Ben Franklin Intermediate School: Safe Routes to School Workshop Summary

Prepared for: The Ben Franklin Intermediate School Community and Partners
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Walk auditors encountering cars parked on the sidewalk. April 19, 2023.

Summary

Members of the Ben Franklin Elementary School community and surrounding area, including school faculty and administrators, parents, advocates, area residents, Ortega leaders and staff, and representatives of the San Mateo County Departments of Education and Public Works have participated in a Safe Routes to School initiative. This included a walk audit and planning session in April of 2023 with the goal of developing recommendations to improve pedestrian, bicycle, and motor vehicle safety, and encourage more walking, bicycling, and transit travel to school. A list of the program, infrastructure project, and policy recommendations that have been developed conclude this memo. The key recommendations for action are briefly summarized here, and are illustrated more fully in the memo. This includes a schematic map locating key recommendations, and a simple diagram.

A. Launch an educational and promotional campaign to increase safe walking and bicycling and reduce motor vehicle travel to campus. Activities can include, but are not limited to:

- Student driven promotion of the health, environmental, emotional, and other benefits of walking/bicycling.
- Launch of walking school buses and bicycle trains, groups of students walking or cycling to school on designated routes and schedules, perhaps with adults; supported with promotions, prizes, and events.
- Promote SamTrans “youth unlimited” fare card program; collaborate on schedule/route recommendations.

B. Construct low-cost quick-build pedestrian safety measures at key entry areas to school:

- Curb extensions at Stewart Ave. and Maddux Dr., and Maddux Dr. and 87th Streets.
- Curb extensions, curb ramps, and high visibility crosswalks at Palmcrest and S. Park Plaza Drives.
- S. Park Plaza Drive: High visibility crosswalk or speed table at the northwest sidewalk to Garden Village Elementary. Test removing the west side parking lane to create a protected two-way bike lane.
- Lake Merced Blvd.: High visibility crosswalk, traffic calming, and signage targeting safe driver behavior.

C. Create a safer vehicle drop-off/pick-up pattern in front of the school and have students launch an adult driver education program. Create a coned-off lane along the school sidewalk for sequential, curb-side only drop-off/pick-up; engage students in creating an educational campaign to reinforce safe driver behaviors.

D. Engage math, science, civics, and other classes to *objectively* study the performance of demonstration projects. Before and after installations students can record and evaluate pedestrian, bicycle, and vehicle counts; vehicle speeds; pedestrian crossing locations; close calls; and other indicators of performance.

E. Construct long-term infrastructure improvements for pedestrian safety. Make permanent improvements out of any of the demonstrations found to be successful; complete the sidewalk on the north side of 87th Street east of Garden Village Elementary School; place safety fencing along the outside of the bridges over I-280, and a safety rail between the sidewalk and traffic on those bridges; consider roundabouts for Southgate Avenue.

Background

In April of 2023 the San Mateo County Office of Education Safe Routes to School team facilitated a walk audit and workshop at Ben Franklin Intermediate School. Participants included members of the school community and surrounding area, including school faculty and administrators, parents, advocates, area residents, and representatives of the San Mateo County Department of Education. The focus was on travel patterns and safety issues for walking, bicycling, and taking transit (together called the *active transportation* modes) to the school, and the group identified safety issues and then generated a series of recommendations to improve the safety and viability of active transportation. Particular concerns the group noted were vehicle speeds in general around the school; vehicles parking too close to crosswalks (and thus impeding visibility) and routinely parking on rolled curb sidewalks; challenging traffic at the school drop-off and pick-up area; missing crosswalks, and conflicts between vehicles and pedestrians on S. Park Plaza Drive near the Garden Village Elementary entrance and at the Palmcrest Drive intersection, and at the Lake Merced Boulevard pedestrian entrance to the school grounds. It was also suggested that these safety concerns were likely discouraging some households from allowing students to walk or bike to school, in part because of the volume of traffic around the school at arrival and dismissal. So improving safety for walking and bicycling to school should help reduce some of that traffic, and encourage even more students to choose active travel to school.


Vehicle parked in the Palmcrest Dr. crosswalk.

Priority Recommendations

The workshop group considered three broad categories of intervention, referred to as the three Ps.

- **Programs.** Events, outreach, education, encouragement, and promotional activities.
- **Projects.** Physical changes to infrastructure and the built environment to support active transportation.
- **Policies**. Rules, ordinances, guidelines, practices, and procedures supporting the active travel modes.

The group discussed both short-term ideas that could be executed on the order of weeks to months, and longer-term initiatives that might cost more and take months to even years. This was to assure that we identified some low cost, near term actions that can be pursued quickly to build momentum and begin making it safer for students immediately. The ideas developed are fully summarized in a table at the end of this memo. All of these recommendations have merit, and taken together they comprise a very comprehensive approach to making a safer setting for walking, bicycling, and transit use. It is recommended that a school and community working group be created to continue to work on implementation of these priorities, as it is not the sole responsibility of the school to carry out these goals. Following are the key recommendations broken into the five broad areas summarized at the beginning of this memo.

A. Launch an educational and promotional campaign to increase safe walking and bicycling and reduce motor vehicle travel to campus.

- **Engage students in developing messaging, images, and incentives to promote safe walking and bicycling to school.** A promotional campaign should target both students and adults, but message development and "branding" should be driven by students. Specific classes in art, communications, health and physical education, math and science can take part in developing messages, images, signs, and social media. Messages can focus on the health, safety, environmental, social, and even academic benefits of walking and bicycling, as studies show more physically active students perform better academically and experience fewer disciplinary referrals. This promotional outreach should be distributed through all available media, such as parent/guardian and student emails and newsletters, handouts and messaging during parent-teacher meetings, family events and assemblies, and all other contact opportunities.

- **Launch student safety leader program.** Many schools create a safety patrol of upper grade students to act as valets at the drop-off and pick-up line. This requires that students stay on the curb but are able to open car doors, so that drivers stay in their vehicles. (Photo at right is from JFK Elementary School, Daly City.) The safety patrol (and associated adult oversight) can motion cars to pull all the way forward. These two simple actions can dramatically improve the safety (most important) and efficiency (secondary importance) in the vehicle line.



- **Combine a five-minute safety delay on vehicle pick-up with satellite drop-off and pick-up locations.** Reach out to locations with adequate parking and within safe walking distance of the school to identify areas at which vehicles could drop-off and pick-up students, such as Westlake Mall. These vehicles then avoid the traffic congestion at the school, and help reduce that congestion by their absence. Also institute a five-minute safety delay on the vehicle pick-up line at dismissal, first releasing bicyclists and pedestrians, including those walking to satellite pick-up locations. Only after the bulk of pedestrians have cleared the most challenging areas - certainly the congestion directly in front of the school, and the intersections of Maddux Drive with Stewart Avenue and with 87th Avenue - allow students to dismiss to the vehicle line to let it begin moving. The goal is to create incentives that reduce traffic congestion at the school and get even those students who ride in cars at least a short walk as part of their daily trip to school.

- **Shift the culture to support walking and bicycling, through comprehensive and consistent promotion and education; launch walking school buses, bicycle trains, and *Walking Wednesdays*. Promote the SamTrans "Youth Unlimited" fare pass.** The first Wednesday of October is National Walk to School Day.

Many schools use this week to kick-off an on-going Walking Wednesday promotion, encouraging all students who are able to do so to walk or roll to school, or if eligible to get a SamTrans Youth Unlimited pass. Drivers are encouraged to consider satellite drop-off and pick-up locations, at least on Wednesdays, so that all can take part. Walking school buses and bicycle trains are designated routes to school that an adult walks or bikes, picking up students along the way. They can be formal and organized by the school, or informal gatherings of neighborhood households sharing adult leader responsibilities. A walking group can also launch from a satellite drop-off location; for example, parents could take turns walking students to and from the Westlake Mall parking. The school can help by mapping the location of student households and identifying natural clusters for volunteer-organized walking or bicycling groups.

B. Construct low-cost pop-up or quick-build pedestrian safety measures at key entry areas to school grounds.

A curb extension is a widening of the curb or sidewalk, typically the width of a roadway's parking lane or shoulder. The picture at right illustrates the many benefits of curb extensions: they can keep cars from parking illegally too close to a crosswalk; they make pedestrians more visible, and more able to see oncoming traffic; they shorten the in-road crossing distance and time for pedestrians; and they tend to slow traffic by *visually* narrowing the roadway (even if travel lanes are not actually narrowed).



Although constructing concrete curb extensions can be quite expensive, there are less expensive ways to create curb extensions. Paint, planters, and vertical delineators (flexible reflective posts) can be used to create a curb extension at moderate cost. The pictures below show an intersection near Sunset Ridge Elementary School in Pacifica, identified during a 2022 walk audit as having very long pedestrian crossings, with cars routinely parking dangerously close to the crosswalks (below left). The 2023 photo at right shows how the city has created curb extensions with paint and installation of flexible delineators, which also help to slow traffic.



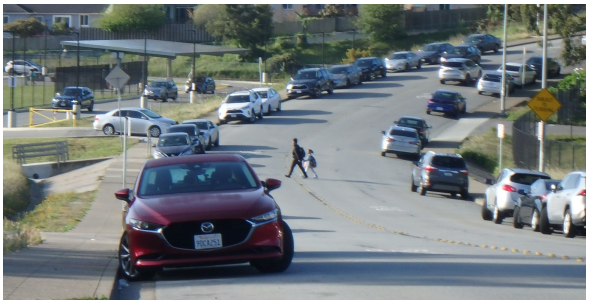


The images below show pedestrians crossing Palmcrest Drive (below, left) and S. Park Plaza Drive (below, right), in locations that are legal crosswalks but which have not been painted with high visibility markings, as they should be at a school. Many younger students were walking here to and from Garden Village Elementary.

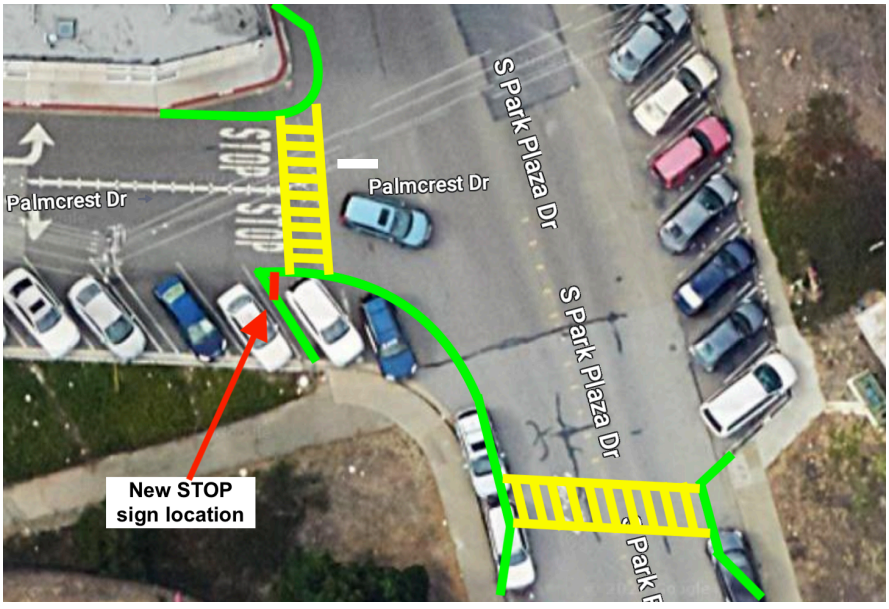

Crossing Palmcrest Drive


Crossing S. Park Plaza Drive

It is noteworthy that because of the unmarked crosswalks and parked vehicles limiting visibility, many adults and students walked farther down S. Park Plaza to cross at mid-block (picture at right), rather than step out from between parked cars, as has just happened in the photo above, right.



The intersection S. Park Plaza Drive and Palmcrest Drive. The green lines on the diagram below illustrate how curb extensions could be added at the intersection of Palmcrest Drive and South Park Plaza Drive to dramatically improve safety. It is likely that not just the city but the owner of the Westlake Village Apartments would have to be involved, as it might impact some of the parking associated with the apartments. However, as diagrammed here, the curb extensions would only be eliminating the parking of roughly five cars, all of which are currently *parked illegally* along curbing that is or should be painted red. It's also important to reiterate that many pedestrians were crossing at the locations of the legal crosswalks





which exist, but are not currently painted on the roadways. Thus, the diagram also shows how those crosswalks could be marked. ADA compliant curb ramps should also be installed with these crosswalks, although in the short term those could be asphalt or wooden curb ramps in the new curb extensions. It's worth noting that these curb extensions can can be modified (for example by moving some of the delineators) if it is determined that the geometry is not optimal, such as creating a turning radius that is too tight for large vehicles. Finally, the stop sign which is on Palmcrest is currently partially hidden by a telephone pole and parked vehicles (above). This stop sign should be moved out onto the curb extension, as noted in the schematic diagram.

Three additional intersections were identified during the walk audit and ensuing planning discussion as good candidates for this type of quick-build curb extensions. These are all identified on the overview locater map on the next page, along with other recommended improvements.



- **The intersection of Stewart Avenue and Maddux Drive.** Because of the traffic going to the school at arrival and dismissal, this can be a hazardous intersection for pedestrians. At both this intersection and at Maddux and 87th Street it is typical for vehicles to park illegally close to the crosswalks and to roll up onto the sidewalks with rolled curbs.

- **The intersection of Maddux Drive and 87th Street.** The crossing guard at this intersection occasionally places orange cones to create additional protected space (essentially, a curb extension) in which students can stand, because of the narrow sidewalks and vehicles parking too close to the crosswalks (photo above).

- **The corner of Lake Merced Boulevard at the school's rear entrance.** At the corner of Lake Merced Boulevard where the back trail to the school enters the school grounds, red areas are painted along the road to preclude cars from parking too close to the path entrance and the parking garage entrance. Recommended improvements here include painting high visibility crosswalks along Lake Merced Blvd. (e.g. at the garage entry and Coronado Avenue), and placing flexible delineators around the areas where no parking or standing is allowed. An additional recommendation is to make Lake Merced a one-way road, to help reduce traffic congestion and conflicts at this corner. For example, signs could be placed making Lake Merced Blvd one-way eastbound just during school arrival and dismissal hours. In this case cars could pull in from Southgate Avenue, drop-off or pick-up a student near the trail, then proceed east up Lake Merced to Palmcrest Drive.

C. Create a safer vehicle drop-off/pick-up pattern in front of the school and have students launch an adult driver education program.

Drop-off and pick-up in front of the school can be improved to make it safer and more efficient. However, the goal should not be to speed up the process, as faster moving vehicles only creates greater hazard for pedestrians and drivers. Specific goals are to have only curbside drop-off and pick-up, and to have cars move sequentially through this area but not pulling in and out anywhere along the line, which can be dangerous for vehicles and for students. Three possible areas were recommended for possible testing as the vehicle drop-off/pick-up area:

1. Use the curb directly in front of the school as a drop-off/pick-up lane. Place cones to define the lane along the full length of the curb; cars enter at one end, pull forward, drop-off/pick-up, and exit the other end.
2. Use the teacher parking lot as a designated drop-off/pick-up loop, with vehicles pulling in the outer entrance, looping through the lot, dropping-off/picking-up near the school; and exiting the lot (below, left).
3. Construct a new vehicle loop by connecting the two small parking areas directly in front of the school (through the center of the photo below, right) and creating a pull-through drop-off/pick-up lane there.





A group recommendation is that students be actively engaged in training adults about proper driver behavior in whatever drop-off/pick-up areas are tried or chosen. Following are specific messages that should be emphasized in this student-driven educational outreach:

- Students who are able should be walk, bike, or take transit to school.

For those being driven to school:

- Consider using a satellite drop-off and pick-up area some distance from the school, to avoid adding to congestion at the school, and to allow your student to get at least some physical activity.

If coming into the school drop-off/pick-up line:

- Vehicles should pull all the way forward in the drop-off/pick-up lane.
- Drivers should not get out of their cars.
- Students must only get out on the curb side of the vehicle.
- There should be no illegal U-turns in active roadways and lanes.



D. Engage math, science, civics, and other classes to *objectively* study the performance of any pop-up and demonstration projects.

The work group strongly suggests that objective data be collected on the performance of the demonstration projects and drop-off/pick-up procedures that have been recommended, to assure they are actually improving safety. In many schools math, science, civics, and other classes have carried out this type of evaluation. Student scientists can determine the appropriate data to collect before and then during the demonstrations improvements, to see if they are having any impact. Possible measures include, but are not limited to, the following:

- **The numbers of pedestrians, bicyclists, transit riders, and car riders arriving at school.** How many cars are dropping off at the school, versus at satellite locations?
- **The number of pedestrians crossing streets at key intersections.**
- **The *locations* of pedestrian crossings** (e.g. when crosswalks have been painted, how many are using the crosswalk versus crossing elsewhere?)
- **The speed of vehicles** passing through an area.
- **Yielding behavior of vehicles** when pedestrians are crossing. Specifically, when a pedestrian is standing at the roadway edge preparing to cross, if vehicles are present how many vehicles pass before one yields to let the pedestrian cross? It may be worth noting not only if there is a difference before versus after the pop-up crosswalk is installed, but also after installation comparing yielding for pedestrians in the crosswalk versus those not at the crosswalk.
- **Collisions and close calls between vehicles, and between vehicles and pedestrians.**

E. Construct long-term infrastructure improvements for pedestrian safety.

A number of significant infrastructure improvements are recommended to improve pedestrian and bicycle access to the school. Some are obvious needs, and others may have to be determined based on evaluation of the demonstrations that have been recommended. For example, measurements of vehicle speeds and yielding behavior along Lake Merced Blvd. may help determine the success of safety markings and a one-way street designation at school arrival and dismissal.

- **Sidewalk on the north side of 87th Street east of Garden Village Elementary.** Students walking from the east to Ben Franklin have no sidewalk on the north side of 87th Street in this area, forcing two crossings of this busy road to walk on a sidewalk.

- **Make the curb extensions permanent and add ADA curb ramps, at the Palmcrest and S. Park Plaza Drive intersections, as well as at Maddux Drive.** Ideally the student evaluation confirms the benefit of these demonstrations, and they are installed permanently.

- **Raised crosswalk (speed table) on S. Park Plaza Drive at the Garden Village Elementary pathway entrance.** A large number of pedestrians were observed crossing S. Park Plaza Drive near to the path leading to the rear entrance of Garden Village Elementary. It is strongly recommended that a speed table be put in place at this crossing location, providing numerous safety benefits. Note that in the example at right a centerline "Yield to Pedestrian in Crosswalk" sign is included as well. The raised crossing will make smaller pedestrians (e.g. young children) more visible, improve vehicle yielding behavior, and tend to calm the traffic which has picked up speed coming down the hill in either direction.



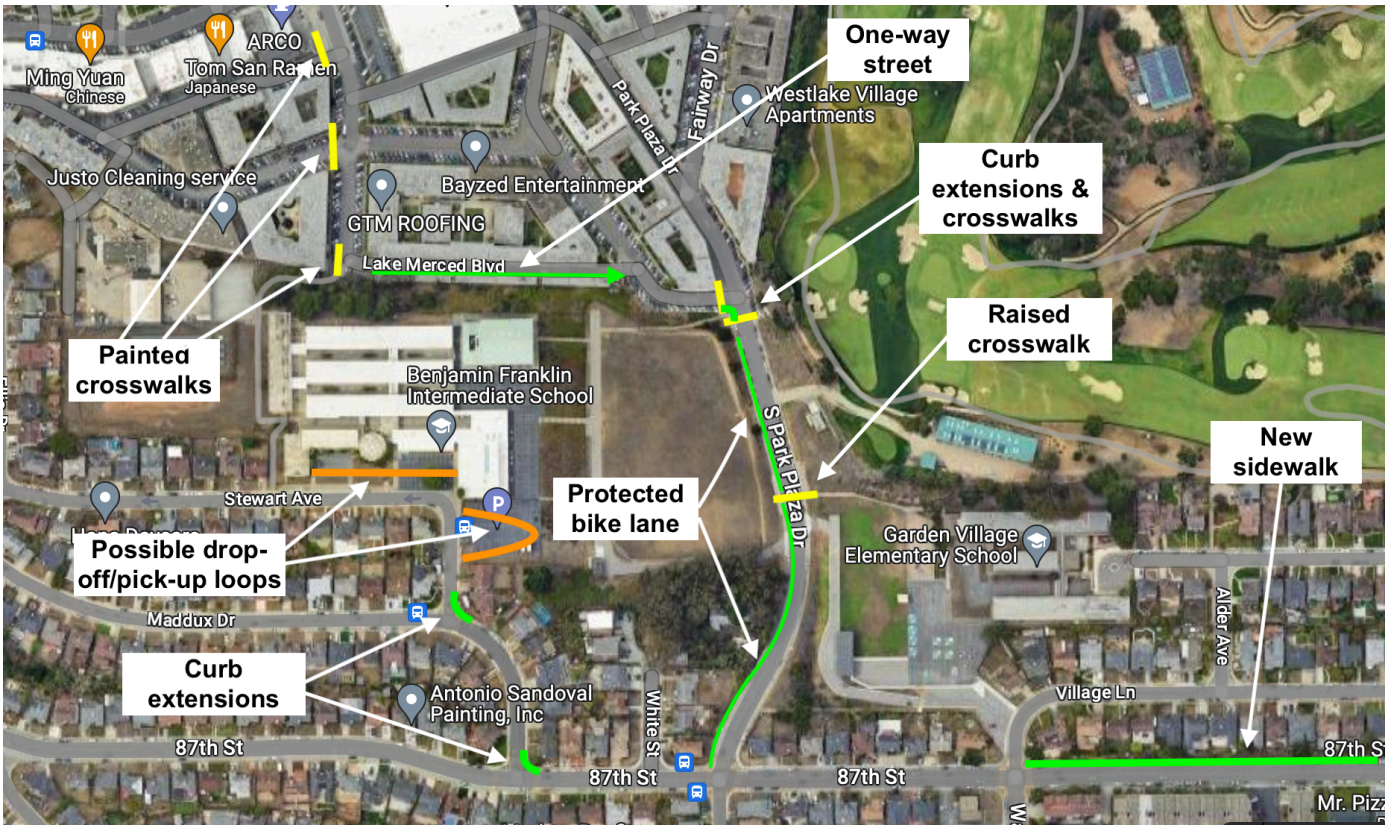
- **Place safety fencing along the pedestrian sidewalks on the bridges over I-280, and a barrier between traffic and the sidewalk.** Parents indicated significant concern over the low railing along the sidewalk on the bridge over I-280, and the lack of separation between the sidewalk and high speed traffic on the bridge (photo at right).



- **Protected two-way bicycle lane along the west side of S. Park Plaza Drive.** Currently there is a parking lane on both sides of S. Park Plaza Drive. However, between Palmcrest Drive and 87th Street the only driveway on the west is a gated entrance to the school's fields. Therefore it would be possible to create a demonstration two-way bicycle lane with paint, signs, and flexible delineators in the space that currently appears to be a moderately used parking lane (an example is shown in the photo at left). Students could first collect data on how many vehicles currently park on S. Park Plaza Drive, particularly at arrival and dismissal times for Ben Franklin and Garden Village schools. This could help determine whether losing a parking lane to create a vehicle lane is realistic and worth demonstrating. If it does seem possible, then a temporary protected bike lane could be constructed, and data collected on bicycle usage and on vehicle speeds and parking demand.



Below is a schematic map that provides a simple overview of many of the key recommendations described in this memo. Following that is a full list of all of the programmatic, infrastructure project, and policy recommendations stemming from the walk audit and planning session.



Full List of Program, Project, & Policy Recommendations

Near-Term Programs; education, encouragement, promotion, events, etc.

- Launch a comprehensive encouragement program for walking, bicycling, and transit use.
    - Create perpetual class competition for FALCON SPIRIT – rewards based on numbers of students, days walking, bicycling, using transit.
- Launch adult driver education program with *youth* co-instructors for safer drop-off & pick-up practices. Emphasize:
    - Slow speeds in school zones.
    - Proper drop-off/pick-up practices: Driver stays in car, pulls all the way forward, drops-off/picks-up at curbside only.

    - Encourage all to consider walking or bicycling at least one day a week (e.g., from satellite parking, such as over at the mall).
- Launch student "safety patrol."
    - Youth valets to open doors at designated drop-off/pick-up areas.
    - Place cones at key locations (e.g. to preclude vehicle entry, create curbside lane).
    - Allow students to earn privileges, community service hours.
- Measure before and after installation of pop-up and demonstrations (see *Project* ideas).
    - Numbers of cars, bikes, & pedestrians.
    - Pedestrian crossing locations (at crosswalks? elsewhere?).
    - Number of mishaps, close calls, infractions (e.g. illegal U-turns).
    - Vehicle speeds
- Connect with teachers to carry out traffic studies at the locations of pop-up and quick-build demonstrations. For example:
    - Mr. Melgar, science
    - Mr. Finn, math
    - Mr. Domingo, science
    - Perhaps in the leadership program; build into advisory or academic program.
- Test the idea of designated student drop/pick in front of school area.
    - Clear the cars that are parked there, create a designated drop-off/pick-up lane.
    - Place cones so that cars must enter the lane and pull all the way forward.
    - Require drivers to stay in the vehicle.
    - Require curb-side, sequential drop-off/pick-up only; no pulling into/out of the lane.
    - Or test a drop-off loop through the teacher parking lot – one lane only, sequential drop-off/pick-up.

Longer-Term Programs; education, encouragement, promotion, events, etc.

- Create a formal crossing guard or valet program, with benefits (earned community service credit?) for participants. Have the student valets open car doors at drop-off/pick-up line to preclude drivers getting out of vehicles and keep smooth flow.
- On-going evaluation of improvements at key locations, to update recommendations based on findings.

Near-Term Projects: Physical changes to infrastructure to support active transportation.

- Install pop-up or quick-build demonstrations of safety improvements
    - S. Park Plaza Dr. & Palmcrest: Curb extensions, high visibility crosswalks, pedestrian crossing signs.
    - S. Park Plaze Drive & the rear pedestrian entrance to Garden Village ES: Crosswalk and curb extensions.
    - Maddux Drive & Stewart Street: Curb extensions to provide safe area for students, crossing guard.

    - Maddux Drive & 87th Street: Curb extensions to greatly increase pedestrian visibility.
    - Lake Merced Blvd.: High visibility crosswalk and traffic calming, at rear-entry path and through Westlake Village.
        - Signs warning drivers, indicating student crossing areas.
        - Test Lake Merced as a one-way through the garage area to reduce conflicts; can test Initially only at arrival/dismissal times.
- Install ADA compliant ramps (asphalt, wood?) as part of pop-up curb extensions. during all construction and upgrades.
- Create designated bicycle lanes (not just sharrows) on S. Park Plaza Drive.
- Southgate retail area – needs several painted crosswalks and ADA curb ramps.
- Add signs for expected new vehicle behaviors (e.g. “curbside drop-off only; pull all the way forward”).
- Apply for SMCOE School Travel fellowship, and use this to pursue funding to execute infrastructure improvements.

Longer-term Projects: Physical changes to infrastructure to support active transportation.

- Create infrastructure for pick-up drop-off in front of the school:
    - Possible connection between the existing circle around tree, and existing small parking lots in front of school, to create a single lane off-road drop-off/pick-up loop.
    - Alternative: Use the teacher parking lot for a single lane pull-through drop-off/pick-up loop
- Make permanent those demonstrations (e.g. quick-build curb extensions) that are deemed successful. Include ADA compliant curb ramps during all construction and repairs.
    - S. Park Plaza Dr. & Palmcrest curb extensions.
    - S. Park Plaze Drive & Garden Village Elementary School entrance: Raised crosswalk (speed table) at this critical crossing.
    - Maddux Drive & Stewart Street. Curb extensions.
    - Maddux Drive & 87th Street. Curb extensions.
    - Lake Merced Blvd.: Require one-way traffic through the garage area.
- Add more vertical curbing in neighborhood, with area in front of the school as a first priority.
- Construct missing sidewalk on north side of 87th, east of S. Park Plaza.
- Southgate & Lake Merced
    - At the signal light consider scramble timing (phase where all vehicles are stopped and pedestrians can cross diagonally).
    - Possible mini-circle at this location.

Near-Term Policy: Rules, ordinances, practices, and procedures supporting active travel.

- Substitute crossing guards to be called in promptly when a guard will be absent.
- Allow use of text notification to parents.
- Institute five-minute safety delay on movement of vehicle pick-up line at dismissal. Allow pedestrians and bicycles to dismiss first, and clear conflict areas (e.g. Maddux intersections at Stewart and 87th) before vehicles are moving.
- Launch policies to reduce parking on rolled-curb sidewalks.
    - More parking enforcement to preclude parking on sidewalks – including extensive pre-enforcement outreach and education.
    - Adopt a policy that during any new or re-construction vertical curbing is required for all sidewalks at the edge of the roadway.
- Launch Walking Wednesdays as a matter of school policy, fully embraced by administration and faculty, and fully promoted to students and families.
- Build and formalize a relationship with Westlake Apartments and Westlake shopping area.
    - Include student representation on a shared working group.
    - Focus on safety for all users, and the economic benefits of high quality pedestrian connections.
- Move the handicapped bus drop-off/pick-up area into the front circle, around the tree.
- Coordinate with Garden Village on shared arrival/dismissal timing and policies.

Long-term Policy: Rules, ordinances, practices, and procedures supporting active travel.

- Lower area speeds to 15 mph.
- Promote and grow the SamTrans “Youth Unlimited” fare card program.
- Consider relocation of SamTrans bus stop. Options:
    - Move forward, so that it is away from teacher parking entry/exit.
    - Move bus stop out to Maddux Drive; precludes bus from having to come through Stewart, which will be even narrower if cars are discouraged from parking up on rolled-curb sidewalks
    - Keep bus stop where it is – better signage, pavement markings, enforce no car parking, etc.
- Bus service further back onto Mission Street for the kids; they currently have a long walk to the SamTrans Ben Franklin bus.

References and Resources

The National Center for Safe Routes to School; extensive practical traffic safety and programmatic information downloadable resources: www.saferoutesinfo.org

The Safe Routes to School National Partnership; coalition of organizations and experts providing great implementation support to schools & communities: www.saferoutespartnership.org

Complete Streets: National coalition working for streets that work for pedestrians, bicyclists, transits riders, and drivers of all ages, incomes, and abilities: http://www.completestreets.org

Quick Build Guide: How to Build Safer Streets Quickly and Affordably. Practical guide to low-cost 'quick-build' techniques to increase pedestrian and bicycle safety and accommodation. Alta Planning and the California Bike Coalition; 2020.
https://altago.com/wp-content/uploads/Quick-Build-Guide-White-Paper-2020-1.pdf

The Pop-Up Placemaking Tool Kit, an exceptionally practical how-to guide for low-cost traffic calming, safety, and place-making demonstrations from the AARP. https://www.aarp.org/livable-communities/tool-kits-resources/info-2019/pop-up-tool-kit.html

Slow Your Street: A How-to Guide for Pop-Up Traffic Calming. Trailnet's excellent practical guide with design, implementation, promotion, and evaluation tips on demonstration projects. https://trailnet.org/tag/plan4health/

The Tactical Urbanist's Guide to Materials & Design, by the Streets Plan Collaborative. Downloadable for free. http://tacticalurbanismguide.com

Small Town and Rural Multi-Modal Networks. Outstanding resource for low cost neighborhood-scale traffic calming and safety measures, with lots of relevant images and information. (Federal Highway Administration 2017.) Downloadable for free. https://www.ruraldesignguide.com

Urban Street Design Guide and the *Urban Bikeway Design Guide of* the National Association of City Transportation Officials (NACTO; ~$50 each). https://nacto.org/publication/urban-street-design-guide/

Guidebook for Developing Bicycle and Pedestrian Performance Measures (Federal Highway Administration 2017). *D*ownloadable for free. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/performance_measures_guidebook/pm_guidebook.pdf