#		Location	Type	CM #	Countermeasure Names	Description	Collision Type	CRF	Project Life (Years)	No. of Preventable Collisions	Collision EPDO	Collision Reduction Benefits	Cost ($) Estimate	Benefit/Cost Ratio (BCR)	HSIP Max Share
1	1.01	Cajon Boulevard & Medical Center Drive	Non-Signalized	NS01	Add intersection lighting (NS.I.)	Additional intersection lighting at NE or NW corner of intersection (based on available ROW)	Night	40%	20	3	$2,872,800	$4,596,480	$4,960.00	926.71	90%
	1.02			NS18	Install left-turn lane (where no left-turn lane exists)	Restripe to eastbound left turn lane for NORTHBOUND left from Medical Center Dr.	All	35%	20	9	$5,942,300	$8,319,220	$810.00	10,270.64	90%
	1.03			NS06	Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	Additional warning signage for all approaches (W4-4aP for Medical Center Drive, SW4-1 for SOUTHBOUND Cajon Boulevard)	All	15%	10	9	$5,942,300	$1,782,690	$3,375.00	528.20	90%
	1.04			NS07	Upgrade intersection pavement markings (NS.I.)	Add additional markings for southbound/northbound approaches to as advance warning to complement improved signage (NS06)	All	25%	10	9	$5,942,300	$2,971,150	$675.00	4,401.70	90%
2	2.01	N. E Street & Kendall Drive	Non-Signalized	NS07	Upgrade intersection pavement markings (NS.I.)	Restripe the southbound E Street approach and stop bar so it is perpendicular to the centerline of Kendall Drive. Install a striped bulb out on the west edge of the intersection to orient traffic to the new stop bar, and provide a less extreme angle for sight lines. Relocate the stop sign to align with new stop bar position and bulb out.	All	25%	10	10	$515,000	$257,500	$13,500.00	19.07	90%
	2.02		Roadway	R28	Install edge-lines and centerlines	Provide an edge line for southbound Kendall Drive through the curve as it approaches and departs the E Street intersection	All	25%	10	10	$515,000	$257,500	$4,985.80	51.65	90%
	2.03		Non-Signalized	NS09	Install flashing beacons as advance warning (NS.I.)	Consider warning signs with flashing beacon or a speed feedback sign for southbound traffic at the intersection approach and departure the intersection	All	15%	10	11	$674,900	$202,470	$14,000.00	14.46	90%
3	3.01	Highland Avenue & Eucalyptus Drive/Rockford Avenue	Non-Signalized	NS23PB	Install Pedestrian Hybrid Beacon (HAWK)	Install at NE corner of Eucalyptus Drive and 450' east of I-210 SOUTHBOUND off-ramp, at the end of the curb taper.	Pedestrian and Bicycle	55%	20	7	$6,133,500	$13,493,700	$352,752.00	87.00	90%
	3.02			NS19PB	Install raised medians (refuge islands)	Install concrete pedestrian refuge island to protect pedestrians using HAWK crosswalk.	Pedestrian and Bicycle	45%	20	7	$6,133,500	$11,040,300			90%
	3.03			NS06	Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	Install new advance warning signage for new HAWK crosswalk (pedestrian crossing, indicator arrow, etc.) as advance warning to prepare drivers to stop.	All	25%	10	47	$12,313,600	$6,156,800			90%
4	4.01	E Street & 21st Street	Non-Signalized	NS06	Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	Add warning signage prohibiting crossing across E Street, directing pedestrians to cross at Highland Avenue to the north or at 20th Street to the south	All	15%	10	9	$6,163,300	$1,848,990	$2,700.00	684.81	90%
5	5.01	E Street & 9th Street	Signalized	NS20PB	Upgrade pedestrian crossing	Stripe continental crosswalks on all legs of the intersection.	Pedestrian and Bicycle	25%	10	10	$2,363,100	$1,181,550	$7,430.00	159.02	90%
	5.02			S21PB	Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	Northbound and southbound only	Pedestrian and Bicycle	60%	10	10	$2,363,100	$2,835,720	$16,100.00	176.13	90%
6	6.01	9th Street & Sierra Way	Signalized	S01	Add intersection lighting (S.I.)	Install a new streetlight on the southwest corner	Night	40%	20	13	$2,407,800	$3,852,480	$1,080.00	3,567.11	90%
	6.02			S02	Improve signal hardware	Install nearside signals eastbound and westbound on 9th Street	All	15%	10	18	$2,779,300	$833,790	$7,700.00	108.28	
7	7.01	9th Street & Preston Street/Valencia Avenue	Non-Signalized	NS23PB	Install Pedestrian Hybrid Beacon (HAWK)	Install a HAWK pedestrian signal (if it meets the required warrant) or an RRFB	Pedestrian and Bicycle	55%	20	6	$6,256,600	$13,764,520	$84,150.00	163.57	90%
	7.02			NS19PB	Install raised medians / refuge islands (NS.I.)	Install concrete pedestrian refuge island to protect pedestrians using HAWK crosswalk.	Pedestrian and Bicycle	45%	20	6	$6,256,600	$11,261,880	$15,745.00	715.27	90%
8	8.01	5th Street & Victoria Avenue	Signalized	S06	Install left-turn lane and add turn phase (signal has no left-turn lane or phase before)	Install northbound and southbound left turn lanes	All	55%	20	10	$1,254,000	$2,758,800	$375,000.00	7.36	90%
	8.02			S07	Add left turn phase	Add left turn phase for eastbound and westbound traffic	All	30%	20	10	$1,254,000	$1,504,800	$750,000.00	2.01	90%
	8.03			S02	Improve signal hardware	Improve signal heads (increased size, retroreflective back plates, near side signal heads for left turns).	All	15%	10	10	$1,254,000	$376,200	$7,700.00	48.86	90%
9	9.01	Richardson Street & San Bernardino Avenue	Signalized	S02	Improve signal hardware	Upgrade vehicle signal heads with retro-reflective yellow borders, increased signal lens sizes, etc.	All	15%	10	5	$2,074,600	$622,380	$7,700.00	80.83	90%
	9.02		Roadway	R22	Install/upgrade signs	Install school crossing warning signage along Richardson Street between San Bernardino and the City limits at I-10.	All	15%	10	3	$265,700	$79,710	$24,480.00	3.26	90%

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10	10.01	E Street & Orange Show Road	Signalized	S21PB	Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	Evaluate potential for LPI across all legs; examine need for complementary right turn on red (RTOR) restriction	Pedestrian and Bicycle	60%	10	3	$410,700	$492,840	$32,200.00	15.31	90%
	10.02			S09	Install raised pavement markers and striping (Through Intersection)	Add guidance striping across the intersection for BRT lanes; consider using high-visibility, colored striping to clearly delineate lane assignment at the intersection approach and crossing the intersection	All	10%	10	33	$2,045,700	$409,140	$2,030.00	201.55	90%
	10.03			S02	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	Upgrade signal hardware with retro-reflective borders	All	15%	10	33	$2,045,700	$613,710	$23,100.00	26.57	90%
11	11.01	G Street & Inland Center Drive	Signalized	S03	Improve signal timing (coordination, phases, red, yellow, or operation)	Fix northbound left turn lane detection (when observed in the field, it was intermittent; unsure if it is dynamic based on time-of-day); Consider flashing yellow arrow signals	All	15%	10	11	$2,045,700	$613,710	$7,000.00	87.67	50%
	11.02		Roadway	R33PB	Install Separated Bike Lanes	Complete Class I path on the north side of the street, from G St to E St (including bridge crossing)	Pedestrian and Bicycle	45%	20	2	$992,900	$1,787,220	$107,386.36	16.64	90%
	11.03		Signalized	S02	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	Upgrade signal heads with retro-reflective borders	All	15%	10	11	$250,800	$75,240	$7,700.00	9.77	90%
12	12.01	E Street, Inland Center Drive, & Mill Street	Signalized	S18PB	Install pedestrian crossing (S.I.)	Consider installing new pedestrian crosswalks to the Southeast corner across Inland Center Drive and across E Street	Pedestrian and Bicycle	25%	20	2	$992,900	$992,900	$3,380.00	293.76	90%
	12.02			S02	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	Upgrade signal hardware with retro-reflective borders	All	15%	10	26	$250,800	$75,240	$23,100.00	3.26	90%
13	13.01	E Street & Valley Street	Signalized	S21PB	Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	Pedestrian and Bicycle	60%	10	3	$1,796,400	$2,155,680	$16,100.00	133.89	90%
	13.02			S02	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	Install nearside vehicle signal heads with retro-reflective yellow borders. Install new signal heads with U-turn arrow instead of left-turn arrow.	All	15%	10	7	$272,700	$81,810	$7,700.00	10.62	90%
14	14.01	Rialto Avenue & F Street	Roadway	R32PB	Install Bike Lanes	Add bike lanes eastbound and westbound (consider Class IV if adequate space)	Pedestrian and Bicycle	35%	20	7	$401,300	$561,820	$31,321.02	17.94	90%
	14.02		Signalized	S21PB	Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	Implement leading pedestrian intervals for northbound and southbound pedestrian movements	Pedestrian and Bicycle	60%	10	3	$981,300	$1,177,560	$16,100.00	73.14	90%
15	15.01	Meridian Avenue & Rialto Avenue	Signalized	S02	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	Consider replacing five-section protective-permissive left turn with flashing yellow arrows	All	15%	10	15	$479,700	$143,910	$7,700.00	18.69	90%
	15.02			S03	Improve signal timing (coordination, phases, red, yellow, or operation)	Review yellow and all-red timing parameters	All	15%	10	15	$2,520,600	$756,180	$7,000.00	108.03	50%
16	16.01	Kendall Drive (University Drive to H Street)	Roadway	R34PB	Install sidewalk/pathway (to avoid walking along roadway)	Install a new sidewalk on the north side of Kendall Drive between 4th Avenue and Mountain Drive, and south of Western Avenue, along existing gaps where no sidewalk currently exists.	Pedestrian and Bicycle	80%	20	2	$10,847,200	$34,711,040	$2,645,900.00	24.71	90%
	16.02		Non-Signalized	NS21PB	Upgrade pedestrian crossing	Upgrade to continental crosswalks along entire corridor at all existing marked crossings, and install amber crosswalks at locations along school routes.	Pedestrian and Bicycle	35%	20	3	$3,002,900	$4,204,060			90%
	16.03			NS03	Install signals	Signalize intersection of Kendall Drive and Lakewood Drive to shorten the un-signalized segment, providing speed control and create a safer pedestrian crossing opportunity.	All	30%	20	12	$3,024,800	$3,629,760			90%

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	16.04		Roadway	R33PB	Install Separated Bike Lanes	Install Class IV separated bike lanes with parking protection along both sides of the corridor. Remove center two-way left turn lane (TWLT) to create space along the roadway. Create left-turn pockets and receiving pockets where necessary.	Pedestrian and Bicycle	45%	20	12	$5,810,000	$10,458,000			90%
	16.05		Non-Signalized	NS14	Install raised median on approaches (NS.I.)	Prohibit left turns from southbound 3rd Avenue to eastbound Kendall Drive with a directional median on 3rd Avenue.	All	25%	20	9	$12,375,200	$12,375,200			90%
17	17.01	Rialto Avenue (Pepper Avenue to Muscott Street)	Roadway	R32PB	Install bike lanes	Add bike lanes eastbound (Class IV) and westbound (Class II)	Pedestrian and Bicycle	35%	20	9	$12,375,200	$17,325,280	$80,325.00	215.69	90%
	17.02			R34PB	Install sidewalk/pathway (to avoid walking along roadway)	Install continuous sidewalk along south side of Rialto Avenue to fill gaps between Pepper Avenue to Muscott Street	Pedestrian and Bicycle	80%	20	9	$3,319,200	$10,621,440	$342,329.55	31.03	90%
	17.03			R08	Install median	Install median between Rancho Avenue and Muscott Street. Include a break in the median for the Rialto Avenue and Pennsylvania Avenue intersection. Do not include a break at Rialto Avenue and Arrow Route intersection (restrict traffic to right-on-right-off, as left turners could easily use Pennsylvania Avenue for access)	All	25%	20	10	$3,319,200	$3,319,200	$434,520.00	7.64	90%
	17.04			R31	Install edge-line rumble strips/stripes	Install edge-line rumble strips between Rancho Avenue and Muscott Street	All	15%	10	10	$5,331,200	$1,599,360	$1,292.89	1,237.04	90%
18	18.01	Meridian Avenue (Etiwanda Street to Rialto Avenue)	Non-Signalized	NS20PB	Install pedestrian crossing at uncontrolled locations (new signs and markings only)	Continental crosswalks across Meridian at 6th Street (ADA curb ramps), midblock crossing at Nicholson Park, 2nd Street, Rialto Avenue, 7th Street.	Pedestrian and Bicycle	25%	10	1	$5,331,200	$2,665,600	$37,150.00	71.75	90%
	18.02			NS09	Install Flashing Beacons	Consider advance flashing beacons at the above intersections to warn motorists of stop sign control.	All	15%	10	12	$2,843,000	$852,900	$70,000.00	12.18	90%
19	19.01	E Street (CA-210 to Fairway Drive)	Non-Signalized	NS20PB	Install pedestrian crossing at uncontrolled locations (new signs and markings only)	Stripe continental crosswalks at all arterial and collector street intersections along E Street for major crossings in all directions	Pedestrian and Bicycle	25%	10	41	$3,676,900	$1,838,450	$7,430.00	247.44	90%
20	20.01	9th Street (Waterman Avenue to Del Rosa Drive)	Roadway	R14	Road Diet (Reduce travel lanes and add a two way left-turn and bike lanes)	Apply road diet with bike lane and buffer from Waterman Avenue to Tippecanoe Avenue, and potentially prohibit parking on the south side of 9th Street	All	35%	20	37	$21,108,500	$29,551,900	$919,272.00	51.17	90%
	20.02		Roadway	R32PB	Install Bike Lanes	Install buffered bike lanes along segment	Pedestrian and Bicycle	35%	20	15	$12,490,700	$17,486,980			90%
21	21.01	30th Street (San Gabriel Street to Cedar Street)	Roadway	R21	Improve pavement friction	Improve pavement friction to reduce stopping distances for vehicles that would otherwise depart the roadway or hit an object if they are unable to stop in time.	All	55%	10	16	$11,257,900	$12,383,690	$142,045.45	87.18	90%
	21.02			R28	Install edge-lines and centerlines	Install edge lines and double-yellow centerlines with raised pavement markings	All	25%	10	16	$3,209,500	$1,604,750	$20,774.15	77.25	90%