City of Oakland
Department of Transportation

Appendix B

Oakland Walks! 2017 Draft Pedestrian Master Plan Update

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Appendix B

Safety Strategy: Improvements/Countermeasures

Safety Strategy: Improvements and Countermeasures

The high injury corridors and intersections, known as the High Injury Network, were identified using a safety analysis as described in Chapter 6 (Prioritizing Pedestrian Improvements).

The safety strategy identified improvements or countermeasures to increase pedestrian safety at a select number of high injury intersections and high injury corridors. Many of the high injury corridors and intersections were not studied here because they have already received funding for pedestrian improvements--most notably the Bus Rapid Transit project on International Boulevard--while others are part of ongoing planning efforts, such as the Downtown Specific Plan, that will require further coordination or study. City staff will continue to monitor and coordinate pedestrian safety improvements for intersections and corridors that were not included in this safety strategy while those on the list below are implemented. The tables below are divided into three categories:

- Projects included in the safety strategy (B1-B2)
- Projects with associated funding (B3-B4)
- Projects with no associated funding and need for additional analysis and design (B4-B5)

The safety strategy countermeasures that are included in Table B-1 and Table B-2 have associated sheets that describe the locations in more detail. Note that these countermeasures are suggestions for City staff and will be considered according to current and future City policy and practices as well as future projects.

Table B1: Corridors Studied in the Safety Strategy

Street Name	Start	End	Short Term Countermeasures	Long Term Countermeasures	Other Improvements
14TH ST	MYRTLE ST	OAK ST	• At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second • At the 14th Street and Market Street intersection, which is adjacent to the West Oakland Middle School, re-stripe marked crosswalks with high visibility markings • At the 14th Street and Jackson Street and 14th Street and Madison Street intersections, which are adjacent to Little Star Preschool, restripe marked crosswalks with high visibility markings • At the 14th Street and Broadway intersection, shorten signal cycle length • At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks • Implement near-term road diet with signing and pavement markings only to reduce 14th Street from a four-lane street to a two-lane street	• Convert near-term road diet to permanent installation with hardscape sidewalk improvements • At the 14th Street and Market Street, 14th Street and West Street, and 14th Street and Brush Street intersections, extend medians to provide pedestrian refuge islands at marked crosswalks	Awarded ATP grant in 2016, between Brush and Oak, resulting in a reduction of travel lanes from four to two lanes, additional of Class IV protected bicycles lanes, improved pedestrian facilities including refuge, market crossings, and retimed signals, storm drain gardens, and transit boarding islands

Table B1: Corridors Studied in the Safety Strategy (cont.)

Street Name	Start	End	Short Term Countermeasures	Long Term Countermeasures	Other Improvements
8TH ST	FRANKLIN ST	HARRISON ST	• At the 8th Street and Fallon Street intersection, add a high visibility crosswalk on the north leg and re-stripe marked crosswalk with high visibility markings • At the 8th Street and Fallon Street intersection, install advanced yield signage at each crossing • At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second • At signalized intersections, implement Leading Pedestrian Interval (LPI) • At the 8th Street and Harrison Street and 8th Street and Franklin Street intersections, convert permissive phase to protected phase • At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach) • Implement pedestrian safety zones extending from the curb at the 8th Street and Harrison Street and 8th Street and Fallon Street intersections	• At the 8th Street and Harrison Street and 8th Street and Fallon Street intersections, install curb extensions on each corner • Implement road diet to manage vehicle speeds and shorten crossing distance	Highway Safety Improvement Program 2016-Upgraded traffic signals on 8th St/Madison St, 8th St/Oak S. New bikeway striping, repaved, and new ADA curb ramps along the corridor. Identified in LMSA Plan as a community priority for two way conversion, or sidewalk extensions. Downtown Plan calls for 2-wayng the street with a potential parking protected Class IV bike lane
8TH ST	OAK ST	FALLON ST	• At the 8th Street and Fallon Street intersection, add a high visibility crosswalk on the north leg and re-stripe marked crosswalk with high visibility markings • At the 8th Street and Fallon Street intersection, install advanced yield signage at each crossing • At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second • At signalized intersections, implement Leading Pedestrian Interval (LPI) • At the 8th Street and Harrison Street and 8th Street and Franklin Street intersections, convert permissive phase to protected phase • At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach) • Implement pedestrian safety zones extending from the curb at the 8th Street and Harrison Street and 8th Street and Fallon Street intersections	• At the 8th Street and Harrison Street and 8th Street and Fallon Street intersections, install curb extensions on each corner • Implement road diet to manage vehicle speeds and shorten crossing distance	Highway Safety Improvement Program 2016-Upgraded traffic signals on 8th St/ Madison St, 8th St/Oak S. New bikeway striping, repaved, and new ADA curb ramps along the corridor. Identified in LMSA Plan as a community priority for two way conversion, or sidewalk extensions. Downtown Plan calls for 2-wayng the street with a potential parking protected Class IV bike lane

Table B1: Corridors Studied in the Safety Strategy (cont.)

Street Name	Start	End	Short Term Countermeasures	Long Term Countermeasures	Other Improvements
94TH AVE	CHERRY	BURR	• At the 94th Avenue and MacArthur Boulevard and 94th Avenue and Thermal Street intersections, install advanced yield signage at marked crosswalks • At the 94th Avenue and Peach Street intersection, add crosswalks across 94th Avenue with in-street "Pedestrian Crossing" signage and advanced yield signage • At the 94th Avenue and MacArthur Boulevard intersection, implement crosswalks and crossing treatments to provide access to transit stops • At the 94th Avenue and Thermal Street intersection, re-stripe marked crosswalks with high visibility markings • At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks • Implement pedestrian safety zones extending from the curb at the 94th Avenue and MacArthur Boulevard intersection	• Extend median to provide refuge island on the north side of the 94th Street and MacArthur Boulevard intersection • Provide raised median/refuge island at the marked crosswalk on the south side of the 94th Street and MacArthur Boulevard intersection • Install raised crosswalks at marked crosswalk locations to help improve visibility of marked crosswalks and slow vehicle speeds • At the 94th Avenue and MacArthur Boulevard intersection, install curb extensions on each corner	Proposed Bike Route, and intersection improvements for 94th and MacArthur

Table B1: Corridors Studied in the Safety Strategy (cont.)

Street Name	Start	End	Short Term Countermeasures	Long Term Countermeasures	Other Improvements
9TH ST	FRANKLIN	FALLON	• At the 9th street and Alice Street and 9th Street and Fallon Street intersections, install advanced yield signage at marked crosswalks • At the 9th Street and Fallon Street intersection, which is adjacent to Laney College, add a high visibility crosswalk across the north leg of Fallon Street • At the 9th Street and Fallon Street intersection, re-stripe the marked crosswalk on the south leg with high visibility markings • At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second • At the 9th Street and Franklin Street, 9th Street and Webster Street, and 9th Street and Harrison Street intersections, shorten signal cycle length • At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks • Implement near-term road diet with signing and pavement markings only; consider moving on-street parking away from curb to create separated bike facility	•At the 9th Street and Alice Street and 9th Street and Fallon Street intersections, install rectangular rapid flashing beacons on each crossing • Convert near-term road diet to more permanent installation by providing hardscape sidewalk improvements	New bike lane added between Harrison and Fallon and stop control added at 9th and Alice. Downtown is Funded for 13 intersections, including signal mast arms, vehicle/ bicycle detection, accessible pedestrian signal upgrade, and other improvements. Identified in Downtown Plan to be a two-way with back in parking
BANCROFT	84TH AVE	98TH AVE	• At the Bancroft Avenue and 86th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 88th Avenue, and Bancroft Avenue and 89th Avenue intersections, install in-street “Pedestrian Crossing” signage at marked crosswalks • At the Bancroft Avenue and 86th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 88th Avenue, and Bancroft Avenue and 89th Avenue intersections, install advanced yield signage at marked crosswalks • At signalized intersections, implement Leading Pedestrian Interval (LPIs) • At the Bancroft Avenue and 85th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 90th Avenue, Bancroft Avenue and 94th Avenue, Bancroft Avenue and 96th Avenue intersections, implement crosswalks and crossing treatments to provide access to transit stops • At the Bancroft Avenue and 98th Avenue intersection, which is adjacent to the E Morris Cox Elementary School, re-stripe marked crosswalks with high visibility markings	• At the Bancroft Avenue and 84th Avenue, Bancroft Avenue and 85th Avenue, Bancroft Avenue and 86th Avenue, Bancroft Avenue and 88th Avenue, Bancroft Avenue and 94th Avenue, and Bancroft Avenue and 96th Avenue intersections, install crosswalks with rectangular rapid flashing beacons	Highway Safety Improvement Program 2016-Install HAWKs and RRFBs at eleven locations along the corridor; install signal mast arms at three locations; and install a landscape at the northeast corner of Bancroft and 67th Street. Corridor improvements from Havenscourt to 98th Ave

Table B1: Corridors Studied in the Safety Strategy (cont.)

Street Name	Start	End	Short Term Countermeasures	Long Term Countermeasures	Other Improvements
BANCROFT	CHURCH ST	80TH AVE	• At the Bancroft Avenue and 78th Street and Bancroft Avenue and Ritchie Street intersections, install advanced yield signage at marked crosswalks • At signalized intersections, implement Leading Pedestrian Interval (LPI) • At the Bancroft Avenue and Ritchie Street intersection, implement a crosswalk on the south leg and crossing treatments to provide access to transit stops • At the Bancroft Avenue and 73rd Avenue intersection which is adjacent to Markham Elementary School, re-stripe marked crosswalks with high visibility markings • At the Bancroft Avenue and Ritchie Street and Bancroft Avenue and 78th Avenue intersections, re-stripe high visibility crosswalks • Prohibit right-turn on red at signalized intersections when pedestrian pushbuttons have been pushed	• At uncontrolled marked crosswalks, install rectangular rapid flashing beacons	Highway Safety Improvement Program 2016-Install HAWKs and RRFBs at eleven locations along the corridor; install signal mast arms at three locations; and install a landscape at the northeast corner of Bancroft and 67th Street. Corridor improvements from Havenscourt to 98th Ave
BROADWAY	9TH ST	11TH	• Convert each intersection to fixed pedestrian recall • At each intersection, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second • At each intersection, shorten signal cycle length • At each intersection, implement Leading Pedestrian Interval (LPI) • Implement pedestrian safety zones extending from the curb at each intersection"	• At signalized intersections adjust signal timing to separate turning movements from pedestrian crossing phase • Extend median to provide refuge island on the south side of the Broadway and 11th Street intersection • Implement road diet on low volume cross streets1 to shorten pedestrian crossing distances	Pedestrian Improvements funded through the BRT. Includes new ADA curb ramps as well as pedestrian access to new stations. Included in downtown Oakland specific plan (Broadway from Embarcadero to 27th Street
BROADWAY	16TH ST	19TH ST	• Convert each intersection to fixed pedestrian recall • At each intersection, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second • At each intersection, shorten signal cycle length • At each intersection, implement Leading Pedestrian Interval (LPI) • Implement pedestrian safety zones extending from the curb at each intersection	• At signalized intersections adjust signal timing to separate turning movements from pedestrian crossing phase • Extend median to provide refuge island on the south side of the Broadway and 11th Street intersection • Implement road diet on low volume cross streets1 to shorten pedestrian crossing distances	Pedestrian Improvements funded through the BRT. Includes new ADA curb ramps as well as pedestrian access to new stations. Included in downtown Oakland specific plan (Broadway from Embarcadero to 27th Street

Table B1: Corridors Studied in the Safety Strategy (cont.)

Street Name	Start	End	Short Term Countermeasures	Long Term Countermeasures	Other Improvements
E 15TH ST	21ST AVE	26TH AVE	• At the 15th Street and 26th Avenue intersection, add stop sign on southbound approach • At the 15th Street and 23rd Avenue and 15th Street and Miller Avenue intersections, install advanced yield markings to each minor approach • At the 15th Street and 22nd Avenue intersection, which is adjacent to Garfield Elementary School, add high visibility crosswalks with signage and advanced yield markings • Add edgeline markings for street narrowing and parking definition • At each intersection, restrict on-street parking within 20-feet of intersection and marked crosswalks • Implement pedestrian safety zones extending from the curb at the 15th Street and 22nd Avenue intersection	• Implement crossing improvements such as rectangular rapid flashing beacon, pedestrian refuge island, or high visibility crosswalk at the High Street and 22nd Avenue intersection • At the 15th Street and 22nd Avenue intersection, install curb extensions on each corner	-
FOOTHILL	45TH AVE	TRASK ST	• Add crossing sign and include directional arrow indicating crossing • At the Foothill Boulevard and 45th Street intersection, upgrade school crossing sign to current standard and include directional arrow indicating crossing • At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second • At the Foothill Boulevard and 45th Avenue, Foothill Boulevard and 46th Avenue, Foothill Boulevard and 50th Avenue, Foothill Boulevard and 51st Avenue, Foothill Boulevard and Congress Avenue, Foothill Boulevard and Belvedere Street, and Foothill Boulevard and Cole Street intersection, install advanced yield markings and advanced pedestrian crosswalk ahead signs across Foothill Boulevard • At the Foothill Boulevard and Vicksburg intersection, re-stripe marked crosswalk on north leg • At the Foothill Boulevard and 47th Street intersection, convert signal from pedestrian actuated to fixed recall for the pedestrian walk phase	• At the Foothill Boulevard and Trask Street intersection, install curb extensions on the northeast, northwest, and southwest corners • At the Foothill Boulevard and 45th Avenue and Foothill Boulevard and 50th Street intersections, install a rectangular rapid flashing beacon and associated school crossing signs	Former Redevelopment Streetscape

Table B1: Corridors Studied in the Safety Strategy (cont.)

Street Name	Start	End	Short Term Countermeasures	Long Term Countermeasures	Other Improvements
GRAND AVE	LAKE PARK AVE	WILDWOOD AVE	• Convert each signalized intersection to fixed pedestrian recall • At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second • At the 2 mid-block crossings located between Grand Avenue and Sunnyslope Avenue and Grand Avenue and Weldon Avenue, add in street "Pedestrian Crossing signage" • At the Grand Avenue and Park View Terrace, Grand Avenue and Elwood Avenue, Grand Avenue and Mandana Boulevard, and Grand Avenue and Boulevard Way intersections, implement crosswalks and crossing treatments to provide access to transit stops • At signalized intersections, implement Leading Pedestrian Interval (LPI) • Implement near-term road diet with signing and pavement markings only from east of the I-580 intersection to Elwood Avenue	• At the mid-block, marked crossing at Grand Avenue and Sunnyslope Avenue, install a rectangular rapid flashing beacon and associated crossing signs • Remove channelized right turn lanes at the Grand Avenue and Santa Clara and the Grand Avenue and Bay Place intersections • Convert near-term road diet to permanent installation by providing hardscape sidewalk improvements • At signalized intersections, adjust signal timing to separate turning movements from pedestrian crossing phase	Grand Avenue Road Diet
GRAND AVE	VALLEY ST	PARK VIEW TERRACE	• Convert each signalized intersection to fixed pedestrian recall • At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second • At the 2 mid-block crossings located between Grand Avenue and Sunnyslope Avenue and Grand Avenue and Weldon Avenue, add in street "Pedestrian Crossing signage" • At the Grand Avenue and Park View Terrace, Grand Avenue and Elwood Avenue, Grand Avenue and Mandana Boulevard, and Grand Avenue and Boulevard Way intersections, implement crosswalks and crossing treatments to provide access to transit stops • At signalized intersections, implement Leading Pedestrian Interval (LPI) • Implement near-term road diet with signing and pavement markings only from east of the I-580 intersection to Elwood Avenue	• At the mid-block, marked crossing at Grand Avenue and Sunnyslope Avenue, install a rectangular rapid flashing beacon and associated crossing signs • Remove channelized right turn lanes at the Grand Avenue and Santa Clara and the Grand Avenue and Bay Place intersections • Convert near-term road diet to permanent installation by providing hardscape sidewalk improvements • At signalized intersections, adjust signal timing to separate turning movements from pedestrian crossing phase	-

Table B1: Corridors Studied in the Safety Strategy (cont.)

Street Name	Start	End	Short Term Countermeasures	Long Term Countermeasures	Other Improvements
HIGH	LYON ST	KANSAS ST	• At the High Street and Fleming Avenue, High Street and Penniman Avenue, High Street and Culver Street, and High Street and Kansas Street intersections, install advanced yield signage at marked crosswalks • At the High Street and Culver Street, High Street and Fleming Avenue, and High Street and Kansas Street intersections, implement crosswalks and crossing treatments to provide access to transit stops • At the High Street and Fleming Avenue, High Street and Penniman Avenue, High Street and Culver Street, and High Street and Kansas Street intersections, re-stripe marked uncontrolled crosswalks with high visibility markings • At each intersection, restrict on-street parking within 20-feet	• At each intersection east of the High Street and Masterson Street intersection, install crosswalks with curb ramps in medians • At the High Street and Porter Street intersection, which is adjacent to the Boys and Girls Club, installed raised pedestrian crossings • At the High Street and Masterson Street and High Street and Kansas Street intersections, which are adjacent to the St. Lawrence O'Toole Catholic School, install raised pedestrian crossings	Highway Safety Improvement Program 2016-Construct crossing enhancements, signal placement improvements, and new pedestrian signal countdown heads

Table B1: Corridors Studied in the Safety Strategy (cont.)

Street Name	Start	End	Short Term Countermeasures	Long Term Countermeasures	Other Improvements
MacArthur	77TH AVE	83RD AVE	• At the mid-block crossing south of the MacArthur Boulevard and Ritchie Street intersection, add advanced yield markings • At the MacArthur Boulevard and Parker Avenue intersection, consider implementing a crosswalk on the north leg with crossing treatments to provide access to transit stop • At unsignalized intersections, re-stripe marked crosswalks to high visibility crosswalks • Add high visibility crosswalks with signage and advanced yield markings at the MacArthur Boulevard and 83rd Avenue intersection • At signalized intersections, convert permissive phase to protectedphase • At each intersection, restrict on-street parking within 20-feet of intersections and mid-block crossings • Implement near-term road diet with signing and pavement markings only north of MacArthur Boulevard and 83rd Street	• Install continuous median with pedestrian refuge islands • Convert near-term road diet to more permanent installation by providing hardscape sidewalk improvements	Former Redevelopment Streetscape
BRUSH ST	12TH ST	14TH ST	• At the Brush Street and 12th Street intersection, add “Pedestrian Crossing Prohibited” signage at the north side of Brush Street • At the Brush Street and 14th Street intersection, replace pedestrian countdown timer on northwest corner • At signalized intersections, re-stripe marked crosswalks for general maintenance • At the Brush Street and 12th Street intersection, implement Leading Pedestrian Interval (LPI) • At each intersection, restrict on-street parking within 20-feet of intersection and marked crosswalks • Implement pedestrian safety zones extending from the curb at the Brush Street and 12th Street and Brush Street and 14th Street intersections	• Implement road diet along Brush Street; would need to extend beyond the limits of 12th and 14th Streets • At the Brush Street and 12th Street and Brush Street and 14th Street intersections, install curb extensions on each corner • At the Brush Street and 14th Street intersection, adjust signal timing to separate turning movements from pedestrian phase crossing	Combined intersections to make a corridor

Table B1: Corridors Studied in the Safety Strategy (cont.)

Street Name	Start	End	Short Term Countermeasures	Long Term Countermeasures	Other Improvements
73RD	BANCROFT AVE	HILLSIDE ST	• At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection) • Implement crosswalks and crossing treatments to provide access to transit stops at the 73rd Avenue and Bancroft Avenue, 73rd Avenue and Garfield Avenue and 73rd Avenue and Hillside Street intersections ($2,500 per crosswalk) • At each signalized intersections, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection) • Implement near-term road diet, with signing and pavement markings only to reduce 73rd Avenue from a six-lane street to a four-lane or three-lane street ($30,000 per mile)	• Install high visibility crosswalk across 73rd Avenue and Hillside Street including crossing treatments such as advanced yield markings, advanced warning signs, and rectangular rapid flashing beacon ($34,300 per crossing) • Extend medians at marked crosswalks to provide refuge island ($25,000 per island) • Re-design the right-turn movement at 73rd Avenue and MacArthur Boulevard to remove the lane add so the right-turn movement is not a free movement Convert near-term road diet to permanent installation with hardscape sidewalk improvements ($150,000 per mile) • At signalized intersections, adjust signal timing to separate turning movements from pedestrian crossing phase ($30,000 per intersection)	Combined intersections to make a corridor

Table B2: Intersections Studied in the Safety Strategy

Street 1	Street 2	Short Term Countermeasures	Long Term Countermeasures	Other Improvements
7TH ST	HARRISON ST	• Install pedestrian countdown timers at each crossing • Install pedestrian activation buttons at each crossing • Implement Leading Pedestrian Interval (LPI) at each crossing • Integrate protected northbound right turn phase		High Safety Improvement Program -2016-Construct safety improvements at 13 intersections, including signal mast arms, vehicle/bicycle detection, accessible pedestrian signal upgrade, and other improvements.
8TH ST	MARKET ST	• Restripe each crosswalk • Install pedestrian countdown timers at each crossing • Install pedestrian activation buttons at each corner • Convert each device to fixed pedestrian recall • Implement pedestrian safety zones extending from the curb at the intersection	• Add lighting for crosswalks across Market St • Convert eastbound and westbound left-turn phase to protected left-turn phase • Extend medians to create pedestrian refuge islands on north and south legs • Install curb extensions on each corner	
GRAND AVE	STATEN AVE	• Re-stripe each marked crosswalk • Install pedestrian countdown timers at each crossing • Implement Leading Pedestrian Interval (LPI) at each crossing • Prohibit right turn on red on each approach	• Convert eastbound and westbound permissive left turn phase to protected left turn phase • Integrate eastbound and westbound protected right turn phase	
HIGH ST	SAN LEANDRO ST	• Remove “Sidewalk Closed” sign on northeast approach • Prohibit right turn on red on each approach • Install pedestrian activation buttons on each corner except southwest ($8,000 per intersection) • Implement Leading Pedestrian Interval (LPI) at each crossing	• Resurface intersection pavement • Construct sidewalk on north-westbound approach • Reconstruct intersection to accommodate heavy vehicles while providing pedestrian crossing treatments	

Table B3: High Injury Corridors with Associated Funding

Street Name	Start	End	Funding Source/Plan	Treatment
12TH ST	JEFFERSON	OAK	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
14TH ST	MYRTLE	OAK	Funded by ATP 2016	Awarded ATP grant in 2016, between Brush and Oak, resulting in a reduction of travel lanes from four to two lanes, additional of Class IV protected bicycles lanes, improved pedestrian facilities including refuges, market crossings, and retimed signals, storm drain gardens, and transit boarding islands
8TH ST	FRANKLIN	FALLON	High Safety Improvement Program (2013)	Upgraded traffic signals on 8th St/Madison St, 8th St/Oak S. New bikeway striping, repaved, and new ADA curb ramps along the corridor. Identified in LMSA Plan as a community priority for two way conversion, or sidewalk extensions. Downtown Plan calls for 2-wayng the street with a potential parking protected Class IV bike lane
98TH AVE	A ST	MacArthur	High Safety Improvement Program (2012)	98th Ave. Corridor (including intersections with MacArthur Blvd, Bancroft Ave, Sunnyside St, Holly St, International Blvd, D St, E St, Medford Ave, San Leandro St., Pippin St., Walter Ave. and Edes Ave, Install advanced "dilemma zone" detection, crosswalks, speed feedback signs; construct bulb-outs
BANCROFT AVE	CHURCH ST	HAVENSCOURT BLVD	High Safety Improvement Program (2016)	Install HAWKs and RRFBs at eleven locations along the corridor; install signal mast arms at three locations; and install a landscape at the northeast corner of Bancroft and 67th Street. Corridor improvements from Havenscourt to 98th Ave
BROADWAY	9TH ST	19TH ST	East Bay Bus Rapid Transit	Pedestrian Improvements funded through the BRT. Includes new ADA curb ramps as well as pedestrian access to new stations. Included in downtown Oakland specific plan (Broadway from Embarcadero to 27th Street). Specific sections included in safety strategy
FOOTHILL BLVD	RUTHERFORD ST	40TH AVE	Former Redevelopment Streetscape	Partially funded. Streetscape improvements funded through Redevelopment, from Mitchell St to Rutherford St
FOOTHILL BLVD	51ST AVE	SEMINARY	Former Redevelopment Streetscape	Partially included in the safety strategy, unfunded from Trask St to Seminary Ave

Table B3: High Injury Corridors with Associated Funding (cont.)

Street Name	Start	End	Funding Source/Plan	Treatment
FRUITVALE AVE	ALAMEDA AVE	E 16TH ST	High Safety Improvement Program (2016), Safe Routes to School, Measure B	Fruitvale Alive Project, widened sidewalks, high visibility crosswalks, bulbouts, improvement pavement, lighting, and pedestrian signal upgrades
GRAND AVE	LAKE PARK AVE	OAKLAND AVE	High Safety Improvement Program (2013)	Grand Avenue Road Diet, Grand Ave from Jean St to Oakland Ave is in Piedmont
INTER NATIONAL	HIGH	56TH AVE	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
INTER NATIONAL	16TH AVE	28TH AVE	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
INTER NATIONAL	73RD AVE	91ST AVE	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
INTER NATIONAL	1ST AVE	12TH AVE	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
INTER NATIONAL	95TH AVE	DURANT	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
INTER NATIONAL	HIGH ST	FRUITVALE AVE	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
MAC ARTHUR BLVD	FOOTHILL BLVD	82ND AVE	Former Redevelopment Streetscape	Streetscape which included bulbouts, ADA curbramps, and high visibility crosswalks from Foothill to 77th Ave. Included in pedestrian safety strategy from 77th to 83rd
MARTIN LUTHER KING JR WAY	29TH ST	40TH ST	-	Road Diet, from MLK from West Grant to 40th Street

Table B3: High Injury Corridors with Associated Funding (cont.)

Street Name	Start	End	Funding Source/Plan	Treatment
SHATTUCK	45TH ST	55TH ST	High Safety Improvement Program (2015)	Bike Lanes, potential plaza on 45th and Shattuck
TELEGRAPH	WILLIAM	27TH ST	Active Transportation Program, High Safety Improvement Program (2015)	ATP: This project is located along Telegraph Avenue, between 20th Street and 38th Street. Project will construct pedestrian and bicycle safety enhancements, including Class II bicycle lanes, median refuge islands, pedestrian crossing beacons, traffic signal upgrades, and transit boarding islands
TELEGRAPH	30TH ST	51ST ST	Active Transportation Program, High Safety Improvement Program (2015)	ATP: This project is located along Telegraph Avenue, between 20th Street and 38th Street. Project will construct pedestrian and bicycle safety enhancements, including Class II bicycle lanes, median refuge islands, pedestrian crossing beacons, traffic signal upgrades, and transit boarding islands. HSIP: Stripe and sign road diet with buffered bike lanes between 29th and 41st Sts; install signal modifications at 29th and 45th Sts; install uncontrolled crosswalk enhancements, painted bulb-outs, and painted median refuges
TELEGRAPH	WILLIAM ST	BROADWAY	Some Measure B funding, ACTC and HCD funds, TSD and paving program funds	Completed as part of Latham and complete streets work, Intersection of Telegraph and 17th is not funded

Table B4: High Injury Intersections with Associated Funding

Street 1	Street 2	Funding Source	Treatment
14TH ST	MARKET ST	High Safety Improvement Program (2015)	Install uncontrolled crosswalk enhancements, such as RRFBs, ladder striping, raised bulb-outs, and raised median refuges at multiple locations
21ST AVE	INTERNATIONAL BLVD	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
24TH ST	BROADWAY	Improvement by private developer	RRFP installed
29TH ST	TELEGRAPH AVE	Active Transportation Program, High Safety Improvement Program (2015)	This project is located along Telegraph Avenue, between 20th Street and 38th Street. Project will construct pedestrian and bicycle safety enhancements, including Class II bicycle lanes, median refuge islands, pedestrian crossing beacons, traffic signal upgrades, and transit boarding islands
33RD AVE	FOOTHILL BLVD	Redevelopment/OBAG	Streetscape project
34TH ST	MARTIN LUTHER KING JR WAY	Redevelopment/OBAG	MLK streetscape project & road diet
34TH ST	SAN PABLO AVE	High Safety Improvement Program (2011)	RRFB's and other crossing improvements at 32nd/Brockhurst/34th at San Pablo
35TH AVE	INTERNATIONAL BLVD	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit

Table B4: High Injury Intersections with Associated Funding (cont.)

Street 1	Street 2	Funding Source	Treatment
37TH ST	TELEGRAPH AVE	Active Transportation Program, High Safety Improvement Program (2015)	ATP: This project is located along Telegraph Avenue, between 20th Street and 38th Street. Project will construct pedestrian and bicycle safety enhancements, including Class II bicycle lanes, median refuge islands, pedestrian crossing beacons, traffic signal upgrades, and transit boarding islands
52ND AVE	INTERNATIONAL BLVD	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
5TH AVE	INTERNATIONAL BLVD	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
76TH AVE	MacArthur BLVD	Redevelopment/OBAG	Recent streetscape work on MacArthur Blvd as part of streetscape
80TH AVE	INTERNATIONAL BLVD	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
83RD AVE	INTERNATIONAL BLVD	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
84TH AVE	INTERNATIONAL BLVD	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit

Table B4: High Injury Intersections with Associated Funding (cont.)

Street 1	Street 2	Funding Source	Treatment
90TH AVE	INTERNATIONAL BLVD	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
98TH AVE	CHERRY ST	-	Paving/complete streets project in process, plus RRFB installed as SRTS in 2015
98TH AVE	INTERNATIONAL BLVD	East Bay Bus Rapid Transit	Pedestrian Improvements included as part of East Bay Bus Rapid Transit
9TH ST	MADISON ST	-	Lake Merritt BART Bikeways; road diet on Madison St, also included in corridor study
E 16TH ST	FRUITVALE AVE	High Safety Improvement Program (2016)	RRFB installed as SRTS project 2015 install new Class II bicycle lanes, enhanced safety features at pedestrian crossings, and a new protected left turn phase at Foothill Blvd
E 19TH ST	FRUITVALE AVE	High Safety Improvement Program (2016)	RRFB installed as SRTS project 2015 install new Class II bicycle lanes, enhanced safety features at pedestrian crossings, and a new protected left turn phase at Foothill Blvd
GRAND AVE	HARRISON ST	Measure DD	Lakeside Green Streets project

Table B4: High Injury Intersections with Associated Funding (cont.)

Street 1	Street 2	Funding Source	Treatment
MacArthur BLVD	MARTIN LUTHER KING JR WAY	-	Streetscape project as part of MacArthur Transit Hub
SAN PABLO AVE	W GRAND AVE	High Safety Improvement Program (2011)	Install protected left-turn phasing; modify intersection

Table B5: High Injury Corridors with No Associated Funding

Street Name	Start	End	Comments
7TH ST	WASHINGTON	7TH ST BRIDGE	Currently studied as part of the Lake Merritt Station Area Plan, Downtown Specific Plan, and Freeway Circulation Plan. Improvements from E7th Street East of Fallon to Bridge includes reducing three right turn lanes to two right-turn lanes, an expanded median island for a pedestrian refuge, enhanced pedestrian crosswalks, and signalized midblock crosswalks. Class II bike lane added. As part of the Downtown Specific Plan, 7th Street between Fallon and Castro is identified as a street for improvements, including conversion to a two-way. The Alameda Access Project Study, currently in environmental phase, is also looking at 7th Street from Adeline Street to Fallon Street
8TH ST	FRANKLIN	FALLON	Upgraded traffic signals on 8th St/Madison St, 8th St/Oak S. New bikeway striping, repaved, and new ADA curb ramps along the corridor. Identified in LMSA Plan as a community priority for two way conversion, or sidewalk extensions. Downtown Plan calls for 2-wayng the street with a potential parking protected Class IV bike lane
FOOTHILL BLVD	RUTHERFORD	MITCHELL ST	Partially funded. Streetscape improvements funded through Redevelopment, from Rutherford to High St
FOOTHILL BLVD	TRASK ST	SEMINARY AVE	Partially included in the safety strategy. Unfunded from Trask St to Seminary Ave
HEGENBERGER	HEGENBER PL	HEGENBERGER LP	Identified in 2016 using 2014 data
MARTIN LUTHER KING JR WAY	40TH ST	44TH ST	Identified in 2016 using 2014 data
PIEDMONT	WARREN AVE	ENTRADA AVE	Identified in 2016 using 2014 data
TELEGRAPH	51ST ST	SR 24	To be studied as part of Phase II of Telegraph Avenue Complete Streets Plan
14TH ST	MYRTLE	BRUSH	-

Table B6: High Injury Intersections with No Associated Funding

STREET 1	STREET 2	Comments
27TH ST	BROADWAY	Developer proposing a bulbout on the SE side of Broadway and 27th. Rest of intersection remains unfunded
48TH ST	TELEGRAPH AVE	Phase II of Telegraph Avenue Complete Streets Plan
51ST ST	TELEGRAPH AVE	Phase II of Telegraph Avenue Complete Streets Plan
17TH ST	TELEGRAPH AVE	-
BRUSH ST	W GRAND AVE	-
COOLIDGE AVE	SCHOOL ST	-
E 27TH ST	FRUITVALE AVE	-

Corridor Performance Summary (2008-2013)

Table C-1A provides the Broadway Street from 9th Street to 11th Street and 16th Street to 19th Street performance measure results.

Table C-1A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	50.0
Risk Factors Met	5
Total Safety Prioritization Index Value	1.61

Risk Factors Met: Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, Pedestrian Signal Head/ Countdown Presence at Signals, and Pedestrian Actuation at Signals.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 9 pedestrian crashes over the six-year period
- All crashes were injuries
- 6 of the 9 crashes occurred when pedestrians had the right-of-way

Field Review Observations

- There are 23 AC Transit routes within 20 to 30-minute headways and 2 BART Stations
- Broadway is primarily a four-lane undivided street. There is a portion of Broadway with a median from 9th Street to 11th Street
- There are 5 signalized intersections
- Conflict between buses and vehicles at bus stop locations

Exhibit C-1A: Turning Movement With Pedestrian Crossing

Countermeasures Selection

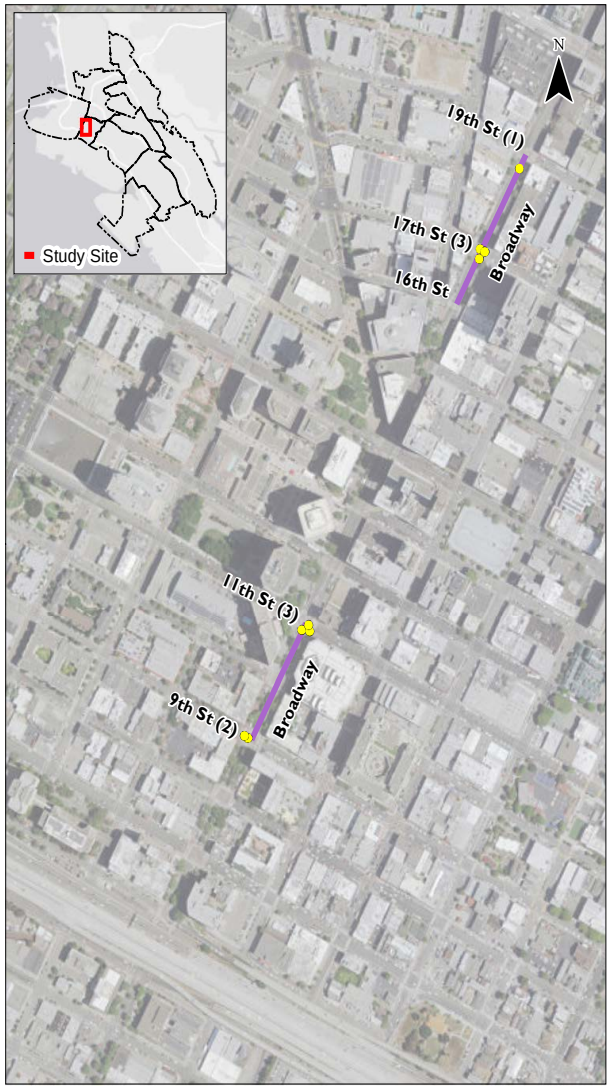
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- Convert each intersection to fixed pedestrian recall ($1,000 per intersection
- At each intersection, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- At each intersection, shorten signal cycle length ($3,500 per intersection)
- At each intersection, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- Implement pedestrian safety zones extending from the curb at each intersection ($7,500 per intersection)

The following long term countermeasures could be integrated with the City of Oakland's Downtown Specific Plan:

- At signalized intersections adjust signal timing to separate turning movements from pedestrian crossing phase ($30,000 per intersection)
- Extend median to provide refuge island on the south side of the Broadway and 11th Street intersection ($25,000 per island)
- Implement road diet on low volume cross streets[1] to shorten pedestrian crossing distances ($150,000 per mile)

Exhibit C-1B: Broadway Corridor Map



● Fatality or Severe Injuries (0) ● Minor Injuries (9)

1 Assumes three cross streets with 1/4 mile of road diet improvements

Planning Level Cost Estimates

Near-Term Potential Countermeasures: $165,000
Longer-Term Potential Countermeasures: $431,250

Broadway from 9th Street to 11th Street and 16th Street to 19th Street
Oakland, CA

Corridor
1

Corridor Performance Summary (2008-2013)

Table C-2A provides the Grand Avenue from Valley Street to Park View Terrace and Lake Park Avenue to Wildwood Avenue performance measure results.

Table C-2A Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	59.4
Risk Factors Met	4
Total Safety Prioritization Index Value	1.59

Risk Factors Met: Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, and High Frequency of Transit Stops.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 28 pedestrian crashes over the six-year period
- 2 fatalities occurred at the Grand Avenue/Park View Terrace intersection and 1 fatality occurred at the Grand Avenue/Weldon Avenue intersection
- There were 27 injury crashes and 2 were severe injuries
- 15 of the 28 crashes occurred when pedestrians had the right-of-way

Field Review Observations

- The City recently completed a road diet on Grand Avenue between Elwood Avenue and Wildwood Avenue
- There are 11 signalized intersections, 3 unsignalized intersections and 2 mid-block crossings
- There are 13 AC Transit routes within 20-to-30 minute headways. There are 4 transit stops that are not adjacent to marked pedestrian crosswalks
- Channelized right turn lanes at Grand Avenue and Santa Clara and Grand Avenue and Bay Place

Exhibit C-2A: Transit Stop With No Crossing; Channelized Right Turn Lane

Countermeasures Selection

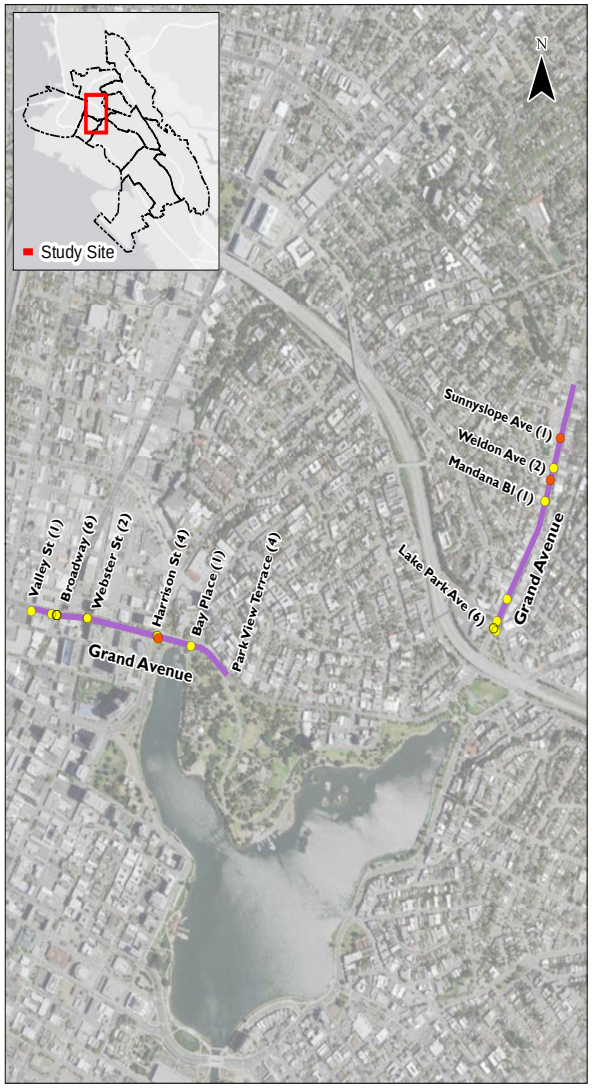
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- Convert each signalized intersection to fixed pedestrian recall ($1,000 per intersection)
- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- At the 2 mid-block crossings located between Grand Avenue and Sunnyslope Avenue and Grand Avenue and Weldon Avenue, add in-street "Pedestrian Crossing signage" ($800 per intersection)
- At the Grand Avenue and Park View Terrace, Grand Avenue and Elwood Avenue, Grand Avenue and Mandana Boulevard, and Grand Avenue and Boulevard Way intersections, implement crosswalks and crossing treatments to provide access to transit stops ($2,500 per crosswalk)
- At signalized intersections, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- Implement near-term road diet with signing and pavement markings only from east of the I-580 intersection to Elwood Avenue ($30,000 per mile)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- At the mid-block, marked crossing at Grand Avenue and Sunnyslope Avenue, install a rectangular rapid flashing beacon and associated crossing signs ($30,000 per installation)
- Remove channelized right turn lanes at the Grand Avenue and Santa Clara and the Grand Avenue and Bay Place intersections ($50,000 per intersection)
- Convert near-term road diet to permanent installation by providing hardscape sidewalk improvements ($150,000 per mile)
- At signalized intersections, adjust signal timing to separate turning movements from pedestrian crossing phase ($30,000 per intersection)

Exhibit C-1B: Grand Avenue Corridor Map



● Fatality or Severe Injuries (3) ● Minor Injuries (21)

Planning Level Cost Estimates

Near-Term Potential Countermeasures: $206,400
Longer-Term Potential Countermeasures: $746,250

Grand Avenue from Valley Street to Park View Terrace and Lake Park Avenue to Wildwood Avenue
Oakland, CA

Corridor **2**

Corridor Performance Summary (2008-2013)

Table C-3A provides MacArthur Boulevard from 77th Avenue to 83rd Avenue performance measure results.

Table C-3A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	48.3
Risk Factors Met	5
Total Safety Prioritization Index Value	1.58

Risk Factors Met: Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, High Frequency of Transit Stops, and Pedestrian Actuation at Signals.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 8 pedestrian crashes over the six-year period
- All crashes were injuries

Field Review Observations

- There are 7 AC Transit routes along the corridor with service every 20 to 30-minutes. One transit stop is not adjacent to pedestrian crossings at the MacArthur Boulevard and Parker Avenue intersection
- There are 2 signalized intersections, 4 unsignalized intersections and one mid-block crossing
- The MacArthur Boulevard and Parker Avenue and the MacArthur Boulevard and 82nd Avenue intersections have permissive left turn phase

Exhibit C-3A: Four-lane Road With No Crossing; Mid-Block Crosswalk With No Advanced Yield Markings

Countermeasures Selection

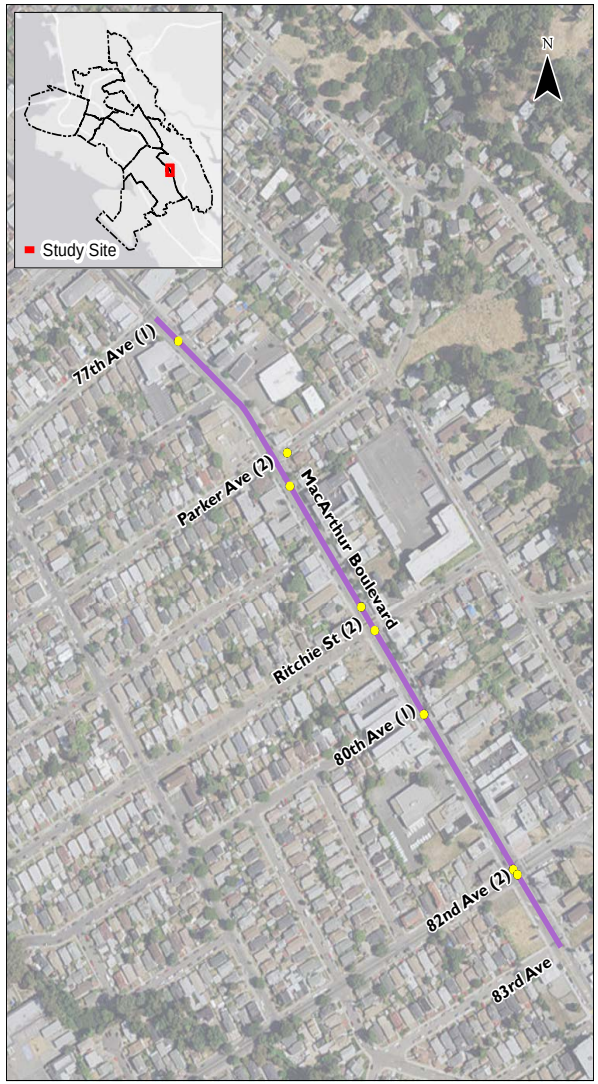
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the mid-block crossing south of the MacArthur Boulevard and Ritchie Street intersection, add advanced yield markings ($1,000 per crossing)
- At the MacArthur Boulevard and Parker Avenue intersection, consider implementing a crosswalk on the north leg with crossing treatments to provide access to transit stop ($2,500 per crosswalk)
- At unsignalized intersections, re-stripe marked crosswalks to high visibility crosswalks ($2,500 per crossing)
- Add high visibility crosswalks with signage and advanced yield markings at the MacArthur Boulevard and 83rd Avenue intersection ($3,500 per crossing)
- At signalized intersections, convert permissive phase to protected phase ($5,000 per intersection)
- At each intersection, restrict on-street parking within 20-feet of intersections and mid-block crossings ($600 per approach)
- Implement near-term road diet with signing and pavement markings only north of MacArthur Boulevard and 83rd Street ($30,000 per mile)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity along the corridor:

- Install continuous median with pedestrian refuge islands ($25,000 per island)
- Convert near-term road diet to more permanent installation by providing hardscape sidewalk improvements ($150,000 per mile)

Exhibit C-3B: MacArthur Boulevard Corridor Map



Planning Level Cost Estimates

Near-Term Potential Countermeasures: $90,450
Longer-Term Potential Countermeasures: $637,500

MacArthur Boulevard from 77th Avenue to 83rd Avenue
Oakland, CA

Corridor **3**

Corridor Performance Summary (2008-2013)

Table C-4A provides 8th Street from Franklin Street to Harrison Street and Fallon Street performance measure results.

Table C-4A Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	36.7
Risk Factors Met	5
Total Safety Prioritization Index Value	1.4

Risk Factors Met: Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, High Frequency of Transit Stops, and Pedestrian Actuation at Signals.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

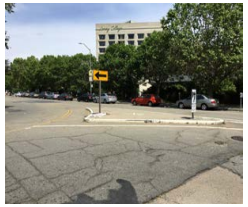
Identified Crash Trends

- 8 pedestrian crashes over the six-year period
- A fatal crash occurred at the 8th Street and Harrison Street intersection

Field Review Observations

- 8th Street is a one-way, three-lane road adjacent to Laney College and Oakland's Chinatown, both which have high pedestrian activity
- There are 4 signalized intersections and 1 unsignalized intersection
- There are 6 AC Transit routes within 20 to 40-minute headways
- The 8th Street and Harrison Street and 8th Street and Franklin Street intersections have permissive left turn phasing

Exhibit C-4A: Pedestrian Refuge Island With No Crosswalk; Pole With No Pedestrian Activation Button



Countermeasures Selection

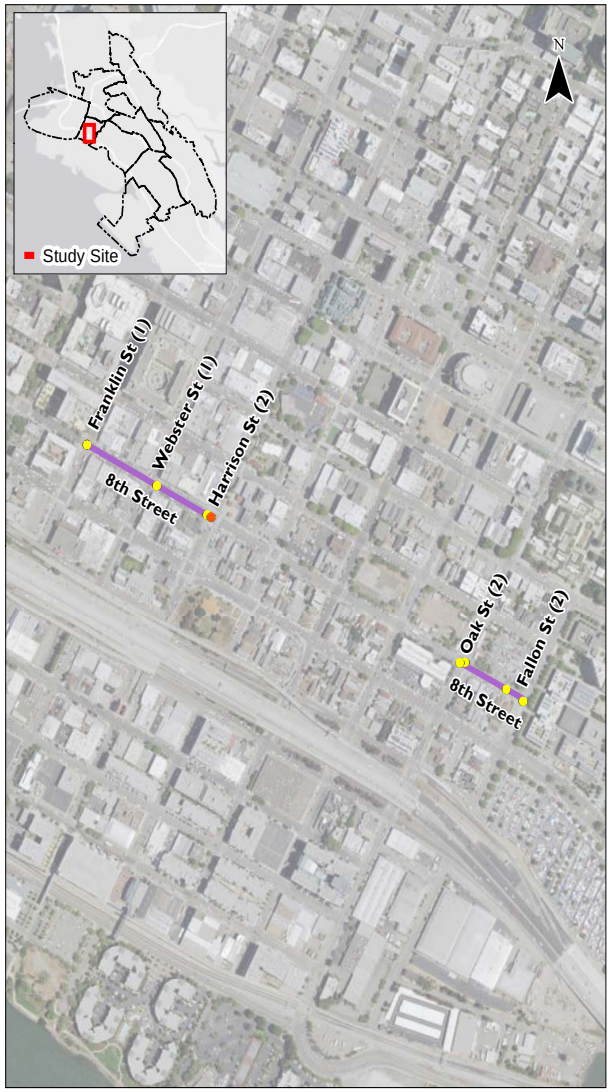
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the 8th Street and Fallon Street intersection, add a high visibility crosswalk on the north leg and re-stripe marked crosswalk with high visibility markings ($5,000)
- At the 8th Street and Fallon Street intersection, install advanced yield signage at each crossing ($1,000 per crossing)
- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- At signalized intersections, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- At the 8th Street and Harrison Street and 8th Street and Franklin Street intersections, convert permissive phase to protected phase ($5,000 per intersection)
- At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)
- Implement pedestrian safety zones extending from the curb at the 8th Street and Harrison Street and 8th Street and Fallon Street intersections ($7,500 per intersection)

The following long term countermeasures could be integrated with the Oakland-Alameda Freeway Access Project and City of Oakland Downtown Specific Plan:

- At the 8th Street and Harrison Street and 8th Street and Fallon Street intersections, install curb extensions on each corner ($15,000 per curb extension)
- Implement road diet to manage vehicle speeds and shorten crossing distance ($150,000 per mile)

Exhibit C-4B: 8th Street Corridor Map



Planning Level Cost Estimates

Near-Term Potential Countermeasures: $123,600
Longer-Term Potential Countermeasures: $270,000

8th Street Between Franklin Street and Harrison Street and Between Oak Street and Fallon Street
Oakland, CA

Corridor
4

Corridor Performance Summary (2008-2013)

Table C-5A provides Bancroft Avenue from Church Street to 80th Avenue performance measure results.

Table C-5A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	46.7
Risk Factors Met	4
Total Safety Prioritization Index Value	1.39

Risk Factors Met: Arterial Functional Classification, Median Presence, Pedestrian Signal Head/Countdown Presence at Signals, and Pedestrian Actuation at Signals

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 14 pedestrian crashes over the six-year period
- A fatal crash occurred at the Bancroft Avenue and 73rd Avenue intersection
- There were 13 injury crashes with one severe injury
- 6 of the 14 crashes occurred when pedestrians had the right-of-way

Field Review Observations

- There are 9 AC Transit routes within 20 to 30-minute headways. One transit stop is not adjacent to a marked pedestrian crosswalk at the Bancroft Avenue and Ritchie Street intersection
- There are 3 signalized intersections and 7 unsignalized intersections
- Signalized intersections have permissive left turn phasing that creates conflicts with pedestrians

Exhibit C-5A: Crosswalk Adjacent to School With No High Visibility Markings; Mid-Block Curb Ramp With No Crosswalk

Countermeasures Selection

The following near term countermeasures could help reduce pedestrian crash frequency and severity:

- At the Bancroft Avenue and 78th Street and Bancroft Avenue and Ritchie Street intersections, install advanced yield signage at marked crosswalks ($1,000 per crossing)
- At signalized intersections, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- At the Bancroft Avenue and Ritchie Street intersection, implement a crosswalk on the south leg and crossing treatments to provide access to transit stops ($2,500 per crosswalk)
- At the Bancroft Avenue and 73rd Avenue intersection which is adjacent to Markham Elementary School, re-stripe marked crosswalks with high visibility markings ($2,500 per crossing)
- At the Bancroft Avenue and Ritchie Street and Bancroft Avenue and 78th Avenue intersections, re-stripe high visibility crosswalks ($2,500 per crossing)
- Prohibit right-turn on red at signalized intersections when pedestrian pushbuttons have been pushed ($5,000 per intersection)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- At uncontrolled marked crosswalks, install rectangular rapid flashing beacons ($30,000 per crosswalk)

Exhibit C-5B: Bancroft Avenue Corridor Map

● Fatality or Severe Injuries (2) ● Minor Injuries (12)

Planning Level Cost Estimates

Near-Term Potential Countermeasures: $34,500
Longer-Term Potential Countermeasures: $135,000

Bancroft Avenue from Church Street to 80th Avenue
Oakland, CA

Corridor **5**

Corridor Performance Summary (2008-2013)

Table C-6A provides 94th Avenue from Cherry Street to Burr Street performance measure results.

Table C-6A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	55.0
Risk Factors Met	3
Total Safety Prioritization Index Value	1.4

Risk Factors Met: Median Presence, Pedestrian Signal Head/ Countdown Presence at Signals, and Pedestrian Actuation at Signals

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 6 pedestrian crashes over the six-year period
- A fatal crash occurred and the 94th Avenue and Peach Street intersection
- All of the crashes were injuries and 2 were severe injuries

Field Review Observations

- 94th Avenue is a two-way, two-lane local residential street
- There are 11 unsignalized intersections and a new signalized intersection under construction at the 94th Avenue and Bancroft Avenue intersection
- There are 8 AC Transit routes within 15 to 20-minute headways. There is one transit stop that is not adjacent to a marked pedestrian crosswalk

Exhibit C-6A: Restricted Site Distance; Crosswalk With No Signage

Countermeasures Selection

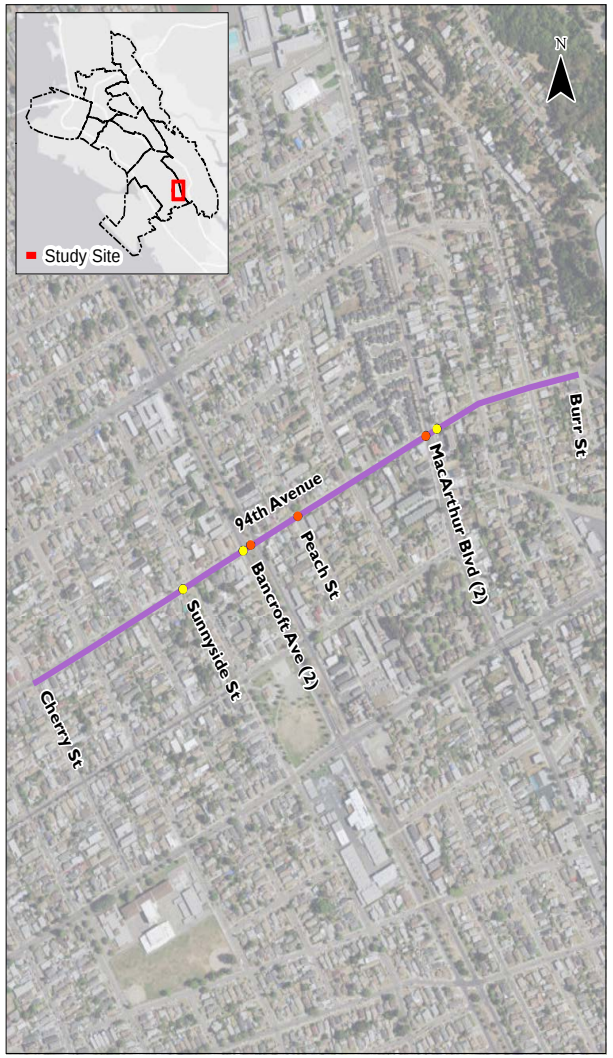
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the 94th Avenue and MacArthur Boulevard and 94th Avenue and Thermal Street intersections, install advanced yield signage at marked crosswalks ($1,000 per crossing)
- At the 94th Avenue and Peach Street intersection, add crosswalks across 94th Avenue with in-street "Pedestrian Crossing" signage and advanced yield signage ($8,600 per crossing)
- At the 94th Avenue and MacArthur Boulevard intersection, implement crosswalks and crossing treatments to provide access to transit stops ($2,500 per crosswalk)
- At the 94th Avenue and Thermal Street intersection, re-stripe marked crosswalks with high visibility markings ($2,500 per crossing)
- At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)
- Implement pedestrian safety zones extending from the curb at the 94th Avenue and MacArthur Boulevard intersection ($7,500 per intersection)

The following are long term countermeasures to reduce pedestrian crash frequency and severity:

- Extend median to provide refuge island on the north side of the 94th Street and MacArthur Boulevard intersection ($25,000 per island)
- Provide raised median/refuge island at the marked crosswalk on the south side of the 94th Street and MacArthur Boulevard intersection ($25,000 per island)
- Install raised crosswalks at marked crosswalk locations to help improve visibility of marked crosswalks and slow vehicle speeds ($50,000 per crossing)
- At the 94th Avenue and MacArthur Boulevard intersection, install curb extensions on each corner ($15,000 per curb extension)

Exhibit C-6B: 94th Avenue Corridor Map



Planning Level Cost Estimates

Near-Term Potential Countermeasures: $86,850
Longer-Term Potential Countermeasures: $465,000

94th Avenue from Cherry Street to Burr Street
Oakland, CA

Corridor **6**

Corridor Performance Summary (2008-2013)

Table C-7A provides the 73rd Avenue from Bancroft Avenue to Hillside Street performance measure results.

Table C-7A Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	21.67
Risk Factors Met	4
Total Safety Prioritization Index Value	1.34

Risk Factors Met: Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, and High Frequency of Transit Stops.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 12 pedestrian crashes over the six-year period
- A fatal crash occurred at the intersection of Bancroft Avenue and 73rd Avenue
- There were 11 injury crashes one severe injury
- 5 of the 12 crashes occurred when pedestrians had the right-of-way

Field Review Observations

- 73rd Avenue is a six-lane street with a 15-to-20 foot median. Except for 73rd Avenue and Bancroft Avenue, medians do not provide pedestrian refuge islands
- There are 3 signalized intersections and 2 unsignalized intersections
- The Eastmont Transit Center is located on 73rd Avenue; there are also 13 AC Transit routes within 20 to 30-minute headways. There are 3 transit stops that are not adjacent to marked pedestrian crosswalks
- Overgrown landscape encroaches upon sidewalk and limits space for pedestrians

Exhibit C-7A: Six-lane Road; 73rd Avenue and Hillside Street Bus Stop With No Crossing

Countermeasures Selection

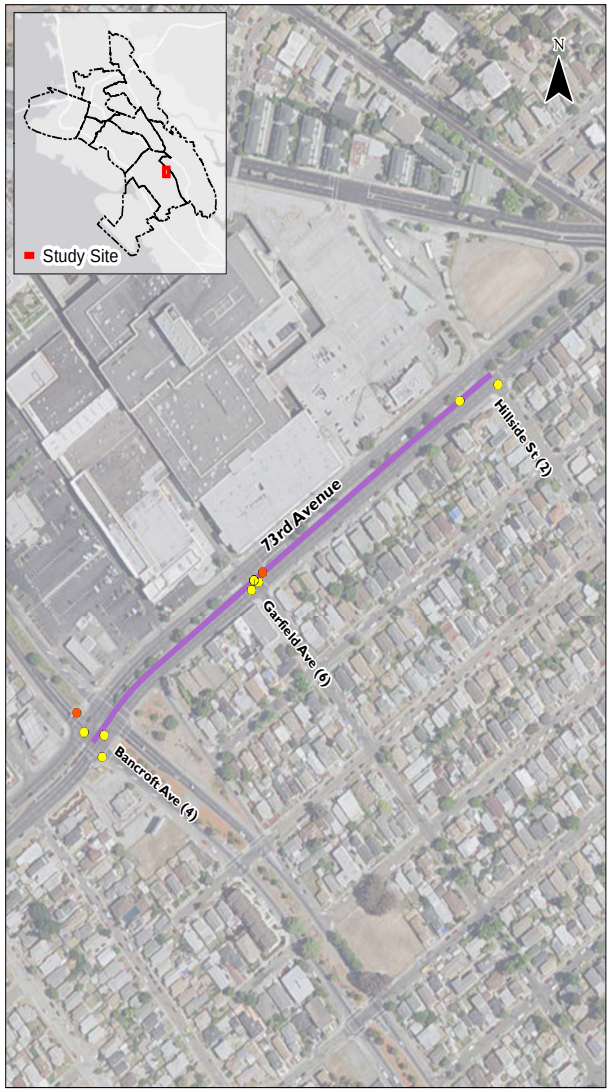
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- Implement crosswalks and crossing treatments to provide access to transit stops at the 73rd Avenue and Bancroft Avenue, 73rd Avenue and Garfield Avenue and 73rd Avenue and Hillside Street intersections ($2,500 per crosswalk)
- At each signalized intersections, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- Implement near-term road diet, with signing and pavement markings only to reduce 73rd Avenue from a six-lane street to a four-lane or three-lane street ($30,000 per mile)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- Install high visibility crosswalk across 73rd Avenue and Hillside Street including crossing treatments such as advanced yield markings, advanced warning signs, and rectangular rapid flashing beacon ($34,300 per crossing)
- Extend medians at marked crosswalks to provide refuge island ($25,000 per island)
- Re-design the right-turn movement at 73rd Avenue and MacArthur Boulevard to remove the lane add so the right-turn movement is not a free movement Convert near-term road diet to permanent installation with hardscape sidewalk improvements ($150,000 per mile)
- At signalized intersections, adjust signal timing to separate turning movements from pedestrian crossing phase ($30,000 per intersection)

Exhibit C-7B: 73rd Avenue Corridor Map



Planning Level Cost Estimates

Near-Term Potential Countermeasures: $81,000
Longer-Term Potential Countermeasures: $313,950

73rd Avenue from Bancroft Avenue to Hillside Street
Oakland, CA

Corridor **7**

Corridor Performance Summary (2008-2013)

Table C-8A provides the 14th Street from Myrtle Street to Oak Street performance measure results.

Table C-8A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	40.0
Risk Factors Met	4
Total Safety Prioritization Index Value	1.29

Risk Factors Met: Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, and High Frequency of Transit Stops.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

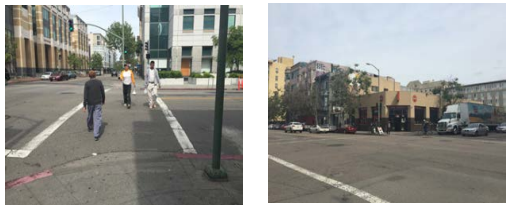
Identified Crash Trends

- 35 pedestrian crashes over the six-year period
- A fatal crash occurred at the 14th Street and Market Street intersection
- There were 34 injury crashes and 2 were severe injuries
- 20 of the 35 crashes occurred when pedestrians had the right-of-way

Field Review Observations

- 14th Street is a two-way, four-lane road with 6-to-16-foot medians from Myrtle Street to Brush Street. Medians do not have curb ramps and were not designed to serve as pedestrian refuge islands while crossing 14th Street
- The City is applying for an ATP grant to have separated/buffered bike lanes on 14th Street which would require removing one vehicle lane per direction of travel on 14th Street
- There are 14 signalized intersections and 2 unsignalized intersections
- There are 15 AC transit routes within 20 to 60-minute headways

Exhibit C-8A: Pole With No Pedestrian Activation Button; Parking Adjacent to Intersection



Countermeasures Selection

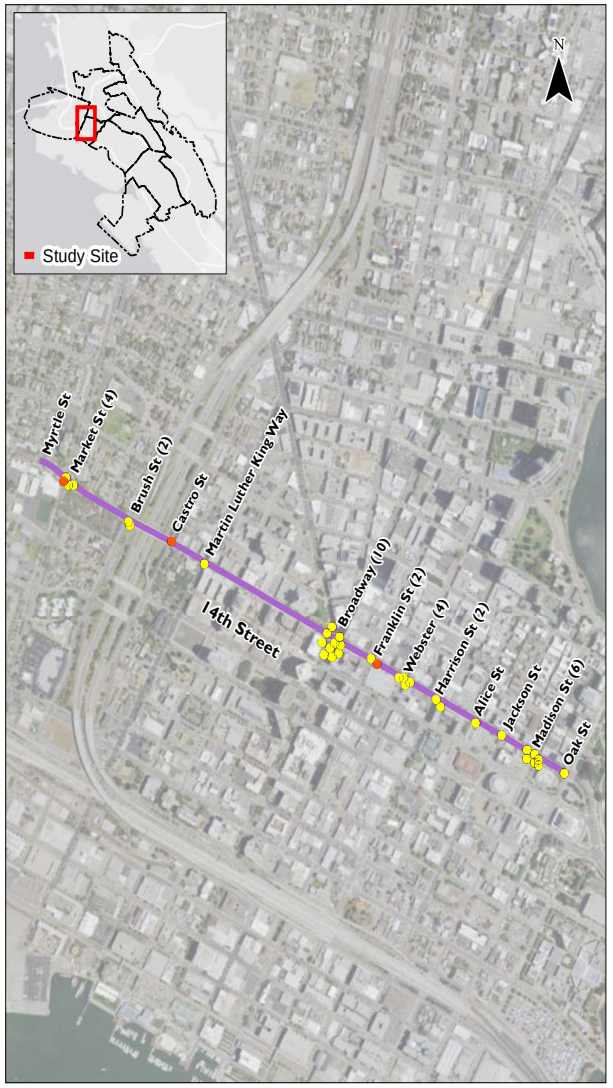
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- At the 14th Street and Market Street intersection, which is adjacent to the West Oakland Middle School, re-stripe marked crosswalks with high visibility markings ($2,500 per crossing)
- At the 14th Street and Jackson Street and 14th Street and Madison Street intersections, which are adjacent to Little Star Preschool, re-stripe marked crosswalks with high visibility markings ($2,500 per crossing)
- At the 14th Street and Broadway intersection, shorten signal cycle length ($3,500 per intersection)
- At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)
- Implement near-term road diet with signing and pavement markings only to reduce 14th Street from a four-lane street to a two-lane street ($30,000 per mile)

The following long term countermeasures could be integrated with the City's ATP grant application or other longer term planning efforts such as the City's Downtown Specific Plan:

- Convert near-term road diet to permanent installation with hardscape sidewalk improvements ($150,000 per mile)
- At the 14th Street and Market Street, 14th Street and West Street, and 14th Street and Brush Street intersections, extend medians to provide pedestrian refuge islands at marked crosswalks ($25,000 per crossing island)

Exhibit C-8B: 14th Street Corridor Map



Planning Level Cost Estimates

Near-Term Potential Countermeasures: $328,050
Longer-Term Potential Countermeasures: $532,500

14th Street from Myrtle Street to Oak Street
Oakland, CA

Corridor **8**

Corridor Performance Summary (2008-2013)

Table C-9A provides the 9th Street from Franklin Street to Fallon Street performance measure results.

Table C-9A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	50.0
Risk Factors Met	3
Total Safety Prioritization Index Value	1.28

Risk Factors Met: Median Presence, Pedestrian Signal Head/ Countdown Presence at Signals, and Pedestrian Actuation at Signals.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 15 pedestrian crashes over the six-year period
- 2 fatalities occurred at the 9th Street and Madison Street and 9th Street and Alice Street intersections
- There were 13 injury crashes and one was a severe injury
- 9 of the 15 crashes occurred when pedestrians had the right-of-way

Field Review Observations

- 9th Street is one-way, three-lane road adjacent to Laney College and Oakland's Chinatown, both which have high pedestrian activity
- There are 6 signalized intersections and 2 unsignalized intersections
- The Lake Merritt BART Station is located at the 9th Street and Oak Street intersection

Exhibit C-9A: 9th Street and Fallon Street Intersection Adjacent to Laney College with No Crosswalk; Pole With No Pedestrian Activation Button

Countermeasures Selection

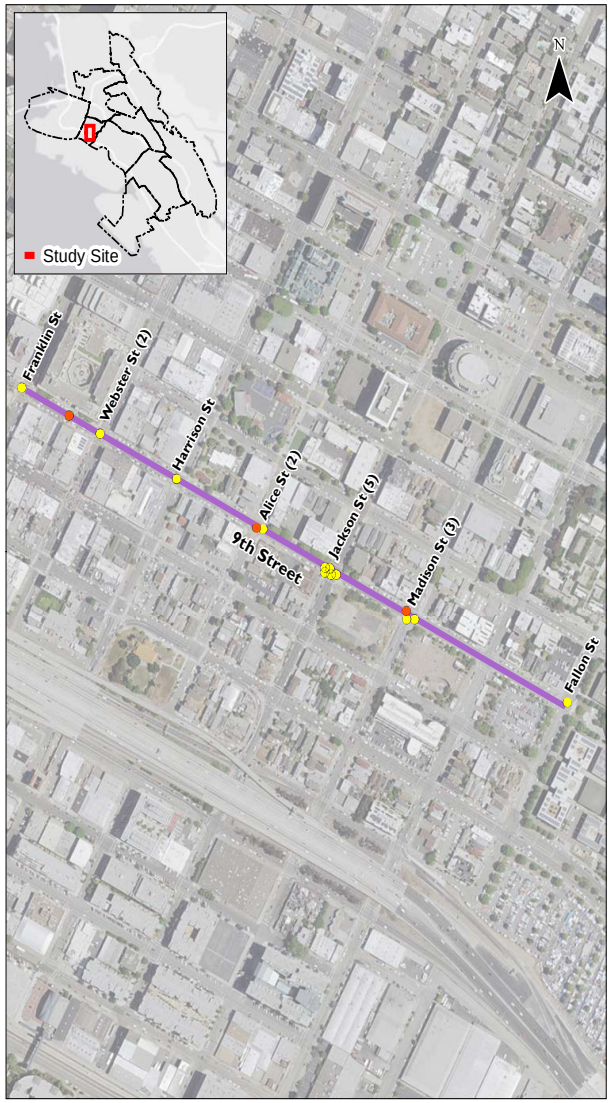
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the 9th street and Alice Street and 9th Street and Fallon Street intersections, install advanced yield signage at marked crosswalks ($1,000 per crossing)
- At the 9th Street and Fallon Street intersection, which is adjacent to Laney College, add a high visibility crosswalk across the north leg of Fallon Street ($2,500 per crossing)
- At the 9th Street and Fallon Street intersection, re-stripe the marked crosswalk on the south leg with high visibility markings ($2,500 per crossing)
- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- At the 9th Street and Franklin Street, 9th Street and Webster Street, and 9th Street and Harrison Street intersections, shorten signal cycle length ($3,500 per intersection)
- At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)
- Implement near-term road diet with signing and pavement markings only; consider moving on-street parking away from curb to create separated bike facility ($30,000 per mile)

The following long term countermeasures could be integrated with the City of Oakland's Downtown Specific Plan:

- At the 9th Street and Alice Street and 9th Street and Fallon Street intersections, install rectangular rapid flashing beacons on each crossing ($30,000 per installation)
- Convert near-term road diet to more permanent installation by providing hardscape sidewalk improvements ($150,000 per mile)

Exhibit C-9B: 9th Street Corridor Map



Planning Level Cost Estimates

Near-Term Potential Countermeasures: $154,650
Longer-Term Potential Countermeasures: $382,500

9th Street from Franklin Street to Fallon Street
Oakland, CA

Corridor **9**

Corridor Performance Summary (2008-2013)

Table C-10A provides Bancroft Avenue from 84th Avenue to 98th Avenue performance measure results.

Table C-10A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	39.17
Risk Factors Met	4
Total Safety Prioritization Index Value	1.28

Risk Factors Met: Arterial Functional Classification, High Frequency of Transit Stops, Pedestrian Signal Head/Countdown Presence at Signals, and Pedestrian Actuation at Signals.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 14 pedestrian crashes over the six-year period
- A fatal crash occurred at the Bancroft Avenue and 94th Avenue intersection
- There were 14 injury crashes and 3 were severe injuries
- 5 of the 14 crashes occurred when pedestrians had the right-of-way

Field Review Observations

- Bancroft Avenue is a two-lane road with 45-foot center median, on-street parking, and Class II bike lanes
- There are 5 AC Transit routes within 20 and 30-minute headways. There are 7 transit stops that are not adjacent to marked pedestrian crosswalks
- There are 2 signalized intersections and 10 unsignalized intersections
- There are median breaks along the corridor that provide ramps for pedestrians but do not connect to a marked crosswalk across Bancroft Avenue

Exhibit C-10A: Mid-Block Curb Ramp With No Crosswalk; Crosswalk With No Signage

Countermeasures Selection

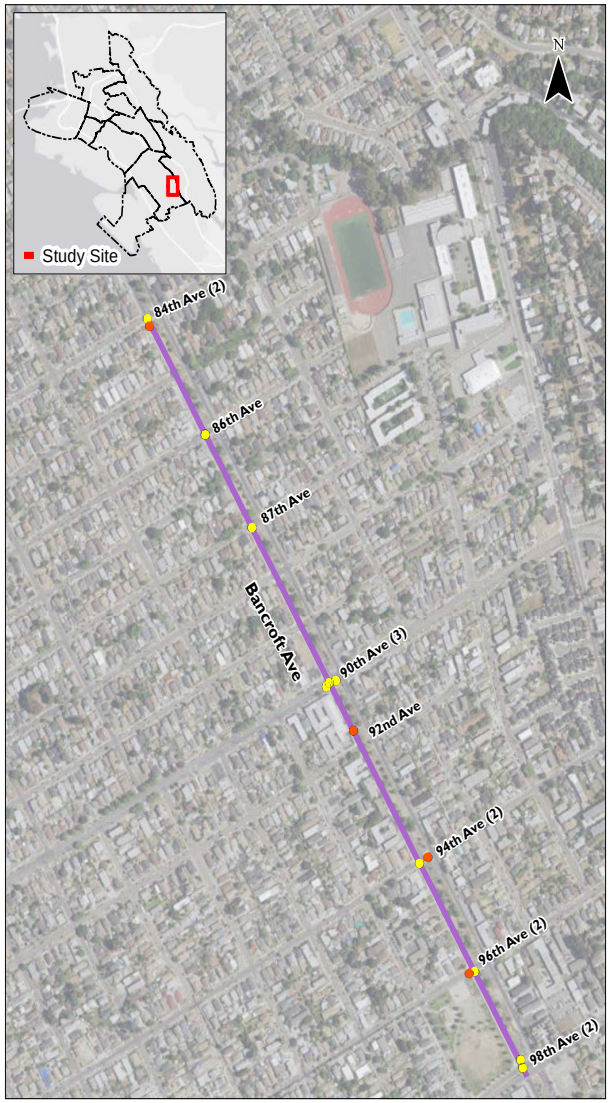
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the Bancroft Avenue and 86th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 88th Avenue, and Bancroft Avenue and 89th Avenue intersections, install in-street "Pedestrian Crossing" signage at marked crosswalks ($800 per crossing)
- At the Bancroft Avenue and 86th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 88th Avenue, and Bancroft Avenue and 89th Avenue intersections, install advanced yield signage at marked crosswalks ($1,000 per crossing)
- At signalized intersections, implement Leading Pedestrian Interval (LPIs) ($2,000 per intersection)
- At the Bancroft Avenue and 85th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 90th Avenue, Bancroft Avenue and 94th Avenue, Bancroft Avenue and 96th Avenue intersections, implement crosswalks and crossing treatments to provide access to transit stops ($2,500 per crosswalk)
- At the Bancroft Avenue and 98th Avenue intersection, which is adjacent to the E Morris Cox Elementary School, re-stripe marked crosswalks with high visibility markings ($2,500 per crossing)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- At the Bancroft Avenue and 84th Avenue, Bancroft Avenue and 85th Avenue, Bancroft Avenue and 86th Avenue, Bancroft Avenue and 88th Avenue, Bancroft Avenue and 94th Avenue, and Bancroft Avenue and 96th Avenue intersections, install crosswalks with rectangular rapid flashing beacons ($30,000 per installation)

Exhibit C-10B: Bancroft Avenue Corridor Map



Planning Level Cost Estimates

Near-Term Potential Countermeasures: $69,300
Longer-Term Potential Countermeasures: $540,000

Bancroft Avenue from 84th Avenue to 98th Avenue
Oakland, CA

Corridor
10

Corridor Performance Summary (2008-2013)

Table C-11A provides High Street from Lyon Avenue to Kansas Street performance measure results.

Table C-11A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	48.33
Risk Factors Met	3
Total Safety Prioritization Index Value	1.25

Risk Factors Met: Arterial Functional Classification, Median Presence, and High Frequency of Transit Stops.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 18 pedestrian crashes over the six-year period
- There were 18 injury crashes and 2 were severe injuries
- 11 of the 18 crashes occurred when pedestrians had the right-of-way

Field Review Observations

- High Street has a three-lane cross-section with one lane per direction and a center two-way left-turn lane
- High Street is a two-lane road with two-way center left-turns lanes from Walnut Street to Suter Street
- High Street widens to a four-lane road east of Suter Street to Masterson Street, where it continues as a two-lane road with 20-foot medians
- There are 6 signalized intersections and 10 unsignalized intersections
- There are 12 AC Transit routes within 20 and 30-minute minutes headways. There are 3 transit stops that are not adjacent to marked pedestrian crosswalks
- Many residential driveways adjacent to High Street

Exhibit C-11A: On-Street Parking Located in Intersection With No Crosswalks; Median With No Crosswalk Adjacent to Transit Stop

Countermeasures Selection

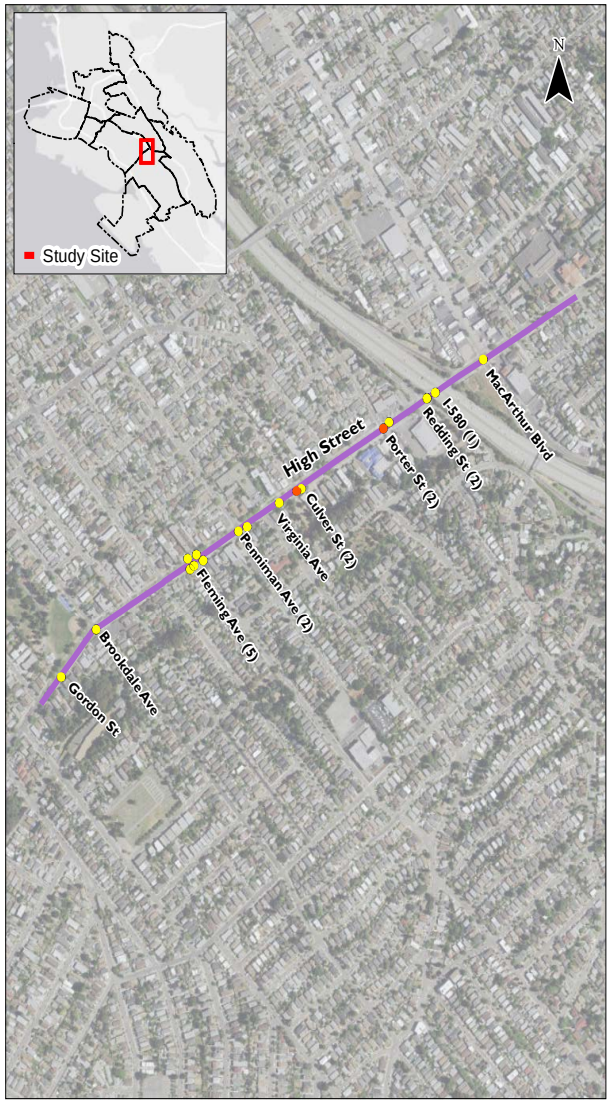
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the High Street and Fleming Avenue, High Street and Penniman Avenue, High Street and Culver Street, and High Street and Kansas Street intersections, install advanced yield signage at marked crosswalks ($1,000 per crossing)
- At the High Street and Culver Street, High Street and Fleming Avenue, and High Street and Kansas Street intersections, implement crosswalks and crossing treatments to provide access to transit stops ($2,500 per crossing)
- At the High Street and Fleming Avenue, High Street and Penniman Avenue, High Street and Culver Street, and High Street and Kansas Street intersections, re-stripe marked uncontrolled crosswalks with high visibility markings ($2,500 per crossing)
- At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- At each intersection east of the High Street and Masterson Street intersection, install crosswalks with curb ramps in medians ($25,000 per crosswalk)
- At the High Street and Porter Street intersection, which is adjacent to the Boys and Girls Club, installed raised pedestrian crossings ($50,000 per intersection)
- At the High Street and Masterson Street and High Street and Kansas Street intersections, which are adjacent to the St. Lawrence O'Toole Catholic School, install raised pedestrian crossings ($50,000 per intersection)

Exhibit C-11B: High Street Corridor Map



Planning Level Cost Estimates

Near-Term Potential Countermeasures: $97,350
Longer-Term Potential Countermeasures: $525,000

High Street from Lyon Avenue to Kansas Street
Oakland, CA

Corridor **11**

Corridor Performance Summary (2008-2013)

Table C-12A provides 15th Street from 21st Avenue to 26th Avenue performance measure results.

Table C-12A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	36.67
Risk Factors Met	3
Total Safety Prioritization Index Value	1.07

Risk Factors Met: Median Presence, Pedestrian Signal Head/ Countdown Presence at Signals, and Pedestrian Actuation at Signals.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 4 pedestrian crashes over the six-year period
- A fatal crash occurred at the 15th Street and 22nd Avenue intersection
- There were 4 injury crashes and one severe injury

Field Review Observations

- 15th Street is a two-way, two-lane road without edgeline markings
- There are 8 unsignalized intersections
- There are no transit stops

Exhibit C-12A: Unmarked Edgelines; 15th Street and 22nd Street Intersection Adjacent to Garfield Elementary School With No Crosswalk

Countermeasures Selection

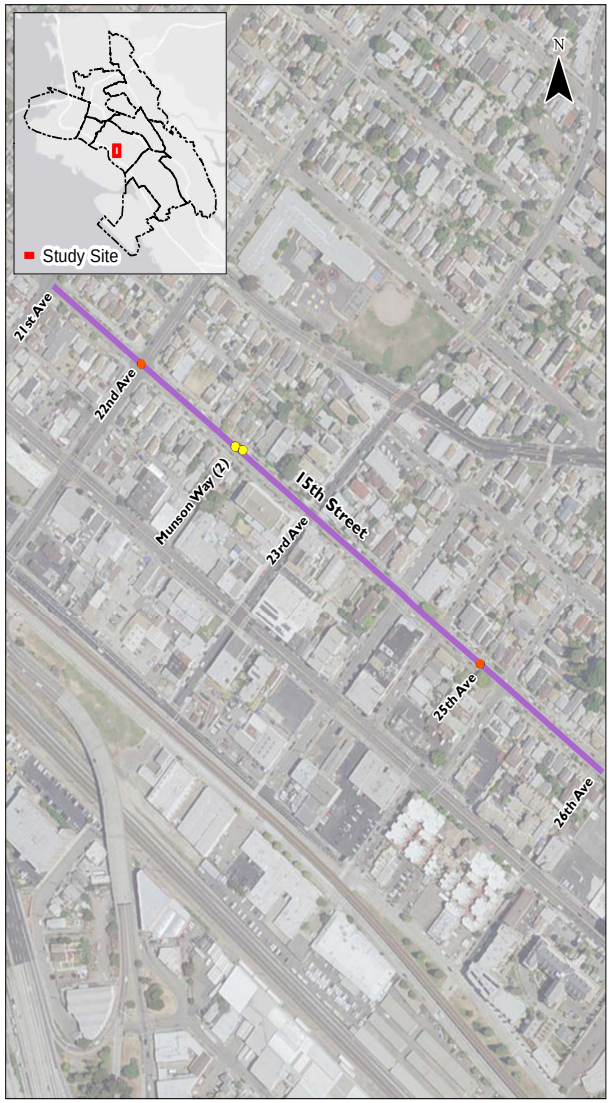
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the 15th Street and 26th Avenue intersection, add stop sign on southbound approach ($800)
- At the 15th Street and 23rd Avenue and 15th Street and Miller Avenue intersections, install advanced yield markings to each minor approach ($1,000 per crossing)
- At the 15th Street and 22nd Avenue intersection, which is adjacent to Garfield Elementary School, add high visibility crosswalks with signage and advanced yield markings" ($3,500 per crossing)
- Add edgeline markings for street narrowing and parking definition ($20,000 per mile)
- At each intersection, restrict on-street parking within 20-feet of intersection and marked crosswalks ($600 per approach)
- Implement pedestrian safety zones extending from the curb at the 15th Street and 22nd Avenue intersection ($7,500 per intersection)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- Implement crossing improvements such as rectangular rapid flashing beacon, pedestrian refuge island, or high visibility crosswalk at the High Street and 22nd Avenue intersection ($30,000 per installation; $25,000 per crossing island; $2,500 per crossing)
- At the 15th Street and 22nd Avenue intersection, install curb extensions on each corner ($15,000 per curb extension)

Exhibit C-12B: 15th Street Corridor Map



Planning Level Cost Estimates

Near-Term Potential Countermeasures: $79,950
Longer-Term Potential Countermeasures: $435,000

15th Street from 21st Avenue to 26th Avenue
Oakland, CA

Corridor
12

Corridor Performance Summary (2008-2013)

Table C-13A provides Brush Street from 12th Street to 14th Street performance measure results.

Table C-13A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	25.0
Risk Factors Met	2
Total Safety Prioritization Index Value	1.03

Risk Factors Met: Arterial Functional Classification and Pedestrian Actuation at Signals.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 17 pedestrian crashes over the six-year period
- 15 of the 17 crashes occurred at the Brush Street and 12th Street intersection. 12 of the 15 crashes occurred when pedestrian had the right-of-way
- There were 17 injury crashes with no severe injuries or fatalities
- 14 of the 17 crashes occurred when pedestrians had the right-of-way

Field Review Observations

- Brush Street is a one-way three-lane road paralleling I-980
- The Brush Street and 12th Street intersection includes the I-980 off-ramp which is separated by a striped median; there is no pedestrian crossing across this approach of the intersection
- The I-980 off-ramp is a two-lane road, resulting in five lanes at the Brush Street and 12th Street intersection
- There are 3 AC Transit routes within 20 and 30-minute headways
- There are 2 signalized intersections and 1 unsignalized intersection

Exhibit C-13A: Prohibited Pedestrian Crossing on North and East Legs at Brush Street and 12th Street; Faded Crosswalk at Brush Street and 12th Street

Countermeasures Selection

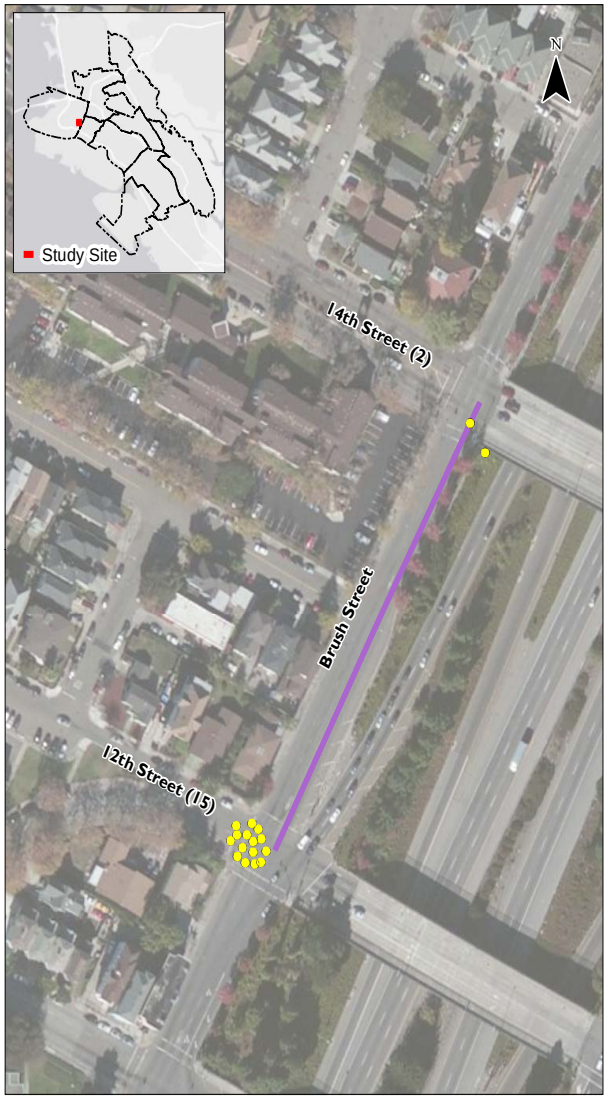
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the Brush Street and 12th Street intersection, add "Pedestrian Crossing Prohibited" signage at the north side of Brush Street ($800)
- At the Brush Street and 14th Street intersection, replace pedestrian countdown timer on northwest corner ($1,000)
- At signalized intersections, re-stripe marked crosswalks for general maintenance ($2,500 per crossing)
- At the Brush Street and 12th Street intersection, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- At each intersection, restrict on-street parking within 20-feet of intersection and marked crosswalks ($600 per approach)
- Implement pedestrian safety zones extending from the curb at the Brush Street and 12th Street and Brush Street and 14th Street intersections ($7,500 per intersection)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- Implement road diet along Brush Street; would need to extend beyond the limits of 12th and 14th Streets ($150,000 per mile)
- At the Brush Street and 12th Street and Brush Street and 14th Street intersections, install curb extensions on each corner ($15,000 per curb extension)
- At the Brush Street and 14th Street intersection, adjust signal timing to separate turning movements from pedestrian phase crossing ($30,000 per intersection)

Exhibit C-13B: Brush Street Corridor Map



Planning Level Cost Estimates

Near-Term Potential Countermeasures: $56,850
Longer-Term Potential Countermeasures: $450,000

Brush Street from 12th Street to 14th Street
Oakland, CA

Corridor **13**

Corridor Performance Summary (2008-2013)

Table C-14A provides the Foothill Boulevard from 45th Avenue to Trask Street performance measure results.

Table C-14A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	48.33
Risk Factors Met	5
Total Safety Prioritization Index Value	1.58

Risk Factors Met: Arterial Functional Classification, Median Presence, High Frequency of Transit Stops, Pedestrian Signal Head/ Countdown Presence at Signals, and Pedestrian Actuation at Signals.

Crash Analysis and Field Review

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 11 pedestrian injury crashes occurred over the six-year period
- 2 of the 11 crashes were fatalities and 9 of 11 were injury crashes
- 8 of the 11 crashes occurred when a pedestrian was crossing in a crosswalk

Field Review Observations

- There are 4 AC Transit routes within 10 to 60-minute headways
- Foothill Boulevard has a three-lane cross-section with one lane per direction and a center two-way left-turn lane
- There are 5 signalized intersections and 7 unsignalized intersections
- Garbage bins and debris on sidewalk obstruct pedestrian right-of-way

Exhibit C-14A: Parking Permitted In Intersection; School Crossing Sign Missing Crossing Directional Arrow

Countermeasures Selection

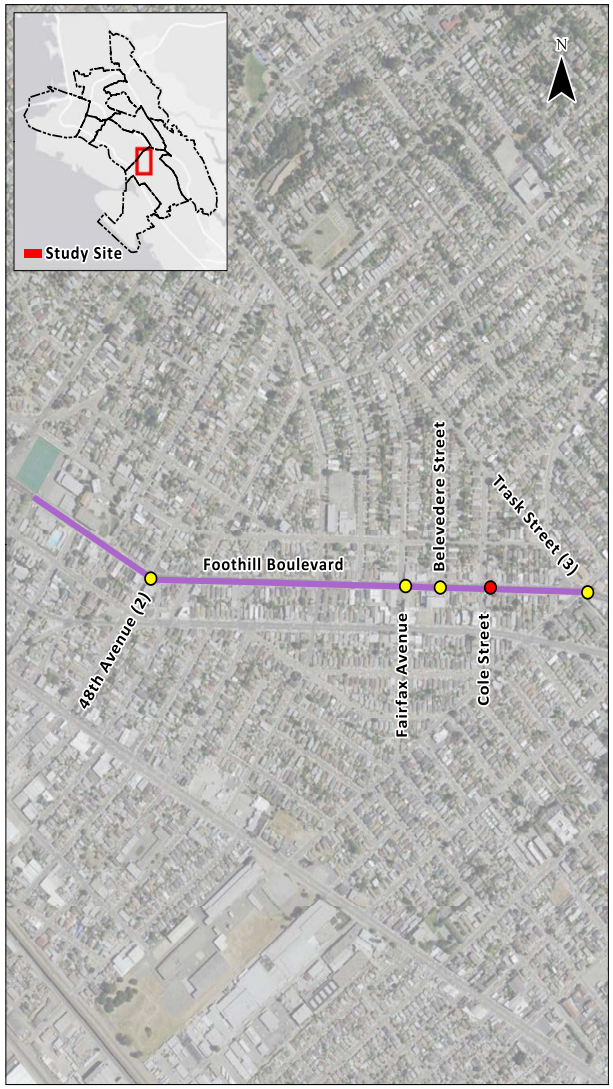
The following near term countermeasures could potentially reduce pedestrian crash frequency

- At the Foothill Boulevard and 45th Street intersection, replace school crossing sign and include directional arrow indicating crossing ($500 per sign)
- At the Foothill Boulevard and 45th Street intersection, upgrade school crossing sign to current standard and include directional arrow indicating crossing ($500 per sign)
- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($1,000 per device)
- At the Foothill Boulevard and 45th Avenue, Foothill Boulevard and 46th Avenue, Foothill Boulevard and 50th Avenue, Foothill Boulevard and 51st Avenue, Foothill Boulevard and Congress Avenue, Foothill Boulevard and Belvedere Street, and Foothill Boulevard and Cole Street intersection, install advanced yield markings and advanced pedestrian crosswalk ahead signs across Foothill Boulevard ($1,500 per crossing)
- At the Foothill Boulevard and Vicksburg intersection, re-stripe marked crosswalk on north leg ($2,500 per crossing)
- At the Foothill Boulevard and 47th Street intersection, convert signal from pedestrian actuated to fixed recall for the pedestrian walk phase ($3,500 per intersection)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- At the Foothill Boulevard and Trask Street intersection, install curb extensions on the northeast, northwest, and southwest corners ($15,000 per curb extension)
- At the Foothill Boulevard and 45th Avenue and Foothill Boulevard and 50th Street intersections, install a rectangular rapid flashing beacon and associated school crossing signs ($30,000 per installation)

Exhibit C-14B: Foothill Corridor Map



Planning Level Cost Estimates

Near-Term Potential Countermeasures: $78,900
Longer-Term Potential Countermeasures: $202,500

Foothill Boulevard from 45th Avenue to Trask Street
Oakland, CA

Corridor **14**

Intersection Summary

Table I-1A provides the intersection's performance scores and rankings from the Pedestrian Safety Strategy's prioritization process.

Table I-1A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	20.0
Risk Factors Met	4
Total Safety Prioritization Index Value	1.30

Risk Factors: Arterial Functional Classification, Four or More Lanes on Major Street, Pedestrian Signal Head/Countdown Presence at Signals, and Pedestrian Actuation at Signals

Crash Analysis and Field Review Summary

The intersection map shows the geometry of the study area. Site photos highlight field review observations.

- 3 pedestrian crashes including one severe crash over the six-year period
- No countdown timers
- No sidewalk on north-westbound approach
- Pedestrian activation button only on southwest corner
- Signs of heavy vehicle over-tracking on each corner

Exhibit I-1A: San Leandro Street & High Street Intersection Map

Exhibit I-1B: Northbound Approach With No Sidewalk; and Pedestrian Activation Button With No Signage

Potential Countermeasures

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- Remove "Sidewalk Closed" sign on northeast approach ($500)
- Prohibit right turn on red on each approach ($2,000 per intersection; $500 per approach)
- Install pedestrian activation buttons on each corner except southwest ($8,000 per intersection)
- Implement Leading Pedestrian Interval (LPI) at each crossing ($2,000 per intersection)

The following are long term countermeasures to potentially reduce crash frequency and severity:

- Resurface intersection pavement ($15,000 per intersection; $7 per square foot)
- Construct sidewalk on north-westbound approach ($30,000)
- Reconstruct intersection to accommodate heavy vehicles while providing pedestrian crossing treatments ($100,000)

San Leandro Street & High Street
Signalized Intersection
Oakland, CA

Intersection
1

Planning Level Cost Estimates
Near-Term Potential Countermeasures: $18,750
Longer-Term Potential Countermeasures: $217,500

Intersection Summary

Table I-2A provides the intersection's performance scores and rankings from the Pedestrian Safety Strategy's prioritization process.

Table I-2A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	20.0
Risk Factors Met	4
Total Safety Prioritization Index Value	1.30

Risk Factors: Arterial Functional Classification, Four or More Lanes on Major Street, Pedestrian Signal Head/Countdown Presence at Signals, and Pedestrian Actuation at Signals

Crash Analysis and Field Review Summary

The intersection map shows the geometry of the study area. Site photos highlight field review observations.

- 3 pedestrian crashes including one severe crash over the six-year period
- No countdown timers
- No pedestrian detectable warnings
- No pedestrian activation buttons
- Intersection provides access to shopping center

Exhibit I-2 A: 8th Street and Market Street Intersection Map

Exhibit I-2B: Faded Crosswalk; Median With No Refuge Island

Potential Countermeasures

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- Restripe each crosswalk ($2,500 per crossing)
- Install pedestrian countdown timers at each crossing ($8,000 per intersection)
- Install pedestrian activation buttons at each corner ($8,000 per intersection)
- Convert each device to fixed pedestrian recall ($1,000 per intersection)
- Implement pedestrian safety zones extending from the curb at the intersection ($7,500 per intersection)

The following are long term countermeasures to potentially reduce crash frequency and severity:

- Add lighting for crosswalks across Market Street ($12,000 per intersection; $6,000 per crossing)
- Convert eastbound and westbound left-turn phase to protected left-turn phase ($10,000 per intersection; $5,000 per device)
- Extend medians to create pedestrian refuge islands on north and south legs ($50,000 per intersection; $25,000 per crossing island)
- Install curb extensions on each corner ($15,000 per curb extension)

8th Street & Market Street
Signalized Intersection
Oakland, CA

Intersection
2

Planning Level Cost Estimates
Near-Term Potential Countermeasures: $51,750
Longer-Term Potential Countermeasures: $198,000

Intersection Summary

Table I-3A provides the intersection's performance scores and rankings from the Pedestrian Safety Strategy's prioritization process.

Table I-3A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	20.0
Risk Factors Met	3
Total Safety Prioritization Index Value	1.10

Risk Factors: Arterial Functional Classification, Pedestrian Signal Head/ Countdown Presence at Signals, and Pedestrian Actuation at Signals

Crash Analysis and Field Review Summary

The intersection map shows the geometry of the study area. Site photos highlight field review observations.

- 3 pedestrian crashes including one severe crash over the six-year period
- No pedestrian countdown timers
- Northbound right-turn movement provides connection to I-880 freeway
- There are 2 AC Transit bus routes within 20 to 30-minute headways

Exhibit I-3 A: 7th Street and Harrison Street Intersection Map

Exhibit I-3B: Pole with No Pedestrian Countdown Timer; Channelized Right Turn Lanes

Potential Countermeasures

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity at the intersection:

- Install pedestrian countdown timers at each crossing ($8,000 per intersection)
- Install pedestrian activation buttons at each crossing ($8,000 per intersection)
- Implement Leading Pedestrian Interval (LPI) at each crossing ($2,000 per intersection)
- Integrate protected northbound right turn phase ($5,000 per intersection)

7th Street & Harrison Street
Signalized Intersection
Oakland, CA

Intersection **3**

Planning Level Cost Estimates
Near-Term Potential Countermeasures: $34,500

Intersection Summary

Table I-4A provides the intersection's performance scores and rankings from the Pedestrian Safety Strategy's prioritization process.

Table I-4A: Performance Measure Results

Performance Measure	Score
Annual Equivalent Property Damage Only Score	20.0
Risk Factors Met	3
Total Safety Prioritization Index Value	1.10

Risk Factors: Arterial Functional Classification, Four or More Lanes on Major Street, and Pedestrian Signal Head/Countdown Presence at Signals.

Crash Analysis and Field Review Summary

The intersection map shows the geometry of the study area. Site photos highlight field review observations.

- 3 pedestrian crashes including one severe crash over the six-year period
- Bulbouts located on each crossing
- No countdown timers
- Permissive left-turns on each approach

Exhibit I-4 A: Grand Avenue and Staten Avenue Intersection Map

Exhibit I-4B: Degraded Pavement; Permissive Left Turn on East Leg

Potential Countermeasures

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- Re-stripe each marked crosswalk ($2,500 per crossing)
- Install pedestrian countdown timers at each crossing ($8,000 per intersection)
- Implement Leading Pedestrian Interval (LPI) at each crossing ($2,000 per intersection)
- Prohibit right turn on red on each approach ($2,000; $500 per approach)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- Convert eastbound and westbound permissive left turn phase to protected left turn phase ($10,000 per intersection; $5,000 per device)
- Integrate eastbound and westbound protected right turn phase ($5,000 per intersection)

Grand Avenue & Staten Avenue
Signalized Intersection
Oakland, CA

Intersection **4**

Planning Level Cost Estimates

Near-Term Potential Countermeasures: $33,000
Longer-Term Potential Countermeasures: $22,500