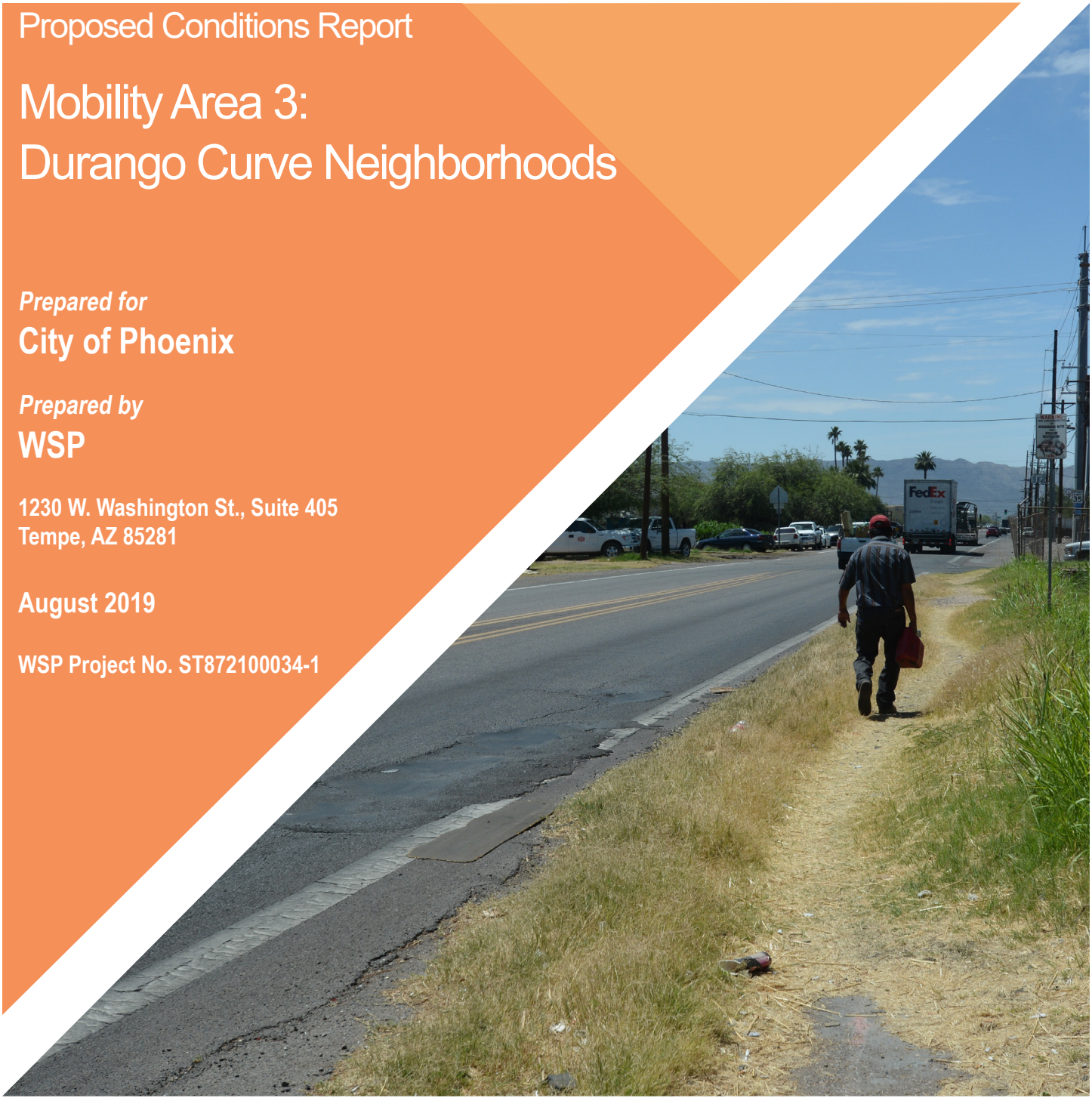
Proposed Conditions Report

Mobility Area 3: Durango Curve Neighborhoods



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PHOENIX TRANSPORTATION 2050
Building our Future

DURANGO CURVE NEIGHBORHOODS
PHOENIX TRANSPORTATION 2050
A MOBILITY IMPROVEMENT PROJECT

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1.0 Introduction

The T2050 Mobility Improvements Program, as part of the City of Phoenix Transportation 2050 Plan, is intended to plan, program, and implement new projects that improve multimodal connectivity and mobility throughout the City. Each study area has defined geographic areas identified as having the greatest mobility deficiencies and needs. Deficiencies were documented in the recently completed Current Conditions Report (CCR). The purpose of this Proposed Conditions Report (PCR) is to identify mobility improvements for the Mobility Area 3 - Durango Curve Neighborhoods study area and recommend mobility solutions including, but not limited to bicycle lanes, sidewalks, and mid-block crossings to address identified mobility deficiencies.

1.1 Study Purpose, Vision, and Goals

The goal of this PCR is to facilitate safe, convenient bicycle and pedestrian connections between neighborhoods and local destinations. The PCR's vision will promote health, safety, and connectivity for all users.

Based on the CCR findings, the study team developed the PCR and created a prioritized list of mobility improvements that were presented to the public. Public feedback was used to score the projects and the study team developed a final list of recommended projects, including estimated project costs and identification of project ranks.

1.2 Overview of Mobility Area 3 – Durango Curve Neighborhoods

The Durango Curve Neighborhoods study area is approximately one-square-mile and bordered by Lincoln Street, 29th Avenue, Lower Buckeye Road, and 23rd Avenue (See **Figure 1-1**). The Durango Curve Neighborhoods are on the west side of the Durango Curve along Interstate 17 (I-17) and adjacent to Hyde Park and the Kuban Park Neighborhoods study area which is also being assessed through the Mobility Improvement Program. The Durango Curve Neighborhoods study area consists of mostly industrial facilities with small residential pockets north of Durango Street, and government building complexes.

Field reviews were conducted as part of the CCR to document the existing conditions of infrastructure and community destinations, and provide a snapshot of the auto-oriented and pedestrian-oriented activity taking place within the study area. The field reviews indicated a mix of land uses including residential and industrial. One of the most important destinations within the study area is Garcia Elementary School. Other important destinations include the government building complex along Durango Street, which includes City of Phoenix, Maricopa County, and the Arizona Department of Transportation.

Figure 1-1: Study Area

1.3 Current Conditions Summary

The CCR analysis identified key mobility infrastructure and community assets within and adjacent to the study area, as well as gaps and constraints in the mobility infrastructure.

The CCR assessed three attribute categories: Socioeconomic Characteristics, Existing Transportation Infrastructure, and Land Use and Infrastructure. The CCR documented the current pedestrian and bicycle infrastructure and community assets and identified areas where infrastructure is missing and opportunities to strengthen and expand existing assets.

Some of the major observations documented in the CCR include a high concentration of industrial uses surrounding the small neighborhoods, which contributes to a high volume of truck traffic. Most neighborhoods have no sidewalks, and police report crash data between 2013 and 2016 near key destinations indicates that mid-block crossings may be beneficial.

Socioeconomic Characteristics

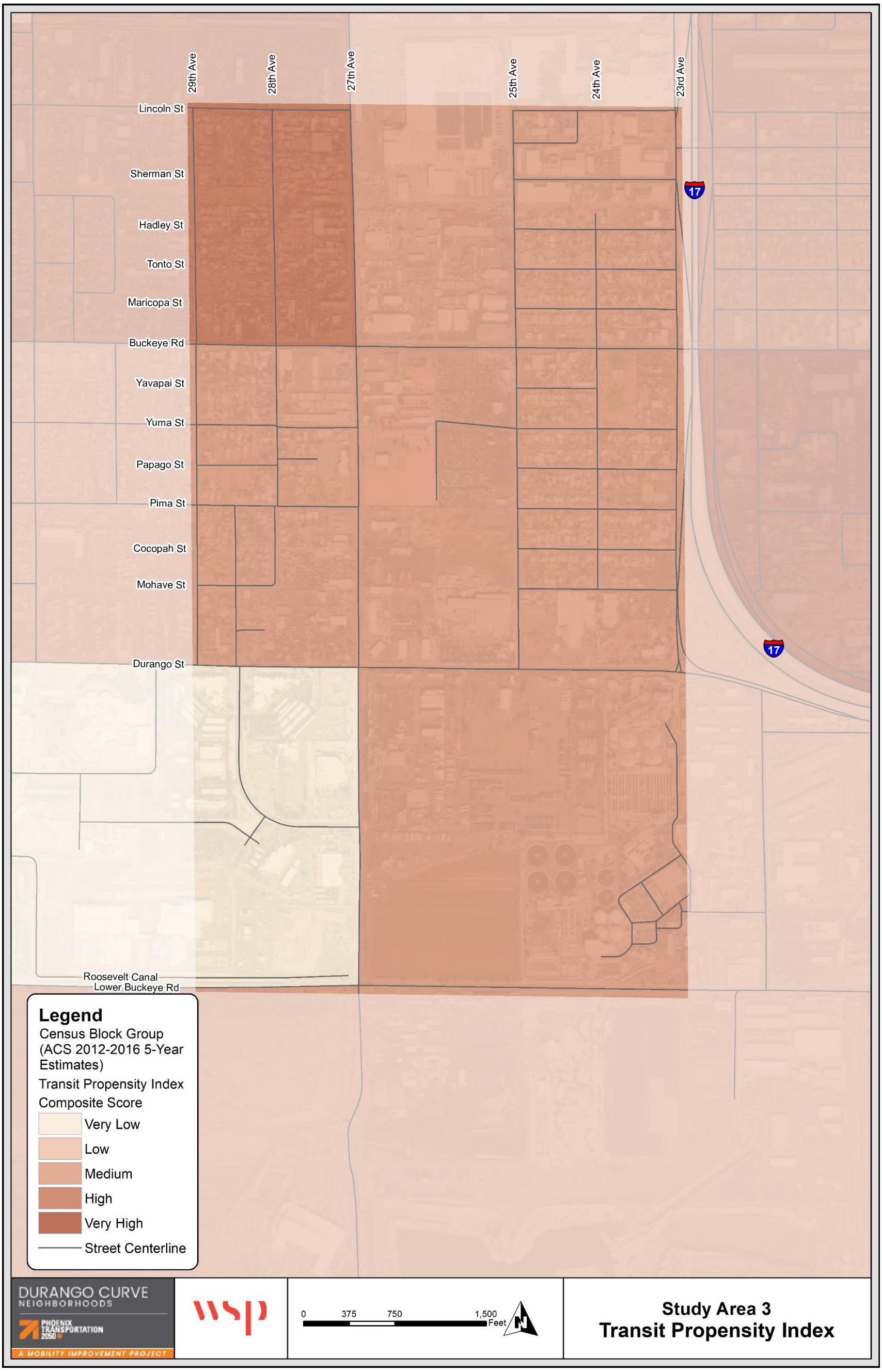
The socioeconomic characteristics of the study area were assessed to identify populations most likely to depend on transit services. The assessment used data sets from the United States 2016 Census American Community Survey including population density, Individuals ages 17 and younger, ages 65+, low-income households, transit-dependent households, bike to work trips, and walk to work trips. These datasets were used to compute a Transit Propensity Analysis which indicates areas of current transit demand seen in **Figure 1-2.** The demographic data (excluding population numbers) was calculated into percentages and then utilized at the block group level to inform the transit propensity analysis. The purpose of this map is to summarize the socioeconomic disparities and demographic makeup of the study area identified as part of the CCR analysis. **Figure 1-2** indicates that the northwest and eastern portions of the Durango Curve Neighborhoods study area are likely to depend on alternative modes of transportation including walking, bicycling, and taking public transit.

A demographic comparison of the Durango Curve Neighborhoods area to the City of Phoenix was completed for the CCR (See **Table 1-1**). The comparison indicates that more households are considered low-income and transit-dependent within the study area than in the City of Phoenix overall. The population density within the study area ranges from 4,001 to 6,375 people per square mile, which is higher than the overall City average of 3,008 people per square mile.

Table 1-1: Demographics Comparison: Phoenix vs. Study Area

Demographics	Phoenix City	Durango Curve Neighborhoods
Population Ages 17 and Younger	26.80%	15.77%
Population Ages 65 and Older	9.80%	4.67%
Low-Income Households	17.67%	48.46%
Transit-Dependent Households	8.81%	19.31%
Population Walking to Work	0.70%	0.90%
Population Bicycling to Work	1.76%	1.40%
Population Taking Public Transportation to Work	3.35%	6.09%

Figure 1-2: Transit Propensity



Existing Transportation Facilities

Existing multimodal transportation infrastructure was assessed to identify existing streets, right-of-way (ROW), transit facilities, bicycle and pedestrian facilities, and supportive streetscape furniture, like streetlights and shade. The analysis identified potential mobility concerns such as safety, and gaps in infrastructure including a lack of sidewalks, designated crossings, and bike facilities.

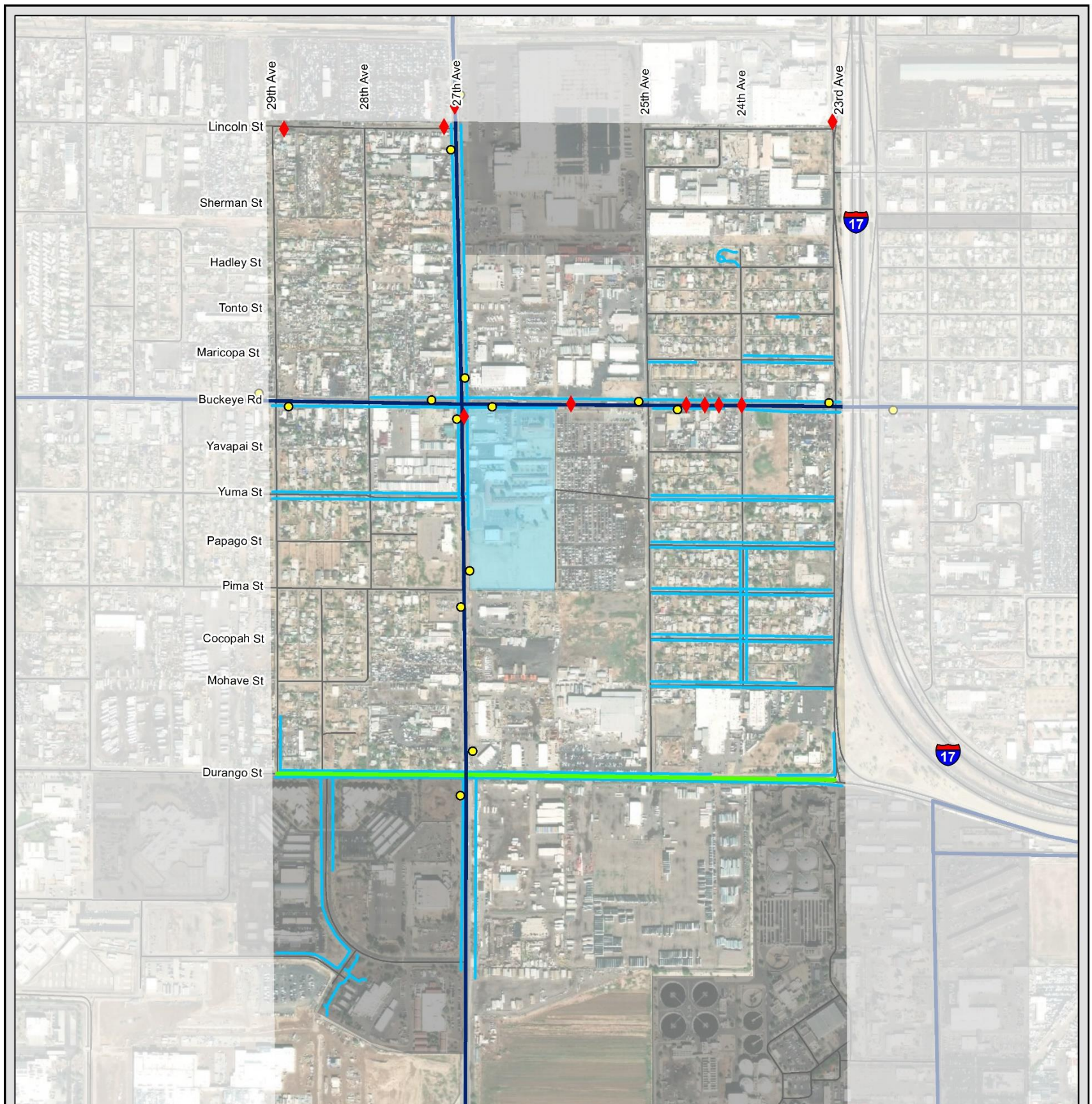
There is also only one signalized mid-block crossing at the entrance to Garcia Elementary School. Crash data indicates that a total of eleven crashes occurred within the study area, most of which were concentrated at Lincoln Street and Buckeye Road.

Land-Use and Infrastructure Constraints

A review of current land use, infrastructure, and environmental constraints within the study area was conducted which also considered existing development and existing policy. The study area is zoned as industrial, multi-family residential, and commercial, with industrial and residential being the most common zoning classification. The land-uses are mostly industrial, quasi-public, and commercial. Many areas zoned as residential are currently occupied by industrial land-uses.

The constraints reviewed included drainage concern areas, utilities, and environmental/cultural resources. Currently, there are no drainage concern areas within the study area. However, drainage infrastructure such as curbs and gutters been identified as potential projects. Major utilities include transmission lines that run east/west between Sherman Street and Hadley Street through the Durango Curve Neighborhoods study area. The review of environmental and cultural resources indicated no environmental or cultural resources existing within the study area. **Figure 1-3** summarizes the existing infrastructure within the study area and highlights the gaps in bike and pedestrian facilities. In addition, **Figure 1-3** displays all crashes within the study area. These crashes include vehicle-pedestrian crash and vehicle-bicycle crash.

Figure 1-3: Existing Conditions



2.0 Proposed Conditions

This section discusses recommended solutions to support and improve mobility and connection issues identified in the CCR. Implementation of the recommended solutions would provide safe pedestrian and bicycle connections to local and regional destinations, and would comply with the City's Complete Street Design Guidelines.

Each corridor in the study area was vetted for solutions based on current conditions and any connections to neighborhoods, local and regional destinations, and transit stops. Each corridor has 1-5 proposed solutions. The solutions fall into the project categories of *Bike, Pedestrian, Traffic Calming,* or *Health & Safety.* To optimize the feasibility of application for all solutions the study team proposed the bundling method as an alternative approach to delivery and implementation. The solutions within each corridor were bundled by feasibility of application; such as bundling bike lanes and sidewalks as linear projects, or bundling intersection improvements and lighting as spot treatment projects. Each bundle has a number and each solution within the bundle has a sub letter such as 1a. The solutions, as individual recommendations and bundles were evaluated by predetermined criteria utilized by the T2050 Mobility Improvement Program, and include planning-level cost estimates.

During the solution vetting process, some recommendations were identified on a broader scale and deemed more appropriate for the City to consider as a future policy or guideline. The policy recommendations were drafted to support the efforts of implementing mobility based solutions on a community-wide scale. These policy recommendations support the City's Complete Street Policy by promoting a more walkable, bike-oriented, and public transit friendly environment. They focus on the lack of trees within neighborhoods, rectifying sidewalks less than five feet in width, and application of pedestrian-scale street lighting in neighborhoods. The **Policy Recommendations** section briefly discusses existing programs or partnerships with the City for guidance on planting trees, implementing street and pedestrian lighting near key destinations and transit stops, making driveways flush with sidewalks, and standardizing sidewalks for ADA compliance.

This section includes the table of scored individual solutions (**Table 2-1**), scored solutions by bundle (**Table 2-2**), a map of all solutions (**Figure 2-1**), a map of individual solutions by Tier (**Figure 2-2)**, a map of the tiered solutions by bundle (**Figure 2-3**)**,** and summary sheets for each corridor including solution descriptions, project type, a corridor map, overall cost estimates, and example graphics of the recommended solutions. The second part of this section discusses the cost estimates, scoring, and tier process in detail.

Project scores are based off scoring criteria provided by the City of Phoenix (See **Appendix G**. Each study area has ten additional points applied to the scoring criteria as bonus/equity considerations. A total of 110 points are possible. Standards provide the

range of potential points that a project can score. Scores depend upon the scoring criteria and the standards of those criteria.

Footnotes are provided below the spreadsheet to provide context or more detailed information on projects and methods related to proposed projects. The footnotes include references to other documents, policies, and recommendations for sidewalk width, signage, ADA requirements, and transit facilities. The footnotes also provide methodologies for solutions, including easement acquisition and placement of trees and lighting.

Policy Recommendations

- Neighborhood Tree Planting Policy
  - SRP & Phoenix "Right Tree/Right Place"[1]: A City of Phoenix and SRP partnership to remove 400 trees that encroach on power lines and replace them with up to 1,200 trees in parks, schools, and public areas. The Right Tree/Right Place Program will remove encroaching trees from dangerous areas in the city and either replace them with appropriate power-line friendly trees, or, when that is not possible, plant replacement trees at city parks, schools or neighborhoods located near the removal.
  - Community Tree and Shade Blueprint [2]: This guide explains how to design and implement a volunteer-led tree planting project. It also reviews the rules and procedures for planting trees in Phoenix.
  - SRP Plant Saving with Free Trees[3]: SRP's Shade Tree Program provides customers up to two free desert-adapted trees to plant in energy-saving locations around your home. Participants must be current SRP customers and are required to attend a free workshop about tree care.
- Per the Maricopa Association of Governments' Sidewalk Specs and Details, *Sidewalks shall be constructed to a depth of one (1) inch and at five-foot intervals on sidewalk and curb & gutter widths of six (6) feet and eight-foot intervals on sidewalk widths of four (4) feet.*
- Lighting (mostly pedestrian): Street lighting exists along most streets in the study area; however, the CCR indicated that areas predominantly used by pedestrians such as bus stops or crosswalks are illuminated at the automobile level and not the pedestrian level. For this report, areas near bus stops, and neighborhoods were identified for application of street lighting at the pedestrian level. This process may be better supported by implementing an overall City policy rather than through individual spot treatments.

[1] SRP and Phoenix Partner to plant 1,200 Trees, Parks and Recreation Department, April 10, 2018 https://www.phoenix.gov/news/parks/2000

[2] City of Phoenix Community Tree Shade Blueprint is intended as a guide for communities. https://www.phoenix.gov/volunteersite/Documents/Tree%2BShade%2BBlueprint.pdf

[3] SRP Shade Tree Program providing free 4 to 6 foot saplings to current customers to reduce cooling costs, improve air quality, and use less water. https://www.srpnet.com/energy/rebates/shadeTrees.aspx

- ADA Driveways: recommend updating driveways to a running slope no steeper than 1.20 to meet the ADA standard of a continuously level sidewalk.

2.1 Cost Estimates

The cost for Materials and ROW acquisition, and the fees for Design and Construction services were provided by the City to estimate the planning level cost of each solution and bundle of solutions. The cost of each solution was estimated by calculating the material cost and adding the associated fees for ROW, Design, and Construction. To estimate the cost of a bundle, the associated fees for ROW, Design, and Construction were applied once to the overall material cost of all solutions within a bundle. The material cost (excluding ROW, Design, and Construction fees) of each solution was identified to show the value of each solution before it was bundled for construction. These detailed costs can be found in **Appendix C** and **Appendix D.**

The process of estimating costs included an in-depth review of drainage data and roadway conditions. During this process, selected projects were placed in a new Project Assessment (PA) category for estimating costs. The selected projects were identified using the following factors:

- No existing drainage (determined by no existing curb and gutter)
- Bridge widening is needed
- Poor road conditions, requiring road reconstruction
- Current street classification does not support recommended road diet

It is recommended that the projects in the PA category undergo a more in-depth and thorough analysis to first determine project feasibility, and the true project cost. All individual project costs can be found in the *Total Cost* column of **Table 2-1** and the cost per solution bundle can be found in the *Total Bundle Cost* column of **Table 2-2**. Details of all proposed solutions, including bundles can be found in **Appendix C** and **Appendix D.** PAs are highlighted in yellow and were calculated using the following formula:

PA Cost= (distance/size of the project) ($50,000.00)

The nature of a PA does not include design, ROW, and construction fees. For bundles that include a PA project, the total bundle cost reflects the total material cost of all solutions, the cost of the PA, and the associated fees for ROW, design, and construction applied once. The bundle cost column in the summary sheets reflects the total material cost of all solutions, the cost of a PA (if a PA is included) and the ROW, construction, and design fees applied once.

2.2 Project Scoring Criteria

Solutions were scored individually and as bundles using public input and how each solution or bundle addressed the needs of the community. The list of scored individual solutions can be found in **Table 2-1** and the list of scored solutions by bundle can be found in **Table 2-2**. Each solution or bundle of solutions scored on a 100-point scale using the following categories:

- Safety (23 points)
- Connectivity (22 points)
- Public Input (20 points)
- Deliverability/Constructability (10 points)
- Cost (10 points)
- Roadway Stress Level (15 points)

Ten additional points for bonus/equity is also applied to the scoring criteria. A total of 110 points are possible for projects to score. Based on how each solution or bundle of solutions scored, each category has a range of potential points that a project could be assigned. Evaluation criteria weights provide a range of potential points that a project can score. Scores depend upon the scoring criteria and the weights of those criteria. These criteria and thresholds are included in **Appendix G**.

2.3 Project Prioritization

Once the individual solutions and bundles were scored, they were ranked by the highest score and then split into 3 tiers to prioritize project implementation. The tier breaks were determined by the breaks in score, using the highest score, the median score, and the lowest score as benchmarks. This approach also ensured a balanced list of projects in each tier. Solutions with the highest scores were placed in Tier 1 for highest priority. Solutions that scored in the median range were placed in Tier 2 for medium priority and solutions with the lowest score were placed in Tier 3 for lowest priority. The list of individual solutions organized by Tier can be found in **Appendix C** and the list of bundled solutions organized by Tier can be found in **Appendix D.**

It is important to note, despite the scores and priorities given to the solutions, all solutions described in this report are important to create a safer and more accessible environment for all users**.**

Table 2-1: Proposed Conditions

KEY
(#): see policy notation at bottom of report

Score	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Total Cost	Tier
91	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1c	Lighting	Public Health & Safety	Install two bollard lights, two streetlights and upgrade 18 streetlights with pedestrian lighting **(4)**	Buckeye Rd. from 29th Ave. to 23rd Ave.	$302,679.82	1
90	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	15	15a	Trees & Lighting	Public Health & Safety	Plant 15 trees, install seven streetlights and upgrade 14 streetlights with pedestrian lighting **(3&4)**	25th Ave. from Lincoln St. to Durango St.	$314,001.95	1
88	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17c	Lighting	Public Health & Safety	Install 12 streetlights and upgrade 11 streetlights with pedestrian lighting **(3&4)**	23rd Ave. from Lincoln St. to Durango St.	$359,696.39	1
87	Buckeye Road: Pedestrian and Traffic Calming Improvements	2	2a	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersections of Buckeye Rd. and 29th Ave., 27th Ave., 25th Ave. & 23rd Ave.	$103,359.85	1
87	Buckeye Road: Pedestrian and Traffic Calming Improvements	2	2b	Medians	Traffic Calming	Construct raised medians with turn lanes and plant five trees within medians	Buckeye Rd. from 27th Ave. to 25th Ave.	$159,257.66	1
86	Neighborhood 1 (SE)	18	18	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Tonto St., Maricopa St., and Yavapai between 25th Ave. to 23rd Ave.	$1,307,445.44	1
86	Pima Street: Pedestrian and Traffic Calming Improvements	5	5c	Lighting	Public Health & Safety	Install 10 bollard lights and 10 street lights along multi-use path **(4)**	Pima St. from 27th Ave. to 25th Ave.	$206,731.64	1
85	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1a	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Buckeye Rd. from 29th Ave. to 23rd Ave.	$1,257,961.22	1
85	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1b	Pedestrian Fencing	Pedestrian	Install a fence between sidewalks and roadway along I-17 overpass **(2)**	Buckeye Rd. from 23rd Ave. to I-17 Frontage Road	$2,500.00	1
85	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12c	Trees & Lighting	Public Health & Safety	Plant 14 trees and upgrade eight streetlights with pedestrian lighting **(3&4)**	27th Ave. from Lincoln St. to Pima St.	$134,488.14	1
84	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	15	15b	Speed Cushions	Traffic Calming	Install seven speed cushions along 25th Ave.	25th Ave. from Lincoln St. to Durango St.	$119,906.64	1
83	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	11	11	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	27th Ave. from Pima St. to Durango St.	$18,750.00	2
83	Sherman Street: Pedestrian and Bicycle Improvements	4	4a	Utility Corridor Redevelopment	Pedestrian	Upon easement acquisition, construct linear park with recreational, bicycle, and pedestrian facilities **(2)**	Sherman St. from 24th Ave. to 23rd Ave.	$753,288.24	2
83	Yuma Street: Traffic Calming Improvements	7	7	Speed Humps	Traffic Calming	Install two speed humps along Yuma St.	Yuma St. from 25th Ave. to 23rd Ave.	$65,058.09	2
81	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10a	Lighting	Public Health & Safety	Install 12 streetlights **(4)**	28th Ave. from Lincoln St. to Pima St.	$324,452.29	2
81	Pima Street: Pedestrian and Traffic Calming Improvements	5	5a	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path south of Garcia Elementary School	Pima St. from 27th Ave. to 25th Ave.	$360,230.79	2

Score	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Total Cost	Tier
81	24th Avenue: Pedestrian Improvements	16	16	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	24th Ave. from Sherman St. to Papago St.	$1,264,791.46	2
78	Pima Street: Pedestrian and Traffic Calming Improvements	5	5b	Speed Humps	Traffic Calming	Install two speed humps along Pima St. east of 25th Ave.	Pima St. from 25th Ave. to 23rd Ave.	$55,058.09	2
77	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12a	Bike Lane	Bicycle	Add striping, road markings with bike symbols and directional arrow **(8)**	27th Ave. from Lincoln St. to Durango St.	$43,560.61	2
77	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10b	Speed Humps	Traffic Calming	Install three speed humps along 28th Ave.	28th Ave. from Lincoln St. to Buckeye Rd.	$70,462.14	2
77	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	13	13	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	25th Ave. from Lincoln St. to Durango St.	$3,136,448.00	2
77	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17a	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path along west side of 23rd Ave.	23rd Ave. from Grant St. to Durango St.	$1,547,515.27	2
76	28th Avenue: Pedestrian Improvements	9	9	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	28th Ave. from Lincoln St. to Mohave St.	$2,967,082.96	3
76	Neighborhood 2 (SW)	19	19	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Mohave St. and 28th Dr. between 29th Ave. to 27th Ave.	$897,479.41	3
75	Pima Street: Pedestrian Improvements	6	6	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Pima St. from 29th Ave. to 27th Ave.	$665,023.19	3
75	Sherman Street: Pedestrian and Bicycle Improvements	4	4b	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersection of Sherman St. and 23rd Ave.	$45,661.36	3
74	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12b	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersection of 27th Ave. and Pima St.	$65,310.99	3
74	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	14	14	Bike Lane	Bicycle	Add striping, road markings with bike symbols and directional arrow **(8)**	25th Ave. from Lincoln St. to Durango St.	$43,371.21	3
73	Lincoln Street: Bicycle and Pedestrian Improvements	8	8a	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter on north side of Lincoln St. Future parking study could be necessary due to high volumes of street parking **(1,6&7)**	Lincoln St. from 29th Ave. to 27th Ave.	$12,405.30	3
67	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10c	Mid-Block Crossing	Traffic Calming	Install an RRFB signal with high-visibility crosswalk using ladder striping	28th Ave. and Buckeye Rd.	$241,710.04	3
67	Durango Street: Bicycle Improvements	3	3b	Lighting	Public Health & Safety	Upgrade four streetlights with pedestrian lighting **(4)**	Intersection of Durango St. and 27th Ave.	$146,394.81	3
65	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17b	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersection of 23rd Ave. and Grant St.	$45,057.00	3
65	Durango Street: Bicycle Improvements	3	3a	Bike Lane	Bicycle	Add striping, road markings with bike symbols and directional arrow **(8)**	Durango St. from 29th Ave. to 23rd Ave.	$37,878.79	3
63	Lincoln Street: Bicycle and Pedestrian Improvements	8	8b	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road **(8)**	Lincoln St. from 29th Ave. to 27th Ave.	$81,332.22	3

1 Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction document recommends the implementation of six-foot sidewalks.

2 Easement would require coordination with the City of Phoenix and existing land-owner to acquire land.

3 Trees (four total, 40-foot on center) were planning within 160 feet of every high-ridership bus stop.

4 New lighting includes new light posts, pedestrian lighting attachment to existing street light, and bollard pedestrian lighting. New lighting was designated at higher-ridership bus stops, along major pedestrian routes, and near schools.

5 Neighborhood tree policy encourages land-owners to plant trees on their own property to provide shade for sidewalks and other mobility facilities.

6 Driveway consolidation policy recommends that driveways be consolidated to prevent redundancy, and that driveways be flush with sidewalks to provide better ADA facilities.

7 Where new sidewalks are implemented near or at existing bus stops, should be have consideration for more updated facilities include shelters, benches, or other facilities.

8 Maricopa Association of Governments Valley Path Brand & Wayfinding Signage Guidelines provide guidance bike and wayfinding signage.

Table 2-2: Proposed Conditions by Bundle

KEY
(#): see policy notation at bottom of report

Average Score	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Total Bundle Cost	Tier
87	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1a	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Buckeye Rd. from 29th Ave. to 23rd Ave.	$1,518,718.96	1
	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1b	Pedestrian Fencing	Pedestrian	Install a fence between sidewalks and roadway along I-17 overpass **(2)**	Buckeye Rd. from 23rd Ave. to I-17 Frontage Road		
	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1c	Lighting	Public Health & Safety	Install two bollard lights, two streetlights and upgrade 18 streetlights with pedestrian lighting **(4)**	Buckeye Rd. from 29th Ave. to 23rd Ave.		
87	Buckeye Road: Pedestrian and Traffic Calming Improvements	2	2a	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersections of Buckeye Rd. and 29th Ave., 27th Ave., 25th Ave. & 23rd Ave.	$198,367.52	1
	Buckeye Road: Pedestrian and Traffic Calming Improvements	2	2b	Medians	Traffic Calming	Construct raised medians with turn lanes and plant five trees within medians	Buckeye Rd. from 27th Ave. to 25th Ave.		
87	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	15	15a	Trees & Lighting	Public Health & Safety	Plant 15 trees, install seven streetlights and upgrade 14 streetlights with pedestrian lighting **(3&4)**	25th Ave. from Lincoln St. to Durango St.	$395,813.05	1
	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	15	15b	Speed Cushions	Traffic Calming	Install seven speed cushions along 25th Ave.	25th Ave. from Lincoln St. to Durango St.		
86	Neighborhood 1 (SE)	18	18	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Tonto St., Maricopa St., and Yavapai between 25th Ave. to 23rd Ave.	$1,307,445.44	1
83	Yuma Street: Traffic Calming Improvements	7	7	Speed Humps	Traffic Calming	Install two speed humps along Yuma St.	Yuma St. from 25th Ave. to 23rd Ave.	$65,058.09	1
83	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	11	11	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	27th Ave. from Pima St. to Durango St.	$18,750.00	1
82	Pima Street: Pedestrian and Traffic Calming Improvements	5	5a	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path south of Garcia Elementary School	Pima St. from 27th Ave. to 25th Ave.	$533,792.85	1
	Pima Street: Pedestrian and Traffic Calming Improvements	5	5b	Speed Humps	Traffic Calming	Install two speed humps along Pima St. east of 25th Ave.	Pima St. from 25th Ave. to 23rd Ave.		
	Pima Street: Pedestrian and Traffic Calming Improvements	5	5c	Lighting	Public Health & Safety	Install 10 bollard lights and 10 street lights along multi-use path **(4)**	Pima St. from 27th Ave. to 25th Ave.		
81	24th Avenue: Pedestrian Improvements	16	16	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	24th Ave. from Sherman St. to Papago St.	$1,264,791.46	2
79	Sherman Street: Pedestrian and Bicycle Improvements	4	4a	Utility Corridor Redevelopment	Pedestrian	Upon easement acquisition, construct linear park with recreational, bicycle, and pedestrian facilities **(2)**	Sherman St. from 24th Ave. to 23rd Ave.	$754,847.33	2
	Sherman Street: Pedestrian and Bicycle Improvements	4	4b	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersection of Sherman St. and 23rd Ave.		

Average Score	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Total Bundle Cost	Tier
79	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12a	Bike Lane	Bicycle	Add striping, road markings with bike symbols and directional arrow **(8)**	27th Ave. from Lincoln St. to Durango St.	$207,909.74	2
	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12b	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersection of 27th Ave. and Pima St.		
	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12c	Trees & Lighting	Public Health & Safety	Plant 14 trees and upgrade eight streetlights with pedestrian lighting **(3&4)**	27th Ave. from Lincoln St. to Pima St.		
77	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	13	13	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	25th Ave. from Lincoln St. to Durango St.	$3,136,448.00	2
77	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17a	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path along west side of 23rd Ave.	23rd Ave. from Grant St. to Durango St.	$1,893,853.14	2
	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17b	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersection of 23rd Ave. and Grant St.		
	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17c	Lighting	Public Health & Safety	Install 12 streetlights and upgrade 11 streetlights with pedestrian lighting **(3&4)**	23rd Ave. from Lincoln St. to Durango St.		
76	28th Avenue: Pedestrian Improvements	9	9	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	28th Ave. from Lincoln St. to Mohave St.	$2,967,082.96	3
76	Neighborhood 2 (SW)	19	19	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Mohave St. and 28th Dr. between 29th Ave. to 27th Ave.	$897,479.41	3
75	Pima Street: Pedestrian Improvements	6	6	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Pima St. from 29th Ave. to 27th Ave.	$665,023.19	3
75	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10a	Lighting	Public Health & Safety	Install 12 streetlights **(4)**	28th Ave. from Lincoln St. to Pima St.	$567,725.65	3
	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10b	Speed Humps	Traffic Calming	Install three speed humps along 28th Ave.	28th Ave. from Lincoln St. to Buckeye Rd.		
	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10c	Mid-Block Crossing	Traffic Calming	Install an RRFB signal with high-visibility crosswalk using ladder striping	28th Ave. and Buckeye Rd.		
74	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	14	14	Bike Lane	Bicycle	Add striping, road markings with bike symbols and directional arrow **(8)**	25th Ave. from Lincoln St. to Durango St.	$43,371.21	3
68	Lincoln Street: Bicycle and Pedestrian Improvements	8	8a	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter on north side of Lincoln St. Future parking study could be necessary due to high volumes of street parking **(1,6&7)**	Lincoln St. from 29th Ave. to 27th Ave.	$93,737.52	3
	Lincoln Street: Bicycle and Pedestrian Improvements	8	8b	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road **(8)**	Lincoln St. from 29th Ave. to 27th Ave.		
66	Durango Street: Bicycle Improvements	3	3a	Bike Lane	Bicycle	Add striping, road markings with bike symbols and directional arrow **(8)**	Durango St. from 29th Ave. to 23rd Ave.	$184,273.60	3
	Durango Street: Bicycle Improvements	3	3b	Lighting	Public Health & Safety	Upgrade four streetlights with pedestrian lighting **(4)**	Intersection of Durango St. and 27th Ave.		

1 Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction document recommends the implementation of six-foot sidewalks.

2 Easement would require coordination with the City of Phoenix and existing land-owner to acquire land.

3 Trees (four total, 40-foot on center) were planning within 160 feet of every high-ridership bus stop.

4 New lighting includes new light posts, pedestrian lighting attachment to existing street light, and bollard pedestrian lighting. New lighting was designated at higher-ridership bus stops, along major pedestrian routes, and near schools.

5 Neighborhood tree policy encourages land-owners to plant trees on their own property to provide shade for sidewalks and other mobility facilities.

6 Driveway consolidation policy recommends that driveways be consolidated to prevent redundancy, and that driveways be flush with sidewalks to provide better ADA facilities.

7 Where new sidewalks are implemented near or at existing bus stops, should be have consideration for more updated facilities include shelters, benches, or other facilities.

8 Maricopa Association of Governments Valley Path Brand & Wayfinding Signage Guidelines provide guidance bike and wayfinding signage.

Figure 2-1: Proposed Conditions

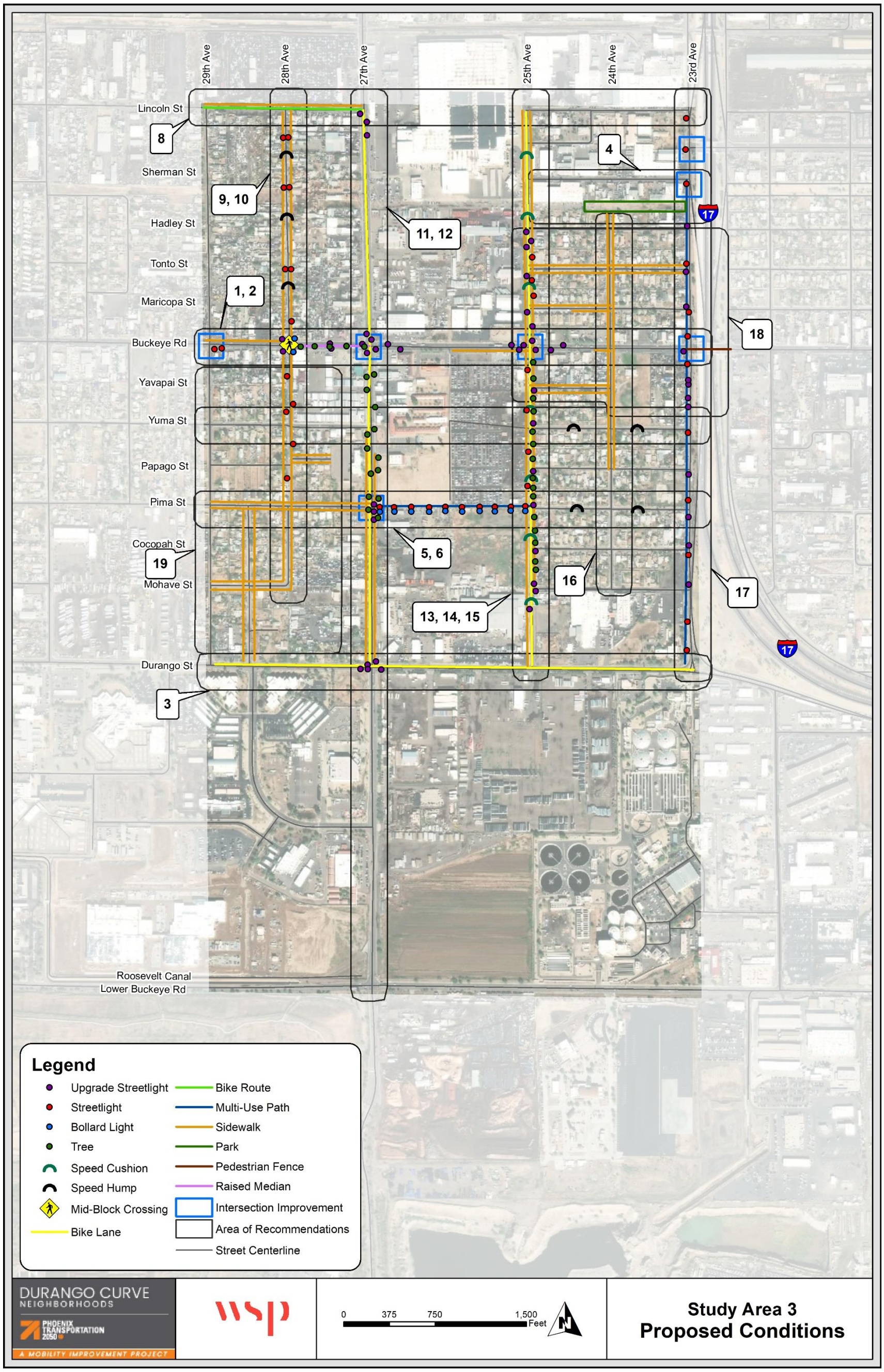


Figure 2-2: Proposed Conditions Prioritized by Tier

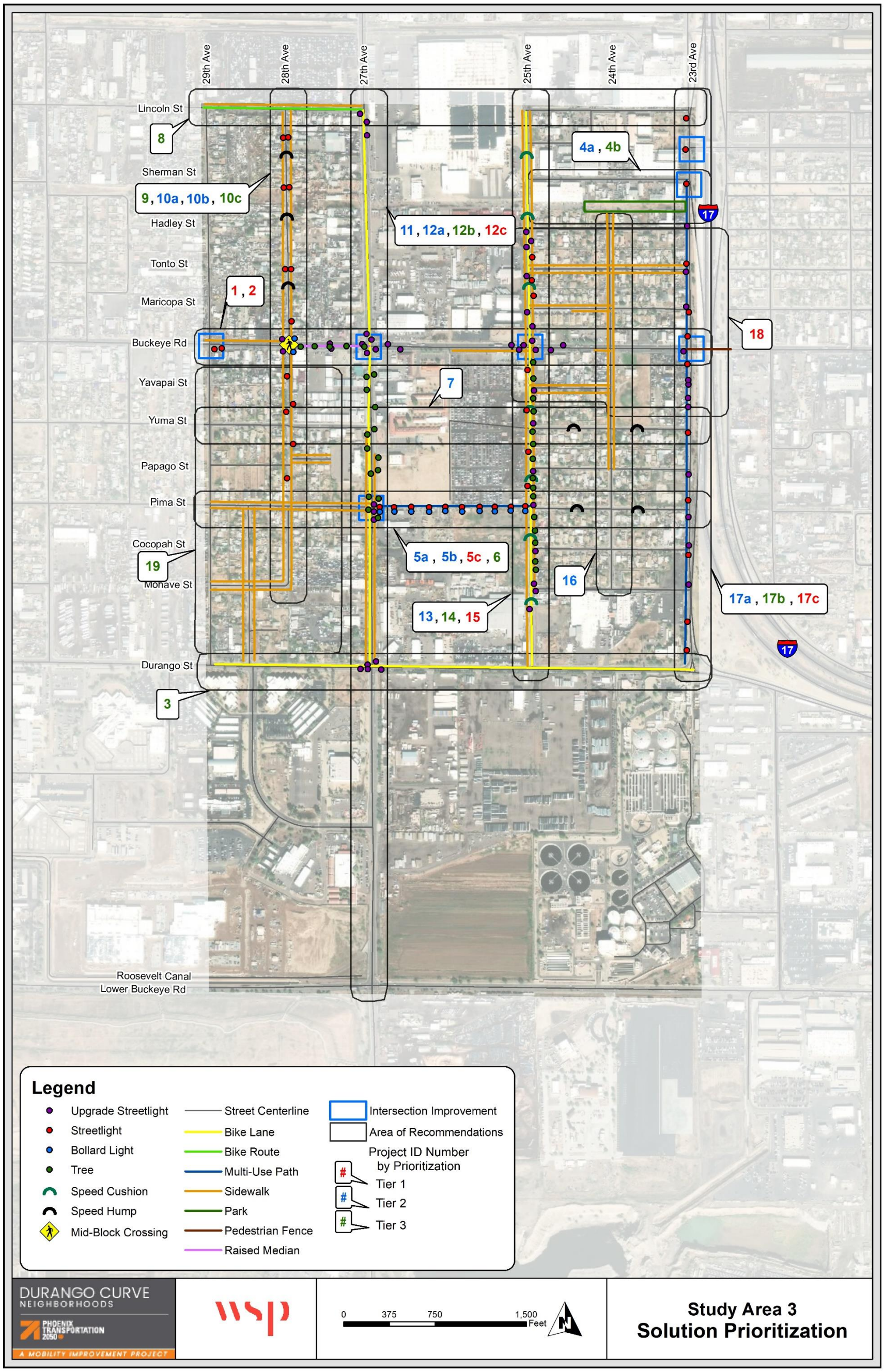
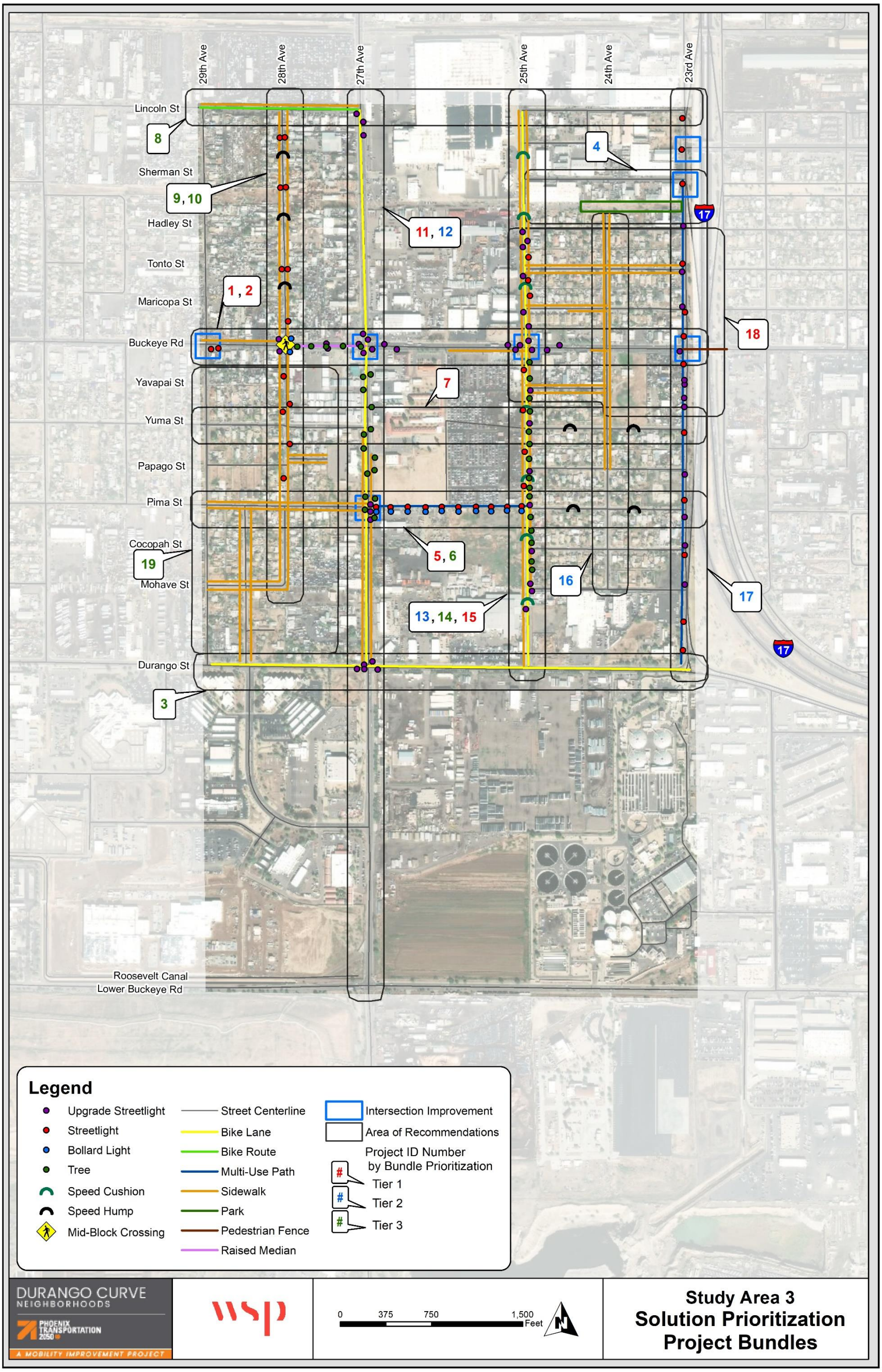


Figure 2-3: Proposed Bundles Prioritized by Tier



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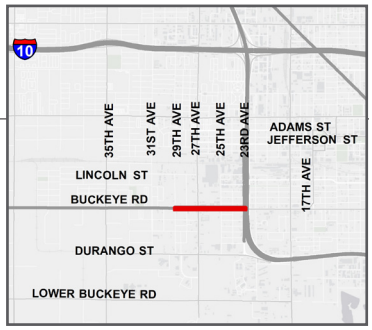
Buckeye Road: 29th Avenue to 23rd Avenue

Project ID: 1a, 1b, 1c, 2a, 2b

Project Name

Buckeye Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements



▶ Destinations

Eddies Food Market	Holy Trinity Outreach
Phoenix Fire Station No. 21	Alfred F. Garcia Elementary School

ID	Type	Current Conditions	Recommendation	Description	Benefits
1a		Gaps in sidewalk infrastructure	Sidewalks	Construct five-foot sidewalks with ADA ramps, curb and gutter	Provides continuous and connected sidewalks along the corridor
1b		No protected buffer between modes across the bridge	Pedestrian Fencing	Install a fenced-buffer from traffic for non-motorized users	Provides additional security for pedestrians
1c		Lack of street lights	Lighting	Install two bollard lights, two streetlights and upgrade 18 streetlights with pedestrian lighting	Provides additional security and visibility by illuminating dark areas of the corridor
2a		Lack of clearly marked crosswalks at intersections	Intersection Improvements	Upgrade the crosswalks with high-visibility crosswalks using ladder striping	Improves safety and visibility of people crossing the street
2b		High volume corridor with multiple destinations and bus stops	Medians	Construct raised medians with turn lanes and plant five trees within medians	This road safety measure will visually encourage reduced speeds approaching the new crossing

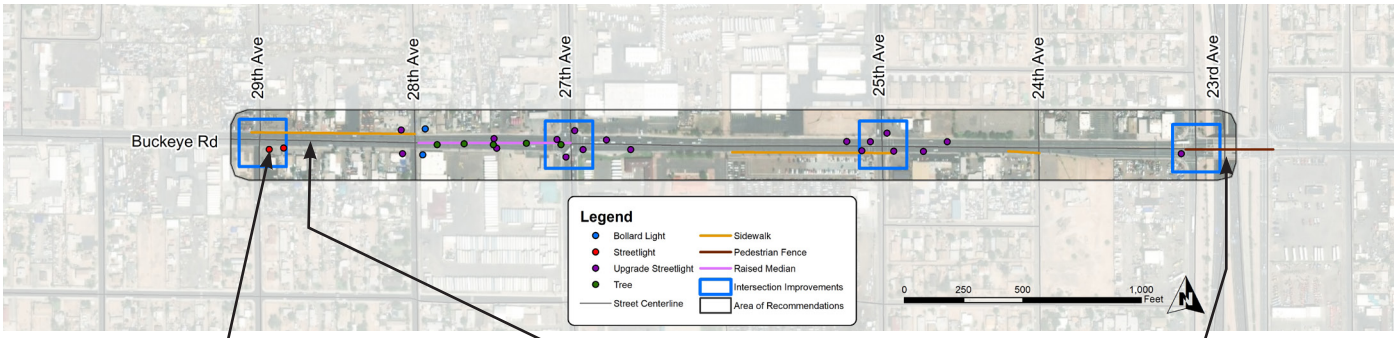
▶ Project Delivery Constraints

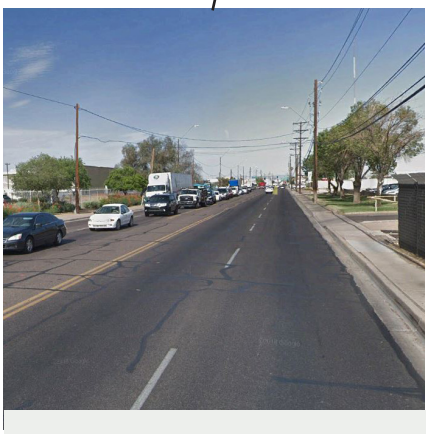
If constructed, the recommended raised medians will occupy the center lane along Buckeye Road. Also the proposed pedestrian fence is recommended as a Project Assessment to determine to true extent of construction and cost.

Project Costs	1a	1b	1c	Bundle 1
Design	$243,015.68	Project Assessment	$105,112.33	$303,705.94
ROW	$0		$0	$0
Construction Phase	$1,014,945.54		$197,567.48	$1,212,513.02
TOTAL	**$1,257,961.22**	**$2,500.00**	**$302,679.82**	**$1,518,718.96**

Project Costs	2a	2b	Bundle 2
Design	$75,347.78	$80,028.51	$91,126.30
ROW	$0	$0	$0
Construction Phase	$28,012.07	$79,229.15	$107,241.22
TOTAL	**$103,359.85**	**$159,257.66**	$198,367.52

Existing condition photos with examples of recommendations





Lack of street lights

Gaps in sidewalk infrastructure

No protection from traffic for users crossing the bridge

Example of pedestrian-oriented street lights

Example of sidewalk

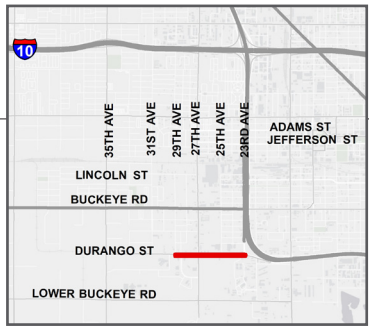
Example of buffer between traffic and sidewalk

Durango Street: 29th Avenue to 23rd Avenue

Project ID: 3a, 3b

Project Name

Durango Street: Bicycle and Public Health & Safety Improvements



▶ Destinations

Maricopa County Transportation Dept	ADOT Traffic Operations
ADOT District One	City of Phoenix Service Center

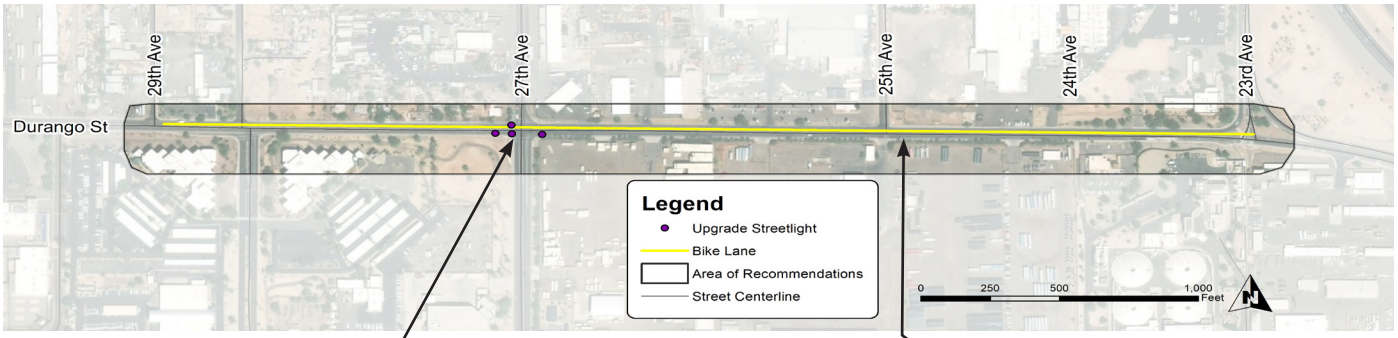
ID	Type	Current Conditions	Recommendation	Description	Benefits
3a		Durango Street has no bicycle facilities	Bike Lane	Add striping, road markings with bike symbol and directional arrow	Would provide EB/WB connection for bicyclists
3b		Lack of street lights	Lighting	Upgrade four streetlights with pedestrian lighting	Provides additional security and visibility by illuminating dark areas of the corridor

▶ Project Delivery Constraints

The bike lane would require reconfiguation of traffic lanes and the proposed bike lane is recommended as a Project Assessment to determine to true extent of construction and cost, and a potential roadway reconstruction.

Project Costs	3a	3b	Bundle 3
Design	Project Assessment	$92,025.46	$92,025.46
ROW		$0	$0
Construction Phase		$54,369.36	$54,369.36
TOTAL	**$37,878.79**	**$146,394.81**	**$184,273.60**

Existing condition photos with examples of recommendations



Lack of street lights

No east/west connection for bicyclists

Example of street lights

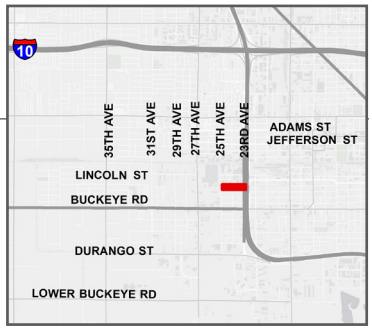
Example of a bike lane

Sherman Street: 24th Avenue to 23rd Avenue

Project ID: 4a, 4b

Project Name

Sherman Street: Pedestrian, Bicycle, and Traffic Calming Improvements



▶ Destinations

Phoenix Ranch Market Warehouse

Sherman Parkway

ID	Type	Current Conditions	Recommendation	Description	Benefits
4a		The APS utility corridor blocks through access for neighborhoods access north and south of Sherman Street	Utility Corridor Redevelopment	Upon easement acquisition, construct linear park with recreational, bicycle, and pedestrian facilities	Redeveloping the fenced-off utility corridor as an open park would create an accessible environment for the adjacent neighborhoods
4b		Lack of clearly marked crosswalks at Sherman St. and 23rd Ave.	Intersection Improvement	Upgrade crosswalks with high-visibility crosswalks using ladder striping	Improves safety and visibility of people crossing the street

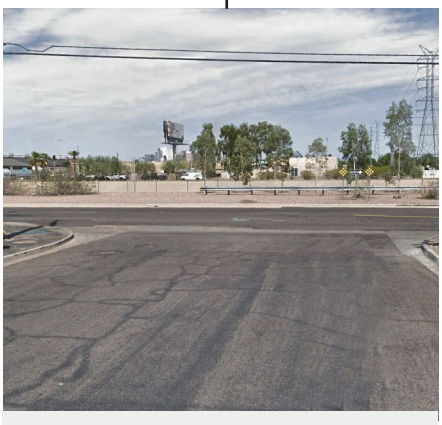
▶ Project Delivery Constraints

Redeveloping the utility easement into a park will require a consultation with APS and the City of Phoenix

Project Costs	4a	4b	Bundle 4
Design	$127,198.99	$44,368.18	$127,464.90
ROW	$76,800.00	$0	$76,800.00
Construction Phase	$549,289.25	$1,293.17	$550,582.43
TOTAL	**$753,288.24**	**$45,661.36**	**$754,847.33**

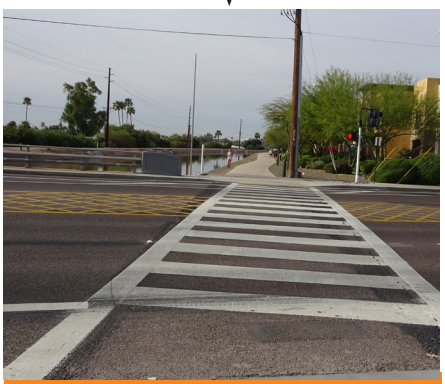
Existing condition photos with examples of recommendations

APS utility corridor divides neighborhood



Lack of clearly marked crosswalk

Example of utility corridor redeveloped into park



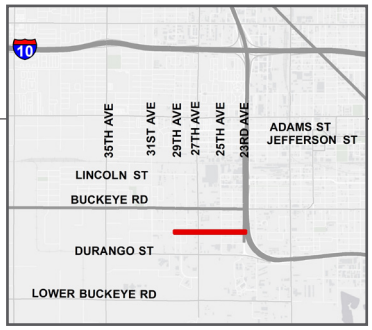
Example of a high-visibility crosswalk

Pima Street: 25th Avenue to 23rd Avenue

Project ID: 5a, 5b, 5c, 6

Project Name

Pima Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements



▶ Destinations

Phoenix Fire Station No. 21

Alfred F. Garcia Elementary School

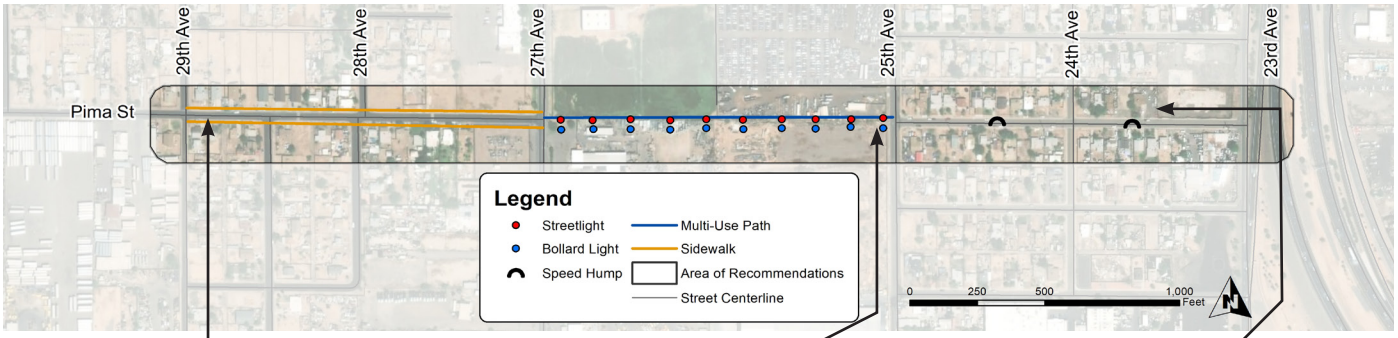
ID	Type	Current Conditions	Recommendation	Description	Benefits
5a		No connection or access between neighborhoods and Garcia Elementary School	Multi-Use Path	Upon easement acquisition, construct multi-use path south of Garcia Elementary School	Create connectivity between Garcia Elementary School and neighborhoods
5b		Local roads with ROW and no traffic calming measures	Speed Humps	Install two speed humps along Pima St. east of 25th Ave.	Slows traffic and improves safety for pedestrians and bicyclists
5c		Lighting is needed for multi-use path	Lighting	Install 10 bollard lights and 10 street lights along multi-use path	Provides additional security and visibility by illuminating dark areas of the corridor
6		Gaps in sidewalk infrastructure	Sidewalks	Construct six-foot sidewalks with ADA ramps, curb and gutter	Provides continuous and connected sidewalks along the corridor

▶ Project Delivery Constraints

Easement/multi-use path will require ROW acquisition.

Project Costs	5a	5b	5c	Bundle 5	6
Design	$53,957.06	$45,155.04	$57,855.77	$68,740.20	$121,354.70
ROW	$200,058.00	$0	$0	$200,058.00	$22,801.00
Construction Phase	$106,215.73	$9,903.05	$148,875.87	$264,994.65	$520,867.49
TOTAL	**$360,230.79**	**$55,058.09**	**$206,731.64**	**$533,792.85**	**$665,023.19**

Existing condition photos with examples of recommendations



Gaps in sidewalk infrastructure

No connection between neighborhoods and Garcia Elementary School

Lack of traffic calming measures to slow traffic

Example of sidewalks

Example of a multi-use path

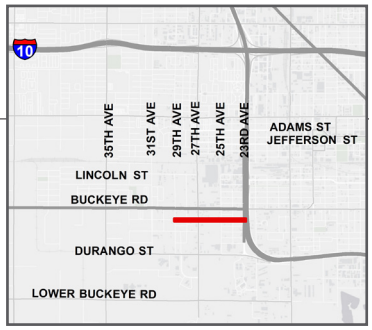
Example of speed hump

Yuma Street: 25th Avenue to 23rd Avenue

Project ID: 7

Project Name

Yuma Street: Traffic Calming Improvements



▶ Destinations

Phoenix Fire Station No. 21

Alfred F. Garcia Elementary School

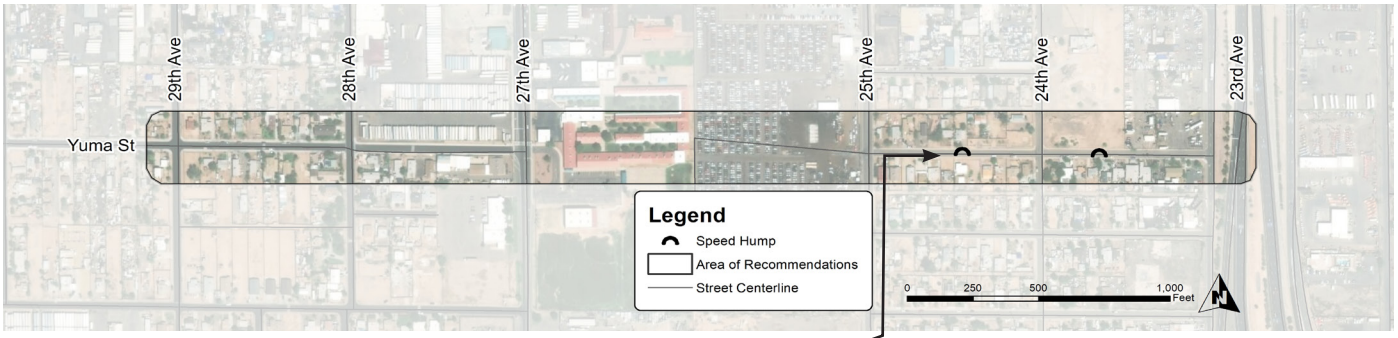
ID	Type	Current Conditions	Recommendation	Description	Benefits
7		Local roads with excessive ROW and no traffic calming measures	Speed Humps	Install two speed humps along Yuma St.	Slows traffic and improves safety for pedestrians and bicyclists

▶ Project Delivery Constraints

N/A

Project Costs	7
Design	$55,155.04
ROW	$0
Construction Phase	$9,903.05
TOTAL	**$65,058.09**

Existing condition photos with examples of recommendations



Lack of traffic calming measures to slow traffic

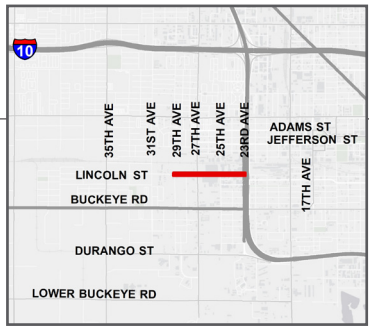
Example of speed hump

Lincoln Street: 29th Avenue to 27th Avenue

Project ID: 8a, 8b

Project Name

Lincoln Street: Bicycle and Pedestrian Improvements



▶ Destinations

Phoenix Ranch Market Warehouse

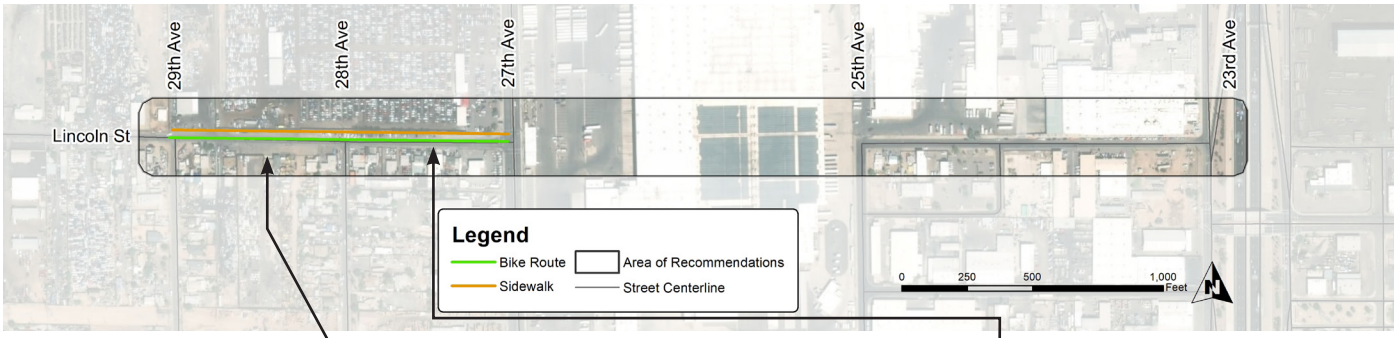
ID	Type	Current Conditions	Recommendation	Description	Benefits
8a		Gaps in sidewalk infrastructure	Sidewalks	Construct five-foot sidewalks with ADA ramps, curb and gutter on north side of Lincoln St. Future parking study could be necessary due to high volumes of street parking	Provides continuous and connected sidewalks along the corridor
8b		Low volume road and east/west route through study area	Bike Route	Paint shared lane markings to indicate vehicles and bicycles share the road	Provides east/west route for bicyclists

▶ Project Delivery Constraints

Sidewalk will require relocation of utilities and a future parking study could be necessary due to a high volume of street parking. The proposed sidewalk is recommended as a Project Assessment to determine to true extent of construction and cost, and a potential roadway reconstruction.

Project Costs	8a	8b	Bundle 8
Design	Project Assessment	$19,867.28	$19,867.28
ROW		$0	$0
Construction Phase		$61,464.94	$61,464.94
TOTAL	**$12,405.30**	**$81,332.22**	**$93,737.52**

Existing condition photos with examples of recommendations



Gaps in sidewalk infrastructure

No EB/WB route for bicyclists

Example of sidewalks

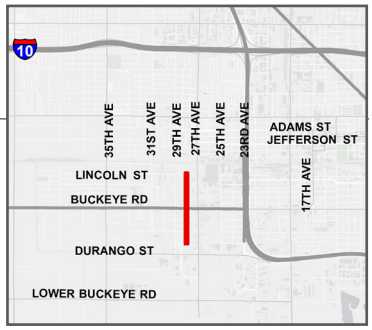
Example of a bike route

28th Avenue: Lincoln Street to Buckeye Road

Project ID: 9, 10a, 10b, 10c

Project Name

28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements



▶ Destinations

Phoenix Fire Station No. 21

Alfred F. Garcia Elementary School

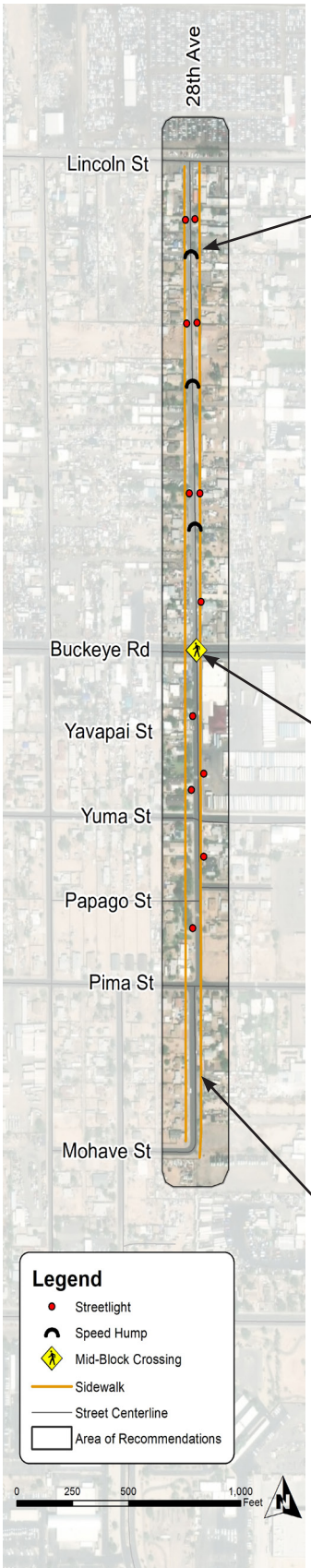
ID	Type	Current Conditions	Recommendation	Description	Benefits
9		Gaps in sidewalk infrastructure	Sidewalks	Construct six-foot sidewalks with ADA ramps, curb and gutter	Provides continuous and connected sidewalks along the corridor
10a		Lack of street lights	Lighting	Install 12 streetlights	Provides additional security and visibility by illuminating dark areas of the corridor
10b		Local roads with excessive ROW and no traffic calming measures	Speed Humps	Install three speed humps along 28th Ave.	Slows traffic and improves safety for pedestrians and bicyclists
10c		Lack of crossing across high volume road	Mid-Block Crossing	Install an RRFB signal with high-visibility crosswalk with using ladder striping	Provides connectivity for pedestrians

▶ Project Delivery Constraints

N/A

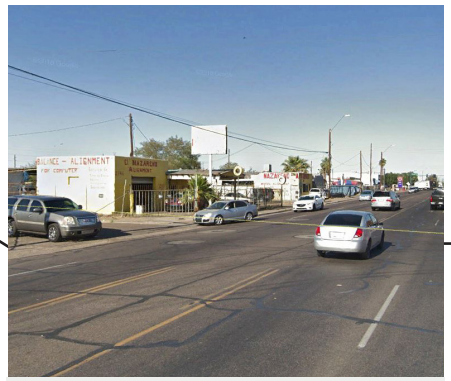
Project Costs	9	10a	10b	10c	Bundle 10
Design	$496,365.25	$76,876.00	$55,607.56	$69,947.39	$133,532.14
ROW	$174,744.75	$0	$0	$0	$0
Construction Phase	$2,295,972.96	$247,576.29	$14,854.58	$171,762.65	$434,193.51
TOTAL	**$2,967,082.96**	**$324,452.29**	**$70,462.14**	**$241,710.04**	**$567,725.65**

Existing condition photos with examples of recommendations



Lack of infrastructure to slow traffic

Example of speed hump



Lack of crossing across high volume road

Example of a HAWK crossing

Gaps in sidewalk infrastructure

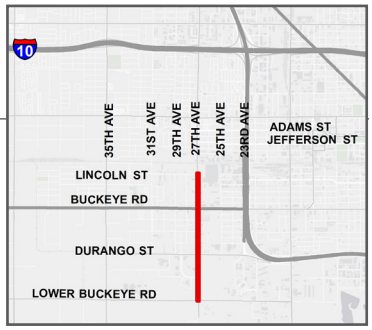
Example of sidewalks

27th Avenue: Lincoln Street to Durango Street

Project ID: 11, 12a, 12b, 12c

Project Name

27th Avenue: Pedestrian, Bicycle and Traffic Calming Improvements



▶ Destinations

Phoenix Fire Station No. 21	Valley DOT Physicals
Alfred F. Garcia Elementary School	

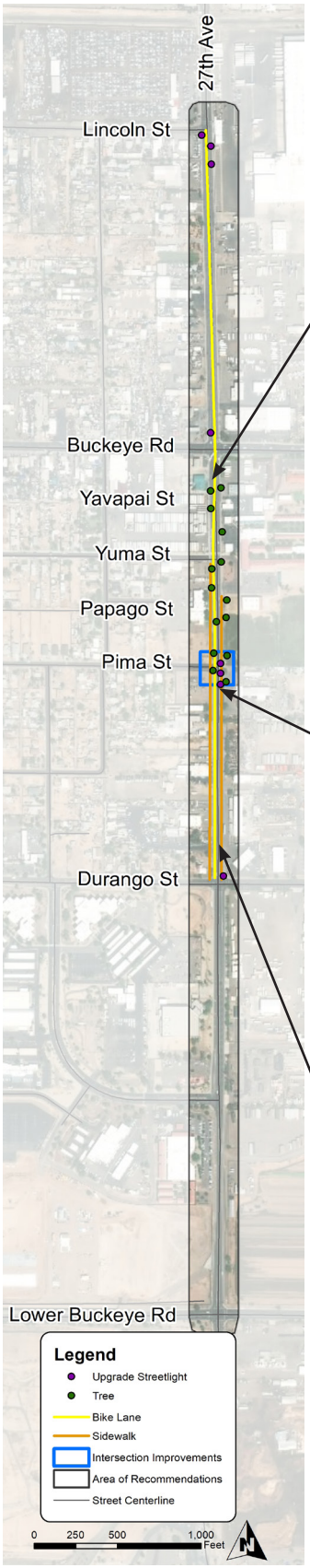
ID	Type	Current Conditions	Recommendation	Description	Benefits
11		Gaps in sidewalk infrastructure	Sidewalks	Construct six-foot sidewalks with ADA ramps, curb and gutter	Provides continuous and connected sidewalks along the corridor
12a		No north/south facilities for bicyclists	Bike Lane	Add striping, road markings with bike symbol and directional arrow	Provides north/south route for bicyclists
12b		Lack of clearly marked crosswalk at intersections	Intersection Improvements	Upgrade crosswalks with high-visibility crosswalks using ladder striping	Improves safety and visibility of people crossing the street
12c		Lack of trees and street lights	Trees & Lighting	Plant 14 trees and upgrade eight streetlights with pedestrian lighting	Provides additional security and visibility for pedestrians and bicyclists

▶ Project Delivery Constraints

The proposed sidewalk and bike lane are recommended as Project Assessments to determine to true extent of construction and cost, and a potential roadway reconstruction or ROW acquisition.

Project Costs	11	12a	12b	12c	Bundle 12
Design	Project Assessment	Project Assessment	$64,338.84	$72,543.18	$72,632.03
ROW			$0	$0	$0
Construction Phase			$972.15	$90,744.96	$91,717.11
TOTAL	**$18,750.00**	**$43,560.61**	**$65,310.99**	**$163,288.14**	**$207,909.74**

Existing condition photos with examples of recommendations



Lack of trees and street lights

Example of trees and street lights

No north/south connection for bicyclists

Example of a bike lane

Gaps in sidewalk infrastructure

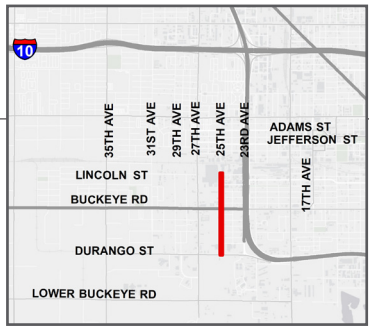
Example of sidewalks

25th Avenue: Lincoln Street to Durango Street

Project ID: 13, 14, 15a, 15b

Project Name

25th Avenue: Pedestrian, Bicycle, Traffic Calming and Public Health & Safety



▶ Destinations

Eddies Food Market

Holy Trinity Outreach

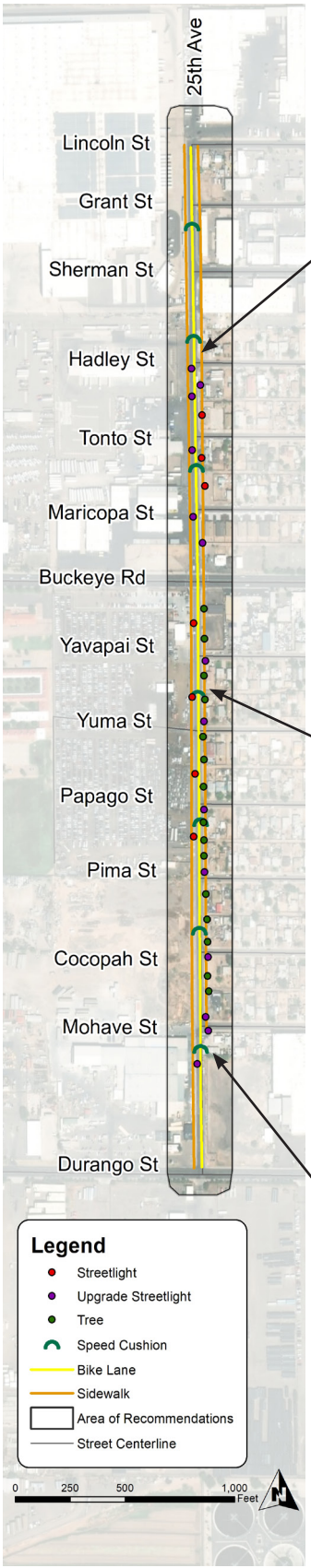
ID	Type	Current Conditions	Recommendation	Description	Benefits
13		Gaps in sidewalk infrastructure	Sidewalks	Construct six-foot sidewalks with ADA ramps, curb and gutter	Provides continuous and connected sidewalks along the corridor
14		No NB/SB facilities for bicyclists	Bike Lane	Add striping, road markings with bike symbol and directional arrow	Provides NB/SB route for bicyclists
15a		Lack of trees and street lights	Trees & Lighting	Plant 15 trees, install seven streetlights and upgrade 13 streetlights with pedestrian lighting	Provides additional security and visibility for pedestrians and bicyclists

▶ Project Delivery Constraints

Sidewalks may require ROW acquisition and the proposed bike lane is recommended as a Project Assessment to determine to true extent of construction and cost.

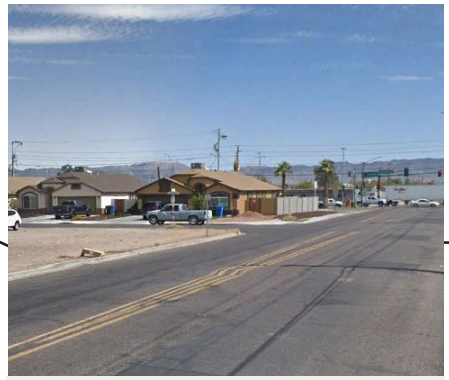
Project Costs	13	14	15a	15b	Bundle 15
Design	$542,279.75	Project Assessment	$66,838.29	$50,585.28	$79,328.03
ROW	$26,274.00		$0	$0	$0
Construction Phase	$2,567,894.25		$247,163.66	$69,321.36	$316,485.02
TOTAL	**$3,136,448.00**	**$43,371.21**	**$314,001.95**	**$119,906.64**	**$395,813.05**

Existing condition photos with examples of recommendations



No NB/SB route for bicyclists

Example of a bike lane



Lack of trees and street lights

Example of trees and street lights

Lack of traffic calming measures to slow traffic

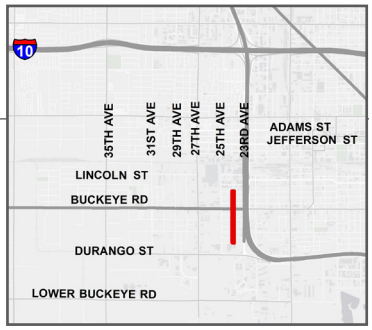
Example of speed cushions

24th Avenue: Sherman Street to Papago Street

Project ID: 16

Project Name

24th Avenue: Pedestrian Improvements



▶ Destinations

Eddies Food Market

Holy Trinity Outreach

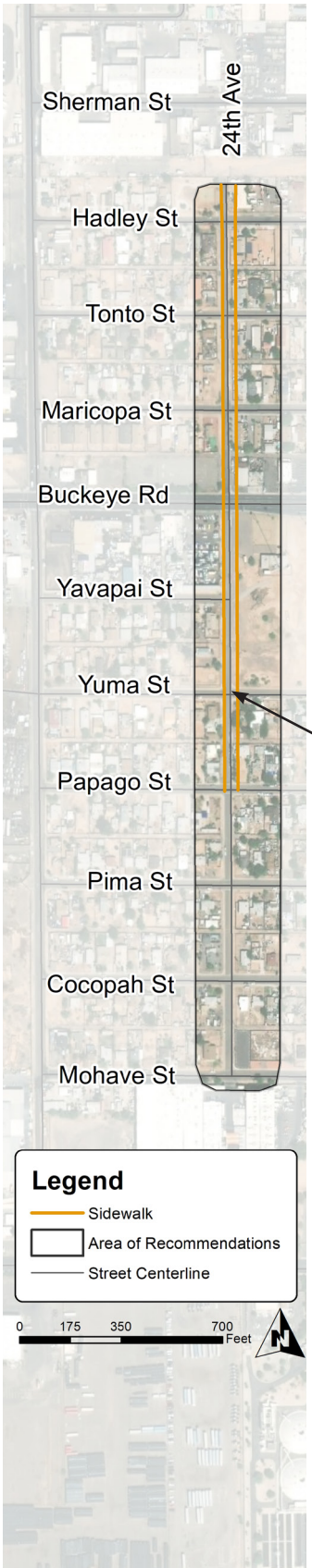
ID	Type	Current Conditions	Recommendation	Description	Benefits
16		Gaps in sidewalk infrastructure	Sidewalks	Construct six-foot sidewalks with ADA ramps, curb and gutter	Provides continuous and connected sidewalks along the corridor

▶ Project Delivery Constraints

N/A

Project Costs	16
Design	$224,189.87
ROW	$19,630.00
Construction Phase	$1,020,971.59
TOTAL	**$1,264,791.46**

Existing condition photos with examples of recommendations



Gaps in sidewalk infrastructure

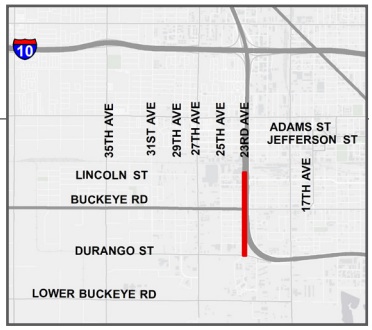
Example of sidewalks

23rd Avenue: Grant Street to Durango Street

Project ID: 17a, 17b, 17c

Project Name

23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements



▶ Destinations

Sherman Parkway	ADOT Traffic Operations
ADOT District One	

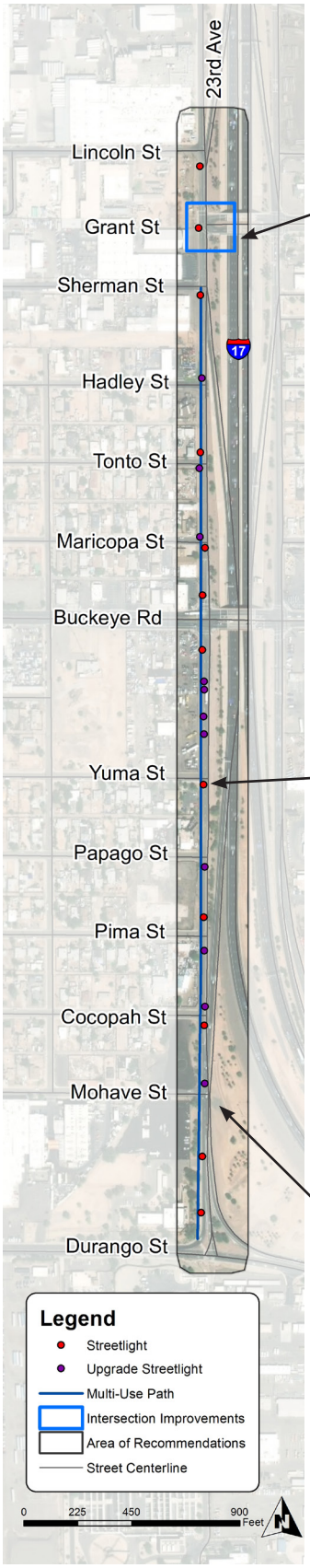
ID	Type	Current Conditions	Recommendation	Description	Benefits
17a		Low volume road with ample amount of ROW	Multi-Use Path	Upon easement acquisition, construct multi-use path along west side of 23rd Ave.	Provides north/south connection for bicyclists and pedestrians
17b		Lack of clearly marked crosswalks at intersections	Intersection Improvements	Upgrade crosswalks with high-visibility crosswalks using ladder striping	Improves safety and visibility of people crossing the street
17c		Lack of street lights	Lighting	Install 12 streetlights and upgrade 11 streetlights with pedestrian lighting	Provides additional security and visibility for pedestrians and bicyclists

▶ Project Delivery Constraints

Multi-use path will require ROW acquisition between Mohave Street and Durango Street.

Project Costs	17a	17b	17c	Bundle 17
Design	$271,637.61	$44,317.58	$73,168.10	$330,707.76
ROW	$24,160.00	$0	$0	$24,160.00
Construction Phase	$1,251,717.66	$739.43	$286,528.29	$1,538,985.38
TOTAL	**$1,547,515.27**	**$45,057.00**	**$359,696.39**	**$1,893,853.14**

Existing condition photos with examples of recommendations



Lack of clearly marked crosswalk

Example of a high-visibility crosswalk

Lack of street lights

Example of street lights

Low volume road with ample amount of ROW

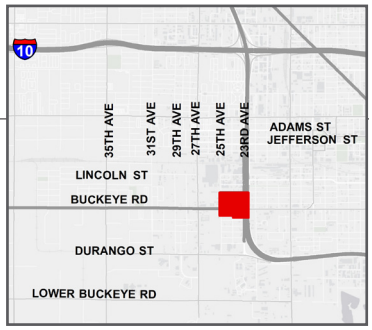
Example of a multi-use path

Mohave Street and 28th Drive

Project ID: 18

Project Name

Neighborhood 1 (SE): Pedestrian Improvements



▶ Destinations

Eddies Food Market

Sherman Parkway

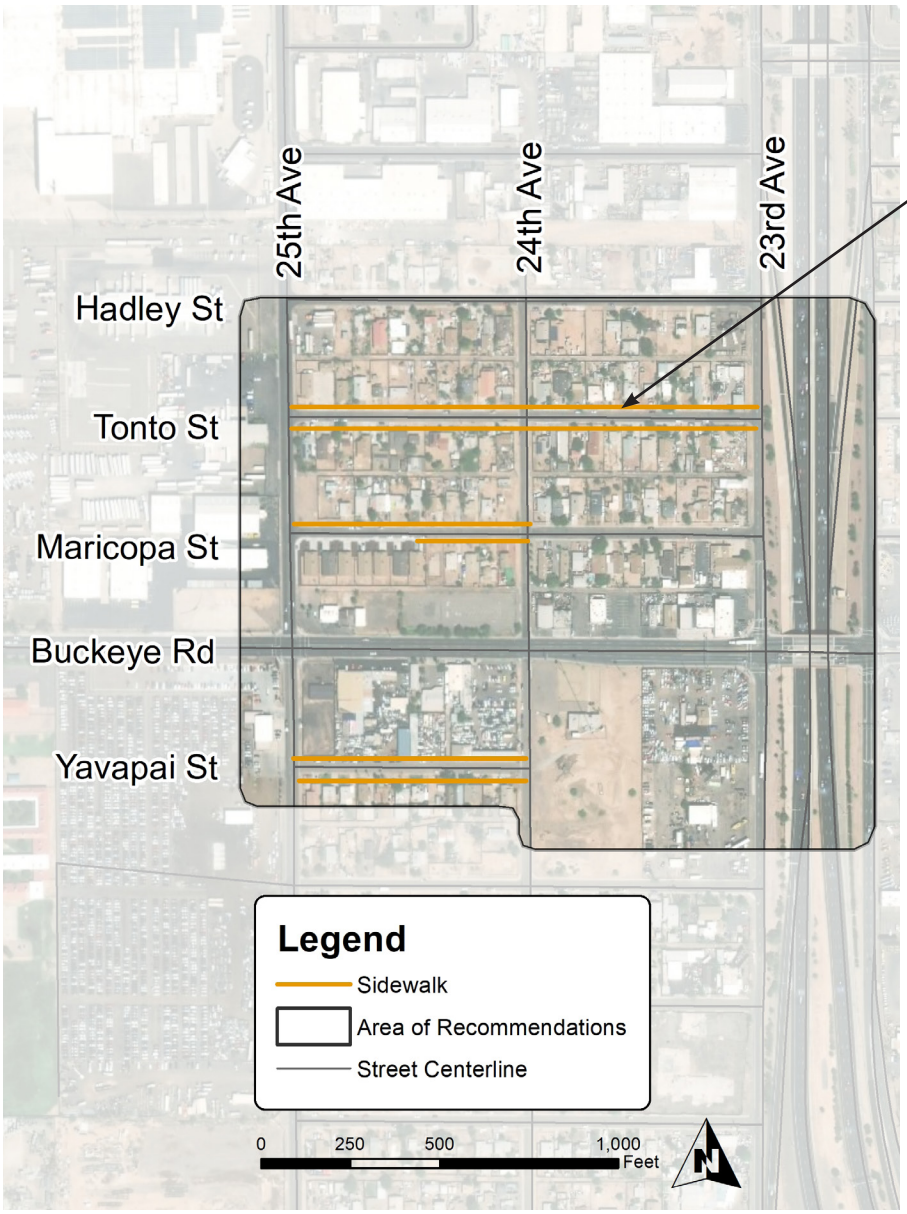
ID	Type	Current Conditions	Recommendation	Description	Benefits
18		Gaps in sidewalk infrastructure	Sidewalks	Construct five-foot sidewalks with ADA ramps, curb and gutter	Provides continuous and connected sidewalks along the corridor

▶ Project Delivery Constraints

N/A

Project Costs	18
Design	$232,623.71
ROW	$12,835.00
Construction Phase	$1,061,986.73
TOTAL	**$1,307,445.44**

Existing condition photos with examples of recommendations



Gaps in sidewalk infrastructure

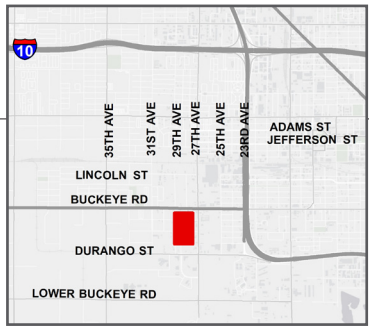
Example of sidewalks

Hadley Street, Tonto Street, and Maricopa Street

Project ID: 19

Project Name

Neighborhood 2 (SW): Pedestrian Improvements



▶ Destinations

Phoenix Fire Station No. 21

Valley DOT Physicals

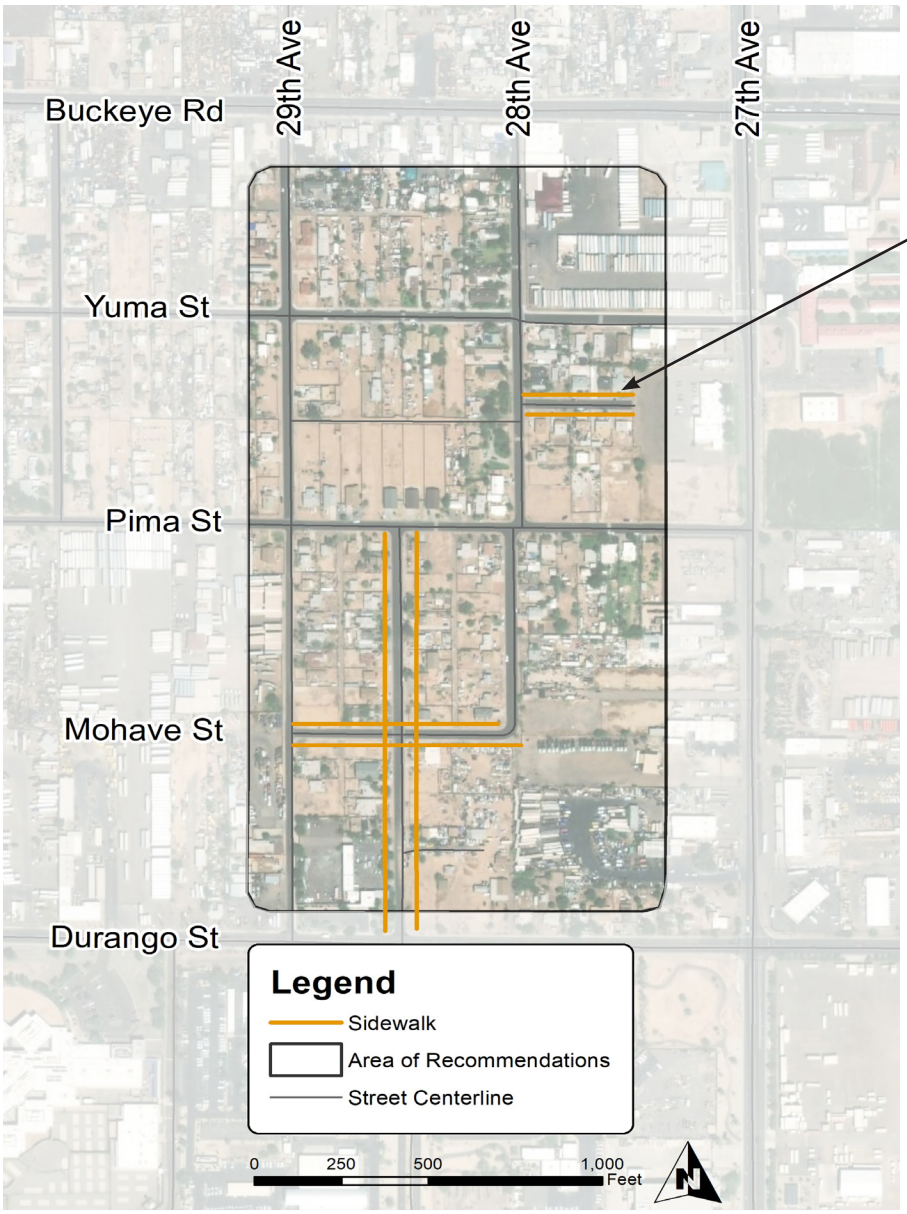
ID	Type	Current Conditions	Recommendation	Description	Benefits
19		Gaps in sidewalk infrastructure	Sidewalks	Construct five-foot sidewalks with ADA ramps, curb and gutter	Provides continuous and connected sidewalks along the corridor

▶ Project Delivery Constraints

N/A

Project Costs	19
Design	$164,117.84
ROW	$4,530.00
Construction Phase	$728,831.57
TOTAL	**$897,479.41**

Existing condition photos with examples of recommendations



Gaps in sidewalk infrastructure

Example of sidewalks

3.0 Conclusion

The solutions presented in this report were developed to address the mobility needs identified in the CCR. Analysis of the Durango Curve Neighborhoods indicated a lack of streetlights and shade along heavily trafficked corridors, a lack of sidewalks, and low-visibility crosswalks at intersections along Buckeye Road and 23rd Avenue. Many of the recommended solutions include installing streetlights, planting trees, and restriping crosswalks.

Once the solutions were vetted, they were scored and prioritized into 3 tiers to provide data-backed solutions by level of need and benefit to the community.

Public Participation Summary

A public meeting was held Wednesday, December 12, 2018 at the Murphy School District Education and Health Conference Room at 3401 W. Buckeye Road in Phoenix. The meeting provided information about proposed projects for Durango Curve Neighborhoods and encouraged community input about the proposals and possible improvements to mobility. For a detailed review of the public meetings, please refer to the Public Involvement Summary Report

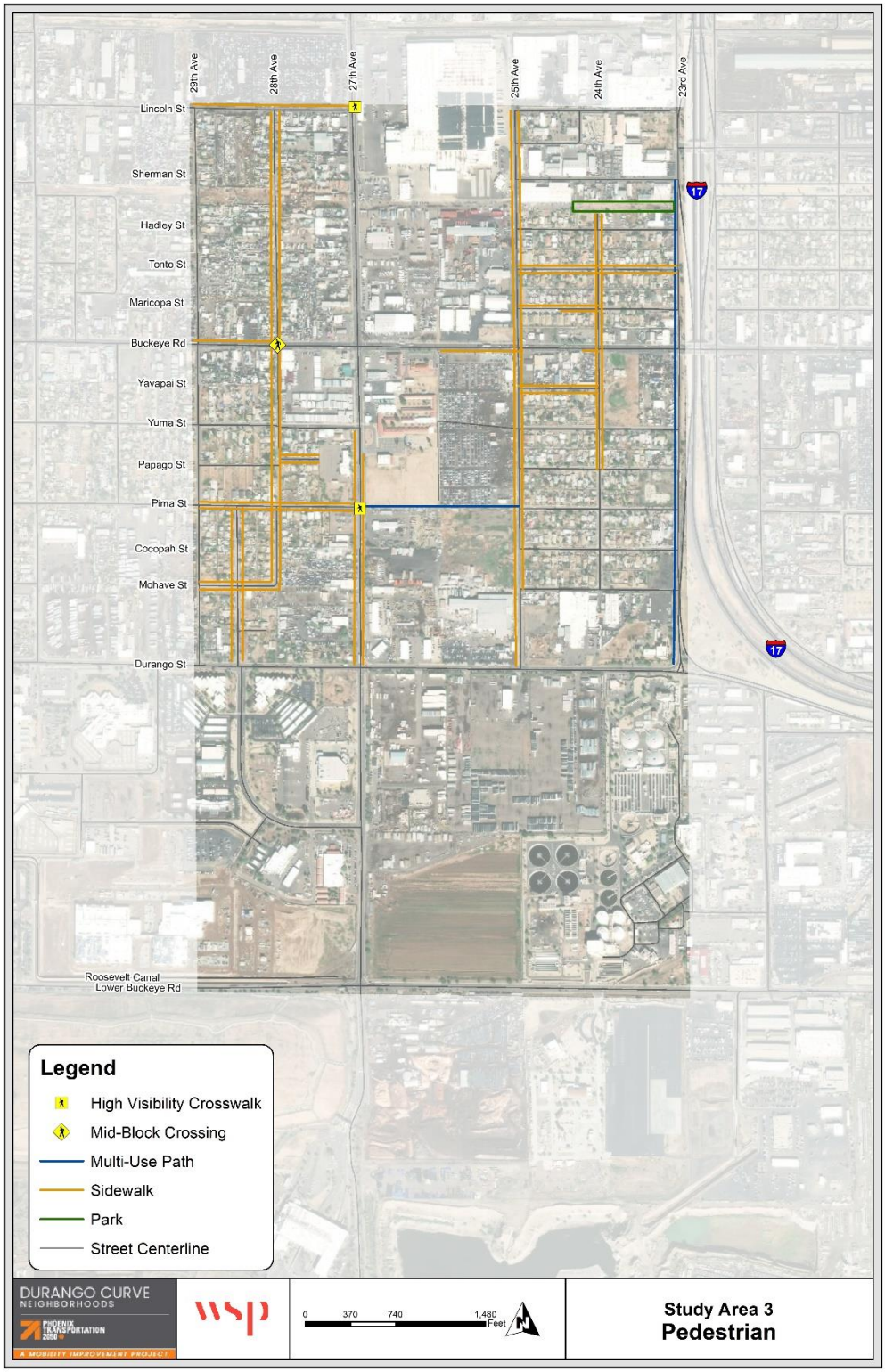
The following bulleted list summarizes comments about proposed projects made by the public include:

- Concern with available ROW for sidewalks.
- Concern for the perceived lack of pedestrian or bicycle activity to support the recommended solutions.

Many of the attendees were longtime residents of the area who voiced skepticism about the proposed projects and pointed to the high level of industrial activity in the area which they claimed discouraged people from walking.

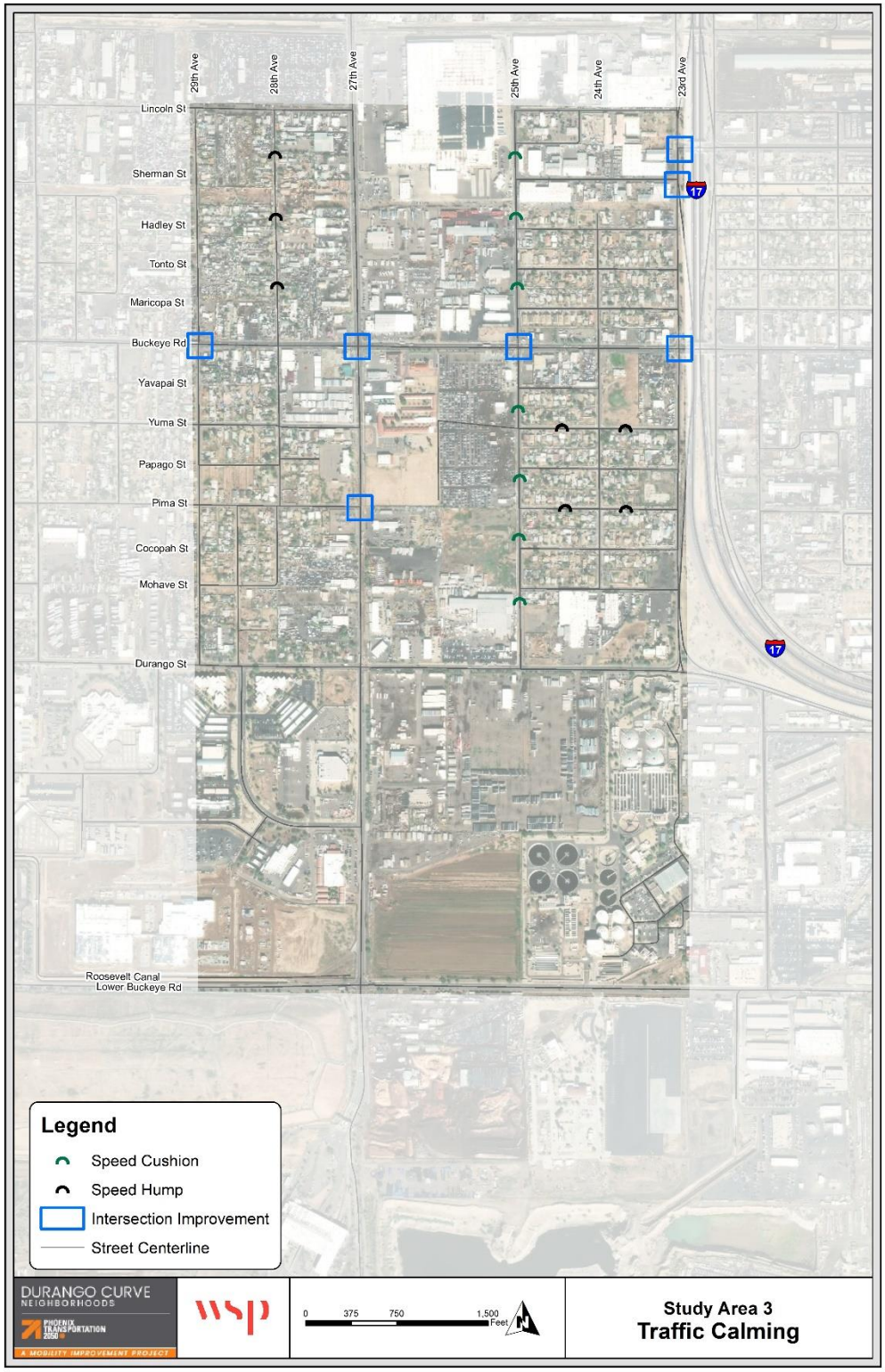
Appendix A: Project Type Maps

Pedestrian Improvements

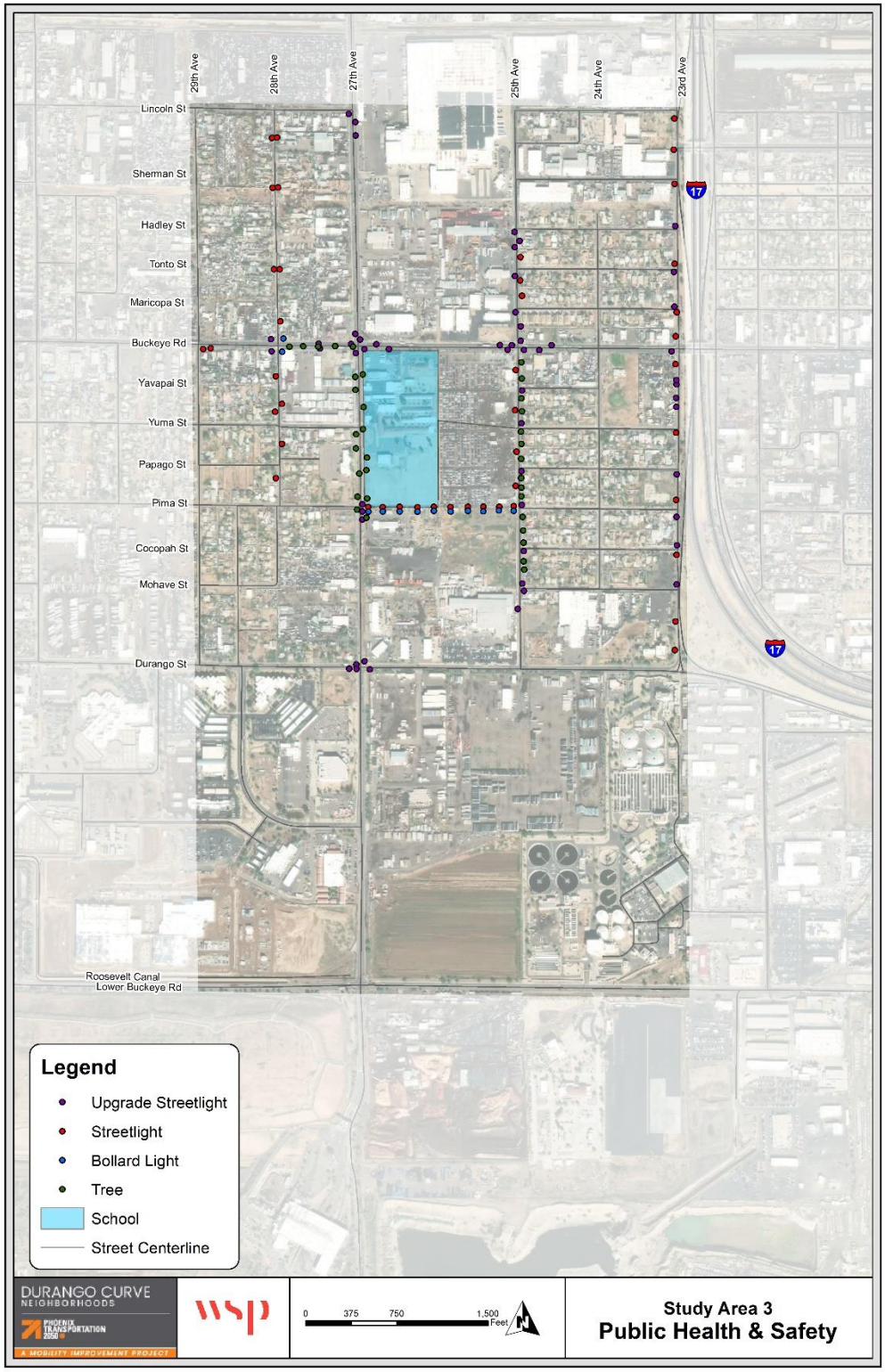


Bicycle Improvements

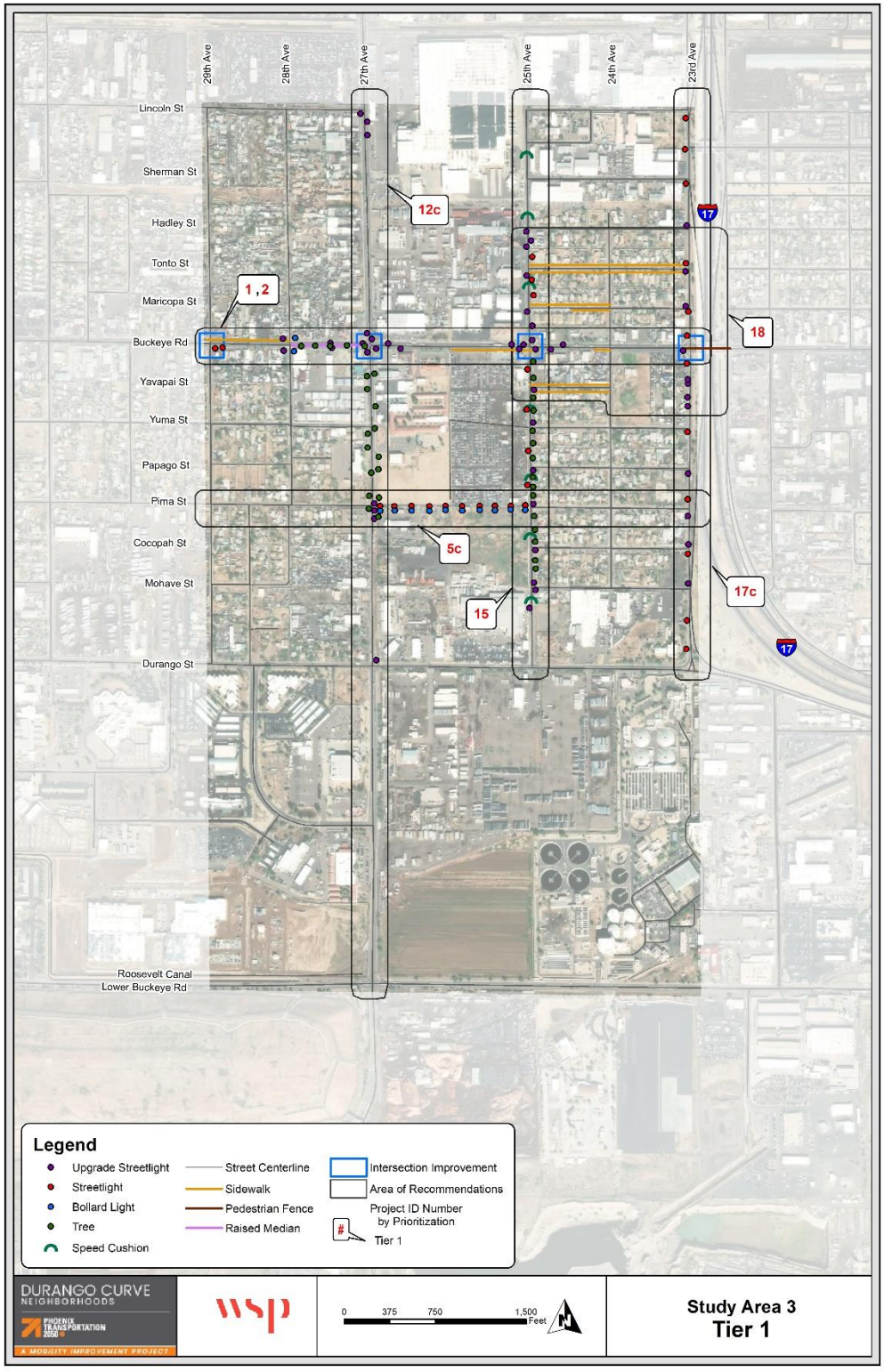
Traffic Calming Improvements



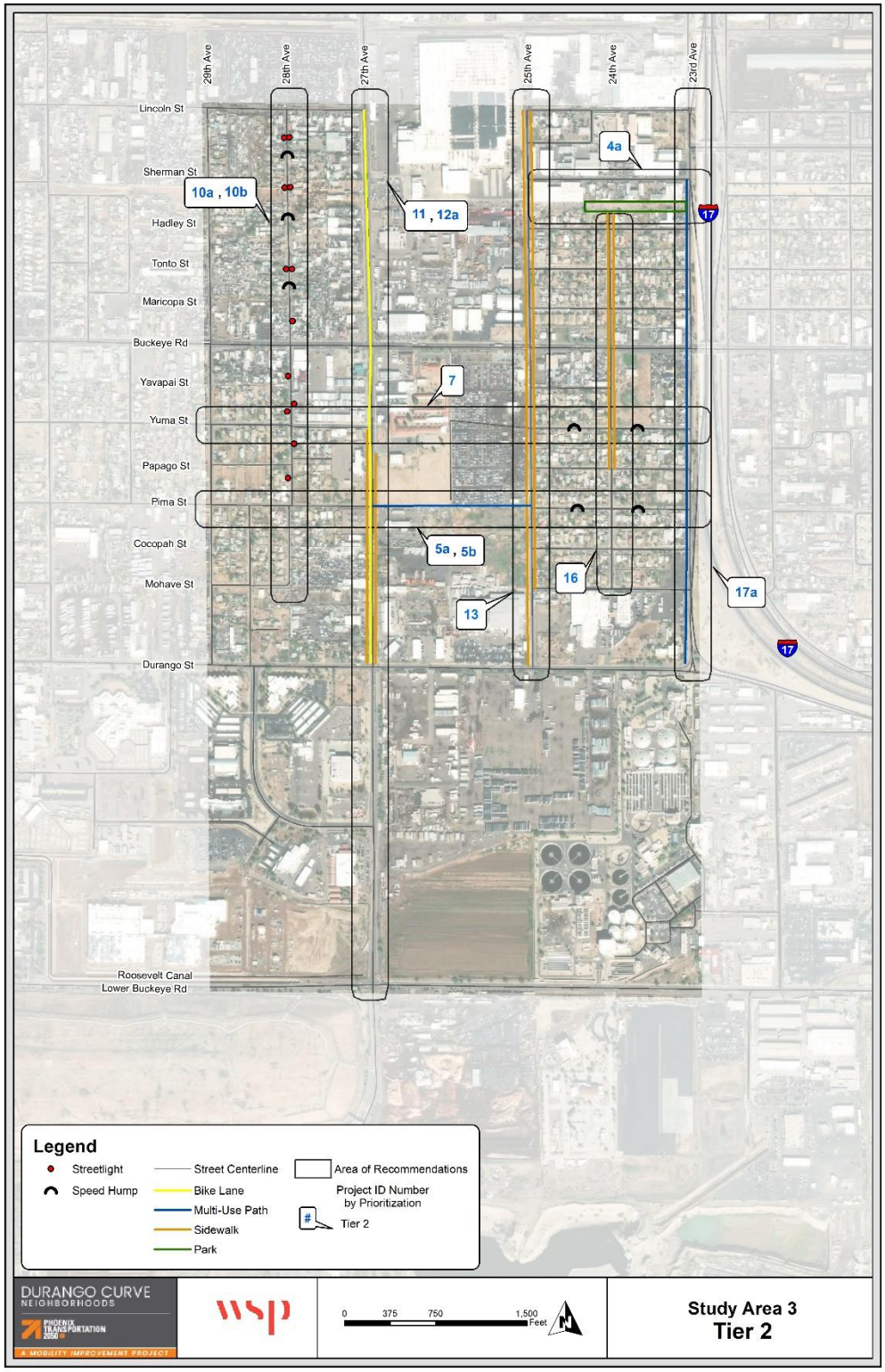
Public Health & Safety Improvements



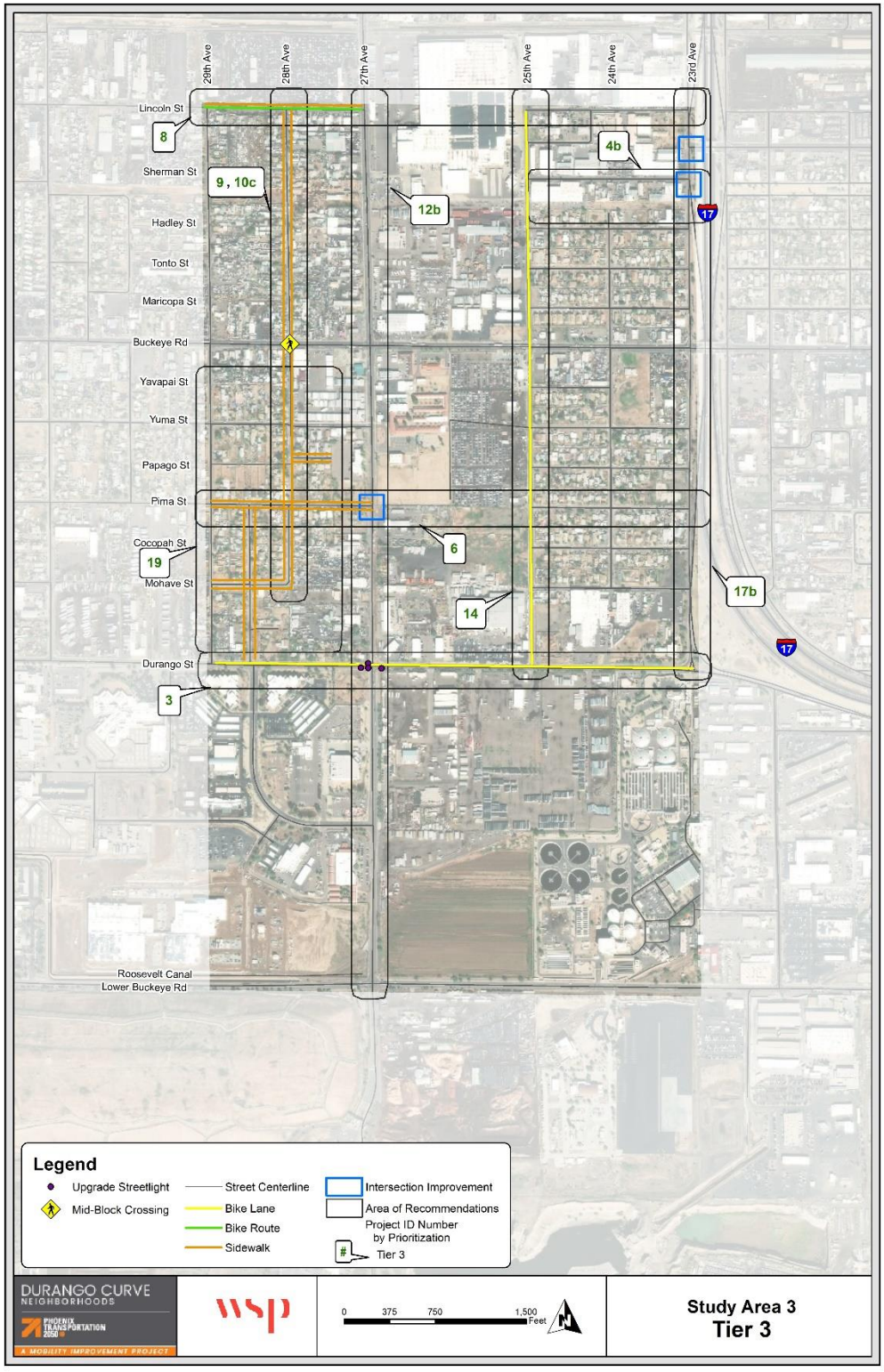
Tier 1 Project Solutions



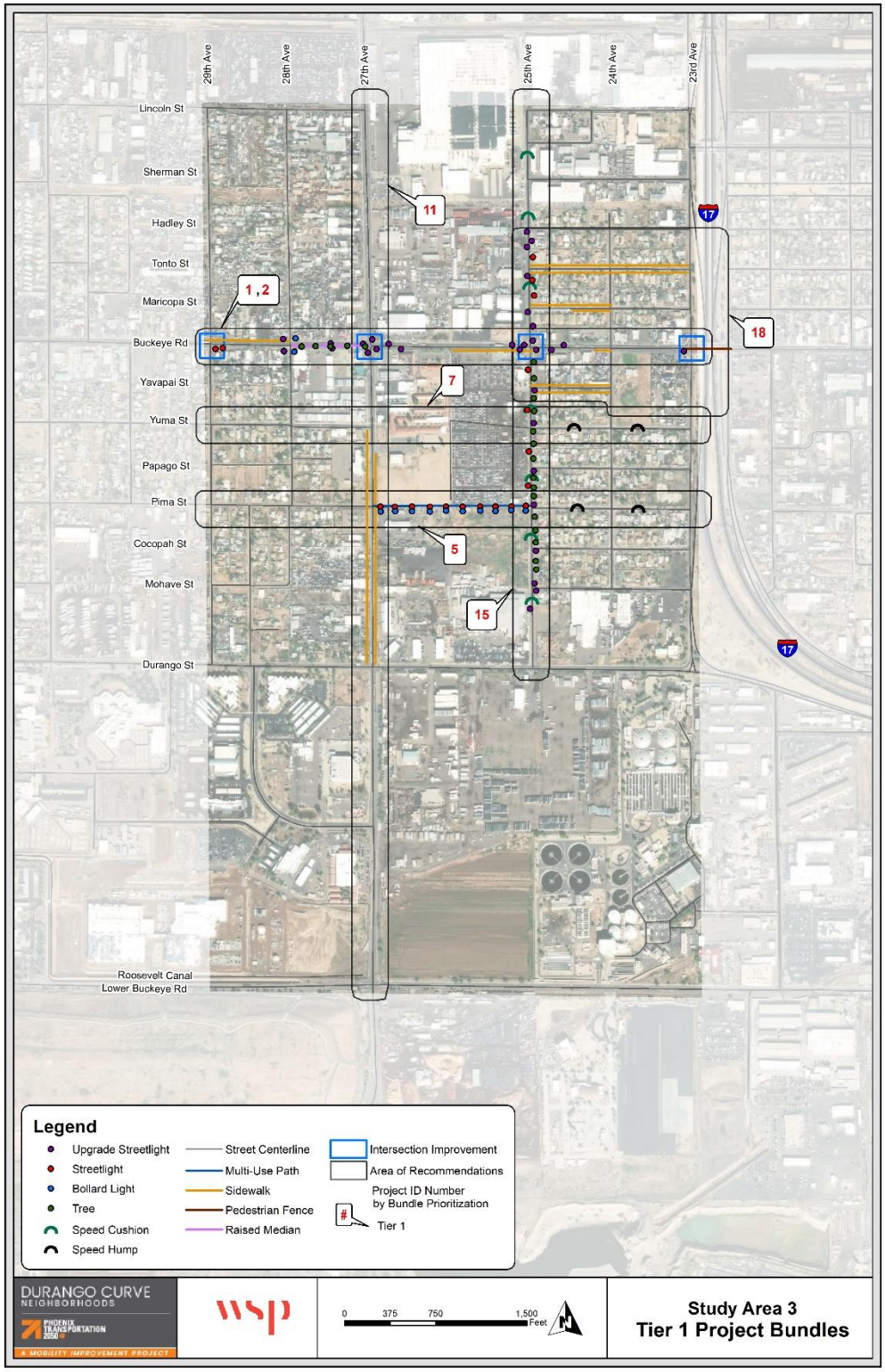
Tier 2 Project Solutions



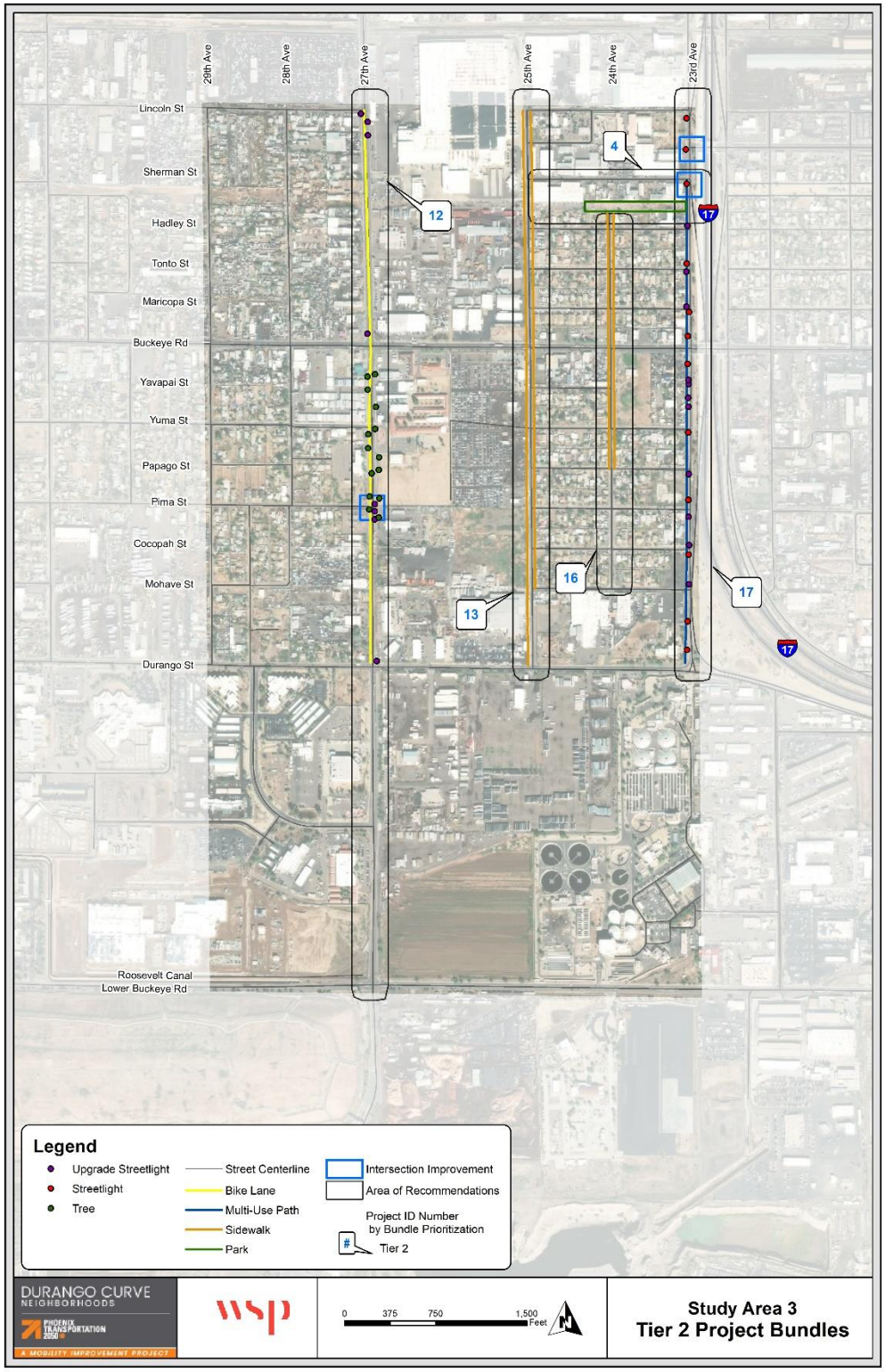
Tier 3 Project Solutions



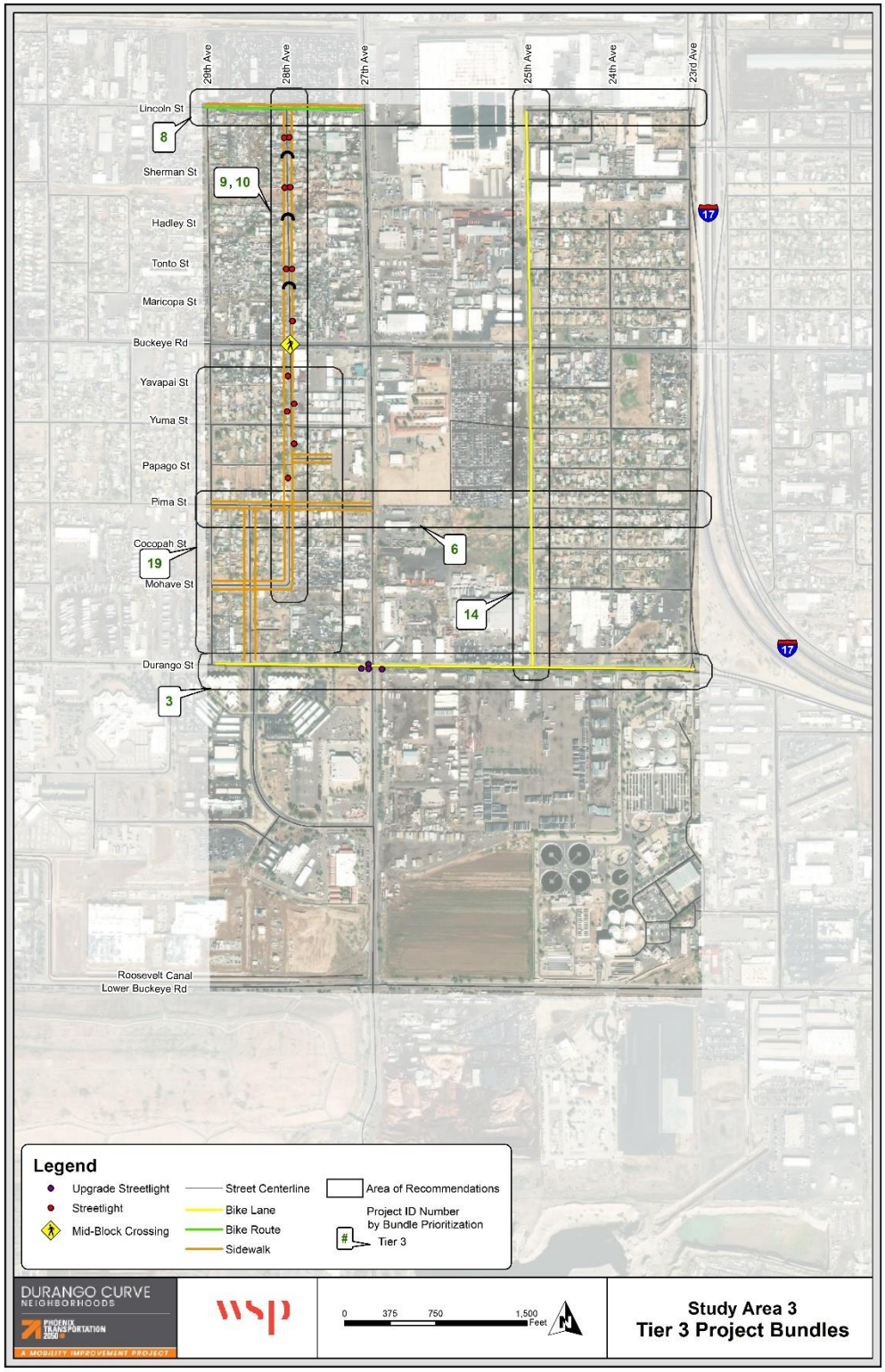
Tier 1 Project Bundle Solutions



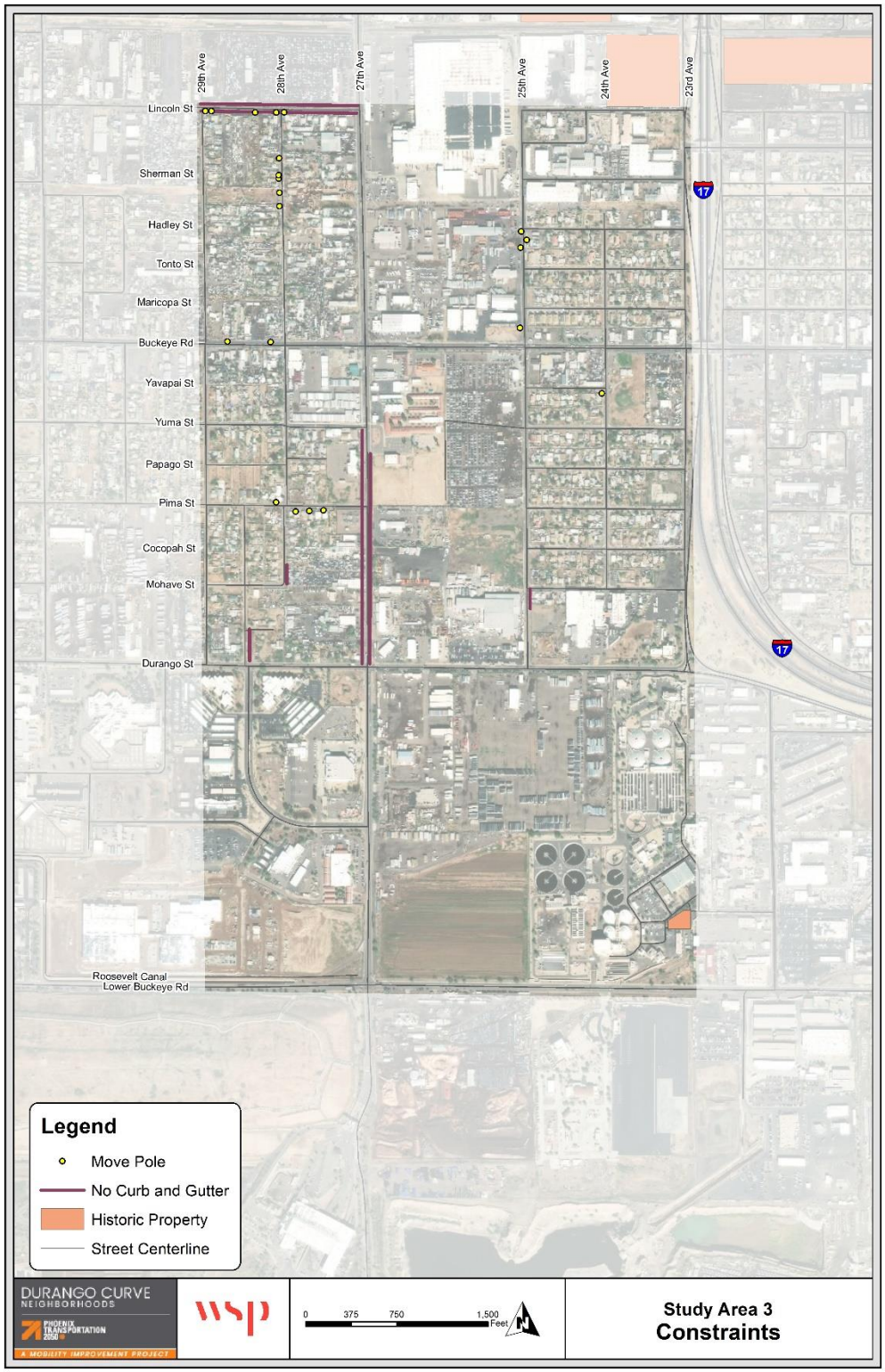
Tier 2 Project Bundle Solutions



Tier 3 Project Bundle Solutions



Project Constraints



Appendix B: Project Renderings, Cross Sections, and Images

Buckeye Road High Visibility Crossing

Existing

Proposed

Lincoln Street Bike Improvements

Existing

Proposed

Pima Street Multi-Use Path

Existing

Proposed

Appendix C: Recommended Solutions: Individual

KEY
(#): see policy notation at bottom of report

Tier	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Itemized Cost	Total Cost	Score
1	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1c	Lighting	Public Health & Safety	Install two bollard lights, two streetlights and upgrade 18 streetlights with pedestrian lighting **(4)**	Buckeye Rd. from 29th Ave. to 23rd Ave.	$105,160.00	$302,679.82	91
1	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	15	15a	Trees & Lighting	Public Health & Safety	Plant 15 trees, install seven streetlights and upgrade 14 streetlights with pedestrian lighting **(3&4)**	25th Ave. from Lincoln St. to Durango St.	$149,750.00	$314,001.95	90
1	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17c	Lighting	Public Health & Safety	Install 12 streetlights and upgrade 11 streetlights with pedestrian lighting **(3&4)**	23rd Ave. from Lincoln St. to Durango St.	$173,600.00	$359,696.39	88
1	Buckeye Road: Pedestrian and Traffic Calming Improvements	2	2a	Intersection Improvements	Traffic Calming	Upgrade the crosswalks with high-visibility crosswalks using ladder striping	Intersections of Buckeye Rd. and 29th Ave., 27th Ave., 25th Ave. & 23rd Ave.	$7,277.80	$103,359.85	87
1	Buckeye Road: Pedestrian and Traffic Calming Improvements	2	2b	Medians	Traffic Calming	Construct raised medians with turn lanes and plant five trees within medians	Buckeye Rd. from 27th Ave. to 25th Ave.	$38,308.89	$159,257.66	87
1	Neighborhood 1 (SE)	18	18	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Tonto St., Maricopa St., and Yavapai between 25th Ave. to 23rd Ave.	$643,430.00	$1,307,445.44	86
1	Pima Street: Pedestrian and Traffic Calming Improvements	5	5c	Lighting	Public Health & Safety	Install 10 bollard lights and 10 street lights along multi-use path **(4)**	Pima St. from 27th Ave. to 25th Ave.	$90,200.00	$206,731.64	86
1	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1a	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Buckeye Rd. from 29th Ave. to 23rd Ave.	$600,388.00	$1,257,961.22	85
1	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1b	Pedestrian Fencing	Pedestrian	Install a fence between sidewalks and roadway along I-17 overpass **(2)**	Buckeye Rd. from 23rd Ave. to I-17 Frontage Road	$2,500.00	$2,500.00	85
1	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12c	Trees & Lighting	Public Health & Safety	Plant 14 trees and upgrade eight streetlights with pedestrian lighting **(3&4)**	27th Ave. from Lincoln St. to Pima St.	$54,980.00	$134,488.14	85
1	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	15	15b	Speed Cushions	Traffic Calming	Install seven speed cushions along 25th Ave.	25th Ave. from Lincoln St. to Durango St.	$42,000.00	$119,906.64	84
2	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	11	11	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	27th Ave. from Pima St. to Durango St.	$18,750.00	$18,750.00	83
2	Sherman Street: Pedestrian and Bicycle Improvements	4	4a	Utility Corridor Redevelopment	Pedestrian	Upon easement acquisition, construct linear park with recreational, bicycle, and pedestrian facilities **(2)**	Sherman St. from 24th Ave. to 23rd Ave.	$332,800.00	$753,288.24	83
2	Yuma Street: Traffic Calming Improvements	7	7	Speed Humps	Traffic Calming	Install two speed humps along Yuma St.	Yuma St. from 25th Ave. to 23rd Ave.	$6,000.00	$65,058.09	83
2	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10a	Lighting	Public Health & Safety	Install 12 streetlights **(4)**	28th Ave. from Lincoln St. to Pima St.	$150,000.00	$324,452.29	81

Tier	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Itemized Cost	Total Cost	Score
2	Pima Street: Pedestrian and Traffic Calming Improvements	5	5a	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path south of Garcia Elementary School	Pima St. from 27th Ave. to 25th Ave.	$64,353.33	$360,230.79	81
2	24th Avenue: Pedestrian Improvements	16	16	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	24th Ave. from Sherman St. to Papago St.	$618,580.00	$1,264,791.46	81
2	Pima Street: Pedestrian and Traffic Calming Improvements	5	5b	Speed Humps	Traffic Calming	Install two speed humps along Pima St. east of 25th Ave.	Pima St. from 25th Ave. to 23rd Ave.	$6,000.00	$55,058.09	78
2	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12a	Bike Lane	Bicycle	Add striping, road markings with bike symbol and directional arrow **(8)**	27th Ave. from Lincoln St. to Durango St.	$43,560.61	$43,560.61	77
2	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10b	Speed Humps	Traffic Calming	Install three speed humps along 28th Ave.	28th Ave. from Lincoln St. to Buckeye Rd.	$9,000.00	$70,462.14	77
2	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	13	13	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	25th Ave. from Lincoln St. to Durango St.	$1,555,820.00	$3,136,448.00	77
2	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17a	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path along west side of 23rd Ave.	23rd Ave. from Grant St. to Durango St.	$758,383.01	$1,547,515.27	77
3	28th Avenue: Pedestrian Improvements	9	9	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	28th Ave. from Lincoln St. to Mohave St.	$1,391,070.00	$2,967,082.96	76
3	Neighborhood 2 (SW)	19	19	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Mohave St. and 28th Dr. between 29th Ave. to 27th Ave.	$441,580.00	$897,479.41	76
3	Pima Street: Pedestrian Improvements	6	6	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Pima St. from 29th Ave. to 27th Ave.	$315,580.00	$665,023.19	75
3	Sherman Street: Pedestrian and Bicycle Improvements	4	4b	Intersection Improvements	Traffic Calming	Upgrade crosswalks with high-visibility crosswalks using ladder striping	Intersection of Sherman St. and 23rd Ave.	$783.50	$45,661.36	75
3	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12b	Intersection Improvements	Traffic Calming	Upgrade crosswalks with high-visibility crosswalks using ladder striping	Intersection of 27th Ave. and Pima St.	$589.00	$65,310.99	74
3	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	14	14	Bike Lane	Bicycle	Add striping, road markings with bike symbol and directional arrow **(8)**	25th Ave. from Lincoln St. to Durango St.	$43,371.21	$43,371.21	74
3	Lincoln Street: Bicycle and Pedestrian Improvements	8	8a	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter on north side of Lincoln St. Future parking study could be necessary due to high volumes of street parking **(1,6&7)**	Lincoln St. from 29th Ave. to 27th Ave.	$12,405.30	$12,405.30	73
3	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10c	Mid-Block Crossing	Traffic Calming	Install an RRFB signal with high-visibility crosswalk with using ladder striping	28th Ave. and Buckeye Rd.	$104,066.50	$241,710.04	67
3	Durango Street: Bicycle Improvements	3	3b	Lighting	Public Health & Safety	Upgrade four streetlights with pedestrian lighting **(4)**	Intersection of Durango St. and 27th Ave.	$18,400.00	$146,394.81	67
3	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17b	Intersection Improvements	Traffic Calming	Upgrade crosswalks with high-visibility crosswalks using ladder striping	Intersection of 23rd Ave. and Grant St.	$448.00	$45,057.00	65

Tier	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Itemized Cost	Total Cost	Score
3	Durango Street: Bicycle Improvements	3	3a	Bike Lane	Bicycle	Add striping, road markings with bike symbol and directional arrow **(8)**	Durango St. from 29th Ave. to 23rd Ave.	$37,878.79	$37,878.79	65
3	Lincoln Street: Bicycle and Pedestrian Improvements	8	8b	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road **(8)**	Lincoln St. from 29th Ave. to 27th Ave.	$37,240.00	$81,332.22	63

1 Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction document recommends the implementation of six-foot sidewalks.
2 Easement would require coordination with the City of Phoenix and existing land owner to acquire land
3 Trees were implemented within 160 feet from a high ridership bus stop, a total of four trees - 40 feet on center are planted near every higher ridership bus stop.
4 New lighting includes new light posts, pedestrian lighting attachment to existing poles and bollard pedestrian lighting. New lighting was designated at higher ridership bus stops, along major pedestrian routes, and near schools.
5 Neighborhood tree policy encourages land owners to plant trees within their own right-of-way to provide shade for sidewalks and other mobility facilities.
6 Driveway consolidation policy recommend driveways to be consolidated in prevent redundancy and driveways to be flush with sidewalks to meet ADA requirements
7 Where new sidewalks are implemented near to at existing bus stops, bus stops could be updated to provide shelters, benches or other features
8 Maricopa Association of Governments Valley Path Brand & Wayfinding Signage Guidelines provides guidance bike and wayfinding signage

Appendix D: Recommended Solutions: Bundle

KEY
(#): see policy notation at bottom of report

Tier	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Itemized Bundle Cost	Total Bundle Cost	Average Score
1	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1a	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Buckeye Rd. from 29th Ave. to 23rd Ave.	$705,548.00	$1,518,718.96	87
	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1b	Pedestrian Fencing	Pedestrian	Install a fence between sidewalks and roadway along I-17 overpass **(2)**	Buckeye Rd. from 23rd Ave. to I-17 Frontage Road			
	Buckeye Road: Pedestrian and Traffic Calming Improvements	1	1c	Lighting	Public Health & Safety	Install two bollard lights, two streetlights and upgrade 18 streetlights with pedestrian lighting **(4)**	Buckeye Rd. from 29th Ave. to 23rd Ave.			
1	Buckeye Road: Pedestrian and Traffic Calming Improvements	2	2a	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersections of Buckeye Rd. and 29th Ave., 27th Ave., 25th Ave. & 23rd Ave.	$45,586.69	$198,367.52	87
	Buckeye Road: Pedestrian and Traffic Calming Improvements	2	2b	Medians	Traffic Calming	Construct raised medians with turn lanes and plant five trees within medians	Buckeye Rd. from 27th Ave. to 25th Ave.			
1	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	15	15a	Trees & Lighting	Public Health & Safety	Plant 15 trees, install seven streetlights and upgrade 14 streetlights with pedestrian lighting **(3&4)**	25th Ave. from Lincoln St. to Durango St.	$191,750.00	$395,813.05	87
	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	15	15b	Speed Cushions	Traffic Calming	Install seven speed cushions along 25th Ave.	25th Ave. from Lincoln St. to Durango St.			
1	Neighborhood 1 (SE)	18	18	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Tonto St., Maricopa St., and Yavapai between 25th Ave. to 23rd Ave.	$643,430.00	$1,307,445.44	86
1	Yuma Street: Traffic Calming Improvements	7	7	Speed Humps	Traffic Calming	Install two speed humps along Yuma St.	Yuma St. from 25th Ave. to 23rd Ave.	$6,000.00	$65,058.09	83
1	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	11	11	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	27th Ave. from Pima St. to Durango St.	$18,750.00	$18,750.00	83
1	Pima Street: Pedestrian and Traffic Calming Improvements	5	5a	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path south of Garcia Elementary School	Pima St. from 27th Ave. to 25th Ave.	$160,553.33	$533,792.85	82
	Pima Street: Pedestrian and Traffic Calming Improvements	5	5b	Speed Humps	Traffic Calming	Install two speed humps along Pima St. east of 25th Ave.	Pima St. from 25th Ave. to 23rd Ave.			
	Pima Street: Pedestrian and Traffic Calming Improvements	5	5c	Lighting	Public Health & Safety	Install 10 bollard lights and 10 street lights along multi-use path **(4)**	Pima St. from 27th Ave. to 25th Ave.			
2	24th Avenue: Pedestrian Improvements	16	16	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	24th Ave. from Sherman St. to Papago St.	$618,580.00	$1,264,791.46	81
2	Sherman Street: Pedestrian and Bicycle Improvements	4	4a	Utility Corridor Redevelopment	Pedestrian	Upon easement acquisition, construct linear park with recreational, bicycle, and pedestrian facilities **(2)**	Sherman St. from 24th Ave. to 23rd Ave.	$333,583.50	$754,847.33	79
	Sherman Street: Pedestrian and Bicycle Improvements	4	4b	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersection of Sherman St. and 23rd Ave.			

Tier	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Itemized Bundle Cost	Total Bundle Cost	Average Score
2	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12a	Bike Lane	Bicycle	Add striping, road markings with bike symbols and directional arrow **(8)**	27th Ave. from Lincoln St. to Durango St.	$55,569.00	$207,909.74	79
	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12b	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersection of 27th Ave. and Pima St.			
	27th Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	12	12c	Trees & Lighting	Public Health & Safety	Plant 14 trees and upgrade eight streetlights with pedestrian lighting **(3&4)**	27th Ave. from Lincoln St. to Pima St.			
2	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	13	13	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	25th Ave. from Lincoln St. to Durango St.	$1,555,820.00	$3,136,448.00	77
2	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17a	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path along west side of 23rd Ave.	23rd Ave. from Grant St. to Durango St.	$932,431.01	$1,893,853.14	77
	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17b	Intersection Improvements	Traffic Calming	Upgrade intersections with high-visibility crosswalks using ladder striping	Intersection of 23rd Ave. and Grant St.			
	23rd Avenue: Pedestrian, Bicycle, and Traffic Calming Improvements	17	17c	Lighting	Public Health & Safety	Install 12 streetlights and upgrade 11 streetlights with pedestrian lighting **(3&4)**	23rd Ave. from Lincoln St. to Durango St.			
3	28th Avenue: Pedestrian Improvements	9	9	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	28th Ave. from Lincoln St. to Mohave St.	$1,391,070.00	$2,967,082.96	76
3	Neighborhood 2 (SW)	19	19	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Mohave St. and 28th Dr. between 29th Ave. to 27th Ave.	$441,580.00	$897,479.41	76
3	Pima Street: Pedestrian Improvements	6	6	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter **(1,6&7)**	Pima St. from 29th Ave. to 27th Ave.	$315,580.00	$665,023.19	75
3	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10a	Lighting	Public Health & Safety	Install 12 streetlights **(4)**	28th Ave. from Lincoln St. to Pima St.	$263,066.50	$567,725.65	75
	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10b	Speed Humps	Traffic Calming	Install three speed humps along 28th Ave.	28th Ave. from Lincoln St. to Buckeye Rd.			
	28th Avenue: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	10	10c	Mid-Block Crossing	Traffic Calming	Install an RRFB signal with high-visibility crosswalk using ladder striping	28th Ave. and Buckeye Rd.			
3	25th Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety	14	14	Bike Lane	Bicycle	Add striping, road markings with bike symbols and directional arrow **(8)**	25th Ave. from Lincoln St. to Durango St.	$43,371.21	$43,371.21	74
3	Lincoln Street: Bicycle and Pedestrian Improvements	8	8a	Sidewalks	Pedestrian	Construct five-foot sidewalks with ADA ramps, curb and gutter on north side of Lincoln St. Future parking study could be necessary due to high volumes of street parking **(1,6&7)**	Lincoln St. from 29th Ave. to 27th Ave.	$37,240.00	$93,737.52	68
	Lincoln Street: Bicycle and Pedestrian Improvements	8	8b	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road **(8)**	Lincoln St. from 29th Ave. to 27th Ave.			
3	Durango Street: Bicycle Improvements	3	3a	Bike Lane	Bicycle	Add striping, road markings with bike symbols and directional arrow **(8)**	Durango St. from 29th Ave. to 23rd Ave.	$18,400.00	$184,273.60	66
	Durango Street: Bicycle Improvements	3	3b	Lighting	Public Health & Safety	Upgrade four streetlights with pedestrian lighting **(4)**	Intersection of Durango St. and 27th Ave.			

1 Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction document recommends the implementation of six-foot sidewalks.

2 Easement would require coordination with the City of Phoenix and existing land owner to acquire land

3 Trees were implemented within 160 feet from a high ridership bus stop, a total of four trees - 40 feet on center are planted near every higher ridership bus stop.

4 New lighting includes new light posts, pedestrian lighting attachment to existing poles and bollard pedestrian lighting. New lighting was designated at higher ridership bus stops, along major pedestrian routes, and near schools.

5 Neighborhood tree policy encourages land owners to plant trees within their own right-of-way to provide shade for sidewalks and other mobility facilities.

6 Driveway consolidation policy recommend driveways to be consolidated in prevent redundancy and driveways to be flush with sidewalks to meet ADA requirements

7 Where new sidewalks are implemented near to at existing bus stops, bus stops could be updated to provide shelters, benches or other features

8 Maricopa Association of Governments Valley Path Brand & Wayfinding Signage Guidelines provides guidance bike and wayfinding signage

Appendix E: Recommendation Typologies

BIKE LANE

- 4’ bike lane
- 4” reflective pavement marking
- Reflective pavement marking (bike symbol and arrow)
- Bike symbol and arrow placed 300 feet on center

BIKE BOX

- Designated at intersections where bicyclists are turning left onto an arterial or special intersection configuration
- Green thermoplastic
- Reflective pavement marking (bike symbol and arrow)

BUFFERED BIKE LANE

- 4’ bike lane
- Two 4” reflective pavement marking
- Reflective pavement marking (bike symbol and arrow)
- Candlesticks/bollards placed every 30 feet on center
- Bike symbol and arrow placed 300 feet on center

SHARED LANE MARKING (SHARROWS)

- Reflective pavement marking for bike symbol and arrow
- Bike symbol and arrow placed 300 feet on center

SIDEWALK


- 6’ sidewalk
- New curb and gutter where new sidewalk is constructed
- New ADA curb ramps constructed at street corners or intersections where new sidewalk is constructed

MULTI-USE PATH


- 10’ multi-use path
- Travels in both directions
- New curb and gutter where new sidewalk is constructed
- New ADA curb ramps constructed at street corners or intersections where new sidewalk is constructed

MID-BLOCK CROSSING


- Longitudinal striping
- New ADA curb ramps
- Bollard pedestrian lighting or pedestrian lighting attachment to existing light post

HIGH INTENSITY CROSSWALK (HAWK)


- Warning signage
- Flashing beacons
- Stop bar
- Pedestrian signal
- Longitudinal striping

RECTANGULAR RAPID-FLASHING BEACON (RRFB)


- Warning signage
- Flashing beacons
- Stop bar
- Pedestrian signal
- Longitudinal striping

LONGITUDINAL STRIPING


- White paint
- Both longitudinal and horizonal striping through intersection or crossing
- New striping at intersections or where crossing does not formally exist

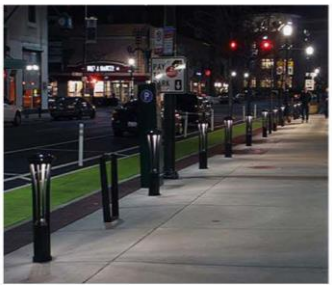
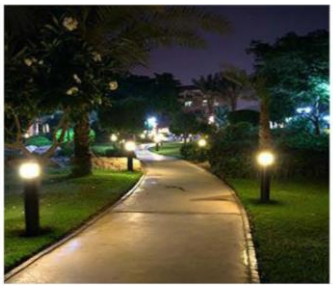
PEDESTRIAN BRIDGE


- Span
- Superstructure
- Truss
- Pedestrian barrier
- Deck
- Lighting
- ADA Ramps & Stairs

ADA COMPLIANT DRIVEWAY


- 5’-6’ ft. sidewalk
- Driveways flush with sidewalk

BOLLARD LIGHTING

- Height 45”
- LED lights preferred

STREET LIGHTING


- Pole height varies based on road classification
  - Local: 30'-6"
  - Collector: 38'-6"
  - Arterial: 38'-6"
- Two lights are preferred
  - One facing the street and one facing the sidewalk

CURB AND GUTTER


- Curb and gutter standards are determined from MAG Uniform Standard Specifications and Details for Public Works Construction

SHADE


- Palo Verde and Mesquite trees recommended
- Resilient in desert climates
- Provides canopy shade
- Low cost maintenance

SPEED HUMP


- 30’ in length

SPEED CUSHIONS


- 2, 6’-7’speed cushions
- One in each lane

CURB EXTENSIONS


- 10’ traffic lanes
- 9’ parking lane
- 7’ curb extension

PEDESTRIAN REFUGE ISLAND


- 30 X 9 ft.
- 2 ADA ramps
- 40’ of metal fencing
- Longitudinal striping

RAISED MEDIANS


- 12 X 200 ft.
- 10 (5 gallon) plants
- Yellow striping
- Decorative pavement

ELEPHANTS FEET


- Green thermoplastic
- Reflective pavement marking (bike symbol and arrow)

SCHOOL CROSSING


- Yellow longitudinal striping
- Warning singage

LINEAR PARK

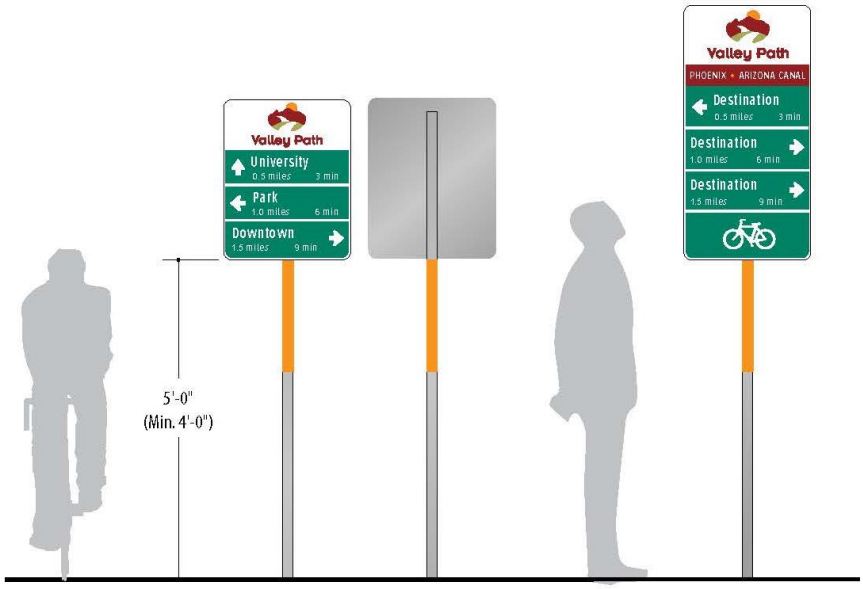

- Trees/structural shade
- Vegetation
- Sidewalks
- Recreational facilities
- Fancing

MULTI-USE PATH AT HIGHWAY


- 10’ sidewalk
- Striping with shared lane marking

Appendix F: MAG Branding & Wayfinding Signage Guidelines

MUTCD Signs



BIKE.1 Decision Sign with distances

Back of sign

BIKE.2 Decision Sign In Existing Park

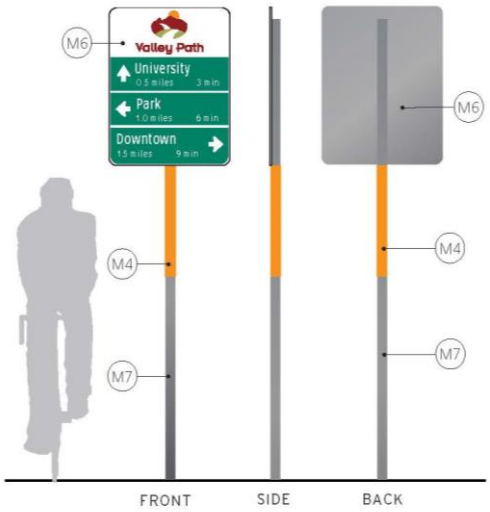
Bike Signs

BIKE.3 Path Confirmation Sign

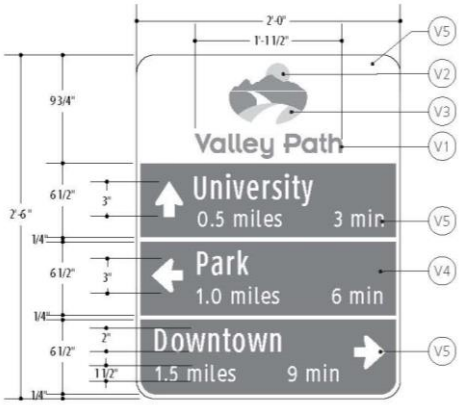
BIKE.4 Turn Sign *Preferred Design*

BIKE.5 Turn Sign *Alternate*

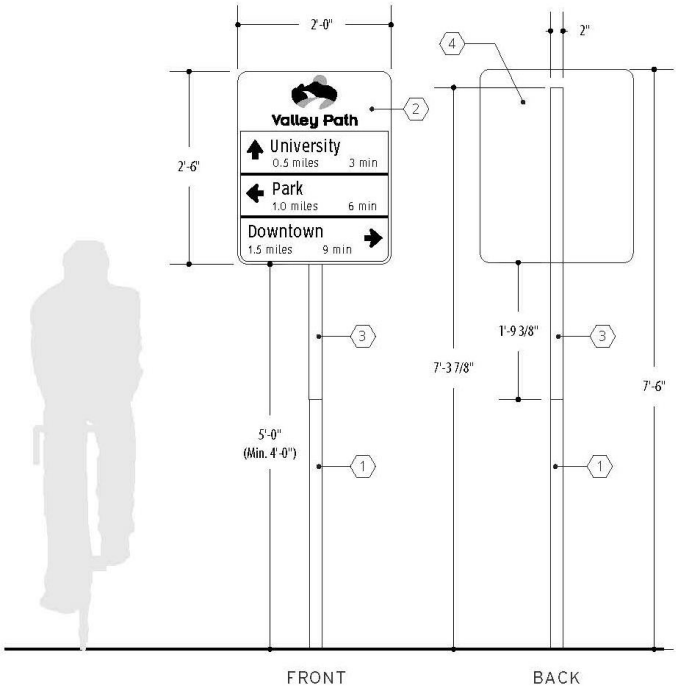
MUTCD Sign Drawings



1 Color Schedule - BIKE.1
Scale: 3/8"=1'



Bike 1 Elevation



1 Elevations BIKE.1
scale: 1/2"=1'-0"

1. Unpainted aluminum 2" sq tube*
2. 0.80 aluminum panel (or greater) with reflective vinyl graphics, mechanically fastened to 2" aluminum sq tube
3. 2" wide reflective tape to best match standard MUTCD Yellow
4. Unpainted aluminum with protective clear coat applied

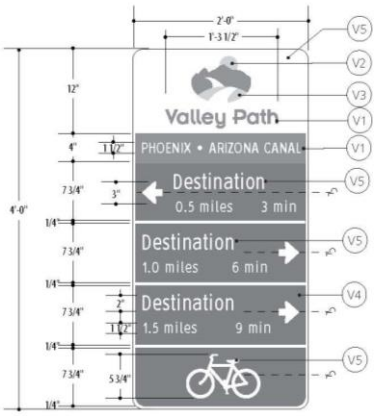
NOTES:
Locate sign at least 2 ft from edge of sign panel to trail edge.

See page 2.25 for ADOT post foundation guidelines for installing this sign.

* Or equal (2" sq aluminum tube)

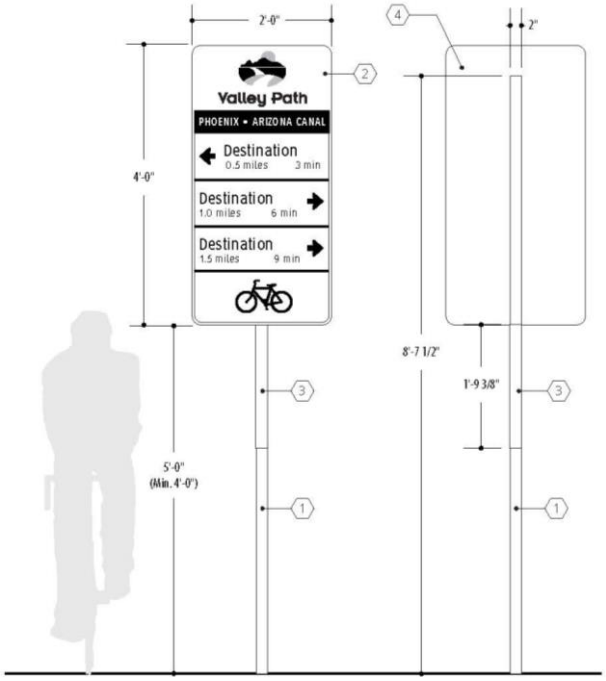
MUTCD Sign Drawings

1 Color Schedule - BIKE.2
Scale: 3/8"=1'



2 Typical Layout Guidelines - BIKE.2
Scale: 3/4"=1'

Bike 2 Elevation



1 Elevations BIKE.2
scale: 1/2"=1'-0"

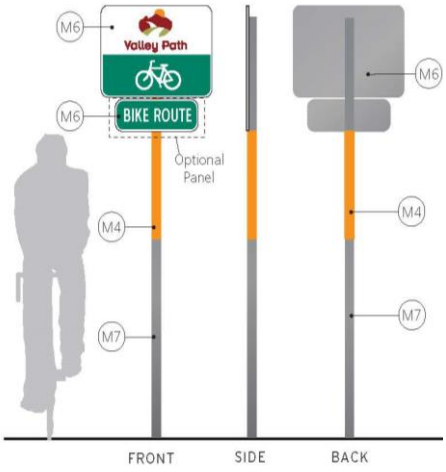
1. Unpainted aluminum 2" sq tube*
2. 0.80 aluminum panel (or greater) with reflective vinyl graphics, mechanically fastened to 2" aluminum sq tube
3. 2" wide reflective tape to best match MUTCD standard yellow
4. Unpainted aluminum with protective clear coat applied

NOTES:
Locate sign at least 2 ft from edge of sign panel to trail edge.

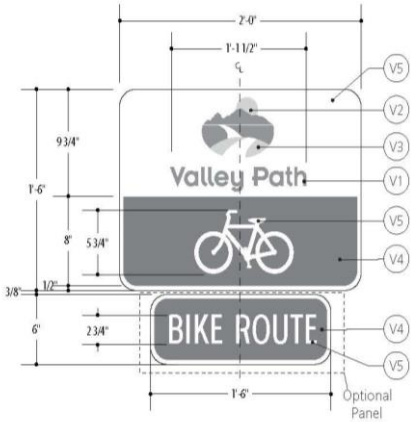
See page 2.25 for ADOT post foundation guidelines for installing this sign.

* Or equal (2" sq aluminum tube)

Bike Sign Drawings

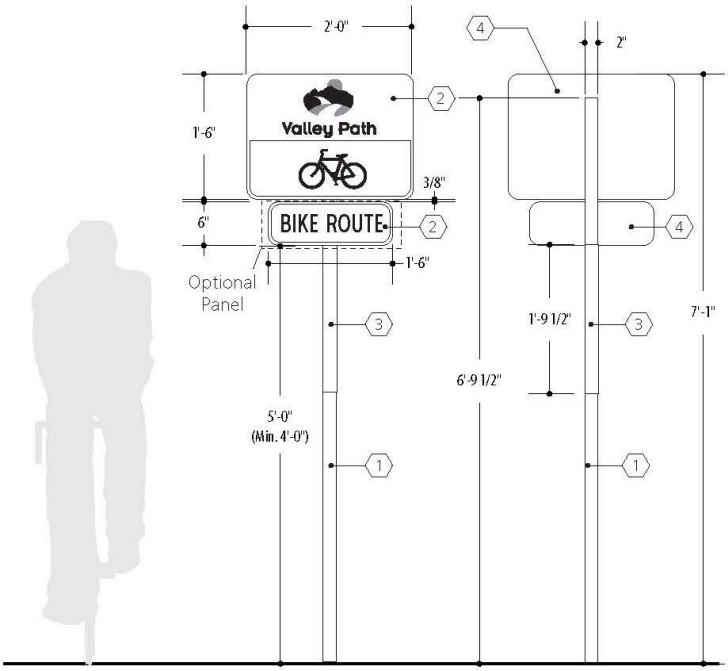


1 Color Schedule - BIKE.3
Scale: 3/8"=1'



2 Typical Layout Guidelines - BIKE.3
Scale: 1"=1'

Bike 3 Elevation



1 Elevations BIKE.3
scale: 1/2"=1'-0"

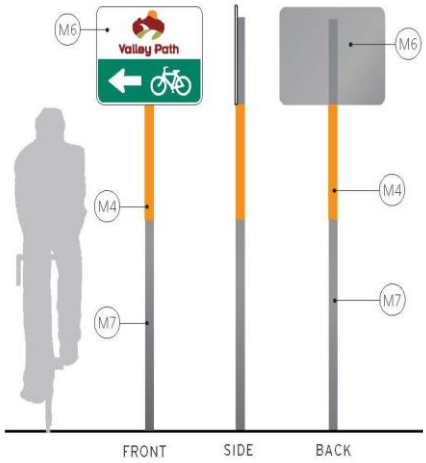
1. Unpainted aluminum 2" sq tube*
2. 0.80 aluminum panels (or greater) with reflective vinyl graphics, mechanically fastened to 2" aluminum sq tube
3. 2" wide reflective tape to best match MUTCD Standard yellow
4. Unpainted aluminum with protective clear coat applied

NOTES:
Locate sign at least 2 ft from edge of sig panel to trail edge.

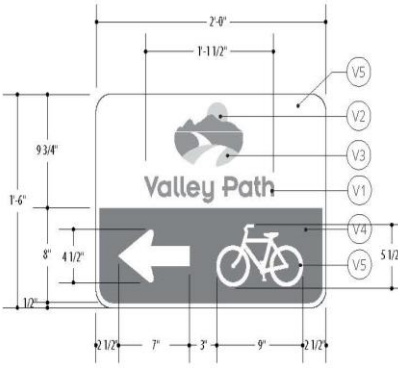
See page 2.25 for ADOT post foundatior guidelines for installing this sign.

* Or equal (2" sq aluminum tube)

Bike Sign Drawings

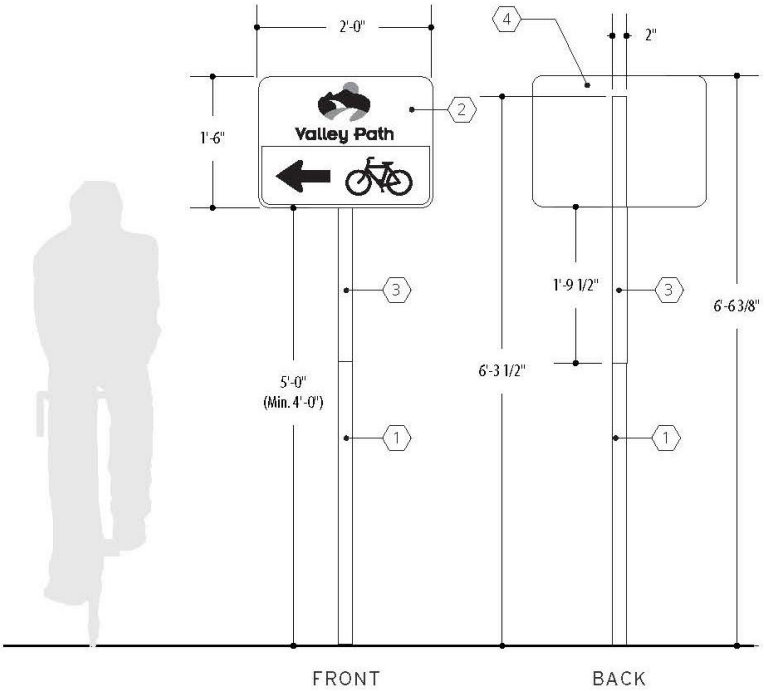


1 Color Schedule - BIKE.4
Scale: 3/8"=1'



2 Typical Layout Guidelines - BIKE.4
Scale: 1"=1'

Bike 4 Elevation



1 Elevations BIKE.4
scale: 1/2"=1'-0"

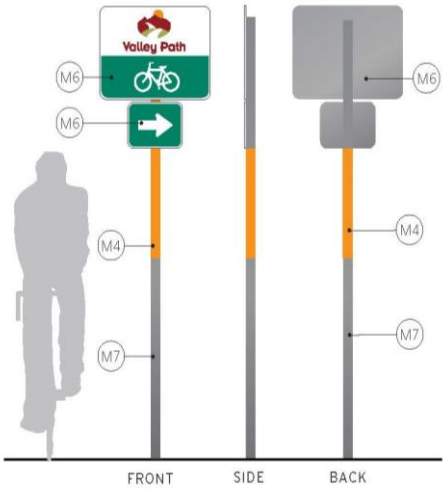
1. Unpainted aluminum 2" sq tube*
2. 0.80 aluminum panel (or greater) with reflective vinyl graphics, mechanically fastened to 2" aluminum sq tube
3. 2" wide reflective tape to best match MUTCD Standard yellow
4. Unpainted aluminum with protective clear coat applied

NOTES:
Locate sign at least 2 ft from edge of si
panel to trail edge.

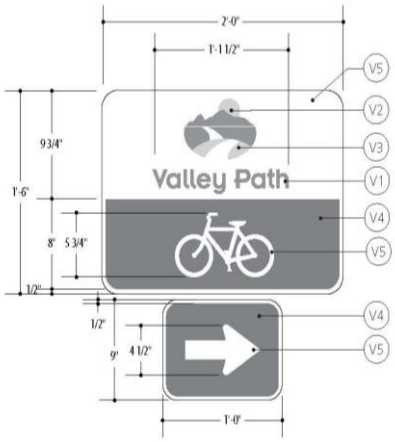
See page 2.25 for ADOT post foundati
guidelines for installing this sign.

* Or equal (2" sq aluminum tube)

Bike Sign Drawings

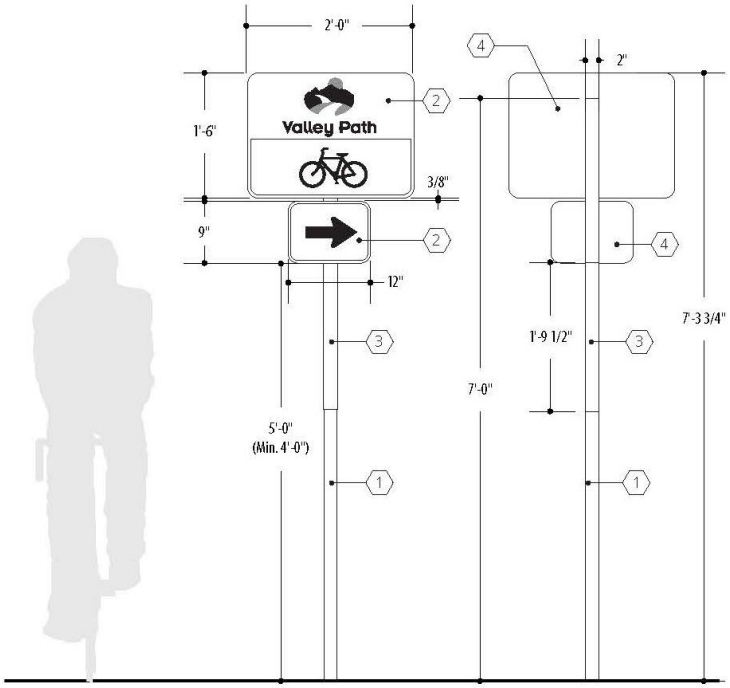


1 Color Schedule - BIKE.5
Scale: 3/8"=1'



2 Typical Layout Guidelines - BIKE.5
Scale: 1"=1'

Bike 5 Elevation



1 Elevations BIKE.5
scale: 1/2"=1'-0"

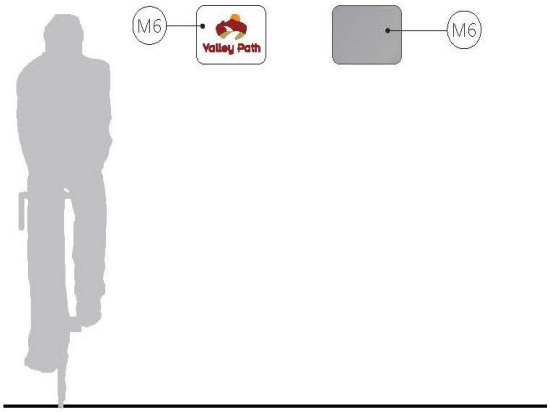
1. Unpainted aluminum 2" sq tube*
2. 0.80 aluminum panels (or greater) with reflective vinyl graphics, mechanically fastened to 2" aluminum sq tube
3. 2" wide reflective tape to best match MUTCD Standard yellow
4. Unpainted aluminum with protective clear coat applied

NOTES:
Locate sign at least 2 ft from edge of sig panel to trail edge.

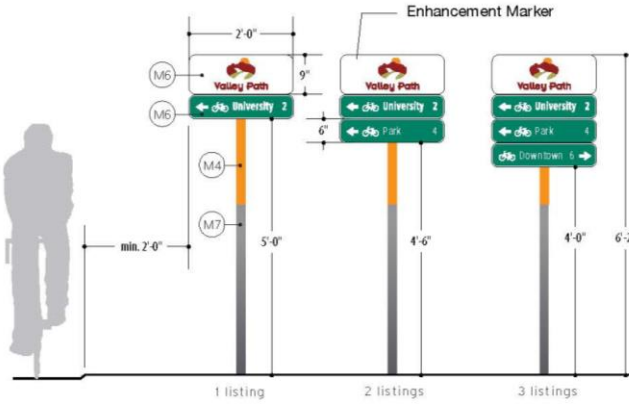
See page 2.25 for ADOT post foundatio guidelines for installing this sign.

* Or equal (2" sq aluminum tube)

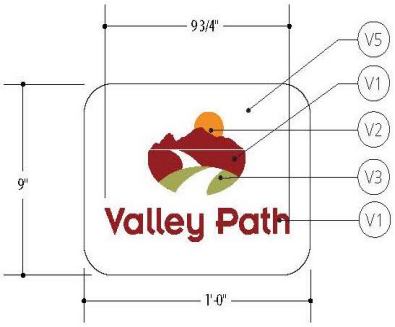
Sign Drawings



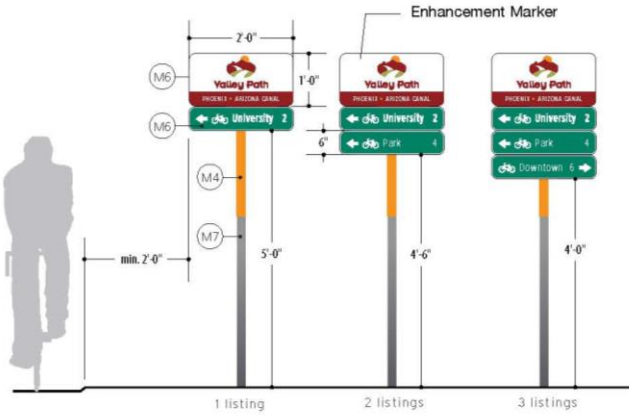
1 Color Schedule - BIKE.6
Scale: 3/8"=1'



1 Modular Option - BIKE.1
Scale: 3/8"=1'



2 Typical Layout Guidelines - BIKE.6
Scale: 1"=1'



1 Modular Option - BIKE.2
Scale: 3/8"=1'

Appendix G: T2050 Mobility Project Prioritization Criteria

Safety* (23 points max.)

Proximity of proposed project to >= 1 documented pedestrian/ bicycle injury within past 5 years			
>1.0 mi.	0.5 mi.-1.0 mi.	0.25 mi.-0.5 mi.	<0.25 mi.
0	1	5	7

Proximity of proposed project to >= 1 documented pedestrian/ bicycle fatality within past 5 years			
>1.0 mi.	0.5 mi.-1.0 mi.	0.25 mi.-0.5 mi.	<0.25 mi.
0	2	7	10

Is the project location within 0.5 miles of >= 5 pedestrian/ bicycle injuries or fatalities?			
	No	Yes	
Points	0	3	

Does the proposed project have a positive Crash Reduction Factor (CRF) assigned by FHWA's Crash Modification Factors Clearinghouse? (* = derived from FHWA CMF Clearinghouse)					
No	Yes	CRF value*	Current Condition*	Proposed Condition*	Crash Type*
0	3				

Roadway User Stress Level (15 points max.)

Stress Level based on the functional classification of the roadway on which project is recommended				
Functional classification	Highway	Arterial 5-6 lanes and/or >40 mph and/or >10,000 ADT	Collector 3-4 lanes and/or >=35 mph and/or >=5,000 ADT	Local 1-2 lanes and/or >=25 mph and/or <5,000 ADT
Points	0	5	10	15

Connectivity Between Project and Destinations* (22 points max.)

Total number of connections the project creates/improves to destinations, within 1/4 mile of the project (1/2 mi. for bike projects). This includes eliminating sidewalk and bikeway system gaps.								
# of cnxns	<3	3-5	6-8	9-11	12-14	15-17	18-19	20+
Points	0	1	2	3	4	5	6	7

Select all destination types that the project creates/improves connections to, within 1/4 mile of the project (1/2 mi. for bike projects). (Sum all points selected in this block, up to 21 points)						
Destinations	Job/transit (Employment, transit)	Food/ Dining (Restaurants, coffee shops)	Errands (Food shop-ping, other shopping)	Health/ Community (Doctor/clinic, places of worship,	Schools (Any school)	Parks (Any park)

				community centers)		
Points	(1-6) TBD by public	(1-6) TBD by public	(1-6) TBD by public	(1-6) TBD by public	(1-6) TBD by public	(1-6) TBD by public

Proximity to existing or planned bus, BRT, or light rail line			
Proximity	>1/2 mi.	1/2-1/4 mi.	1/4-0 mi.
Points	0	1	2

Public Input (20 points max.)

Public Input rank					
Rank	1 (low)	2	3	4	5 (high)
Points	4	8	12	16	20

Deliverability/Constructability (10 points max.)

Is the project included in -- or does it abut -- an existing or programmed project/DCR			
	No	Yes	
Points	0	2	

Does the project incorporate shade?					
Trees added	<5	5-10	11-15	16-20	>20
Points	0	1	2	3	4

Does the project have utility constraints (water, sewer, gas, electric, fiber, etc.)				
# of constraints	>7	7-9	4-6	0-3
Points	0	1	2	3

Ease/cost of maintenance		
	Low ease/high cost	High ease/low cost
Points	0	1

Cost (10 points max.)

Estimated total project cost (including ROW)						
Cost	>$2.5M	$2.5M-$2.0M	$2.0M-$1.5M	$1.5M-$1M	$1M-$500k	<$500k
Points	0	1	2	3	4	5

Estimated cost of required ROW takes						
ROW takes	>$1.0M	$750k-$1.0M	$500k-$750k	$250k-$500k	>$0-$250k	$0
Points	0	1	2	3	4	5

Bonus/Equity (10 points max.)

Score based on staff's initial needs-based analysis and resulting Mobility Area # rank						
Mobility Area #	11	9-10	7-8	5-6	3-4	1-2
Points	5	6	7	8	9	10

Summary

Criteria		Score
Safety*	(23)	
Roadway User Stress Level	(15)	
Connectivity*	(22)	
Public Input	(20)	
Deliverability/Constructability	(10)	
Cost	(10)	
Sub Total	(100)	
Bonus/Equity	(10)	
TOTAL		

** This is a key component of Complete Streets*