

Proposed Conditions Report

# Mobility Area 10: South Mountain Neighborhoods

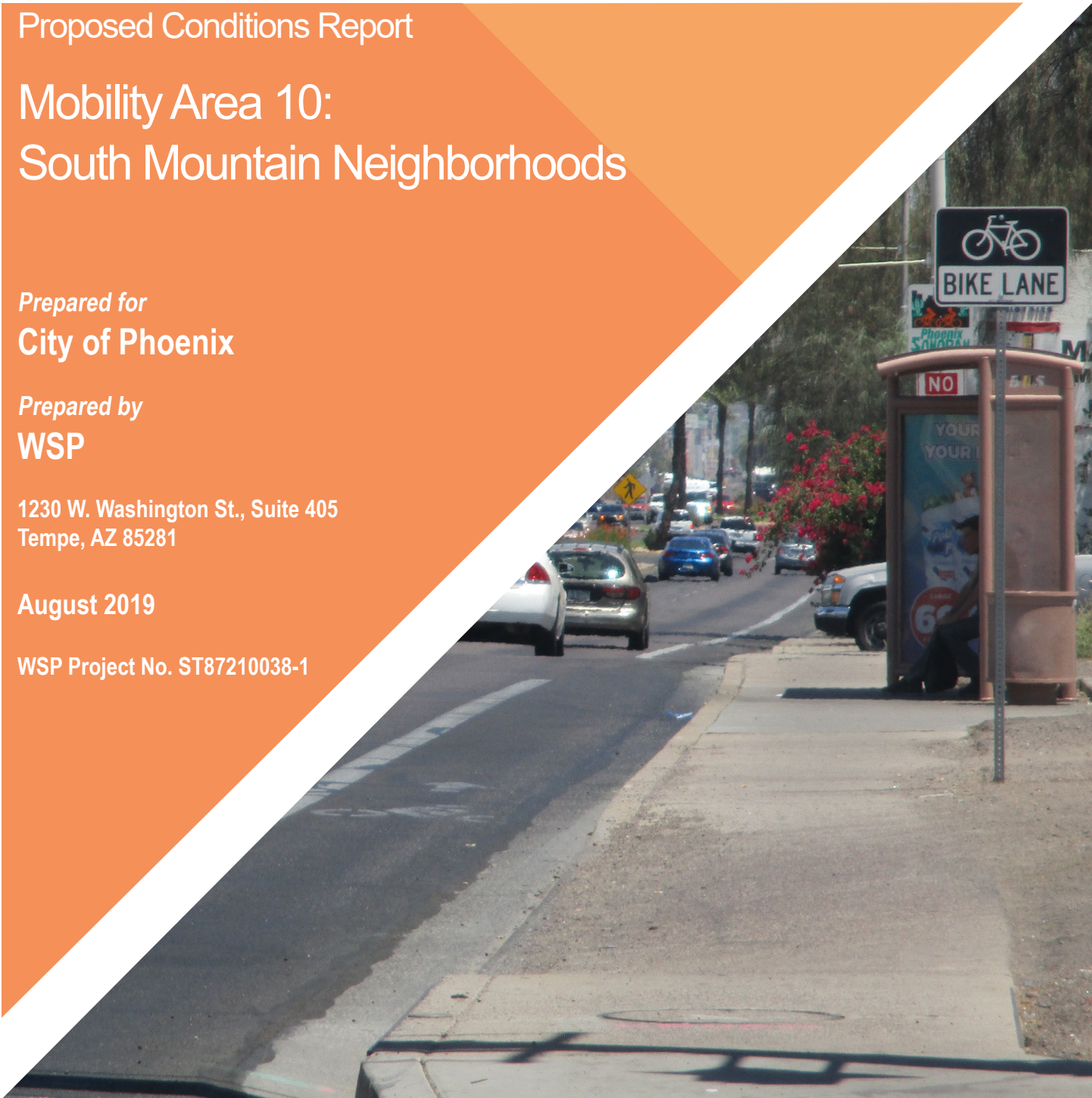
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## 1.0 Introduction

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 10 - South Mountain 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.

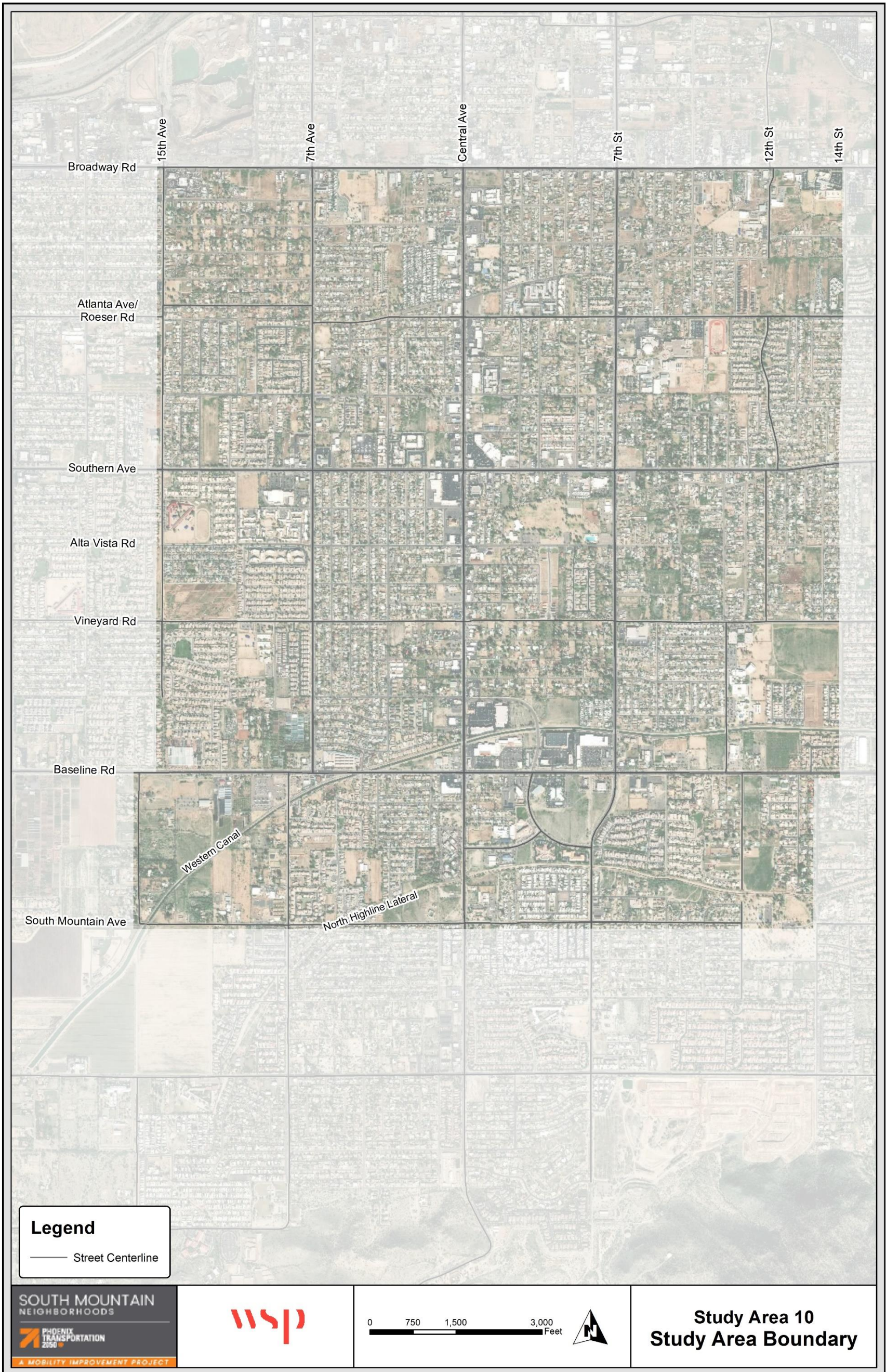
### 1.2 Overview of Mobility Area 10 – South Mountain Neighborhoods

The South Mountain Neighborhoods study area is approximately 5.6-square miles and bordered by Broadway Road to the north, South Mountain Avenue to the south, 12th Street to the east, and 15th Avenue to the west (seen in **Figure 1-1**). The South Mountain Neighborhoods study area is within City Council Districts 7 & 8, is mostly residential, and includes nearby destinations like Downtown Phoenix, Sky Harbor International Airport, the City of Tempe, and South Mountain Park preserve. The South Mountain area is known for having an agrarian character consisting of mixed-use agriculture, nurseries, and open spaces. This area is also significant due to the proposed implementation of new transit facilities, including the South Central Light Rail Expansion along Central Avenue, and Bus Rapid Transit along Baseline Road.

Field reviews were conducted as part of the CCR to document the existing conditions of infrastructure and community destinations, as well as to 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 within the study area, including residential, commercial, and agricultural. The study area has a significant number of destinations, including twelve schools, nine parks, and several employment/retail destinations. Some of the employment and retail destinations include Fry's supermarket, Mountain Park Health Center, Kroc Center, South Mountain Police Precinct, and an Arizona

Department of Economic Security office. The South Mountain Neighborhoods study area also provides connections to other areas within the City, including Downtown.

**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 in addition to gaps and constraints in mobility infrastructure.

Multiple high-ridership bus stops were identified within the South Mountain Neighborhoods study area and most of the stops were along 7<sup>th</sup> Street, Central Avenue, and 7<sup>th</sup> Avenue. Despite the data indicating high ridership, many of the stops provided limited pedestrian and bicycle access, especially from neighborhoods.

The study area also has bike routes, bike lanes, and sidewalks; however, many routes are isolated or have multiple gaps in infrastructure, reducing overall connectivity and user safety.

In addition to identifying current non-motorized infrastructure, and infrastructure gaps, the CCR assessed three attribute categories: Socioeconomic Characteristics, Existing Transportation Infrastructure, and Land Use and Infrastructure.

#### **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 most of the areas along Southern Avenue, Roeser Road, Central Avenue, 7<sup>th</sup> Avenue and 7<sup>th</sup> Street, and near schools have a high level of transit propensity. This signifies many of the residential areas, especially those near a school, rely on alternative modes of transportation, including walking, bicycling, and taking public transit.

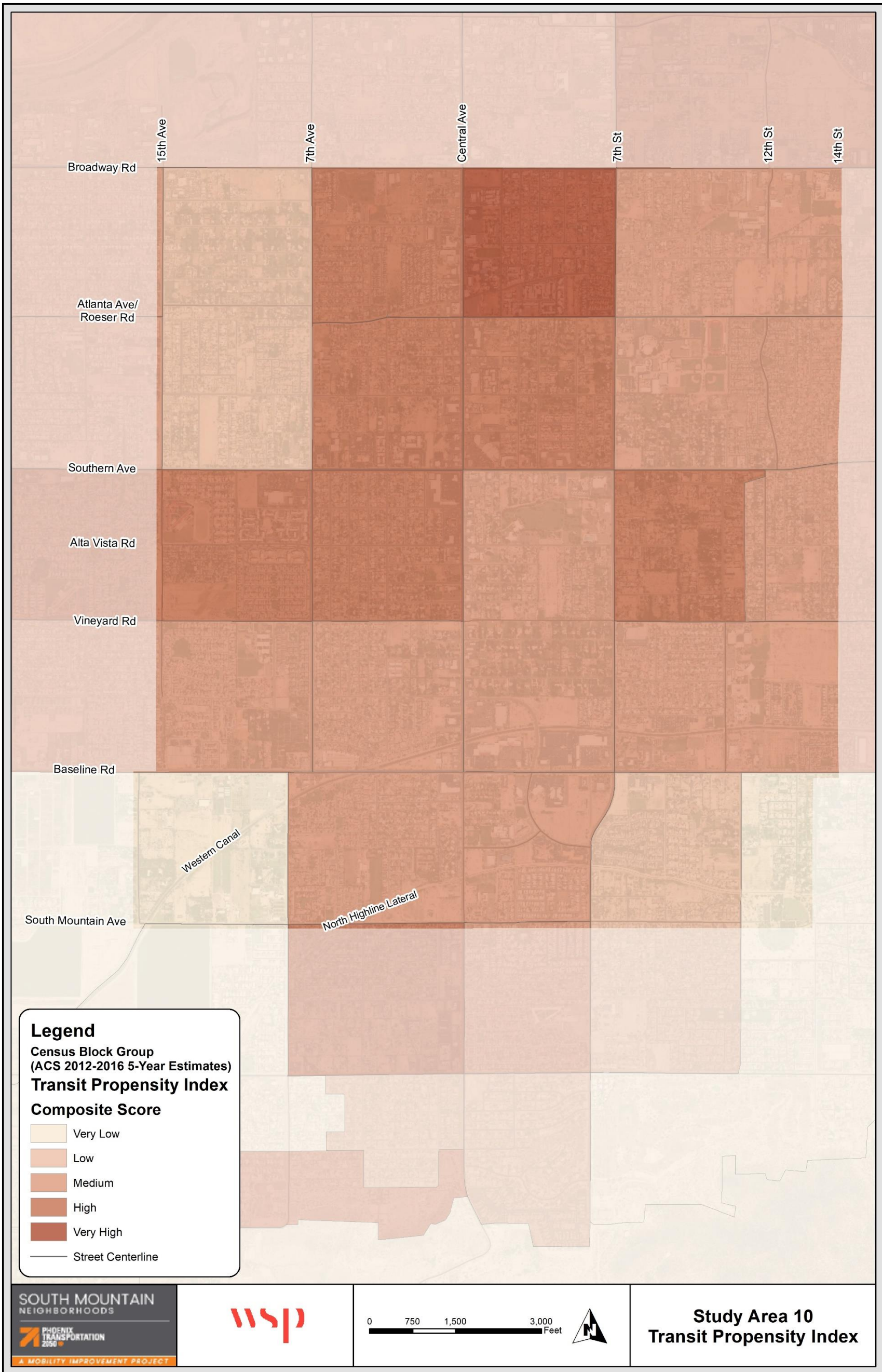
A demographic comparison of the South Mountain Neighborhoods to the City of Phoenix was completed for the CCR (See **Table 1-1**). The comparison indicates that more households have a high propensity for transit within the study area than in the City of Phoenix overall. The population density within the study area is 5,036 people per square mile, higher than the overall City average of 3,008 people per square mile. The combination of high population density, high transit propensity, and lack of mobility infrastructure indicates a need for improved pedestrian and bicycle infrastructure.

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

<b>Demographics</b>	<b>Phoenix City</b>	<b>South Mountain Neighborhoods</b>
Population Ages 17 and Younger	26.80%	32.10%
Population Ages 65 and Older	9.80%	7.69%
Low-Income Households	17.67%	26.85%
Transit-Dependent Households	8.81%	12.61%
Population Walking to Work	0.70%	0.64%
Population Bicycling to Work	1.76%	1.11%
Population Taking Public Transportation to Work	3.35%	2.38%



**Figure 1-2: Transit Propensity**



### **Existing Transportation Facilities**

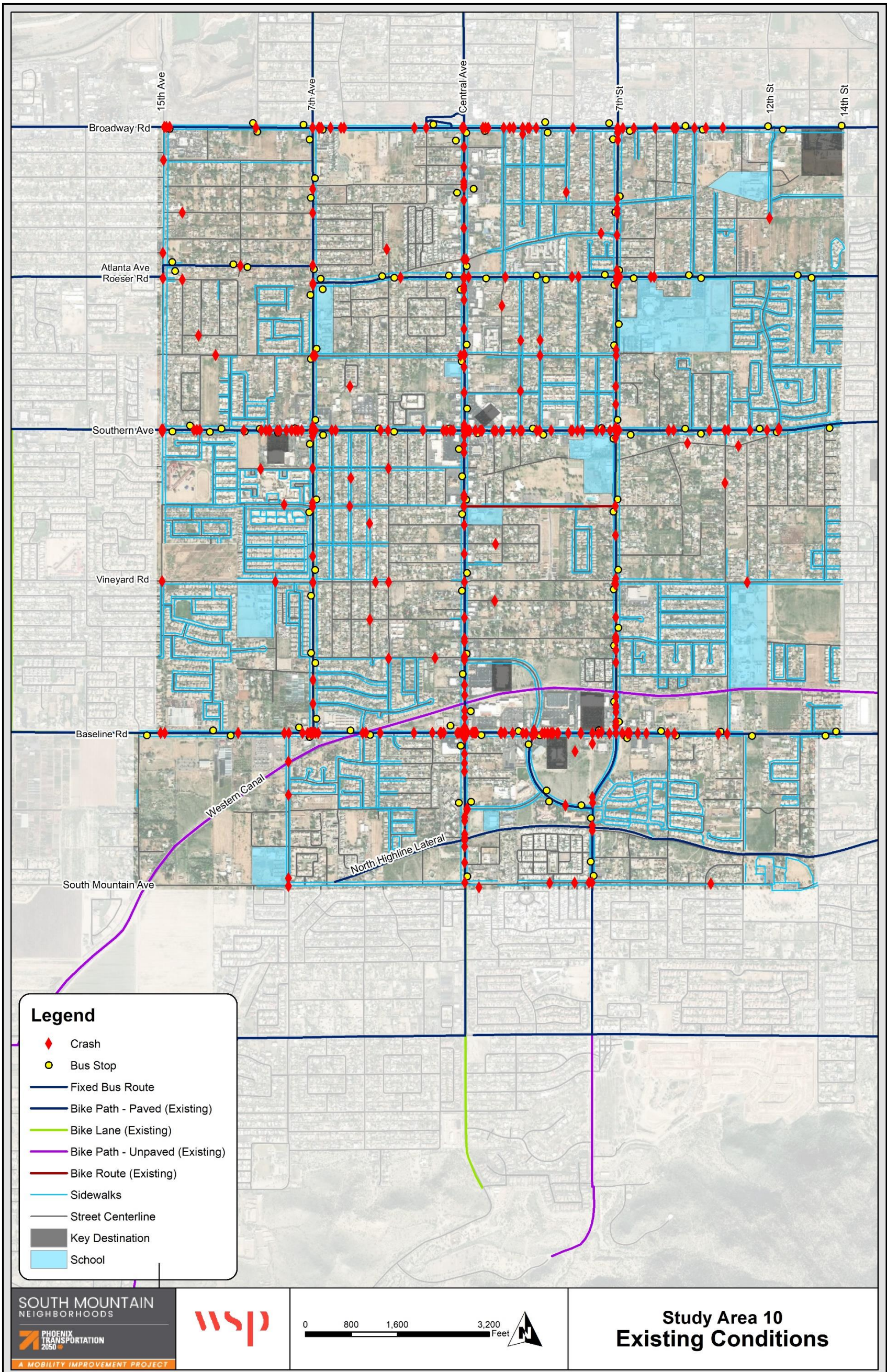
Existing multimodal transportation infrastructure was assessed to identify existing streets, right-of-way (ROW), transit facilities, bicycle and pedestrian facilities, and supportive streetscape furniture, like streetlights and shade. The analysis identified potential mobility concerns such as safety, gaps in infrastructure, and lack of crossings which indicates the South Mountain Neighborhoods have gaps in infrastructure including neighborhood sidewalks, crossings, and complete bike facilities. Police report crash data between 2013 and 2016 also indicates a high volume of pedestrian and bicycle crashes, with ninety-five crashes, including nine fatalities.

### **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 review indicated that single-family and multi-family residential are the most prominent zoning classifications within the study area, with smaller areas of ranch or farm commercial classifications.

The constraints reviewed included drainage concern areas, utilities, and environmental/cultural resources. Currently, drainage concerns exist within the study area. Drainage infrastructure such as curb and gutter will be mentioned as potential projects. Major utilities include the Western Canal and Highline Canal. Though cultural resources were located within the study area, these resources do not pose significant constraints on the proposed conditions, nor would the proposed conditions affect these resources. **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 vehicle-pedestrian and vehicle-bicycle crashes within the study area.

**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, cost estimates for both individual and bundled solution approaches, and example graphics of the recommended solutions. The second part of this section discusses cost estimates, scoring, and the delivery tier process in detail.

Project scores are based on 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. Evaluation criteria weights provide the range of potential points that a project can score based on each

scoring criteria. Overall solution scores depend on the scoring criteria and the weights applied to 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”<sup>1</sup>: 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 in the city. The Right Tree/Right Place Program will remove encroaching trees from dangerous areas 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<sup>2</sup>: This guide explain 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<sup>3</sup>: 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 (mainly 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.

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

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

<sup>3</sup> 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
94	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	7	7a	Trees & Lighting	Public Health & Safety	Plant eight trees at El Reposo Park and upgrade 18 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Alta Vista Rd. from Central Ave. to 7th St./Vineyard Rd. from 15th Ave. to 7th Ave.	\$212,380.16	1
91	Southern Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	4	4b	Trees & Lighting	Public Health & Safety	Plant seven trees to current vacant boxes and upgrade 31 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Southern Ave. from 15th Ave. to 7th St.	\$399,062.25	1
89	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	3	3b	Trees & Lighting	Public Health & Safety	Plant 10 trees along South Mountain High School and upgrade 16 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Roeser Rd. from 7th Ave. to 12th Street	\$198,103.09	1
89	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	13	13b	Trees & Lighting	Public Health & Safety	Plant eight trees and upgrade 24 streetlights with pedestrian lighting <b>(3&amp;4)</b>	12th St. from Broadway Rd. to Roser Rd and Vineyard Rd. to Baseline Rd.	\$274,596.44	1
88	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18c	Lighting	Public Health & Safety	Upgrade 21 streetlights with pedestrian lighting <b>(4)</b>	Central Ave. from Broadway Rd. to South Mountain Ave.	\$238,607.20	1
86	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	16	16b	Trees & Lighting	Public Health & Safety	Plant three trees and upgrade 10 streetlights with pedestrian lighting <b>(3&amp;4)</b>	7th St. from Broadway Rd. to Baseline Rd.	\$160,922.59	1
86	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	21	21b	Lighting	Public Health & Safety	Upgrade 16 streetlights with pedestrian lighting <b>(4)</b>	7th Ave. from Broadway Rd. to Baseline Rd.	\$197,093.58	1
84	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	13	13a	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road <b>(8)</b>	12th St. from Broadway Rd. to South Mountain Ave.	\$629,301.47	1
84	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9c	Canal Crossing	Pedestrian	Construct canal crosswalk with high-visibility ladder striping and install a HAWK signal at Western Canal <b>(8)</b>	Baseline Rd. and Western Canal	\$297,288.51	1
83	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9a	Lighting	Public Health & Safety	Upgrade 10 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Baseline Rd. from 7th Ave. to 7th St.	\$147,277.24	1
82	Southern Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	4	4a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Southern Ave. and 15th Ave., 7th Ave. & 7th St.	\$73,185.17	1
82	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	14	14b	Mid-Block Crossing	Pedestrian	Install RRFB signal with high-visibility crosswalk with ladder striping	12th St. and Southern Ave.	\$232,353.99	1
81	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	3	3a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Atlanta Ave. and 15th Ave. & 7th Ave./Roeser Rd. and 7th Ave., 7th St. & 12th St.	\$52,963.53	1
80	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Central Ave. and Broadway Rd., Roeser Rd., Southern Ave., Vineyard Rd., & Baseline Rd.	\$86,758.32	2



Score	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Total Cost	Tier
80	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	19	19	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Ensure driveways are at-grade where conflicts occur <b>(1,6&amp;7)</b>	7th Ave. from Broadway Rd. to Southern Ave.	\$38,664.77	2
79	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	16	16a	Mid-Block Crossing	Pedestrian	Install RRFB signal with high-visibility crosswalk with ladder striping	7th St. and Wier Ave.	\$248,901.68	2
79	Broadway Road: Public Health & Safety and Traffic Calming Improvements	1	1b	Lighting	Public Health & Safety	Upgrade 18 streetlights with pedestrian lighting <b>(4)</b>	Broadway Rd. from 7th Ave. to 7th St.	\$262,699.03	2
77	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18b	Canal Crossing	Pedestrian	Construct canal crosswalks with high-visibility ladder striping at the Western and Highline Canal, and install a HAWK signal at the Western Canal <b>(8)</b>	Central Ave. and Western Canal & Highline Canal	\$305,221.22	2
76	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	2	2a	Bike Lane & Bike Lane Improvements	Bicycle	Add striping, road markings with bike symbol, directional arrow, and bike lane signs <b>(8)</b>	Atlanta Ave./Roeser Rd. from 15th Ave. to 12th St.	\$464,778.76	2
76	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9b	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Baseline Rd. and 15th Ave., 7th Ave., 7th St. & 12th St.	\$69,906.68	2
75	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	7	7b	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Alta Vista Rd. and 7th Ave./Vineyard Rd. and 15th Ave. 7th St. & 12th St.	\$50,621.62	2
75	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	17	17	Canal Crossing and Bridge	Pedestrian	Construct RRFB and high-visibility crosswalk with ladder striping at the Highline Canal and Western Canal and construct bridge over Highline Canal <b>(8)</b>	7th St. and Highline Canal, Western Canal	\$503,478.54	2
74	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	12	12	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur <b>(1,6&amp;7)</b>	12th St. from Broadway Rd. to South Mountain Ave.	\$1,528,066.47	2
73	15th Avenue: Pedestrian, Bicycle, and Public Health & Safety	23	23	Trees & Lighting	Public Health & Safety	Plant five trees and upgrade 17 streetlights with pedestrian lighting <b>(3&amp;4)</b>	15th Ave. from Broadway Rd. to Baseline Rd.	\$206,135.07	2
72	South Mountain Avenue: Pedestrian and Public Health & Safety	10	10	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur <b>(1,6&amp;7)</b>	South Mountain Ave. from 15th Ave. to 12th St.	\$24,564.39	2
72	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	20	20	Bike Lane Improvements	Bicycle	Add striping, road markings with bike symbol, directional arrow, and bike lane signs <b>(8)</b>	7th Ave. from Broadway Rd to South Mountain Ave.	\$813,651.95	2
71	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	2	2b	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur <b>(1,6&amp;7)</b>	Atlanta Avenue from 15th Avenue to 7th Avenue	\$2,265,622.83	3
71	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	14	14a	Canal Bridge	Pedestrian	Construct pedestrian bridge over Highline Canal to provide accessibility to 12th St. <b>(8)</b>	12th St. and Highline Canal	\$433,480.95	3

Score	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Total Cost	Tier
71	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	8	8	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path along north side of Baseline Rd. (2)	Baseline Rd. from 15th Ave. to 12th St.	\$6,138,875.81	3
70	Broadway Road: Public Health & Safety and Traffic Calming Improvements	1	1a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Broadway Rd. and 15th Ave. & 7th St.	\$123,971.34	3
70	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	6	6	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur (1,6&7)	Vineyard Rd. from 15th Ave. to Central Ave.	\$1,135,232.05	3
70	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	15	15	Bike Lane and Bike Lane Improvements	Bicycle	Add striping, road markings with bike symbol, directional arrow, and bike lane signs (8)	7th St. from Broadway Rd. to South Mountain Ave.	\$1,203,732.94	3
67	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	21	21a	Canal Crossing	Pedestrian	Construct a canal crosswalk with high-visibility ladder striping and install HAWK signal (8)	7th Ave. and Western Canal	\$297,096.28	3
65	15th Avenue: Pedestrian, Bicycle, and Public Health & Safety	22	22b	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path to provide continuous access to 15th Ave (2)	15th Ave. from Vineyard Rd. to Baseline Rd.	\$148,941.31	3
63	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	5	5	Bike Route & Advisory Bike Lane	Bicycle	Paint shared lane markings on Alta Vista Rd. until 7th St. to indicate vehicles and bicycles share the road and paint an advisory bike lane on Vineyard Rd. at 7th St. (8)	Alta Vista Rd. from 15th Ave. to 7th St./Vineyard Rd. from 15th Ave. to 12th St.	\$856,035.46	3
59	South Mountain Avenue: Pedestrian and Public Health & Safety	11	11	Lighting	Public Health & Safety	Upgrade four streetlights with pedestrian lighting (4)	South Mountain Ave. from 15th Ave. to Central Ave.	\$77,394.81	3
56	15th Avenue: Pedestrian, Bicycle, and Public Health & Safety	22	22a	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road (8)	15th Ave. from Broadway Rd. to Vineyard Rd.	\$232,404.38	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

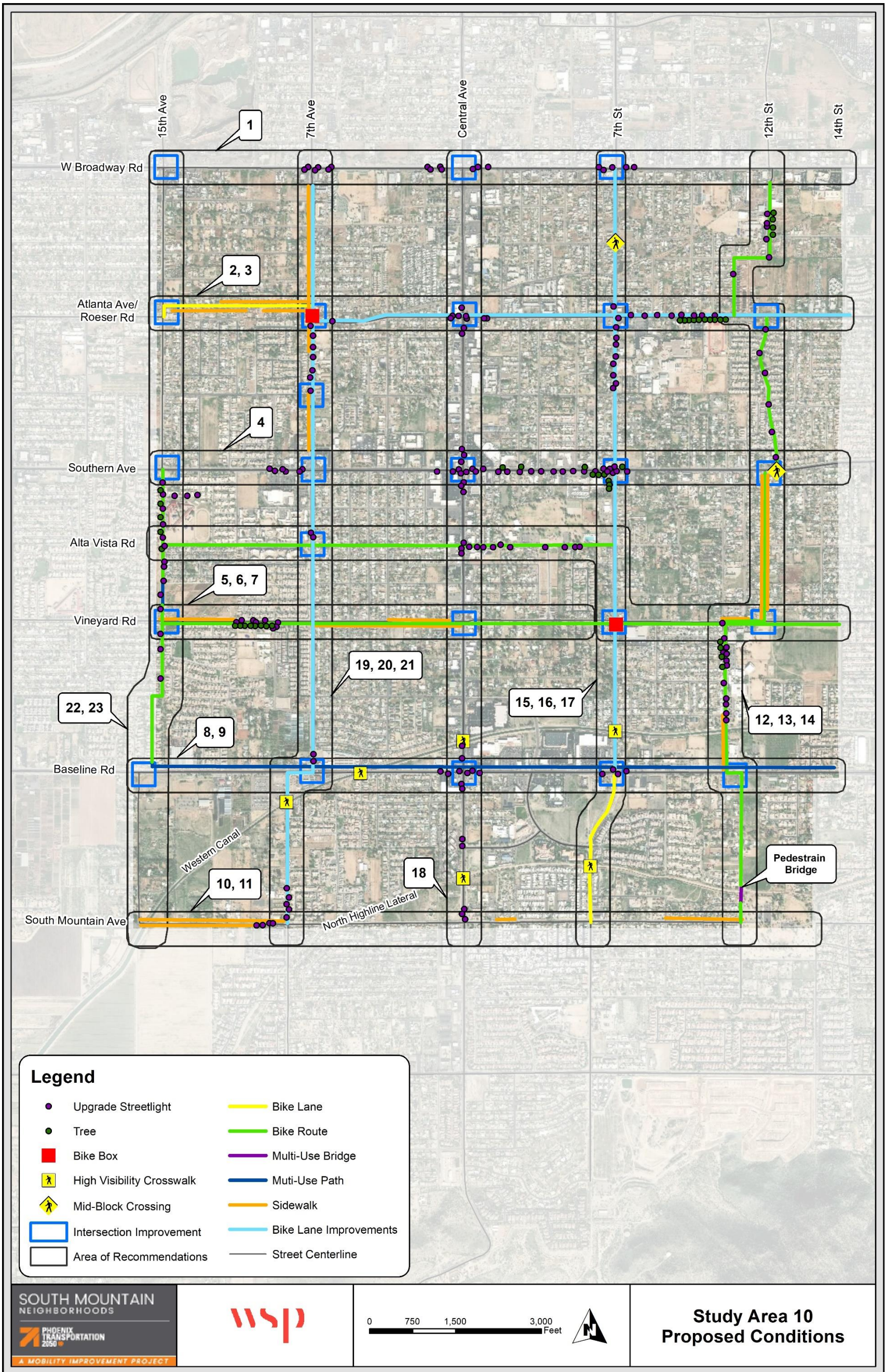
Average Score	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Total Bundle Cost	Tier
87	Southern Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	4	4a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Southern Ave. and 15th Ave., 7th Ave. & 7th St.	\$407,997.42	1
	Southern Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	4	4b	Trees & Lighting	Public Health & Safety	Plant seven trees to current vacant boxes and upgrade 31 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Southern Ave. from 15th Ave. to 7th St.		
87	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	13	13a	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road <b>(8)</b>	12th St. from Broadway Rd. to South Mountain Ave.	\$883,710.66	1
	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	13	13b	Trees & Lighting	Public Health & Safety	Plant eight trees and upgrade 24 streetlights with pedestrian lighting <b>(3&amp;4)</b>	12th St. from Broadway Rd. to Roeser Rd and Vineyard Rd. to Baseline Rd.		
85	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	3	3a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Atlanta Ave. and 15th Ave. & 7th Ave./Roeser Rd. and 7th Ave., 7th St. & 12th St.	\$226,816.61	1
	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	3	3b	Trees & Lighting	Public Health & Safety	Plant 10 trees along South Mountain High School and upgrade 16 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Roeser Rd. from 7th Ave. to 12th Street		
85	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	7	7a	Trees & Lighting	Public Health & Safety	Plant eight trees at El Reposo Park and upgrade 18 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Alta Vista Rd. from Central Ave. to 7th St./Vineyard Rd. from 15th Ave. to 7th Ave.	\$218,751.78	1
	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	7	7b	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Alta Vista Rd. and 7th Ave./Vineyard Rd. and 15th Ave. 7th St. & 12th St.		
83	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	16	16a	Mid-Block Crossing	Pedestrian	Install RRFB signal with high-visibility crosswalk with ladder striping	7th St. and Wier Ave.	\$345,574.27	1
	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	16	16b	Trees & Lighting	Public Health & Safety	Plant three trees and upgrade 10 streetlights with pedestrian lighting <b>(3&amp;4)</b>	7th St. from Broadway Rd. to Baseline Rd.		
82	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Central Ave. and Broadway Rd., Roeser Rd., Southern Ave., Vineyard Rd., & Baseline Rd.	\$502,086.75	1
	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18b	Canal Crossing	Pedestrian	Construct canal crosswalks with high-visibility ladder striping at the Western and Highline Canal, and install a HAWK signal at the Western Canal <b>(8)</b>	Central Ave. and Western Canal & Highline Canal		
	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18c	Lighting	Public Health & Safety	Upgrade 21 streetlights with pedestrian lighting <b>(4)</b>	Central Ave. from Broadway Rd. to South Mountain Ave.		

Average Score	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Total Bundle Cost	Tier
81	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9a	Lighting	Public Health & Safety	Upgrade 10 streetlights with pedestrian lighting (3&4)	Baseline Rd. from 7th Ave. to 7th St.	\$385,972.43	2
	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9b	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Baseline Rd. and 15th Ave., 7th Ave., 7th St. & 12th St.		
	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9c	Canal Crossing	Pedestrian	Construct canal crosswalk with high-visibility ladder striping and install a HAWK signal at Western Canal (8)	Baseline Rd. and Western Canal		
80	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	19	19	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Ensure driveways are at-grade where conflicts occur (1,6&7)	7th Ave. from Broadway Rd. to Southern Ave.	\$38,664.77	2
77	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	14	14a	Canal Bridge	Pedestrian	Construct pedestrian bridge over Highline Canal to provide accessibility to 12th St. (8)	12th St. and Highline Canal	\$641,234.90	2
	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	14	14b	Mid-Block Crossing	Pedestrian	Install RRFB signal with high-visibility crosswalk with ladder striping	12th St. and Southern Ave.		
77	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	21	21a	Canal Crossing	Pedestrian	Construct a canal crosswalk with high-visibility ladder striping and install HAWK signal (8)	7th Ave. and Western Canal	\$415,689.87	2
	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	21	21b	Lighting	Public Health & Safety	Upgrade 16 streetlights with pedestrian lighting (4)	7th Ave. from Broadway Rd. to Baseline Rd.		
75	Broadway Road: Public Health & Safety and Traffic Calming Improvements	1	1a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Broadway Rd. and 15th Ave. & 7th St.	\$322,420.38	2
	Broadway Road: Public Health & Safety and Traffic Calming Improvements	1	1b	Lighting	Public Health & Safety	Upgrade 18 streetlights with pedestrian lighting (4)	Broadway Rd. from 7th Ave. to 7th St.		
75	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	17	17	Canal Crossing and Bridge	Pedestrian	Construct RRFB and high-visibility crosswalk with ladder striping at the Highline Canal and Western Canal and construct bridge over Highline Canal (8)	7th St. and Highline Canal, Western Canal	\$503,478.54	2
74	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	2	2a	Bike Lane & Bike Lane Improvements	Bicycle	Add striping, road markings with bike symbol, directional arrow, bike box, and bike lane signs (8)	Atlanta Ave./Roeser Rd. from 15th Ave. to 12th St.	\$2,730,401.59	2
	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	2	2b	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur (1,6&7)	Atlanta Avenue from 15th Avenue to 7th Avenue		
74	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	12	12	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur (1,6&7)	12th St. from Broadway Rd. to South Mountain Ave.	\$1,528,066.47	2
73	15th Avenue: Pedestrian, Bicycle, and Public Health & Safety	23	23	Trees & Lighting	Public Health & Safety	Plant five trees and upgrade 17 streetlights with pedestrian lighting (3&4)	15th Ave. from Broadway Rd. to Baseline Rd.	\$206,135.07	3

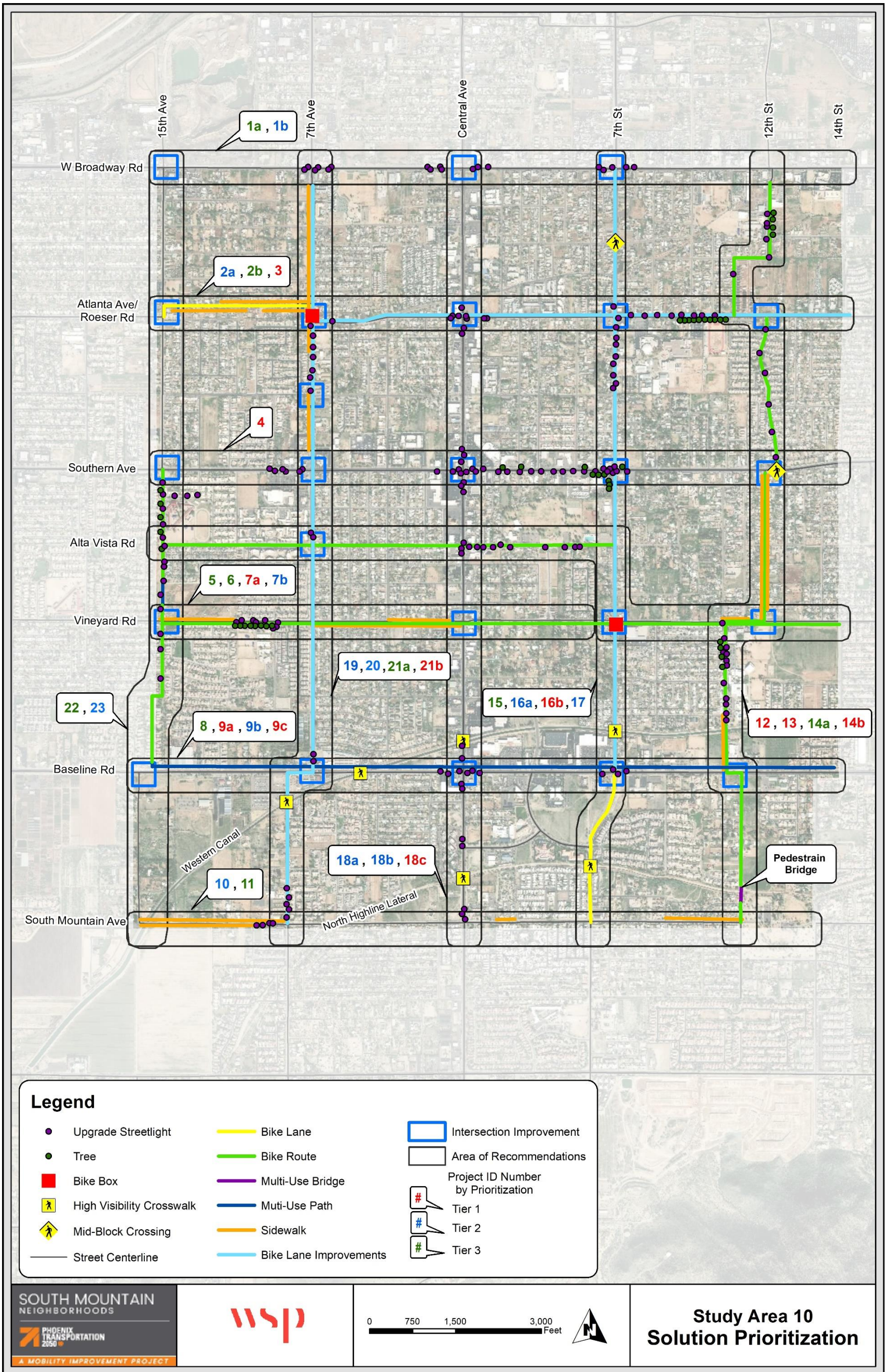
Average Score	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Total Bundle Cost	Tier
72	South Mountain Avenue: Pedestrian and Public Health & Safety	10	10	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur <b>(1,6&amp;7)</b>	South Mountain Ave. from 15th Ave. to 12th St.	\$24,564.39	3
72	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	20	20	Bike Lane Improvements	Bicycle	Add striping, road markings with bike symbol, directional arrow, and bike lane signs <b>(8)</b>	7th Ave. from Broadway Rd to South Mountain Ave.	\$813,651.95	3
71	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	8	8	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path along north side of Baseline Rd. <b>(2)</b>	Baseline Rd. from 15th Ave. to 12th St.	\$6,138,875.81	3
70	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	6	6	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur <b>(1,6&amp;7)</b>	Vineyard Rd. from 15th Ave. to Central Ave.	\$1,135,232.05	3
70	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	15	15	Bike Lane and Bike Lane Improvements	Bicycle	Add striping, road markings with bike symbol, directional arrow, and bike lane signs <b>(8)</b>	7th St. from Broadway Rd. to South Mountain Ave.	\$1,203,732.94	3
63	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	5	5	Bike Route & Advisory Bike Lane	Bicycle	Paint shared lane markings on Alta Vista Rd. until 7th St. to indicate vehicles and bicycles share the road, bike box, and paint an advisory bike lane on Vineyard Rd. at 7th St. <b>(8)</b>	Alta Vista Rd. from 15th Ave. to 7th St./Vineyard Rd. from 15th Ave. to 12th St.	\$856,035.46	3
61	15th Avenue: Pedestrian, Bicycle, and Public Health & Safety	22	22a	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road <b>(8)</b>	15th Ave. from Broadway Rd. to Vineyard Rd.	\$357,095.69	3
	15th Avenue: Pedestrian, Bicycle, and Public Health & Safety	22	22b	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path to provide continuous access to 15th Ave <b>(2)</b>	15th Ave. from Vineyard Rd. to Baseline Rd.		
59	South Mountain Avenue: Pedestrian and Public Health & Safety	11	11	Lighting	Public Health & Safety	Upgrade four streetlights with pedestrian lighting <b>(4)</b>	South Mountain Ave. from 15th Ave. to Central Ave.	\$77,394.81	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.

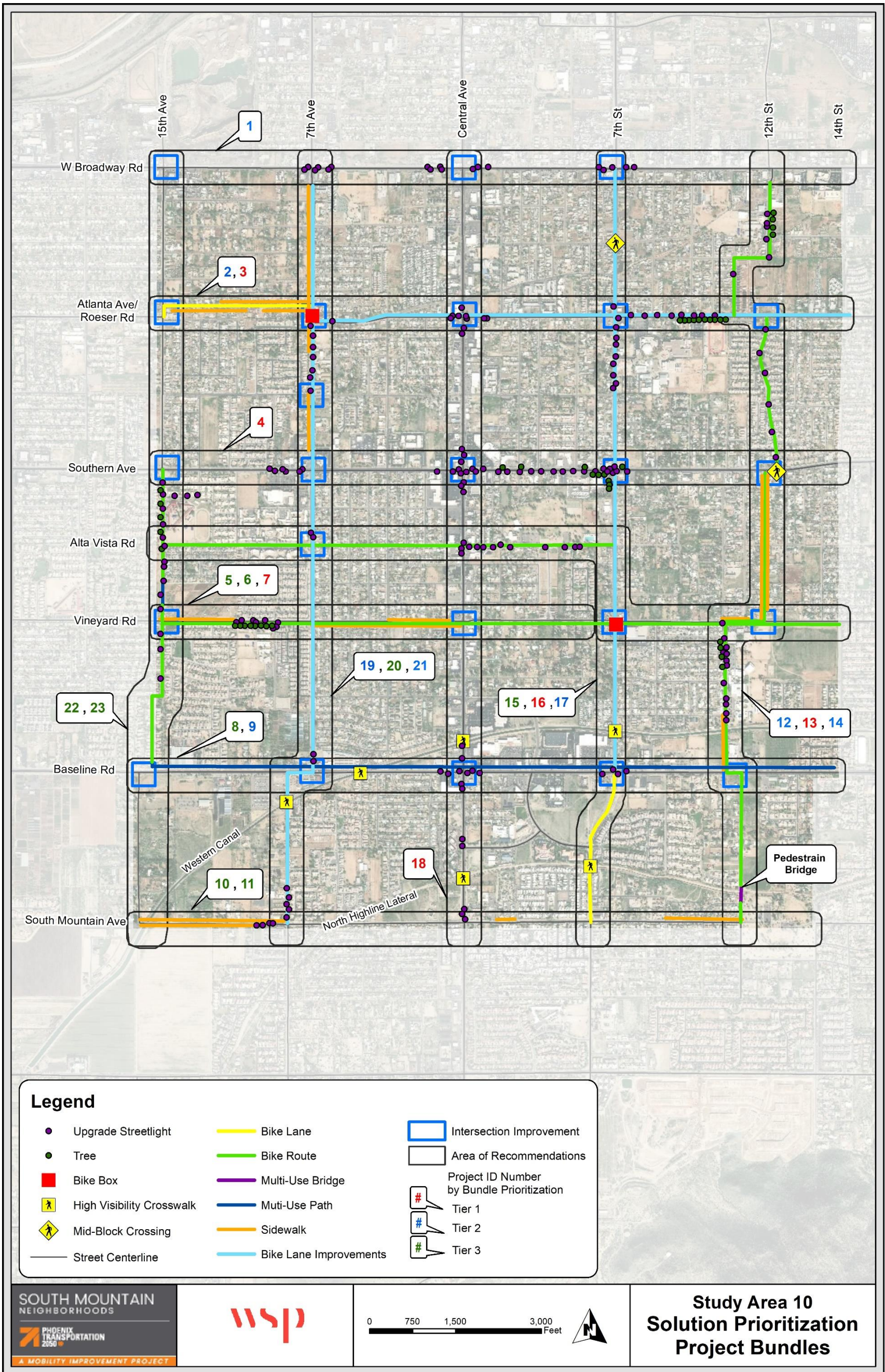
Figure 2-1: Proposed Conditions



**Figure 2-2: Proposed Conditions Prioritized by Tier**



**Figure 2-3: Proposed Bundles Prioritized by Tier**

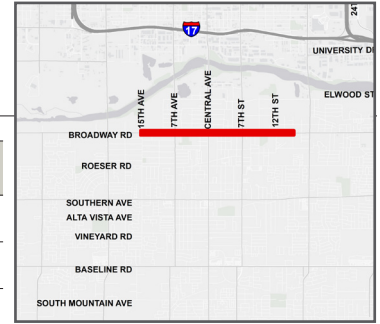




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**Project Name**

Broadway Road: Public Health & Safety and Traffic Calming Improvements



**► Destinations**

AZ Dept. of Economic Security	Salvation Army Kroc Center
Hayden Park & Recreation Center	Irene Lopez Elementary School
Arizona @ Work	Nueve Park
Kipok Park	

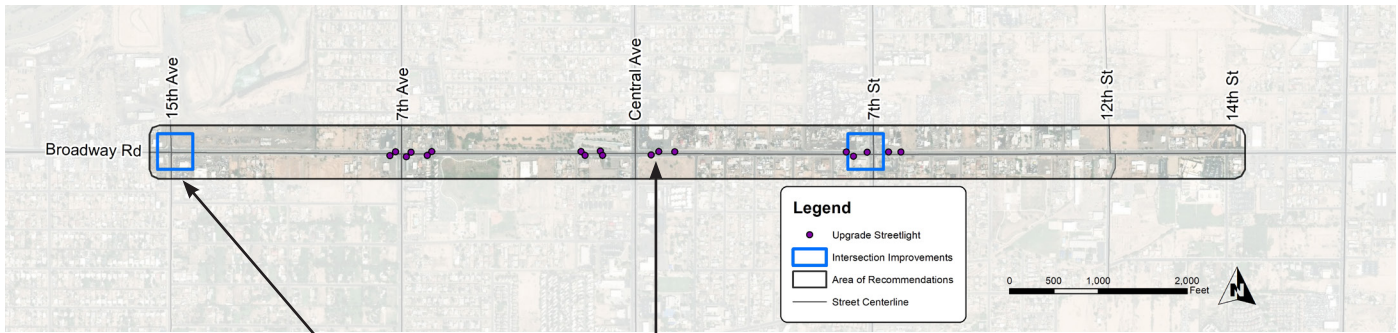
ID	Type	Current Conditions	Recommendation	Description	Benefits
1a		Lack of clearly marked crosswalks at intersections	Intersection Improvements	Upgrade crosswalks with high-visibility using ladder striping	Improves safety and visibility of people crossing the street
1b		Lack of street lights	Lighting	Upgrade 18 streetlights with pedestrian lighting	Provides additional security and visibility by illuminating dark areas of the corridor

**► Project Delivery Constraints**

N/A

Project Costs	1a	1b	Bundle 1
Design	\$90,145.99	\$101,739.55	\$127,635.54
ROW	\$0	\$0	\$0
Construction Phase	\$33,825.35	\$160,959.48	\$194,784.83
<b>TOTAL</b>	<b>\$123,971.34</b>	<b>\$262,699.03</b>	<b>\$322,420.38</b>

Existing condition photos with examples of recommendations



Lack of clearly marked crosswalks



Lack of street lights



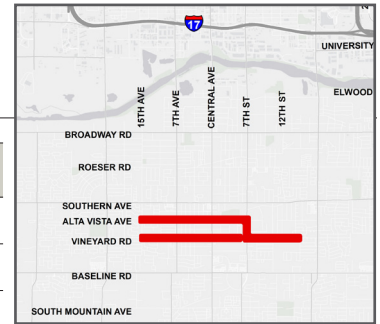
Example of high-visibility crosswalk



Example of street lights

**Project Name**

Atlanta Avenue/Roeser Road: Pedestrian, Bicycle and Traffic Calming Improvements



**► Destinations**

Roesley Park	South Phoenix Youth Center
Sunland Elementary School	South Mountain High School
Fire Station 22	Peace Park

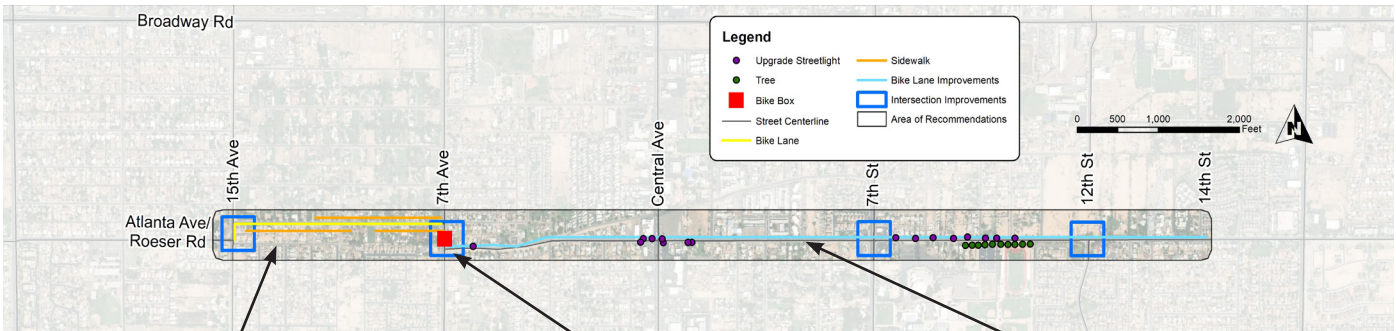
ID	Type	Current Conditions	Recommendation	Description	Benefits
2a		No turning facilities for bicyclists to transition from 7th Avenue to Atlanta Avenue/Roeser Road	Bike Lane	Add striping, lane markings with bike symbol, directional arrow, and bike lane signs along Atlanta Ave. and make bike lane striping and lane markings continuous along Roeser Rd.	Provides EB/WB route for bicyclists
2b		Gaps in sidewalk infrastructure	Sidewalks	Construct six-foot sidewalks with ADA ramps, curb and gutter	Provides continuous and connected sidewalks along the corridor
3a		Lack of clearly marked crosswalk at intersections	Intersection Improvements	Upgrade crosswalks with high-visibility using ladder striping	Improves safety and visibility of people crossing the street
3b		Lack of trees and lights	Trees & Lighting	Plant 10 trees along South Mountain High School and upgrade 16 streetlights with pedestrian lighting	Provides additional security and visibility for pedestrians and bicyclists

**► Project Delivery Constraints**

Bike improvements will require additional intersection treatments and will require lane configuration.

Project Costs	2a	2b	Bundle 2	3a	3b	Bundle 3
Design	\$401,349.87	\$401,349.87	\$508,959.81	\$44,978.20	\$57,107.60	\$77,835.80
ROW	\$0	\$6,040.00	\$6,040.00	\$0	\$0	\$0
Construction Phase	\$357,168.82	\$1,858,232.96	\$2,215,401.78	\$7,985.33	\$140,995.48	\$148,980.82
<b>TOTAL</b>	<b>\$464,778.76</b>	<b>\$2,265,622.83</b>	<b>\$2,730,401.59</b>	<b>\$52,963.53</b>	<b>\$198,103.09</b>	<b>\$226,816.61</b>

Existing condition photos with examples of recommendations



Gaps in sidewalk infrastructure



No turning facilities for bicyclists to transition from 7th Avenue to Atlanta



Gaps in bike lane infrastructure



Example of sidewalk



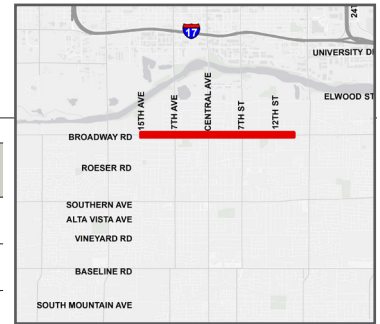
Example of intersection with bike box



Example of a bike lane

**Project Name**

Southern Avenue: Pedestrian, Bicycle, Traffic Calming and Public Health & Safety Improvements



**► Destinations**

El Reposo Park	South Mountain Senior Center
Ocotillo Library	Food City
South Mountain Precinct	Roosevelt Elementary School
Los Altos Ranch Market	Roosevelt Swimming Pool

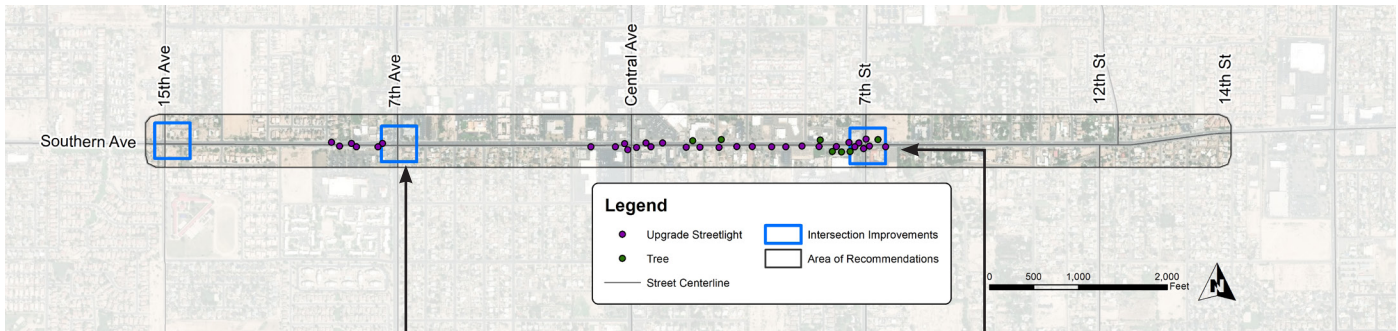
ID	Type	Current Conditions	Recommendation	Description	Benefits
4a		Lack of clearly marked crosswalks at intersections	Intersection Improvements	Upgrade crosswalks with high-visibility using ladder striping	Improves safety and visibility of people crossing the street
4b		Lack of trees and lights	Trees & Lighting	Plant seven trees within vacant boxes and upgrade 31 streetlights with pedestrian lighting	Provides additional security and visibility for pedestrians and bicyclists

**► Project Delivery Constraints**

N/A

Project Costs	4a	4b	Bundle 4
Design	\$64,996.72	\$113,135.51	\$113,882.23
ROW	\$0	\$0	\$0
Construction Phase	\$8,188.46	\$285,926.74	\$294,115.19
<b>TOTAL</b>	<b>\$73,185.17</b>	<b>\$399,062.25</b>	<b>\$407,997.42</b>

Existing condition photos with examples of recommendations



Lack of clearly marked crosswalks



Lack of street lights



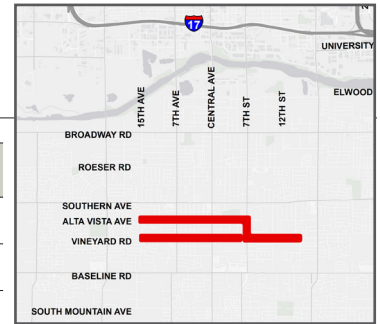
Example of high-visibility crosswalk



Example of street lights

## Project Name

Alta Vista Road/Vineyard Road: Pedestrian, Bicycle and Public Health & Safety Improvements



### ► Destinations

Roosevelt Elementary School	John F. Kennedy Elementary School
South Mountain Senior Center	St. Catherine of Sienna Catholic School
Food City	El Reposo Park
Roosevelt Swimming Pool	

ID	Type	Current Conditions	Recommendation	Description	Benefits
5		No turning facilities for bicyclists to transition from 7th St. to Vineyard Rd./Alta Vista Rd.	Bike Route	Paint shared lane markings on Alta Vista Rd. until 7th St. and paint an advisory bike lane on Vineyard Rd. at 7th St.	Provides EB/WB route for bicyclists
6		Gaps in sidewalk infrastructure	Sidewalks	Construct six-foot sidewalks with ADA ramps, curb and gutter	Provides continuous and connected sidewalks along the corridor
7a		Lack of trees and lights	Trees & Lighting	Plant eight trees at El Reposo Park and upgrade 18 streetlights with pedestrian lighting	Provides additional security and visibility for pedestrians and bicyclists
7b		Lack of clearly marked crosswalks at intersections	Intersection Improvements	Upgrade crosswalks with high-visibility using ladder striping	Improves safety and visibility of people crossing the street

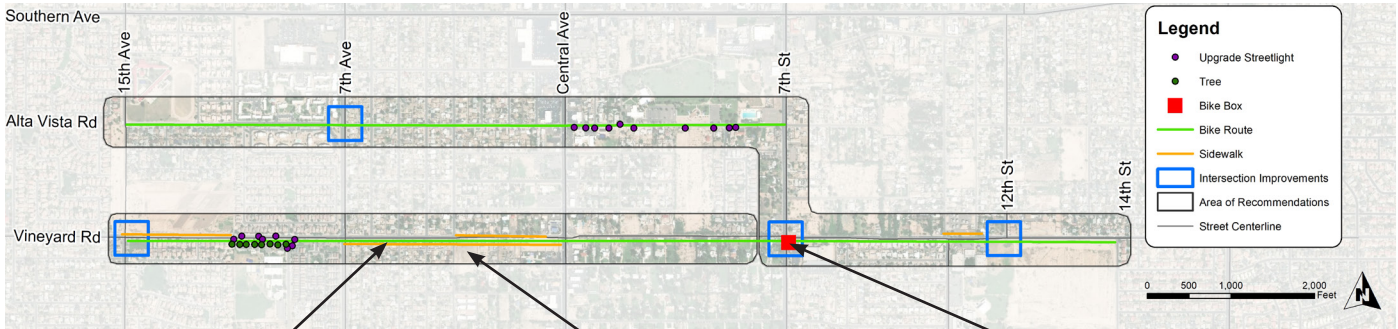
### ► Project Delivery Constraints

N/A

Project Costs	5	6	7a	7b	Bundle 7
Design	\$174,221.06	\$186,381.10	\$58,300.75	\$44,782.48	\$58,833.23
ROW	\$0	\$109,928.00	\$0	\$0	\$0
Construction Phase	\$681,814.40	\$838,922.95	\$154,079.42	\$5,839.14	\$159,918.55
<b>TOTAL</b>	<b>\$856,035.46</b>	<b>\$1,135,232.05</b>	<b>\$212,380.16</b>	<b>\$50,621.62</b>	<b>\$218,751.78</b>



Existing condition photos with examples of recommendations



Gaps in sidewalk infrastructure



No EB/WB connection for bicyclists



No directional indicators for bicyclists movements to 7th St., Alta Vista Rd.,



Example of sidewalk



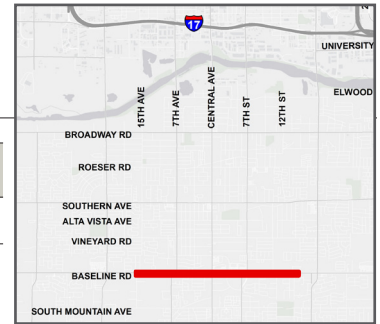
Example of advisory bike lane



Example of bike box

**Project Name**

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



**► Destinations**

Mountain Park Health Center Baseline Clinic      Fry's Food

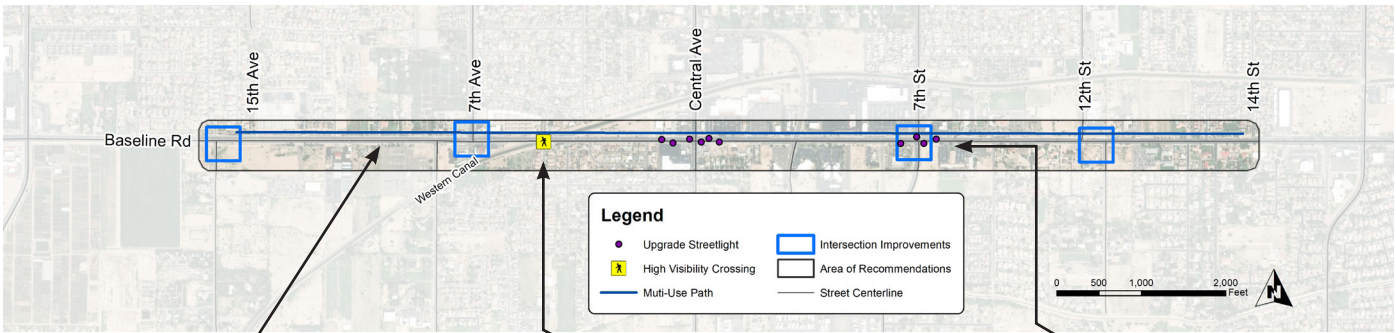
ID	Type	Current Conditions	Recommendation	Description	Benefits
8		No EB/WB route for bicyclists	Multi-Use Path	Upon easement acquisition, construct multi-use path along north side of Baseline Rd.	Provides bike and pedestrian facilities along future BRT corridor
9a		Lack of street lights	Lighting	Upgrade 10 streetlights with pedestrian lighting	Provides additional security and visibility by illuminating dark areas of the corridor
9b		Lack of clearly marked crosswalk at intersections	Intersection Improvements	Upgrade crosswalk with high-visibility ladder striping	Improves safety and visibility of people crossing the street
9c		Lack of clearly marked crossing at Western Canal	Canal Crossing	Construct canal crosswalk with high-visibility ladder striping and install a HAWK signal at Western Canal	Improves safety and visibility of pedestrians and bicyclist crossing at Western Canal

**► Project Delivery Constraints**

Multi-use path will require ROW configuration.

Project Costs	8	9a	9b	9c	Bundle 9
Design	\$1,060,766.39	\$71,188.64	\$64,722.73	\$83,725.18	\$91,136.55
ROW	\$75,500.00	\$0	\$0	\$0	
Construction Phase	\$5,002,609.43	\$76,088.60	\$5,183.95	\$213,563.33	\$294,835.88
<b>TOTAL</b>	<b>\$6,138,875.81</b>	<b>\$147,277.24</b>	<b>\$69,906.68</b>	<b>\$297,288.51</b>	<b>\$385,972.43</b>

Existing condition photos with examples of recommendations



No EB/WB route for bicyclists



Lack of clearly marked crossing at Western Canal



Lack of street lights



Example of a multi-use path



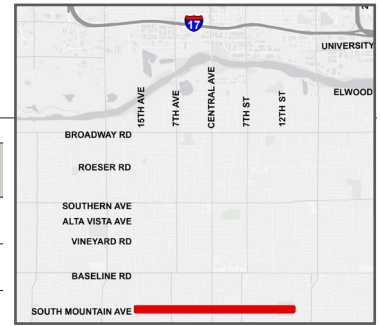
Example of canal crossing



Example of street lights

**Project Name**

South Mountain Avenue: Pedestrian and Public Health & Safety



**► Destinations**

Valley View Elementary School                      Circle K Park

South Point Junior High and Quest High School

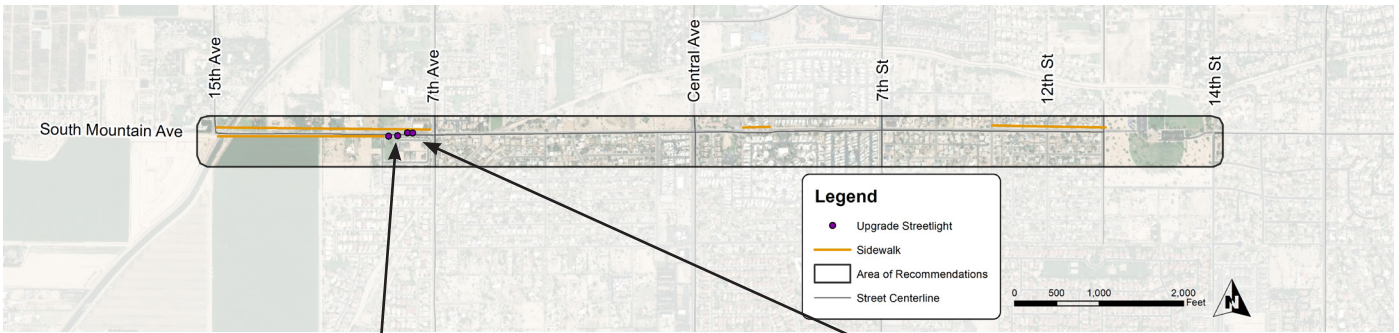
ID	Type	Current Conditions	Recommendation	Description	Benefits
10		Gaps in sidewalk infrastructure	Sidewalks	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur	Provides continuous and connected sidewalks along the corridor
11		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 proposed sidewalk is recommended as a Project Assessment to determine to true extent of construction and cost, and further consideration for a road reconstruction may be required.

Project Costs	10	11
Design	<b>Project Assessment</b>	\$47,025.46
ROW		\$0
Construction Phase		\$30,369.36
<b>TOTAL</b>	<b>\$24,564.39</b>	<b>\$77,394.81</b>

Existing condition photos with examples of recommendations



Gaps in sidewalk infrastructure



Lack of street lights



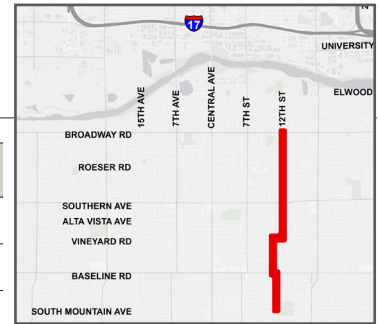
Example of sidewalks



Example of street lights

**Project Name**

12th Street: Pedestrian, Bicycle, Traffic Calming and Public Health & Safety Improvements



**► Destinations**

John F. Kennedy Elementary School	Stardust Headstart Center
Irene Lopez Elementary School	Nueve Park
CO Greenfield Elementary School	Roesley Park
South Mountain High School	Amy Houston Academy

ID	Type	Current Conditions	Recommendation	Description	Benefits
12		No NB/SB route for bicyclists	Bike Route	Paint shared lane markings to indicate vehicles and bicycles share the road	Provides NB/SB route for bicyclists
13a		Gaps in sidewalk infrastructure	Sidewalks	Construct six-foot sidewalks with ADA ramps, curb and gutter	Provides continuous and connected sidewalks along the corridor
13b		Lack of trees and lights	Trees & Lighting	Plant eight trees and upgrade 24 streetlights with pedestrian lighting	Provides additional security and visibility for pedestrians and bicyclists
14a		12th Street ends at Highline Canal	Canal Bridge	Construct pedestrian bridge over Highline Canal to provide through access to 12th St.	Provides connectivity along 12th Street beyond Highline Canal
14b		Lack of designated crossing	Mid-Block Crossing	Install RRFB signal with high-visibility crosswalk with ladder striping	Provides connectivity for pedestrians

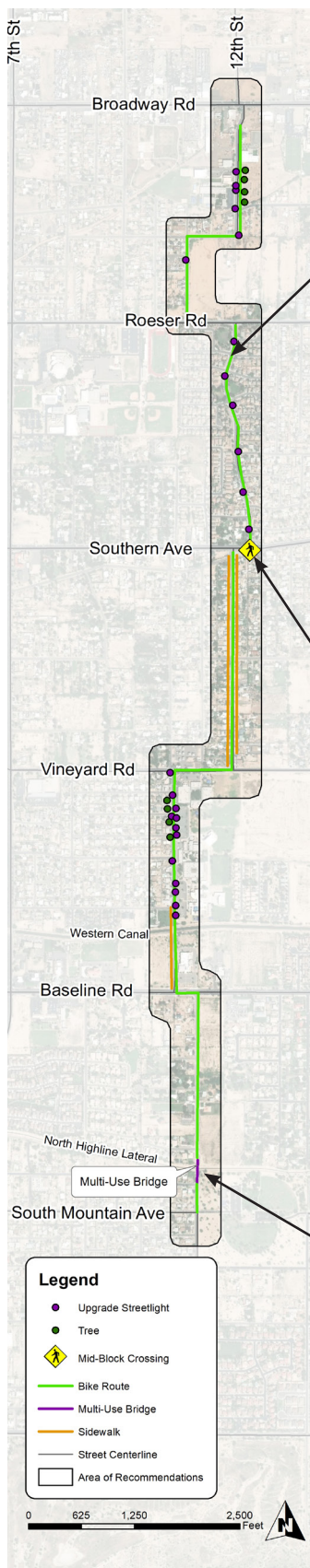
**► Project Delivery Constraints**

Canal bridge across Highline Canal with require coordination with SRP.

Project Costs	12	13a	13b	Bundle 13
Design	\$281,125.79	\$214,507.07	\$63,500.20	\$257,820.02
ROW	\$44,100.00	\$0	\$0	\$0
Construction Phase	\$1,202,840.68	\$976,001.71	\$211,096.24	\$1,187,097.95
<b>TOTAL</b>	<b>\$1,528,066.47</b>	<b>\$1,190,508.77</b>	<b>\$274,596.44</b>	<b>\$1,444,917.97</b>

Project Costs	14a	14c	Bundle 14
Design	\$85,623.72	\$59,969.97	\$120,993.65
ROW	\$0	\$0	\$0
Construction Phase	\$347,857.23	\$172,384.02	\$520,241.25
<b>TOTAL</b>	<b>\$433,480.95</b>	<b>\$232,353.99</b>	<b>\$641,234.90</b>

Existing condition photos with examples of recommendations



No NB/SB route for bicyclists



Example of bike route



Lack of designated crossing



Example of mid-block crossing



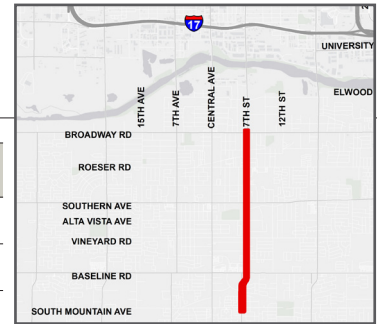
12th Street ends at Highline Canal



Example of a canal crossing

**Project Name**

7th Street: Pedestrian, Bicycle, Traffic Calming and Public Health & Safety Improvements



**► Destinations**

Momo Park	Roosevelt Elementary School
South Phoenix Youth Center	Roosevelt Swimming Pool
South Mountain High School	Fry's Food

ID	Type	Current Conditions	Recommendation	Description	Benefits
15		Gaps in bike facilities	Bike Lane	Add striping, lane markings with bike symbol, directional arrow, and bike lane signs	Provides consistent bike lane
16a		Lack of designated crossing	Mid-Block Crossing	Install an RRFB signal with high-visibility crosswalk with using ladder striping	Provides connectivity for pedestrians
16b		Lack of trees and lights	Trees & Lighting	Plant three trees and upgrade 10 streetlights with pedestrian lighting	Provides additional security and visibility for pedestrians and bicyclists
17		Lack of designated crossing over Highline Canal and Western Canal	Canal Crossing and Canal Bridge	Install an RRFB and high-visibility crosswalk with ladder striping at the Highline Canal and Western Canal and construct bridge over Highline Canal	Improves safety and visibility of pedestrians and bicyclist crossing at Highline Canal and Western Canal

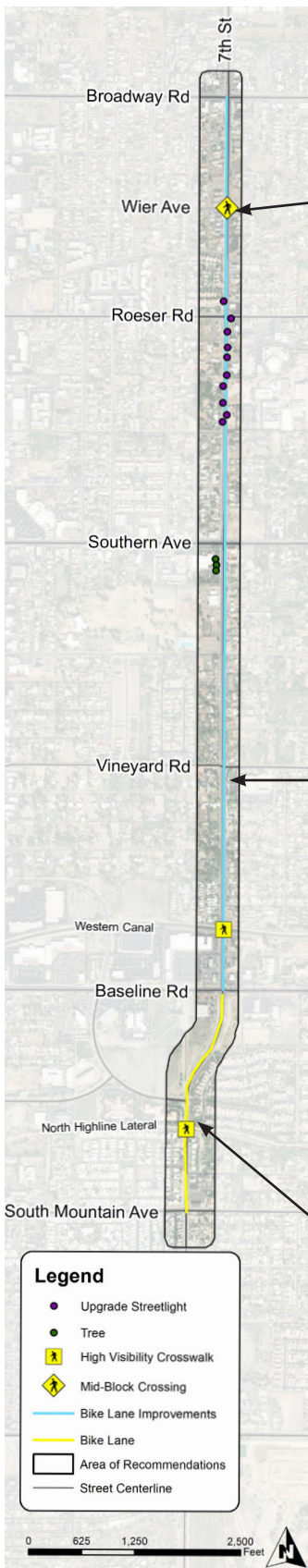
**► Project Delivery Constraints**

Intersection improvements and mid-block crossing necessitate a utility analysis.

Project Costs	15	16a	16b	Bundle 16	17
Design	\$233,159.19	\$79,681.46	\$72,328.99	\$87,760.45	\$100,956.61
ROW	\$1,510.00	\$0	\$0	\$0	\$0
Construction Phase	\$969,063.75	\$169,220.22	\$88,593.60	\$257,813.82	\$402,521.93
<b>TOTAL</b>	<b>\$1,203,732.94</b>	<b>\$248,901.68</b>	<b>\$160,922.59</b>	<b>\$345,574.27</b>	<b>\$503,478.54</b>



Existing condition photos with examples of recommendations



Lack of designated crossing



Example of a mid-block crossing



Gaps in bike facilities



Example of a bike lane



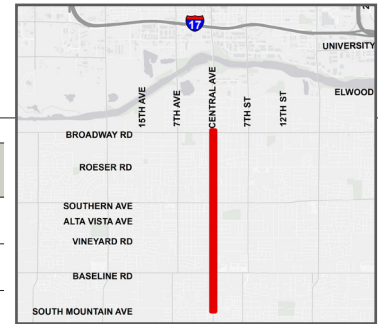
Lack of sidewalk over Highline Canal



Example of bridge over canal

## Project Name

Central Avenue: Pedestrian and Public Health & Safety Improvements



### ► Destinations

St. Catherine of Sienna Catholic School	Ocotillo Library
AZ Dept. of Economic Security	Arizona @ Work
Phoenix Collegiate Academy	Los Altos Ranch Market
South Pointe JH and Quest HS	Fry's Food
South Mountain YMCA Head Start Center	

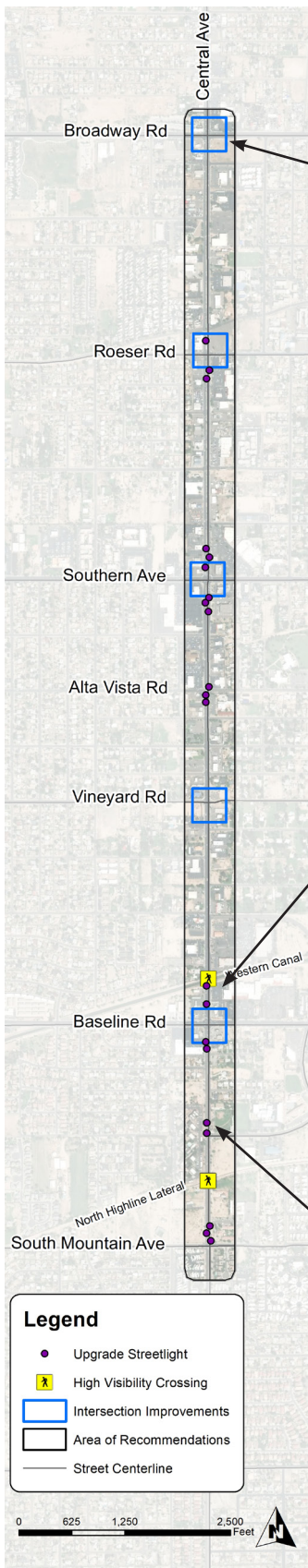
ID	Type	Current Conditions	Recommendation	Description	Benefits
18a		Lack of clearly marked crosswalk at intersections	Intersection Improvement	Upgrade crosswalks with high-visibility using ladder striping	Improves safety and visibility of people crossing the street
18b		Lack of designated crossing at Highline Canal and Western Canal	Canal Crossing	Add canal crosswalks with high-visibility ladder striping at the Western and Highline Canal, and install a HAWK signal at the Western Canal	Improves safety and visibility of pedestrians and bicyclist crossing at Highline Canal and Western Canal
18c		Lack of street lights	Lighting	Upgrade 21 streetlights with pedestrian lighting	Provides additional security and visibility by illuminating dark areas of the corridor

### ► Project Delivery Constraints

Intersection improvements necessitate further utility analysis.

Project Costs	18a	18b	18c	Bundle 18
Design	\$66,131.04	\$84,388.12	\$78,821.14	\$100,840.30
ROW	\$0	\$0	\$0	\$0
Construction Phase	\$20,627.29	\$220,833.10	\$159,786.06	\$401,246.45
<b>TOTAL</b>	<b>\$86,758.32</b>	<b>\$305,221.22</b>	<b>\$238,607.20</b>	<b>\$502,086.75</b>

Existing condition photos with examples of recommendations



Lack of clearly marked crossing



Example of high-visibility crossing



Lack of clearly marked crossing at Highline and Western Canal



Example of canal crossing



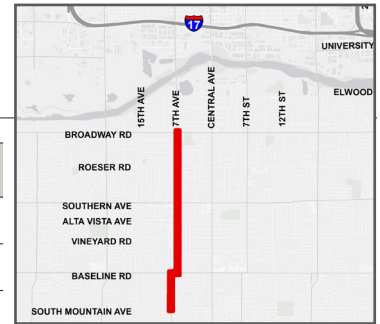
Lack of street lights



Example of street lights

**Project Name**

7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements



**► Destinations**

Hayden Park and Rec Center	Sunland Elementary School
South Mountain Precinct	Food City
Valley View Elementary School	

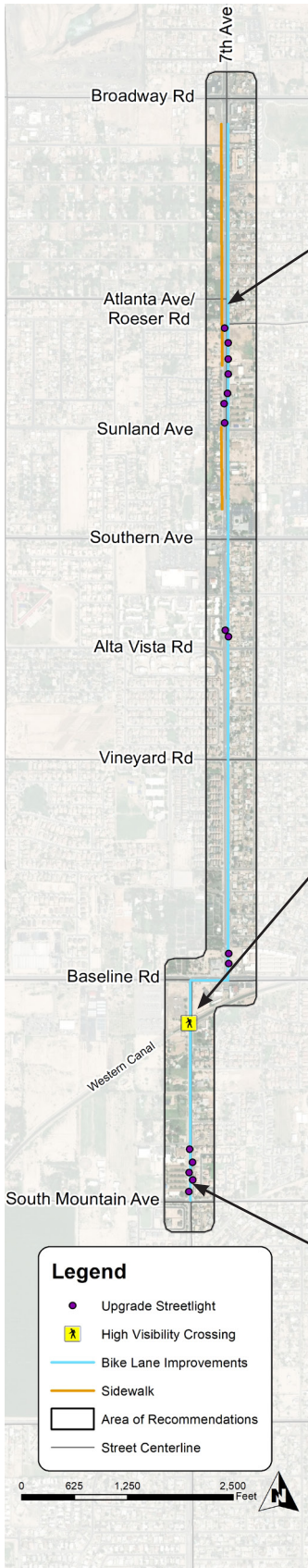
ID	Type	Current Conditions	Recommendation	Description	Benefits
19		Gaps in sidewalk infrastructure	Sidewalk	Construct six-foot sidewalks with ADA ramps, curb and gutter. Ensure driveways are at-grade where conflicts occur	Provides continuous and connected sidewalks along the corridor
20		Gaps in bike facilities	Bike Route	Add striping, lane markings with bike symbol, directional arrow, and bike lane signs	Provides north/south connection for bicyclists
21a		Lack of clearly marked crossing at Western Canal	Canal Crossing	Construct a canal crosswalk with high-visibility ladder striping and install HAWK signal	Improves safety and visibility of pedestrians and bicyclist crossing at Western Canal
21b		Lack of street lights	Lighting	Upgrade 16 streetlights with pedestrian lighting	Provides additional security and visibility by illuminating dark areas of the corridor

**► Project Delivery Constraints**

The proposed sidewalk is recommended as a Project Assessment to determine to true extent of construction and cost. Additional ROW may be required.

Project Costs	19	20	21a	21b	Bundle 21
Design	<b>Project Assessment</b>	\$150,593.14	\$83,709.11	\$75,351.82	\$80,560.94
ROW		\$0	\$0	\$0	\$0
Construction Phase		\$663,058.81	\$213,387.17	\$121,741.76	\$335,128.93
<b>TOTAL</b>	<b>\$38,664.77</b>	<b>\$813,651.95</b>	<b>\$297,096.28</b>	<b>\$197,093.58</b>	<b>\$415,689.87</b>

Existing condition photos with examples of recommendations



Gaps in bike facilities



Example of bike lane



Lack of designated crossing at Western Canal



Example of canal crossing



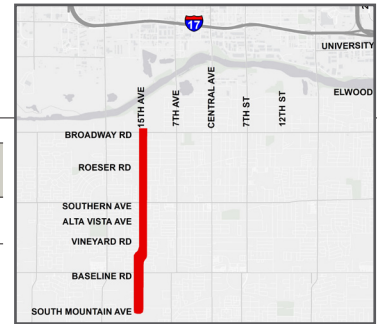
Lack of trees and street lights



Example of trees and street lights

**Project Name**

15th Avenue: Pedestrian, Bicycle and Public Health & Safety



**► Destinations**

Roesley Park

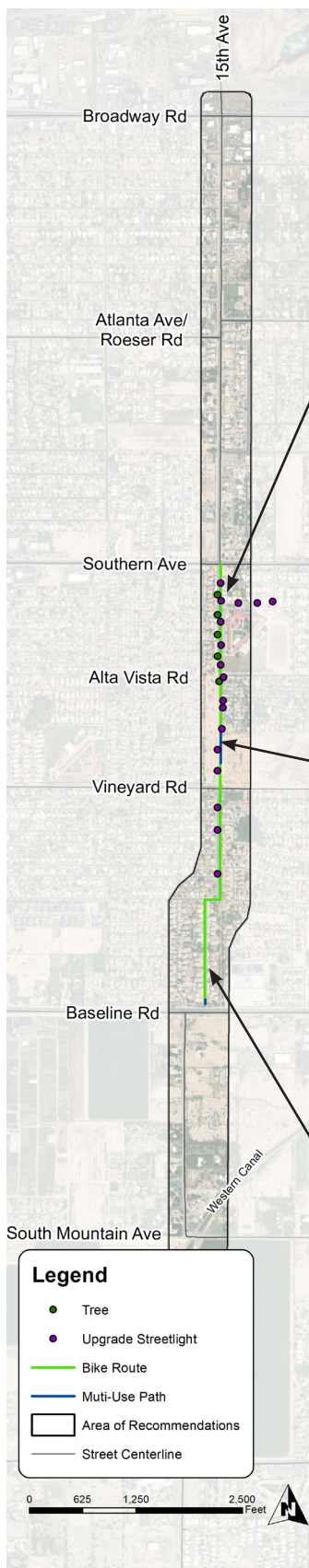
ID	Type	Current Conditions	Recommendation	Description	Benefits
22a		Lack of north/south bike connection	Bike Lane	Add striping, lane markings with bike symbol, directional arrow, and bike lane signs	Provides north/south route for bicyclists
22b		Lack of continuous connection along 15th Ave.	Multi-Use Path	Upon easement acquisition, construct multi-use path to provide continuous access along 15th Ave	Provides consistent connection to 15th Avenue for bicyclists and pedestrians
23		Lack of trees and lights	Trees & Lighting	Plant five trees and upgrade 17 streetlights with pedestrian lighting	Provides additional security and visibility for pedestrians and bicyclists

**► Project Delivery Constraints**

The continuation of bike lane will require constructing a multi-use path by acquiring ROW.

Project Costs	22a	22b	Bundle 22	23
Design	\$80,879.22	\$73,904.16	\$130,533.38	\$57,778.84
ROW	\$0	\$0		\$0
Construction Phase	\$151,525.16	\$75,037.15	\$226,562.31	\$148,356.23
<b>TOTAL</b>	<b>\$232,404.38</b>	<b>\$148,941.31</b>	<b>\$357,095.69</b>	<b>\$206,135.07</b>

Existing condition photos with examples of recommendations



Lack of trees and street lights



Example of trees and street lights



Lack of continuous connection along 15th Ave.



Example of multi-use path



No north/south route for bicyclists



Example of bike lane

### 3.0 Conclusion

The solutions presented in this report were developed to address the mobility needs identified in the CCR. Analysis of the South Mountain Neighborhoods indicated a lack of streetlights and pedestrian-level lights along heavily trafficked corridors, a lack of bike facilities, multiple low-visibility crosswalks and areas in need of designated crossings. Many of the recommended solutions included, adding pedestrian level lights to existing streetlights, upgrading crosswalks with high visibility ladder striping, and installing signalized crossings like High Intensity Activated crossWalk (HAWKs) or Rectangular Rapid Flashing Beacon (RRFBs).

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**

Due to low public meeting attendance in other mobility areas and other potential conflicts, the South Mountain Neighborhoods Study Team joined previously planned public meetings for concurrent projects in the area in lieu of holding a separate meeting. For a detailed review of the public meetings, please refer to the Public Involvement Summary Report

The South-Central Light-Rail Extension Design Update meeting was held on Tuesday, February 12th at the Cesar Chavez Community School at 4001 S. 3<sup>rd</sup> Street in Phoenix. The purpose of the meeting was to solicit public input about proposed projects by type, and to solicit how the community felt about proposed improvements to mobility.

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

- Need more street lighting and pedestrian lighting. Older residents do not feel safe walking at night
- A resident suggested using the alley ways as bike facilities
- Need more shade in and around neighborhoods

The South-Central Transit Oriented Design Grant Study Workshop was held on Tuesday, March 4th at the Carver Museum and Cultural Center at 415 E. Grant Street in Phoenix. The purpose of the meeting was for the public to view the maps and displays of existing conditions and concurrent projects and put their vision for the South-Central area into words by giving input.

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

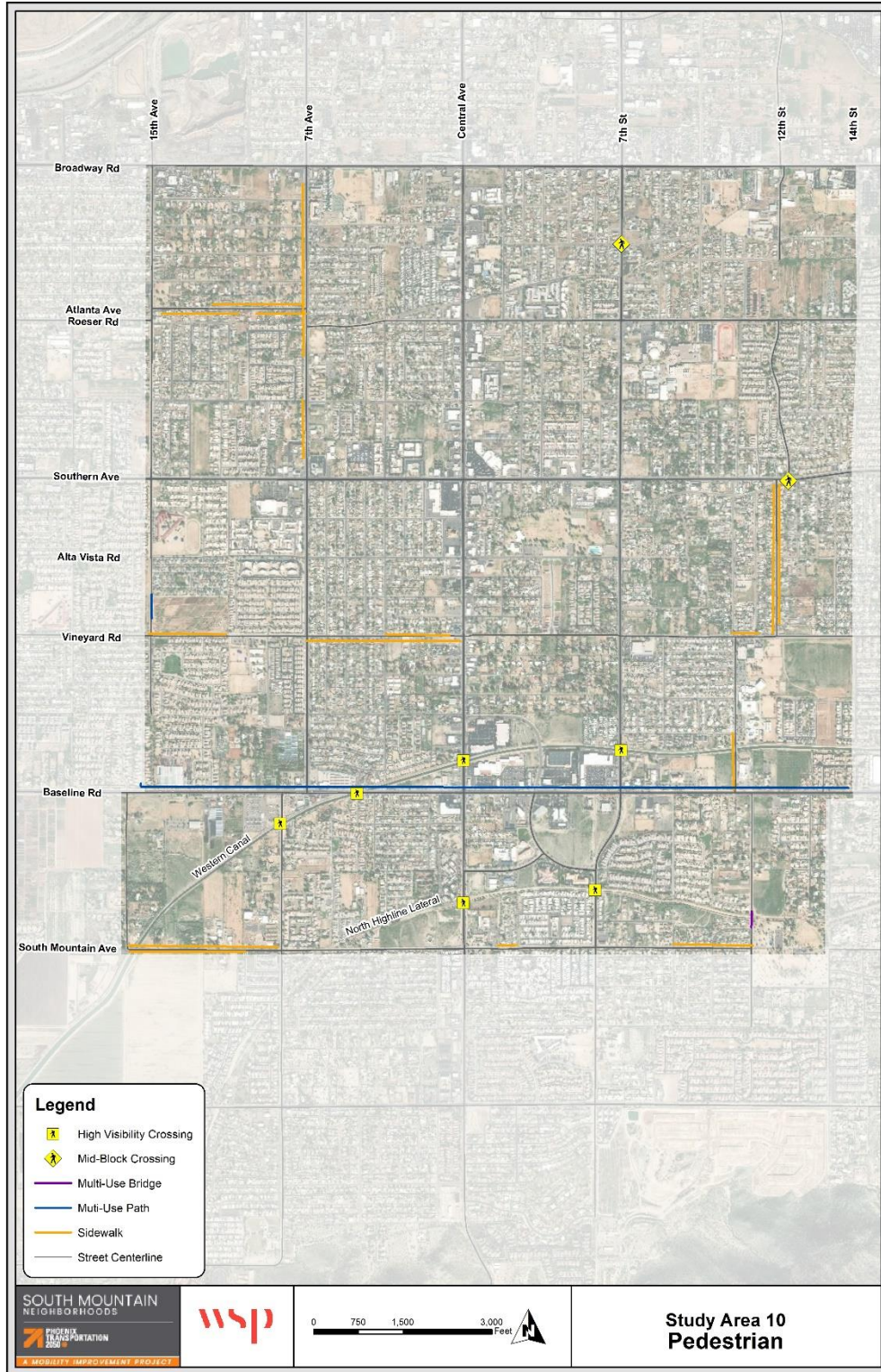
- South Central used to have more neighborhood services, like Sam's Barber Shop and a shoe repair shop



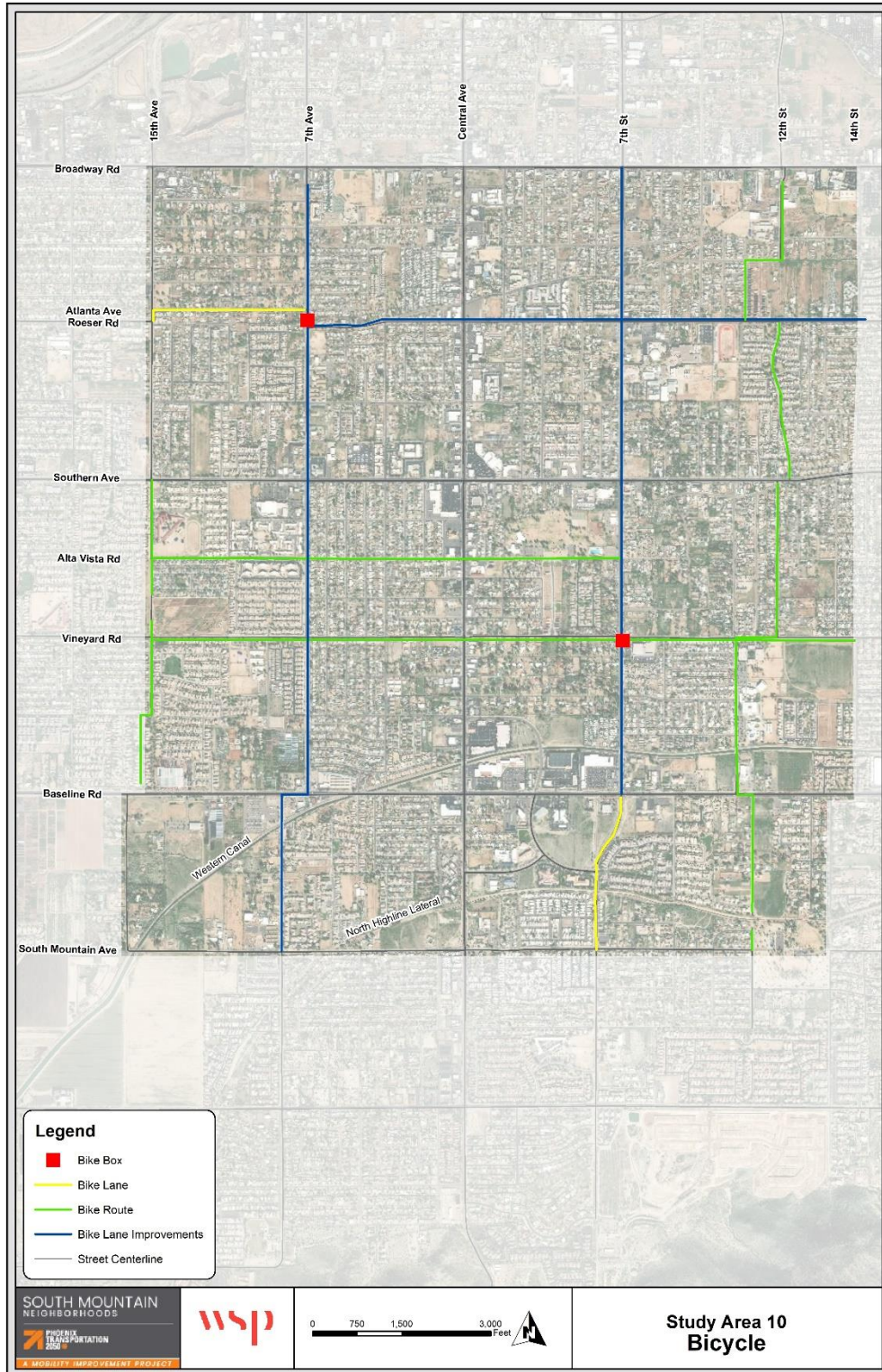
- People were proud of the area
- When cruising was legal, people would spend some evenings driving cars down Central Avenue all the way to South Mountain, making stops along the way to socialize

# Appendix A: Project Type Maps

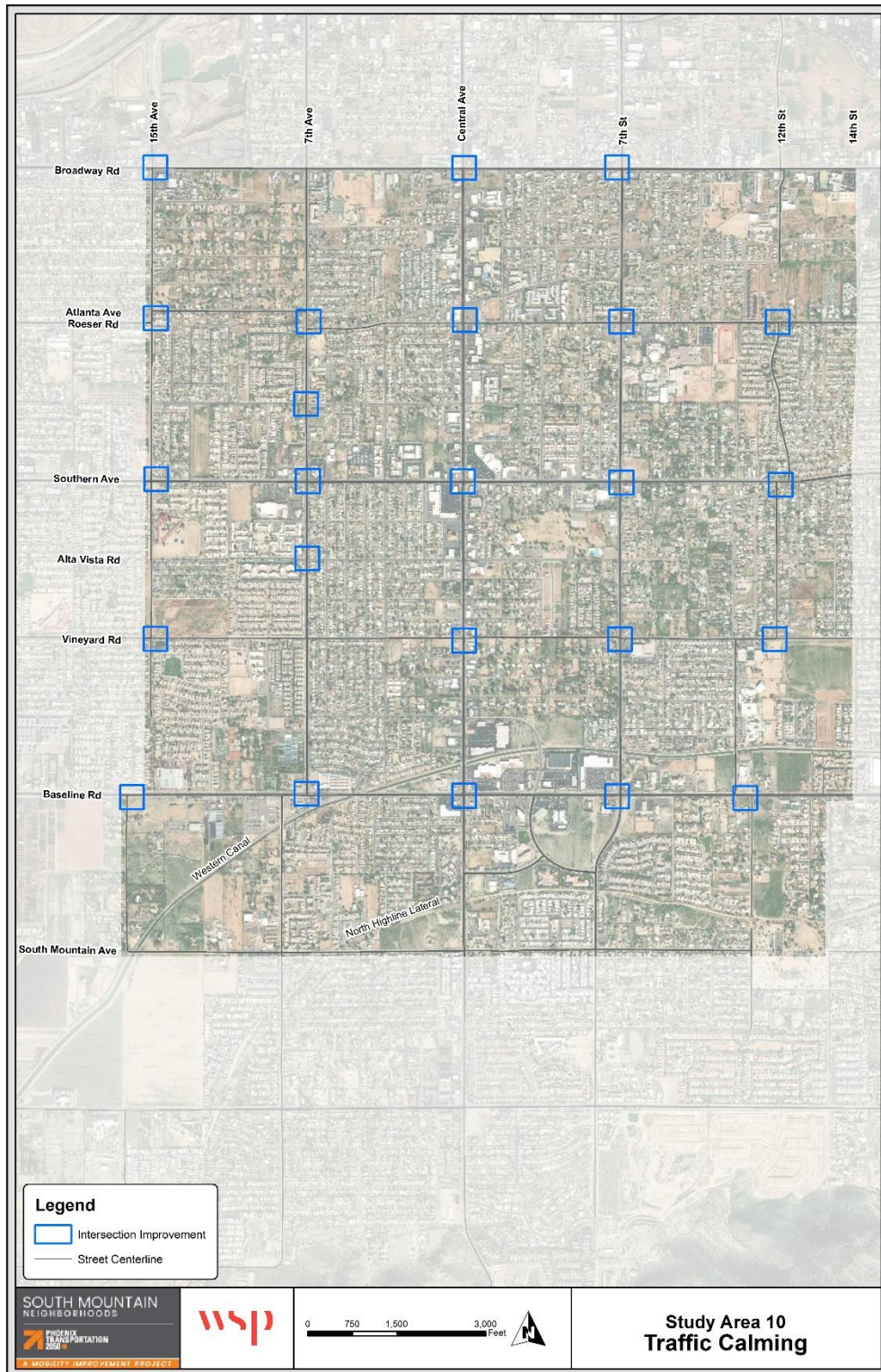
## Pedestrian Improvements



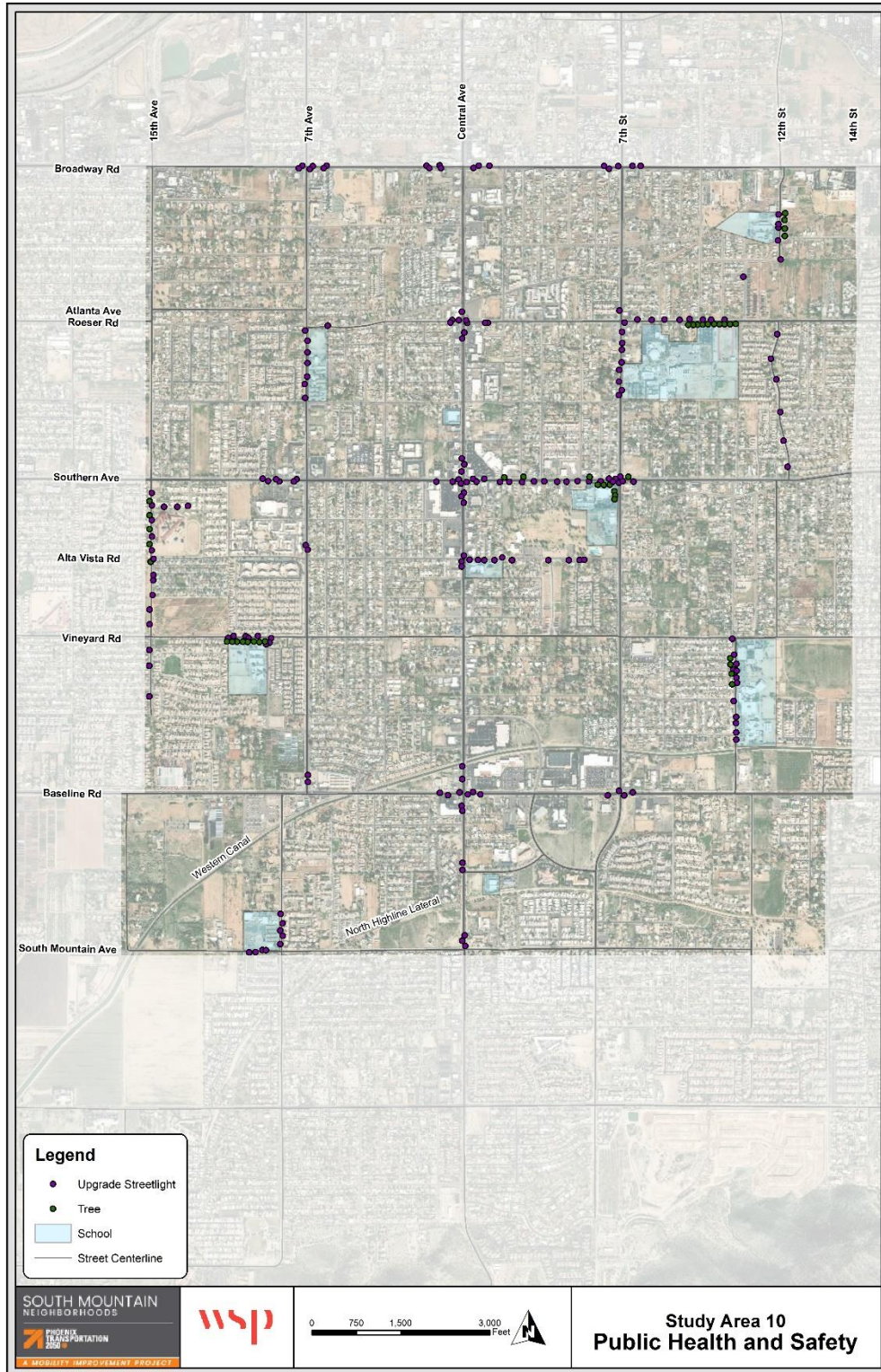
## Bicycle Improvements



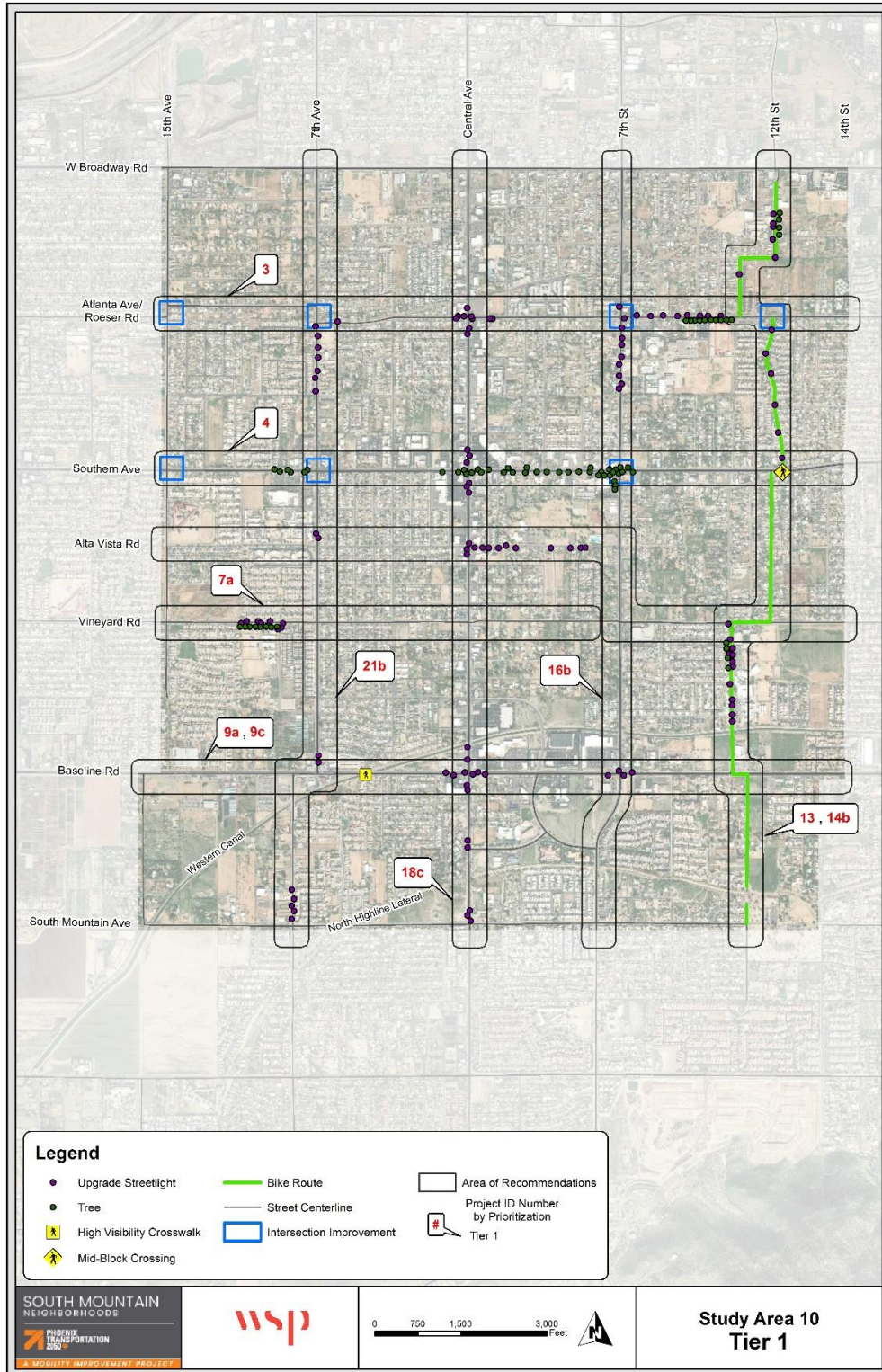
### Traffic Calming Improvements



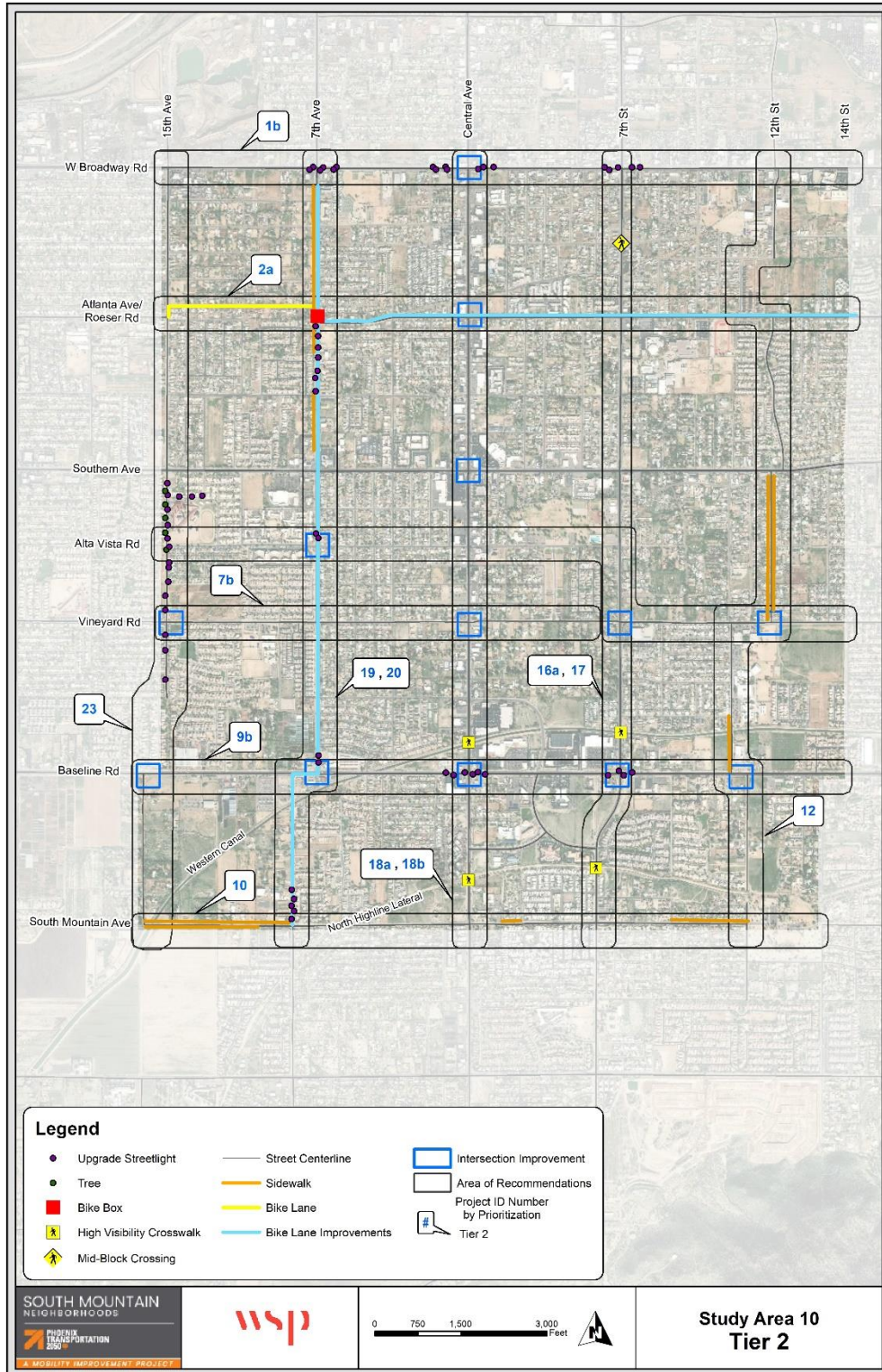
**Public Health & Safety Improvements**



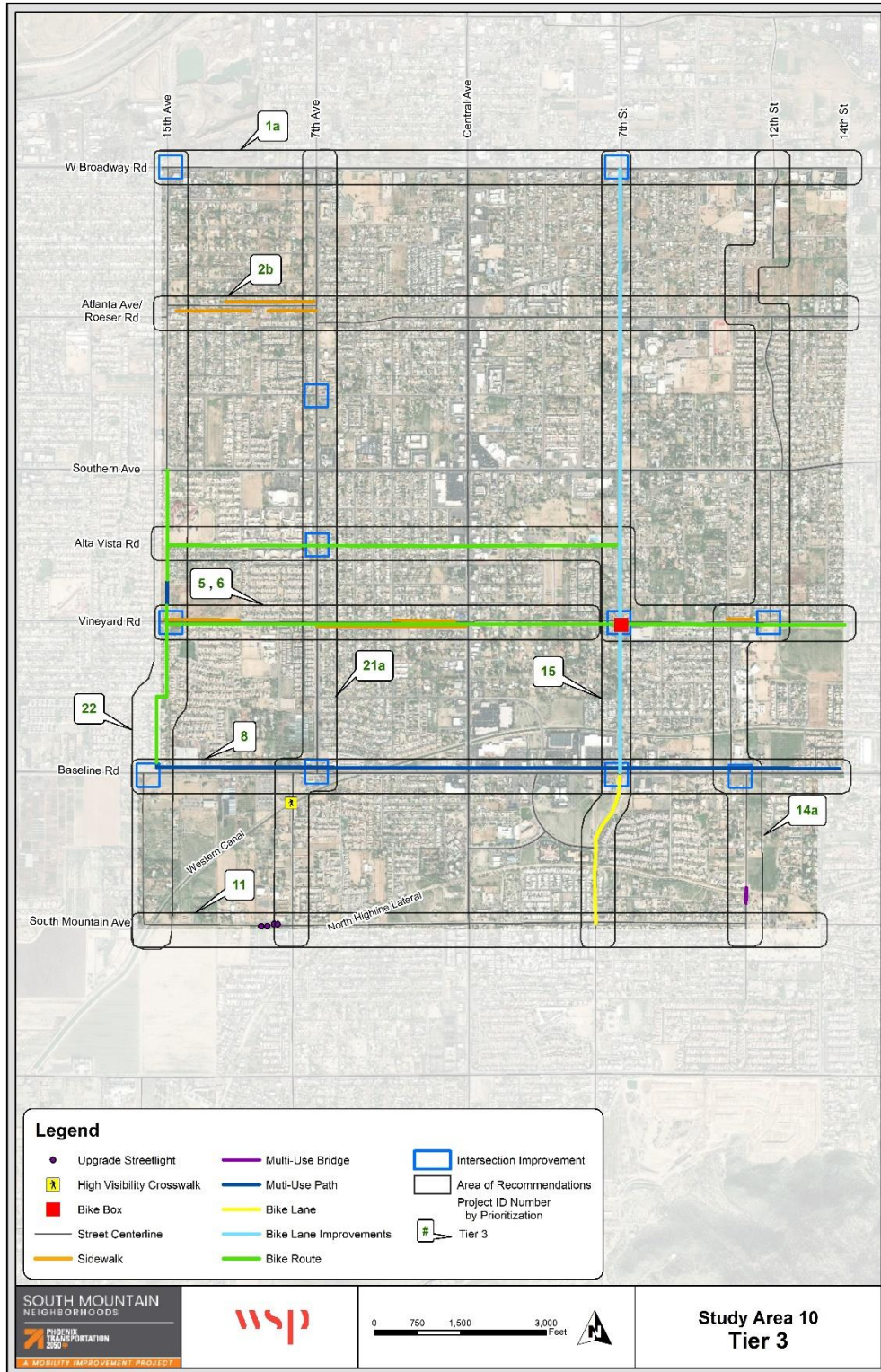
**Tier 1 Project Solutions**



**Tier 2 Project Solutions**

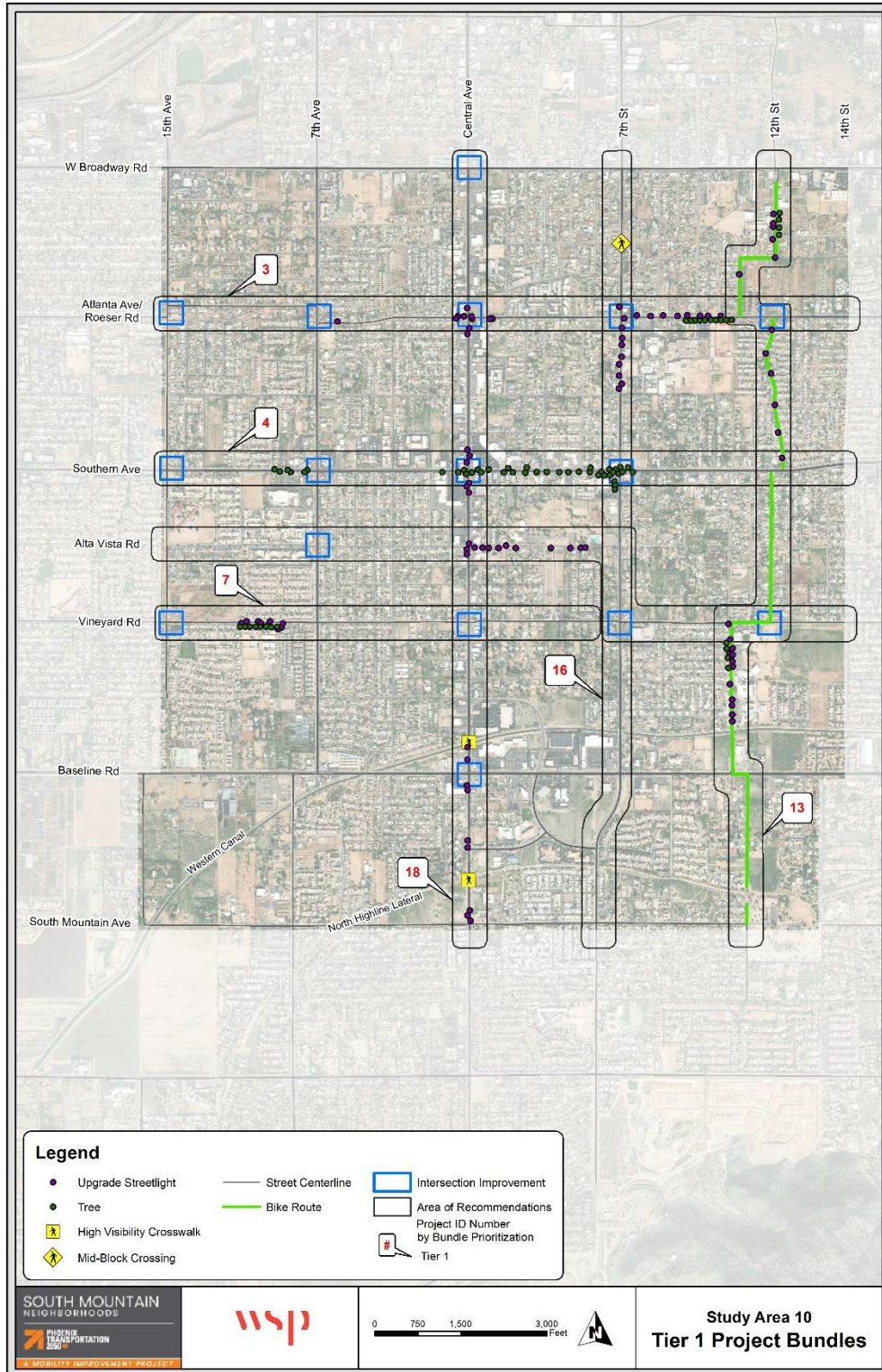


### Tier 3 Project Solutions

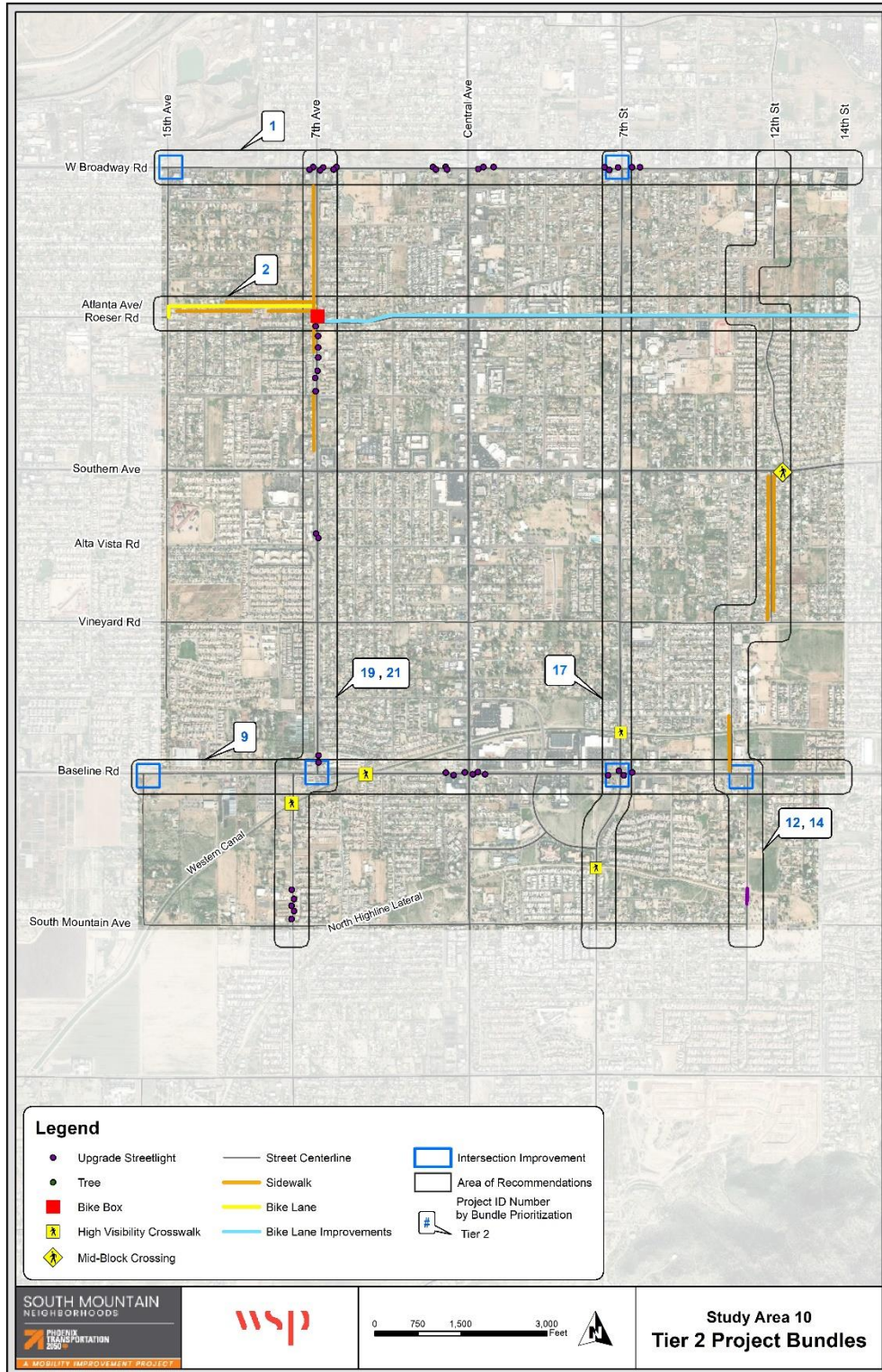




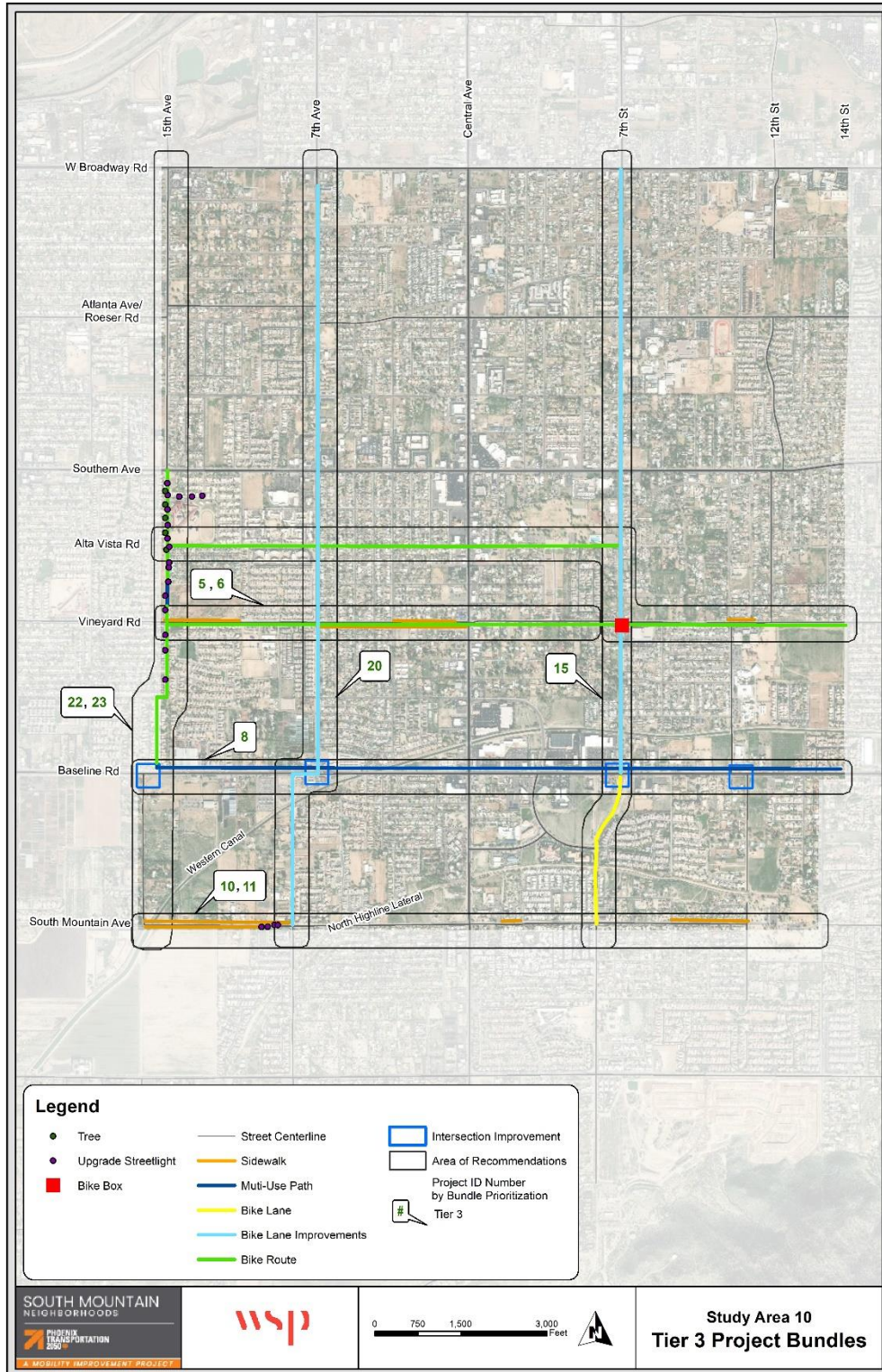
### Tier 1 Project Bundle Solutions



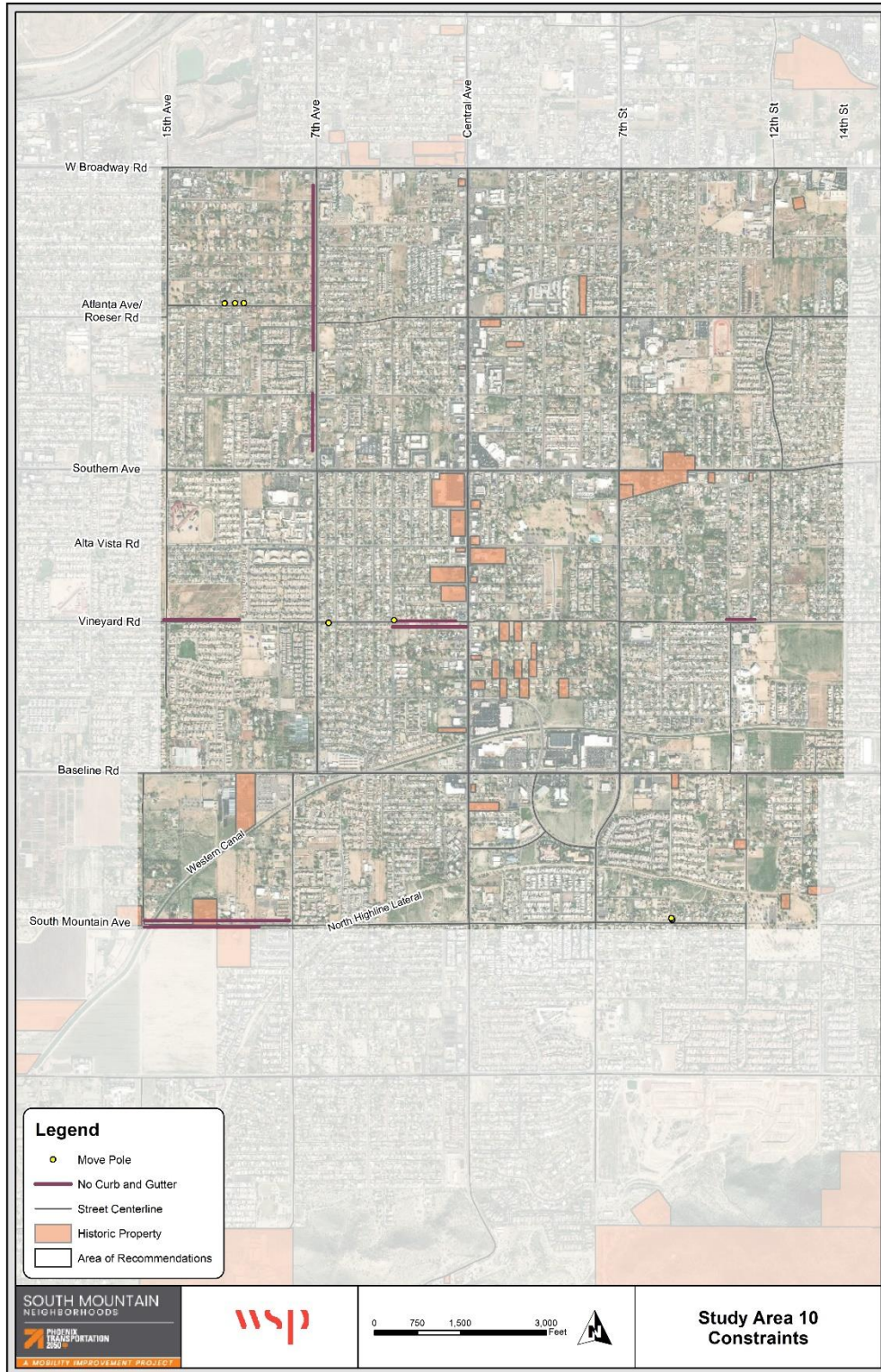
### Tier 2 Project Bundle Solutions



**Tier 3 Project Bundle Solutions**



# Project Constraints



## Appendix B: Project Renderings, Cross Sections, and Images

### Roeser Road and Atlanta Avenue Bike Route

Existing



Proposed

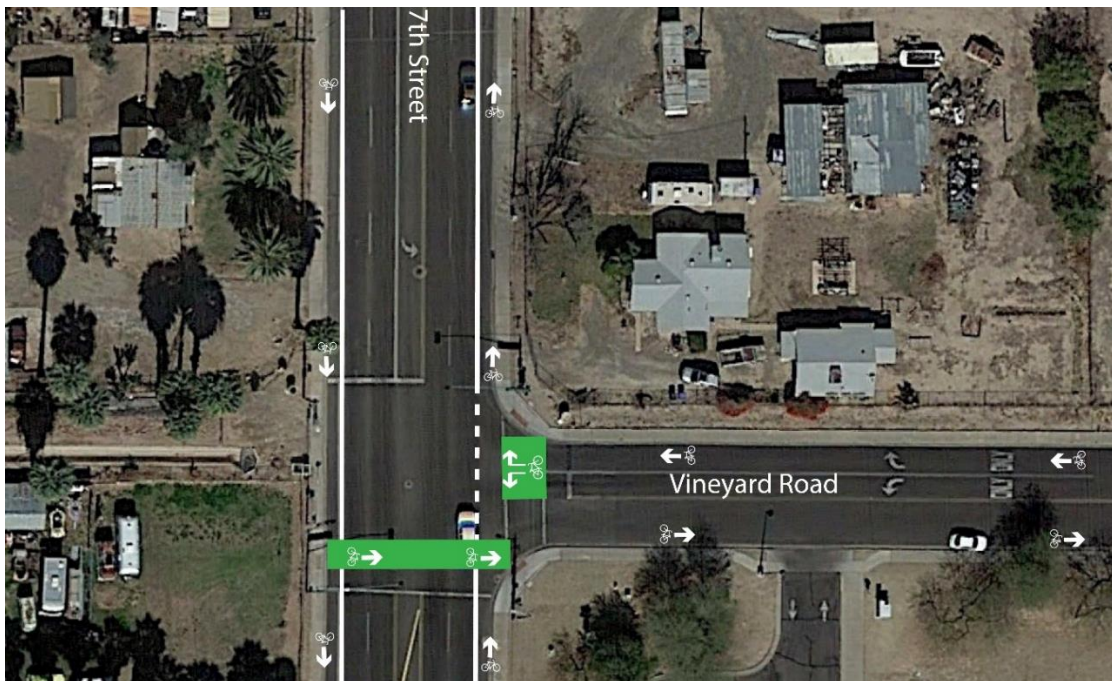


Alta Vista Road and Vineyard Road Bike Route

Existing



Proposed

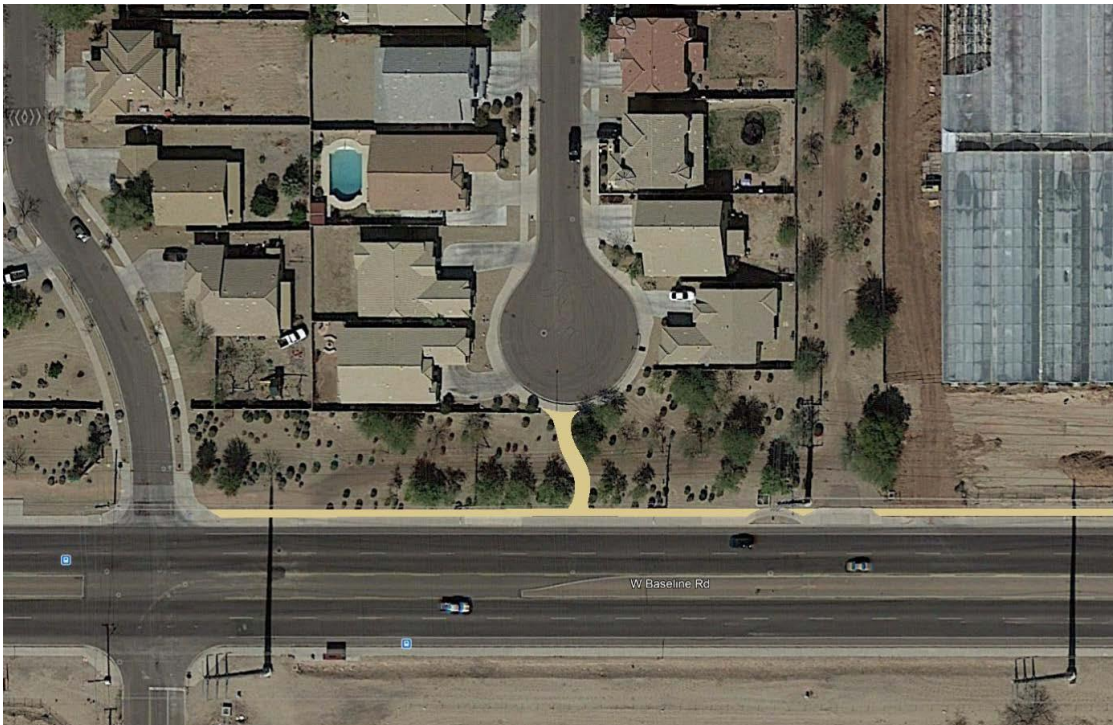


Baseline Road Multi-Use Path

Existing



Proposed



12<sup>th</sup> Street Rectangular Rapid Flashing Beacon  
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	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	7	7a	Trees & Lighting	Public Health & Safety	Plant eight trees at El Reposo Park and upgrade 18 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Alta Vista Rd. from Central Ave. to 7th St./Vineyard Rd. from 15th Ave. to 7th Ave.	\$93,150.00	\$212,380.16	94
1	Southern Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	4	4b	Trees & Lighting	Public Health & Safety	Plant seven trees to current vacant boxes and upgrade 31 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Southern Ave. from 15th Ave. to 7th St.	\$158,350.00	\$399,062.25	91
1	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	3	3b	Trees & Lighting	Public Health & Safety	Plant 10 trees along South Mountain High School and upgrade 16 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Roeser Rd. from 7th Ave. to 12th St.	\$85,240.00	\$198,103.09	89
1	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	13	13b	Trees & Lighting	Public Health & Safety	Plant eight trees and upgrade 24 streetlights with pedestrian lighting <b>(3&amp;4)</b>	12th St. from Broadway Rd. to Roser Rd and Vineyard Rd. to Baseline Rd.	\$127,620.00	\$274,596.44	89
1	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18c	Lighting	Public Health & Safety	Upgrade 21 streetlights with pedestrian lighting <b>(4)</b>	Central Ave. from Broadway Rd. to South Mountain Ave.	\$96,600.00	\$238,607.20	88
1	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	16	16b	Trees & Lighting	Public Health & Safety	Plant three trees and upgrade 10 streetlights with pedestrian lighting <b>(3&amp;4)</b>	7th St. from Broadway Rd. to Baseline Rd.	\$53,560.00	\$160,922.59	86
1	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	21	21b	Lighting	Public Health & Safety	Upgrade 16 streetlights with pedestrian lighting <b>(4)</b>	7th Ave. from Broadway Rd. to Baseline Rd.	\$73,600.00	\$197,093.58	86
1	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	13	13a	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road <b>(8)</b>	12th St. from Broadway Rd. to South Mountain Ave.	\$308,530.00	\$1,190,508.77	84
1	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9c	Canal Crossing	Pedestrian	Construct canal crosswalk with high-visibility ladder striping and install a HAWK signal at Western Canal <b>(8)</b>	Baseline Rd. and Western Canal	\$129,111.50	\$297,288.51	84
1	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9a	Lighting	Public Health & Safety	Upgrade 10 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Baseline Rd. from 7th Ave. to 7th St.	\$46,000.00	\$147,277.24	83
1	Southern Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	4	4a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Southern Ave. and 15th Ave., 7th Ave. & 7th St.	\$4,950.40	\$73,185.17	82
1	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	14	14b	Mid-Block Crossing	Pedestrian	Install RRFB signal with high-visibility crosswalk with ladder striping	12th St. and Southern Ave.	\$104,216.20	\$232,353.99	82
1	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	3	3a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Atlanta Ave. and 15th Ave. & 7th Ave./Roeser Rd. and 7th Ave., 7th St. & 12th St.	\$4,827.60	\$52,963.53	81

	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Itemized Cost	Total Cost	Score
2	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Central Ave. and Broadway Rd., Roeser Rd., Southern Ave., Vineyard Rd., & Baseline Rd.	\$12,470.40	\$86,758.32	80
2	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	19	19	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Ensure driveways are at-grade where conflicts occur <b>(1,6&amp;7)</b>	7th Ave. from Broadway Rd. to Southern Ave.	\$38,664.77	\$38,664.77	80
2	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	16	16a	Mid-Block Crossing	Pedestrian	Install RRFB signal with high-visibility crosswalk with ladder striping	7th St. and Wier Ave.	\$102,303.50	\$248,901.68	79
2	Broadway Road: Public Health & Safety and Traffic Calming Improvements	1	1b	Lighting	Public Health & Safety	Upgrade 18 streetlights with pedestrian lighting <b>(4)</b>	Broadway Rd. from 7th Ave. to 7th St.	\$82,800.00	\$262,699.03	79
2	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18b	Canal Crossing	Pedestrian	Construct canal crosswalks with high-visibility ladder striping at the Western and Highline Canal, and install a HAWK signal at the Western Canal <b>(8)</b>	Central Ave. and Western Canal & Highline Canal	\$133,506.50	\$305,221.22	77
2	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	2	2a	Bike Lane	Bicycle	Add striping, road markings with bike symbol, directional arrow, and bike lane signs <b>(8)</b>	Atlanta Ave./Roeser Rd. from 15th Ave. to 12th St.	\$201,420.00	\$464,778.76	76
2	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9b	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Baseline Rd. and 15th Ave., 7th Ave., 7th St. & 12th St.	\$3,134.00	\$69,906.68	76
2	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	7	7b	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Alta Vista Rd. and 7th Ave./Vineyard Rd. and 15th Ave. 7th St. & 12th St.	\$3,530.10	\$50,621.62	75
2	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	17	17	Canal Crossing and Bridge	Pedestrian	Construct RRFB and high-visibility crosswalk with ladder striping at the Highline Canal and Western Canal and construct bridge over Highline Canal <b>(8)</b>	7th St. and Highline Canal, Western Canal	\$243,348.00	\$503,478.54	75
2	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	12	12	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur <b>(1,6&amp;7)</b>	12th St. from Broadway Rd. to South Mountain Ave.	\$712,678.00	\$1,528,066.47	74
2	15th Avenue: Pedestrian, Bicycle, and Public Health & Safety	23	23	Trees & Lighting	Public Health & Safety	Plant five trees and upgrade 17 streetlights with pedestrian lighting <b>(3&amp;4)</b>	15th Ave. from Broadway Rd. to Baseline Rd.	\$89,690.00	\$206,135.07	73
2	South Mountain Avenue: Pedestrian and Public Health & Safety	10	10	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur <b>(1,6&amp;7)</b>	South Mountain Ave. from 15th Ave. to 12th St.	\$24,564.39	\$24,564.39	72
2	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	20	20	Bike Lane	Bicycle	Add striping, road markings with bike symbol, directional arrow, and bike lane signs <b>(8)</b>	7th Ave. from Broadway Rd to South Mountain Ave.	\$401,730.00	\$813,651.95	72

Tier	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Itemized Cost	Total Cost	Score
3	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	2	2b	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur (1,6&7)	Atlanta Ave. from 15th Ave. to 7th Ave.	\$1,108,900.89	\$2,265,622.83	71
3	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	14	14a	Canal Bridge	Pedestrian	Construct pedestrian bridge over Highline Canal to provide accessibility to 12th St. (8)	12th St. and Highline Canal	\$210,300.00	\$433,480.95	71
3	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	8	8	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path along north side of Baseline Rd. (2)	Baseline Rd. from 15th Ave. to 12th St.	\$3,009,860.00	\$6,138,875.81	71
3	Broadway Road: Public Health & Safety and Traffic Calming Improvements	1	1a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Broadway Rd. and 15th Ave. & 7th St.	\$5,940.00	\$123,971.34	70
3	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	6	6	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur (1,6&7)	Vineyard Rd. from 15th Ave. to Central Ave.	\$507,177.89	\$1,135,232.05	70
3	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	15	15	Bike Lane	Bicycle	Add striping, road markings with bike symbol, directional arrow, and bike lane signs (8)	7th St. from Broadway Rd. to South Mountain Ave.	\$571,346.20	\$1,203,732.94	70
3	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	21	21a	Canal Crossing	Pedestrian	Construct a canal crosswalk with high-visibility ladder striping and install HAWK signal (8)	7th Ave. and Western Canal	\$129,005.00	\$297,096.28	67
3	15th Avenue: Pedestrian, Bicycle and Public Health & Safety	22	22b	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path to provide continuous access to 15th Ave (2)	15th Ave. from Vineyard Rd. to Baseline Rd.	\$30,854.94	\$148,941.31	65
3	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	5	5	Bike Route & Advisory Bike Lane	Bicycle	Paint shared lane markings on Alta Vista Rd. until 7th St. to indicate vehicles and bicycles share the road and paint an advisory bike lane on Vineyard Rd. at 7th St. (8)	Alta Vista Rd. from 15th Ave. to 7th St./Vineyard Rd. from 15th Ave. to 12th St.	\$397,687.20	\$856,035.46	63
3	South Mountain Avenue: Pedestrian and Public Health & Safety	11	11	Lighting	Public Health & Safety	Upgrade four streetlights with pedestrian lighting (4)	South Mountain Ave. from 15th Ave. to Central Ave.	\$18,400.00	\$77,394.81	59
3	15th Avenue: Pedestrian, Bicycle, and Public Health & Safety	22	22a	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road (8)	15th Ave. from Broadway Rd. to Vineyard Rd.	\$77,096.40	\$232,404.38	56

- 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 included 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	Southern Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	4	4a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Southern Ave. and 15th Ave., 7th Ave. & 7th St.	\$163,300.40	\$407,997.42	87
	Southern Avenue: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	4	4b	Trees & Lighting	Public Health & Safety	Plant seven trees to current vacant boxes and upgrade 31 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Southern Ave. from 15th Ave. to 7th St.			
1	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	13	13a	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road <b>(8)</b>	12th St. from Broadway Rd. to South Mountain Ave.	\$436,150.00	\$1,444,917.42	87
	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	13	13b	Trees & Lighting	Public Health & Safety	Plant eight trees and upgrade 24 streetlights with pedestrian lighting <b>(3&amp;4)</b>	12th St. from Broadway Rd. to Roser Rd and Vineyard Rd. to Baseline Rd.			
1	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	3	3a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Atlanta Ave. and 15th Ave. & 7th Ave./Roeser Rd. and 7th Ave., 7th St. & 12th St.	\$90,067.60	\$226,816.61	85
	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	3	3b	Trees & Lighting	Public Health & Safety	Plant 10 trees along South Mountain High School and upgrade 16 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Roeser Rd. from 7th Ave. to 12th Street			
1	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	7	7a	Trees & Lighting	Public Health & Safety	Plant eight trees at El Reposo Park and upgrade 18 streetlights with pedestrian lighting <b>(3&amp;4)</b>	Alta Vista Rd. from Central Ave. to 7th St./Vineyard Rd. from 15th Ave. to 7th Ave.	\$96,680.10	\$218,751.78	85
	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	7	7b	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Alta Vista Rd. and 7th Ave./Vineyard Rd. and 15th Ave. 7th St. & 12th St.			
1	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	16	16a	Mid-Block Crossing	Pedestrian	Install RRFB signal with high-visibility crosswalk with ladder striping	7th St. and Wier Ave.	\$155,863.50	\$345,574.27	83
	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	16	16b	Trees & Lighting	Public Health & Safety	Plant three trees and upgrade 10 streetlights with pedestrian lighting <b>(3&amp;4)</b>	7th St. from Broadway Rd. to Baseline Rd.			
1	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Central Ave. and Broadway Rd., Roeser Rd., Southern Ave., Vineyard Rd., & Baseline Rd.	\$242,576.90	\$502,086.75	82
	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18b	Canal Crossing	Pedestrian	Construct canal crosswalks with high-visibility ladder striping at the Western and Highline Canal, and install a HAWK signal at the Western Canal <b>(8)</b>	Central Ave. and Western Canal & Highline Canal			
	Central Avenue: Pedestrian and Public Health & Safety Improvements	18	18c	Lighting	Public Health & Safety	Upgrade 21 streetlights with pedestrian lighting <b>(4)</b>	Central Ave. from Broadway Rd. to South Mountain Ave.			

Tier	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Itemized Bundle Cost	Total Bundle Cost	Average Score
2	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9a	Lighting	Public Health & Safety	Upgrade 10 streetlights with pedestrian lighting (3&4)	Baseline Rd. from 7th Ave. to 7th St.	\$178,245.50	\$385,972.43	81
	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9b	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Baseline Rd. and 15th Ave., 7th Ave., 7th St. & 12th St.			
	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	9	9c	Canal Crossing	Pedestrian	Construct canal crosswalk with high-visibility ladder striping and install a HAWK signal at Western Canal (8)	Baseline Rd. and Western Canal			
2	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	19	19	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Ensure driveways are at-grade where conflicts occur (1,6&7)	7th Ave. from Broadway Rd. to Southern Ave.	\$38,664.77	\$38,664.77	80
2	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	14	14a	Canal Bridge	Pedestrian	Construct pedestrian bridge over Highline Canal to provide accessibility to 12th St. (8)	12th St. and Highline Canal	\$314,516.20	\$641,234.90	77
	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	14	14b	Mid-Block Crossing	Pedestrian	Install RRFB signal with high-visibility crosswalk with ladder striping	12th St. and Southern Ave.			
2	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	21	21a	Canal Crossing	Pedestrian	Construct a canal crosswalk with high-visibility ladder striping and install HAWK signal (8)	7th Ave. and Western Canal	\$202,605.00	\$415,689.87	77
	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	21	21b	Lighting	Public Health & Safety	Upgrade 16 streetlights with pedestrian lighting (4)	7th Ave. from Broadway Rd. to Baseline Rd.			
2	Broadway Road: Public Health & Safety and Traffic Calming Improvements	1	1a	Intersection Improvements	Traffic Calming	Upgrade crosswalk with high-visibility ladder striping	Intersections of Broadway Rd. and 15th Ave. & 7th St.	\$88,740.00	\$322,420.38	75
	Broadway Road: Public Health & Safety and Traffic Calming Improvements	1	1b	Lighting	Public Health & Safety	Upgrade 18 streetlights with pedestrian lighting (4)	Broadway Rd. from 7th Ave. to 7th St.			
2	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	17	17	Canal Crossing and Bridge	Pedestrian	Construct RRFB and high-visibility crosswalk with ladder striping at the Highline Canal and Western Canal and construct bridge over Highline Canal (8)	7th St. and Highline Canal, Western Canal	\$243,348.00	\$503,478.54	75
2	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	2	2a	Bike Lane & Bike Lane Improvements	Bicycle	Add striping, road markings with bike symbol, directional arrow, and bike lane signs (8)	Atlanta Ave./Roeser Rd. from 15th Ave. to 12th St.	\$1,310,320.89	\$2,730,401.59	74
	Atlanta Avenue/Roeser Road: Pedestrian, Bicycle, and Traffic Calming Improvements	2	2b	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur (1,6&7)	Atlanta Avenue from 15th Avenue to 7th Avenue			
2	12th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	12	12	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur (1,6&7)	12th St. from Broadway Rd. to South Mountain Ave.	\$712,678.00	\$1,528,066.47	74

Tier	Project Name	Project #	Project ID	Recommendation	Solution Type	Description	Location	Itemized Bundle Cost	Total Bundle Cost	Average Score
3	15th Avenue: Pedestrian, Bicycle, and Public Health & Safety	23	23	Trees & Lighting	Public Health & Safety	Plant five trees and upgrade 17 streetlights with pedestrian lighting (3&4)	15th Ave. from Broadway Rd. to Baseline Rd.	\$89,690.00	\$206,135.07	73
3	South Mountain Avenue: Pedestrian and Public Health & Safety	10	10	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur (1,6&7)	South Mountain Ave. from 15th Ave. to 12th St.	\$24,564.39	\$24,564.39	72
3	7th Avenue: Pedestrian, Bicycle, and Public Health & Safety Improvements	20	20	Bike Lane Improvements	Bicycle	Add striping, road markings with bike symbol, directional arrow, and bike lane signs (8)	7th Ave. from Broadway Rd to South Mountain Ave.	\$401,730.00	\$813,651.95	72
3	Baseline Road: Pedestrian, Traffic Calming, and Public Health & Safety Improvements	8	8	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path along north side of Baseline Rd. (2)	Baseline Rd. from 15th Ave. to 12th St.	\$3,009,860.00	\$6,138,875.81	71
3	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	6	6	Sidewalks	Pedestrian	Construct six-foot sidewalks with ADA ramps, curb and gutter. Move utility poles out of sidewalk ROW and ensure driveways are at-grade where conflicts occur (1,6&7)	Vineyard Rd. from 15th Ave. to Central Ave.	\$507,177.89	\$1,135,232.05	70
3	7th Street: Pedestrian, Bicycle, Traffic Calming, and Public Health & Safety Improvements	15	15	Bike Lane and Bike Lane Improvements	Bicycle	Add striping, road markings with bike symbol, directional arrow, and bike lane signs (8)	7th St. from Broadway Rd. to South Mountain Ave.	\$571,346.20	\$1,203,732.94	70
3	Alta Vista Road/Vineyard Road: Pedestrian, Bicycle, and Public Health & Safety Improvements	5	5	Bike Route & Advisory Bike Lane	Bicycle	Paint shared lane markings on Alta Vista Rd. until 7th St. to indicate vehicles and bicycles share the road and paint an advisory bike lane on Vineyard Rd. at 7th St. (8)	Alta Vista Rd. from 15th Ave. to 7th St./Vineyard Rd. from 15th Ave. to 12th St.	\$397,687.20	\$856,035.46	63
3	15th Avenue: Pedestrian, Bicycle, and Public Health & Safety	22	22a	Bike Route	Bicycle	Paint shared lane markings to indicate vehicles and bicycles share the road (8)	15th Ave. from Broadway Rd. to Vineyard Rd.	\$107,951.34	\$357,095.69	61
	15th Avenue: Pedestrian, Bicycle, and Public Health & Safety	22	22b	Multi-Use Path	Pedestrian	Upon easement acquisition, construct multi-use path to provide continuous access to 15th Ave (2)	15th Ave. from Vineyard Rd. to Baseline Rd.			
3	South Mountain Avenue: Pedestrian and Public Health & Safety	11	11	Lighting	Public Health & Safety	Upgrade four streetlights with pedestrian lighting (4)	South Mountain Ave. from 15th Ave. to Central Ave.	\$18,400.00	\$77,394.81	59

- 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.
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## 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 horizontal striping through intersection or crossing
- New striping at intersections or where crossing does not formally exist

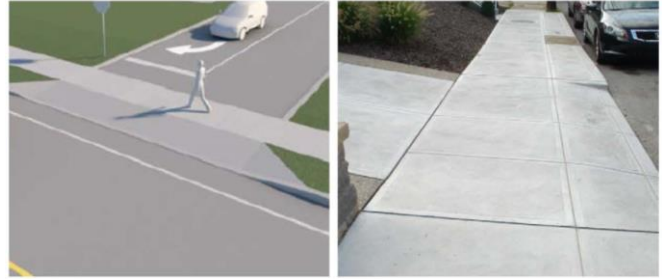


PEDESTRIAN BRIDGE



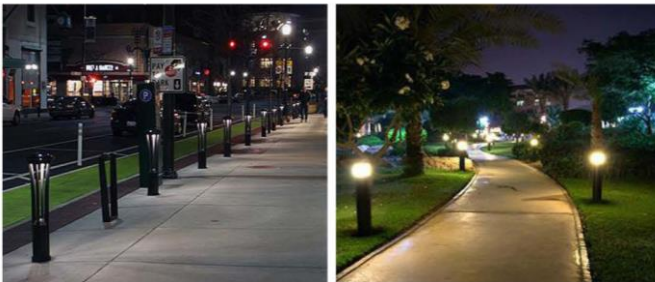
- Span
- Superstructure
- Truss
- Pedestrian barrier
- Deck
- Lighting
- ADA Ramps & Stairs

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 signage

LINEAR PARK



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

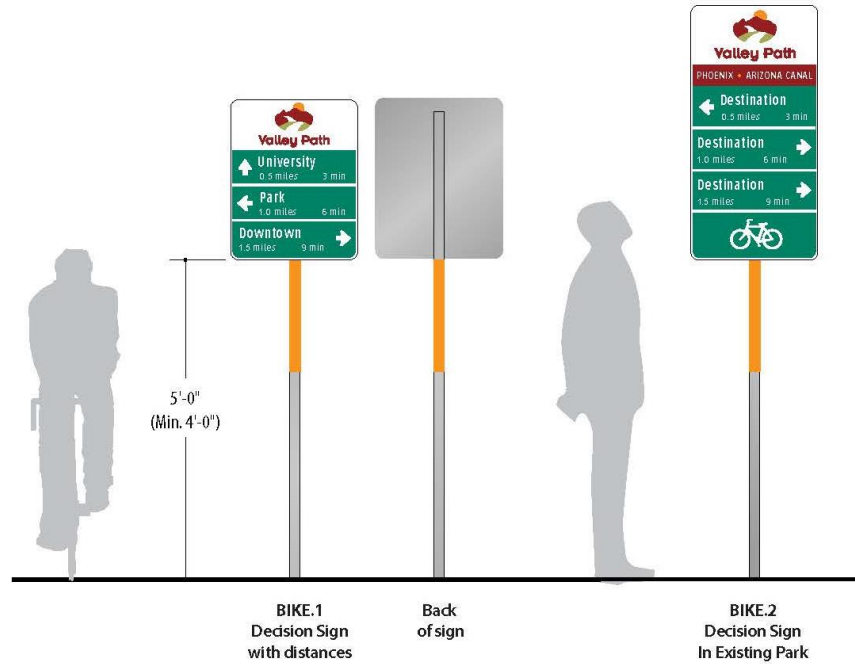
MULTI-USE PATH AT HIGHWAY



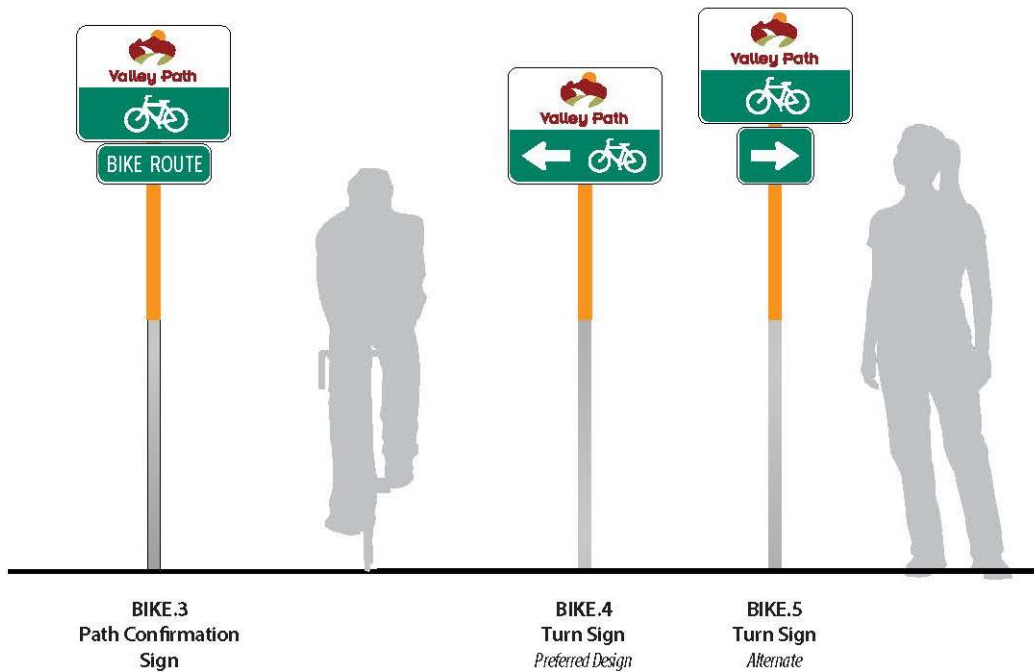
- 10' sidewalk
- Striping with shared lane marking

## Appendix F: MAG Branding & Wayfinding Signage Guidelines

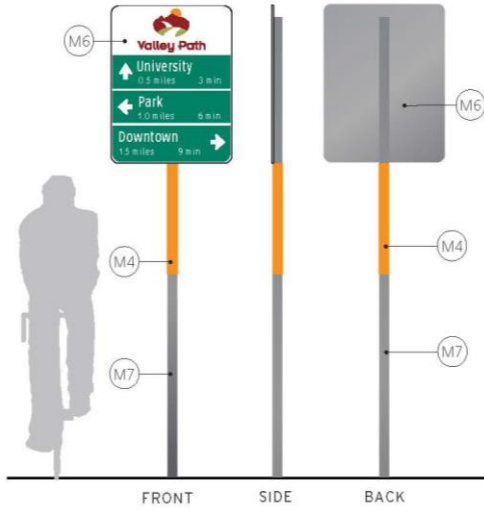
### MUTCD Signs



### Bike Signs



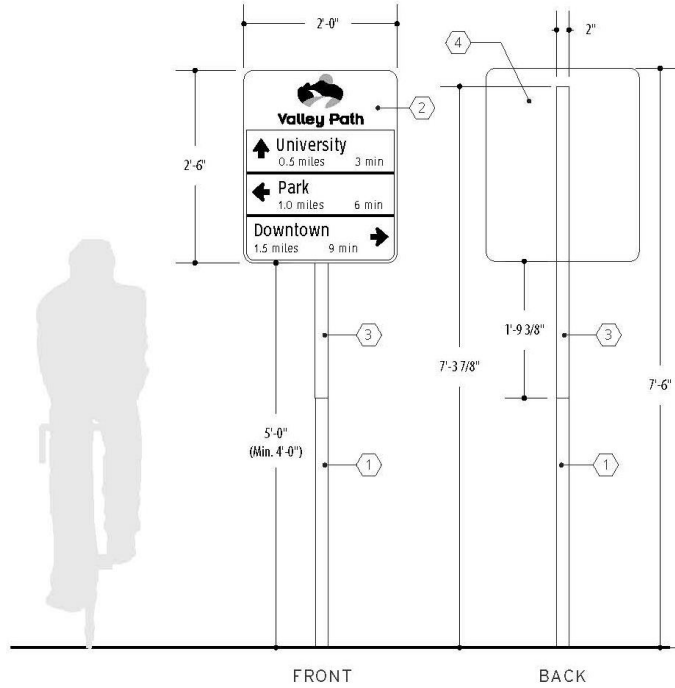
**MUTCD Sign Drawings**



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



**Bike 1 Elevation**



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

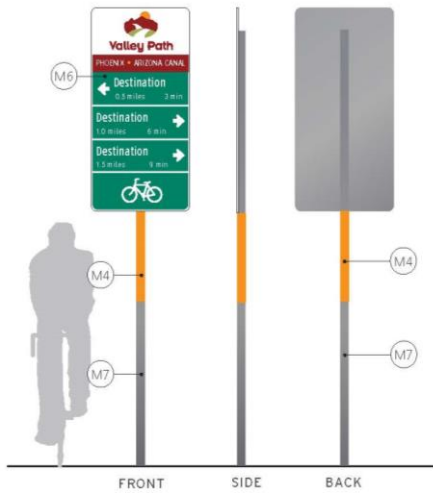
- 1 Unpainted aluminum 2" sq tube\*
- 2 0.80 aluminum panel (or greater) with reflective vinyl graphics, mechanically fastened to 2" aluminum sq tube
- 3 2" wide reflective tape to best match standard MUTCD Yellow
- 4 Unpainted aluminum with protective clear coat applied

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

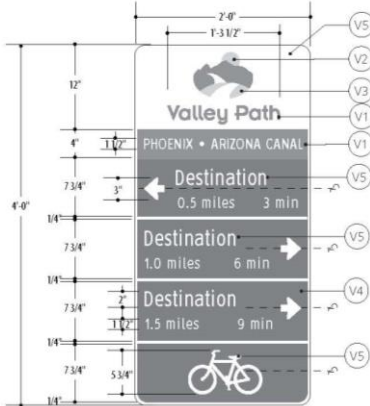
See page 2.25 for ADOT post foundation guidelines for installing this sign.

\* Or equal (2" sq aluminum tube)

**MUTCD Sign Drawings**

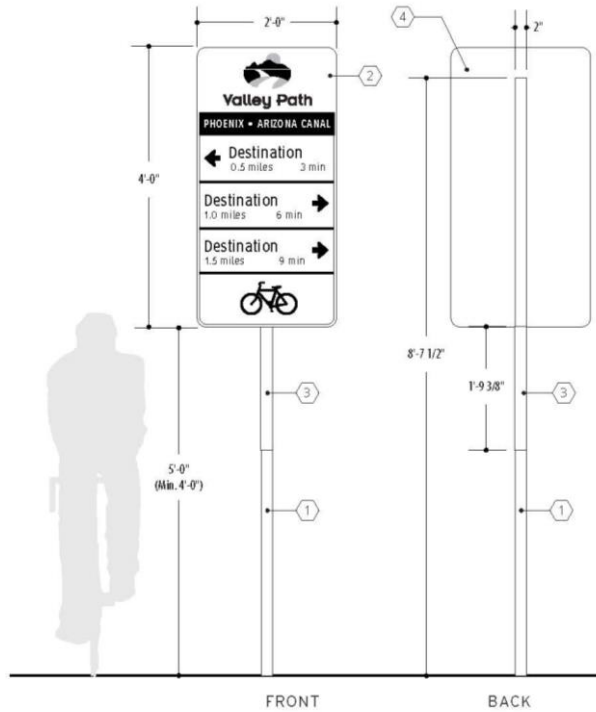


**1 Color Schedule - BIKE.2**  
Scale: 3/8"=1'



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

**Bike 2 Elevation**



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

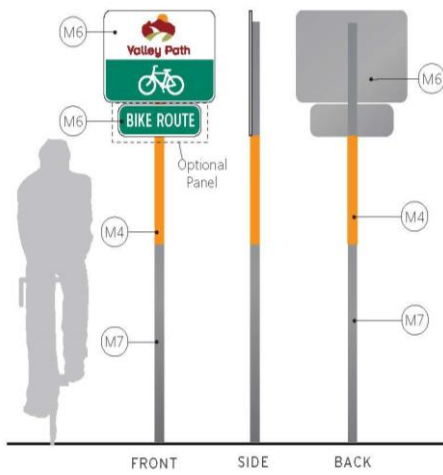
- 1 Unpainted aluminum 2" sq tube\*
- 2 0.80 aluminum panel (or greater) with reflective vinyl graphics, mechanically fastened to 2" aluminum sq tube
- 3 2" wide reflective tape to best match MUTCD standard yellow
- 4 Unpainted aluminum with protective clear coat applied

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

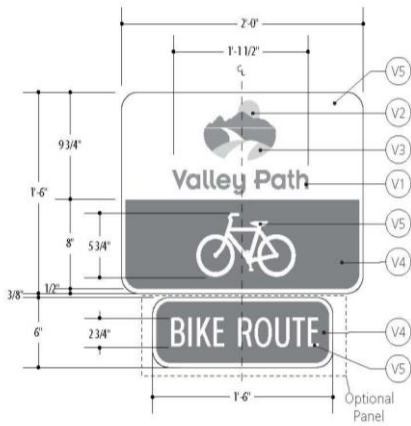
See page 2.25 for ADOT post foundation guidelines for installing this sign.

\* Or equal (2" sq aluminum tube)

**Bike Sign Drawings**

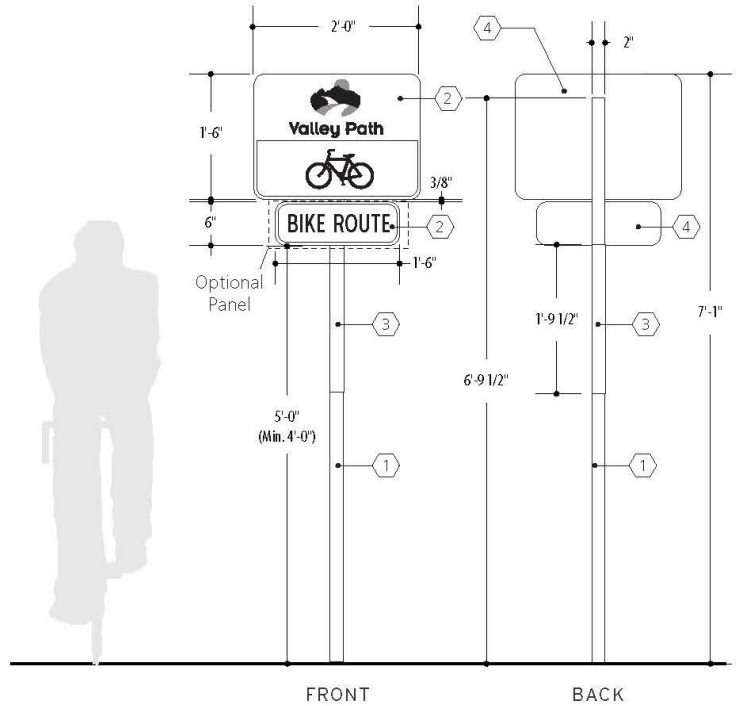


1 Color Schedule - BIKE.3  
Scale: 3/8"=1'



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

**Bike 3 Elevation**



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

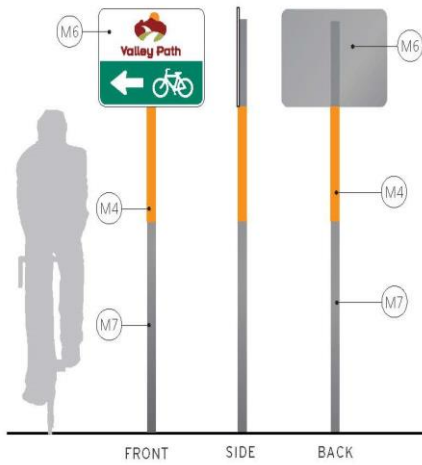
- 1 Unpainted aluminum 2" sq tube\*
- 2 0.80 aluminum panels (or greater) with reflective vinyl graphics, mechanically fastened to 2" aluminum sq tube
- 3 2" wide reflective tape to best match MUTCD Standard yellow
- 4 Unpainted aluminum with protective clear coat applied

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

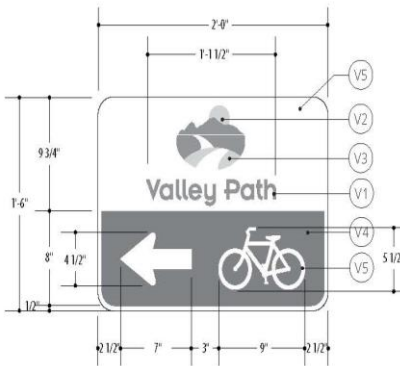
See page 2.25 for ADOT post foundation guidelines for installing this sign.

\* Or equal (2" sq aluminum tube)

**Bike Sign Drawings**

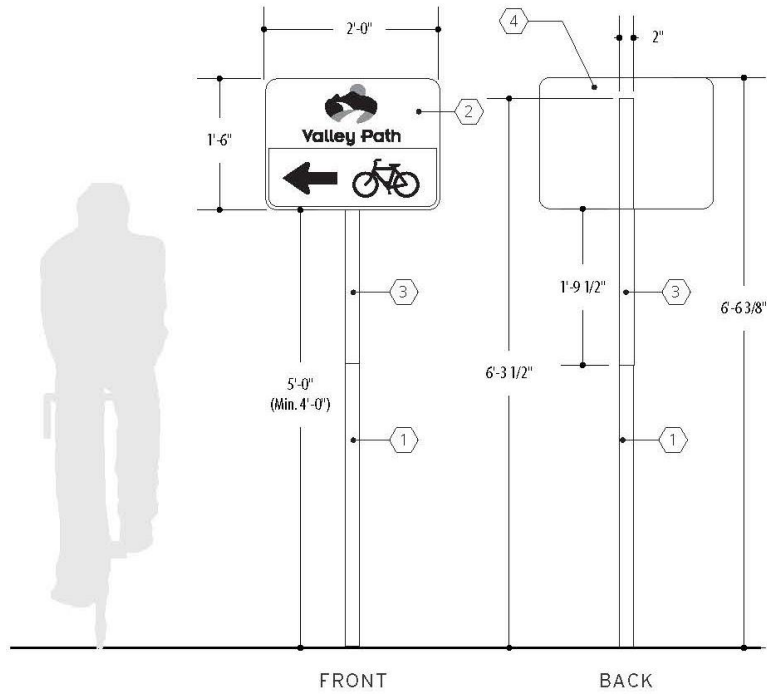


1 Color Schedule - BIKE.4  
Scale: 3/8"=1"



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

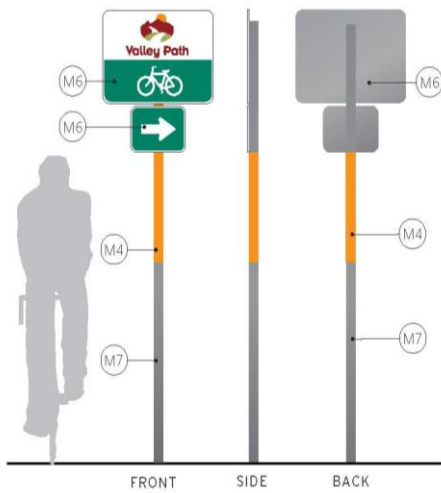
**NOTES:**  
Locate sign at least 2 ft from edge of si panel to trail edge.

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

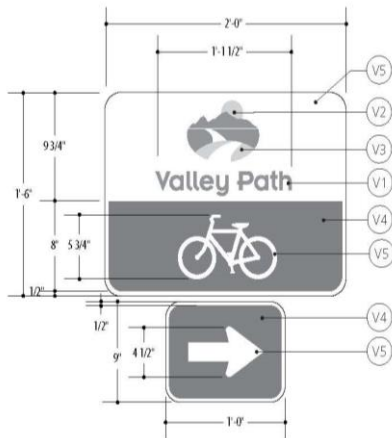
\* Or equal (2" sq aluminum tube)



**Bike Sign Drawings**

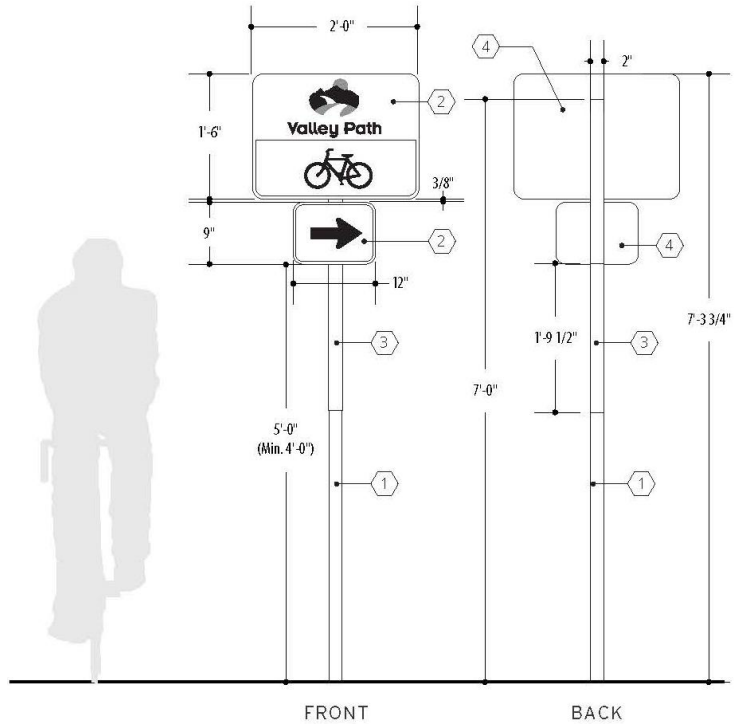


1 **Color Schedule - BIKE.5**  
Scale: 3/8"=1"



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

**Bike 5 Elevation**



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

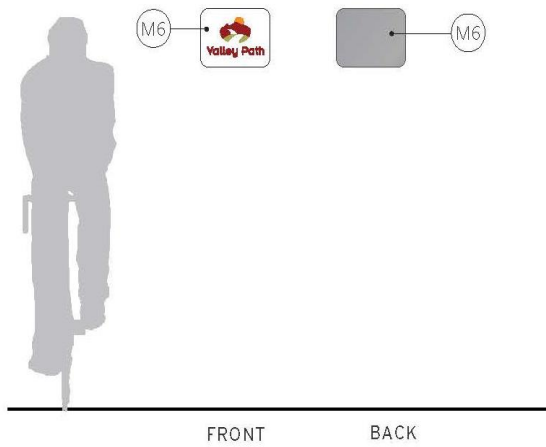
- 1 Unpainted aluminum 2" sq tube\*
- 2 0.80 aluminum panels (or greater) with reflective vinyl graphics, mechanically fastened to 2" aluminum sq tube
- 3 2" wide reflective tape to best match MUTCD Standard yellow
- 4 Unpainted aluminum with protective clear coat applied

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

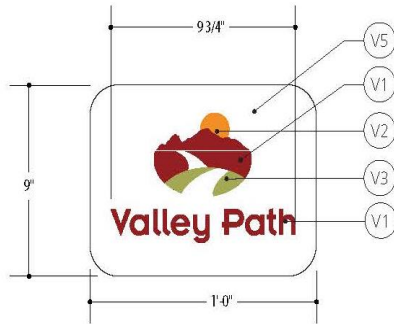
See page 2.25 for ADOT post foundation guidelines for installing this sign.

\* Or equal (2" sq aluminum tube)

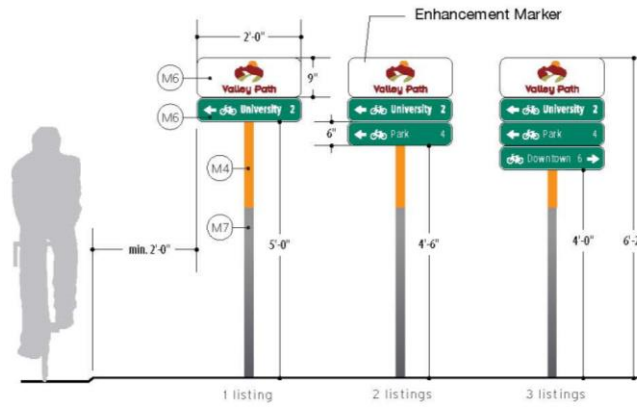
**Sign Drawings**



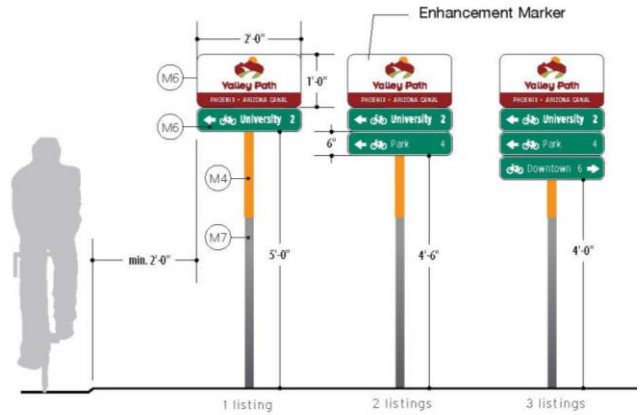
① **Color Schedule - BIKE.6**  
 Scale: 3/8"=1'



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



① **Modular Option - BIKE.1**  
 Scale: 3/8"=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 $\geq 1$ documented pedestrian/ bicycle <u>injury</u> 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 $\geq 1$ documented pedestrian/ bicycle <u>fatality</u> 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 $\geq 5$ pedestrian/ bicycle <u>injuries</u> or <u>fatalities</u> ?			
	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	<u>Highway</u>	<u>Arterial</u> 5-6 lanes and/or >40 mph and/or >10,000 ADT	<u>Collector</u> 3-4 lanes and/or $\geq 35$ mph and/or $\geq 5,000$ ADT	<u>Local</u> 1-2 lanes and/or $\geq 25$ mph and/or <5,000 ADT
Points	0	5	10	15

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

<u>Total number</u> 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 <u>destination types</u> 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	<u>Job/Transit</u> (Employment, transit)	<u>Food/Dining</u> (Restaurants, coffee shops)	<u>Errands</u> (Food shopping, other shopping)	<u>Health/Community</u> (Doctor/clinic, places of worship,	<u>Schools</u> (Any school)	<u>Parks</u> (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)
<b>TOTAL</b>	

*\* This is a key component of Complete Streets*