

County Safety Projects – Closer Look

The goal of this paper is to bring to the attention of County committees and departments for the need to improve the quality and thoroughness of County projects that affect pedestrians, cyclists, and residents safety. Using a recent project, 'Broadmoor Safe Routes to School Pedestrian Improvements', this paper examines the outcome of the project - what really improved and what failed to meet the safety objectives.

It is hoped that the County's Bicycle & Pedestrian Advisory Committee will use this information as a catalyst to promote revised guidelines and policies for County DPW to require in its work projects and require these to be used by contractors and engineering consultants to greatly improve the results of roadway projects affecting pedestrians, cyclists, or residents. As was found in this case project, there are just too many safety issues to ignore.

Opportunity to Correct Safety Countywide

If our county is to achieve safe roadways for pedestrians, cyclists, and residents, then each maintenance and improvement project should be considered an opportunity to implement a full set of safety improvements. Work that can, over time, implement a much safer roadway for all users.

Minor improvements and ½ way measures leave our county failing to protect our citizens. County roads often still have motor centric designs that failed to provide safe and usable pathways for people with disabilities, pedestrians, cyclists, and residents. You can see it as you drive:

- Street sign & traffic poles, fire hydrants, and other obstacles that block the sidewalk
- Lack of curb curb cuts and pedestrian ramps
- Un-maintained sidewalks and walking pathways that are now unusable
- Narrow sidewalks and wide traffic lanes
- Lacking a view from a person with disabilities that would improve safety and usability
- Wide intersections and unnecessary use of pork-chop islands
- Long crosswalk distances with low visibility and lighting
- This list could go on - - the above is just an example of where county can improve

Summary:

The stated goals of this project sounded right on target, worth the \$1.7M to provide much needed improvement to this area that has two schools: One elementary, one intermediate. Safety of our County's kids should be a high priority.

Some of what was implement targeted the safety goals and in many cases those yielded an important safety gain. Yet in other aspects, some of the safety goals were totally missed. For instance, from the project description, one would think that the two intersections would be improved by providing curb extensions and shorter cross walks for all corners of the intersections - that did not happen as several corners did not get these improvements.

Same with the mid block crosswalk on S. Park Plaza, where the raised crosswalk would slow traffic and provide a calmer - safer - traffic flow. NATCO research shows that such a raise crosswalk would expect to slow traffic to 20 mph. Unfortunately, the 'raised' crosswalk that was implemented seem to motorists to not be raised at all; that is, the height is almost imperceivable, providing only the slightest tactile sensation for cars going 30 - 35+mph. A large percentage of the vehicles do not slow down. Over time, as drivers become more aware of the crosswalk and it non-hump, one would expect more drivers would ignore the hump and continue at higher speeds.

One important issue that needs to be addressed is the shoddy - reckless condition of the construction. Extremely uneven, lumpy, broken sidewalks, sometimes with holes that could easily break a leg of anyone accidentally stepping into holes. No provisions during construction for people with disabilities to have an alternate - usable pathway.

In fact, the resulting pole placement in some locations makes it most difficult for wheelchairs, strollers, and similar to even wedge through the narrow - non ADA - widths left between these obstacles.

We - the County — can do better. We need to up our quality game on projects. These projects provide an important opportunity to be much more thorough in the safety gains that the project accomplishes. Instead of doing minimal improvements and halfway measures, let's do a complete job and have much safer roadways, especially for residents, pedestrians, cyclists, and importantly people with disabilities.

On the pages that follow, photos of the project site are used, with annotations, to show the positive improvements (**green**) and the missed or problem issues (**orange**). The hope is that BPAC committee members will visit the project site and review the project with a more detailed eye and then develop recommendations to County that will improve future projects.

Case Study: Broadmoor Safe Routes to School Pedestrian Improvements

This project is a safe routes to school project as there are both elementary and intermediate schools being serviced by the improvements.

This project is a good opportunity to study and to demonstrate the need to improve the work performed by SMC contractors and engineers.

Why is this important?

1. Safety is a prime objective and project results and we should expect the project to achieve high marks in both quality and thoroughness;
2. With 20+ years as a common interval between a location's improvements, it is of the upmost importance to have the project be thorough and implement all improvements.

School - Safe Routes

A key objective in this project was to improve safety for the children and families in the area by shortening crosswalks, implementing traffic calming, and by refreshed traffic lanes on resurfaced roads. A minor cycling improvement was included for enhancing existing on-pavement sharrows.

It was not clear if the intersections were going to implement a Leading Pedestrian Interval, allowing pedestrians to enter intersection with all traffic stopped on Red before turning Green for traffic.

To keep this paper brief, lets look at the 3 areas of focus and look at them one by one:

1. Mid-Block crosswalk on S. Park Plaza Dr.
2. Crosswalks at the intersection of 87th and Washington.
3. Crosswalks at intersection of 87th and S. Park Plaza Dr (at Nimitz).

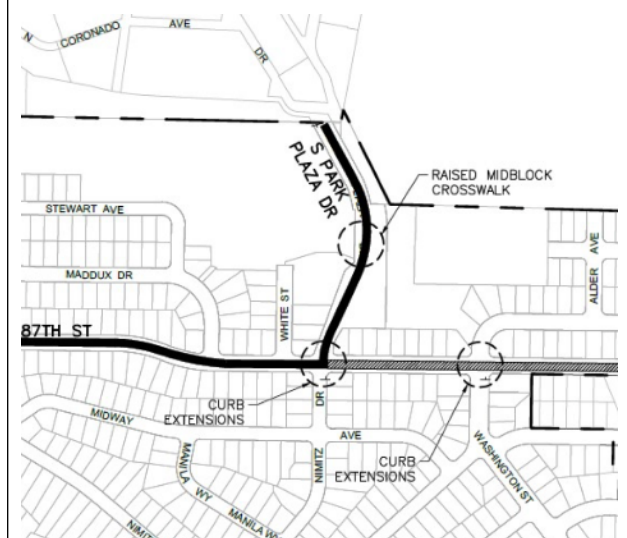
County Project Description

Location

87th Street from Sullivan Avenue to Southgate Avenue, and S. Park Plaza Drive from 87th Street to County limit

About the Project

At S. Park Plaza Drive between Garden Village Elementary School and Benjamin Franklin Intermediate School, a raised mid-block crosswalk will be constructed to provide an improved crossing for pedestrians and serve as a traffic calming feature to slow the traffic. At the intersections of 87th Street and S. Park Plaza Drive and 87th Street and Washington Street, curb extensions and standard accessible curb ramps will be installed to increase visibility and shorten crossing distances. Along 87th Street and S. Park Plaza Drive, road surfacing treatments coupled with edge lines and improved traffic striping will be installed for traffic calming and pedestrian improvements.



1. Mid-Block crosswalk on S. Park Plaza Dr.

This project goal was to slow traffic and provide a new mid-block crosswalk. Contractors were to use the best management practices from the County of San Mateo Department of Public Works (DPW) Maintenance Standards.

Summary: Several changes were meant to improve pedestrian safety and calm and slow traffic flow at this mid-block location on S. Park Plaza Dr.: It appears that certain key goals were **not** met by the project and as a result several key safety issues remain or have been created and thus expose risks to the public, many of which are children. There appears to be some changes that are either not in compliance or marginalize ADA recommendations.

Before and after photos help to see why a mid-block crosswalk was needed and an improvement; however, on closer examination several dangers have been created and needed improvements not implemented.

An illustration with callouts is also provided to aid in highlighting observations.

The deceleration marks, a new approach for County, seem to work well for motorists not familiar with this road; however, it seems that a large percentage of motorists are not slowing down - probably because the raised crosswalk is barely felt by the motorists. Virtually no sensation of a hump and no tactile reason to slow down. So the bottom line, crosswalk was raised to calm traffic and slow vehicles, but it is not meeting that important goal.

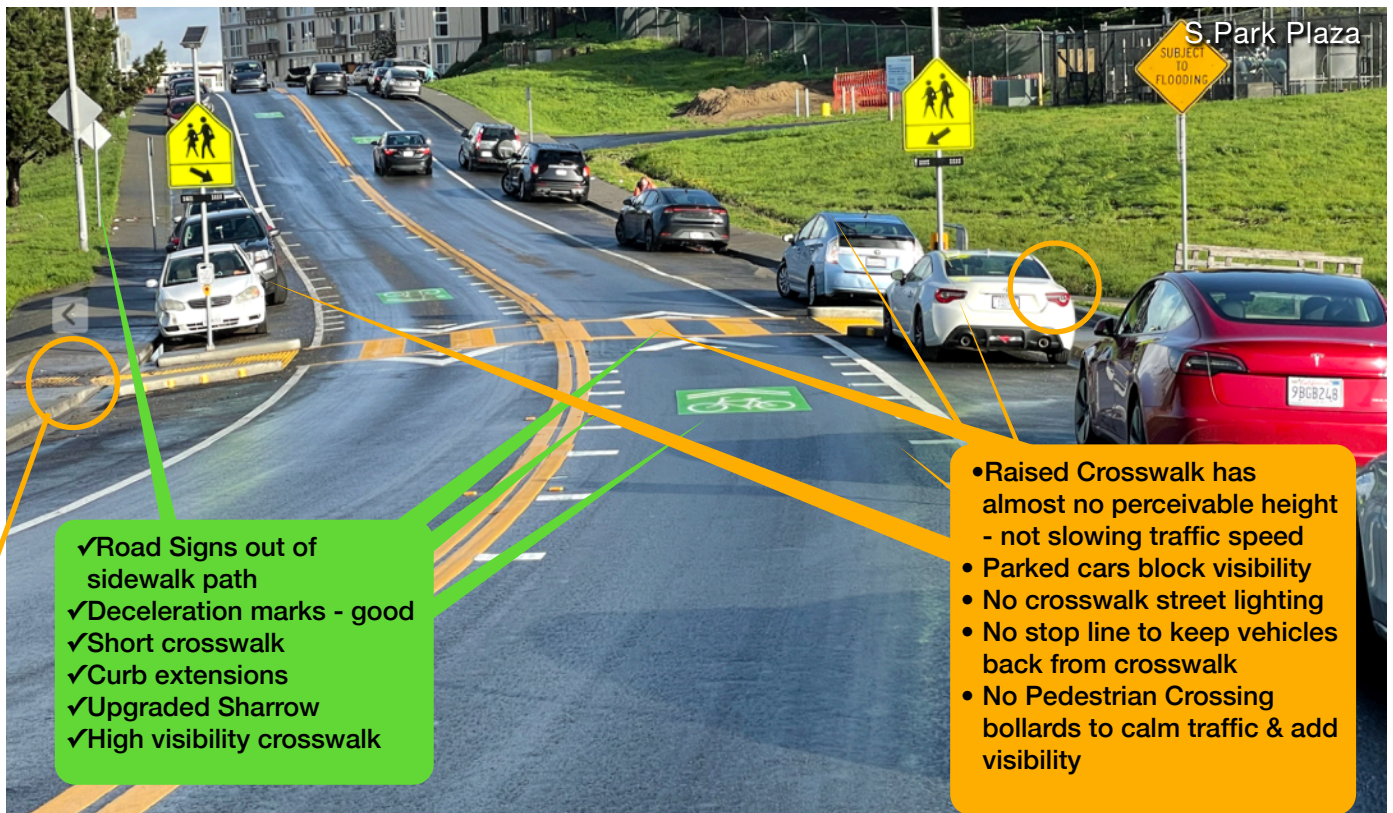
Before Photos



After Photos



A street lighted crosswalk would have been a major safety improvement. Correcting county's many dark non-lighted crosswalk should be a priority and be considered for every improvement project. In this case, where a new crosswalk is installed, it seems a street lighted crosswalk should have been required. The existing street lights are too far away to properly light the crosswalk.



- ✓Road Signs out of sidewalk path
- ✓Deceleration marks - good
- ✓Short crosswalk
- ✓Curb extensions
- ✓Upgraded Sharrow
- ✓High visibility crosswalk

- Raised Crosswalk has almost no perceivable height - not slowing traffic speed
- Parked cars block visibility
- No crosswalk street lighting
- No stop line to keep vehicles back from crosswalk
- No Pedestrian Crossing bollards to calm traffic & add visibility



- This No Crossing sign is inches from crosswalk? If a sign is needed, shouldn't it be a different sign? Confusing.
- Parked cars block visibility
- Possible ponding-debris issue

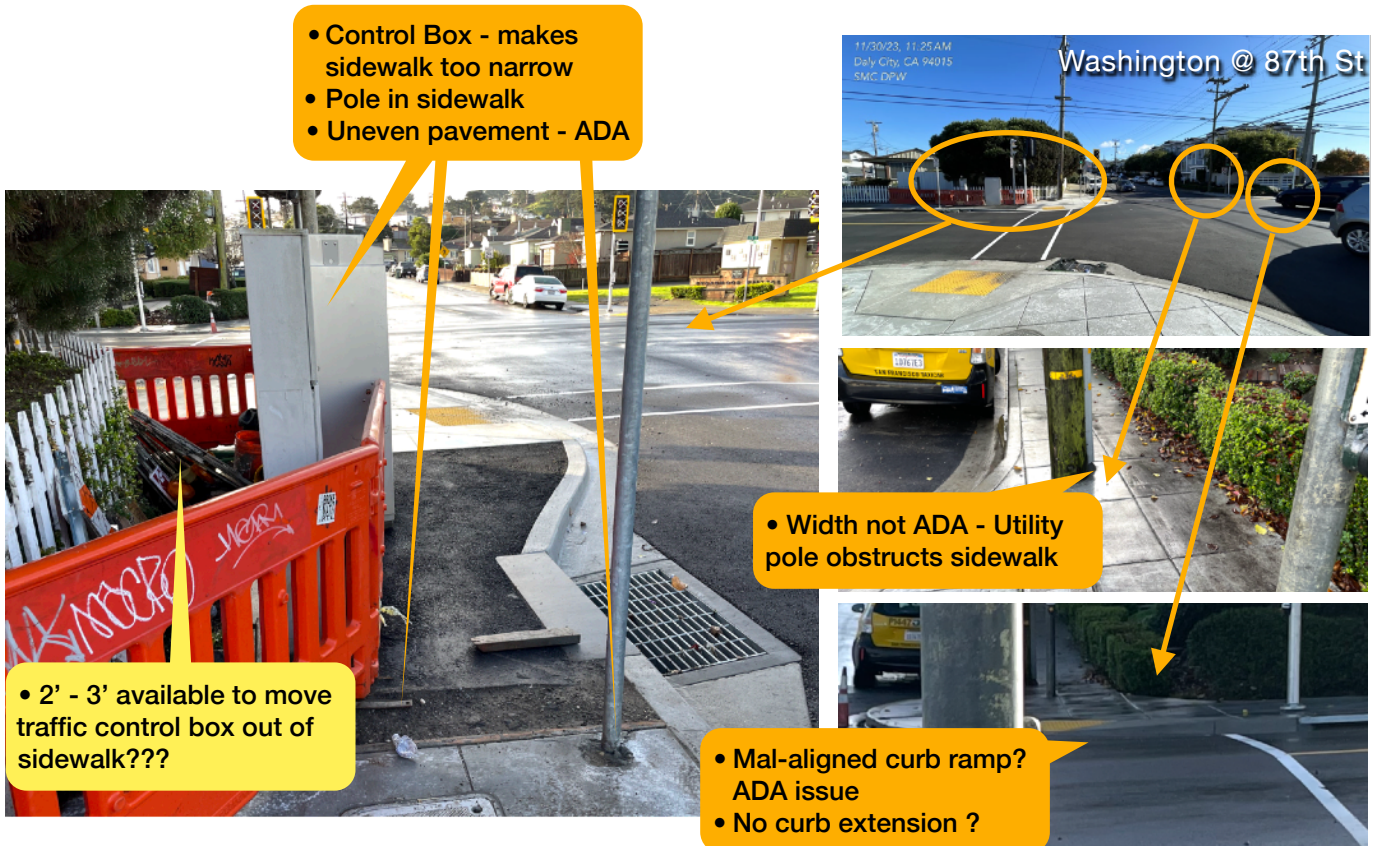
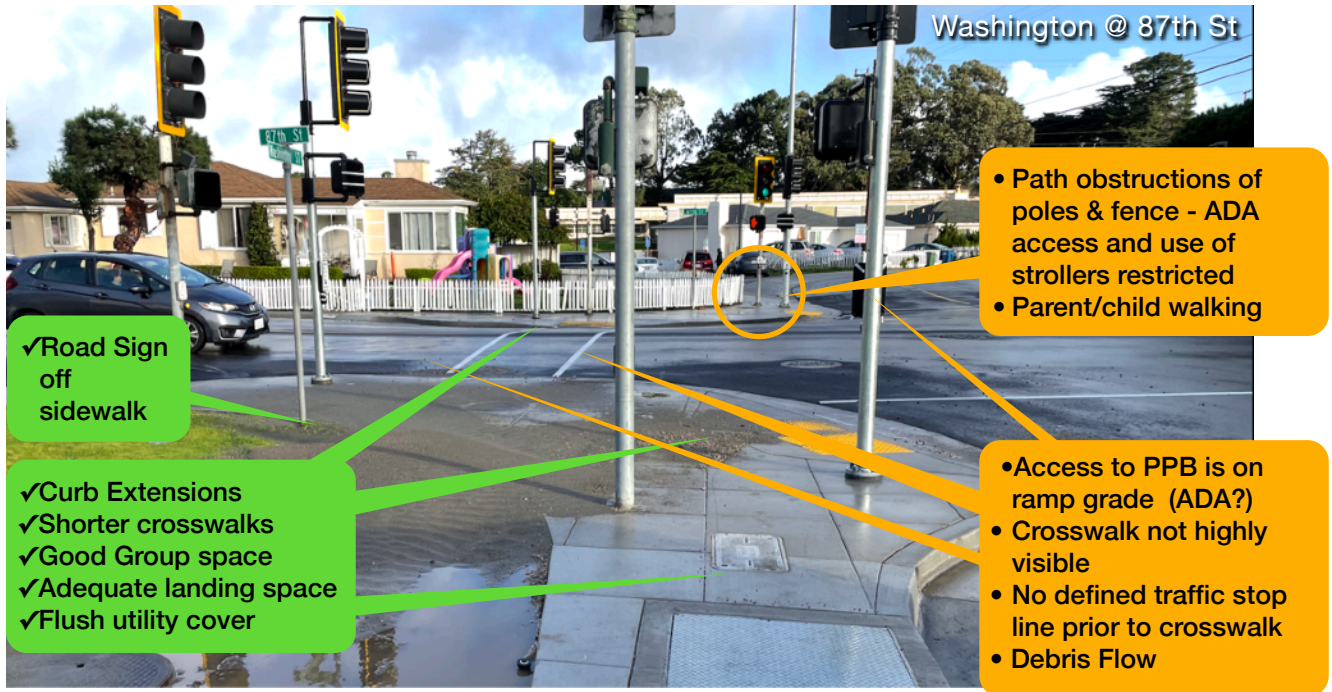
The table below was created to show individual elements and issues for the mid-block improvements only.

This is not a complete check list. It is just list of observations. It might benefit future projects if a comprehensive checklist could be used in all phases of a project, including planning to make sure the project will be thorough.

Crosswalk Safety Element		Comment
Street lighting for crosswalk	N	Street lighting is approx 80' away — not moved to light crosswalk
Raised crosswalk	Y Fail	The height of 'raised crosswalk' is virtually in-perceivable to vehicles and seems NOT to deter speed of local drivers
Bulb out to shorten crosswalk	Y ✓	
Traffic lines	Y ✓	Center and edge lines clear. Effective use of deceleration markings that help reduce vehicle speed for unfamiliar drivers of area
in-street pedestrian crossing sign on centerline (R1-6)	N	These in street bollards are shown to be effective in slowing traffic and improving driver awareness (allowed MUTCD 7B.03-13)
School Zone Speed Limit Signs (i.e. R2-1, S4-2P, S4-5)	N	Many speeds at schools are now 15 mph when children present and might be considered here
High visibility crosswalk markings	Y ✓	Crosswalk seems well marked and the on pavement speed table markings add to driver awareness of crosswalk
Visibility of pedestrians using crosswalk	- Fail	Vehicles parked next to crosswalk block view of pedestrians/cars - multi-threat situation. Creates situation where conflict is just one step away from traffic before visibility occurs
Use of Stop Bars or advance stop lines prior to crosswalk	N	Seems that pavement should be marked as to where cars are to stop - currently vehicles can stop inches from crosswalk. Greater distance to keep vehicles from crosswalk makes it safer
Site Situational Elements		
Water accumulation at crosswalk	??	Needs to be confirmed — mud / debris seems to have accumulated at both ends of the crosswalk - possible ponding issue? Drain grate s/b no larger than ½ gaps.
Confusing NO PED CROSSING sign	??	The old sign prohibiting pedestrian crossing is within inches of new crosswalk - is sign needed? Would a different sign be better?
Decreased visibility due to sun glare	Info	Position of sun during the day causes intense glare that obstructs drivers view of crosswalk and cyclists - compounded by wet road

2. Intersection — Washington & 87th

Four corners of this intersection had partial or full curb extensions resulting in shorter crosswalks, larger area for students to queue, landing areas from curb ramps (most), and utility covers were flush with sidewalk making it more comfortable for people with disabilities. See illustrations below for summary of both pro and con aspects of the improvements.



3. Intersection — Nimitz St/S. Park Plaza Dr. & 87th

This intersection only added curb extensions on some corners and not the others. The high visibility crosswalk was retained. New traffic / lighting box appears to be in the process of being installed.



More care is needed in the construction process to accommodate pedestrian and ADA safety. Large and deep leg twisting hazards in sidewalk are dangerous for all. Extremely poor and uneven patches in sidewalk and obstacles in sidewalk make it difficult for people with disabilities. These dangerous conditions should not be permitted without a temporary alternative route being constructed, as is recommended by FHWA.

Questions arise as to why the other corners of the intersection were not improved with curb extensions. Curb extensions not only provide shorter crosswalks, but they also provide a larger queuing area for groups of pedestrians - common with schools. The current sidewalks at the corners don't provide the capacity to have student groups, bikes, strollers, and guardians holding hands with kids. People with disabilities will find these corners problematic - not ADA friendly.



School areas have groups of kids crossing, some with bikes and other modes. Wheelchairs and crutches require even more room.

Why in this project are the traffic/light control boxes right next to the narrow sidewalks, restricting sidewalks to a minimum width? This is a common problem throughout county. If traffic control boxes are installed away from the sidewalk, users have more room,

the sidewalk could even be widened rather than permanently set at a minimum or less than minimum width.



- No Curb extensions
- Unacceptable construction area - dangerous sidewalk
- New Traffic/light control box too close to sidewalk
- No Curb ramp - people with disabilities must use street to access ramp



- No curb extension
- Dangerous construction leaves all at high risk
- Control boxes too close to sidewalk
- No curb ramp - must use street to access ramp
- use of strollers restricted
- Parent/child walking

- ✓Curb Extensions
- ✓Shorter crosswalks
- ✓High visibility crosswalk
- ✓Good Group space
- ✓Adequate landing space
- ✓Flush utility covers
- ✓New poles out of sidewalk path



- These covers and their surrounding patches are extremely rough and lumpy - a challenge for people using wheel chairs, strollers



References

FHWA - Traffic Control for School Areas: https://mutcd.fhwa.dot.gov/pdfs/11th_Edition/part7.pdf

California Dept Transportation - Traffic Calming: https://dot.ca.gov/-/media/dot-media/programs/safety-programs/documents/traffic-calming/final-traffic-calming-guide_v2-a11y.pdf

FHWA - (ADA) Requirements for Resurfacing Projects California Dept: Transportation - MUTCD: <https://dot.ca.gov/-/media/dot-media/programs/safety-programs/documents/ca-mutcd/rev7/camutcd2014-part3-rev7-a11y.pdf>

ADA Sidewalk Obstructions - pedestrians.org: <http://www.pedestrians.org/topics/obstructions.htm>

NATCO - Street Design: <https://nacto.org/publication/urban-street-design-guide/street-design-elements/vertical-speed-control-elements/speed-hump/>

Pedestrian.org - Perils for Pedestrians: <http://www.pedestrians.org>

San Mateo County Public Works - Broadmoor Safe Routes to School Improvements Project: <https://www.smcgov.org/publicworks/broadmoor-safe-routes-school-pedestrian-improvements-project>

Accessible Sidewalks Design Issues for Pedestrians with Disabilities-ADA: <https://www.youtube.com/watch?v=B0XDwkFPm5U>