CITY OF AUSTIN PUBLIC WORKS

SAFE ROUTES TO SCHOOL

INFRASTRUCTURE REPORT

CITY COUNCIL DISTRICT 5

austin MOTION 2016 MOBILITY BOND

CITY OF AUSTIN FOUNDED 1839

ACKNOWLEDGMENTS

December 2019

This report is made possible through the Austin 2016 Mobility Bond. For more information, please contact:

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The consultant team was led by Toole Design Group with support from Asakura Robinson, Dunaway|UDG, GGE Consulting, and Adisa Communications.

CONTENTS

City Council District 5

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ABOUT THIS PROJECT

PURPOSE / BACKGROUND

In November 2016, Austin voters approved the 2016 Mobility Bond which provided $27.5 million for Safe Routes to School improvements. The funding will be equally allocated for school access-related projects in Austin's ten City Council districts.

To identify projects, the City of Austin hired consultants to evaluate and prioritize improvements to streets, trails, intersections and sidewalks around 137 elementary and middle schools in the City. The City also conducted a robust public engagement effort to inform recommendations, as described later in this report. The project is taking place over two years and was divided into phases based on the school calendar, with two to three council districts in each phase.

- **Phase 1: Fall 2017** – Council Districts 1 and 10, 28 schools
- **Phase 2: Spring 2018** – Council Districts 2, 8 and 9, 40 schools
- **Phase 3: Fall 2018** – Council Districts 3, 5 and 7, 36 schools
- **Phase 4: Spring 2019** – Council Districts 4 and 6, 33 schools

This report explains the process used to develop the recommendations for schools in City Council District 5, and presents a prioritized list of projects. It also presents a map and matrix showing all the recommendations made for each school. Recommended improvements aim to address identified safety or access issues for students walking and biking to school. **Ideas presented in this document are planning-level concepts: many projects will require further feasibility study and engineering evaluation before they can be implemented. In some locations, alternate approaches to address the issue may prove more feasible or more cost effective. Specific infrastructure treatments are defined and explained in the Austin SRTS Engineering Toolkit (Appendix A).**

SCHOOL AUDITS

School audits in District 5 took place the weeks of October 22 and October 29, 2018. Audit teams were led by a team of transportation planners and designers, as well as City of Austin staff from the Departments of Public Works and Transportation, and school representatives. School representatives typically included the principal or a designee and 1-2 parent representatives.

Most audits took place in the early morning, with a brief introductory meeting followed by an observation of school arrival. After the school bell rang, the team reconvened to

Walk Audit at Barton Hills Elementary School

Walk Audit at Joslin Elementary School

debrief and discuss next steps. Following the summary meeting, the consultants and City staff completed the assessment of walking and biking infrastructure around the school, focusing on a half-mile radius for pedestrian facility recommendations and up to a two-mile radius for bicycle facilities. The recommendations were reviewed by City staff for consistency with other planning efforts prior to prioritization.

PUBLIC ENGAGEMENT

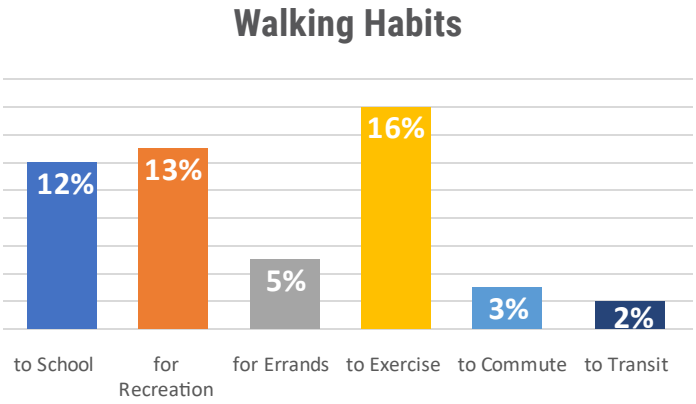
In addition to participating in the school audits, members of the public were invited to provide input via an online map and at "pop-up" meetings at community events. Flyers explaining the project and promoting these opportunities were developed in English and Spanish, distributed to school contacts, and published on the City's website and social media channels.

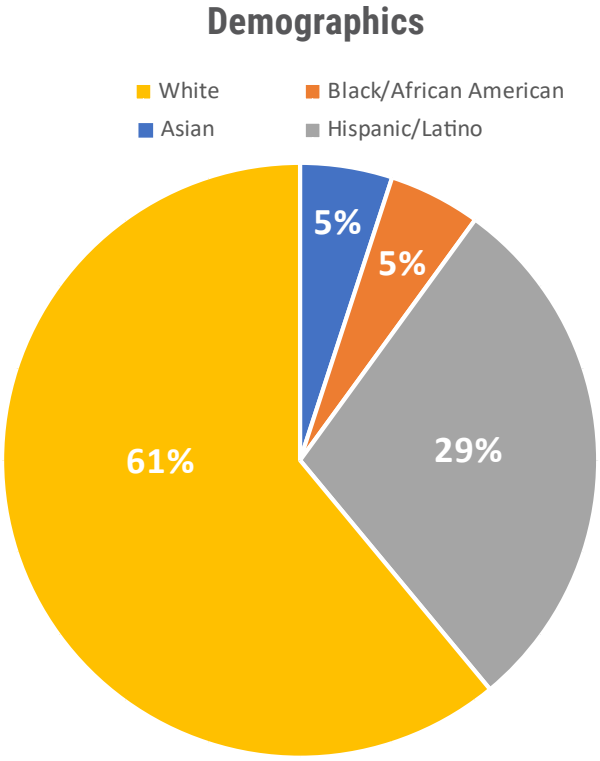
ONLINE INTERACTIVE MAP

The project team used an online interactive map to gather input from the community on the barriers to walking and biking to school. English and Spanish language versions of the online map went live in October 2018. Users could access the maps via links on the City's Safe Routes to School website. Using lines and points, map users were asked to identify barriers, routes their family currently bikes or walks, and difficult routes for biking and walking.

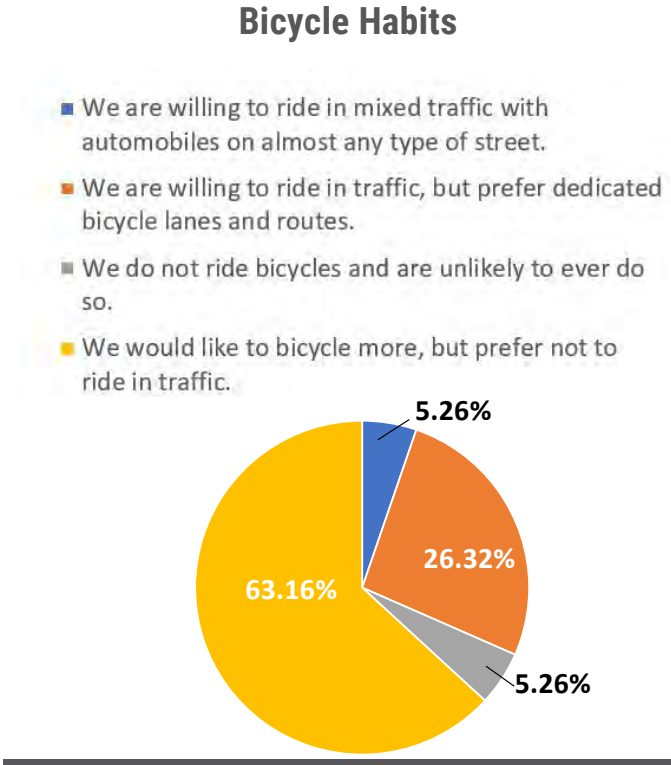
Summary of Responses

Before adding their comments to the map, users were asked to complete a short survey to help understand their background, walking and bicycling habits, and place of residence. The following is a summary of demographic characteristics from respondents from District 5, as well as a map that shows the concentrations of comments made on the map.

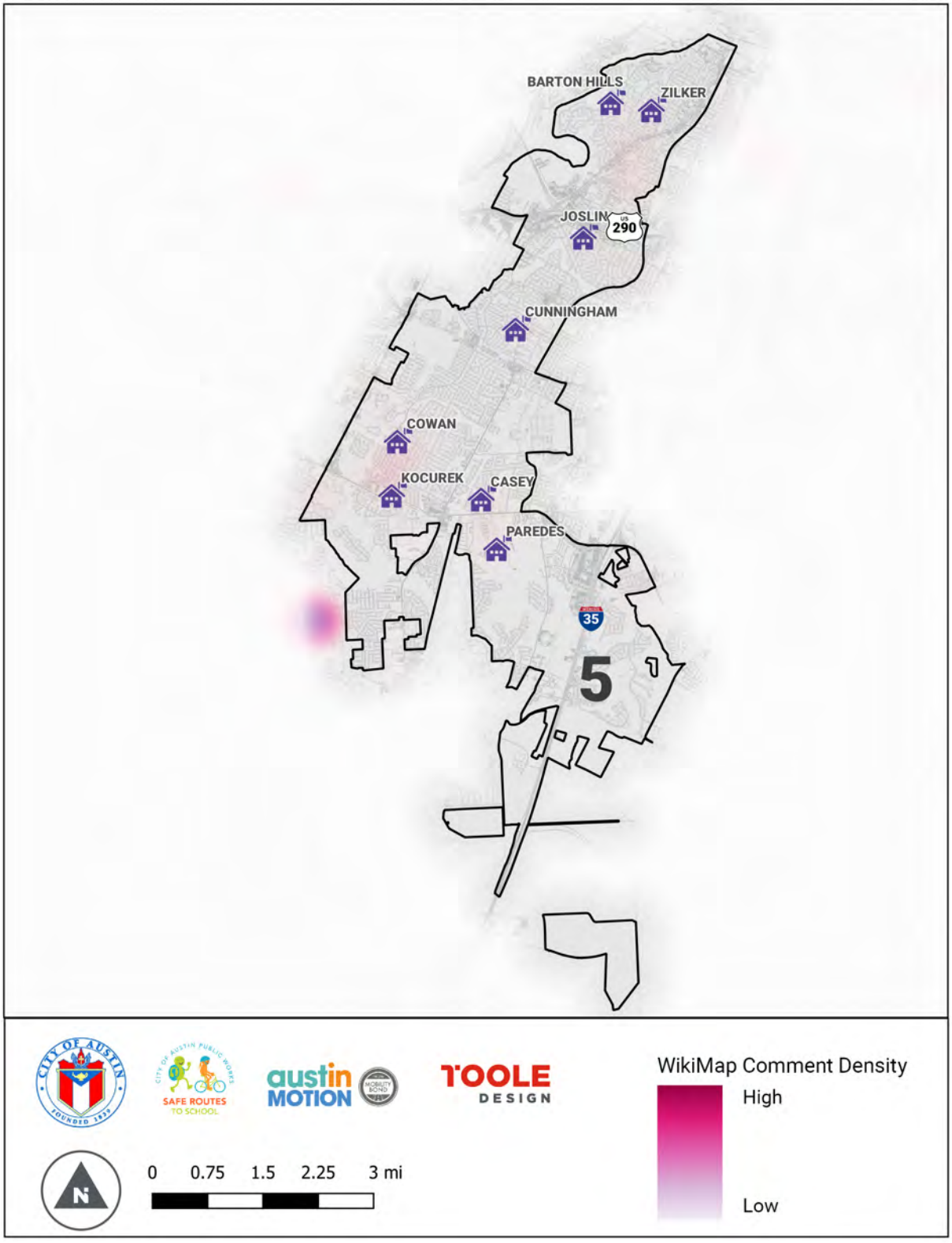




Demographics of Online Map Respondents, District 5



Survey Responses from Online Map Respondents, District 5



Heatmap of Online Map Comments, District 5

"POP UP" MEETINGS

In fall 2018, the project team switched the approach to public outreach from project-specific Open Houses to "pop-up" meetings. For each "pop-up" meeting, members of the project team set up tables at school festivals, public libraries, and recreation centers with both electronic and paper maps for participants to provide their feedback. Comments received on the paper maps were added to the wikimap and incorporated into the infrastructure recommendations. Between October 19, 2018 and December 20, 2018, a total of 27 "pop-up" meetings were held with a total of 106 wikimap comments and 76 paper map comments received.

PRIORITIZATION

Information from the school audits, online map and open houses was combined to create a list of recommended projects around each school. Then, the projects were scored using a three-step process to create a prioritized list for each council district.

Step 1: Prioritize recommendations based on potential benefit.

To calculate the potential benefit, each project was evaluated on four factors: Stakeholder Input, Safety, Demand and Equity. Using available data, the following scoring system was used to calculate a Benefit Score for each proposed project.

35%: Demand
(Schools within ¼ mile, Potential students served)
+
30%: Safety
(Crash data, Street type, Engineering judgment)
+
20%: Equity
(Free & reduced lunch rate, Poverty rate)
+
15%: Stakeholder Input
(Public comments from Open Houses and WikiMap)
=
100%: Final Benefit Score

Step 2: Adjust for existing conditions.

To further prioritize projects that would create new facilities and close gaps in the existing bicycle and pedestrian networks, the Benefit Score was divided in half for recommendations that improve existing facilities (as opposed to creating new connections/facilities).

Step 3: Calculate cost benefit score.

Planning-level cost estimates for each project were developed based on bid tabulations maintained by the City of Austin. The benefit score was divided by the estimated project cost, and results were sorted into five categories to represent Cost:Benefit - very high, high, med, low, very low.

Costs opinions are order-of-magnitude, planning-level estimates based on local bid tabulations for similar project

Austin Community College South

Joslin Elementary School Halloween Carnival

types. Planning-level cost estimates do not take into consideration localized specifics of each project such as right-of-way acquisition, significant utility relocation, etc. They are useful for aggregate-level budget planning, but individual project cost estimates will change as projects advance through further study and design.

After further feasibility study and engineering evaluation, final project cost estimates will change before they can be implemented. In some locations, alternate approaches to address the issue may prove more feasible or more cost effective.

PRIORITIZATION SUMMARY

There are a total of 426 recommended projects in City Council District 5 with a total estimated cost of $92.5 million. (Costs for projects located outside the City are not included in this figure.) The combined costs for all projects in each Overall Benefit category are shown in the table below.

Costs are planning-level estimates that will be refined as projects advance through further study and design. They can be used to evaluate the order-of-magnitude of needs at an aggregate level.

Overall Benefit Category	Combined Project Costs
1 - Very High	$33,900,000
2 - High	$17,000,000
3 - Medium	$16,500,000
4 - Low	$14,200,000
5 - Very Low	$10,900,000
District 5 Total	**$92,500,000**

NEXT STEPS

Both Overall Benefit and Estimated Cost:Benefit will be used to prioritize improvements. However, to use the Safe Routes to School's limited resources most effectively, the program is also considering other factors to determine which projects will move forward as well as project implementation order. These factors include final cost estimates, feasibility, leveraging / cost-sharing opportunities, and more.

Generally, projects will be selected for implementation using the following guiding principles:

1) Implement Projects that have a High/Very High Overall Benefit or a High/Very High Estimated Cost:Benefit,
2) Make meaningful improvements for walking and bicycling near as many schools as possible,
3) For 2016 bond funding, per council direction, balance funding equally per council district,
4) Other available sources of funding will be leveraged to implement additional projects.

The City of Austin has already started examining the feasibility of recommendations and, in some cases, has initiated design/construction for certain projects. Go to AustinTexas.gov/SafeRoutes to learn more and get updates about upcoming Safe Routes to School projects in each City Council District.

CITY COUNCIL DISTRICT 5

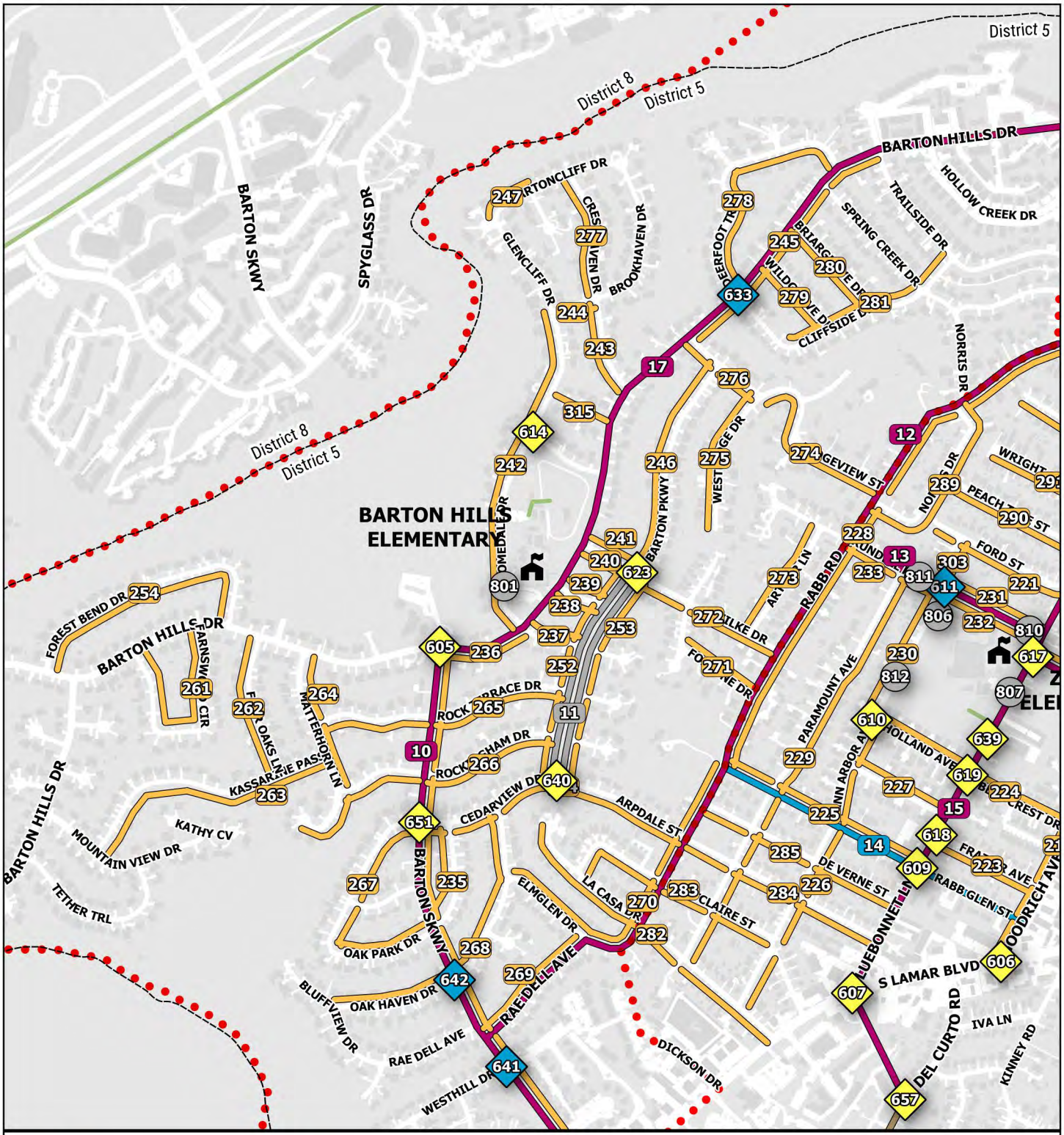
RECOMMENDED SAFE ROUTES TO SCHOOL PROJECTS

The following pages present maps of all recommendations, followed by detailed tables that include the Benefit and Cost: Benefit category for each project. Each recommendation has a unique identification number, which can be cross-referenced between the maps and the tables. The unique project ID is a combination of the school group code (e.g., 1C) and the project number shown on the map (e.g., 001).

Please note: Maps may include project recommendations located in nearby City Council Districts. However, tables within this report only list recommended projects for this district. Go to AustinTexas.gov/SafeRoutesProjects to learn more about citywide project recommendations.

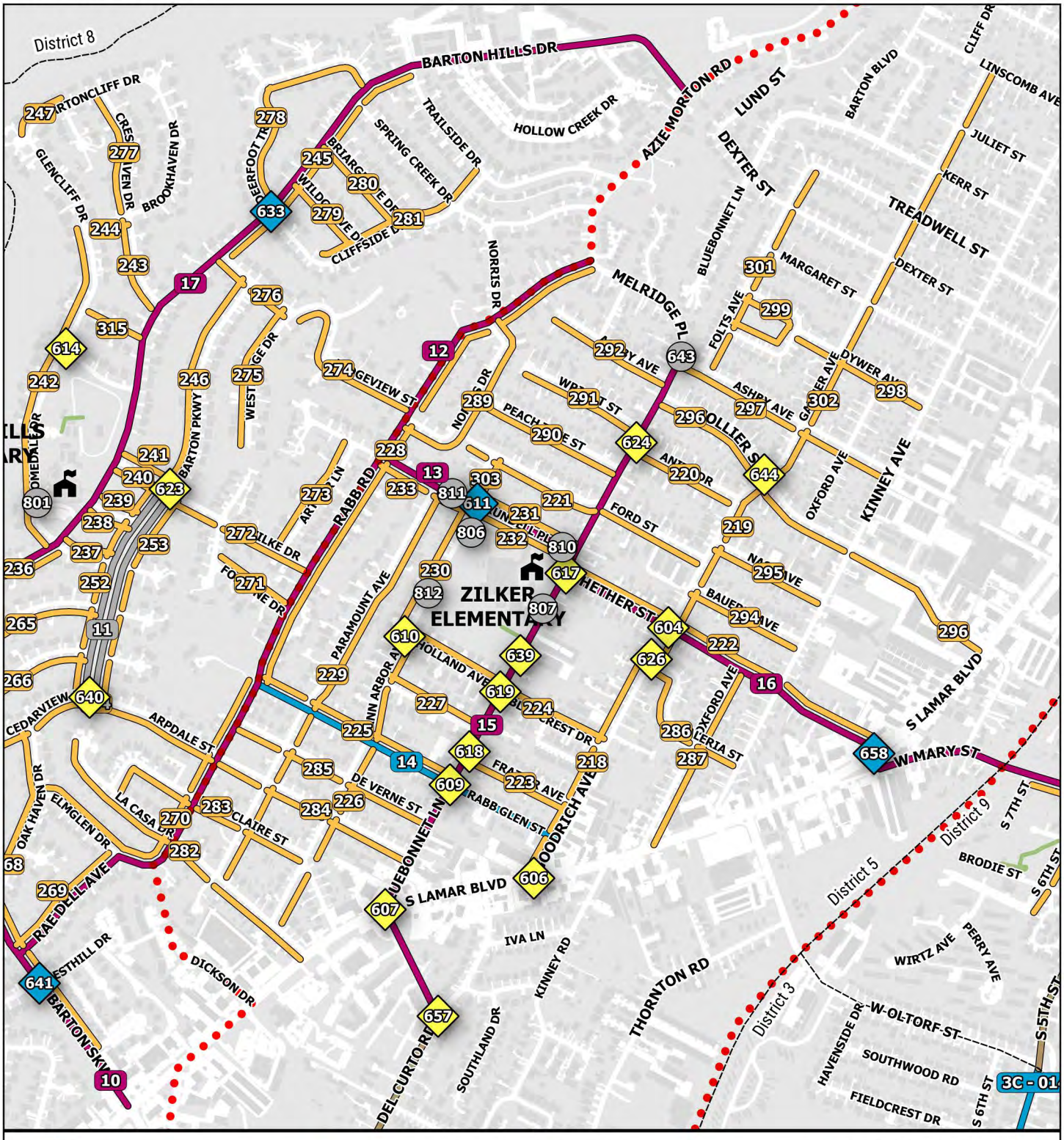
Ideas presented in this document are planning-level concepts: many projects will require further feasibility study and engineering evaluation before they can be implemented. In some locations, alternate approaches to address the issue may prove more feasible or more cost effective.

MAP 3A: BARTON HILLS ELEMENTARY



MAP 3A: JOSLIN ELEMENTARY

MAP 3A: ZILKER ELEMENTARY



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CITY OF AUSTIN PUBLIC WORKS SAFE ROUTES TO SCHOOL

CITY OF AUSTIN austin MOTION 2016 MOBILITY BOND

TOOLE DESIGN

Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
3A - 001	JOSLIN	REDD ST	Bike facility obstructions	Sweep bike lane - REDD ST from CACTUS LN to MANCHACA RD	5 - Very Low	3 - Medium
3A - 002	JOSLIN	CIMARRON TRL	Excessive vehicle speeds, Wide ROW	Add speed cushions - CIMARRON TRL from PACK SADDLE PASS to MANCHACA RD	1 - Very High	1 - Very High
3A - 003	JOSLIN	PACK SADDLE PASS	Poor lighting, Transit route, unconformtable area	Add buffered bike lane - PACK SADDLE PASS from WESTERN TRAILS BLVD to ROUNDUP TRL , Add sidepath - PACK SADDLE PASS from WESTERN TRAILS BLVD to VICTORY DR , Add lighting - PACK SADDLE PASS from VICTORY DR to W BEN WHITE BLVD SVRD EB , and planting strips - PACK SADDLE PASS from VICTORY DR to W BEN WHITE BLVD SVRD EB , streets - PACK SADDLE PASS from VICTORY DR to W BEN WHITE BLVD SVRD EB , landscaping - PACK SADDLE PASS from VICTORY DR to W BEN WHITE BLVD SVRD EB , Add protected bike lane - VICTORY DR from PANTHER TRL to PACK SADDLE PASS , Add protected bike lane - PANTHER TRL from VICTORY DR to S LAMAR BLVD SB	1 - Very High	5 - Very Low
3A - 010	BARTON HILLS	BARTON SKWY	Faded markings, Wide ROW	Add protected bike lane - BARTON SKWY from S LAMAR BLVD to BARTON HILLS DR	3 - Medium	4 - Low
3A - 011	BARTON HILLS	BARTON PKWY	Desired bike route	One way - BARTON PKWY from CEDARVIEW DR to WILKE DR, Lane reconfiguration (changing number of lanes) - BARTON PKWY from CEDARVIEW DR to WILKE DR	3 - Medium	3 - Medium

* Indicates projects located outside or partially outside of the City of Austin limits and may not be eligible for Safe Routes to School funding.

Cost:Benefit rankings are preliminary, high-level estimates to identify cost-effective options to address safety concerns. Preliminary rankings are developed using planning-level costs for projects of this nature. Individual cost estimates will change as projects advance. See pages 4-5 of this report for more information.

Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
3A - 012	BARTON HILLS, ZILKER, PEASE	RABB RD	No bike facility	Add bike lane - RAE DELL AVE from RABB GLEN ST to BARTON SKWY , Add bike lane - RABB RD from RABB GLEN ST to NORRIS DR , Add buffered bike lane - RABB RD from NORRIS DR to AZIE MORTON RD	4 - Low	5 - Very Low
3A - 013	ZILKER	RUNDELL PL	No bike facility	Add bike lane - RUNDELL PL from RABB RD to PARAMOUNT AVE , Add neighborhood bikeway - RUNDELL PL from BLUEBONNET LN to PARAMOUNT AVE	3 - Medium	2 - High
3A - 014	ZILKER, BARTON HILLS	RABB GLEN ST	No bike facility	Add neighborhood bikeway - RABB GLEN ST from RABB RD to GOODRICH AVE	5 - Very Low	4 - Low
3A - 015	ZILKER, PEASE	BLUEBONNET LN	Bike facility obstructions, Desired bike route, Poor pavement conditions	Add protected bike lane - BLUEBONNET LN from MELRIDGE PL to DEL CURTO RD , Sweep bike lane - BLUEBONNET LN from BLUE CREST DR to HETHER ST	2 - High	4 - Low
3A - 016	ZILKER	HETHER ST	Desired bike route, No bike facility	Add neighborhood bikeway - HETHER ST from BLUEBONNET LN to KINNEY AVE , Add bike lane - HETHER ST from KINNEY AVE to S LAMAR BLVD , Add protected bike lane - W MARY ST from EVERGREEN AVE to S LAMAR BLVD	2 - High	3 - Medium
3A - 017	BARTON HILLS, O HENRY, PEASE	BARTON HILLS DR	No bike facility	Add bike lane - BARTON HILLS DR from BARTON SKWY to ROBERT E LEE RD	2 - High	4 - Low
3A - 018	ZILKER	DEL CURTO RD	Desired bike route	Add sidepath - DEL CURTO RD from BLUEBONNET LN to LIGHTSEY RD	2 - High	5 - Very Low

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3A - 019	ZILKER	LIGHTSEY RD	Desired bike route	Add sidepath - LIGHTSEY RD from DOLPHIN DR to DEL CURTO RD	3 - Medium	5 - Very Low
3A - 020	JOSLIN	MANCHACA RD	Not comfortable space, Poor lighting	Add lighting; landscaping; street trees; and planting strips - MANCHACA RD from W BEN WHITE BLVD SVRD WB to W BEN WHITE BLVD SVRD EB, Add sidepath - MANCHACA RD from ROUNDUP TRL to LIGHTSEY RD	1 - Very High	5 - Very Low
3A - 021	BEDICHEK, ST ELMO, JOSLIN, UPHAUS	REDD ST	Desired bike route	Add sidepath - REDD ST from MOUNT VERNON DR to MANCHACA RD	1 - Very High	5 - Very Low
3A - 023	ZILKER	CLAWSON RD	Desired bike route	Add sidepath - CLAWSON RD from VALLEYRIDGE DR to LIGHTSEY RD	4 - Low	5 - Very Low
3A - 201	JOSLIN	CASEY ST	Missing sidewalk	Construct new sidewalk - CASEY ST from GILLIS ST to Near 1409 CASEY ST	4 - Low	3 - Medium
3A - 202	JOSLIN	CASEY ST	Missing sidewalk	Construct new sidewalk - CASEY ST from GILLIS ST to west end	4 - Low	3 - Medium
3A - 203	JOSLIN, ST ELMO	PHILCO DR	Missing sidewalk	Construct new sidewalk - PHILCO DR from LANSING DR to BANBURY BND , Construct new sidewalk - PHILCO DR from Near 4605 PHILCO DR to HANK AVE	3 - Medium	5 - Very Low
3A - 205	JOSLIN	REDD ST	Missing sidewalk	Construct new sidewalk - REDD ST from WESTERN TRAILS BLVD to CACTUS LN	4 - Low	3 - Medium
3A - 206	JOSLIN	MERLE DR	Missing sidewalk	Construct new sidewalk - MERLE DR from REDD ST to CROWN DR	3 - Medium	3 - Medium
3A - 207	JOSLIN	CROWN DR	Missing sidewalk	Construct new sidewalk - CROWN DR from MERLE DR to CLAWSON RD	3 - Medium	3 - Medium

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3A - 208	JOSLIN	SOUTH FOREST DR	Missing sidewalk	Construct new sidewalk - FOREST HILL DR from MANCHACA RD to PHILCO DR , Construct new sidewalk - SOUTH FOREST DR from PHILCO DR to SYLVANDALE DR	4 - Low	5 - Very Low
3A - 209	JOSLIN	LANSING DR	Missing sidewalk	Construct new sidewalk - LANSING DR from RICHMOND AVE to MANCHACA RD	3 - Medium	5 - Very Low
3A - 210	JOSLIN	ROUNDUP TRL	Missing sidewalk	Construct new sidewalk - ROUNDUP TRL from WESTERN TRAILS BLVD to MANCHACA RD	4 - Low	5 - Very Low
3A - 211	JOSLIN	PACK SADDLE PASS	Missing sidewalk	Construct new sidewalk - PACK SADDLE PASS from WESTERN TRAILS BLVD to ROUNDUP TRL	4 - Low	4 - Low
3A - 212	JOSLIN	CACTUS LN	Missing sidewalk	Construct new sidewalk - CACTUS LN from ROUNDUP TRL to CIMARRON TRL	4 - Low	4 - Low
3A - 213	JOSLIN	CIMARRON TRL	Missing sidewalk	Construct new sidewalk - CIMARRON TRL from PACK SADDLE PASS to CACTUS LN	4 - Low	4 - Low
3A - 214	JOSLIN	FRONTIER TRL	Missing sidewalk	Construct new sidewalk - FRONTIER TRL from WESTERN TRAILS BLVD to MANCHACA RD	4 - Low	5 - Very Low
3A - 215	JOSLIN	FORT VIEW RD	Missing sidewalk	Construct new sidewalk - FORT VIEW RD from VALLEY VIEW RD to MANCHACA RD	4 - Low	4 - Low
3A - 216	JOSLIN	VALLEY VIEW RD	Missing sidewalk	Construct new sidewalk - VALLEY VIEW RD from FORT VIEW RD to recommended trail connection at 90 degree turn	4 - Low	5 - Very Low
3A - 217	JOSLIN	PRATHER LN	Missing sidewalk	Construct new sidewalk - PRATHER LN from MANCHACA RD to KEATS DR	3 - Medium	3 - Medium
3A - 218	ZILKER	GOODRICH AVE	Missing sidewalk	Construct new sidewalk - GOODRICH AVE from VALERIA ST to S LAMAR BLVD	4 - Low	5 - Very Low
3A - 219	ZILKER	GOODRICH AVE	Missing sidewalk	Construct new sidewalk - GOODRICH AVE from VALERIA ST to FORD ST	4 - Low	3 - Medium

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3A - 220	ZILKER	ANITA DR	Missing sidewalk	Construct new sidewalk - ANITA DR from BLUEBONNET LN to GARNER AVE	5 - Very Low	5 - Very Low
3A - 221	ZILKER	FORD ST	Missing sidewalk	Construct new sidewalk - FORD ST from Near 2101 FORD ST to GOODRICH AVE	4 - Low	5 - Very Low
3A - 222	ZILKER	HETHER ST	Missing sidewalk	Construct new sidewalk - HETHER ST from BLUEBONNET LN to S LAMAR BLVD	2 - High	4 - Low
3A - 223	ZILKER	FRAZIER AVE	Missing sidewalk	Construct new sidewalk - FRAZIER AVE from GOODRICH AVE to BLUEBONNET LN	5 - Very Low	5 - Very Low
3A - 224	ZILKER	BLUE CREST DR	Missing sidewalk	Construct new sidewalk - HOLLAND AVE from ANN ARBOR AVE to BLUEBONNET LN , Construct new sidewalk - BLUE CREST DR from GOODRICH AVE to BLUEBONNET LN	4 - Low	5 - Very Low
3A - 225	ZILKER	RABB GLEN ST	Missing sidewalk	Construct new sidewalk - RABB GLEN ST from BLUEBONNET LN to RABB RD	5 - Very Low	5 - Very Low
3A - 226	ZILKER	ANN ARBOR AVE	Missing sidewalk	Construct new sidewalk - ANN ARBOR AVE from MONTCLAIRE ST to LA CASA DR , Construct new sidewalk - ANN ARBOR AVE from MONTCLAIRE ST to HOLLAND AVE	4 - Low	5 - Very Low
3A - 227	ZILKER	MEADOWRIDGE DR	Missing sidewalk	Construct new sidewalk - MEADOWRIDGE DR from BLUEBONNET LN to ANN ARBOR AVE	5 - Very Low	5 - Very Low
3A - 228	ZILKER	RABB RD	Missing sidewalk	Construct new sidewalk - RABB RD from NORRIS DR to RAE DELL AVE , Construct new sidewalk - RABB RD from MELRIDGE PL to RIDGEVIEW ST	4 - Low	5 - Very Low
3A - 229	ZILKER	PARAMOUNT AVE	Missing sidewalk	Construct new sidewalk - PARAMOUNT AVE from LA CASA DR to RUNDELL PL	5 - Very Low	5 - Very Low
3A - 230	ZILKER	ANN ARBOR AVE	Missing sidewalk	Construct new sidewalk - ANN ARBOR AVE from HOLLAND AVE to RUNDELL PL	5 - Very Low	5 - Very Low

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3A - 231	ZILKER	RUNDELL PL	Missing sidewalk	Construct new sidewalk - RUNDELL PL from ANN ARBOR AVE to BLUEBONNET LN	3 - Medium	3 - Medium
3A - 232	ZILKER	RUNDELL PL	Narrow sidewalk, Permanent obstruction (ex. pole/tree)	Repair existing sidewalk - RUNDELL PL from BLUEBONNET LN to ANN ARBOR AVE , Fix sidewalk obstructions - RUNDELL PL from BLUEBONNET LN to ANN ARBOR AVE	5 - Very Low	5 - Very Low
3A - 233	ZILKER	RUNDELL PL	Missing sidewalk	Construct new sidewalk - RUNDELL PL from RABB RD to ANN ARBOR AVE	5 - Very Low	4 - Low
3A - 234	BARTON HILLS	CEDARVIEW DR	Missing sidewalk	Construct new sidewalk - CEDARVIEW DR from BARTON SKWY to BARTON PKWY , Construct new sidewalk - ARPDALE ST from RAE DELL AVE to BARTON PKWY	4 - Low	5 - Very Low
3A - 235	BARTON HILLS	BARTON SKWY	Missing sidewalk	Construct new sidewalk - BARTON SKWY from BARTON HILLS DR to SKYWAY CIR	3 - Medium	5 - Very Low
3A - 236	BARTON HILLS	BARTON HILLS DR	Missing sidewalk	Construct new sidewalk - BARTON HILLS DR from HOMEDALE DR to BARTON SKWY	3 - Medium	3 - Medium
3A - 237	BARTON HILLS	HOMEDALE DR	Missing sidewalk	Construct new sidewalk - HOMEDALE DR from BARTON PKWY to BARTON HILLS DR	4 - Low	3 - Medium
3A - 238	BARTON HILLS	BARHILL DR	Missing sidewalk	Construct new sidewalk - BARHILL DR from BARTON PKWY to BARTON HILLS DR	2 - High	2 - High
3A - 239	BARTON HILLS	BARHILL DR	Missing sidewalk	Construct new sidewalk - BARHILL DR from BARTON PKWY to BARTON HILLS DR	4 - Low	3 - Medium
3A - 240	BARTON HILLS	WILKE DR	Missing sidewalk	Construct new sidewalk - WILKE DR from BARTON PKWY to BARTON HILLS DR	2 - High	1 - Very High
3A - 241	BARTON HILLS	WILKE DR	Missing sidewalk	Construct new sidewalk - WILKE DR from BARTON PKWY to BARTON HILLS DR	5 - Very Low	4 - Low

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Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
3A - 242	BARTON HILLS	GLENCLIFF DR	Missing sidewalk	Construct new sidewalk - HOMEDALE DR from BRIARCREST DR to BARTON HILLS DR , Construct new sidewalk - GLENCLIFF DR from HOMEDALE DR to BROOKHAVEN DR	2 - High	4 - Low
3A - 243	BARTON HILLS	CRESTHAVEN DR	Missing sidewalk	Construct new sidewalk - CRESTHAVEN DR from BROOKHAVEN DR to BARTON HILLS DR	5 - Very Low	5 - Very Low
3A - 244	BARTON HILLS	BROOKHAVEN DR	Missing sidewalk	Construct new sidewalk - BROOKHAVEN DR from CRESTHAVEN DR to GLENCLIFF DR	5 - Very Low	5 - Very Low
3A - 245	BARTON HILLS	BARTON HILLS DR	Missing sidewalk	Construct new sidewalk - BARTON HILLS DR from RIDGEVIEW ST to TRAILSIDE DR	4 - Low	4 - Low
3A - 246	BARTON HILLS	BARTON PKWY	Missing sidewalk	Construct new sidewalk - BARTON PKWY from RIDGEVIEW ST to WILKE DR	4 - Low	5 - Very Low
3A - 247	BARTON HILLS	BARTONCLIFF DR	Missing sidewalk	Construct new sidewalk - BARTONCLIFF DR from GRAYWOOD CV to GLENCLIFF DR	5 - Very Low	5 - Very Low
3A - 252	BARTON HILLS	BARTON PKWY	Missing sidewalk	Construct new sidewalk - BARTON PKWY from CEDARVIEW DR to WILKE DR	3 - Medium	4 - Low
3A - 253	BARTON HILLS	BARTON PKWY	Missing sidewalk	Construct new sidewalk - BARTON PKWY from ARPDALE ST to WILKE DR	3 - Medium	4 - Low
3A - 254	BARTON HILLS	FOREST BEND DR	Missing sidewalk	Construct new sidewalk - FOREST BEND DR from BARTON HILLS DR to Near 2207 FOREST BEND DR	5 - Very Low	5 - Very Low
3A - 259	JOSLIN	KEATS DR	Missing sidewalk	Construct new sidewalk - KEATS DR from PANTHER TRL to PRATHER LN	4 - Low	4 - Low
3A - 260	None (nearest school: Joslin)	VALLEY VIEW RD	Missing sidewalk	Construct new sidewalk - VALLEY VIEW RD from MANCHACA RD to end	4 - Low	4 - Low
3A - 261	BARTON HILLS	FARNSWOOD CIR	Missing sidewalk	Construct new sidewalk - FARNSWOOD CIR from BARTON HILLS DR to Near 2310 FARNSWOOD CIR	5 - Very Low	5 - Very Low

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3A - 262	BARTON HILLS	FOUR OAKS LN	Missing sidewalk	Construct new sidewalk - FOUR OAKS LN from KASSARINE PASS to BARTON HILLS DR	5 - Very Low	5 - Very Low
3A - 263	BARTON HILLS	KASSARINE PASS	Missing sidewalk	Construct new sidewalk - KASSARINE PASS from MATTERHORN LN to MOUNTAIN VIEW DR	5 - Very Low	5 - Very Low
3A - 264	BARTON HILLS	MATTERHORN LN	Missing sidewalk	Construct new sidewalk - MATTERHORN LN from BARTON HILLS DR to Near 2301 MATTERHORN LN	5 - Very Low	5 - Very Low
3A - 265	BARTON HILLS	ROCK TERRACE DR	Missing sidewalk	Construct new sidewalk - ROCK TERRACE DR from MATTERHORN LN to BARTON PKWY	4 - Low	5 - Very Low
3A - 266	BARTON HILLS	ROCKINGHAM DR	Missing sidewalk	Construct new sidewalk - ROCKINGHAM DR from BARTON PKWY to MATTERHORN LN	5 - Very Low	5 - Very Low
3A - 267	BARTON HILLS	CEDARVIEW DR	Missing sidewalk	Construct new sidewalk - CEDARVIEW DR from OAK PARK DR to BARTON SKWY , Construct new sidewalk - OAK PARK DR from CEDARVIEW DR to CEDARVIEW DR	5 - Very Low	5 - Very Low
3A - 268	BARTON HILLS	OAK HAVEN DR	Missing sidewalk	Construct new sidewalk - OAK HAVEN DR from BLUFFVIEW DR to CEDARVIEW DR	4 - Low	5 - Very Low
3A - 269	BARTON HILLS	RAE DELL AVE	Missing sidewalk	Construct new sidewalk - RAE DELL AVE from ELMGLEN DR to BARTON SKWY	5 - Very Low	5 - Very Low
3A - 270	BARTON HILLS	RAE DELL AVE	Missing sidewalk	Construct new sidewalk - ELMGLEN DR from RAE DELL AVE to OAK HAVEN DR , Construct new sidewalk - RAE DELL AVE from RABB RD to ELMGLEN DR	5 - Very Low	5 - Very Low
3A - 271	BARTON HILLS	FORTUNE DR	Missing sidewalk	Construct new sidewalk - FORTUNE DR from AIROLE WAY to RABB RD	5 - Very Low	5 - Very Low
3A - 272	BARTON HILLS	WILKE DR	Missing sidewalk	Construct new sidewalk - WILKE DR from RABB RD to BARTON PKWY	4 - Low	4 - Low

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3A - 273	BARTON HILLS	ARTHUR LN	Missing sidewalk	Construct new sidewalk - ARTHUR LN from WILKE DR to RUNDELL PL	5 - Very Low	5 - Very Low
3A - 274	BARTON HILLS	RIDGEVIEW ST	Missing sidewalk	Construct new sidewalk - RIDGEVIEW ST from RABB RD to WESTRIDGE DR	5 - Very Low	5 - Very Low
3A - 275	BARTON HILLS	WESTRIDGE DR	Missing sidewalk	Construct new sidewalk - WESTRIDGE DR from Near 1911 WESTRIDGE DR to RIDGEVIEW ST	5 - Very Low	5 - Very Low
3A - 276	BARTON HILLS	RIDGEVIEW ST	Missing sidewalk	Construct new sidewalk - RIDGEVIEW ST from WESTRIDGE DR to BARTON HILLS DR	5 - Very Low	5 - Very Low
3A - 277	BARTON HILLS	CRESTHAVEN DR	Missing sidewalk	Construct new sidewalk - CRESTHAVEN DR from BROOKHAVEN DR to BARTONCLIFF DR	5 - Very Low	5 - Very Low
3A - 278	BARTON HILLS	DEERFOOT TRL	Missing sidewalk	Construct new sidewalk - DEERFOOT TRL from BARTON HILLS DR to Near 2630 DEERFOOT TRL	5 - Very Low	5 - Very Low
3A - 279	BARTON HILLS	WILDGROVE DR	Missing sidewalk	Construct new sidewalk - WILDGROVE DR from CLIFFSIDE DR to BARTON HILLS DR	5 - Very Low	5 - Very Low
3A - 280	BARTON HILLS	BRIARGROVE DR	Missing sidewalk	Construct new sidewalk - BRIARGROVE DR from CLIFFSIDE DR to BARTON HILLS DR	5 - Very Low	5 - Very Low
3A - 281	BARTON HILLS	CLIFFSIDE DR	Missing sidewalk	Construct new sidewalk - CLIFFSIDE DR from DEERFOOT TRL to TRAILSIDE DR	3 - Medium	3 - Medium
3A - 282	BARTON HILLS	LA CASA DR	Missing sidewalk	Construct new sidewalk - LA CASA DR from S LAMAR BLVD to Near 2409 LA CASA DR	5 - Very Low	5 - Very Low
3A - 283	BARTON HILLS, ZILKER	MONTCLAIRE ST	Missing sidewalk	Construct new sidewalk - MONTCLAIRE ST from ANN ARBOR AVE to LA CASA DR	5 - Very Low	5 - Very Low
3A - 284	ZILKER	ARPDALE ST	Missing sidewalk	Construct new sidewalk - ARPDALE ST from BLUEBONNET LN to RAE DELL AVE	5 - Very Low	5 - Very Low
3A - 285	ZILKER	DE VERNE ST	Missing sidewalk	Construct new sidewalk - DE VERNE ST from BLUEBONNET LN to RAE DELL AVE	5 - Very Low	5 - Very Low
3A - 286	ZILKER	VALERIA ST	Missing sidewalk	Construct new sidewalk - VALERIA ST from KINNEY AVE to GOODRICH AVE	4 - Low	4 - Low

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3A - 287	ZILKER	OXFORD AVE	Missing sidewalk	Construct new sidewalk - OXFORD AVE from S LAMAR BLVD to HETHER ST	4 - Low	5 - Very Low
3A - 289	ZILKER	NORRIS DR	Missing sidewalk	Construct new sidewalk - NORRIS DR from RABB RD to RABB RD	5 - Very Low	5 - Very Low
3A - 290	ZILKER	PEACH TREE ST	Missing sidewalk	Construct new sidewalk - PEACH TREE ST from BLUEBONNET LN to NORRIS DR	5 - Very Low	5 - Very Low
3A - 291	ZILKER	WRIGHT ST	Missing sidewalk	Construct new sidewalk - WRIGHT ST from Near 2111 WRIGHT ST to BLUEBONNET LN	5 - Very Low	5 - Very Low
3A - 292	ZILKER	ASHBY AVE	Missing sidewalk	Construct new sidewalk - ASHBY AVE from Near 2113 ASHBY AVE to BLUEBONNET LN	5 - Very Low	5 - Very Low
3A - 294	ZILKER	BAUERLE AVE	Missing sidewalk	Construct new sidewalk - BAUERLE AVE from GOODRICH AVE to KINNEY AVE	5 - Very Low	4 - Low
3A - 295	ZILKER	NASH AVE	Missing sidewalk	Construct new sidewalk - NASH AVE from KINNEY AVE to GOODRICH AVE	5 - Very Low	5 - Very Low
3A - 296	ZILKER	COLLIER ST	Missing sidewalk	Construct new sidewalk - COLLIER ST from EVERGREEN AVE to BLUEBONNET LN	5 - Very Low	5 - Very Low
3A - 297	ZILKER	ASHBY AVE	Missing sidewalk	Construct new sidewalk - ASHBY AVE from KINNEY AVE to MELRIDGE PL	5 - Very Low	5 - Very Low
3A - 298	ZILKER	DYWER AVE	Missing sidewalk	Construct new sidewalk - DYWER AVE from SPILLMAN ST to KINNEY AVE	5 - Very Low	5 - Very Low
3A - 299	ZILKER	DYWER AVE	Missing sidewalk	Construct new sidewalk - SPILLMAN ST from FOLTS AVE to DYWER AVE , Construct new sidewalk - DYWER AVE from FOLTS AVE to SPILLMAN ST	5 - Very Low	5 - Very Low
3A - 301	ZILKER	FOLTS AVE	Missing sidewalk	Construct new sidewalk - FOLTS AVE from ASHBY AVE to TREADWELL ST	5 - Very Low	5 - Very Low

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3A - 302	ZILKER	GARNER AVE	Missing sidewalk	Construct new sidewalk - GOODRICH AVE from HETHER ST to GARNER AVE , Construct new sidewalk - GARNER AVE from LINSCOMB AVE to GOODRICH AVE	3 - Medium	5 - Very Low
3A - 303	ZILKER	ANN ARBOR AVE	Missing sidewalk	Construct new sidewalk - ANN ARBOR AVE from FORD ST to RUNDELL PL	3 - Medium	2 - High
3A - 304	JOSLIN	GLENHAVEN	Missing sidewalk	Construct new sidewalk - GLENHAVEN from EVERGLADE DR to end	4 - Low	3 - Medium
3A - 305	JOSLIN	FORESTGLADE DR	Missing sidewalk	Construct new sidewalk - FORESTGLADE DR from MANCHACA RD to PHILCO DR	4 - Low	5 - Very Low
3A - 306	JOSLIN	ENCHANTED LN	Missing sidewalk	Construct new sidewalk - ENCHANTED LN from SOUTH FOREST DR to LANSING DR	5 - Very Low	5 - Very Low
3A - 307	JOSLIN	SYLVANDALE DR	Missing sidewalk	Construct new sidewalk - SYLVANDALE DR from SOUTH FOREST DR to LANSING DR	5 - Very Low	5 - Very Low
3A - 308	JOSLIN	CLAWSON RD	Missing sidewalk	Construct new sidewalk - GLADEVIEW DR from LANSING DR to SOUTH FOREST DR , Construct new sidewalk - CLAWSON RD from CROWN DR to SOUTH FOREST DR	3 - Medium	5 - Very Low
3A - 309	JOSLIN	SYLVAN GLADE	Missing sidewalk	Construct new sidewalk - SYLVAN GLADE from BANBURY BND to CLAWSON RD	4 - Low	4 - Low
3A - 310	JOSLIN	BANBURY BND	Missing sidewalk	Construct new sidewalk - BANBURY BND from PHILCO DR to SYLVAN GLADE	4 - Low	3 - Medium
3A - 311	JOSLIN	GILLIS ST	Missing sidewalk	Construct new sidewalk - GILLIS ST from W BEN WHITE BLVD SVRD EB to GREEN FOREST DR	4 - Low	5 - Very Low
3A - 312	JOSLIN	RUSSELL DR	Missing sidewalk	Construct new sidewalk - RUSSELL DR from CROWN DR to MANCHACA TO BEN WHITE EB RAMP	3 - Medium	4 - Low

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3A - 313	JOSLIN	FORT VIEW RD	Missing sidewalk	Construct new sidewalk - FORT VIEW RD from MANCHACA RD to Near 2111 FORT VIEW RD	4 - Low	4 - Low
3A - 314	JOSLIN	CLAWSON RD	Missing sidewalk	Construct new sidewalk - CLAWSON RD from W BEN WHITE BLVD SVRD WB to DOOLIN DR	3 - Medium	5 - Very Low
3A - 315	BARTON HILLS	FOXGLEN DR	Missing sidewalk	Construct new sidewalk - FOXGLEN DR from BARTON HILLS DR to GLENCLIFF DR	5 - Very Low	4 - Low
3A - 601	JOSLIN	CIMARRON TRL / MANCHACA RD	Faded crosswalk markings, Non-compliant curb ramps	Install high visibility crosswalk [1] across Cimarron Trail , Replace existing curb ramp [1]	2 - High	1 - Very High
3A - 602	JOSLIN	FOREST HILL DR / MANCHACA RD	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Forest Hill , Install Pedestrian Hybrid Beacon [1] , Replace existing curb ramp [2]	2 - High	3 - Medium
3A - 603	JOSLIN	CASEY ST / GILLIS ST	Missing curb ramps, Difficult crossing	Add new curb ramp [4] , Install high visibility crosswalk [4] across Gillis and Casey	4 - Low	3 - Medium
3A - 604	ZILKER	GOODRICH AVE / HETHER ST	Difficult crossing	Install high visibility crosswalk [2] across Goodrich & Hether	3 - Medium	2 - High
3A - 605	BARTON HILLS	BARTON HILLS DR / BARTON SKWY	Faded crosswalk markings, Non-compliant curb ramps	Install high visibility crosswalk [4] across Barton Hills Pkwy & Barton Skyway , Replace existing curb ramp [2]	3 - Medium	2 - High
3A - 606	ZILKER	GOODRICH AVE / S LAMAR BLVD	Difficult crossing	Install high visibility crosswalk [1] across Goodrich	4 - Low	2 - High

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3A - 607	ZILKER	BLUEBONNET LN / S LAMAR BLVD	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [4] across Lamar & Bluebonnet , Replace existing curb ramp [4]	2 - High	1 - Very High
3A - 609	ZILKER	BLUEBONNET LN / RABB GLEN ST	Missing curb ramps, Non-compliant curb ramps	Add new curb ramp [2] , Install high visibility crosswalk [2] across Bluebonnet & Rabb Glenn , Replace existing curb ramp [2]	3 - Medium	2 - High
3A - 610	ZILKER	ANN ARBOR AVE / HOLLAND AVE	Difficult crossing	Install high visibility crosswalk [2] across Ann Arbor & Holland	5 - Very Low	3 - Medium
3A - 611	ZILKER	ANN ARBOR AVE / RUNDELL PL	Difficult crossing, Wide curb radii	Install 4 way stop , Install high visibility crosswalk [4] across Ann Arbor & Rundell Place , Tighten curb radii	2 - High	1 - Very High
3A - 612	JOSLIN	PACK SADDLE PASS / ROUNDUP TRL	High speed crossing, Long crossing distance, Non-compliant curb ramps, Wide curb radii	Install neighborhood traffic circle , Replace existing curb ramp [2]	4 - Low	3 - Medium
3A - 613	JOSLIN	CLAWSON RD / CROWN DR	Long crossing distance, Wide curb radii	Tighten curb radii	3 - Medium	2 - High

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3A - 614	BARTON HILLS	BRIARCREST DR / GLENCLIFF DR / HOMEDALE DR	Difficult crossing	Install high visibility crosswalk [1] across Homedale Dr	3 - Medium	2 - High
3A - 615	JOSLIN	CACTUS LN / CIMARRON TRL	Missing curb ramps, Poor sightlines	Add curb extensions [1] on Cimarron Trail	2 - High	1 - Very High
3A - 617	ZILKER	BLUEBONNET LN / HETHER ST	Poor sightlines	Add curb extensions [1] on Bluebonnet	2 - High	1 - Very High
3A - 618	ZILKER	BLUEBONNET LN / FRAZIER AVE	Non-compliant curb ramps	Replace existing curb ramp [2]	5 - Very Low	3 - Medium
3A - 619	ZILKER	BLUEBONNET LN / BLUE CREST DR / HOLLAND AVE	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Bluebonnet , Replace existing curb ramp [2]	2 - High	1 - Very High
3A - 621	JOSLIN	CIMARRON TRL / PACK SADDLE PASS	Difficult crossing, Non-compliant curb ramps	Add curb extensions [2] on Pack Saddle Pass , Install high visibility crosswalk [2] across Cimarron Trail & Pack Saddle Pass , Replace existing curb ramp [2]	4 - Low	3 - Medium

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3A - 622	JOSLIN	FRONTIER TRL / PACK SADDLE PASS	Missing curb ramps, Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Pack Saddle , Replace existing curb ramp [2]	4 - Low	2 - High
3A - 623	BARTON HILLS	BARTON PKWY / WILKE DR	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Wilke , Tighten curb radii	4 - Low	3 - Medium
3A - 624	ZILKER	ANITA DR / BLUEBONNET LN	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [2] across Bluebonnet & Anita , Replace existing curb ramp [2]	3 - Medium	2 - High
3A - 626	ZILKER	GOODRICH AVE / VALERIA ST	Difficult crossing	Install high visibility crosswalk [1] across Goodrich	4 - Low	2 - High
3A - 627	JOSLIN	FRONTIER TRL / WESTERN TRAILS BLVD	Non-compliant curb ramps	Replace existing curb ramp [4] , Tighten curb radii	4 - Low	3 - Medium
3A - 628	JOSLIN	CACTUS LN / REDD ST	Missing curb ramps, Difficult crossing, Non-compliant curb ramps	Add new curb ramp [2] , Install high visibility crosswalk [2] across Redd	1 - Very High	1 - Very High
3A - 629	JOSLIN	MANCHACA RD / PRATHER LN	Faded crosswalk markings, Non-compliant curb ramps	Install high visibility crosswalk [1] across Prather , Replace existing curb ramp [3]	2 - High	1 - Very High

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3A - 631	JOSLIN	MANCHACA RD / REDD ST	Drivers ignore No Right Turn on Red	Add lighting , Adjust signal timing , Replace existing curb ramp [2]	1 - Very High	1 - Very High
3A - 633	BARTON HILLS	BARTON HILLS DR / DEERFOOT TRL	Long crossing distance, Difficult crossing	Add median refuge island on Barton Hills Dr , Install high visibility crosswalk [1] across Barton Hills Dr	3 - Medium	2 - High
3A - 634	JOSLIN	FORT VIEW RD	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Fortview Rd	4 - Low	3 - Medium
3A - 638	JOSLIN	Midblock - REDD ST	Conflicts with vehicles exiting crosswalk	Add lighting , Add new curb ramp [1] , Move crosswalk to east of school driveway	1 - Very High	1 - Very High
3A - 639	ZILKER	BLUEBONNET LN	Faded crosswalk markings	Repaint crosswalk markings [1] across Bluebonnet	5 - Very Low	3 - Medium
3A - 640	BARTON HILLS	ARPDALE ST / BARTON PKWY / CEDARVIEW DR	Difficult crossing	Add new curb ramp [2] , Add stop bars , Install high visibility crosswalk [2] across Arpdale Ave	4 - Low	2 - High
3A - 641	None (nearest school: Barton Hills)	BARTON SKWY / WESTHILL DR	Difficult crossing	Add median refuge island on Barton Skyway , Install high visibility crosswalk [1] across Barton Skyway , Tighten curb radii [2]	4 - Low	3 - Medium
3A - 642	BARTON HILLS	BARTON SKWY / OAK HAVEN DR	Difficult crossing	Add median refuge island on Barton Skyway , Install high visibility crosswalk [1] across Barton Skyway	4 - Low	2 - High

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3A - 643	ZILKER	ASHBY AVE / BLUEBONNET LN / MELRIDGE PL	Difficult crossing	Add concrete protection to bike crossing	5 - Very Low	5 - Very Low
3A - 644	ZILKER	COLLIER ST / GARNER AVE	Difficult crossing	Eliminate slip lane , Install high visibility crosswalk [2] across Collier St	4 - Low	5 - Very Low
3A - 645	JOSLIN	PACK SADDLE PASS / PACKSADDLE TO BEN WHIT EB RAMP / W BEN WHITE BLVD SVRD EB	Difficult crossing	Add Leading Pedestrian Interval (LPI) , Add median refuge island on south leg , Adjust signal timing , Install high visibility crosswalk [4] across all legs	3 - Medium	2 - High
3A - 646	JOSLIN	PACK SADDLE PASS / VICTORY DR / W BEN WHITE BLVD SVRD WB	Difficult crossing	Add curb extensions [1] on southwest corner , Add Leading Pedestrian Interval (LPI) , Add median refuge island on north leg , Adjust signal timing , Install high visibility crosswalk [4] across all legs	3 - Medium	3 - Medium

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3A - 647	JOSLIN	MANCHACA RD / W BEN WHITE BLVD SVRD EB	Difficult crossing	Add Leading Pedestrian Interval (LPI) , Add median refuge island on south leg , Adjust signal timing , Install high visibility crosswalk [4] across all legs	2 - High	1 - Very High
3A - 648	JOSLIN	MANCHACA RD / W BEN WHITE BLVD SVRD WB	Difficult crossing	Add curb extensions [1] on southwest corner , Add Leading Pedestrian Interval (LPI) , Add median refuge island on north leg , Adjust signal timing , Install high visibility crosswalk [4] across all legs	2 - High	2 - High
3A - 649	JOSLIN	FORT VIEW RD / MANCHACA RD	Difficult crossing	Install high visibility crosswalk [4] across all legs	3 - Medium	1 - Very High
3A - 650	JOSLIN	LANSING DR / MANCHACA RD	Difficult crossing	Install high visibility crosswalk [4] across all legs	3 - Medium	2 - High
3A - 651	BARTON HILLS	BARTON SKWY / CEDARVIEW DR	Difficult crossing	Add curb extensions [8] on Cedarview Dr & Barton Skwy , Install high visibility crosswalk [4] across Cedarview Dr & Barton Skwy	5 - Very Low	4 - Low
3A - 657	None (nearest school: Zilker)	BLUEBONNET LN / DEL CURTO RD	Difficult crossing	Install high visibility crosswalk [1] across Bluebonnet Ln , Study for all-way stop	3 - Medium	1 - Very High

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3A - 658	ZILKER	HETHER ST / S LAMAR BLVD / W MARY ST	Difficult crossing	Add bicycle detection , Add green cross bike markings , Add Leading Pedestrian Interval (LPI)	4 - Low	2 - High
3A - 801	BARTON HILLS	Near 2108 HOMEDALE DR	Parking in no parking zone	Paint curbs red to reinforce no parking signs	5 - Very Low	4 - Low
3A - 806	ZILKER	Near 1902 ANN ARBOR AVE	Parking lot circulation issues	Consider time restricted no parking and staff support for continuous drop off/pick up line , Study circulation or parking	5 - Very Low	4 - Low
3A - 807	ZILKER	Near 2012 BLUEBONNET LN	Drivers block protected bike lane to drop off students	Consider temporary barrier for protected bike lane in front of faculty parking lot	5 - Very Low	4 - Low
3A - 808	JOSLIN	Near 4327 MANCHACA RD	No lighting	Add lighting under Ben White, add other elements to improve comfort such as landscaping or trees as a sidewalk buffer	3 - Medium	1 - Very High
3A - 809	JOSLIN	Near 4301 VICTORY DR	No lighting	Add lighting under Ben White, add other elements to improve comfort such as landscaping or trees as a sidewalk buffer	4 - Low	2 - High
3A - 810	ZILKER	Near 2001 RUNDELL PL	School zone sign lacking flashers	Add flashers to school zone sign	5 - Very Low	5 - Very Low
3A - 811	ZILKER	Near 2101 RUNDELL PL	School zone sign lacking flashers	Add flashers to school zone sign	5 - Very Low	5 - Very Low

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Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
3A - 812	ZILKER	Near 2007 ANN ARBOR AVE	School zone sign lacking flashers	Add flashers to school zone sign	5 - Very Low	5 - Very Low
3A - 902	JOSLIN	Near 3809 VALLEY VIEW RD	No trail connection	Construct new shared use path	4 - Low	4 - Low
3A - 903	ZILKER	Near 3014 DEL CURTO RD	No trail connection	Construct new shared use path	3 - Medium	3 - Medium
3A - 904	JOSLIN	Near 4400 RUSSELL DR	No trail connection	Construct new shared use path	3 - Medium	5 - Very Low
3A - 905	JOSLIN	Near 2007 BERT AVE	No trail connection	Add gate , Construct new shared use path	4 - Low	4 - Low

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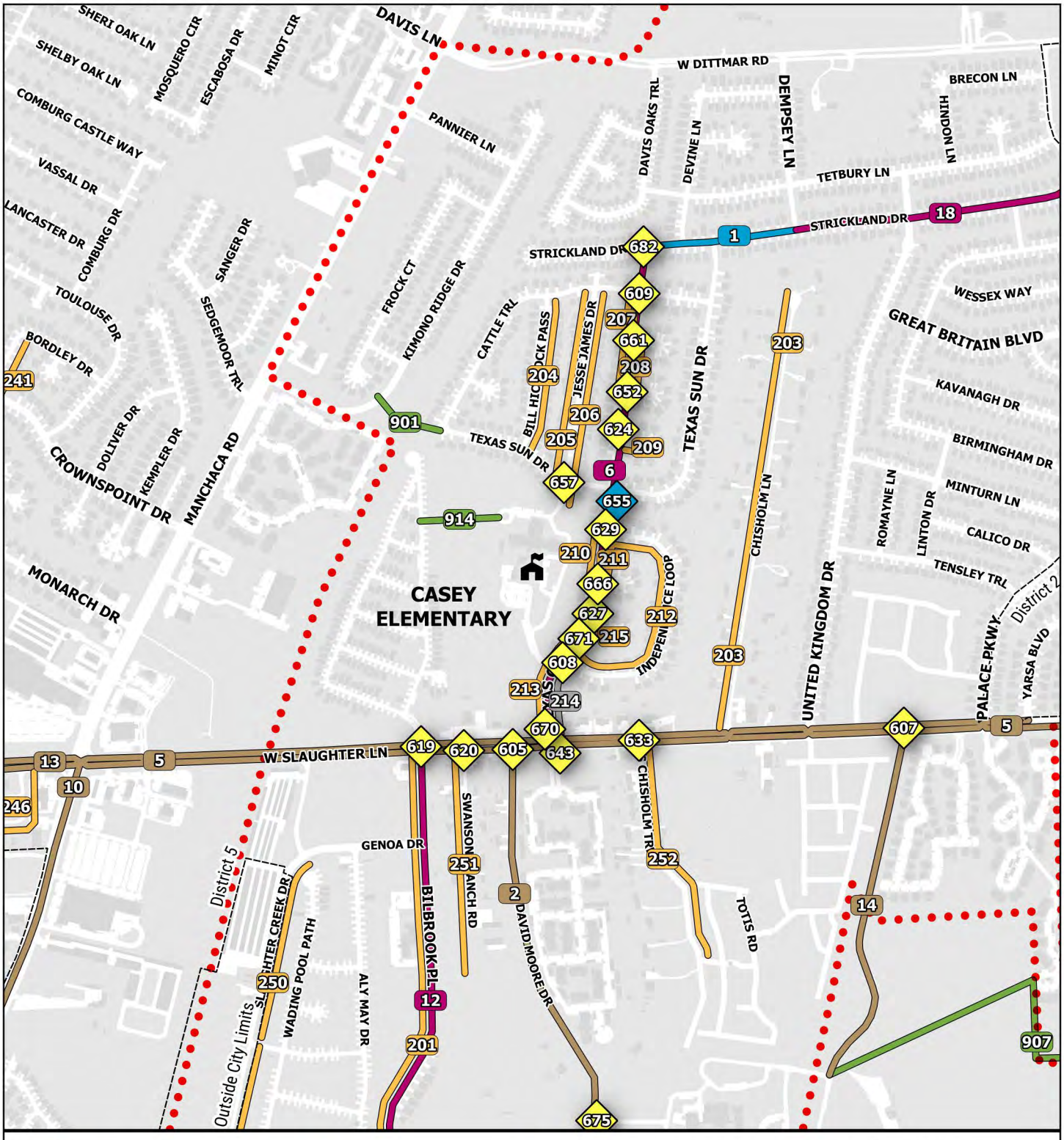
MAP 3B: CASEY ELEMENTARY



CITY OF AUSTIN
austin MOTION
2016 MOBILITY BOND

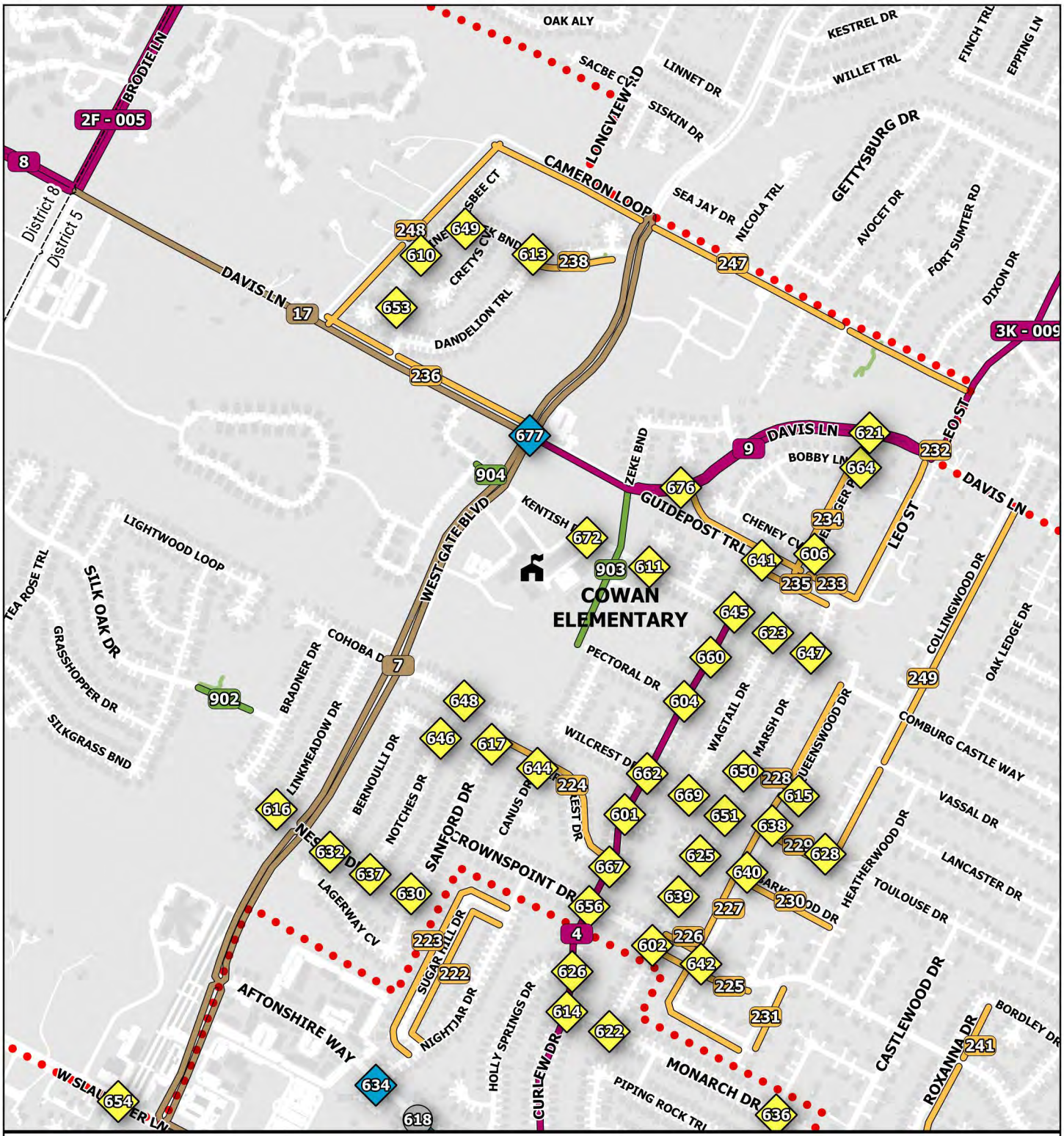
SAFE ROUTES TO SCHOOL

TOOLE DESIGN

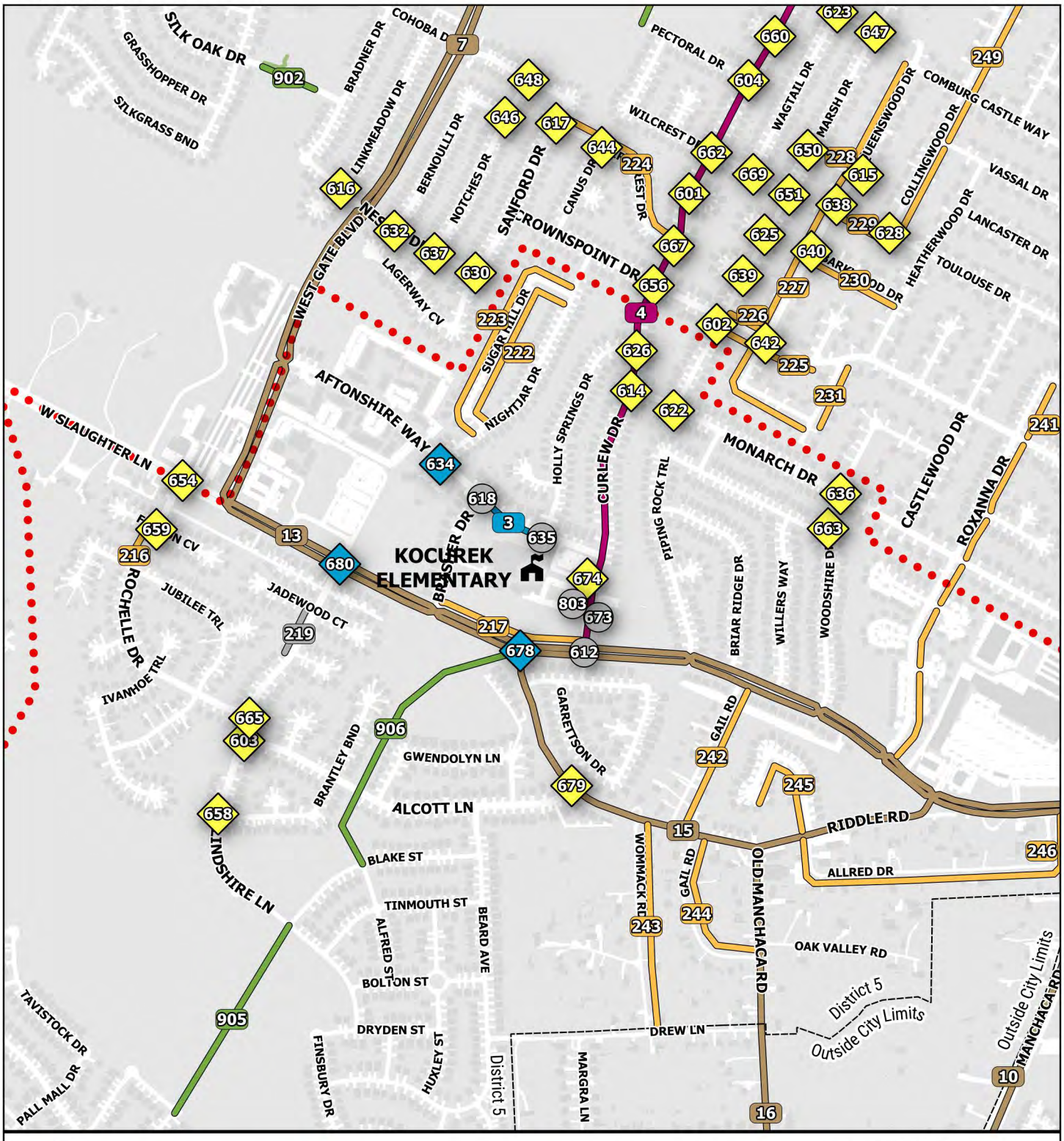
0 800 1600 2400 ft

- Off-Street Trail
- Bike Lane / Buffered Bike Lane / Protected Bike Lane
- Sidepath
- Neighborhood Bikeway / Traffic Calming
- New / Improved Sidewalk
- Other linear recommendation
- Traffic Control / Intersection Reconfiguration
- Ramp / Curb Extension / Crosswalk
- Over / Underpass
- Other Spot Recommendation
- Existing Trail
- School Boundary
- Council District Boundary

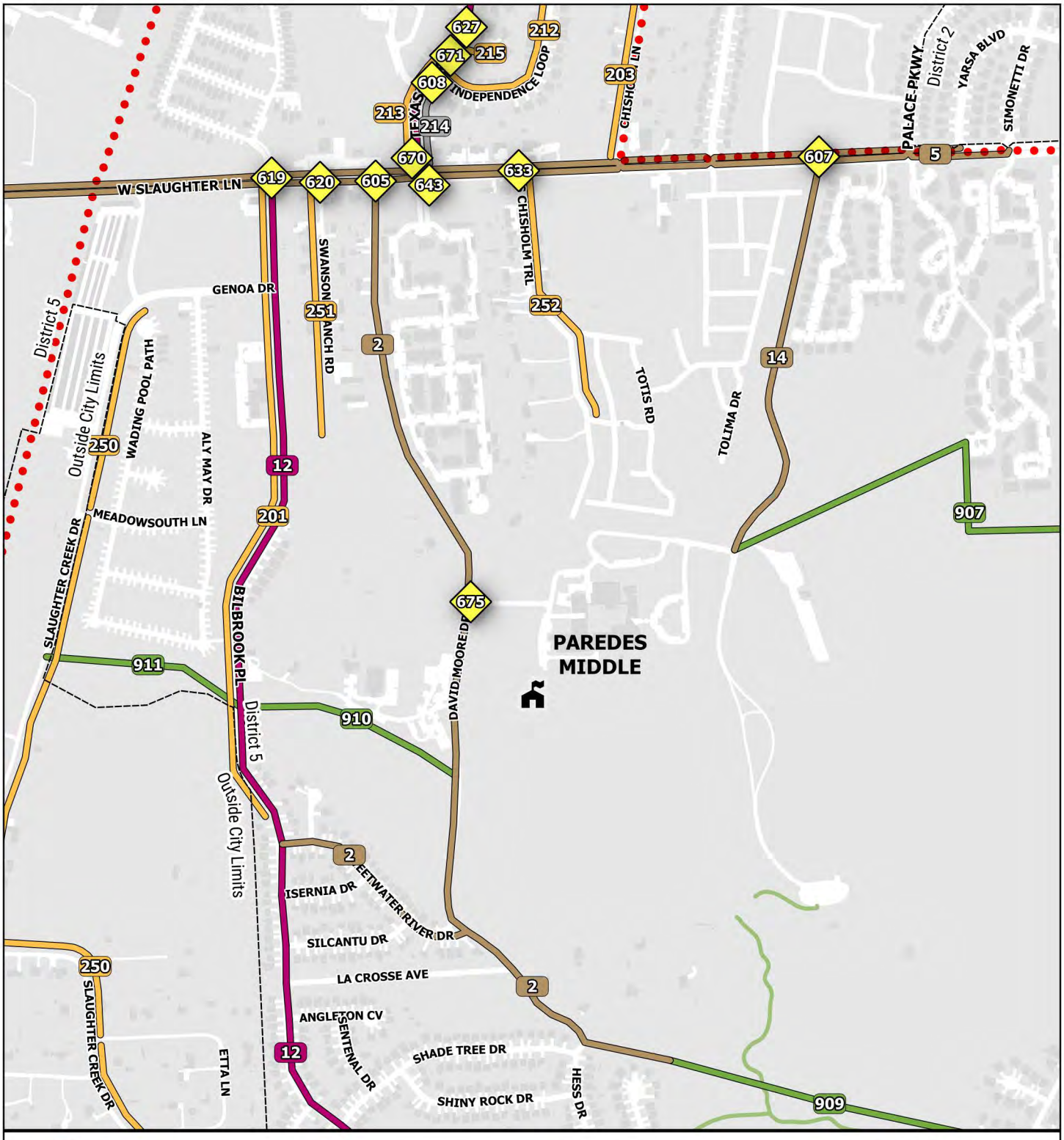
MAP 3B: COWAN ELEMENTARY



MAP 3B: KOCUREK ELEMENTARY



MAP 3B: PAREDES MIDDLE



CITY OF AUSTIN austin MOTION 2016 MOBILITY BOND

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3B - 001	PAREDES, CASEY	STRICKLAND DR	Desired bike route, No bike facility	Add neighborhood bikeway - STRICKLAND DR from DEMPSEY LN to TEXAS OAKS DR	3 - Medium	2 - High
3B - 002	PAREDES, CASEY	SWEETWATER RIVER DR	Desired bike route, No bike facility	Add sidepath - SWEETWATER RIVER DR from BILBROOK PL to DAVID MOORE DR , Add sidepath - DAVID MOORE DR from W SLAUGHTER LN to HESS DR	1 - Very High	5 - Very Low
3B - 003	KOCUREK	AFTONSHIRE WAY	Excessive vehicle speeds	Add speed cushions - AFTONSHIRE WAY from BRASHER DR to HOLLY SPRINGS DR	1 - Very High	1 - Very High
3B - 004	KOCUREK, COWAN	CURLEW DR	Desired bike route, Excessive vehicle speeds, No bike facility	Add buffered bike lane - CURLEW DR from W SLAUGHTER LN to CROWNSPOINT DR , Add protected bike lane - CURLEW DR from CROWNSPOINT DR to WILCREST DR , Add buffered bike lane - CURLEW DR from WILCREST DR to KENTISH DR , Add speed cushions - CURLEW DR from CURLEW CV to KENTISH DR	1 - Very High	4 - Low
3B - 005	PAREDES, CASEY, BEDICHEK	W SLAUGHTER LN	No bike facility	Add sidepath - W SLAUGHTER LN from SIMONETTI DR to MANCHACA RD	1 - Very High	5 - Very Low
3B - 006	CASEY, PAREDES	TEXAS OAKS DR	No striping	Add buffered bike lane - TEXAS OAKS DR from W SLAUGHTER LN to STRICKLAND DR	1 - Very High	3 - Medium
3B - 007	COVINGTON, COWAN	WEST GATE BLVD	No bike facility	Add sidepath - WEST GATE BLVD from W SLAUGHTER LN to CAMERON LOOP	1 - Very High	5 - Very Low
3B - 009	COWAN, COVINGTON	DAVIS LN	No bike facility	Add bike lane - DAVIS LN from WEST GATE BLVD to DAVIS EB TO LEO SB TRN	3 - Medium	4 - Low
3B - 010	KOCUREK	MANCHACA RD	No bike facility	Add sidepath - MANCHACA RD from W SLAUGHTER LN to OLD MANCHACA RD	2 - High	5 - Very Low

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3B - 011	PAREDES, WILLIAMS	S 1ST ST	No bike facility	Add protected bike lane - S 1ST ST from CAMPERDOWN ELM DR to W SLAUGHTER LN	1 - Very High	5 - Very Low
3B - 012	PAREDES, CASEY	BILBROOK PL	Desired bike route, No bike facility	Add sidepath - BILBROOK PL from W SLAUGHTER LN to SWEETWATER RIVER DR , Add protected bike lane - BILBROOK PL from Near 10600 BILBROOK PL to SWEETWATER RIVER DR	2 - High	5 - Very Low
3B - 013	KOCUREK	W SLAUGHTER LN	Desired bike route	Add sidepath - W SLAUGHTER LN from WEST GATE BLVD to MANCHACA RD	1 - Very High	5 - Very Low
3B - 014	PAREDES, CASEY	MARY MOORE SEARIGHT DR	No bike facility	Add sidepath - MARY MOORE SEARIGHT DR from SLAUGHTER LN to Paredes driveway	3 - Medium	5 - Very Low
3B - 015	KOCUREK	RIDDLE RD	No bike facility	Add sidepath - RIDDLE RD from W SLAUGHTER LN to W SLAUGHTER LN	1 - Very High	5 - Very Low
3B - 016*	KOCUREK	OLD MANCHACA RD	No bike facility	Add sidepath - OLD MANCHACA RD from RIDDLE RD to MANCHACA RD	2 - High	5 - Very Low
3B - 017	COWAN, COVINGTON	DAVIS LN	No bike facility	Add sidepath - DAVIS LN from WEST GATE BLVD to BRODIE LN	2 - High	5 - Very Low
3B - 018	BEDICHEK, CASEY	STRICKLAND DR	Desired bike route, No bike facility, Wide ROW	Add protected bike lane - STRICKLAND DR from BERESFORD TRL to DEMPSEY LN , Add speed cushions - STRICKLAND DR from DEMPSEY LN to PALACE PKWY , Add bike lane - STRICKLAND DR from BERESFORD TRL to PALACE PKWY , Add chicanes - STRICKLAND DR from BERESFORD TRL to PALACE PKWY	3 - Medium	4 - Low

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3B - 201*	PAREDES, CASEY	BILBROOK PL	Missing sidewalk, Temporary obstruction (ex. vegetation)	Construct new sidewalk - BILBROOK PL from GENOA DR to Near 10214 BILBROOK PL , Trim vegetation - BILBROOK PL from W SLAUGHTER LN to GENOA DR	3 - Medium	5 - Very Low
3B - 203	CASEY	CHISHOLM LN	Missing sidewalk	Construct new sidewalk - CHISHOLM LN from W SLAUGHTER LN to end	5 - Very Low	5 - Very Low
3B - 204	CASEY	BILL HICKCOCK PASS	Poor condition	Repair existing sidewalk - BILL HICKCOCK PASS from CATTLE TRL to TEXAS SUN DR	5 - Very Low	5 - Very Low
3B - 205	CASEY	JESSE JAMES DR	Poor condition	Repair existing sidewalk - JESSE JAMES DR from CATTLE TRL to TEXAS SUN DR	5 - Very Low	5 - Very Low
3B - 206	CASEY	JESSE JAMES DR	Permanent obstruction (ex. pole/tree), Poor condition	Repair existing sidewalk - JESSE JAMES DR from CATTLE TRL to Near 9105 TEXAS SUN DR	5 - Very Low	5 - Very Low
3B - 207	CASEY	TEXAS OAKS DR	Permanent obstruction (ex. pole/tree), Poor condition	Repair existing sidewalk - TEXAS OAKS DR from RAIL FENCE CV to CATTLE TRL	5 - Very Low	5 - Very Low
3B - 208	CASEY	TEXAS OAKS DR	Poor condition	Repair existing sidewalk - TEXAS OAKS DR from O K CORRAL to RAIL FENCE CV	5 - Very Low	4 - Low
3B - 209	CASEY	TEXAS OAKS CV	Missing sidewalk	Construct new sidewalk - TEXAS OAKS CV from Near 1305 TEXAS OAKS CV to TEXAS OAKS DR	5 - Very Low	3 - Medium
3B - 210	CASEY	TEXAS OAKS DR	Poor condition	Repair existing sidewalk - TEXAS OAKS DR from INDEPENDENCE LOOP to SADDLE HORN CV	5 - Very Low	4 - Low

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3B - 211	CASEY	TEXAS OAKS DR	Poor condition	Repair existing sidewalk - TEXAS OAKS DR from INDEPENDENCE LOOP to SADDLE HORN CV	5 - Very Low	4 - Low
3B - 212	CASEY	INDEPENDENCE LOOP	Poor condition	Repair existing sidewalk - INDEPENDENCE LOOP from TEXAS OAKS DR to Near 9310 INDEPENDENCE LOOP	5 - Very Low	5 - Very Low
3B - 213	CASEY	TEXAS OAKS DR	The sidewalks in this neighborhood are generally in good condition. There are a small number of locations where the sidewalks have been raised and broken by tree roots and maintenance of utilities.	Fix sidewalk obstructions - TEXAS OAKS DR from W SLAUGHTER LN to INDEPENDENCE LOOP , Repair existing sidewalk - TEXAS OAKS DR from INDEPENDENCE LOOP to IRON MUSKET CV	5 - Very Low	4 - Low
3B - 214	CASEY	TEXAS OAKS DR	Temporary obstruction (ex. vegetation)	Fix sidewalk obstructions - TEXAS OAKS DR from W SLAUGHTER LN to INDEPENDENCE LOOP	5 - Very Low	4 - Low
3B - 215	CASEY	IRON MUSKET CV	Poor condition	Repair existing sidewalk - IRON MUSKET CV from Near 1201 IRON MUSKET CV to TEXAS OAKS DR	5 - Very Low	5 - Very Low
3B - 216	KOCUREK	ROCHELLE DR	Missing sidewalk	Construct new sidewalk - ROCHELLE DR from JUBILEE TRL to FOXTON CV	4 - Low	2 - High

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3B - 217	KOCUREK	W SLAUGHTER LN	Narrow sidewalk	Widen existing sidewalk - W SLAUGHTER LN from BRASHER DR to CURLEW DR	3 - Medium	4 - Low
3B - 219	KOCUREK	LINDSHIRE LN	Temporary obstruction (ex. vegetation)	Fix sidewalk obstructions - LINDSHIRE LN from JADEWOOD CT to HUNNICUT CT	5 - Very Low	4 - Low
3B - 222	KOCUREK	SUGAR HILL DR	Missing sidewalk	Construct new sidewalk - SUGAR HILL DR from NIGHTJAR DR to NIGHTJAR DR	4 - Low	4 - Low
3B - 223	KOCUREK	SUGAR HILL DR	Missing sidewalk	Construct new sidewalk - SUGAR HILL DR from NIGHTJAR DR to NIGHTJAR DR	4 - Low	4 - Low
3B - 224	COWAN	FIRECREST DR	Poor condition	Repair existing sidewalk - FIRECREST DR from SANFORD DR to CURLEW DR	5 - Very Low	5 - Very Low
3B - 225	COWAN	CROWNSPOINT DR	Missing sidewalk	Construct new sidewalk - CROWNSPOINT DR from MARSH DR to CROWNSPOINT CIR	5 - Very Low	4 - Low
3B - 226	COWAN	CROWNSPOINT DR	Missing sidewalk	Construct new sidewalk - CROWNSPOINT DR from MARSH DR to QUEENSWOOD DR	5 - Very Low	4 - Low
3B - 227	COWAN	QUEENSWOOD DR	Missing sidewalk	Construct new sidewalk - QUEENSWOOD DR from COMBURG CASTLE WAY to RAMBLEWOOD DR	4 - Low	5 - Very Low
3B - 228	COWAN	CHERISE LN	Missing sidewalk	Construct new sidewalk - CHERISE LN from MARSH DR to QUEENSWOOD DR	4 - Low	3 - Medium
3B - 229	COWAN	TOULOUSE DR	Missing sidewalk	Construct new sidewalk - TOULOUSE DR from QUEENSWOOD DR to COLLINGWOOD DR	4 - Low	3 - Medium
3B - 230	COWAN	BARKWOOD DR	Missing sidewalk	Construct new sidewalk - BARKWOOD DR from QUEENSWOOD DR to HEATHERWOOD DR	5 - Very Low	5 - Very Low
3B - 231	None (nearest school: Cowan)	RAMBLEWOOD DR	Missing sidewalk	Construct new sidewalk - RAMBLEWOOD DR from QUEENSWOOD DR to CROWNSPOINT DR	5 - Very Low	5 - Very Low

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3B - 232	COWAN	LEO SB TO DAVIS WB TRN	Missing sidewalk	Construct new sidewalk - LEO SB TO DAVIS WB TRN from LEO ST to LEO ST	3 - Medium	2 - High
3B - 233	COWAN	GUIDEPOST TRL	Missing sidewalk, Narrow sidewalk	Construct new sidewalk - GUIDEPOST TRL from LEO ST to DAVIS LN , Construct new sidewalk - LEO ST from DAVIS EB TO LEO SB TRN to GUIDEPOST TRL	3 - Medium	5 - Very Low
3B - 234	COWAN	HUEBINGER PASS	Missing sidewalk	Construct new sidewalk - HUEBINGER PASS from BOBBY LN to GUIDEPOST TRL	4 - Low	4 - Low
3B - 235	COWAN	GUIDEPOST TRL	Missing sidewalk	Construct new sidewalk - GUIDEPOST TRL from MARSH DR to CURLEW DR	4 - Low	4 - Low
3B - 236	COWAN	DAVIS LN	Missing sidewalk	Construct new sidewalk - DAVIS LN from WEST GATE BLVD to CAMERON LOOP	1 - Very High	3 - Medium
3B - 238	COWAN	PINEY CREEK BND	Missing sidewalk	Construct new sidewalk - PINEY CREEK BND from BISMARK CV to DANDELION TRL	5 - Very Low	4 - Low
3B - 241	KOCUREK	ROXANNA DR	Missing sidewalk	Construct new sidewalk - ROXANNA DR from BORDLEY DR to W SLAUGHTER LN	4 - Low	5 - Very Low
3B - 242	KOCUREK	GAIL RD	Missing sidewalk	Construct new sidewalk - GAIL RD from RIDDLE RD to W SLAUGHTER LN	4 - Low	4 - Low
3B - 243*	KOCUREK	WOMMACK RD	Missing sidewalk	Construct new sidewalk - WOMMACK RD from RIDDLE RD to DREW LN	3 - Medium	4 - Low
3B - 244	KOCUREK	GAIL RD	Missing sidewalk	Construct new sidewalk - GAIL RD from RIDDLE RD to OLD MANCHACA RD	4 - Low	4 - Low
3B - 245	KOCUREK	ALLRED DR	Missing sidewalk	Construct new sidewalk - ALLRED DR from RIDDLE RD to Near 2419 ALLRED DR	4 - Low	4 - Low
3B - 246	KOCUREK	ALLRED DR	Missing sidewalk	Construct new sidewalk - ALLRED DR from RIDDLE RD to W SLAUGHTER LN	4 - Low	5 - Very Low

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3B - 247	COWAN	CAMERON LOOP	Missing sidewalk	Construct new sidewalk - CAMERON LOOP from Near 8502 BISBEE CT to WEST GATE BLVD , Construct new sidewalk - CAMERON LOOP from LEO ST to WEST GATE BLVD	3 - Medium	5 - Very Low
3B - 248	COWAN	CAMERON LOOP	Missing sidewalk	Construct new sidewalk - CAMERON LOOP from Near 8502 BISBEE CT to DAVIS LN	4 - Low	5 - Very Low
3B - 249	COWAN	COLLINGWOOD DR	Missing sidewalk	Construct new sidewalk - COLLINGWOOD DR from DAVIS LN to TOULOUSE DR	5 - Very Low	5 - Very Low
3B - 250*	CASEY, PAREDES	SLAUGHTER CREEK DR	Missing sidewalk	Construct new sidewalk - SLAUGHTER CREEK DR from GENOA DR to end	3 - Medium	5 - Very Low
3B - 251	CASEY, PAREDES	SWANSONS RANCH RD	Missing sidewalk	Construct new sidewalk - SWANSONS RANCH RD from W SLAUGHTER LN to end	4 - Low	5 - Very Low
3B - 252	PAREDES, CASEY	S CHISHOLM TRL	Missing sidewalk	Construct new sidewalk - S CHISHOLM TRL from W SLAUGHTER LN to DUSTY BRANCH WAY	4 - Low	5 - Very Low
3B - 601	COWAN	CURLEW DR / DUPOINT CV	Non-compliant curb ramps	Replace existing curb ramp [2]	5 - Very Low	4 - Low
3B - 602	COWAN	CROWNSPOINT DR / MARSH DR	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Marsh	5 - Very Low	3 - Medium
3B - 603	KOCUREK	ALCOTT LN / LINDSHIRE LN	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [3] across Lindshire And Alcott , Replace existing curb ramp [2]	4 - Low	2 - High

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3B - 604	COWAN	CURLEW DR / PECTORAL DR	Non-compliant curb ramps	Replace existing curb ramp [4]	5 - Very Low	5 - Very Low
3B - 605	CASEY	DAVID MOORE DR / W SLAUGHTER LN	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across David Moore , Replace existing curb ramp [2]	1 - Very High	1 - Very High
3B - 606	COWAN	CHENEY CV / HUEBINGER PASS	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Cheney	4 - Low	2 - High
3B - 607	CASEY	W SLAUGHTER LN	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Mary Moore , Replace existing curb ramp [2]	3 - Medium	1 - Very High
3B - 608	CASEY	INDEPENDENCE LOOP / TEXAS OAKS DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Independence Loop , Replace existing curb ramp [2]	2 - High	1 - Very High
3B - 609	CASEY	CATTLE TRL / TEXAS OAKS DR	Non-compliant curb ramps	Replace existing curb ramp [4]	5 - Very Low	4 - Low
3B - 610	COWAN	BENTON ST / PINEY CREEK BND	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Piney Creek	4 - Low	3 - Medium

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3B - 611	COWAN	CREEKMONT CV / KENTISH DR	Non-compliant curb ramps	Replace existing curb ramp [1]	5 - Very Low	3 - Medium
3B - 612	KOCUREK	CURLEW DR / W SLAUGHTER LN	Traffic signal timing	Adjust signal timing	1 - Very High	1 - Very High
3B - 613	COWAN	DANDELION TRL / PINEY CREEK BND	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Dandelion	5 - Very Low	3 - Medium
3B - 614	KOCUREK	CURLEW DR / MONARCH DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [2] across Curlew and Monarch , Replace existing curb ramp [3]	2 - High	1 - Very High
3B - 615	COWAN	CHERISE LN / QUEENSWOOD DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Queensland , Replace existing curb ramp [2]	4 - Low	2 - High
3B - 616	COWAN	LINKMEADOW DR / NESBIT DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [2] across Nesbit , Replace existing curb ramp [4]	4 - Low	2 - High
3B - 617	COWAN	FIRECREST DR / SANFORD DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Sanford , Replace existing curb ramp [3]	4 - Low	3 - Medium

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3B - 618	KOCUREK	AFTONSHIRE WAY / BRASHER DR	Poor sightlines	Trim vegetation	5 - Very Low	3 - Medium
3B - 619	CASEY	BILBROOK PL / SUGARBERRY LN / W SLAUGHTER LN	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Bilbrook, Replace existing curb ramp [2]	1 - Very High	1 - Very High
3B - 620	CASEY	SWANSONS RANCH RD / W SLAUGHTER LN	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Swansons , Replace existing curb ramp [2]	2 - High	1 - Very High
3B - 621	COWAN	DAVIS LN / HUEBINGER PASS	Difficult crossing	Install high visibility crosswalk [1] across Davis Lane	3 - Medium	1 - Very High
3B - 622	KOCUREK	MARSH DR / MONARCH DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Marsh , Replace existing curb ramp [2]	3 - Medium	1 - Very High
3B - 623	COWAN	KENTISH DR / WAGTAIL CV / WAGTAIL DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [2] across Kentish and Wagtail , Replace existing curb ramp [4]	3 - Medium	2 - High

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3B - 624	CASEY	TEXAS OAKS CV / TEXAS OAKS DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Texas Oak Cove , Replace existing curb ramp [2]	2 - High	1 - Very High
3B - 625	COWAN	LINDSEY CV / MARSH DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Culdesac, Replace existing curb ramp [2]	5 - Very Low	3 - Medium
3B - 626	KOCUREK	CURLEW DR / HOLLY SPRINGS DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [2] across Curlew and Holly Springs , Replace existing curb ramp [3]	2 - High	1 - Very High
3B - 627	CASEY	IRON MUSKET CV / TEXAS OAKS DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Iron Musket Cove , Replace existing curb ramp [2]	2 - High	1 - Very High
3B - 628	COWAN	COLLINGWOOD DR / TOULOUSE DR	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Collingwood	4 - Low	2 - High
3B - 629	CASEY	INDEPENDENCE LOOP / TEXAS OAKS DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Independence Loop , Replace existing curb ramp [2]	2 - High	1 - Very High
3B - 630	COWAN	NESBIT DR / SANFORD DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Nesbit , Replace existing curb ramp [3]	4 - Low	3 - Medium
3B - 632	COWAN	BERNOULLI DR / NESBIT DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Bernoulli , Replace existing curb ramp [3]	4 - Low	3 - Medium

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3B - 633	CASEY	S CHISHOLM TRL / W SLAUGHTER LN	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across S Chisolm , Replace existing curb ramp [2]	1 - Very High	1 - Very High
3B - 634	KOCUREK	AFTONSHIRE WAY / NIGHTJAR DR	Difficult crossing, Non-compliant curb ramps	Add median refuge island , Add new curb ramp , Install high visibility crosswalk [1] across Nightjar, Replace existing curb ramp [4]	3 - Medium	2 - High
3B - 635	KOCUREK	AFTONSHIRE WAY / HOLLY SPRINGS DR	Poor sightlines	Restrict parking near the intersection	4 - Low	3 - Medium
3B - 636	KOCUREK	MONARCH DR / WOODSHIRE DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [4] across Monarch and Woodshire , Replace existing curb ramp [4]	3 - Medium	2 - High
3B - 637	COWAN	NESBIT DR / NOTCHES DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Notches , Replace existing curb ramp [4]	4 - Low	3 - Medium
3B - 638	COWAN	QUEENSWOOD DR / TOULOUSE DR	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Queenswood	4 - Low	2 - High
3B - 639	COWAN	GADWALL CV / MARSH DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across culdesac, Replace existing curb ramp [2]	5 - Very Low	4 - Low

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3B - 640	COWAN	BARKWOOD DR / QUEENSWOOD DR	Missing curb ramps, Difficult crossing	Add new curb ramp [0] , Install high visibility crosswalk [1] across Queenswood	5 - Very Low	4 - Low
3B - 641	COWAN	CURLEW DR / GUIDEPOST TRL	Missing curb ramps, No lighting, Difficult crossing	Add lighting , Add new curb ramp [1] , Install high visibility crosswalk [1] across Guidepost	4 - Low	2 - High
3B - 642	None (nearest school: Cowan)	CROWNSPOINT DR / QUEENSWOOD DR	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [2] across Queenswood	5 - Very Low	3 - Medium
3B - 643	CASEY	TEXAS OAKS DR / W SLAUGHTER LN	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Texas Oaks , Replace existing curb ramp [2]	1 - Very High	1 - Very High
3B - 644	COWAN	CANUS DR / FIRECREST DR	Difficult crossing	Install high visibility crosswalk [1] across Canus	4 - Low	3 - Medium
3B - 645	COWAN	CURLEW DR / KENTISH DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [2] across Kentish and Curlew , Replace existing curb ramp [4]	2 - High	1 - Very High
3B - 646	COWAN	BERNOULLI DR / NOTCHES DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [2] across Notches and Bernoulli , Replace existing curb ramp [3]	4 - Low	2 - High

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3B - 647	COWAN	KENTISH DR / MARSH DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Kentish , Replace existing curb ramp [2]	4 - Low	2 - High
3B - 648	COWAN	COHOBA DR / NOTCHES DR	Difficult crossing	Install high visibility crosswalk [1] across Notches	4 - Low	2 - High
3B - 649	COWAN	BISBEE CT / PINEY CREEK BND	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Piney Creek	5 - Very Low	3 - Medium
3B - 650	COWAN	CHERISE LN / MARSH DR	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Marsh	4 - Low	2 - High
3B - 651	COWAN	MARSH DR / WILCREST DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [3] across Marsh Street and Kentish St , Replace existing curb ramp [4]	5 - Very Low	3 - Medium
3B - 652	CASEY	RAIL FENCE CV / TEXAS OAKS DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Rail Fence , Replace existing curb ramp [2]	3 - Medium	1 - Very High
3B - 653	COWAN	PEPPERGRASS CV / PINEY CREEK BND	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Piney Creek	4 - Low	3 - Medium
3B - 654	None (nearest school: Kocurek)	ROCHELLE DR / W SLAUGHTER LN	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Rochelle , Replace existing curb ramp [2]	3 - Medium	2 - High

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3B - 655	CASEY	TEXAS OAKS DR / TEXAS SUN DR	High speed crossing, Non-compliant curb ramps	Add curb extensions [4] on Texas Oak and Texas Sun (all corners) , Install 4 way stop	2 - High	2 - High
3B - 656	COWAN	CROWNSPOINT DR / CURLEW DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [4] across Curlew and Crownspoint , Replace existing curb ramp [4]	4 - Low	3 - Medium
3B - 657	CASEY	JESSE JAMES DR / TEXAS SUN DR	High speed crossing, Non-compliant curb ramps	Install Rapid Flashing Beacon [1] , Replace existing curb ramp [4]	2 - High	2 - High
3B - 658	KOCUREK	BRANTLEY BND / LINDSHIRE LN	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [3] across Lindshire and Brantley , Replace existing curb ramp [3]	4 - Low	2 - High
3B - 659	KOCUREK	FOXTON CV / ROCHELLE DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [4] across All legs , Replace existing curb ramp [4]	3 - Medium	2 - High
3B - 660	COWAN	CURLEW CV / CURLEW DR	Non-compliant curb ramps	Replace existing curb ramp [2]	5 - Very Low	4 - Low
3B - 661	CASEY	O K CORRAL / TEXAS OAKS DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across O K Corral , Replace existing curb ramp	3 - Medium	2 - High

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3B - 662	COWAN	CURLEW DR / WILCREST DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [2] across Curlew and Wilcrest , Replace existing curb ramp [2]	4 - Low	2 - High
3B - 663	KOCUREK	PIPING ROCK TRL / WOODSHIRE DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Piping Rock , Replace existing curb ramp [2]	4 - Low	2 - High
3B - 664	COWAN	BOBBY LN / HUEBINGER PASS	Missing curb ramps, Difficult crossing	Add new curb ramp [2] , Install high visibility crosswalk [1] across Bobby	4 - Low	2 - High
3B - 665	KOCUREK	LINDSHIRE LN / ROCHELLE DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [4] across All legs , Replace existing curb ramp [4]	4 - Low	2 - High
3B - 666	CASEY	SADDLE HORN CV / TEXAS OAKS DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Saddle Horn Cove , Replace existing curb ramp [2]	2 - High	1 - Very High
3B - 667	COWAN	CURLEW DR / FIRECREST DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [2] across Curlew and Firecrest , Replace existing curb ramp [4]	4 - Low	3 - Medium
3B - 669	COWAN	WAGTAIL DR / WILCREST DR	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across Wagtail , Replace existing curb ramp [2]	4 - Low	3 - Medium
3B - 670	CASEY	TEXAS OAKS DR	Non-compliant curb ramps	Replace existing curb ramp [4]	5 - Very Low	3 - Medium

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3B - 671	CASEY	TEXAS OAKS DR	High speed crossing, Long crossing distance, Missing curb ramps, Difficult crossing	Install raised crosswalk [1] across Texas Oaks , Install Rapid Flashing Beacon	2 - High	2 - High
3B - 672	COWAN	Midblock - KENTISH DR	High speed crossing, Long crossing distance, Missing curb ramps, No lighting, Difficult crossing	Add curb extensions [1] on Kentish , Add lighting , Install high visibility crosswalk [1] across Kentish	2 - High	1 - Very High
3B - 673	KOCUREK	Midblock - CURLEW DR	Driveway cross slope is noncompliant	Replace driveway	4 - Low	3 - Medium
3B - 674	KOCUREK	Midblock - CURLEW DR	High speed crossing, Long crossing distance	Add curb extensions [1] on Curlew , Add lighting	1 - Very High	1 - Very High
3B - 675	PAREDES	Midblock - DAVID MOORE DR	Difficult crossing	Install high visibility crosswalk [1] across Across school entry & parallel to David Moore Lane	1 - Very High	1 - Very High
3B - 676	COWAN	DAVIS LN / GUIDEPOST TRL	Difficult crossing	Install high visibility crosswalk [1] across Davis Ln, Install Rapid Flashing Beacon [1]	3 - Medium	2 - High
3B - 677	COWAN	DAVIS LN / WEST GATE BLVD	Difficult crossing	Add curb extensions [1] on northwest corner , Add Leading Pedestrian Interval (LPI) , Install high visibility crosswalk [2] across West Gate Blvd	1 - Very High	1 - Very High

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3B - 678	KOCUREK	RIDDLE RD / W SLAUGHTER LN	Difficult crossing	Install Pedestrian Hybrid Beacon [1]	1 - Very High	2 - High
3B - 679	KOCUREK	ALCOTT LN / RIDDLE RD	Difficult crossing	Add curb extensions [1] on Alcott Ln , Add stop bar , Install high visibility crosswalk [1] across Alcott Ln	2 - High	1 - Very High
3B - 680	KOCUREK	LINDSHIRE LN / W SLAUGHTER LN	Difficult crossing	Add median refuge island on Slaughter Ln , Install high visibility crosswalk [4] across all legs	2 - High	2 - High
3B - 681	None (nearest school: Williams, Paredes)	S 1ST ST	Difficult crossing	Install Pedestrian Hybrid Beacon [1]	4 - Low	4 - Low
3B - 682	CASEY	STRICKLAND DR / TEXAS OAKS DR	Difficult crossing	Add curb extensions [1] on Texas Oaks Dr , Install high visibility crosswalk [1] across Texas Oaks Dr	3 - Medium	2 - High
3B - 803	KOCUREK	Near 9901 CURLEW DR	Parking lot circulation issues	Study circulation or parking	5 - Very Low	3 - Medium
3B - 901	PAREDES, CASEY	Near 1636 CATTLE TRL	No trail connection	Construct new shared use path	4 - Low	4 - Low
3B - 902	COVINGTON, COWAN	Near 3204 SILK OAK DR	No trail connection	Construct new shared use path	4 - Low	4 - Low
3B - 903	COVINGTON, COWAN	Near 2901 DAVIS LN	No trail connection	Construct new shared use path	2 - High	5 - Very Low

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3B - 904	COVINGTON, COWAN	Near 8933 PARKER RANCH CIR	No trail connection	Construct new shared use path	1 - Very High	2 - High
3B - 905	KOCUREK	Near 10705 STRAND ST	No trail connection	Construct new shared use path	4 - Low	5 - Very Low
3B - 906	KOCUREK	Near 2703 ALCOTT LN	No trail connection	Construct new shared use path	1 - Very High	5 - Very Low
3B - 907	PAREDES, WILLIAMS	Near 9404 1ST ST	No trail connection	Construct new shared use path	2 - High	5 - Very Low
3B - 908	PAREDES, CASEY	Near 700 DECKER PRAIRIE DR	No trail connection	Construct new shared use path	3 - Medium	5 - Very Low
3B - 909	PAREDES, WILLIAMS	Near 412 CHINESE ELM CT	No trail connection	Construct new shared use path	3 - Medium	5 - Very Low
3B - 910	PAREDES, CASEY	Near 10106 DAVID MOORE DR	No trail connection	Construct new shared use path	2 - High	5 - Very Low
3B - 911*	PAREDES, CASEY	Near 1305 CANOPY CREEK WAY	No trail connection	Construct new shared use path	3 - Medium	5 - Very Low
3B - 912*	PAREDES, CASEY	Near 810 CHAPPELL LN	No trail connection	Construct new shared use path	4 - Low	3 - Medium
3B - 913*	PAREDES, CASEY	Near 11200 SLAUGHTER CREEK DR	No trail connection	Construct new shared use path	4 - Low	5 - Very Low

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3B - 914	PAREDES, CASEY	Near 9209 SWEETGUM DR	No trail connection	Add gate , Construct new shared use path	2 - High	4 - Low

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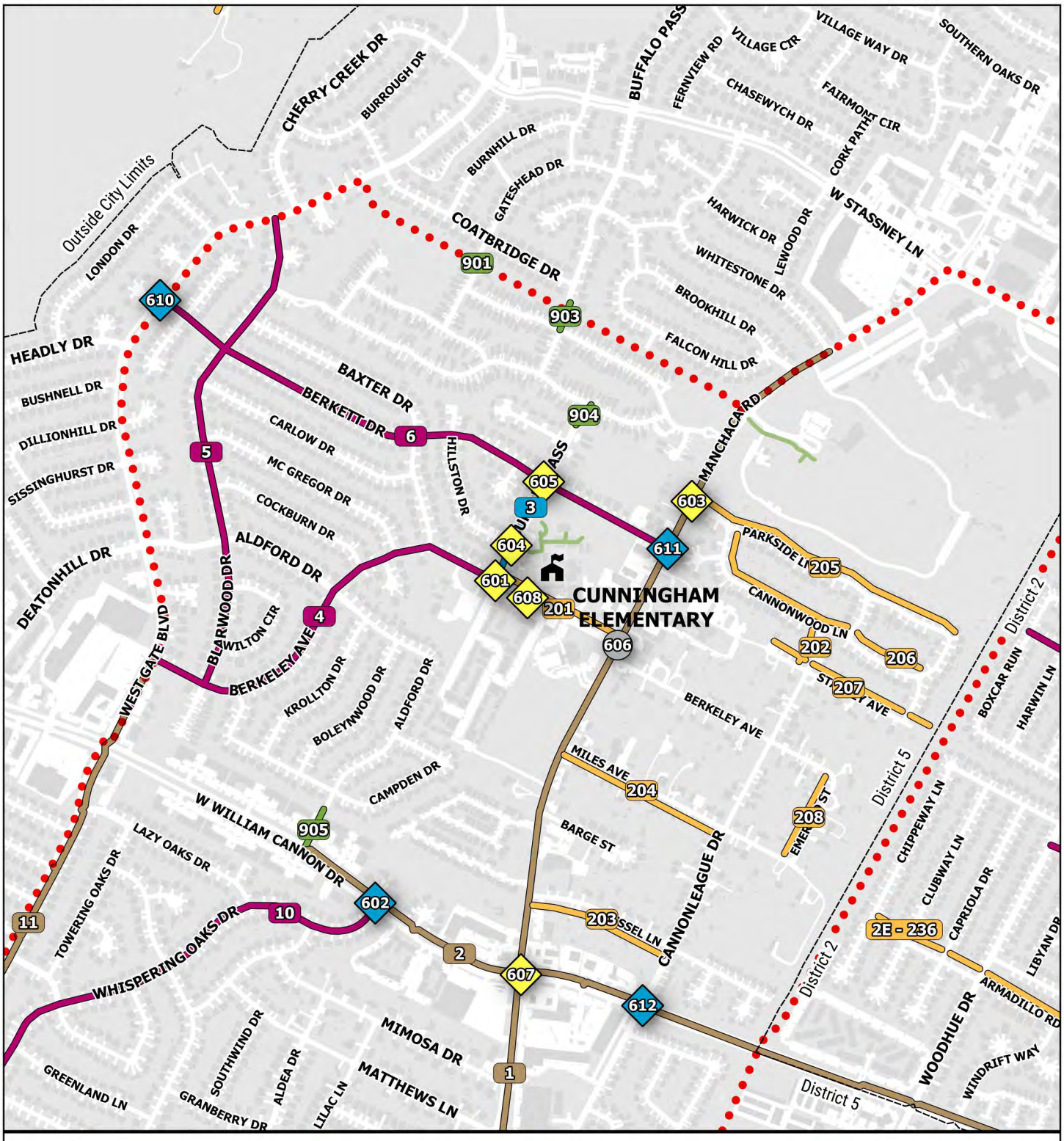
MAP 3K: CUNNINGHAM ELEMENTARY



CITY OF AUSTIN
austin MOTION
2016 MOBILITY BOND

SAFE ROUTES TO SCHOOL

TOOLE DESIGN

0 800 1600 2400 ft

- Off-Street Trail
- Bike Lane / Buffered Bike Lane / Protected Bike Lane
- Sidepath
- Neighborhood Bikeway / Traffic Calming
- New / Improved Sidewalk
- Other linear recommendation
- Traffic Control / Intersection Reconfiguration
- Ramp / Curb Extension / Crosswalk
- Over / Underpass
- Other Spot Recommendation
- Existing Trail
- School Boundary
- Council District Boundary

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2E - 203	BEDICHEK, CUNNINGHAM	MATTHEWS LN	Missing sidewalk	Construct new sidewalk - MATTHEWS LN from COOPER LANE to CHERRY MEADOW DR	2 - High	2 - High
2F - 903	BOONE, COVINGTON	Between Longview Rd, Finch Trl & Jorwoods Dr	No trail connection	Construct new trail	2 - High	5 - Very Low
2F - 904	SUNSET VALLEY, COVINGTON	Between Hays Hill Dr and Harleyhill Dr	No trail connection	Construct new trail	3 - Medium	3 - Medium
3K - 001	COVINGTON, CUNNINGHAM	MANCHACA RD	Excessive vehicle speeds, No bike facility	Add sidepath - MANCHACA RD from SHAWNEE MISSION TRL to WHITESTONE DR	1 - Very High	5 - Very Low
3K - 002	CUNNINGHAM, COVINGTON	W WILLIAM CANNON DR	Excessive vehicle speeds, No bike facility	Add sidepath - W WILLIAM CANNON DR from near 2601 W WILLIAM CANNON DR to CANNONLEAGUE DR	2 - High	5 - Very Low
3K - 003	CUNNINGHAM	BUFFALO PASS	Excessive vehicle speeds	Add speed cushions - BUFFALO PASS from BERKETT DR to BERKELEY AVE	1 - Very High	1 - Very High
3K - 004	COVINGTON, CUNNINGHAM	BERKELEY AVE	No bike facility, Wide ROW	Add bike lane - BERKELEY AVE from BUFFALO PASS to WEST GATE BLVD	2 - High	2 - High
3K - 005	COVINGTON, CUNNINGHAM	BLARWOOD DR	No bike facility, Wide ROW	Add bike lane - BLARWOOD DR from BERKELEY AVE to WEST GATE BLVD	2 - High	3 - Medium
3K - 006	COVINGTON, CUNNINGHAM	BERKETT DR	No bike facility, Wide ROW	Add bike lane - BERKETT DR from MANCHACA RD to WEST GATE BLVD	2 - High	3 - Medium

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3K - 007	COVINGTON, CUNNINGHAM	MANASSAS DR	No bike facility	Add bike lane - MANASSAS DR from MALVERN HILL DR to WEST GATE BLVD	3 - Medium	3 - Medium
3K - 008	COVINGTON, CUNNINGHAM	MALVERN HILL DR	No bike facility, Wide ROW	Add bike lane - MALVERN HILL DR from MANCHACA RD to MANASSAS DR	4 - Low	3 - Medium
3K - 009	COVINGTON, CUNNINGHAM	SEMINARY RIDGE DR	No bike facility, Wide ROW	Add bike lane - LEO ST from SEMINARY RIDGE DR to DAVIS WB TO LEO NB TRN , Add bike lane - SEMINARY RIDGE DR from MANASSAS DR to LEO ST	3 - Medium	4 - Low
3K - 010	CUNNINGHAM, COVINGTON	WHISPERING OAKS DR	No bike facility, Wide ROW	Add bike lane - WHISPERING OAKS DR from MANASSAS DR to W WILLIAM CANNON DR	3 - Medium	4 - Low
3K - 011	COVINGTON, CUNNINGHAM	WEST GATE BLVD	Desired bike route	Add sidepath - WEST GATE BLVD from BERKELEY AVE to MANASSAS DR	2 - High	5 - Very Low
3K - 201	CUNNINGHAM	BERKELEY AVE	Narrow sidewalk, Poor condition	Repair existing sidewalk - BERKELEY AVE from MANCHACA RD to BUFFALO PASS	4 - Low	4 - Low
3K - 202	CUNNINGHAM	CANNONLEAGUE DR	Missing sidewalk	Construct new sidewalk - CANNONLEAGUE DR from STANLEY AVE to CANNONWOOD LN	4 - Low	3 - Medium
3K - 203	CUNNINGHAM	BISSEL LN	Missing sidewalk	Construct new sidewalk - BISSEL LN from CANNONLEAGUE DR to MANCHACA RD	4 - Low	4 - Low
3K - 204	CUNNINGHAM	MILES AVE	Missing sidewalk	Construct new sidewalk - MILES AVE from MANCHACA RD to CANNONLEAGUE DR	4 - Low	4 - Low
3K - 205	CUNNINGHAM	PARKSIDE LN	Missing sidewalk	Construct new sidewalk - PARKSIDE LN from PENNWOOD LN to MANCHACA RD	4 - Low	5 - Very Low
3K - 206	CUNNINGHAM	CANNONWOOD LN	Missing sidewalk	Construct new sidewalk - CANNONWOOD LN from PENNWOOD LN to PARKSIDE LN	4 - Low	5 - Very Low
3K - 207	CUNNINGHAM	STANLEY AVE	Missing sidewalk	Construct new sidewalk - STANLEY AVE from Near 6213 PENNWOOD LN to Near 1906 STANLEY AVE	4 - Low	5 - Very Low

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3K - 208	CUNNINGHAM	EMERALD ST	Missing sidewalk	Construct new sidewalk - EMERALD ST from MILES AVE to BERKELEY AVE	5 - Very Low	4 - Low
3K - 601	CUNNINGHAM	BERKELEY AVE / BUFFALO PASS	High speed crossing, Long crossing distance, Missing curb ramps, Difficult crossing, Non-compliant curb ramps	Add curb extensions [4] on Buffalo Pass & Berkeley Ave , Install high visibility crosswalk [1] across Berkeley Ave	1 - Very High	2 - High
3K - 602	CUNNINGHAM	MINI CIR / WHISPERING OAKS DR / W WILLIAM CANNON DR	High speed crossing, Long crossing distance, Difficult crossing, Non-compliant curb ramps, Poor sightlines	Install high visibility crosswalk [1] across William Cannon , Install Pedestrian Hybrid Beacon , Replace existing curb ramp [4]	3 - Medium	3 - Medium
3K - 603	CUNNINGHAM	MANCHACA RD / PARKSIDE LN	Non-compliant curb ramps	Replace existing curb ramp [2]	5 - Very Low	3 - Medium
3K - 604	CUNNINGHAM	BUFFALO PASS / HILLSTON DR	Long crossing distance, Poor sightlines	Add curb extensions [2] on Buffalo Pass , Install raised crosswalk [1] across Buffalo Pass	1 - Very High	1 - Very High

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3K - 605	CUNNINGHAM	BERKETT DR / BUFFALO PASS	Faded crosswalk markings, High speed crossing, Long crossing distance	Add curb extensions [4] on Berkett Dr & Buffalo Pass , Repaint crosswalk markings [2] across Berkett Dr & Buffalo Pass	2 - High	2 - High
3K - 606	CUNNINGHAM	BERKELEY AVE / MANCHACA RD	High speed crossing, No lighting, Non-ADA push buttons	Add lighting , Install/update pedestrian push buttons [4]	1 - Very High	1 - Very High
3K - 607	None (nearest school: Cunningham, Covington)	W WILLIAM CANNON DR	Faded crosswalk markings, Non-ADA push buttons, Non-compliant curb ramps	Install high visibility crosswalk [4] across William Cannon & Manchaca , Install/update pedestrian push buttons [4] , Replace existing curb ramp [4]	2 - High	1 - Very High
3K - 608	CUNNINGHAM	BERKELEY AVE	Pedestrian path through drop off loop	Add curb extensions [2] on Berkeley , Install high visibility crosswalk [1] across Berkeley, Relocate crosswalk 100 feet east	1 - Very High	1 - Very High
3K - 610	None (nearest school: Covington)	BERKETT DR / WEST GATE BLVD	High speed crossing, Long crossing distance, Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [1] across West Gate Blvd , Install Pedestrian Hybrid Beacon , Replace existing curb ramp [4]	3 - Medium	3 - Medium

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Project ID * = some or all of project is outside COA	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
3K - 611	CUNNINGHAM	BERKETT DR / MANCHACA RD	Difficult crossing	Install Pedestrian Hybrid Beacon [1]	2 - High	3 - Medium
3K - 612	None (nearest school: Covington, Cunningham)	CANNONLEAGUE DR / W WILLIAM CANNON DR	Difficult crossing	Install Pedestrian Hybrid Beacon [1]	3 - Medium	3 - Medium
3K - 901	CUNNINGHAM, COVINGTON, SUNSET VALLEY	Near 5900 RUTLEDGE LN	No trail connection	Construct new shared use path	4 - Low	3 - Medium
3K - 902	CUNNINGHAM, COVINGTON	Near 2122 CAMPFIELD PKWY	No trail connection	Construct new shared use path	4 - Low	5 - Very Low
3K - 903	COVINGTON, SUNSET VALLEY, CUNNINGHAM	Near 2300 INDEPENDENCE DR	Trail improvement needed	Add curb ramp and remove gate , Construct new shared use path	4 - Low	4 - Low
3K - 904	COVINGTON, CUNNINGHAM	Near 2101 AMUR DR	No trail connection	Construct new shared use path , Remove gate	2 - High	2 - High
3K - 905	COVINGTON, CUNNINGHAM	Near 2409 CAMPDEN DR	No trail connection	Add gate , Construct new shared use path	2 - High	3 - Medium

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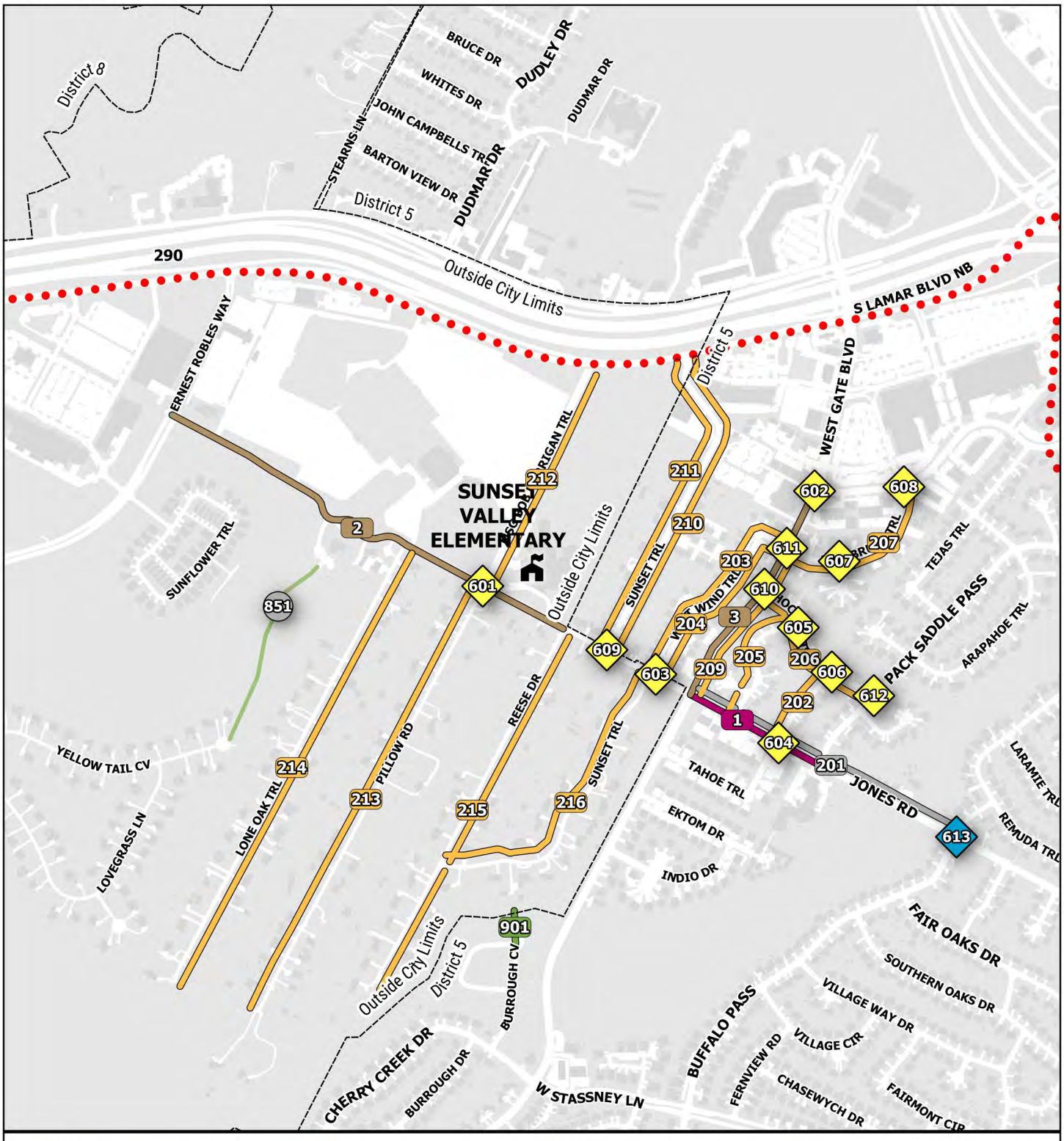
MAP 5B: SUNSET VALLEY ELEMENTARY



CITY OF AUSTIN
austin MOTION
2016 MOBILITY BOND

SAFE ROUTES TO SCHOOL

TOOLE DESIGN

0 800 1600 2400 ft

- Off-Street Trail
- Bike Lane / Buffered Bike Lane / Protected Bike Lane
- Sidepath
- Neighborhood Bikeway / Traffic Calming
- New / Improved Sidewalk
- Other linear recommendation
- Traffic Control / Intersection Reconfiguration
- Ramp / Curb Extension / Crosswalk
- Over / Underpass
- Other Spot Recommendation
- Existing Trail
- School Boundary
- Council District Boundary

Note: Although this school falls outside of the City of Austin, it was included in the study because a significant portion of its student population is located within City limits. Bond funds will only be spent on projects within the City of Austin.

Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
5B - 001	SUNSET VALLEY	JONES RD	Desired bike route	Add vertical element to existing buffer - JONES RD from PACK SADDLE PASS to WEST GATE BLVD	5 - Very Low	5 - Very Low
5B - 002*	COVINGTON, SUNSET VALLEY	JONES RD	Desired bike route, No bike facility	Upgrade existing gravel side path to concrete - JONES RD from ERNEST ROBLES WAY to MSG BOB HORRIGAN TRL , Add sidepath - JONES RD from MSG BOB HORRIGAN TRL to REESE DR	2 - High	4 - Low
5B - 003	SUNSET VALLEY	WEST GATE BLVD	No bike facility	Add sidepath - WEST GATE BLVD from WESTERN TRAILS BLVD to JONES RD	3 - Medium	5 - Very Low
5B - 201	SUNSET VALLEY	JONES RD	Temporary obstruction (ex. vegetation)	Trim vegetation - JONES RD from WEST GATE BLVD to BUFFALO PASS	5 - Very Low	5 - Very Low
5B - 202	SUNSET VALLEY	TAHOE TRL	Missing sidewalk	Construct new sidewalk - TAHOE TRL from CHOCTAW TRL to JONES RD	5 - Very Low	4 - Low
5B - 203*	SUNSET VALLEY	WEST WIND TRL	Missing sidewalk	Construct new sidewalk - WEST WIND TRL from JONES RD to WEST GATE BLVD	3 - Medium	4 - Low
5B - 204*	SUNSET VALLEY	WEST WIND TRL	Missing sidewalk	Construct new sidewalk - WEST WIND TRL from JONES RD to WEST GATE BLVD	2 - High	3 - Medium
5B - 205	SUNSET VALLEY	WINDING TRL	Missing sidewalk	Construct new sidewalk - WINDING TRL from JONES RD to CHOCTAW TRL	5 - Very Low	5 - Very Low
5B - 206	SUNSET VALLEY	CHOCTAW TRL	Missing sidewalk	Construct new sidewalk - CHOCTAW TRL from PACK SADDLE PASS to WEST GATE BLVD	5 - Very Low	5 - Very Low
5B - 207	SUNSET VALLEY	SAGEBRUSH TRL	Missing sidewalk	Construct new sidewalk - SAGEBRUSH TRL from WEST WIND TRL to WESTERN TRAILS BLVD	5 - Very Low	5 - Very Low

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Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
5B - 209	SUNSET VALLEY	WEST GATE BLVD	Poor condition, Temporary obstruction (ex. vegetation)	Trim vegetation - WEST GATE BLVD from CHOCTAW TRL to JONES RD , Trim vegetation - WEST GATE BLVD from CHOCTAW TRL to WEST WIND TRL , Repair existing sidewalk - WEST GATE BLVD from CHOCTAW TRL to WEST WIND TRL	5 - Very Low	4 - Low
5B - 210*	SUNSET VALLEY	SUNSET TRL	Missing sidewalk	Construct new sidewalk - SUNSET TRL from JONES RD to S LAMAR BLVD SVRD NB	4 - Low	5 - Very Low
5B - 211*	SUNSET VALLEY	SUNSET TRL	Missing sidewalk	Construct new sidewalk - SUNSET TRL from JONES RD to S LAMAR BLVD SVRD NB	3 - Medium	4 - Low
5B - 212*	SUNSET VALLEY	MSG BOB HORRIGAN TRL	Missing sidewalk	Construct new sidewalk - MSG BOB HORRIGAN TRL from JONES RD to end	4 - Low	4 - Low
5B - 213*	SUNSET VALLEY	PILLOW RD	Missing sidewalk	Construct new sidewalk - PILLOW RD from MSG BOB HORRIGAN TRL to end	4 - Low	5 - Very Low
5B - 214*	SUNSET VALLEY	LONE OAK TRL	Missing sidewalk	Construct new sidewalk - LONE OAK TRL from Near 37 LONE OAK TRL to JONES RD	4 - Low	5 - Very Low
5B - 215*	SUNSET VALLEY	REESE DR	Missing sidewalk	Construct new sidewalk - REESE DR from JONES RD to end	4 - Low	5 - Very Low
5B - 216*	SUNSET VALLEY	SUNSET TRL	Missing sidewalk	Construct new sidewalk - SUNSET TRL from JONES RD to REESE DR	4 - Low	5 - Very Low
5B - 217	None (nearest school: Zilker)	CLAWSON RD	Missing sidewalk	Construct new sidewalk - CLAWSON RD from LIGHTSEY RD to ROBERTS AVE	5 - Very Low	4 - Low
5B - 601*	SUNSET VALLEY	JONES RD / MSG BOB HORRIGAN TRL / PILLOW RD	Difficult crossing, Missing curb ramps, Non-compliant curb ramps	Add new curb ramp [2] , Install raised crosswalk [1] across Jones Rd (east side of intersection) , Replace existing curb ramp [2]	2 - High	2 - High

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Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
5B - 602	SUNSET VALLEY	WESTERN TRAILS BLVD / WEST GATE BLVD	Faded crosswalk markings, Missing curb ramps, Non-compliant curb ramps	Add new curb ramp [2] , Repaint crosswalk markings [2] across Westgate Blvd , Replace existing curb ramp [2]	3 - Medium	2 - High
5B - 603*	SUNSET VALLEY	JONES RD / WEST WIND TRL	Non-compliant curb ramps	Install high visibility crosswalk [1] across West Wind Trail , Replace existing curb ramp [2]	2 - High	1 - Very High
5B - 604	SUNSET VALLEY	JONES RD / TAHOE TRL	Non-compliant curb ramps	Install high visibility crosswalk [2] across Tahoe Street (both sides), Replace existing curb ramp [2]	3 - Medium	1 - Very High
5B - 605	SUNSET VALLEY	CHOCTAW TRL / WINDING TRL	Missing curb ramps	Add new curb ramp [2]	5 - Very Low	3 - Medium
5B - 606	SUNSET VALLEY	CHOCTAW TRL / TAHOE TRL	Missing curb ramps	Add new curb ramp [2]	5 - Very Low	3 - Medium
5B - 607	SUNSET VALLEY	SAGEBRUSH CIR / SAGEBRUSH TRL	Missing curb ramps	Add new curb ramp [2]	5 - Very Low	3 - Medium
5B - 608	SUNSET VALLEY	SAGEBRUSH TRL / WESTERN TRAILS BLVD	Missing curb ramps, Non-compliant curb ramps	Add new curb ramp [1] , Replace existing curb ramp [1]	4 - Low	3 - Medium

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Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
5B - 609*	SUNSET VALLEY	JONES RD / SUNSET TRL	Non-compliant curb ramps, Poor sightlines	Replace existing curb ramp [2]	5 - Very Low	3 - Medium
5B - 610	SUNSET VALLEY	CHOCTAW TRL / WEST GATE BLVD	Non-compliant curb ramps, Wide curb radii	Replace existing curb ramp [2] , Tighten curb radii	3 - Medium	2 - High
5B - 611	SUNSET VALLEY	SAGEBRUSH TRL / WEST GATE BLVD / WEST WIND TRL	Difficult crossing, High speed crossing, Non-compliant curb ramps, No pedestrian signals	Install high visibility crosswalk [1] across Sagebrush Trail , Replace existing curb ramp [2] , Tighten curb radii [2]	2 - High	2 - High
5B - 612	SUNSET VALLEY	CHOCTAW TRL / PACK SADDLE PASS	Difficult crossing, Missing curb ramps	Add new curb ramp [2] , Install high visibility crosswalk [1] across Pack Saddle Pass +	4 - Low	3 - Medium
5B - 613	None (nearest school: Sunset Valley)	BUFFALO PASS / JONES RD	High speed crossing, Long crossing distance, Missing curb ramps, Non-compliant curb ramps	Add median refuge island on Jones Rd , Add new curb ramp [1] , Replace existing curb ramp [2]	2 - High	1 - Very High
5B - 614	None (nearest school: Zilker)	CINNAMON PATH / DEL CURTO RD	Difficult crossing	Install high visibility crosswalk [1] across Cinnamon Path	2 - High	1 - Very High

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Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
5B - 851*	SUNSET VALLEY	Near 1036 SUNFLOWER TRL	No lighting	Add lighting to trail connection between Yellow Tail Cv and Jones Rd	5 - Very Low	4 - Low
5B - 901	COVINGTON, SUNSET VALLEY	Near 5600 BAYTON LOOP	No trail connection	Construct bridge , Construct new shared use path	4 - Low	4 - Low

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Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
2F - 217	BOONE	PLANTATION RD	Missing sidewalk	Construct new sidewalk - PLANTATION RD from WAVERTREE CT to Near 8200 WAVERTREE CT	4 - Low	3 - Medium
3C - 003	BEDICHEK, ST ELMO, UPHAUS	MOUNT VERNON DR	Desired bike route, Excessive vehicle speeds	Add speed cushions - MOUNT VERNON DR from PHILCO DR to W ST ELMO RD , Add bike lane - MOUNT VERNON DR from W ST ELMO RD to REDD ST	3 - Medium	2 - High
3C - 011	GALINDO	SOUTHRIDGE DR	Desired bike route, Excessive vehicle speeds, Faded markings	Add speed cushions - SOUTHRIDGE DR from BANISTER LN to DOLPHIN DR , Add bike lane - SOUTHRIDGE DR from BANISTER LN to DOLPHIN DR	2 - High	3 - Medium
3C - 021	ST ELMO, UPHAUS	CASEY ST	Desired bike route	Add sidepath - CASEY ST from BANISTER LN to MOUNT VERNON DR	3 - Medium	5 - Very Low
3C - 217	ST ELMO	MOUNT VERNON DR	Missing sidewalk	Construct new sidewalk - MOUNT VERNON DR from REDD ST to Near 4300 MOUNT VERNON DR	2 - High	3 - Medium
3C - 218	ST ELMO	MOUNT VERNON DR	Missing sidewalk, Temporary obstruction (ex. vegetation)	Fix sidewalk obstructions - MOUNT VERNON DR from PLATEAU CIR to W ST ELMO RD , Construct new sidewalk - MOUNT VERNON DR from W ST ELMO RD to Near 4305 MOUNT VERNON DR	3 - Medium	3 - Medium
3C - 221	GALINDO	BANISTER LN	Missing sidewalk, Poor condition	Repair existing sidewalk - BANISTER LN from MORGAN LN to SUMMER OAKS DR , Fix sidewalk obstructions - BANISTER LN from MORGAN LN to SUMMER OAKS DR , Construct new sidewalk - BANISTER LN from SUMMER OAKS DR to SOUTHWAY DR	3 - Medium	4 - Low

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Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
3C - 222	GALINDO	BANISTER LN	Driveway crossings not accessible, Permanent obstruction (ex. pole/tree), Poor condition, Temporary obstruction (ex. vegetation)	Fix sidewalk obstructions - BANISTER LN from MORGAN LN to SOUTHWAY DR , Widen existing sidewalk - BANISTER LN from SOUTHRIDGE DR to SUMMER OAKS DR	5 - Very Low	4 - Low
3C - 228	GALINDO	SOUTHRIDGE DR	Missing sidewalk	Construct new sidewalk - SOUTHRIDGE DR from BANISTER LN to DOLPHIN DR	2 - High	4 - Low
3C - 272	ST ELMO	HANK AVE	Missing sidewalk	Construct new sidewalk - HANK AVE from MARCY ST to NALIDE ST	4 - Low	5 - Very Low
3C - 273	ST ELMO	MARCY ST	Missing sidewalk	Construct new sidewalk - MARCY ST from BANISTER LN to JINX AVE	4 - Low	4 - Low
3C - 274	ST ELMO	JINX AVE	Missing sidewalk	Construct new sidewalk - JINX AVE from north end to ARDEN DR	3 - Medium	5 - Very Low
3C - 275	ST ELMO	MOUNT VERNON DR	Missing sidewalk	Construct new sidewalk - MOUNT VERNON DR from Near 4300 MOUNT VERNON DR to GREEN FOREST DR	2 - High	5 - Very Low
3C - 604	GALINDO	BANISTER LN / SUMMER OAKS DR	Non-compliant curb ramps	Replace existing curb ramp [2]	5 - Very Low	4 - Low

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Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
3C - 613	GALINDO	BANISTER LN / MORGAN LN	Non-compliant curb ramps	Replace existing curb ramp [2]	5 - Very Low	3 - Medium
3C - 616	ST ELMO	MOUNT VERNON DR / PLATEAU CIR	Difficult crossing, Wide curb radii	Install high visibility crosswalk [1] across Plateau Cir , Tighten curb radii	4 - Low	2 - High
3C - 624	GALINDO	SOUTHPORT DR / SOUTHRIDGE DR	Non-compliant curb ramps	Replace existing curb ramp [2]	5 - Very Low	3 - Medium
3C - 635	ST ELMO	MOUNT VERNON DR / W ST ELMO RD	Non-compliant curb ramps, Poor sightlines	Install high visibility crosswalk [1] across Mount Vernon Dr , Replace existing curb ramp [2]	2 - High	1 - Very High
3C - 638	GALINDO	BANISTER LN / SOUTHRIDGE DR	Non-compliant curb ramps	Replace existing curb ramp [2]	5 - Very Low	3 - Medium
3C - 639	ST ELMO	MOUNT VERNON DR / REDD ST	Difficult crossing, Non-compliant curb ramps	Install high visibility crosswalk [4] across Mt Vernon and Redd , Replace existing curb ramp [1]	3 - Medium	2 - High
3C - 655	GALINDO	SOUTHRIDGE DR / SOUTHWAY DR	Difficult crossing	Install high visibility crosswalk [1] across Southway	2 - High	1 - Very High

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Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
3C - 657	ST ELMO	JINX AVE / REDD ST	Missing curb ramps, Difficult crossing, Non-compliant curb ramps	Add new curb ramp [3] , Install high visibility crosswalk [2] across Jinx , Replace existing curb ramp [1]	3 - Medium	2 - High
3C - 659	ST ELMO	HANK AVE / REDD ST	Missing curb ramps, Difficult crossing, Non-compliant curb ramps	Add new curb ramp [1] , Install high visibility crosswalk [2] across Hink , Replace existing curb ramp [2]	3 - Medium	2 - High
3C - 665	GALINDO	BANISTER LN	Difficult crossing	Install high visibility crosswalk & Install raised crosswalk [1] across Bannister Lane , Install Rapid Flashing Beacon	3 - Medium	3 - Medium

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CITY OF AUSTIN PUBLIC WORKS

SAFE ROUTES TO SCHOOL

APPENDIX A: ENGINEERING TOOLKIT

CITY OF AUSTIN PUBLIC WORKS
SAFE ROUTES TO SCHOOL

ENGINEERING TOOLKIT

INTRODUCTION

This Toolkit was developed in support of the City of Austin Safe Routes to School (SRTS). It presents the most common engineering treatments used to improve pedestrian and bicyclist safety, with a focus on supporting healthy, safe, and active travel to school. The Toolkit can be used by consultants, City staff, and the public in ongoing discussions about traffic safety and school access.

While this Toolkit represents common engineering solutions that can be used, it is not an exhaustive list of every design solution that may be applicable in a school environment. Solutions to specific local challenges must be evaluated by City staff through field work and, when appropriate, engineering studies and/or public engagement. All projects will be designed using applicable City, State and Federal design manuals and guidelines.

CITY OF AUSTIN PUBLIC WORKS
SAFE ROUTES TO SCHOOL

ENGINEERING TOOLKIT

The Toolkit is organized into four sections: Crossing Treatments, Street Treatments, Traffic Calming and Other. The page number for each treatment in the Toolkit is shown below.

CROSSING TREATMENTS

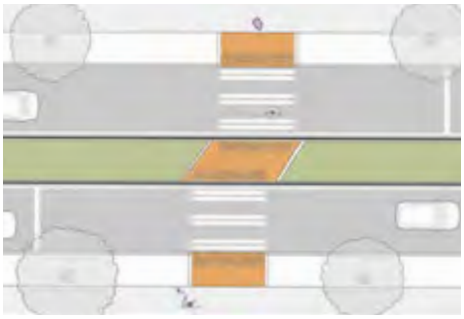
STREET TREATMENTS

TRAFFIC CALMING

OTHER

REFUGE ISLANDS

Refuge islands (also called pedestrian refuges or center islands) are delineated or raised areas in the middle of the street at intersections or mid-block crossings that provide a designated place for people walking and biking to wait for an opportunity to cross the other half of the street.



Typical crossing island

Landscaping beautifies the refuge island

Refuge islands also help people on bicycles cross the street

What is the purpose of a refuge island?

- Makes the crossing more visible to people driving.
- Allows people to cross the street in two stages, making it easier to find gaps in traffic by only having to cross one direction of travel at a time.
- Reduces the amount of time a person crossing the street is exposed to traffic by providing a designated place to wait in the middle of the crossing.
- Makes the street easier to cross for kids, older adults, people with disabilities, and others who may need more time to cross or have more difficulty judging gaps in traffic.
- Reduces speeding as drivers approach the crossing through visual narrowing of the travel lane.

How does COA decide where to install a refuge island?

- Refuge islands may be an effective crossing treatment in situations where it is difficult to cross the street due to long crossing distances or few gaps in traffic.
- There must be adequate width (6-ft minimum) in the middle of the road to install the refuge island. Generally, streets with a two-way center turn lane or few or no left turns by people driving provide opportunities to install a refuge island.
- We also consider including additional safety improvements like crossing beacons along with the refuge island to make the crossing even more visible to people driving. Any added vegetation should be low-lying as to not affect sight distance.
- At crossings frequently used by people on bikes, such as Neighborhood Bikeway crossings, we consider creating individual crossings that separate people biking and people walking.

How much does a refuge island cost?

$$-$$$: A small asphalt or concrete refuge island can be fairly inexpensive, typically in the range of $10K to $20K to install. Lower cost materials such as flexible posts can also be used to delineate the refuge island in certain situations. Larger projects that include landscaping and drainage structures can increase construction and maintenance costs.

How long does it take to install a refuge island?

1-2 years or less: A simple project can be designed in six months and constructed easily by City crews. More time is required to design larger refuge islands or refuge islands at busy intersections. COA may use contractors to install these types of projects instead of City crews, which can add more time.

References and Resources

Pedestrian Crossing Guidelines for Texas

Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE): Refuge islands

NACTO Urban Bikeway Design Guide: Median Refuge Island

FHWA Proven Safety Countermeasures: Medians and Pedestrian Refuge islands

Example in Austin

Mueller Boulevard and Aldrich Street

CURB EXTENSIONS

Curb extensions are created by extending the curb line into the roadway at a corner or mid-block. They shorten the distance for people walking across the street and improve visibility between people walking and driving. By visually and physically narrowing the roadway, curb extensions also help reduce speeding.

Mid-block curb extension

Easy-to-install materials such as paint, turtle bumps, and flex posts may be used to create curb extensions

Curb extensions may provide space for landscaping

What is the purpose of a curb extension?

- Improves safety by reducing the distance and time required to cross the street.
- Improves visibility between people driving and people walking across the street.
- Provides additional space in constrained locations for installing curb ramps.
- Improves safety at corners by slowing turning motorists through a tighter turning radius.
- Prevents people from parking too close to a crosswalk or from blocking a curb ramp or crosswalk.
- Provides space for seating, public art, bike racks, rain gardens or other public amenities.

How does COA decide where to install a curb extension?

- We consider installing curb extensions at locations that would benefit from improved visibility between people walking and driving, such as at school crosswalks.
- Curb extensions can be installed:
  - at most locations with a legal crosswalk, whether marked or unmarked, provided there is adequate width,
  - on streets with all day on-street parking, and
  - at locations where they do not extend into travel lanes or bike lanes. Before considering installing a curb extension, we check the Austin Bicycle Master Plan to make sure that a new curb extension would not prevent installation of a bike lane in the future.

How much does a curb extension cost?

$$-$$$: Curb extensions typically involve roadway and sidewalk removal and may require replacement / relocation of stormwater drainage inlets. Installing curb extensions as part of larger capital projects such as street repaving, or when using low cost materials such as paint and pre-fabricated platforms (a.k.a. turtle bumps), costs can be reduced.

How long does it take to install a curb extension?

1-2 years: Typically design is completed in 6-12 months and construction is completed by a contractor the following year.

References and Resources

Austin Street Design Guide (DRAFT)
Pedestrian Crossing Guidelines for Texas
Pedestrian Safety Guide and Countermeasure Selection System: Curb Extensions
NACTO Urban Street Design Guide: Curb Extensions
AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities, 2015

Examples in Austin

Aldrich Street and McBee Street
6th Street and Waller Street

CURB RAMPS

Curb ramps are sloped areas located at intersection corners and crossings that connect the street to the sidewalk. They create a barrier-free environment for everyone when crossing streets that have curbs and sidewalks.

Curbs limit universal accessibility and are barriers for transitioning from the sidewalk to the street

A sidewalk retrofitted with a curb ramp and a tactile warning strip

Each corner should have two curb ramps, one for each crossing

What is the purpose of a curb ramp?

- Provides a comfortable transition from the street to the sidewalk for all people, including people with disabilities, kids on bikes, and caretakers pushing strollers.

How does COA decide where to install a new curb ramp?

- To the extent that resources are available, new curb ramp installations are coordinated with sidewalk rehabilitation and applicable street alterations. In addition to street maintenance resurfacing projects performed by Public Works, many other City Departments resurface the streets, which also requires coordinated curb ramp installations.
- We use the City's Sidewalk Master Plan and ADA Transition Plan to select and prioritize curb ramp retrofits. Schools are included as a major component in the Sidewalk Master Plan prioritization model.
- Residents can request curb ramps through the city's 3-1-1 system.

How much does a new curb ramp cost?

$-$$: The Federal Americans with Disabilities Act (ADA) lays out very specific requirements for how curb ramps must be constructed, including level landings and gentle grades. Curb ramps built by COA are built per City Standards, which comply with ADA. When standards are not applicable, curb ramps are field-engineered to follow ADA requirements.

How long does it take to install a curb ramp?

Varies: If a curb ramp is a small scale, stand-alone project, it can be completed within several months. If it is part of a larger resurfacing or reconstruction project, it can take a year or more.

Additional information

The City of Austin has a curb ramp program that routinely installs or upgrades curb ramps throughout the city. Residents can request curb ramps through the city's 3-1-1 system.

References and Resources

2016 Sidewalk Master Plan & ADA Transition Plan

United States Access Board Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)

MARKED CROSSWALKS

Crosswalks exist at every intersection, whether marked or unmarked. Marked crosswalks are used to raise driver awareness of people crossing the street and to direct people who are walking to the best place to cross the street.

Marked crosswalk at an intersection

Raised crosswalks slow down people driving

Advanced stop bars increase visibility of people crossing the street

Raised Crosswalks

Benefits:

- **Raised crosswalks keep the crosswalk at the same height as the sidewalk.**
- **They act as a speed table and slow people driving as they approach the crosswalk.**
- **They also make people walking more visible to people driving.**

Design Considerations:

- **Raised crosswalks may require modifications to stormwater drainage structures in the street, increasing construction costs.**
- **COA ensures that emergency vehicles and buses aren't affected by a raised crosswalk.**

Example in Austin

Simond Avenue and Aldrich Street

Raised Intersections

- **Raised intersections slow people driving and encourage them to yield to people walking across the street.**
- **Raised intersections can be installed in neighborhood intersections to make the public space more comfortable and inviting for people to walk and bike.**

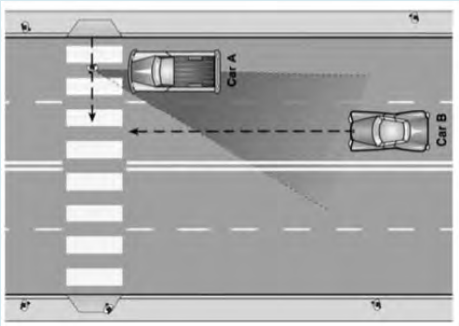
What is the purpose of a marked crosswalk?

- Direct school kids who are walking to the best place to cross the street.
- Indicate the walking route to school.
- People driving are made more aware of where to expect school kids to cross the street.

How does COA decide where to mark a crosswalk?

- Crosswalks will always be marked at signals or PHBs, and at intersections in the Central Business District.
- Crosswalks will typically be marked at stop-controlled locations if there is high vehicular volume, and will be marked if feasible at uncontrolled locations if they satisfy the criteria outlined on this page.
- We consider the following factors when deciding whether to mark a crosswalk at uncontrolled locations:
  - Average hourly traffic over 300 vehicles per hour in any hour
  - Adequate stopping or sight distance
  - More than 20 pedestrian crossings in any one hour of the day, or more than 10 children or elderly persons in any one hour
  - There is no existing marked crosswalk with 300-ft of the location in question
  - The crosswalk is located on a trail, shared-use path, designated safe route to school, or provides direct access to a transit stop, or other pedestrian destinations
  - The crosswalk is located on a High or Very High score on the Pedestrian Safety Priority Network, as determined by the Pedestrian Safety Action Plan
  - Presence of curb ramps
  - Presence of lighting

MARKED CROSSWALKS



Multiple Threat

A multiple threat is a situation where a driver in one lane (car A) stops for a person crossing the street, but the driver in the next lane (car B) doesn't see the person and doesn't stop. If we mark a crosswalk on streets with multiple traffic lanes or high traffic volumes, we consider installing additional safety improvements like crossing beacons, pedestrian signals, refuge islands, curb extensions, or advanced stop lines to minimize the multiple threat.

- Other things we consider include:
  - The total distance a person walking would have to cross. If there is more than one lane of traffic in each direction, then we consider adding additional features to supplement the crosswalk and minimize the potential multiple threat. These treatments could include elements like crossing beacons, pedestrian signals, refuge islands, curb extensions, or advanced stop lines.
  - Volume and speed of people driving. If the street is very busy and speeds are high, then we consider adding additional features to supplement the marked crosswalk.
- If we mark a new crosswalk, we may also install crosswalk signs. If it's a crosswalk mostly used by kids, then we make it a school crosswalk with school crosswalk signs. Otherwise, we use regular crosswalk signs. Flexible in-street bollards may also be used to draw additional attention to the crossing.
- We use a very durable, reflective material to mark crosswalks. Over time, the crosswalk markings may need to be refreshed. We prioritize crosswalk maintenance based on the condition of all the crosswalks in the city. If you're concerned about the condition of a crosswalk, submit a 3-1-1 request.

How long does it take to install a marked crosswalk?

Varies. In some cases, it can take 1-2 months or less to install a new marked crosswalk. If we need to install new curb ramps or other safety improvements in addition to the marked crosswalk, then it can take 1-2 years or longer to complete the work.

How much does a new marked crosswalk cost?

$: If a potential new marked crosswalk location does not require any additional safety treatments, then marking the crosswalk is relatively inexpensive and straightforward.

$$: If we need to install other safety improvements, the cost can be higher.

References and Resources

Pedestrian Crossing Guidelines for Texas

Pedestrian Safety Guide and Countermeasure Selection System: Marked Crosswalks and Enhancements

Pedestrian Safety Guide and Countermeasure Selection System: Raised Pedestrian Crossings

City of Austin Crossing Guidelines and Crossing Decision Tree

RECTANGULAR RAPID FLASHING BEACONS

Rectangular Rapid Flashing Beacons (RRFB) are pedestrian-activated flashing lights on the side of the street that make a crosswalk more visible to people driving and alert them to the presence of a person trying to cross the street.

RRFB with passive detection

RRFB with push button at a school crosswalk

RRFB at a neighborhood bikeway crossing

What is the purpose of a RRFB?

- Makes the presence of a person trying to cross the street known to people driving, since they only flash when someone pushes the button or activates an automatic sensor.
- Studies have shown that people driving are more likely to stop for people trying to cross the street when they activate a rectangular rapid flashing beacon. The highly visible flash of RRFBs is very eye-catching to motorists.

When would COA install a RRFB?

- The Federal Highway Administration (FHWA) provides warrants and guidance for the installation of RRFBs. For more information, see https://mutcd.fhwa.dot.gov/resources/interim_approval/ialistreq.htm#ia11
- COA considers the volume and speed of traffic on the street as well as the total distance a person walking or biking has to cross.
- RRFBs can be installed at crosswalks that have other safety improvements, like a crossing island.

How much does a RRFB cost?

$$: RRFBs are a relatively inexpensive way to improve safety for people crossing the street. The cost to install RRFBs can increase if the crossing doesn't already have a marked crosswalk with curb ramps that meet Federal Americans with Disabilities Act requirements.

How long does it take to install a RRFB?

Varies. If the existing crossing already has marked crosswalks and curb ramps that meet ADA requirements, RRFB can be installed in a few months. If other improvements are needed at the location, it may take 1-2 years.

References and Resources

Interim Approval for Optional Use of RRFBs (FHWA)

Pedestrian Safety Guide and Countermeasure Selection System: RRFB

FHWA Intersection Safety Technologies

PEDESTRIAN HYBRID BEACONS

Pedestrian Hybrid Beacons (PHB) are pedestrian-activated traffic control devices which help pedestrians safely cross major roadways where there is no traffic signal. PHBs are also known as High Intensity Activated Crosswalks, or HAWK signals.

Pedestrian hybrid beacon

Pedestrian hybrid beacon on a divided roadway

Pedestrian hybrid beacon on a downtown street

What is the purpose of a PHB?

- Makes the presence of a person trying to cross the street known to people driving, since the beacon is only activated when someone pushes the button.
- The beacon consists of two red lights above a single yellow light. The beacon head is "dark," or unilluminated, until a pedestrian activates the device. The pedestrian pushes a button that activates the beacon. After displaying brief flashing and then steady yellow intervals, the device displays a steady red indication to drivers and a "WALK" indication to pedestrians, allowing them to cross while traffic is stopped.
- The solid red signal face on a PHB has the same meaning as and should be treated like a traffic signal showing a red light. Once the red light starts flashing it should be treated like a stop sign, where the driver is to stop and make sure it is clear before proceeding.

When does COA install a PHB?

- The City follows the Texas Manual on Uniform Traffic Control Devices guidelines and warrants when studying a location for a PHB.
- We use data to understand the volume and speed of people driving on the street as well as the number of traffic lanes a person has to cross.
- We consider the safety history of the crossing in addition to environmental and community issues at a given location.
- PHB must be located more than 300-ft from existing signals.
- PHB should be reserved for roads with at least three travel lanes.
- PHB can be installed at crosswalks that have other safety improvements, like a crossing island.

How much does a PHB cost?

$$$$: Relatively expensive due to electrical components that often require temporarily removing sidewalk to access underground electrical lines and the reconstruction of any sidewalk removed during construction. The cost can range from $75,000 to $150,000.

How long does it take to install a PHB?

1-2 years: Traffic studies and signal design must be completed before installation can begin

References and Resources

City of Austin: Pedestrian Hybrid Beacons

Pedestrian Safety Guide and Countermeasure Selection System: Pedestrian Hybrid Beacon

FHWA Intersection Safety Technologies

Texas Manual on Uniform Traffic Control Devices: Chapter 4

Examples in Austin

Guadalupe Street and 31st Street

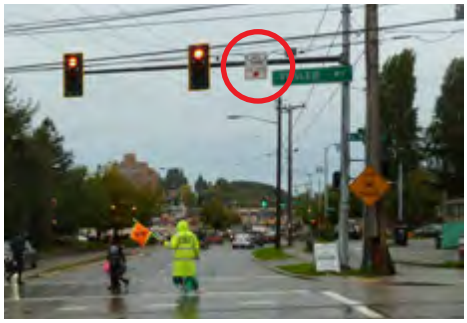
Mairo Street and S 1st Street

TRAFFIC SIGNALS

Traffic signals coordinate the flow of traffic at intersections, including people driving, walking, and biking.

Bicycle signal detection

Reflective back plate makes the signal more visible



"No Turn on Red" sign

What is the purpose of a traffic signal?

- Controls the flow of traffic and provides coordinated movement of people driving, walking, and biking.
- Provides a safer, more comfortable environment for people walking and biking to cross the street or streets with high traffic volumes or speeds. People driving have to completely stop at red signals when it's the pedestrian's or bicyclist's turn to cross the street.
- When there is a steady stream of traffic, it can be difficult for people walking or biking to find a gap in traffic to cross the street. Traffic signals create gaps in traffic that allow people biking or walking to cross the street.

How does COA decide where to install a traffic signal?

- We use the Texas Manual on Uniform Traffic Control Devices (TMUTCD) to determine if the safety and traffic flow at an intersection would be improved by installing a new traffic signal. The TMUTCD outlines minimum thresholds for vehicle and pedestrian traffic and collisions that should be considered before installing a traffic signal.
- We conduct a traffic engineering study to determine if a location meets the TMUTCD thresholds, further analyze traffic patterns, and conclude whether a new signal would improve safety or the flow of traffic.
- At some intersections near schools, we can adjust the signal timing and flashing pattern during school arrival and dismissal hours to create fewer conflicts between people walking and people driving.
- Providing a dedicated phase for people to cross the street followed by a separate phase for left turning vehicles reduces potential conflicts between pedestrians and motorists. By prohibiting left turns during the WALK phase, pedestrians in the crosswalk do not have to worry about turning motorists yielding to them.
- At some intersections, including some locations in downtown, people driving aren't allowed to make a right turn when the traffic signal is red. This design makes it safer for people walking across the street by reducing the number of potential conflicts with people turning right on red.
- Traffic signals are more convenient for people walking when the WALK sign is displayed automatically when it's their turn to cross the street, a strategy referred to as automatic recall. Signals in areas of Austin with high pedestrian volumes are programed to show the walk signal automatically. In situations with very low pedestrian volumes, this design may not be appropriate, so many traffic signals have push buttons for people to activate the WALK phase.
- At intersections that are frequently used by people on bikes, COA has installed equipment to detect when a bicyclist is present. This equipment tells the signal to give the bicyclist a green light. This detection can be in the pavement or on the signal pole/arm. COA has recently installed bike signals at 12 intersections throughout the city.

TRAFFIC SIGNALS

How much does a traffic signal cost?

$$$$: Installing a new traffic signal is a very costly safety improvement. When possible, we try to find more cost-effective safety improvements that achieve the same safety objectives so that we achieve more with limited city resources.

How long does it take to install a traffic signal?

2-4 years: We construct a limited number of new signals per year because they are so costly. They take a long time to design and construct because they are complex systems.

4+ years: If the new signal is on a state route, then the City coordinates with the Texas Department of Transportation, which adds time to the process.

Pedestrian Countdown Signals and Leading Pedestrian Intervals (LPI)

A pedestrian countdown signal shows the number of seconds remaining before the WALK phase is over. This feature helps people walking know how much time they have remaining to cross the street and can help reduce the number of people in the crosswalk near the end of the WALK phase. It's safest for people walking to be out of the crosswalk when the signal turns green for people driving in the opposite direction.

A Leading Pedestrian Interval (LPI) gives people walking the WALK indication 3-5 seconds before people driving in the same direction get a green signal. Because people walking are already in the crosswalk when people driving begin to turn left or right, people driving are more likely to yield to people walking.

What is the purpose of an LPI?

- The LPI signal timing technique allows pedestrians to establish themselves in the intersection in front of turning vehicles, increasing visibility between all modes.

How does COA decide where to implement an LPI?

- The LPI can be used at intersections with high volumes of pedestrians and conflicting turning vehicles and at locations with a large population of elderly or school children who tend to walk more slowly.
- The LPI should be at least three seconds to allow pedestrians to cross at least one lane of traffic to establish their position ahead of turning traffic.

How much do LPIs cost?

$: An LPI is typically added where there is already a signal, so the cost is minimal.

How long does it take to install an LPI?

A few months. An LPI is typically added where there is already a signal, so this reflects the time to redesign the signal cycle and time for a technician to adjust it at the control center or in the field.

With a Leading Pedestrian Interval, motorists have a red signal for the first 3-5 seconds of the WALK phase.

References and Resources

City of Austin: Traffic Signals

Texas Manual on Uniform Traffic Control Devices, Part 4

Pedestrian Safety Guide and Countermeasure Selection System: **Traffic Signals**

Federal Highway Administration Proven Safety Countermeasures

Bike Signal Examples in Austin

4th Street and Red River Street

Rio Grande Street and W 24th Street

North Lamar Boulevard and Morrow Street

STOP SIGNS

Stop signs are a traffic control device used at intersections with three or more approaches, and where application of the normal right-of-way rule would not be expected to provide reasonable compliance with the law.

Stop sign with stop line at an all-way stop

Stop sign oriented to traffic crossing a neighborhood bikeway

Stop sign at intersection between a neighborhood street and a busier street

What is the purpose of a stop sign?

- Controls traffic movements between people driving, walking, and biking by assigning right of way at an intersection.
- May be used to control one direction of traffic while allowing the other direction to flow freely or can be used to control all directions of traffic.

How does COA decide where to install a stop sign?

- We use the Texas Manual on Uniform Traffic Control Devices (TMUTCD) to determine if the safety of an intersection would be improved by controlling one or more directions of traffic with a stop sign. The TMUTCD outlines certain minimum thresholds of motorist, pedestrian, and bicyclist traffic and collisions that should be considered before installing a stop sign.
- If the volumes of people driving, walking, and biking at each direction of the intersection are approximately equal and meet the minimum thresholds, we will consider installing stop signs for all directions of travel.
- If the volumes of people driving, walking, and biking from each direction are unequal, the street with the lower volume of people traveling should be stop-controlled unless there are reasons to provide an advantage to one direction of travel (e.g. neighborhood bikeways).
- Other things we consider include:
  - direction of school walking routes,
  - visibility and sight distance on different sides of the intersection, and
  - providing advantage to one direction of travel over another, e.g. neighborhood bikeway or major trail connection.
- Stop signs may be accompanied by stop lines, which indicate to people driving where to stop their car before the intersection.

How much does a stop sign cost?

$: Stops signs are a relatively low-cost and effective way of controlling traffic at intersections.

How long does it take to install a stop sign?

<1 year: If we determine that an intersection should have one or more new stop signs, they can be installed relatively quickly.

References and Resources

Texas Manual for Uniform Traffic Control Devices
AASHTO Guide for the Development of Bicycle Facilities

SIDEWALKS

Sidewalks are the building blocks of the pedestrian network. There are currently more than 2,400 miles of sidewalks in Austin, yet many areas in the city do not have sidewalks at all. Sidewalks provide the greatest benefit to people when they are wide enough for two people to walk side-by-side, maintained in good condition with few bumps or cracks, kept clear of debris and overgrowing plants, and built with curbs.

Severe cracking creates uneven and hazardous walking surfaces

New sidewalk remains level across driveway

Alternative sidewalk design

What is the purpose of a sidewalk?

- Improves safety and comfort of people walking by separating pedestrians from people moving faster on bikes or in cars.
- Provides a dedicated space away from car traffic for children to walk, play, and learn to ride a bike.

How does COA decide where to build a new sidewalk?

- The City's Sidewalk Master Plan and ADA Transition Plan Update provides an objective mechanism for prioritizing new sidewalk construction and existing sidewalk repair and rehabilitation projects.
- Developers often have to build new sidewalks or repair existing sidewalks with new development.
- Sidewalk prioritization is determined by the following criteria:
  - Where people need and want to walk, not only today but in the future
  - Equity factors, like where people with lower incomes or low-car households live
  - Whether adjacent streets provide comfortable, continuous sidewalks
  - The number of students served
- We prioritize providing a sidewalk on at least one side of residential streets. School routes may be locations where sidewalks should be installed on both sides of residential streets to provide for direct access from homes to school, as well as to areas used for off-site drop-off and pick-up.
- Along existing sidewalks, we look for opportunities to remove barriers such as light poles or other obstructions, aiming to maintain a 4-ft clear zone. We also look for opportunities to limit or narrow driveways (a.k.a. curb cuts), which can create conflicts between people walking and people driving.

How much does a new sidewalk cost?

$$-$$$$: Building new sidewalks can be an expensive and challenging engineering project. We often must coordinate with nearby property owners. In addition, driveways connecting to private property may need to be redesigned and rebuilt, encroachments of private property onto public property removed, and new stormwater infrastructure constructed.

How long does it take to get a new sidewalk installed?

1-2 Years: Design and outreach must be completed before construction can begin.

Additional Information

When building conventional sidewalks is not feasible, other strategies may be considered for creating safer walking routes to school, such as Shared Streets, reallocating road space to create dedicated walking space, and alternative surfacing materials.

References and Resources

2016 Sidewalk Master Plan & ADA Transition Plan Update

United States Access Board Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)

LIGHTING

Lighting is an essential element in street design. It is used to increase visibility and safety for people walking, biking, and driving at night and during dawn/twilight hours. Guidelines for placement, size, and wattage of lighting is a key element of creating pedestrian-friendly streets.

Well-lit crossing at night

Pedestrian scale lighting along a shared use path

Cobra style lights illuminate the street, but not the pedestrian realm

What is the purpose of lighting?

- Increases visibility and feelings of safety on a street, at an intersection/crosswalk, in a neighborhood, or along a trail.
- Creates a welcoming public realm and promotes active transportation options at nightime and winter when daylight hours are shorter.
- Highlights certain locations and elements in a neighborhood as focal points or landmarks which provides wayfinding support.
- Can have a traffic calming effect when pedestrian scale lighting is used.

How does COA decide where to install a lighting element?

- COA follows lighting recommendations included in the Illuminating Engineering Society Of North America, Roadway Lighting. Any applications are to meet or exceed these recommendations.
- We aim to create uniformity of lighting on the street by using lower fixture heights and greater fixture density.
- We place lighting fixtures in a way that minimizes clutter and takes other streetscape elements into consideration. To acheive these goals COA has identified the following guidelines:
  - Pedestrian lighting is placed at a 12-ft mounting height
  - Placed at 88-ft on center from each other
  - We use subject lighting, which is directional and can be aimed at important crossings (such as primary school crossings)
- In addition to these guidelines, lighting should be studied on a case by case basis starting with a photometric analysis, and designed to match the character of the surrounding area.

How much does lighting cost?

$$: Lighting costs can vary depending on the type of fixtures and poles. COA specifies the types of fixtures to be used along public streets and bike paths.

How long does it take to install lighting?

Few months to 1 year: This can vary depending on whether the installation is part of a larger streetscape project.

BIKE FACILITIES

Bike facilities are routes or road design features made for people on bikes. On-street bike facilities include bike lanes, buffered bike lanes, protected bike lanes, and intersection treatments such as protected intersection designs or green pavement markings.

Protected two-way bike lane

Bike markings

Bike box

What is the purpose of a bike facility?

- Encourages more people to feel comfortable riding a bike to different locations, including to school.
- Provides safety and predictability by separating people biking from people driving.
- Makes biking a viable transportation option with many benefits including avoiding traffic congestion, reducing parking costs, decreasing the time spent commuting, and helping reduce emissions that contribute to climate change.
- Providing safe and comfortable ways for children to bicycle to school is important because it extends the distance that a child can realistically arrive to school using active transportation. While a typical walk-shed is only 1/2 mile around a school, a bike-shed can be up to 2 miles or more, depending on the student's age.

How does COA decide where to install a bike facility?

- The Austin Bicycle Master Plan and implementation planning prioritizes the locations where bikeways are built every year. Current funding levels, traffic and safety data, and leveraging opportunities are all considered to decide when and where bike facilities are built.
- The Austin Bicycle Master Plan's main network recommendations are based on a street's speed, volume, and connectivity. The bicycle plan also recommends bicycle facility connections to local destinations, including schools, that are outside of the main network but important due to both the traffic intensity during pick-up and drop-off and safety needs of kids.
- Bike lanes that are more separated from car traffic, like protected bike lanes with additional intersection treatments, are more appropriate and comfortable for kids biking to school.

How much does a bike facility cost?

$-$$$$: The cost of a bike facility depends on the type. Simpler projects cost much less than protected bike lanes.

How long does it take to install a bike facility?

Varies: Installing a bike facility depends significantly on the length of the route and scope of the project. Timelines typically range from eight months to a year for the planning, design, and construction phases, but can take longer, especially if there are changes to parking and a public process must be initiated. In addition, many projects include a data collection period up to one year after installation to evaluate the performance of the facility.

Examples in Austin

Berkman Drive

4th Street and Red River Street

References and Resources

City of Austin Bicycle Master Plan

NACTO Urban Bikeway Design Guide

AASHTO Guide for the Development of Bicycle Facilities, 2012

BIKESAFE Bicycle Countermeasure Selection System

NCHRP Guidelines for Analysis of Investments in Bicycle Facilities

BIKE LANES

A bike lane is defined as a portion of the roadway that has been designated by striping, signage, and pavement markings for exclusive use by bicyclists.

What is the purpose of a bike lane?

- Enable bicyclists to ride at their preferred speed without interference from traffic.
- Facilitate more predictable behavior and interactions between bicyclists and motorists.

How does COA decide where to install a bike lane?

- The installation of a bike lane requires an analysis of traffic volumes and speeds, as well as motorist behaviors.
- Bike lanes are typically found on both sides of a two-way street and one side of a one-way street.
- Bike lanes typically run in the same direction as traffic; sometimes they are installed in a "contra-flow" direction on low-traffic one-way corridors when it is necessary to maintain bicycle connectivity.
- Bike lanes should facilitate access to schools, public transportation, shopping centers, parks, and residential areas.
- Bike lanes are best suited for roadways with:
  - Speeds less than 30 mph and traffic volumes of 3,000 – 9,999 vehicles per day, or
  - Speeds of 31-40 mph and traffic volumes less than 3,000 vehicles per day. At higher speeds and volumes, protected bicycle lanes are preferred.
- On streets with constrained street widths or right-of-ways bicycle lanes may be installed outside of these recommendations
- In Austin, the minimum bike lane width is 5-ft. The preferred bike lane width is wider and can be 6-ft to 8-ft. If there is space to provide a bicycle lane greater than 7-ft, consider a buffered bicycle lane or a protected bicycle lane.
- Other factors affecting the placement of a bike lane include on-street parking, parking frequency, delivery activity, multiple travel lanes, transit service, and route continuity such as completing gaps in off-street urban trails.
- We also consider buffered bike lanes in locations where greater separation is desired between people driving and biking. Buffers consist of diagonal pavement markings that are at least 2-ft wide, located between the travel lane and bike lane.

How much do bike lanes cost?

$: Implementation of bike lanes can take place as part of roadway restriping projects. Roadway repaving is typically not required unless current conditions do not allow for easy bicycling.

How long do they take to install?

>1 year: Installation of bike lanes requires analysis of existing traffic conditions and identification of how the bike lane will augment and improve the existing or future bicycle network. Design of bike lanes typically takes 6 months to a year, followed by implementation.

PROTECTED BIKE LANES

A protected bike lane is an exclusive bicycle facility that provides a greater level of separation and comfort for bike riders, compared to a conventional bike lane. A protected bike lane includes physical, vertical separation from motor vehicle traffic. This physical separation may be in the form of a flex post, bollard, or curb. In situations where on-street parking is allowed, separated bike lanes are sometimes located on the curb side of parking.

What is the purpose of a protected bike lane?

- Provide a higher level of comfort and safety for users due to the physical separation.
- Attract users of all ages and abilities.
- Data from surveys suggest that if the City of Austin were able to implement an all ages and abilities bicycle network with facilities such as separated bike lanes, then 55 to 60% of the population say they would feel safe enough to bicycle on the roadways.

How does COA decide where to implement a protected bike lane?

- Protected bike lanes require more on-street right-of-way width than conventional bike lanes
- Protected bike lanes are generally recommended for roadways with:
  - Average daily traffic volumes of 10,000+
  - 41-50 mph and average daily traffic volumes of 3,000-9,999+
  - Over 50 mph and average daily traffic volumes of less than 3,000
- Protected bike lanes may be considered below these threshold levels as a treatment along bicycle routes to school since young children may need more separation than adults to feel comfortable bicycling on the street.
- Other factors affecting the placement of a protected bike lane include curbside activity, on-street double parking, parking frequency, delivery activity, multiple travel lanes, transit service, and route continuity such as completing gaps in off-street urban trails.
- Generally, the preferred clear width of a one-way protected bike lane is 7-ft, not including the width of physical separation. For a two-way facility, the typical clear width is 10-ft.

How much does a protected bike lane cost?

$$-$$$: Costs can vary. Protected bike lanes can be implemented as part of routine resurfacing projects using low-cost materials, or as part of reconstruction projects using curbing and grade separation.

How long does a protected bike lane take to install?

1-3 years. Like conventional bike lanes, separated bike lanes require traffic analysis and identification of any spatial constraints. Depending on the separation type and material chosen, design of separated bike lanes can take 6 to 18 months, followed by implementation.

NEIGHBORHOOD BIKEWAYS

Neighborhood Bikeways are streets that have slow speeds and low volumes of people driving, in order for people of all ages and abilities to feel comfortable biking on the street.

Residential streets are great for Neighborhood Bikeways

Neighborhood Bikeway

Intersection design is an important consideration at arterial street crossings

What is the purpose of a Neighborhood Bikeway?

- Encourages more people to walk and bike by keeping car volumes and speeds low and by providing high quality crossing treatments at busy streets.
- Provides safer, more comfortable routes to school for kids on foot or on bikes.
- Provides better connections for all ages and abilities to bike to other places in their neighborhood, like parks, libraries, and community centers.

How does COA decide where to install a Neighborhood Bikeway?

- The Austin Bicycle Master Plan prioritizes the general location where Neighborhood Bikeways are built. Current funding levels, traffic and safety data, and leveraging opportunities are all considered when deciding where Neighborhood Bikeways are implemented.
- Some elements we consider when selecting a specific route include:
  - Residential streets that connect people to neighborhood destinations such as schools, parks, shops and restaurants, among others,
  - Streets with low volumes of people driving and slow speeds. An ideal street for a Neighborhood Bikeway has fewer than 1,500 cars per day and speeds close to 20 MPH,
  - Relatively flat streets that are comfortable for people to walk or bike,
  - How to make the most of existing infrastructure to help people cross busy streets, such as traffic signals at busy intersections, and
  - New safety improvements at intersections of busy streets, such as refuge islands and crossing beacons.
- Typical elements of a Neighborhood Bikeway may include:
  - Speed limit of 20 MPH,
  - Signs and pavement markings to help people find their way,
  - Some combination of curb extensions, crossing beacons, crosswalks, refuge islands, or traffic signals at busy intersections,
  - Traffic diversion or channelization,
  - Right of way priority.

NEIGHBORHOOD BIKEWAYS

Refuge islands help Neighborhood Bikeway users cross busier streets

Signage and pavement markings help direct Neighborhood Bikeway users to destinations

How much does a Neighborhood Bikeway cost?

$-$$$: The cost to build a new Neighborhood Bikeway can vary based on how much work needs to be done to make crossings of busy streets safer.

How long does it take to install a Neighborhood Bikeway?

>1 year: Once a new Neighborhood Bikeway project has been funded, it can take one to two years to install. During the early phases of a Neighborhood Bikeway project, we collect and analyze traffic data to understand existing conditions. We gather public feedback through community outreach, which helps us select the most promising route. Once a route is chosen, the design phase and some pre-construction work may occur. Every Neighborhood Bikeway design is unique depending on local characteristics.

References and Resources

Austin Bicycle Master Plan
Local Area Traffic Management Program
NACTO Urban Bikeway Design Guide

SCHOOL ZONES

School Zones are designated on the immediate blocks around a school with reduced speed limits and pedestrian crossing signage to facilitate safer crossings for children walking and biking to school.

Trained crossing guards improve school zone safety


School crossing sign


In road signage reinforces pedestrian priority at school crossings

What is the purpose of a school zone?

- The best way to achieve a safe and low-stress school zone is through the uniform application of policies, practices, and standards developed through engineering judgement or studies.

What treatments define a school zone?

- Flashing school zone signs are used to reduce speed limits during school arrival and dismissal hours.
- School crossing signs should be used on key crossings located within the school zone. Other enhanced crossing treatments may be appropriate, depending on the volumes of pedestrian and motor vehicle traffic.
- Signs may include School Crossing, Speed Limit, School Bus Stop.
- Beacons may be used to supplement signage.

What other treatments should also be considered to improve safety in a school zone?

- Adequate sidewalks and crosswalk markings.
- Crossing guards with proper equipment and training.
- Traffic control devices including pedestrian activated signals.

How does COA decide where to implement a school zone?

- The beginning point of a reduced school speed limit zone should be at least 200-ft in advance of the school grounds, a school crossing, or other school related activities; however, this 200-ft distance should be increased if the reduced school speed limit is 30 mph or higher.
- Signage and pavement markings are not frequently used on neighborhood streets, though we consider the speed of traffic and anticipated number of students walking along the route. This also applies if the approach is a state highway or major arterial.
- Additional information on school zone signage and markings can be found in Part 7 of the TMUTCD.

How much do school zone improvements cost?

$: Pavement markings and signage are relatively inexpensive. Costs increase if sidewalk construction, road alterations, and traffic signals are also needed.

References and Resources

Texas MUTCD Traffic Control for School Areas
New Jersey School Zone Design Guide
Arizona Traffic Safety for School Zones Manual

DYNAMIC SPEED DISPLAY DEVICES

Dynamic Speed Display Devices (DSDD), also known as speed feedback signs, use radar to detect and display the speed of people driving. These signs help slow down people driving by reminding them of their speed compared to the posted speed limit.

Speed feedback sign displays a driver's speed compared to the speed limit

Solar-powered speed radar sign

Speed feedback signs may also flash a "slow down" message

What is the purpose of a dynamic speed display device?

- Raises awareness of the speed a person is driving and encourages them to slow down if they are driving above the speed limit.

How does COA decide where to install a dynamic speed display device?

- The city uses the following criteria when installing a DSDD:
  - The street must be owned and maintained by the City of Austin,
  - The street must provide access to abutting residential properties and/or places of community interest such as parks, libraries, community centers, educational institutions, etc.
  - The street must be a residential street or a minor collector street with no more than one moving lane of traffic in each direction,
  - The street must have a speed limit of 35 miles per hour or less, and
  - The DSDD cannot be installed in a school zone.

How much does a dynamic speed display device sign cost?

$-$$: Both portable and fixed-location DSDD units are available. Portable units are typically placed at a location on a roadway for a relatively short time period and then relocated to a different location. Fixed-location units are used for the long-term display of vehicle speeds at a given location.

How long does it take to install a dynamic speed display device?

The Austin Transportation Department has a Rotating DSDD Pilot Program with six portable DSDD units. Each DSDD unit is left in place for four weeks at a time, during which it collects real-time data on vehicular speeds and volumes. The locations for DSDD are determined on a first-come, first-serve basis based on citizen requests.

References and Resources

ATD Rotating DSDD Pilot Program

Example in Austin

Guadalupe Street and 23rd Street

LANE RECONFIGURATION

On multi-lane streets, a lane reconfiguration can improve safety for all roadway users. Modification of on-street parking can also give flexibility to constrained streets. Depending on the needs of the street, which are determined by careful analysis and a strong public process, general purpose lanes, parking or turn lanes may be repurposed for other uses such as wider sidewalks, street trees, bike lanes, or more efficient transit.

Street before lane reconfiguration

Street after lane reconfiguration

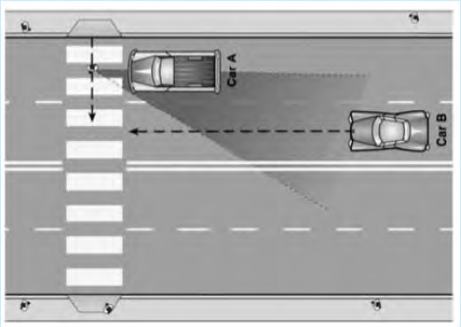
Street after lane reconfiguration

What is the purpose of a lane reconfiguration?

- Makes it easier and safer for people to cross busy streets by reducing the number of traffic lanes a person has to cross. When people cross streets with more than one lane in each direction they encounter a 'multiple threat.'
- Reallocate space on the street to widen sidewalks, plant street trees, add curb extensions, or install protected bike lanes.
- Slows people driving, which makes the street safer for everyone. When there's one lane in each direction, a person driving can only go as fast as the person in front of them.
- Makes it safer for people driving to make a left turn when a center turn lane is added, and a single lane of traffic helps manage drivers cutting in and out of lanes, which helps reduce collisions.
- Narrowing the width of travel lanes can also slow people driving and create space on the street to make it safer and more comfortable for people walking and biking.

How does COA decide where to do a lane reconfiguration?

- When a street is being resurfaced or reconstructed, there is an opportunity to change the configuration of lanes on the street. COA evaluates traffic conditions and crash records to identify whether a road or lane diet is needed and if parking can be modified.
- Streets that are good candidates for lane reconfigurations typically have lower volumes than would be expected for a street with the existing configuration. A lane reconfiguration may be considered for streets with under 25,000 vehicles per day.
- For all lane reconfiguration projects, the flow of traffic is carefully analyzed to make sure a lane reduction wouldn't cause back-ups at traffic signals, and public process is conducted to discuss tradeoffs with the public.
- For parking lane reconfigurations, parking use and supply is carefully studied and inform the proposed designs that are vetted through a public process before moving forward.



Multiple Threat

A multiple threat is a situation where a driver in one lane (car A) stops for a person crossing the street, but the driver in the next lane (car B) doesn't see the person and doesn't stop. If we mark a crosswalk across more than two lanes of traffic, we consider installing additional safety improvements like crossing beacons, pedestrian signals, refuge islands, curb extensions, or advanced stop lines to minimize the multiple threat.

LANE RECONFIGURATION

A three-lane to two-lane reconfiguration

Lane reconfiguration

Center turn lane narrowed to provide space for bike lanes

How much does a lane reconfiguration cost?

$-$$$$: The cost of a lane reconfiguration is highly variable; it may involve removing the lane lines from the street and repainting new lane lines, which is often done at night or on weekends to minimize traffic disruptions. When a lane reduction is done as part of a larger project to resurface or reconstruct a street, it can be accomplished for relatively low costs.

How long does it take to do a lane reduction?

>1 year: We generally host one or two open houses to gather community input and influence design decisions in the first year, and construction typically follows the year after.

References and Resources

Austin Street Design Guide (DRAFT)

Redesigning the Street: A Report on Right Sizing Projects in Austin, TX 1999-2014

Pedestrian Safety Guide and Countermeasure Selection System: Lane Reduction (Road Diet)

FHWA Proven Safety Countermeasures: Road Diet (Roadway Reconfiguration

Examples in Austin

Duval Road from West Cow Path to Aspendale

Shoal Creek Blvd from Steck to 183

51st Street from Berkman to Manor

SPEED CUSHIONS

Speed cushions are traffic calming features that encourage people driving to slow down. Speed cushions are raised areas that extend across the street with wheel cutouts to allow large vehicles, like buses or emergency vehicles, to pass through unaffected.

Speed cushion

Speed cushions allow for larger vehicles such as fire trucks to pass through unimpeded

Speed cushions installed on hills may include a cut for downhill bicyclists

What is the purpose of speed cushions?

- Slow people driving to make streets safer and more comfortable for people walking and biking.
- Speed cushions are usually installed on neighborhood streets.

How does COA decide where to install speed cushions?

- Any request for speed cushions has to go through the Local Area Traffic Management (LATM) program which is a request-based program that installs speed mitigating devices, such as speed cushions, on neighborhood streets.
- ATD ranks requests based on speed data, neighborhood support, and geometric and environmental factors.
- Once accepted into the program, the request competes for funding with all other LATM requests.
- Speed cushions may also be funded through SRTS if identified in the SRTS Infrastructure Plan.

How much does a speed cushion cost?

$: Speed humps and cushions are a low-cost way to slow people driving.

How long does it take to install a speed cushion?

1-2 years: Priority streets with high speeds are usually identified one year and construction happens the next year.

References and Resources

Local Area Traffic Management Program

Examples can be found throughout Austin

TRAFFIC CIRCLES

Traffic circles guide motor vehicles through an intersection in one direction around a central island. They are usually installed at intersections of neighborhood streets. Traffic circles are very effective at slowing people driving and reducing collisions. When installed in a series along a corridor, they are even more effective at reducing motor vehicle speeds along the length of the corridor.

The horizontal deflection of chicanes and traffic circles force drivers to slow down

Traffic circles create more comfortable conditions for people walking and biking

Traffic circle at a school crossing

What is the purpose of a traffic circle?

- Slows people driving and reduces the likelihood of collisions to make neighborhood streets safer and more comfortable for people walking, biking, and driving.
- Provides an opportunity to beautify a neighborhood street by adding trees, plants, and flowers.

How does COA decide where to install a traffic circle?

- COA is currently working with the Austin Fire Department to address their concerns about neighborhood traffic circles. The use of this treatment will be carefully reviewed.
- COA uses data to understand the volume and speeds of people driving on a street and how many collisions have happened at that location in recent years.
- We may consider installing a traffic circle at intersections that have had five or more collisions in the past three years.
- Before we design and construct a traffic circle, we identify neighbors who will volunteer to maintain the plants in the traffic circle.

How much does a traffic circle cost?

$$-$$$: Traffic circles are lower in cost to install if no other curbline changes in the intersection are needed. If curbs must be adjusted, and there are changes to drainage structures and curb ramps, the cost will be higher.

How long does it take to install a traffic circle?

1-2 years: Priority intersections are usually identified one year and construction happens the next year.

References and Resources

Local Area Traffic Management Program

Examples can be found throughout Austin

Rio Grande Street and 8th Street

Rainey Street and River Street

URBAN TRAILS

Urban trails, also known as a shared or multi-use paths, create active transportation corridors that provide expanded travel choices. Urban trails can be built independent from the road network or alongside a roadway where traffic volumes and speeds are too high, or where there is not sufficient space for bicycle lanes in the existing street space.

Urban trail in Alexandria, VA

Urban trail in San Antonio, TX

Lance Armstrong Bikeway, Austin, TX

What is the purpose of an urban trail?

- Serves both transportation and recreation users,
- Can accommodate two-way pedestrian and bicycle use,
- May include connections to the on-street bicycle and sidewalk network
- Should be aesthetically appealing and feel safe to use, and
- May provide opportunities for economic development along the trail corridor.

How does COA decide where to install an urban trail?

- Prioritization criteria based on proximity to destinations, residential populations, connectivity, and community support all contribute to the trail-siting process.
- We look for potential integration of trails in proposed development projects, as well as outreach and education opportunities for local bicycle, pedestrian, and environmental advocacy groups.
- We recommend a 12 ft-wide hard surface path, but may need to narrow the trail under constrained circumstances. In areas where a higher volume of both pedestrians and bicyclists are anticipated, we consider providing separate facilities or a wider path (up to 18-ft) with designated space for each mode.
- **Sometimes, we will work with private property owners to install a new gate between a neighborhood/apartment complex and a public street, particularly if that connection would shorten the route for people walking to school or similar destinations. This new connection eliminates a barrier and serves as a type of urban trail, linking homes with public streets, sidewalks, and local destinations.**

How much does an urban trail cost?

$$$: Costs for urban trails vary, but are typically among the most expensive types of bicycle and pedestrian facilities. Components of urban trail design and construction include:

- Right-of-way
- Surface material
- Lighting
- Landscaping
- Terrain grading
- Retaining walls
- Pavement markings
- Fencing/rails
- Multi-use bridges
- Maps and signage
- Trail furniture

How long does it take to install an urban trail?

Varies. Planning, public input, design, engineering, and construction are all components of the installation process. Many urban trails will take 5 to 10 years to be fully implemented. However, shorter segments that close gaps in the network or eliminate barriers can often be installed in a shorter timeframe.

References and Resources

City of Austin Bicycle Master Plan
Austin Urban Trails Master Plan
NACTO Urban Bikeway Design Guide

BICYCLE PARKING

Bicycle parking can be a single rack or a group of racks and can be installed on school grounds, on the sidewalk, or in the street.

Bike racks on the sidewalk

Bike corral

Covered bike parking

What is the purpose of bicycle parking near schools?

- Gives students and school staff a place to secure their bike during the day while they're at school.
- Encourages students and school staff to ride their bikes to school.
- When located near the main entrance, bike parking makes it inviting for people who get to school by bike.
- Sends the message that the school encourages bicycling.

How does COA decide where to install bike parking?

- We want to make sure that every school has enough bike parking to meet the day-to-day needs of students and staff.
- When deciding where to install bike racks, COA considers locations where the racks are:
  - noticeable immediately when arriving at school,
  - visible from nearby windows and the street to make sure bikes are secure,
  - sheltered from the elements, and
  - publicly accessible.
- We install bike racks that allow one or both wheels to be locked to prevent bikes from falling down and that can fit different types and sizes of bicycles, like small children's bikes or long family bikes.

How much does bike parking cost?

$: Bike parking is relatively inexpensive.

Bike corrals

Sometimes the best place to install bike parking is on the street. A bike corral can be installed in place of on-street parking and can provide parking for 6 to 12 bikes in place of one car.

A corral can also be placed in locations where parking isn't allowed, like 30 feet from an intersection or marked crosswalk. This helps make the crosswalk safer by ensuring no one parks their car illegally and blocks visibility of the crosswalk or intersection, while also adding parking spaces for people on bikes.

How long does it take to install bike parking?

< 1 year: We can generally install new bike parking at a school in less than one year.

Examples in Austin

Highland Park Elementary School

Adam L Chapa Sr Street at E Cesar Chavez Street

References and Resources

Austin Bicycle Master Plan

Safe Routes to School National Partnership

Association of Pedestrian and Bicycle Professionals: Bicycle Parking Guidelines

CITY OF AUSTIN PUBLIC WORKS

SAFE ROUTES
TO SCHOOL

austintexas.gov/saferoutes