allows for comfortable conversations about street and safety issues in general. During the charrette we held focus groups sessions for three groups: 1) Agencies and Pedestrian Advisory Committee, which consists of City Staff and members of the Los Angeles Pedestrian Advisory Committee; 2) The Accelerated School Staff; and 3) Ms. Greene’s 5th grade class at The Accelerated School. For the 5th grade class session the children got to draw maps of routes to the school, and write a story to go along with it. The students were also led by Dan Burden on a mini-walk audit around the school so they could learn about some of the safety issues near their school and provide input on their concerns.

Closing Presentation

After getting public input and analyzing existing conditions and data, the design team developed a series of traffic-calming measures and other context-sensitive design solutions to help create safer routes to the school. On September 24, the design team presented their initial recommendations to the public. Participants were then given an opportunity to provide additional input into the recommendations.



Benefits of Safer Routes

The recommendations highlighted in this report will have numerous benefits if implemented. Most importantly, these recommendations will reduce vehicle and pedestrian conflicts along routes to school, ensuring safer travel and fewer child pedestrian injuries and deaths.

They will also encourage physical activity and reduce obesity among schoolchildren. A Surgeon General report found that 78% of children fall short of the recommended amount of physical activity, thus contributing to unprecedented levels of childhood obesity.

The recommended minimum amount of activity can be met, fully or partially, if children can walk and bicycle to school. Safer routes to school will result in more students and parents choosing to walk or bicycle, thus reducing congestion and traffic incidents and improving the transportation network.

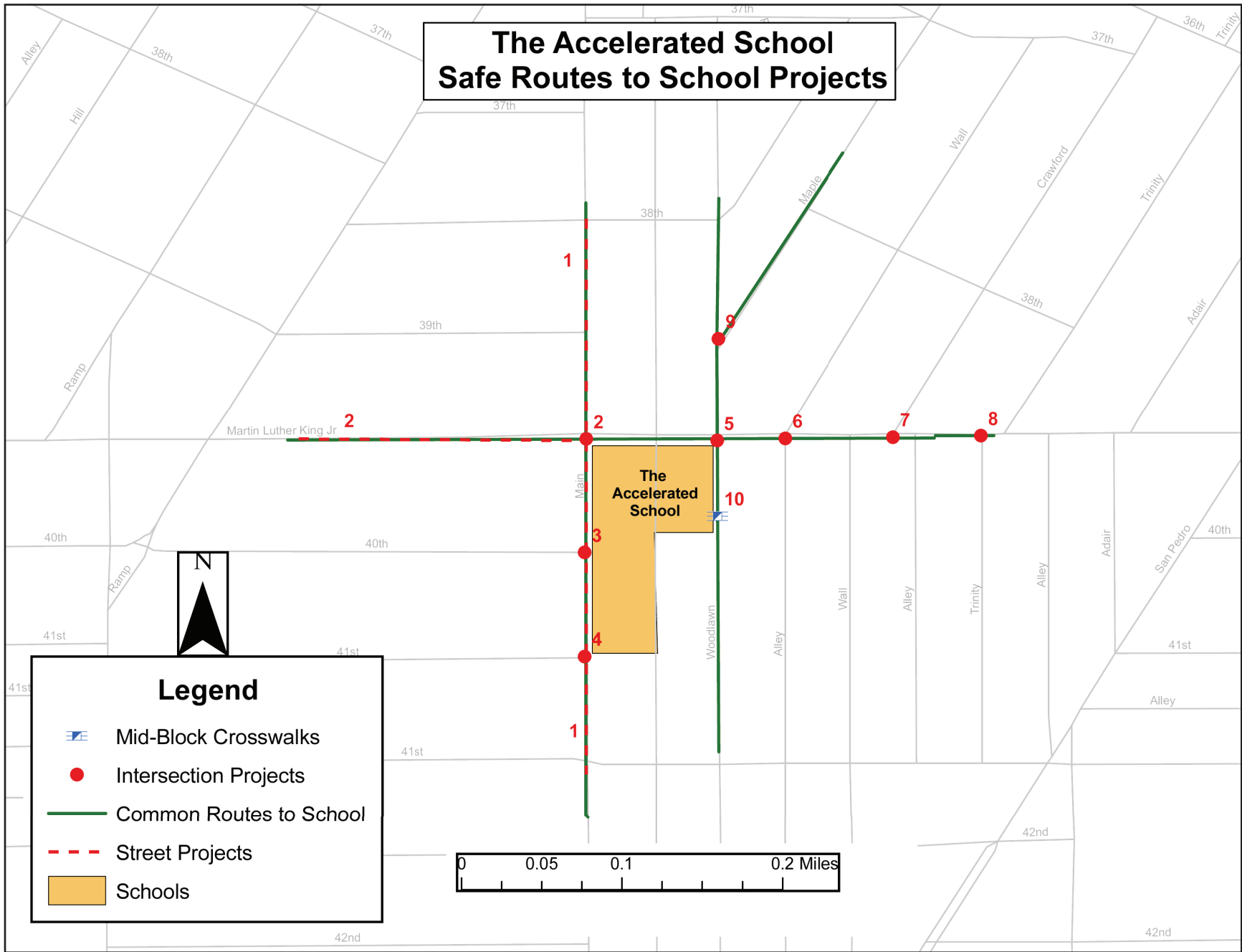


In today's automobile-dominated culture, the implications of training a new generation of pedestrians and bicyclists are profound. If children are provided with transportation options now, they will be more inclined to use them in the future.

In the meantime, we all benefit from reduced auto emissions and less road congestion. A study from the National Highway Traffic Safety Administration-funded Safe Routes to School National Model Project in Marin County revealed that at least 21-27% of morning traffic is attributable to parents driving their children to school. It is ironic that parents concerned about their child getting safely to school and who decide to drive them, may contribute significantly to the risk of walking or biking to school.

References

- 1996 Surgeon General's report on physical activity and health
- California Department of Health Services, EPICenter, California Injury Data Online, 2005-2007
- California Center for Public Health Advocacy, Overweight Children in California, 2004



RECOMMENDATIONS

The following recommendations focus on improvements along the common routes that The Accelerated School students use to walk or bicycle to school. When implemented, these projects should improve the safety for students walking and bicycling to school.

General Recommendation: Add perpendicular curb-ramps to all bulb-outs and curb extensions. Curbs with two perpendicular ramps steer wheelchair users and other pedestrians to the shortest and most direct path across the street.

From the North

Students walking to The Accelerated School from the north have to cross Martin Luther King Jr. Boulevard at some point. Many cross at Main Street in front of the school. Students coming from either the northwest or northeast have to walk along Martin Luther King Jr. Boulevard and cross over side streets.

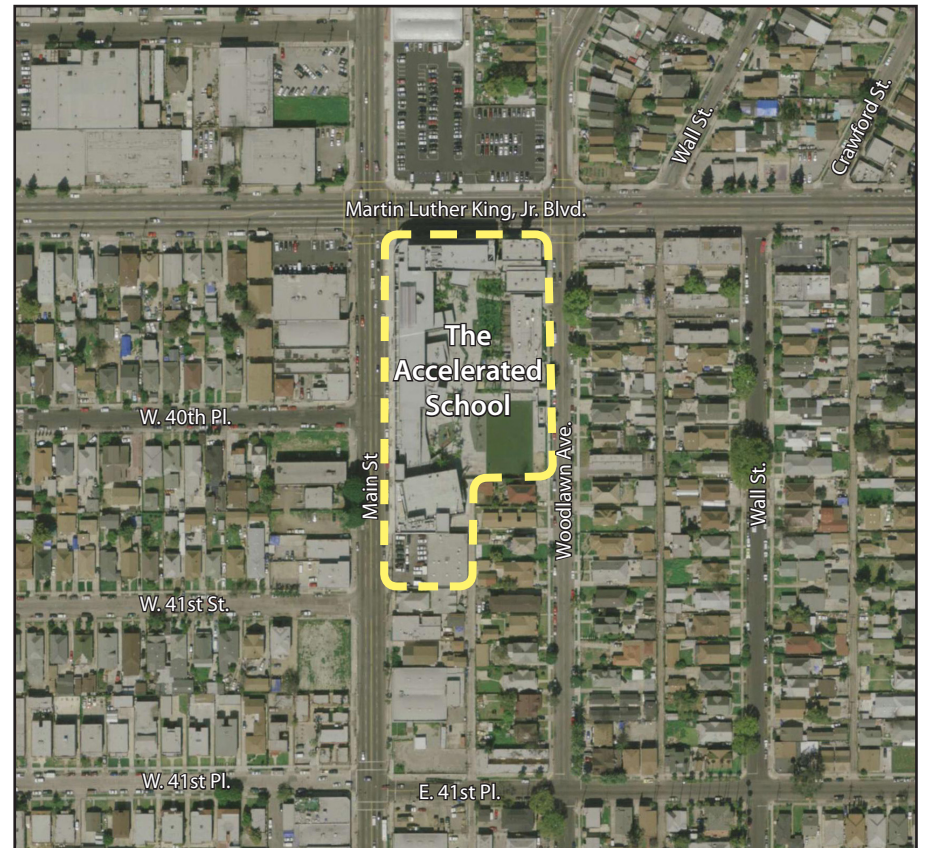
From the West

Students walking to The Accelerated School from the west have to cross Main Street, and may walk along Main Street.

From the South

Students walking to The Accelerated School from the south may have to cross 41st Place and walk along Main Street. Those coming from the southeast may enter off Woodlawn at the east entrance to the school.

The following projects will address issues getting to The Accelerated School from all directions. Some of these projects affect students coming from different directions so they are all described together. Crossing Martin Luther King, Jr. Boulevard and Main Street are the most important issues to be addressed since both of these streets are wider, carry more traffic and are immediately adjacent to the school.



1. Main Street

Main Street has three primary crossings for pedestrians:

- Martin Luther King, Jr. Boulevard
- West 40th Place
- West 41st Place

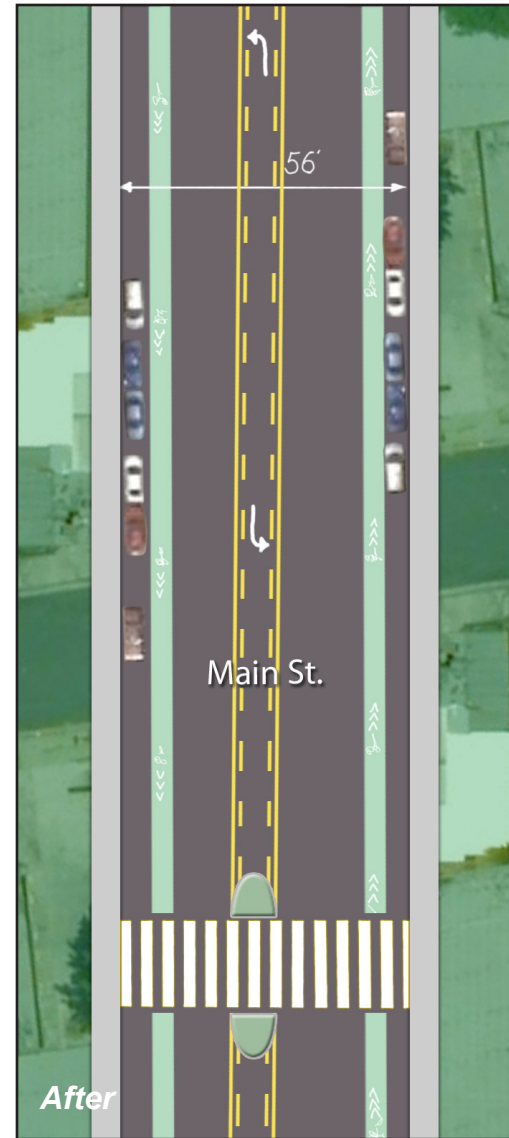
Main Street is quite wide and could be modified with a road diet or lane reduction. The road diet would enhance pedestrian crossings with crossing islands, and would create room for a bike lane. According to City of Los Angeles Department of Transportation Traffic Counts, the Average Daily Traffic volumes on Main Street at Martin Luther King Boulevard is just under 14,000. This is well within the range for a road diet that shouldn't impact capacity.

Existing Cross-Section (41st Place to north of Martin Luther King, Jr. Boulevard)

- 4 lanes
- On-street parking
- 56' wide

Recommended Cross-Section

- 2 (10') travel lanes
- Left-turn lane (10') with crossing islands where needed
- 2 bike lanes (6')
- On-street parking on both sides (7')



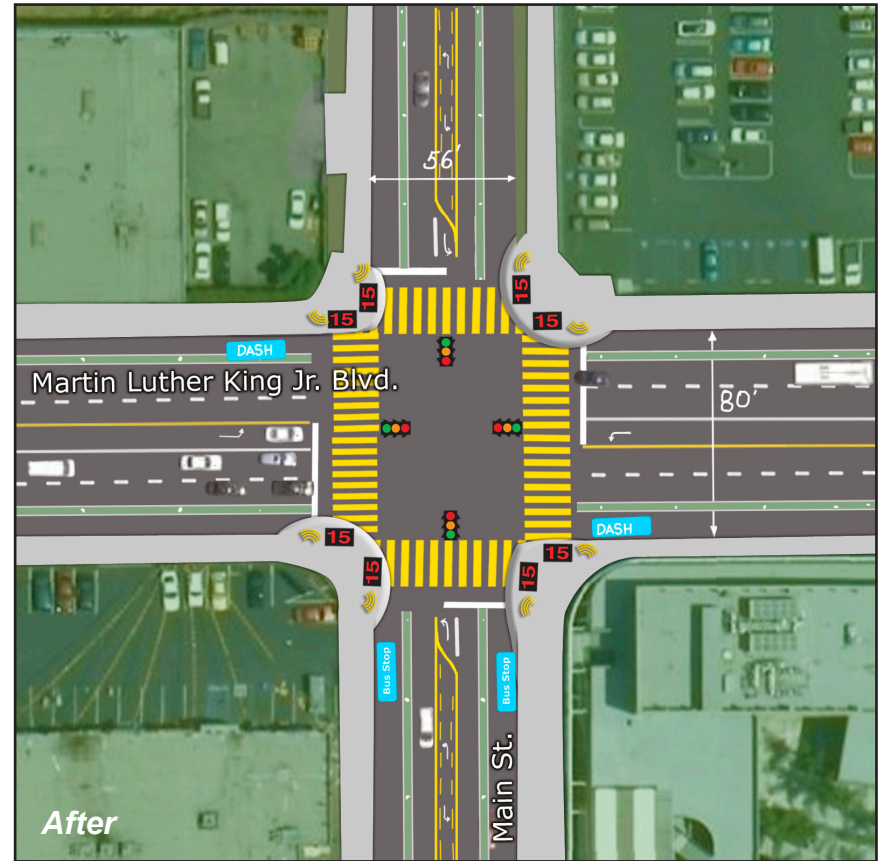
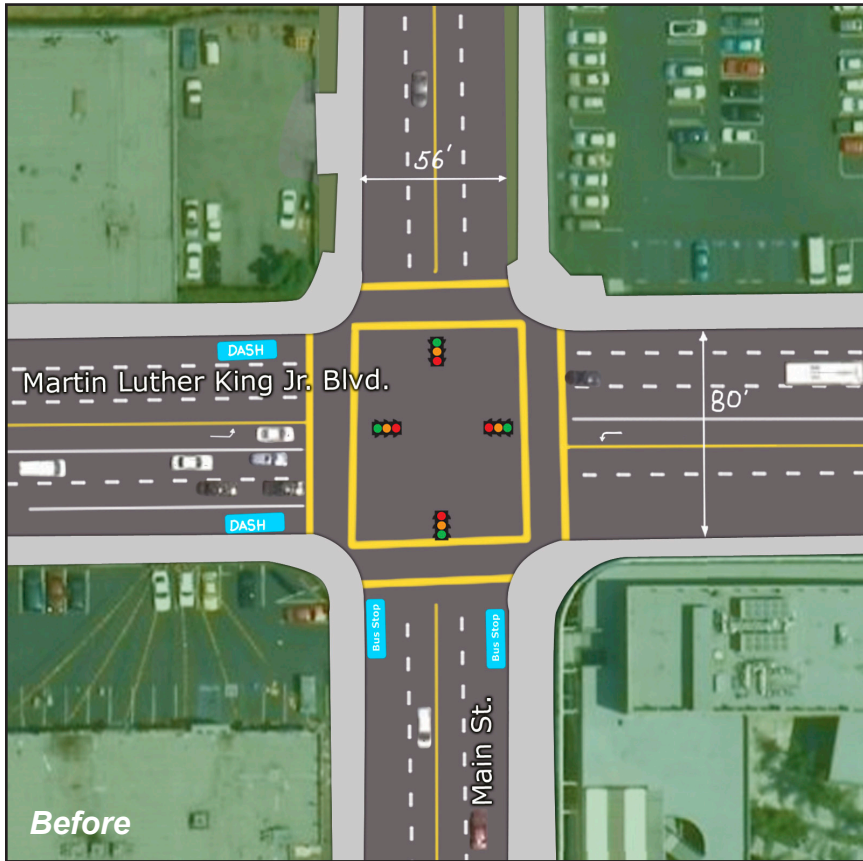
2. Martin Luther King, Jr. Boulevard at Main Street

Existing

- Signalized intersection
 - Automatic walk signals, but not enough time to cross
 - Yellow lateral crosswalks on all crossings
 - Main Street is 56' wide with 4 lanes
 - Martin Luther King, Jr. Boulevard is 80' to 81' across with 4 lanes, left-turn lane, bike lanes (east of Main Street) and on-street parking with restrictions
 - South side of Martin Luther King, Jr. Boulevard has no on-street parking 7 am to 5 pm on school days
 - West of Main Street, Martin Luther King, Jr. Boulevard has peak hour parking restrictions to create 6 travel lanes
 - Metro bus stops on SE and SW corners of Main Street
 - DASH bus stops on NW and SW corners of Martin Luther King, Jr. Boulevard
- Add bulb-outs to cross Martin Luther King, Jr. Boulevard on NE and SW corners (2)
 - Add bulb-outs to cross Main Street on both crossing faces of north side (2)
 - Add bulb-out to cross Main Street on SW corner (1)
 - Add wide tapered curb extension to SE corner of Main Street (1)
 - Add zebra-stripe crosswalks to all 4 crossings
 - Add advanced stop bars to all 4 crossings
 - Add countdown signals to all 8 pedestrian heads
 - Add audio signals to all 8 pedestrian heads
 - Increase walk time to cross Martin Luther King, Jr. Boulevard

Recommended Changes

- Implement road diet (as above) on Main Street
- Remove peak hour parking restriction on Martin Luther King, Jr. Boulevard west of Main Street and add bike lanes
- Move DASH bus stop on SW corner to SE corner on Martin Luther King, Jr. Boulevard



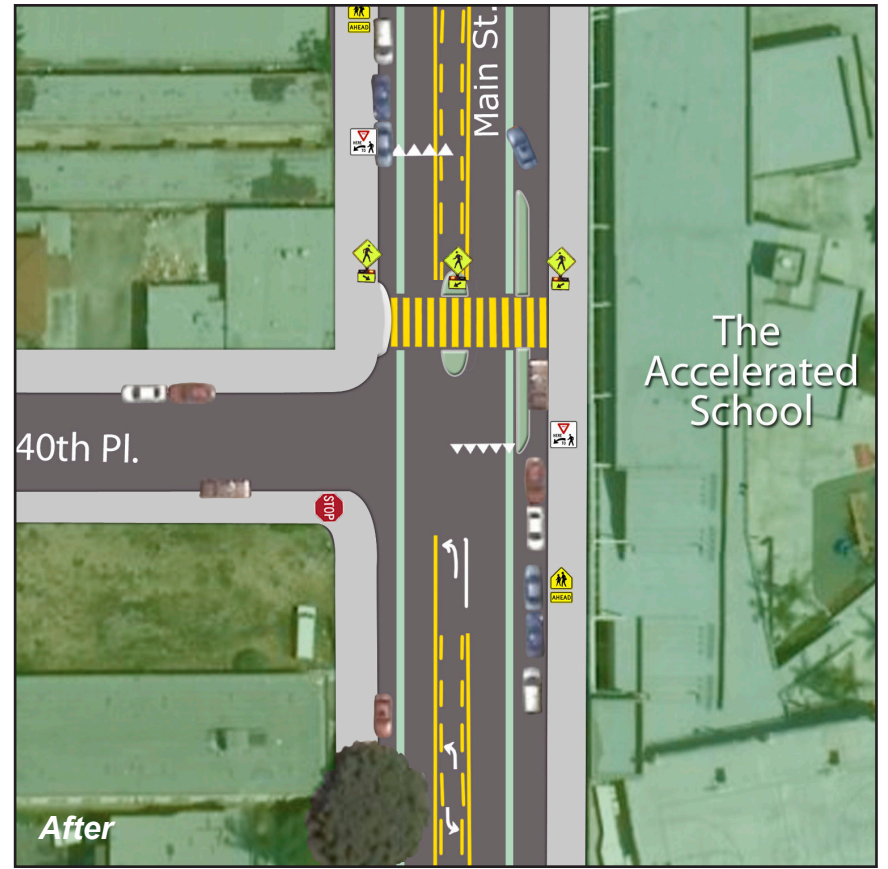
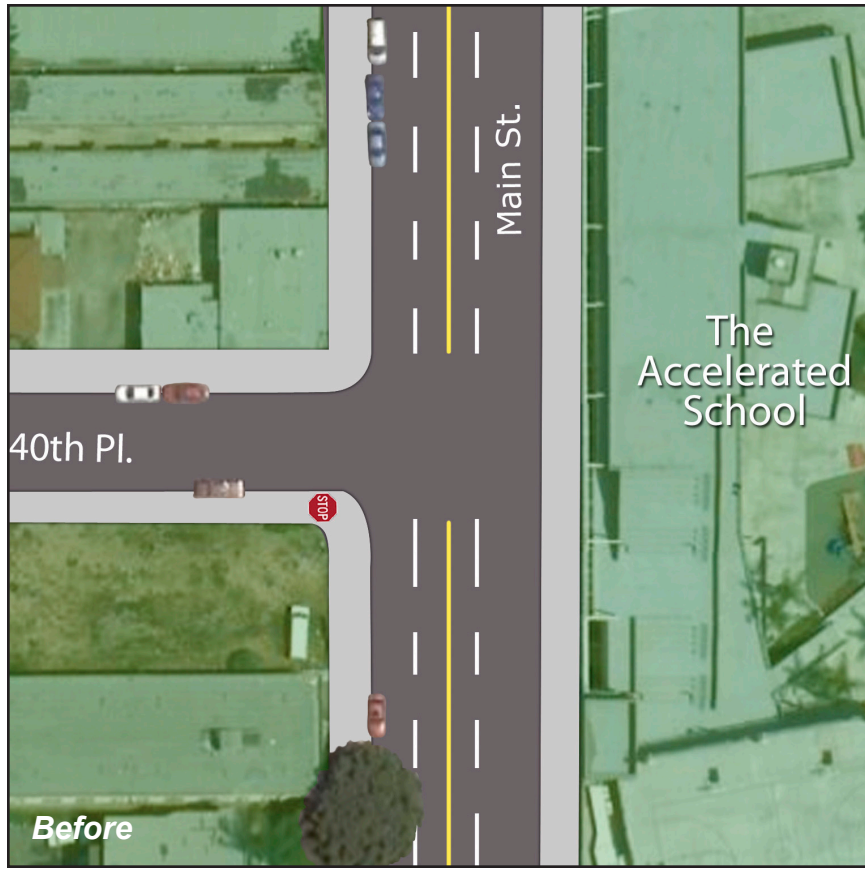
3. Main Street at 40th Place

Existing

- T-intersection
- 1-way stop for 40th Place
- Legal crossing, not marked, but extensively used

Recommended Changes

- Implement Main Street road diet as described above
- Add a zebra-stripe crosswalk along the north side of 40th Place (1)
- Add crossing islands to this new crosswalk (2)
- Add new tapered island with crosswalk gap on east side of Main Street to separate cars dropping students off from the street (1)
- Add bulb-out to west side of this crosswalk (1)
- Add rapid-flash beacons to this new crosswalk on the sides of the crosswalk and on the islands (4)
- Add advanced yield bars to both approaches (2)
- Add pedestrian crossing warning signs to both approaches (2)





Main Street and 40th Place intersection as it is today.



How the Main Street and 40th Place intersection could look with recommended changes.

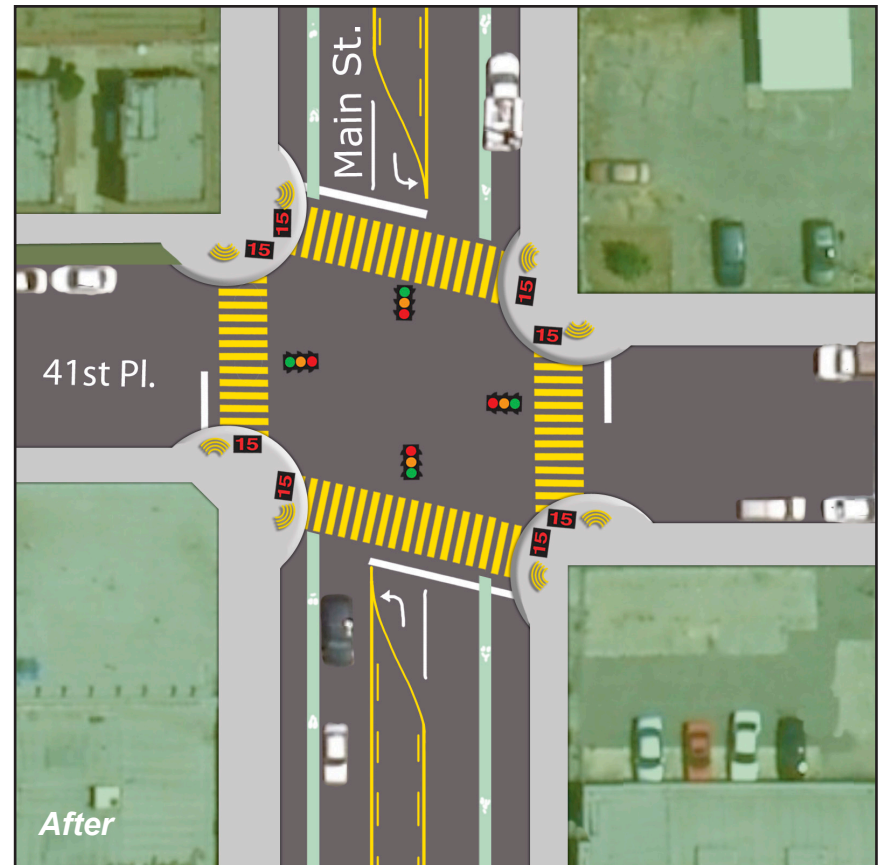
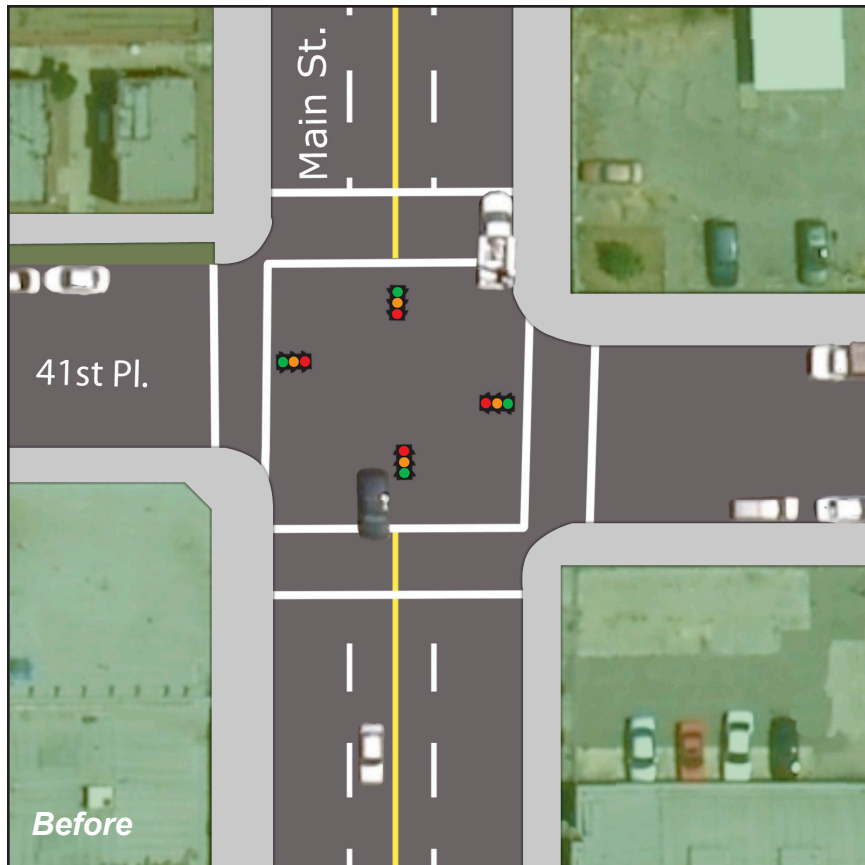
4. Main Street at 41st Place

Existing

- Signalized intersection
- Lateral-stripe crosswalks on all legs
- 41st Place has 2 lanes and on-street parking
- Main Street has 4 lanes and on-street parking

Recommended Changes

- Implement Main Street road diet (other changes below will work without this)
- Add bulb-outs to all 8 crossing faces
- Add zebra-stripe crosswalks to all 4 crossings
- Add advanced stop bars to all 4 crossings
- Add countdown signals to all 8 pedestrian heads
- Add audio signals to all 8 pedestrian heads



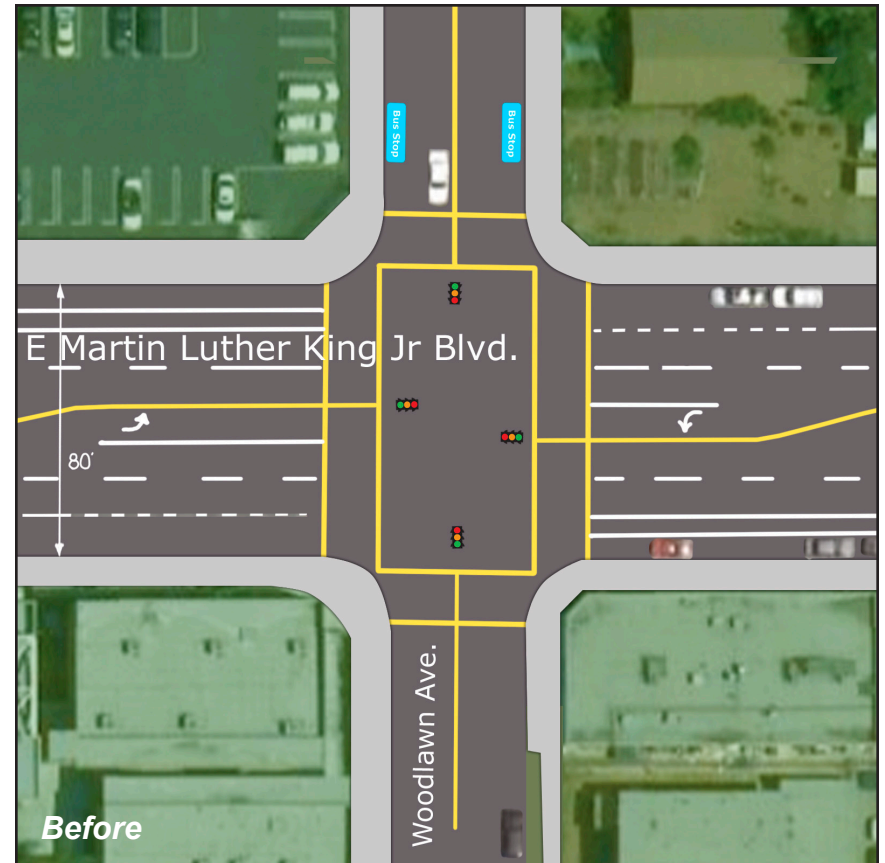
5. Martin Luther King, Jr. Boulevard at Woodlawn Avenue

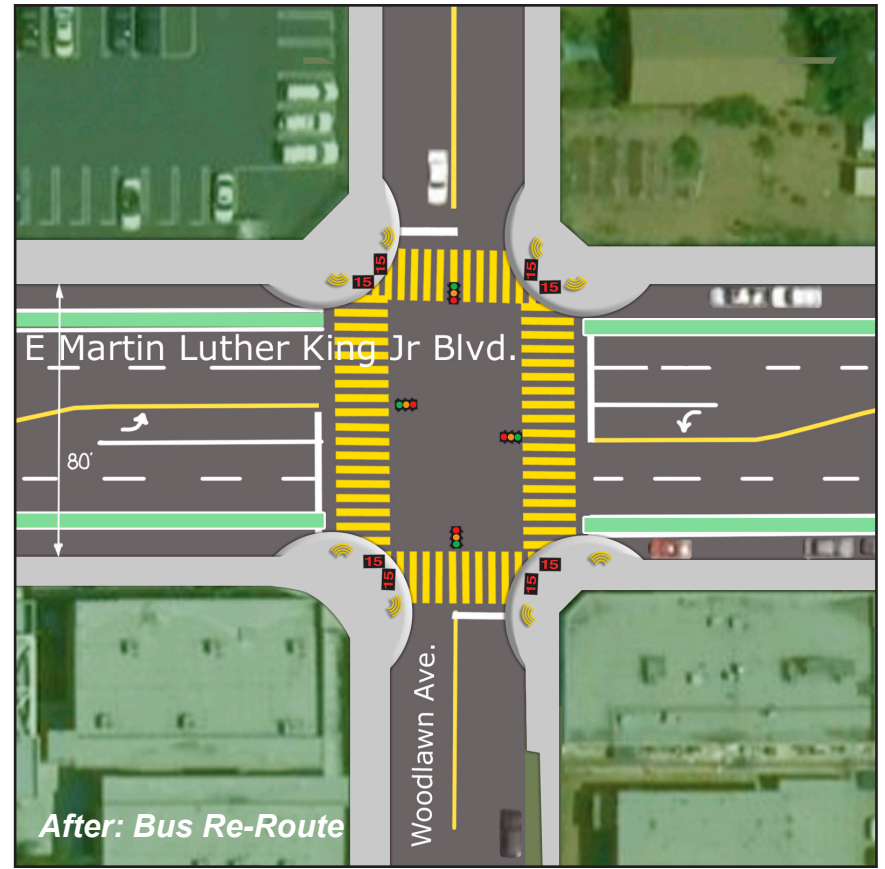
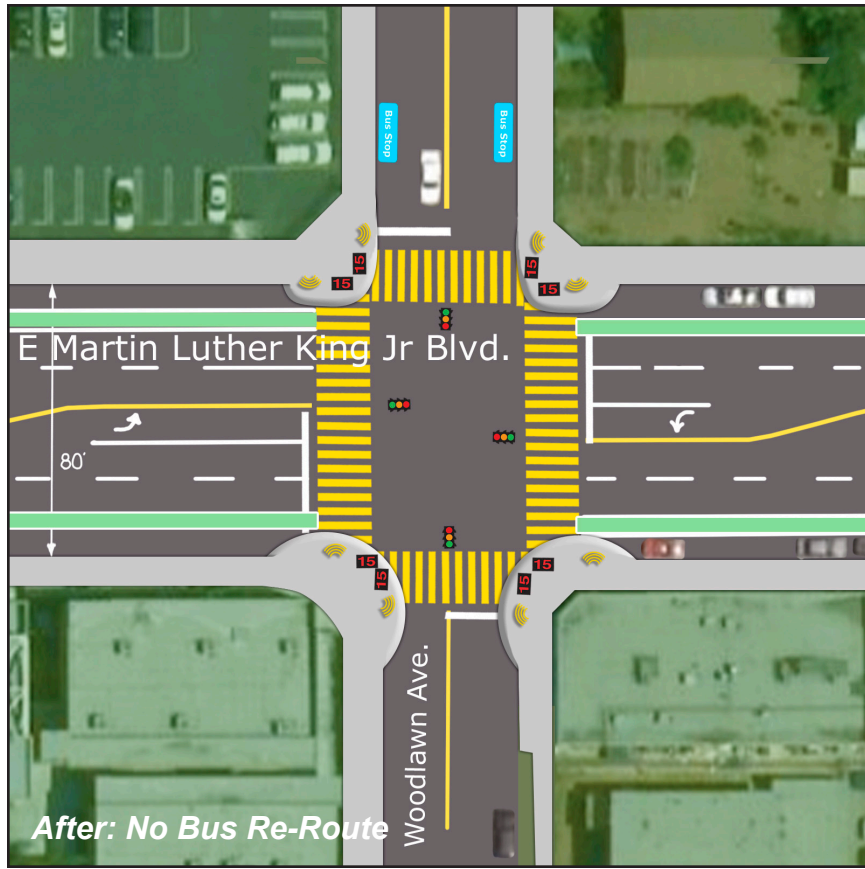
Existing

- Signalized intersection
- Martin Luther King Boulevard is 80' across with 4 lanes, left-turn lane, bike lanes and on-street parking with restrictions
- Woodlawn Avenue has 2 lanes and on-street parking
- Bus stops exist on NE and NW corners of Woodlawn Avenue
- Southbound Metro bus turns from Woodlawn Avenue west onto Martin Luther King, Jr. Boulevard; this creates some concern for pedestrians crossing Martin Luther King, Jr. Boulevard on the west side
- Eastbound Metro bus turns from Martin Luther King, Jr. Boulevard north onto Woodlawn Avenue

Recommended Changes

- Add bulb-outs to all crossing faces except on the north side of Woodlawn Avenue where the bus stops are located (6)
- Add zebra-stripe crosswalks to all 4 crossings
- Add advanced stop bars to all 4 crossings
- Add countdown signals to all 8 pedestrian heads
- Add audio signals to all 8 pedestrian heads
- Discuss with Los Angeles County Metropolitan Transportation Authority rerouting #48 Metro bus straight down Main Street and moving bus stops off of Woodlawn Avenue
- If bus stops are moved, add bulb-outs to both crossing faces of Woodlawn Avenue on the north side (2)





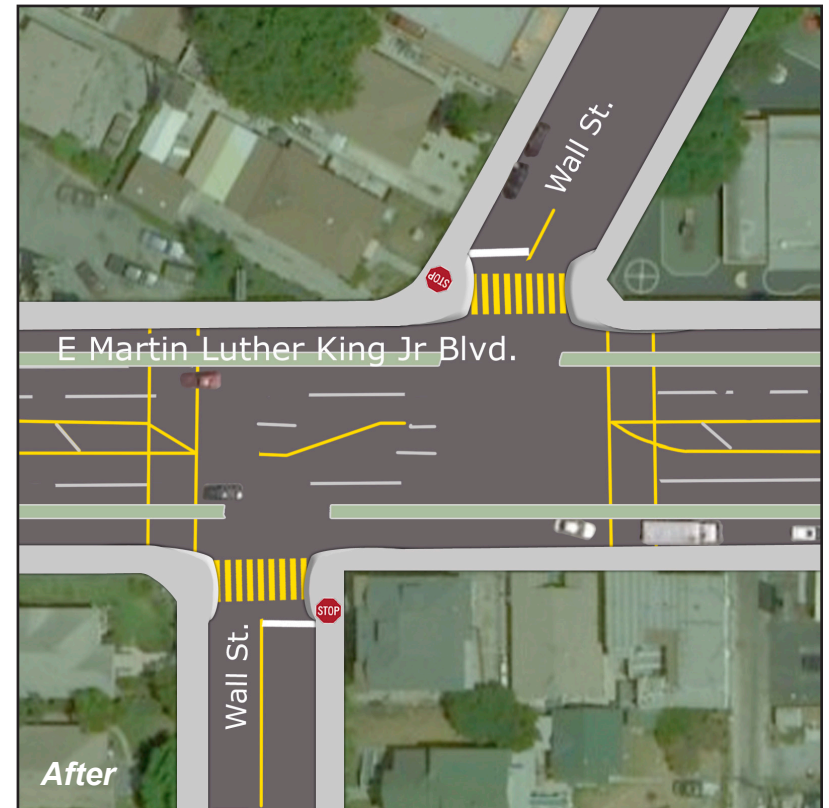
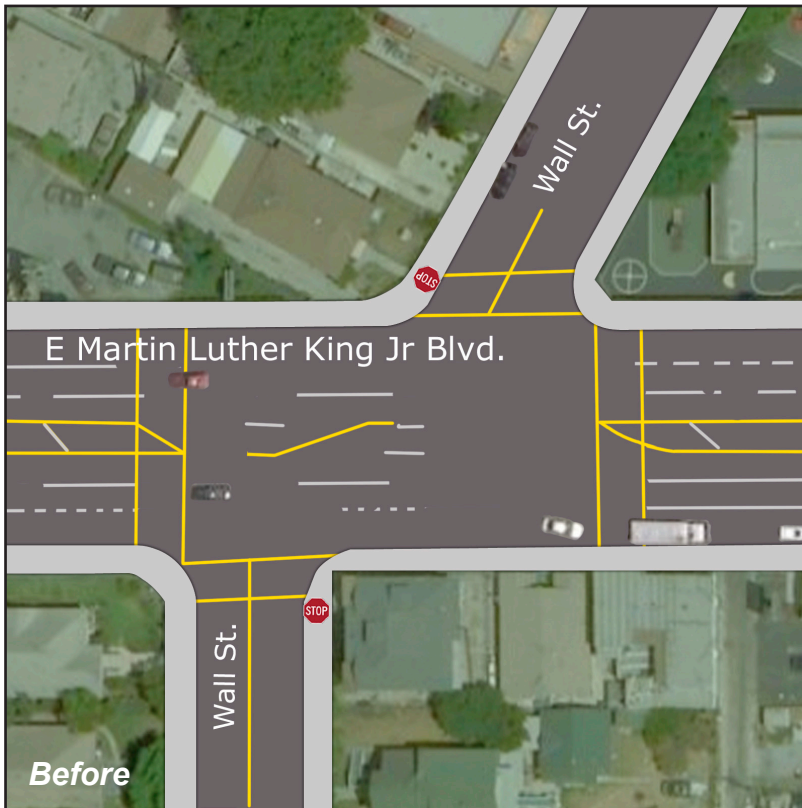
6. Martin Luther King, Jr. Boulevard at Wall Street

Existing

- Offset intersection
- 2-way stop for Wall Street

Recommended Changes

- Add bulb-outs to all 4 crossing faces
- Add zebra-stripe crosswalks to both crossings (2)
- Add advanced stop bars to both crossings (2)



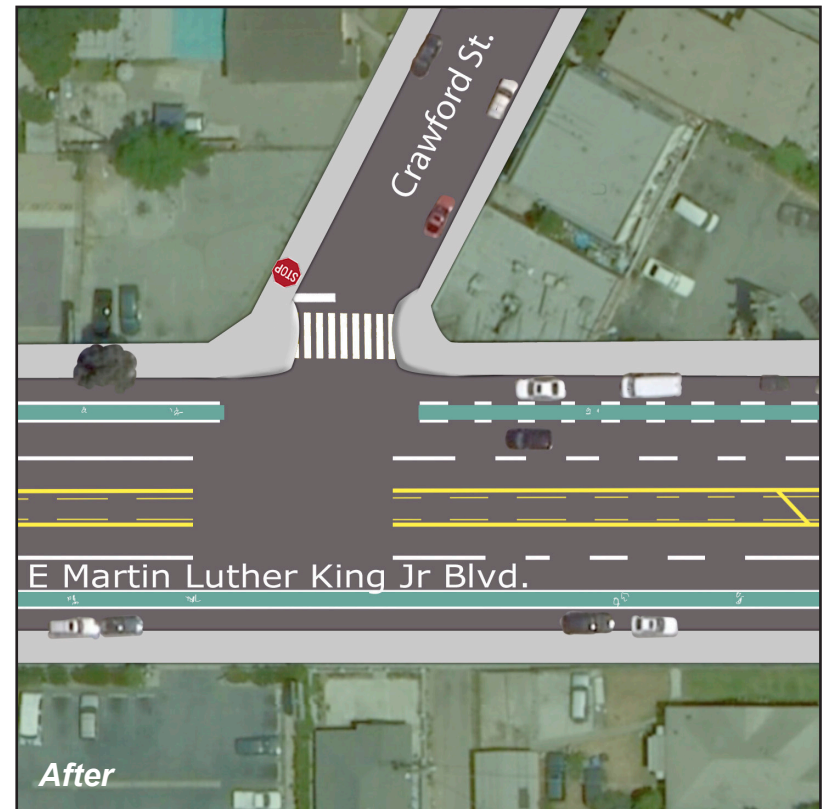
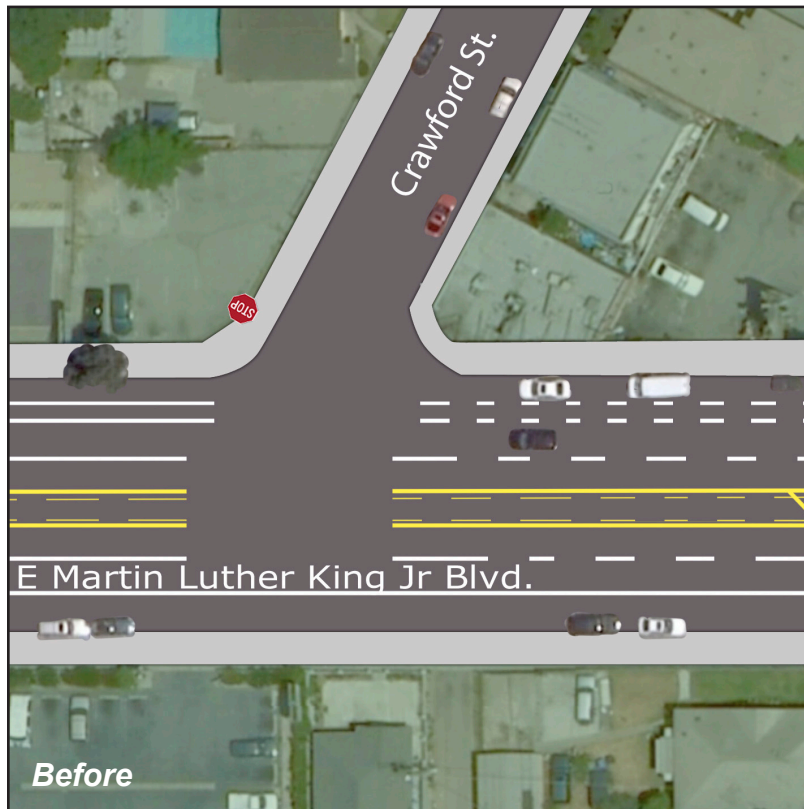
7. Martin Luther King, Jr. Boulevard at Crawford Street

Existing

- Offset intersection
- 1-way stop for Crawford Street

Recommended Changes

- Add bulb-outs to both crossing faces (2)
- Add zebra-stripe crosswalks to crossing (1)
- Add advanced stop bars to crossing (1)



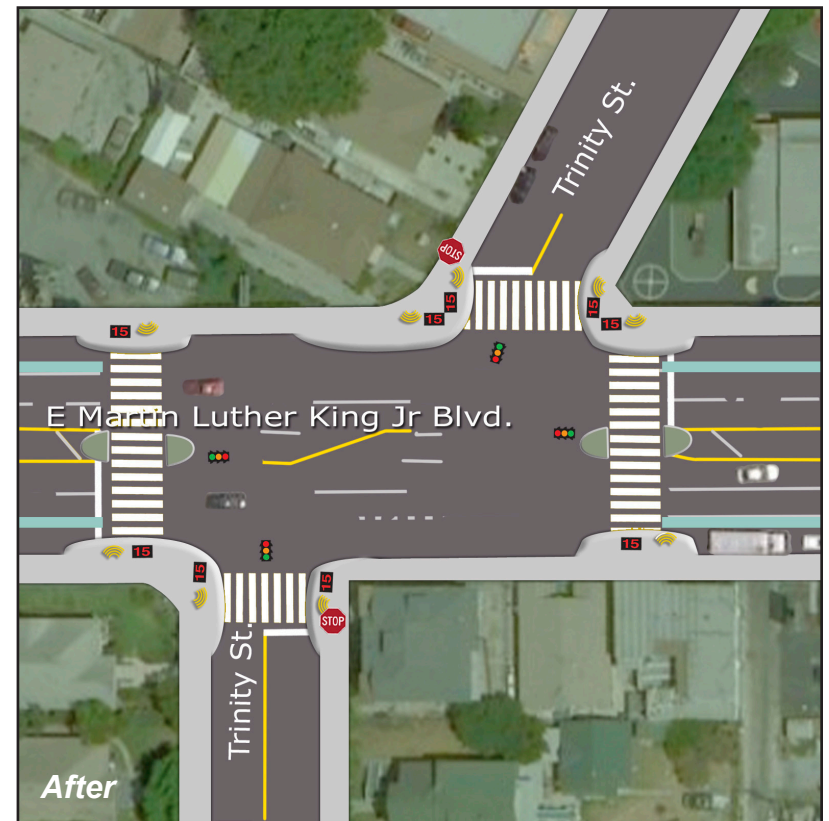
8. Martin Luther King, Jr. Boulevard at Trinity Street

Existing

- Offset intersection
- Signalized
- Yellow lateral-stripe crosswalks on all legs
- Crosswalks are away from intersections where left-turns occur

Recommended Changes

- Add bulb-outs to all 8 crossing faces
- Add zebra-stripe crosswalks to all 4 crossings
- Add advanced stop bars to all 4 crossings
- Add countdown signals to all 8 pedestrian heads
- Add audio signals to all 8 pedestrian heads
- Add crossing islands to both crossings of Martin Luther King, Jr. Boulevard (4)



9. Woodlawn Avenue at Maple Avenue

Existing

- Y-intersection
- Motorists traveling north on Woodlawn make many U-turns here to access the school parking lot entrance on Martin Luther King, Jr. Boulevard

Recommended Changes

- Prevent U-turns by adding a pork chop island that directs southbound motorists to the west of the island and northbound motorists to the east of the island
- Consider opening a parking lot entrance off of Main Street to reduce the number of people accessing the parking from this location



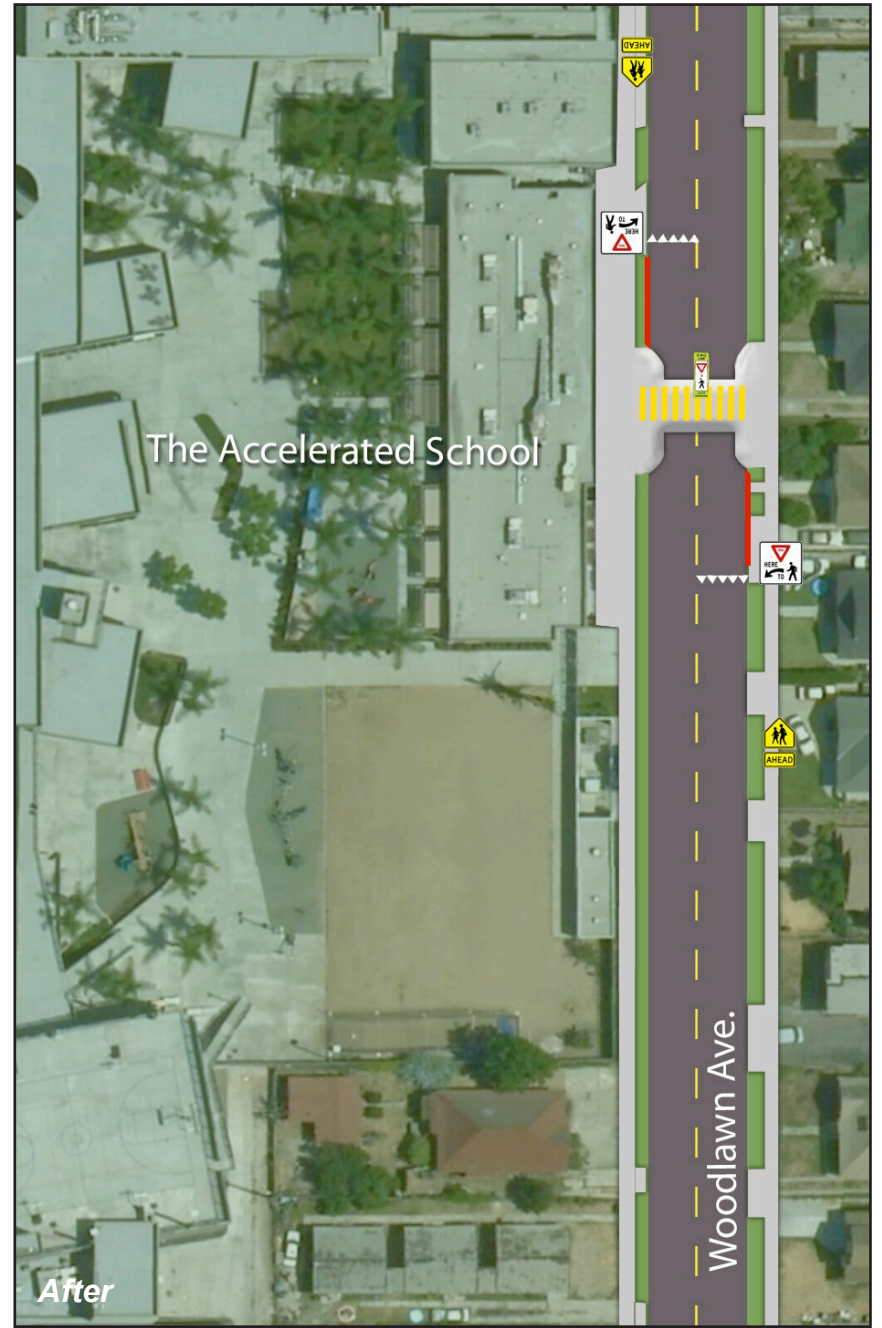
10. East School Entrance to School Off Woodlawn Avenue

Existing

- Many people cross the street at this location to enter the school without any traffic control devices

Recommended Changes

- Add a raised zebra-stripe crosswalk (1)
- Add bulb-outs to both sides of this crosswalk (2)
- Add in-street “yield to pedestrians in crosswalk” (R1-6) sign to this crosswalk (1)
- Add pedestrian warning signs to both approaches (2)
- Add advanced yield bars to both approaches (2)
- Add red curb to approach side of crosswalk in both directions (2)
- Extend sidewalk through parkway to new crosswalk



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FUNDING AND IMPLEMENTATION

Funding the Program

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

- State and federal transportation funds
- State and federal Safe Routes to School funds
- State Transportation Improvement Program (STIP)
- Transportation Enhancement Activities (TEA) Funds
- Bicycle Transportation Account (BTA) funds
- Transportation Development Act (TDA) funds
- Community Development Block Grant (CDBG)
- California Infrastructure and Economic Development Bank
- City road maintenance and construction funds
- Community Redevelopment Agency (CRA) funds
- Development fees
- Benefit Assessment Districts
- Volunteer initiatives and private donations

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

State and Federal Transportation Funds

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

Safe Routes to School (SRTS)

Caltrans administers state and federally funded programs to improve walking and bicycling conditions in and around schools. The State program permits up to 10 percent of the funding to be used for non-infrastructure (education and encouragement) programs, and the remaining funds for infrastructure (capital) projects. It requires a 10 percent match. Applications for federal funding must either seek funds for infrastructure or non-infrastructure programs, but not both in the same application. No match is required. The City of Los Angeles has ongoing non-infrastructure programs that will benefit these schools.

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

The program seeks to fund projects that incorporate engineering, education, enforcement, encouragement and evaluation components. It should be noted that engineering is listed first, because that effort creates the durable features of a street that support the other efforts. For more information go to:

www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm

State Transportation Improvement Program (STIP)

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

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

Transportation Enhancement Activities

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

Bicycle Transportation Account (BTA)

This state fund, administered by the Caltrans Bicycle Facilities Unit, can pay for improvements that benefit bicyclists, including bike lanes and bicycle parking. The money may also be used for projects that benefit pedestrians if it is part of a bicycle project such as bicycle/pedestrian signals and median crossings. Annual BTA funding is in the range of \$5 million a year statewide.

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

Transportation Development Act (TDA)

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

public transportation, and bus and rail projects. It is allocated to cities according to population.

Community Development Block Grants (CDBG)

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

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

Potential projects include street and traffic improvements, water system expansion and improvements, and sewer system expansion and improvements.

For more information go to:
www.hcd.ca.gov/fa

California Infrastructure and Economic Development Bank (I-Bank)

The California Infrastructure and Economic Development Bank administers a revolving fund program for local governments to finance infrastructure improvements, including city streets. This is a

loan program for which the City can apply and receive funding from \$250,000 to \$10 million with terms of up to 30 years for a broad range of projects.

For more information go to:
www.ibank.ca.gov

Local Funding Opportunities

City road maintenance and construction funds

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

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

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

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

Seattle has added planted medians to several streets at reduced cost as part of sewer upgrade projects. County transportation sales tax

measures can provide substantial funding for city street maintenance and rehabilitation.

Community Redevelopment Agency

The Los Angeles Community Redevelopment Agency (CRA) could choose to fund the improvements in this plan with tax increment funds collected in the Council District 9 Redevelopment Corridor along Central Avenue. CRA funds and/or subsidizes a variety of community projects ranging from new commercial development to housing, as well as street improvements.

Development fees

Some cities require developers to install or help pay for infrastructure improvements (streets, sidewalks, trails, landscaping, etc.) through individual development agreements. On a larger scale, Los Angeles could explore using development fees with a capital improvements program to help fund recommendations. To avoid legal challenge of the City's right to levy these fees, care must be taken to apply this strategy only where there is a clear link establishing that travel generated by the private project will use the facility to be funded with the fees.

Benefit Assessment Districts

Benefit assessment districts fund neighborhood and community improvements to public streets and land by assessing property taxes in the district. Property owners vote to have the assessment in exchange for the improvement. The pedestrian and bicycle improvements in this plan could be funded by benefit assessments. Landscaping and lighting districts are sometimes established for streetscape improvements and maintenance. Other types of facilities and infrastructure districts are sometimes created for parks, drainage and sewage.

Volunteer initiatives and private donations

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

Implementation

In order to construct the recommended projects and deliver the programs to the three schools studied for this grant project (Norwood Elementary, The Accelerated School, 20th Street Elementary), they will need to find funds. The funding sources just discussed can be used for this purpose. Following are a prioritized list of the plan projects, grouping them into phases that can be completed sequentially. Priorities were established considering:

- Comments received at the workshops
- Comments received from school administrators
- Proximity to the school
- Safety problem addressed (traffic volumes, number of lanes, difficulty of crossing, etc.)

The phased project lists are each slightly under \$1 million, the ideal size to fit into a federal or state Safe Routes to School application. The City of Los Angeles could use these lists as their project lists for their applications. The unit costs were developed from costs experienced in a variety of California cities. The costs for optional items are not included.

The first table displays the budget for all projects. The following tables show the budget for each phase. The projects are grouped by school, and listed according to their number for each school.

| Improvement | Units | Per Unit Cost | Quantity | Total Cost |
|--|-------------|---------------|----------|-------------|
| Advanced stop bars/yield markings | number | \$100 | 188 | \$18,800 |
| Zebra-stripe crosswalks (2-lane) | number | \$250 | 143 | \$35,750 |
| Zebra-stripe crosswalks (4-lane) | number | \$500 | 24 | \$12,000 |
| Zebra-stripe crosswalks (8-lane) | number | \$1,000 | 2 | \$2,000 |
| Signs | number | \$150 | 89 | \$13,350 |
| Bulb-outs/curb extensions with curb ramps | number | \$7,500 | 327 | \$2,452,500 |
| Large curb extension with curb ramps | number | \$15,000 | 17 | \$255,000 |
| Bus bulbs | number | \$15,000 | 2 | \$30,000 |
| Countdown signals | number | \$1,000 | 122 | \$122,000 |
| Audible pedestrian signals | number | \$500 | 122 | \$61,000 |
| New pedestrian signal head | number | \$500 | 2 | \$1,000 |
| Crossing islands (pair) | number | \$4,000 | 8 | \$32,000 |
| LED rapid flash beacon (4 including in median) | number | \$23,000 | 3 | \$69,000 |
| Painted red curb | number | \$50 | 6 | \$300 |
| Raised crosswalks | number | \$15,000 | 9 | \$135,000 |
| Road diet restriping (including bike lanes) | linear mile | \$100,000 | 0.52 | \$52,000 |
| Move pedestrian push button | number | \$100 | 1 | \$100 |
| Move bus stop | number | \$5,000 | 1 | \$5,000 |
| Mini-circle | number | \$15,000 | 1 | \$15,000 |
| Paint intersection | number | \$1,000 | 1 | \$1,000 |
| Sidewalk extension | linear foot | \$60 | 5 | \$300 |
| Pork chop islands | number | \$3,000 | 2 | \$6,000 |
| Move curb over, move poles and add landscaping | linear foot | \$100 | 265 | \$26,500 |
| Perpendicular curb ramp | number | \$3,500 | 1 | \$3,500 |
| Bike lanes | linear mile | \$50,000 | 1.6 | \$80,000 |
| Bike route | linear mile | \$10,000 | 0.5 | \$5,000 |
| Trees | number | \$400 | 8 | \$3,200 |
| Stripe alternating angled parking | number | \$20 | 70 | \$1,400 |
| Remove peak hour parking restriction signs | number | \$50 | 24 | \$1,200 |
| Narrow driveway | number | \$2,000 | 1 | \$2,000 |
| Infrastructure projects total | | | | \$3,441,900 |
| Engineering (5%) | | | | \$172,095 |
| Subtotal | | | | \$3,613,995 |
| Contingency (10%) | | | | \$361,400 |
| TOTAL | | | | \$3,975,395 |

Table 1: Budget for all project at all schools

Phase 1 Projects

Norwood Elementary School Projects

- 3. 20th Street at Oak Street
- 7. 21st Street at Oak Street
- 8. 21st Street at Norwood Street
- 12. Washington Boulevard
- 13. Washington Boulevard at Union Avenue
- 15. Washington Boulevard at Oak Street
- 24. 23rd Street at Oak Street/Scarff Street

The Accelerated School Projects

- 1. Main Street
- 2. Martin Luther King Jr. Boulevard at Main Street
- 3. Main Street at 40th Place
- 4. Martin Luther King Jr. Boulevard at Wall Street
- 5. Martin Luther King Jr. Boulevard at Crawford Street

20th Street Elementary School Projects

- 3. Naomi Avenue at Walnut Street
- 4. Naomi Avenue at 20th Street
- 15. Mid-Block Crossing Improvements
Walnut Street and 20th Street
- 18. Central Avenue at Walnut Street
- 19. Central Avenue at 20th Street (west side)

| Improvement | Units | Per Unit Cost | Quantity | Total Cost |
|--|-------------|---------------|----------|------------|
| Advanced stop bars/yield markings | number | \$100 | 46 | \$4,300 |
| Zebra-stripe crosswalks (2-lane) | number | \$250 | 31 | \$7,000 |
| Zebra-stripe crosswalks (4-lane) | number | \$500 | 10 | \$5,000 |
| Signs | number | \$150 | 20 | \$3,000 |
| Bulb-outs/curb extensions with curb ramps | number | \$7,500 | 66 | \$495,000 |
| Large curb extension with curb ramps | number | \$15,000 | 5 | \$75,000 |
| Bus bulbs | number | \$15,000 | 2 | \$30,000 |
| Countdown signals | number | \$1,000 | 32 | \$32,000 |
| Audible pedestrian signals | number | \$500 | 32 | \$16,000 |
| New pedestrian signal head | number | \$500 | 2 | \$1,000 |
| Crossing islands (pair) | number | \$4,000 | 2 | \$8,000 |
| LED rapid flash beacon (4 including in median) | number | \$23,000 | 2 | \$46,000 |
| Painted red curb | number | \$50 | 4 | \$200 |
| Raised crosswalks | number | \$15,000 | 3 | \$45,000 |
| Road diet restriping (including bike lanes) | linear mile | \$100,000 | 0.5 | \$50,000 |
| Move pedestrian push button | number | \$100 | 1 | \$100 |
| Move bus stop | number | \$5,000 | 1 | \$5,000 |
| Mini-circle | number | \$15,000 | 1 | \$15,000 |
| Move curb over, move poles and add landscaping | linear foot | \$100 | 150 | \$15,000 |
| Stripe alternating angled parking | number | \$20 | 35 | \$700 |
| Remove peak hour parking restriction signs | number | \$50 | 24 | \$1,200 |
| Infrastructure projects total | | | | \$855,550 |
| Engineering (5%) | | | | \$42,778 |
| Subtotal | | | | \$898,328 |
| Contingency (10%) | | | | \$89,833 |
| TOTAL | | | | \$988,160 |

Table 2: Budget for Phase 1 Projects at all schools

Phase 2 Projects

Norwood Elementary School Projects

- 14. Washington Boulevard at I-10 Freeway off-ramps
- 16. Washington Boulevard at Norwood Street
- 20. 23rd Street at Hoover Street
- 21. 23rd Street at Union Street
- 22. 23rd Street Bike Lanes
- 23. 23rd Street at Portland Street
- 28. Adams Boulevard at Portland Street

The Accelerated School Projects

- 4. Main Street at 41st Place
- 5. Martin Luther King Boulevard at Woodlawn Avenue
- 8. East Entrance to School Off Woodlawn Avenue

20th Street Elementary School Projects

- 2. School Garage Driveway
- 5. Naomi Avenue at 21st Street
- 7. Naomi Avenue at 22nd Street
- 16. Adams Boulevard at Naomi Avenue
- 19. Central Avenue at 20th Street (east side)
- 20. Central Avenue at 21st Street (east side)
- 21. Central Avenue at 21st Street (west side)
- 22. Central Avenue at 22nd Street (east side)

| Improvement | Units | Per Unit Cost | Quantity | Total Cost |
|--|-------------|---------------|----------|------------|
| Advanced stop bars/yield markings | number | \$100 | 45 | \$4,500 |
| Zebra-stripe crosswalks (2-lane) | number | \$250 | 33 | \$8,250 |
| Zebra-stripe crosswalks (4-lane) | number | \$500 | 8 | \$4,000 |
| Signs | number | \$150 | 14 | \$2,100 |
| Bulb-outs/curb extensions with curb ramps | number | \$7,500 | 83 | \$630,000 |
| Large curb extension with curb ramps | number | \$15,000 | 3 | \$45,000 |
| Countdown signals | number | \$1,000 | 44 | \$44,000 |
| Audible pedestrian signals | number | \$500 | 44 | \$22,000 |
| Crossing islands (pair) | number | \$4,000 | 4 | \$16,000 |
| LED rapid flash beacon (4 including in median) | number | \$23,000 | 1 | \$23,000 |
| Painted red curb | number | \$50 | 2 | \$100 |
| Raised crosswalks | number | \$15,000 | 2 | \$30,000 |
| Paint intersection | number | \$1,000 | 1 | \$1,000 |
| Sidewalk extension | linear foot | \$60 | 5 | \$300 |
| Bike lanes | linear mile | \$50,000 | 0.6 | \$30,000 |
| Trees | number | \$400 | 8 | \$3,200 |
| Narrow driveway | number | \$2,000 | 1 | \$2,000 |
| Infrastructure projects total | | | | \$865,350 |
| Engineering (5%) | | | | \$43,268 |
| Subtotal | | | | \$908,618 |
| Contingency (10%) | | | | \$90,862 |
| TOTAL | | | | \$999,479 |

Table 3: Budget for Phase 2 Projects at all schools

Phase 3 Projects

Norwood Elementary School Projects

1. 21st Street at Toberman Street
2. 20th Street between Toberman Street and Oak Street
4. 21st Street at Toberman Street
6. 21st Street at Portland Street
9. 21st Street at Park Grove Avenue
10. 21st Street at Bonsallo Avenue
11. 21st Street at Estrella Avenue
29. 23rd Street at Figueroa Way (CA-110 freeway off-ramp)
30. 23rd Street between Figueroa Way and Figueroa Street

The Accelerated School Projects

6. Martin Luther King Boulevard at Trinity Street
7. Woodlawn at Maple Avenue

20th Street Elementary School Projects

7. Naomi Avenue at 23rd Street
8. Naomi Avenue at 25th Street
9. Naomi Avenue Bike Route
10. Hooper Avenue at 20th Street
11. Hooper Avenue at 21st Street
17. Adams Boulevard Bike Lanes
23. Griffith Avenue at 20th Street
24. Griffith Avenue at 21st Street
25. Griffith Avenue at 22nd Street
28. Griffith Avenue Bike Lanes

| Improvement | Units | Per Unit Cost | Quantity | Total Cost |
|--|-------------|---------------|----------|------------|
| Advanced stop bars/yield markings | number | \$100 | 47 | \$4,700 |
| Zebra-stripe crosswalks (2-lane) | number | \$250 | 45 | \$11,250 |
| Zebra-stripe crosswalks (4-lane) | number | \$500 | 2 | \$1,000 |
| Signs | number | \$150 | 20 | \$3,000 |
| Bulb-outs/curb extensions with curb ramps | number | \$7,500 | 92 | \$690,000 |
| Large curb extension with curb ramps | number | \$15,000 | 2 | \$30,000 |
| Countdown signals | number | \$1,000 | 22 | \$22,000 |
| Audible pedestrian signals | number | \$500 | 22 | \$11,000 |
| Crossing islands (pair) | number | \$4,000 | 2 | \$8,000 |
| Road diet restriping (including bike lanes) | linear mile | \$100,000 | 0.02 | \$2,000 |
| Pork chop islands | number | \$3,000 | 2 | \$6,000 |
| Move curb over, move poles and add landscaping | linear foot | \$100 | 115 | \$11,500 |
| Bike lanes | linear mile | \$50,000 | 1 | \$50,000 |
| Bike route | linear mile | \$10,000 | 0.5 | \$5,000 |
| Stripe alternating angled parking | number | \$20 | 35 | \$700 |
| Infrastructure projects total | | | | \$856,150 |
| Engineering (5%) | | | | \$42,808 |
| Subtotal | | | | \$898,958 |
| Contingency (10%) | | | | \$89,896 |
| TOTAL | | | | \$988,853 |

Table 4: Budget for Phase 3 Projects at all schools

Phase 4 Projects

Norwood Elementary School Projects

- 17. Washington Boulevard at Park Grove Avenue
- 18. Washington Boulevard at Cherry Street
- 19. Washington Boulevard at Bonsallo Avenue
- 25. 23rd Street at Norwood Street
- 26. 23rd Street at Park Grove Avenue/St. James Park
- 27. 23rd Street at Bonsallo Avenue
- 31. 23rd Street at Figueroa Street
- 32. Grand Avenue at Adams Boulevard

20th Street Elementary School Projects

- 11. Hooper Avenue at 21st Street
- 12. Hooper Avenue at 22nd Street
- 13. Hooper Avenue at 23rd Street
- 14. Hooper Avenue at 24th Street
- 15. Mid-Block Crosswalks on 21st Street, 22nd Street, 23rd Street, 25th Street
- Central Avenue at 22nd Street (west side)
- 26. Griffith Avenue at 23rd Street
- 27. Griffith Avenue at 24th Street

| Improvement | Units | Per Unit Cost | Quantity | Total Cost |
|---|--------|---------------|----------|------------------|
| Advanced stop bars/yield markings | number | \$100 | 50 | \$5,000 |
| Zebra-stripe crosswalks (2-lane) | number | \$250 | 34 | \$8,500 |
| Zebra-stripe crosswalks (4-lane) | number | \$500 | 4 | \$2,000 |
| Zebra-stripe crosswalks (8-lane) | number | \$1,000 | 2 | \$2,000 |
| Signs | number | \$150 | 35 | \$5,250 |
| Bulb-outs/curb extensions with curb ramps | number | \$7,500 | 85 | \$637,500 |
| Large curb extension with curb ramps | number | \$15,000 | 7 | \$105,000 |
| Countdown signals | number | \$1,000 | 24 | \$24,000 |
| Audible pedestrian signals | number | \$500 | 24 | \$12,000 |
| Raised crosswalks | number | \$15,000 | 4 | \$60,000 |
| Perpendicular curb ramp | number | \$3,500 | 1 | \$3,500 |
| Infrastructure projects total | | | | \$864,750 |
| Engineering (5%) | | | | \$43,238 |
| Subtotal | | | | \$907,988 |
| Contingency (10%) | | | | \$90,799 |
| TOTAL | | | | \$998,786 |

Table 5: Budget for Phase 4 Projects at all schools (No projects for The Accelerated School will occur in Phase 4)

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APPENDIX

Walk Audit and Design Session Table Maps

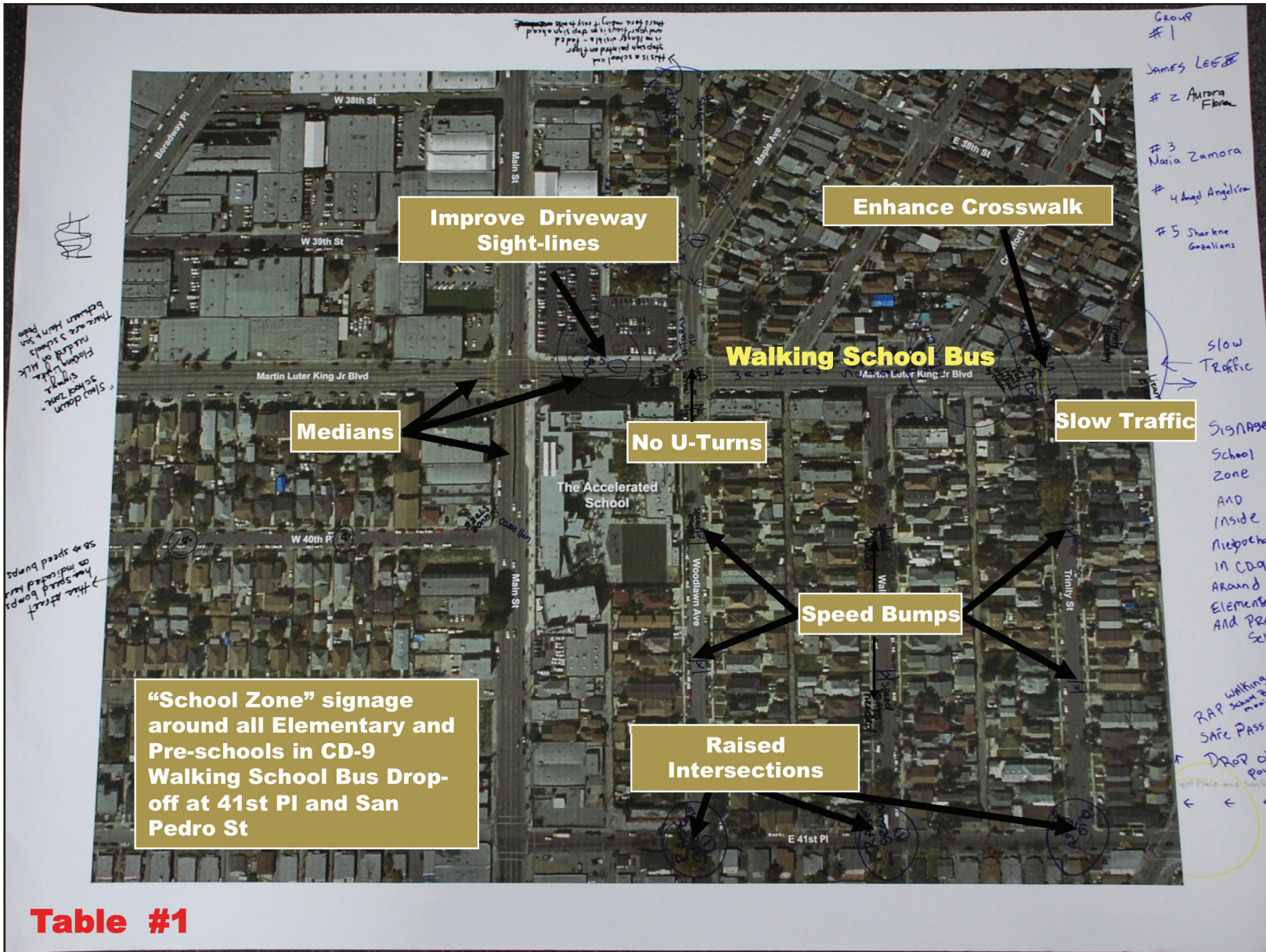


Table #1

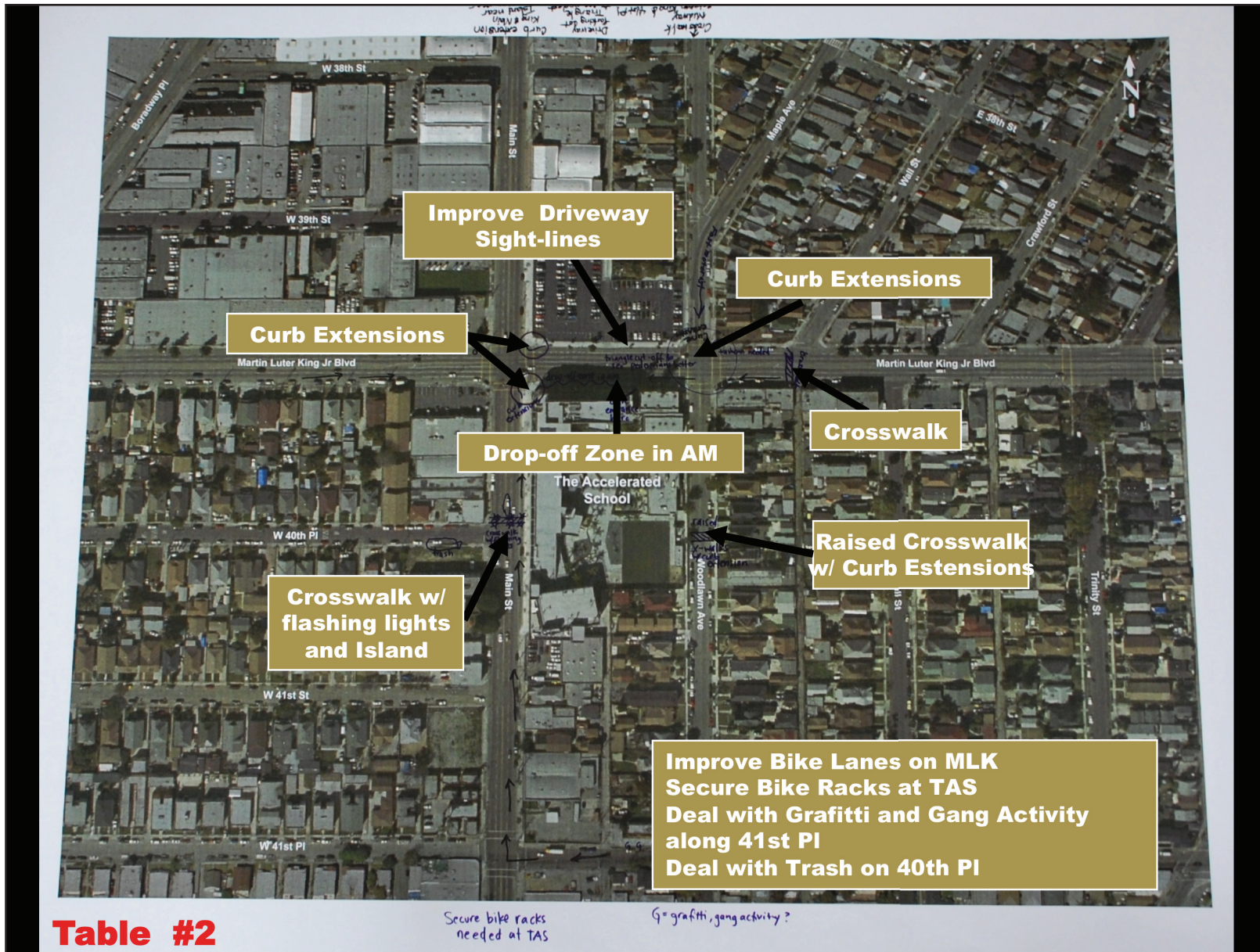


Table #2



**Red-light Cameras
and More Time for Signal**

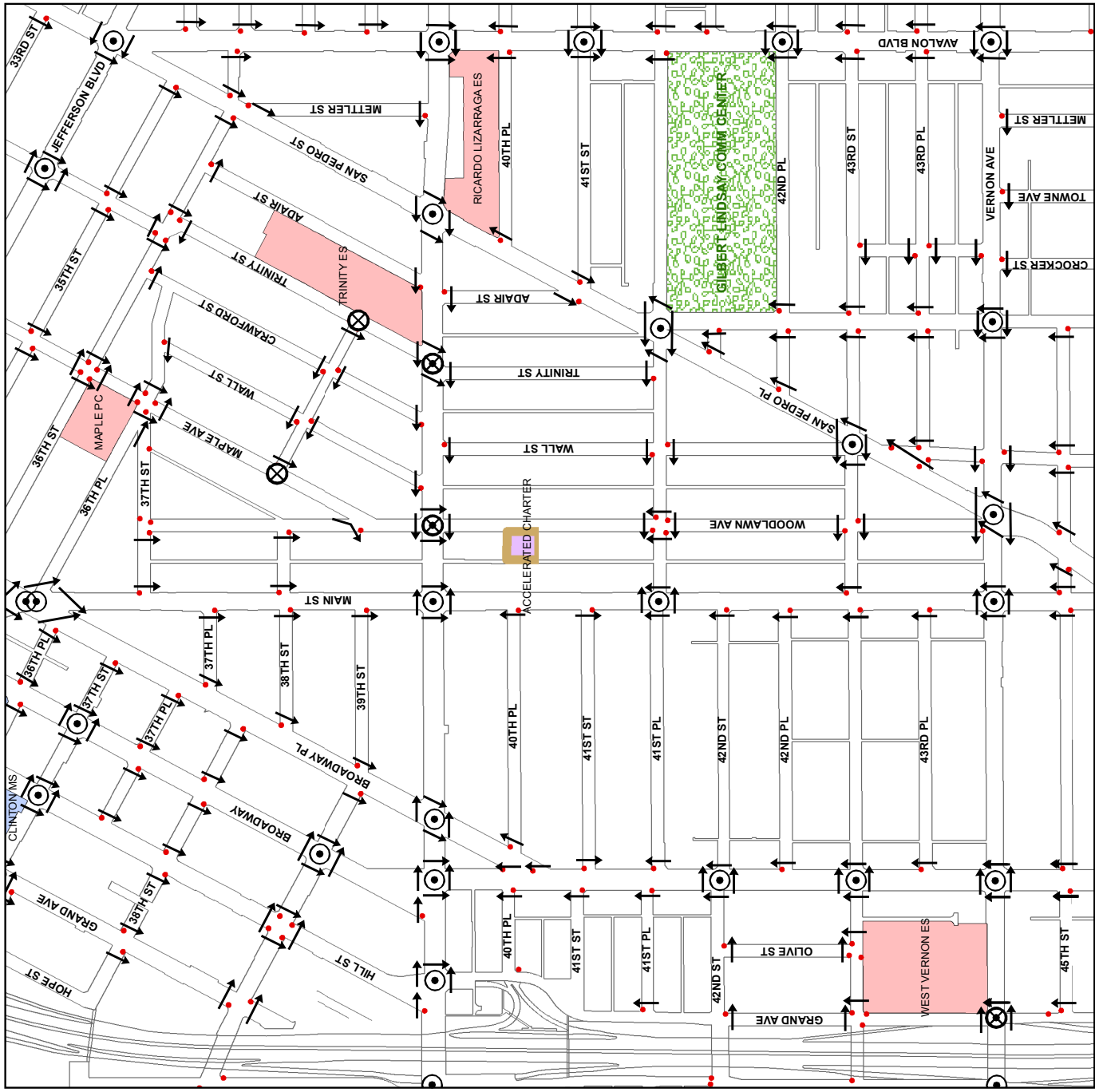
**Difficulties with
Right Turns**

Crosswalk

**Crosswalk
K**

Table #3

PEDESTRIAN ROUTES FOR ACCELERATED CHARTER SCHOOL



Legend

- Recommended Crossing
- Stop Sign
- ⊙ Traffic Signal
- ⊗ Crossing Guard
- ⚡ Flashing Warning Light
- XXXX Stairs or Walkway
- ⌒ Pedestrian Bridge
- ⌒ Pedestrian Tunnel
- 🌳 Parks



Parents:

This map shows the recommended crossings to be used from each block in your school attendance area. Following the arrows, select the best route from your home to the school and mark it with a colored pencil or crayon. This is the route your child should take. Instruct your child to use this route and to cross streets only at locations shown. You and your child should become familiar with the route by walking it together. Obey marked crosswalks, stop signs, traffic signals and other traffic controls. Crossing points have been located at these controls wherever possible, even though a longer walk may be necessary. Instruct your child to always look both ways before crossing the street. If no sidewalk exists, your child should walk facing traffic.

Estimados Padres:

Este mapa muestra los cruzados recomendados para los peatones de cada cuadra en la area de su escuela. Siguiendo las flechas en el mapa, seleccione la ruta mas segura de su casa a la Escuela y marquelo con un lapiz o tiza de color. Esta es la ruta que su hijo (a) debe de usar. Digite a su hijo (a) que use esta ruta y que cruce las calles solamente en los lugares indicados. Usted y su hijo (a) deberian de familiarizarse con esta ruta. Obedezcan los rotulos de peatonales, de albos, semaforos y todos los señales de trafico. Puntos para cruzar estarian localizados en areas controladas, aunque sea necesario de alargar el tiempo para cruzar. Instruye a su hijo (a) que siempre se fije de los dos lados antes de cruzar la calle. El estudiante debe de siempre caminar en la direccion opuesta del trafico si no existe una banqueta.