

Appendix B.

Projects Table

PROJECT	TYPE	RECLASS- IFICATION	PRIMARY RECOMMENDATION	COST	ALTERNATIVE RECOMMENDATION	ALT COST
1 - Fairview Street from Highland St to S of W McFadden Av	Enhanced crossings		<ul style="list-style-type: none"> » Install median refuge island crossing to serve opposing bus stops at Highland » Narrow median and construct two-way cycle track on east side to connect McFadden to housing and proposed bike boulevard on Willits (left turn pockets at Highland can be maintained) » Consolidate driveways along Fairview near McFadden 	\$1,520,625		
21 - Fairview Street from W Edinger Av to W Harvard St	Enhanced crossings		<ul style="list-style-type: none"> » Remove eastbound curb lane from both sides of the Edinger at Fairview intersection » Evaluate potential to extend planned multi-purpose path on Fairview to McFadden » Curb radius reduction at cross streets 	\$255,000		
8 - MacArthur Boulevard from S Plaza Dr to E of S Bristol St	Narrow lanes + bike lanes		<ul style="list-style-type: none"> » Narrow existing travel lanes to 10' and median width to 2' to add protected bike lanes where there is 88' of curb to curb » Narrow existing travel lanes to 10' and eliminate median to add bike lanes (no buffer) where there is 82' of curb to curb » Enhanced crossing at Flower » Project #25 solutions will improve Bristol-MacArthur intersection 	\$2,546,400	<ul style="list-style-type: none"> » Road buffet from western City limits to Flower » Add bike lanes » Enhanced crossing at Flower 	\$504,300
3 - 1st Street from Booth Street to Railroad	Road buffet + protected bike lanes	X	<ul style="list-style-type: none"> » Reclassify to Primary Arterial » Install road buffet with protected bike lanes » Relocate bus stops to far sides of 1st at Standard » Install traffic signal at Lacy, which will also serve opposing bus stops (modify stop locations as needed) » Consider leading pedestrian intervals at all signalized intersections through downtown 	\$1,830,450	<ul style="list-style-type: none"> » Narrow lanes to 10' » Relocate bus stops to far sides of intersections near Standard » Consider leading pedestrian intervals at all signalized intersections through downtown » Bike boulevard on Walnut and/or 3rd Ave from Townsend to Railroad » Monitor speeds and collisions 	\$868,050

PROJECT	TYPE	RECLASS- IFICATION	PRIMARY RECOMMENDATION	COST	ALTERNATIVE RECOMMENDATION	ALT COST
5 - 1st Street from W of S Monaco Dr to W of S Shelton St	Road buffet + protected bike lanes	X	<ul style="list-style-type: none"> » Reclassify to Primary Arterial » Install road buffet with protected bike lanes » Relocate bus stops from Daisy to Townsend for access to signalized crossing » Add enhanced crossing near post office bus stop (Western Ave) » Replace center turn lane with raised median and turn pockets 	\$4,188,900	<ul style="list-style-type: none"> » Continue bike boulevard on Walnut and/or 3rd from Shelton to Townsend » Narrow to 10' lanes to make room for bike lanes from end of Walnut/1st to new bike lanes on 1st west of Santa Ana River (no bike boulevard option in this section) » Relocate bus stops from Daisy to Townsend for access to signalized crossing » Add enhanced crossing near post office bus stop (Western Ave) 	\$712,350
7 - 1st Street from W of Harbor Boulevard to Susan Street	Road buffet + protected bike lanes enhanced	X	<ul style="list-style-type: none"> » Reclassify to Primary Arterial » Install road buffet with protected bike lanes » Add enhanced crossing near S Gunther » Stripe zebra crosswalks on 1st at Harbor and 1st at Jackson » Consider removing second left turn lane from 1st at Harbor; to reduce exposure and maintain bike lane through intersection » Replace center turn lane with raised median and turn pockets 	\$1,583,700	<ul style="list-style-type: none"> » Narrow lanes to 10' » Enhanced crossing near S Gunther to address history of pedestrian crashes (1,300 feet between signals at Harbor and Jackson) » Stripe zebra crosswalks on 1st at Harbor and 1st at Jackson » Consider removing second left turn lane from 1st at Harbor; to reduce exposure and maintain bike lane through intersection 	\$525,450
4 - 1st Street from Hathaway Street to I-5	Road buffet + buffered bike lanes	X	<ul style="list-style-type: none"> » Install road buffet with buffered bike lanes » Relocate eastbound bus stop at N Lyon to far side of intersection » Time signals to 35 mph 	\$534,600	<ul style="list-style-type: none"> » Relocate eastbound bus stop at N Lyon to far side of intersection » Time signals to 35 mph » No parallel bike routes available in this section » There is not room for adding bike lanes without eliminating a travel lane 	\$23,100

PROJECT	TYPE	RECLASS- IFICATION	PRIMARY RECOMMENDATION	COST	ALTERNATIVE RECOMMENDATION	ALT COST
2 - Bristol Street from Riverglen Ln to W Park Ln	Narrow lanes + buffered or protected bike lanes		<ul style="list-style-type: none"> » Narrow lanes to 10' to add buffered or protected bike lanes » Consider removing dedicated turn lanes at intersections for wider bike facility and reduced exposure for pedestrians » Consolidate driveways on NE corner of Bristol at Memory » Add missing crosswalk on south leg of Bristol and Memory » Synchronize signals to 35 miles per hour; » Variable speed message sign for vehicles entering the city » Extend medians in locations that would not preclude future lane reduction or reclassification to add bike lanes » Monitor speeds and collisions 	\$849,600	<ul style="list-style-type: none"> » If speeds and collisions don't decrease sufficiently, reclassify to Primary Arterial » Install road buffet to 5 lanes and add buffered or protected bike lanes » Consider median refuge island approximately 500' N of Memory Lane to serve commercial land uses and address mid-block pedestrian collisions 	\$126,900
25 - Bristol Street from Glenwood Place to Sunflower Avenue	Narrow lanes + bike lanes		<ul style="list-style-type: none"> » Narrow lanes to 10' and add bike lanes » Relocate northbound bus stop at Warner to far side of intersection » Relocate southbound stop at MacArthur closer to intersection; add enhanced pedestrian crossing at driveway mid-block » Add pedestrian recall across Callens Commons » Median refuge island crossing at St Gertrude Place near bus stop » Reduce curb radius at NE corner of Alton and Bristol » Prohibit right turn on red or install LPI » Pursue bike boulevard between Bristol and Flower » Monitor speeds and collisions 	\$1,030,275	<ul style="list-style-type: none"> » If speeds and collisions don't decrease sufficiently, reclassify to Primary Arterial due to high incidence of both pedestrian and bike collisions » Install road buffet to 5 lanes and add buffered bike lanes 	\$518,700
27 - Bristol Street from 21st Street to S of Edinger Avenue	Narrow lanes + buffered or protected bike lanes		<ul style="list-style-type: none"> » Narrow lanes to 10 feet » Add buffered or protected bike lanes » Close right turn lanes at high collision intersections (17th, 1st, McFadden) » Alternatively, remove left turn lane or narrow all lanes and add median refuge island at centerline » Add leading pedestrian interval » Pursue parallel bike boulevard » Monitor speeds and collisions 	\$1,937,700	<ul style="list-style-type: none"> » If speeds and collisions don't decrease sufficiently, reclassify to Primary Arterial due to high incidence of both pedestrian and bike collisions » Road buffet to 5 lanes and add buffered bike lanes » Include protected intersection at 17th at Bristol 	\$709,800

PROJECT	TYPE	RECLASS- IFICATION	PRIMARY RECOMMENDATION	COST	ALTERNATIVE RECOMMENDATION	ALT COST
10 - Grand Avenue from I-5 to E Fruit St	Narrow lanes + bike lanes		<ul style="list-style-type: none"> » Narrow lanes and add bike lanes to support completion of bike lanes on Grand within City limits » Add dedicated bicycle movements across freeway ramps (possibly using west sidewalk beneath freeway) » Install conflict markings at Grand and E Santa Ana Blvd, to reduce conflicts on Grand between southbound through bicycle movements and right turning vehicle movements » Coordinate with Caltrans to secure 10' lane width to provide bicycle lanes due to safety and lack of alternative routes 	\$440,850		
20 - Grand Avenue from E 6th St to E Chestnut Av	Bike lanes		<ul style="list-style-type: none"> » Install bike lanes to support completion of bike lanes on Grand within City limits » The section from 4th to 6th requires careful design due to offset curb lines 	\$129,600	» If speeds and collisions don't decrease sufficiently, reclassify and road buffet and add protected bike lanes	\$1,032,000
6 - Edinger Avenue from S Fairview St to Center St	Buffered bike lanes		<ul style="list-style-type: none"> » Increase bicycle/ motor vehicle separation with buffered bike lanes » Add sidewalks from west of Sullivan to Gordon; » Eliminate RTOR and install LPIs at Edinger and Fairview » Redo speed survey after installation to determine if speed limit can be reduced 	\$597,900		
19 - Edinger Avenue from S Ross St to E of S Maple St	Road buffet + buffered bike lanes		<ul style="list-style-type: none"> » Add buffered bike lanes » Road buffet to 3 lanes east of Broadway » Install curb extensions and crosswalks at Cypress and other locations with on street parking » Curb radius reductions at Orange and Sycamore » Look for opportunities to remove left turn pockets to eliminate conflicts between pedestrians and turning vehicles 	\$2,693,700		
29 - Edinger Avenue from Rene Drive to S Towner St	Protected bike lanes		<ul style="list-style-type: none"> » Add protected bike lanes 	\$1,381,950		

PROJECT	TYPE	RECLASS- IFICATION	PRIMARY RECOMMENDATION	COST	ALTERNATIVE RECOMMENDATION	ALT COST
9 - McFadden Avenue from S Graham Ln to S Shelton St	Road buffet + protected bike lanes	X	<ul style="list-style-type: none"> » Downgrade McFadden to Divided Collector within City limits » Road buffet to 3 lanes and protected bike lane west of Bristol » Restripe with buffered bike lane on 2 lane section east of Bristol 	\$218,625	<ul style="list-style-type: none"> » Relocate school crossing at Graham to Pacific when planned traffic signal is installed » Median refuge island crossing at S Baker Street » Pursue parallel bike boulevard per city map 	\$137,250
26 - McFadden Avenue from Harbor Boulevard to E of S Susan St	Road buffet + protected bike lanes	X	<ul style="list-style-type: none"> » Downgrade McFadden to Divided Collector within City limits » Road buffet to 3 lanes and protected bike lane » This solution would also extend to #9 and benefit high collision intersections at #105, 106 and 107 	\$547,500	<ul style="list-style-type: none"> » Narrow lanes to 10' and add bike lanes » Narrow lanes on bridge and widen sidewalks to accommodate bicycle travel across bridge » This solution meets minimum standard lane widths, but will be uncomfortable based on typical large vehicle traffic and other roadway conditions 	\$100,500
12 - Main Street from E 10th St to E Saint Gertrude Pl	Speed management and signal modifications		<ul style="list-style-type: none"> » Speed Limit Reduction to 25 through signal synchronization » Leading pedestrian intervals at all intersections 	\$70,200	<ul style="list-style-type: none"> » If speeds and collisions don't decrease sufficiently, reclassify and road buffet and add bike lanes 	\$552,000
18 - Main Street from Santa Clara Avenue to E 12th St	Speed management and signal modifications		<ul style="list-style-type: none"> » Speed limit reduction to 25 and leading pedestrian intervals at all signalized intersections » Support bike boulevard on parallel streets (e.g. Orange). See project 24 for bicycle enhancements on Broadway across I-5 » Study signal warrant for Main at 15th » Relocate bus stops to far sides of intersection at 15th 	\$417,000	<ul style="list-style-type: none"> » If speeds and collisions don't decrease sufficiently, reclassify and road buffet and add bike lanes 	\$218,400
37 - Main Street from Warner Avenue to S of Goetz Avenue	Speed management and signal modifications		<ul style="list-style-type: none"> » Speed limit reduction to 25 and leading pedestrian intervals at all signalized intersections » Enhanced crossing at Main and Central 	\$52,800	<ul style="list-style-type: none"> » If speeds and collisions don't decrease sufficiently, reclassify and road buffet and add bike lanes 	\$67,200
34 - Main Street from Town And Country Road to I-5	Speed management and signal modifications		<ul style="list-style-type: none"> » Signal synchronization to 25 » Curb radius reduction on NE corner of Main at Mainplace 	\$15,375	<ul style="list-style-type: none"> » If speeds and collisions don't decrease sufficiently, reclassify and road buffet and add bike lanes 	\$163,800

PROJECT	TYPE	RECLASS- IFICATION	PRIMARY RECOMMENDATION	COST	ALTERNATIVE RECOMMENDATION	ALT COST
28 - Washington Avenue from N Van Ness Av to N Bush St	Bicycle boulevard		<ul style="list-style-type: none"> » Curb radius reduction at all intersections between Van Ness and Bush » Traffic calming and bicycle boulevard treatments from Fairview to I-5 » Create connection to Santa Ana River Trail by opening cul-de-sac at Fairview for bicycles and pedestrians use » Add signage to direct users north along sidewalk to river trail 	\$725,010		
17 - 17th Street from W of N Lincoln Av to Concord St	Road buffet + protected bike lanes	X	<ul style="list-style-type: none"> » Install road buffet and protected bike lane » Curb radius reductions » Leading pedestrian and bicycle intervals at high collision intersection of 17th and Grand 	\$2,139,600	<ul style="list-style-type: none"> » Narrow travel lanes to 10' » Curb radii reduction » Leading pedestrian and bicycle intervals at high crash intersections » No parallel bike boulevard available in this section 	\$270,225
16 - 17th Street from Buena St to Bristol Street	Road buffet + protected bike lanes	X	<ul style="list-style-type: none"> » Install road buffet and protected bike lane; » Curb radius reductions » Leading pedestrian and bicycle intervals at high crash intersections of Bristol and Fairview » Include protected intersection on Bristol at 17th » Redo speed survey after installation to determine if speed limit can be reduced 	\$2,877,150	<ul style="list-style-type: none"> » Short term solutions: » Narrow travel lanes to 10' » Curb radii reduction » Leading pedestrian and bicycle intervals at high crash intersections of Bristol and Fairview » Pursue parallel bike boulevard on W Washington Ave; include connection to Fairview at western extent to allow crossing of Santa Ana River 	\$753,810
11 - 17th Street from Olive Street to I-5	Road buffet + protected bike lanes	X	<ul style="list-style-type: none"> » Install road buffet and protected bike lane; » Curb radius reductions » Leading pedestrian and bicycle intervals at high crash intersection of Spurgeon » Relocate Westbound Bus Stops at Flowers Broadway and Main to far side » Redo speed survey after installation to determine if speed limit can be reduced » Install median refuge crossing at Bush 	\$2,345,100	<ul style="list-style-type: none"> » Narrow travel lanes to 10'; » Curb Radius Reductions » Leading pedestrian and bicycle intervals at high crash intersection of Spurgeon » Relocate Westbound Bus Stops at Flowers Broadway and Main to far side » Pursue parallel bike boulevard on W Washington Ave » Fencing to prevent pedestrian 	\$512,250

PROJECT	TYPE	RECLASS- IFICATION	PRIMARY RECOMMENDATION	COST	ALTERNATIVE RECOMMENDATION	ALT COST
32 - 17th Street from Williams Street to Route 55	Road buffet + protected bike lanes	X	» Install road buffet and protected bike lane » Leading pedestrian and bicycle intervals at high crash intersection of Tustin Ave » Curb radius reduction » Variable speed message sign for vehicles entering the city » Redo speed survey after installation to determine if speed limit can be reduced	\$1,117,950	» Narrow travel lanes to 10' » Leading pedestrian and bicycle intervals at high crash intersection of Tustin Ave » Curb Radius Reduction » Variable speed message sign for vehicles entering the city » No opportunities for parallel bike boulevard in this section	\$164,700
14 - Harbor Boulevard from Westminster Av to City Limits	Narrow lanes + bike lanes		» Pursue the MPAH Multi-Modal Transportation Arterial designation » Narrow lanes and add bike lanes or wide shoulders depending on space » Move all bus stops to far sides of intersections and reduce curb radii at all unsignalized intersections » Remove northbound right turn lane at McFadden » Remove curb lane and add curb extension at 5th » Curb radius reductions at 1st, and Westminster » Install signal or midblock crossing at Washington; » This project should extend to the southern City limits	\$742,650	» Protected bike lane through ROW acquisition as properties redevelop » Add protected intersection at 1st	\$1,861,500
23 - Tustin Avenue from E Grovemont St to E Lenita Ln	Road buffet + protected bike lanes	X	» Downgrade to Primary Arterial » Install road buffet and protected bike lanes » Curb radius reduction at all intersections » Left Turn Protection on Santa Clara at Tustin » Midblock crossing w refuge islands at bus stops N of Franzen, or at Franzen (relocate southbound stop) » Redo speed survey after installation to determine if speed limit can be reduced	\$825,000	» Narrow existing travel lanes to 10' to add 7' buffered bike lanes » Curb radius reduction at all intersections » Left Turn Protection on Santa Clara at Tustin » Fencing to prevent pedestrian crossings near bus stops north of Franzen » No opportunities for parallel bike boulevard in this section	\$258,900

PROJECT	TYPE	RECLASS- IFICATION	PRIMARY RECOMMENDATION	COST	ALTERNATIVE RECOMMENDATION	ALT COST
24 - Broadway from W Halesworth St to W Richland St	Bicycle boulevard/ Road buffet	X	<ul style="list-style-type: none"> » Bike boulevard from St Gertrude or St Andrew to 1st » Road buffet and add on-street parking and sharrows from 3rd to Santa Ana Boulevard » Road buffet from Santa Ana Boulevard to 17th, reduce to 3 lanes and add protected bike lanes » Consider continuing road buffet and bike lanes all the way and across I-5 » Curb radius reductions at all intersections from Halesworth to Richland » Leading pedestrian intervals at 1st » Recommended project is from Memory Lane to St Gertrude 	\$2,120,400	<ul style="list-style-type: none"> » Curb radius reduction at all intersections from Halesworth to Richland » Leading Pedestrian Intervals and automatic pedestrian recall at signalized intersections » Support bike boulevard on parallel streets (e.g. Orange as in Project #12) 	\$546,000
13 - Warner Avenue from Broadway to E of S Maple St	Narrow lanes + bike lanes		<ul style="list-style-type: none"> » Narrow lanes on Warner and add bike lanes where space allows » Monitor 85% speeds and reduce to 30-35 mph if possible » Develop parallel bike boulevard on St Gertrude or St Andrew » Monitor speeds and collisions 	\$182,550	<ul style="list-style-type: none"> » If speeds and collisions don't decrease sufficiently, reclassify and road buffet and add protected bike lanes 	\$625,500
15 - Warner Avenue from S Pacific Av to S Park Dr	Narrow lanes + bike lanes		<ul style="list-style-type: none"> » Narrow lanes on Warner and add bike lanes where space allows » Monitor 85% speeds and reduce to 30-35 mph if possible » Develop parallel bike boulevard on St Gertrude or St Andrew » Monitor speeds and collisions 	\$189,150	<ul style="list-style-type: none"> » If speeds and collisions don't decrease sufficiently, reclassify and road buffet and add protected bike lanes 	\$1,188,000
31 - Civic Center Drive from N Parton St to Mortimer Street	Buffered bike lanes		<ul style="list-style-type: none"> » Continue recently implemented buffered bike lanes to French » Leading pedestrian intervals at permissive signals » Restrict RTOR » Monitor speeds and collisions 	\$119,010	<ul style="list-style-type: none"> » If speeds and collisions don't decrease sufficiently, reclassify and road buffet and add protected bike lanes 	\$657,000
30 - Ross Street from Civic Center Dr W to W 1st St	Enhanced crossings and protected bike lanes		<ul style="list-style-type: none"> » Curb radius reductions at all intersections » Enhance existing crossings with high visibility crosswalks and RRFB, especially at 4th » Add protected bike lanes 	\$1,114,200		

PROJECT	TYPE	RECLASS- IFICATION	PRIMARY RECOMMENDATION	COST	ALTERNATIVE RECOMMENDATION	ALT COST
22 - Newhope Street from W Hazard Av to S of W 1st St	Buffered bike lanes		<ul style="list-style-type: none"> » Install buffered bike lanes » Remove on-street parking where necessary; » Monitor 85% speeds and reduce to 30-35 mph if possible » Curb radius reduction at 5th, Hazard, and all unsignalized cross streets 	\$228,750		
33 - 4th Street from N Lacey St to N Wright St	Road buffet + protected bike lanes	X	<ul style="list-style-type: none"> » Downgrade to Divided Collector » Install road buffet and protected bike lanes 	\$438,000	» No opportunities for lane narrowing or parallel bike boulevard in this section	
36 - 5th Street from W of N Fairview St to N Nantucket Pl	Narrow lanes + bike lanes		<ul style="list-style-type: none"> » Narrow lanes and add bike lanes, pending further study as part of the Central Santa Ana Complete Streets plan 	\$72,000		
35 - Lyon Street from 1st Street to Chestnut Avenue	High visibility pavement markings		<ul style="list-style-type: none"> » Green conflict marking and high visibility crosswalks at Chestnut » Develop bike boulevard from 4th and along N Wright, Palm St and N Lyon St to bring users to E Chestnut crossing of I-5 » Utilize green backed sharrows along this route 	\$220,950		
101 - 1st Street & Euclid Street	intersection enhancements		<ul style="list-style-type: none"> » The bicycle facility proposed on 1st will reduce crossing distance and improve pedestrian safety » Leading pedestrian intervals and RTOR restriction 	\$192,720	<ul style="list-style-type: none"> » Three Euclid intersections experience high collision trends. If speeds and collisions don't decrease sufficiently, reclassify and road buffet and add protected bike lanes » Install red light camera if program is re-instated 	
102 - Greenville Street & MacArthur Boulevard	Road buffet		<ul style="list-style-type: none"> » Road buffet proposed in Project #8 will add bike lanes and reduce pedestrian exposure at this intersection 	N/A		
103 - Harbor Boulevard & Warner Avenue	Intersection reconfiguration		<ul style="list-style-type: none"> » Remove turn lanes on all approaches to reduce crossing distance 	\$405,825		
104 - Euclid Street & Hazard Avenue	Intersection enhancements		<ul style="list-style-type: none"> » Curb radius reductions, high visibility crosswalks, and protected left turn phases for turns from Hazard Avenue 	\$250,800	<ul style="list-style-type: none"> » Three Euclid intersections experience high collision trends. If speeds and collisions don't decrease sufficiently, reclassify and road buffet and add protected bike lanes 	
105 - Euclid Street & McFadden Avenue	Road buffet		<ul style="list-style-type: none"> » McFadden road buffet corridor project (#9 and #26) will reduce pedestrian exposure at this intersection 	N/A	<ul style="list-style-type: none"> » Three Euclid intersections experience high collision trends. If speeds and collisions don't decrease sufficiently, reclassify and road buffet and add protected bike lanes. 	

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