

Phoenix 56th Street: Camelback Road to Thomas Road Complete Street Study

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Project Name: Phoenix 56th Street: Camelback Road to Thomas Road Complete Streets Study

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Table of Contents

TABLE OF CONTENTSI, II

1 INTRODUCTION.....1

1.1 PURPOSE OF STUDY.....1

1.2 STUDY AREA.....1

2 BACKGROUND DATA.....1

2.1 SUMMARY OF NEED/JUSTIFICATION1

2.2 PROJECT BACKGROUND.....2

2.3 DATA COLLECTION.....2

2.4 REVIEW OF PLANNING DOCUMENTS.....4

2.5 EXISTING TRAFFIC CONDITIONS.....5

2.5.1 *Street Classification*.....5

2.5.2 *Existing Physical Conditions*5

2.5.3 *Existing Traffic Signals*.....5

2.5.4 *Existing Transit*.....6

2.5.5 *Existing Pedestrian and Bicycle Facilities*.....6

2.5.6 *Existing Pedestrian and Bicycle Connectivity*.....6

2.5.7 *Existing Traffic Volumes*.....7

2.5.8 *Crash History*.....9

2.6 EXISTING DRAINAGE9

2.7 EXISTING STRUCTURES AND UTILITIES.....10

2.8 EXISTING LANDSCAPE ARCHITECTURE.....10

3 PROJECT SCOPE.....11

4 PROJECT DEVELOPMENT CONSIDERATIONS11

4.1 ENVIRONMENTAL OVERVIEW11

4.2 PUBLIC OUTREACH AND SCOPING.....11

4.3 CONSTRUCTION AND CONTRACT METHOD.....12

4.4 GEOTECHNICAL AND DRAINAGE REQUIREMENTS12

4.5 CRITICAL OUTSIDE AGENCY INVOLVEMENT12

4.6 RIGHT-OF-WAY REQUIREMENTS.....12

4.7 UTILITY RELOCATION REQUIREMENTS.....12

4.8 SEASONAL CONSIDERATIONS13

4.9 MANAGEMENT OF TRAFFIC REQUIREMENTS13

4.10 DESIGN CRITERIA13

4.10.1 *References*.....13

4.10.2 *National Best Practices*.....14

5 RECOMMENDED IMPROVEMENTS.....14

5.1 PROPOSED ALTERNATIVES.....14

5.2 LANDSCAPE FEATURES AND AMENITIES17

5.3 RAISED ISLANDS OR MEDIANS17

5.4 EXETER ROUNDABOUT.....17

5.5 TRAFFIC CALMING18

5.5.1 *Lateral Shift/Chicane*.....18

5.5.2 *Speed Humps/Cushions*19

5.5.3 *Raised Pedestrian Crosswalk/Speed Table*.....19

5.6 PEDESTRIAN FACILITIES20

5.7 BICYCLE FACILITIES20

5.8 SIGNING AND PAVEMENT MARKING.....21

5.9 TRAFFIC SIGNALS22

5.10 DRAINAGE FACILITIES22

6 TYPICAL SECTIONS23

7 15% PLANS24

8 ESTIMATED COST AND SCHEDULE.....25

8.1 FUNDING SOURCE25

8.2 SCHEDULE25

8.3 ESTIMATED COST25

9 FUTURE CONSIDERATIONS AND STUDIES26

9.1 INTERSECTION OF 56TH STREET AND INDIAN SCHOOL ROAD26

9.2 VERITAS SAFE ROUTES TO SCHOOL (SRTS) STUDY26

9.3 PEDESTRIAN AND BICYCLE COUNTS26

9.4 BEFORE AND AFTER SPEED AND TRAFFIC COUNTS27

10 PROJECT VICINITY MAP28

11 PROJECT LOCATION MAP29

Appendix A - Existing Site Conditions Photos

Appendix B - Opportunities & Constraints Map

Appendix C - Conceptual Alternative Design Cross Sections

Appendix D - Alternative Design Character Materials

Appendix E - 15% Plan Package - Recommended Alternative 2 (With Utility/Paving Plans)

Appendix F - 15% Plan Package - Suggested Alternative 3 (Without Utility/Paving Plans)

1 INTRODUCTION

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1.1 PURPOSE OF STUDY

The Phoenix 56th Street: Camelback Road to Thomas Road project is a study to develop a safe bicycle and pedestrian environment for the 1.5-mile 56th Street corridor from Camelback Road to Thomas Road in Phoenix, Arizona. The project will connect to the Arizona Canal north of Indian School Road and engage several neighborhood associations. This community driven project is intended to develop a consistent corridor that puts the safety of pedestrians and bicyclists first; meets Americans with Disabilities Act (ADA) standards; completes bicycle and pedestrian gaps along the corridor; addresses utilities, storm drainage; and provides opportunities for green infrastructure. A focus task of this project includes the public outreach / stakeholder engagement effort. The development of a complete streets environment that includes a sense of place is the overlying goal.

The project will include safety improvements for multi-modal users, reduce vehicle-pedestrian-bicycle conflict areas, provide connectivity for multi-modal users, and enhance landscape features that provide shade. The recommended project improvements shall be compliant with the ADA Guidelines, Manual on Uniform Traffic Control Devices (MUTCD), and National Association of City Transportation Officials (NACTO).

The primary focus of "Complete Streets" is not the speed and efficiency of automobile travel, but on the safety and comfort of all users in the public right-of-way. Therefore, the purpose of the project is not to improve travel time for automobiles by adding lanes. The goals of the 56th Street Complete Street project are the following:

- ❖ Improve comfort and safety for bicyclists and pedestrians, which may include signal timing changes.
- ❖ Provide continuous sidewalks and bicycle lanes with improved connectivity.
- ❖ Meet Americans with Disabilities Act (ADA) standards.
- ❖ Slow vehicle speeds.
- ❖ Reduce cut-through traffic.
- ❖ Provide opportunities for green infrastructure, enhanced landscape, and shade.
- ❖ Produce a sense of place and community.

The recommended project improvements shall be compliant with the ADA, Manual on Uniform Traffic Control Devices (MUTCD), and American Association of State Highway and Transportation Officials (AASHTO).

1.2 STUDY AREA

56th Street is a collector street in East - Central Phoenix, known as the Arcadia area. 56th Street is one and a half miles east of 44th Street and one mile west of 64th Street. Collector streets are typically good candidates for bicycle facilities as they are low stress roads and tend to have lower vehicle counts. For most of the corridor, traffic volumes are between 4,000 and 6,000 vehicles a day. Speed limits throughout the corridor are posted at 35 mph. Currently, 56th Street between Camelback Road and Thomas Road has a variety of cross section/right-of-way widths and sidewalk features that are inconsistent and not continuous. The corridor provides key connectivity to transit routes along Camelback Road, Indian School Road, and Thomas Road. The corridor also provides connectivity to existing bike facilities along Exeter Boulevard, Lafayette Boulevard, the Arizona Canal Path, and Osborn Road. There are eight schools in the area that would benefit from increased and safer multimodal transportation opportunities.

The Project Vicinity Map and Project Location Map are provided in **Section 10.0** and **Section 11.0** respectively. The Opportunities and Constraints map is provided in **Appendix B**.

2 BACKGROUND DATA

2.1 SUMMARY OF NEED/JUSTIFICATION

The City of Phoenix 56th Street Complete Streets project is a study to develop a safe bicycle and pedestrian complete streets corridor for 56th Street, from Thomas Road to Camelback Road. The overall project length is 1.5 miles. The project will provide an ADA compliant pedestrian environment and bicycle facility for the City of Phoenix and link several public and private destinations within the project limits. There are 4 signalized intersections located at arterial and collector roadways, and an un-signalized pedestrian intersection located at the Arizona Canal.

This project was initiated by the local neighborhood leadership group as a study to evaluate perceived safety needs, promote pedestrian connectivity to area destinations, and to provide a continuous bicycle environment along 56th Street. This corridor connects Arcadia Park, Arizona Canal and the Falls at Arizona Canal, Prince of Peace Church, Church of Jesus Christ of Latter-Day Saints, and Veritas School as immediate destinations along 56th Street. The SAVES and Connects group is composed of surrounding neighborhood leaders. SAVES is short for Safety, Aesthetics, Volume, Enjoyment, Speed, and was organized in late 2016 to promote and support the redevelopment and added improvements to the 56th Street corridor. The Arcadia Camelback Mountain Neighborhood Association and Arcadia Osborn Neighborhood Association have been passionate advocates for improvements to the 56th Street corridor and have expressed concerns regarding:

- ❖ A School Zone for Veritas
- ❖ Issues with speeding along 56th Street
- ❖ Issues with increased traffic volumes
- ❖ Traffic Control issues at Osborn, Indian School, and Lafayette Roads
- ❖ Canal Crossing issues with cyclists at the Arizona Canal

- ❖ Round-About performance at Exeter and the speeding
- ❖ Veritas school traffic congestion at pick-up and drop-off times
- ❖ Disconnection in the existing sidewalks on both sides of 56th Street
- ❖ Disconnection in the existing bicycle environment of 56th Street
- ❖ Storm water retention from rain events to select properties

This corridor is identified as a Collector road for the City of Phoenix street network. With an existing speed limit of 35 mph and a typical right of way width of 80 ft., it is a good candidate to provide added pedestrian and bicycle facilities and offer a safe route for school aged children to commute to nearby schools. Added landscape areas and buffers can promote a complete streets environment. Potential features can include LID - low impact development infrastructure; such as bio-swales to address minor storm event drainage and have sustainable landscapes.

2.2 PROJECT BACKGROUND

The 56th Street Corridor Study is a community-driven project that will result in a welcoming corridor design concept. Commonly referred to as a Complete Street, the future 56th Street should safely accommodate all roadway users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. Additionally, the project will identify and address Americans with Disabilities Act (ADA) requirements; bicycle and pedestrian gaps along the corridor; and opportunities for green infrastructure.

This concept study will collect data on the existing site conditions and statistics of the corridor's current performance. These collected materials will be analyzed to identify the core issues and the design compliance standards required by the concepts that will be developed for the future vision of the streetscape environment. Design alternatives will be prepared and presented during open house public outreach events where the local community will provide input and identify preferences for the corridor design. A preferred alternative will be suggested as part of the 15% conceptual study. This preferred alternative will include an estimate of construction costs based upon this preliminary concept and a budget will be identified for the future streetscape. The data collection and data analysis will be summarized graphically in an opportunities and constraints map (see attached **Appendix B – Opportunities & Constraints Map**). The design alternative concepts will be developed and presented during the open house events. The final open house event will present the suggested preferred alternative concept. This concept and the development of the project will be summarized in this report as a draft and final Project Assessment (PA).

2.3 DATA COLLECTION

Data collection for this project was conducted as part of the evaluation of existing conditions and review of controlling design standards and regulations. The project team completed a field photographic survey of existing corridor conditions, review of local, regional, and national development standards and design criteria of the project area. Reviews of existing site opportunities and constraints were performed. The existing signals, existing pavements, land ownership, right of way development, and barriers were investigated. Right of Way and property lines were provided by the City to ensure the project improvements are maintained with existing right-of-way or within a future easement.

The data collection of design criteria included in this Task was assembled from materials provided by City of Phoenix and from relevant materials gathered by Harrington Planning + Design, Y2K Engineering, and Ritoch - Powell & Associates. Design materials were gathered from Federal, State, Regional (MAG), and local municipal sources.

The following materials and information were gathered:

TEAM Information

The information provided by site visits allowed the design team to further understand the existing conditions and issues within the project corridor. During these site visits the design team noted drainage concerns, bike environment gaps, pedestrian environment gaps, landscape visibility issues, existing utility constraints and inconsistent aesthetic character in the project area.

- HP+D – Site Visit + Photographic Survey (February 8, 2018) See **Appendix A** for Existing Site Conditions Photos
- HP+D – Site Visit + Photographic Survey (April 30, 2018) See **Appendix A** for Imagery
- RPA – Site Visit + Existing Drainage Pattern Observations (April 30, 2018)
- Y2K – Site Visit + Transportation and Circulation Observations (May 9, 2018)

CITY Information:

- RPA - Aerial Imagery – Bing, AutoCAD Civil 3D (2018)
- City of Phoenix – Existing Site Traffic Data (2018)
- City of Phoenix – 56th Street Aerial – COP Street Transportation Department (2017)
- City of Phoenix – North 56th Street Parcel Map (June 30, 2017)
- City of Phoenix – 56th Street and Thomas Rd Parcel Map (June 30, 2017)
- City of Phoenix – Traffic Survey Summary (May 2017)
- City of Phoenix – Neighborhood Traffic Calming Programs – COP Street Transportation Department (May 5, 2017)
- City of Phoenix – Compete Streets Brochure (2013)
- City of Phoenix – Compete Street Policy (February 2017)
- City of Phoenix – Street Classification Map (January 20, 2010)
- City of Phoenix – General Plan Land Use Zoning (April 9, 2018)
- City of Phoenix – Tree and Shade Master Plan (2010)
- City of Phoenix – Project Development Requirements and Guidelines (February 2012)
- City of Phoenix – Street Landscape Standards (2006)
- City of Phoenix – Street Planning and Design Guidelines (December 2009)
- City of Phoenix – Comprehensive Bike Master Plan (August 2014)
- City of Phoenix – GIS Base Map Data (2018)
- City of Phoenix – Drainage Reports (2018)
- City of Phoenix – Pavement Maintenance Program (2018 to 2021)
- City of Phoenix – LED Street Light Program (2017)
- City of Phoenix – Storm Water Policies and Standards Manual, 3rd Edition (December 2013)
- City of Phoenix – Design Standards Manual for Water and Wastewater Systems (2017)
- City of Phoenix – Street Pavement Cut Policy (2017)
- City of Phoenix – Visibility Requirements for Landscaping Corner Lots

REGIONAL Information:

- MAG – Complete Streets Guide (December 2010)
- MAG – Pedestrian Policies and Guideline (2005)
- MAG – Letters of Support for 56th St (2017)

- MAG – Pedestrian Master Plan (2010)
- MAG – Valley Path Brand and Wayfinding Signage Guidelines (2015)
- MAG – Right of Way GIS information – AutoCAD Civil 3D (2018)
- MAG – City of Phoenix Supplements to MAG (2015)
- AZ Bluestake – Utility Design Ticket # 2018050101682.000 (May 1, 2018)

STATE Information:

- AZ - Statewide Bicycle and Pedestrian Plan Design Guidelines (2003)
- ADOT – Crash Data (2018)

FEDERAL Information:

- PROWAG (Public Rights-of-Way Accessibility Guidelines)
- NACTO (National Association of Transportation Officials) – Design Guidelines (2009)
- NACTO (National Association of Transportation Officials) – Urban Bikeway Design Guide (2013)
- NACTO (National Association of Transportation Officials) – Urban Street Design Guide (2013)
- AASHTO (American Association of State Highways and Transportation Officials) – Guide for the Development of Bicycle Facilities (2012)
- AASHTO (American Association of State Highways and Transportation Officials) – Green Book (2011)
- FEMA (Federal Emergency Management Agency) – FIRM Map Panel 1-4 (May 1, 2018)
- ADAAG (American Disability Act Accessibility Guidelines) – Design Guidelines (2010)

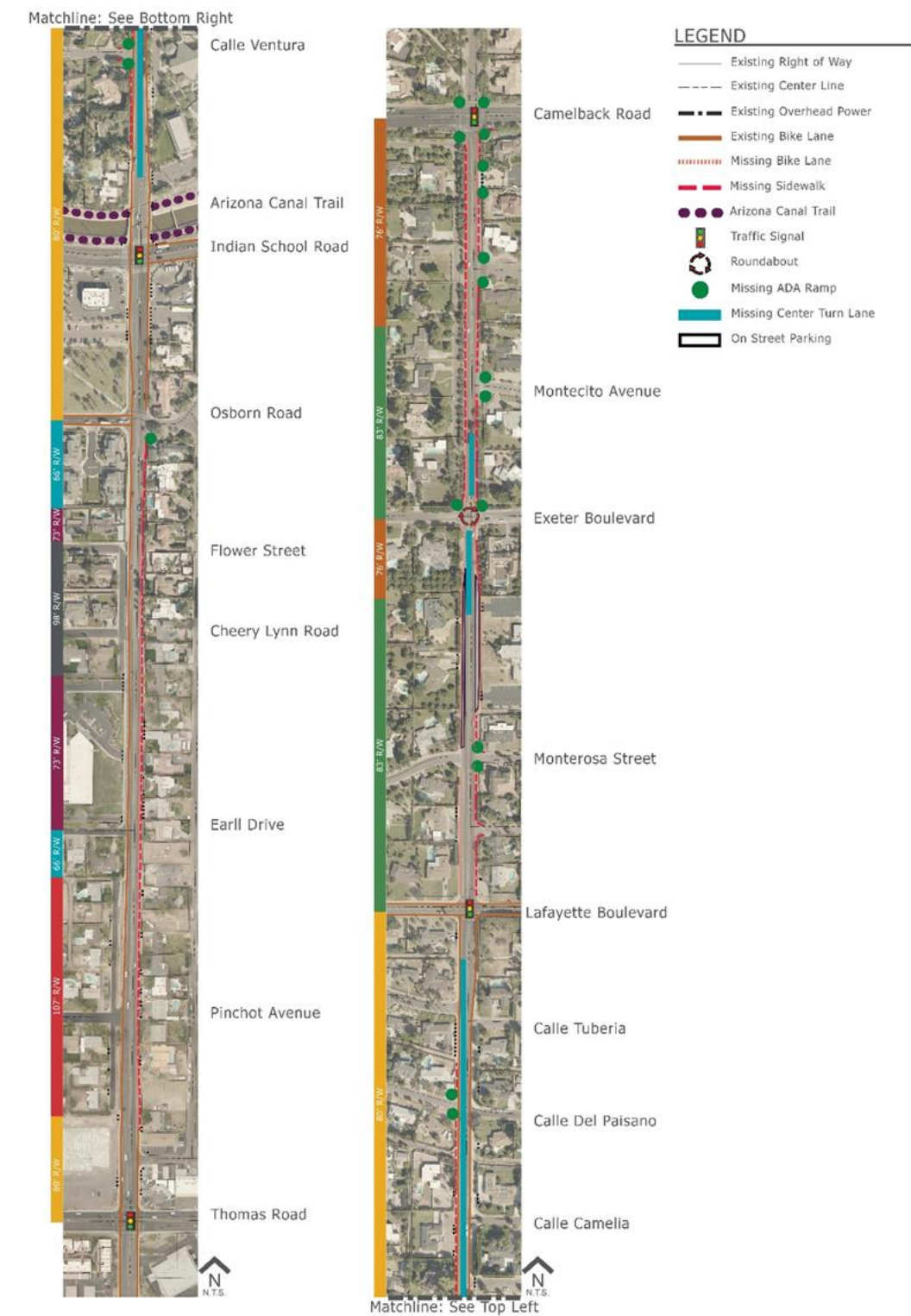


Figure 1: Opportunity & Constraints Map

2.4 REVIEW OF PLANNING DOCUMENTS

Table 1: Summary of Planning Documents Reviewed

Report or Study	Agency	Date
City of Phoenix Comprehensive Bicycle Master Plan	City of Phoenix	2014
City of Phoenix Complete Streets Policy	City of Phoenix	2017
City of Phoenix Complete Streets Design Guidelines (DRAFT)	City of Phoenix	2018
General Plan Land Use Zoning	City of Phoenix	2018
Tree and Shade Master Plan	City of Phoenix	2010
Drainage Reports	City of Phoenix	2018
MAG Complete Streets Guide	MAG	2011
MAG Pedestrian Policies and Design Guidelines	MAG	2005

City of Phoenix – Comprehensive Bike Master Plan (August 2014)

The City of Phoenix established a goal to achieve “Platinum-Level Bicycle Friendly Community” status within the next 20 years by improving existing bicycle facilities including bicycle lanes, bicycle routes, and shared use paths. The 2014 City of Phoenix Comprehensive Bicycle Master Plan (BMP) establishes the following goals:

- Increase bicycle mode share.
- Enhance comfort and safety for all users.
- Build out the existing bicycle network and improve connection with adjacent agencies.
- Provide connections to bikeways, shared use paths, and trails within Phoenix and adjoining communities to provide longer-distance recreation and commuting opportunities.
- Improve mobility to connect neighborhoods, access to downtown Phoenix, and connections to schools, parks, shopping, work and other activity centers.

In another initiative, the City has developed Phoenix Transportation 2050, a 35-year plan for investments in bus service, light rail construction, bicycle infrastructure, and street improvements, approved by voters in 2015. A component of the plan includes enhancements in bicycle infrastructure with plans for phased project implementation to complete the bicycle network.

City of Phoenix – Complete Streets Policy (2017)

The intent of the Complete Streets Policy is to help the City of Phoenix “Become more walkable, bikeable and public transit friendly, Foster social engagement, instill community pride, Grow the local economy and property values, identify projects that will improve equitable transportation access for vulnerable and transit-dependent populations, Improve the livability and long-term sustainability of the region.”

City of Phoenix – Complete Streets Design Guidelines (DRAFT 2018)

The draft of the guidelines state that “Phoenix’s transportation network has been designed almost exclusively for the vehicle. This principle strives to return balance to the transportation network for users of all modes of transportation resulting in a safer city.” Design principles are included in the document for safety, comfort and convenience, context, sustainability, cost-effectiveness, and connectivity.

City of Phoenix – General Plan Land Use Zoning (April 9, 2018)

This map shows the current zoning along the project corridor from Thomas Road and Indian School Road. There are seven different types of residential zoning, three types of commercial zoning, and one case of industrial zoning.

The land use zoning categories and their zoning regulations found on site are as follows:

Residential: R1-6, R1-10, R3, R1-14, R1-18, RE-24, RE-35

Zoning Regulations:

- All residences that front on collector streets rights-of-way shall provide a minimum ten-foot-wide landscape tract.
- All residences that side on collector streets rights-of-way shall provide a minimum 15-foot-wide landscape tract.
- Perimeter of the development not abutting rights-of-way must provide a minimum five-foot landscape setback.
- Minimum trees spaced 20 feet on center or equivalent groupings in required landscape setbacks.
- Minimum one-and-one-half-inch caliper (50 percent of required trees). Minimum two-inch caliper or multi-trunk tree (25 percent of required trees). Minimum three-inch caliper or multi-trunk tree (25 percent of required trees). Provide minimum five five-gallon shrubs per tree.

Commercial: C-0, C-1, C-2

Zoning Regulations:

- All new developments must have a building and landscape setback of 25’ minimum, this requirement may change depending on size and height of building
- A minimum of five feet landscaping, canopy/shade structure, or combination thereof shall be provided adjacent to the street frontage.
- Minimum trees spaced 20 feet on center or equivalent groupings in required landscape setbacks.
- Minimum one-and-one-half-inch caliper (50 percent of required trees). Minimum two-inch caliper or multi-trunk tree (25 percent of required trees). Minimum three-inch caliper or multi-trunk tree (25 percent of required trees). Provide minimum five five-gallon shrubs per tree.

Industrial: IND.PK

Zoning Regulations:

- All new developments must have a building and landscape setback of 30’, or 25’ for 50% of frontage, with a minimum of 15’ along existing residential, or 10’ along all other property lines.
- A minimum of five feet landscaping, canopy/shade structure, or combination thereof shall be provided adjacent to the street frontage.
- Minimum trees spaced 20 feet on center or equivalent groupings in required landscape setbacks.
- The landscape palette shall contain a mixed maturity consisting of 60% trees with minimum 2-inch caliper, 40% with minimum 1-inch caliper. Provide minimum five five-gallon shrubs per tree.

City of Phoenix – Tree and Shade Master Plan (2010)

The Tree and Shade Master Plan is a roadmap created to provide an outline for a healthier, more livable, and prosperous Phoenix, Arizona. This document was created to raise awareness, preserve and protect existing trees while increasing the city’s canopy percentage, and provide sustainable practices and recommendations for future developments.

The Tree and Shade Master Plan provides a detailed roadmap to achieve an average 25% shade canopy coverage for the entire city. This is achieved by requiring all new developments and infill projects to provide specific tree quantities depending on their zoning ordinance. Other tools include creating awareness through education, maintenance, salvage and inventory of existing tree materials on all project sites and creating of design standards and irrigation standards.

City of Phoenix – Drainage Reports (2018)

This drainage report document was prepared by Clouse Engineering, Inc. as a requirement for the design / permitting of “56 Palms” a residential development located on the south east corner of 56th Street and Camelback Road. The project intends to utilize this report as a reference for existing drainage patterns, specifically page 5 related to offsite hydrology. The report calculated a drainage area of 12.02 acres draining across Camelback Road from the north into the project area. That area generates a flow of 29 ft³/s (Q10) which is likely a significant contributing factor to the drainage issues on the east side of 56th Street to the South. Proposed drainage improvements will be developed to account for on-site drainage only, however these improvements are anticipated to reduce existing flooding incidents.

2011 MAG Complete Streets Guide

The 2011 MAG Complete Streets Guide identifies steps and recommendations for implementing Complete Streets in the MAG region. This guide describes strategies to implement Complete Streets projects relevant to the 56th Street project and cites separated bike lanes as a potential best practice to provide a “safe place” for bicyclists. The Complete Streets Guide references the MAG Pedestrian Policies and Design Guidelines, which detail recommended minimum standards for ‘safe,’ ‘comfortable,’ and ‘destination’ facilities, such as sidewalk width and shade coverage.

MAG has also developed standards and guidelines for its regional off-street network (Valley Path), including graphic standards, MUTCD drawings, and wayfinding guidelines. The wayfinding guidelines address topics such as destination priorities, on/off-street transitions and path-roadway intersections. These are relevant for the connection with the Arizona Canal Path.

2005 MAG Pedestrian Policies and Design Guidelines

The Pedestrian Area Policies and Design Guidelines are “intended to provide a source of information and design assistance to support walking as an alternative transportation mode. Through application of the policies and design guidance in this document, jurisdictions, neighborhoods, land planners, and other entities will be able to: 1) better recognize opportunities to enhance the built environment for pedestrians; 2) better create and redevelop pedestrian areas throughout the region that integrate facilities for walking with other transportation modes; 3) support the development of areas where walking is the preferred transportation mode; and 4) encourage the development of other independent pedestrian focused transportation facilities.”

2.5 EXISTING TRAFFIC CONDITIONS

2.5.1 Street Classification

Per the *City of Phoenix Street Classification Map*, 56th Street is classified as a collector street. Per the classification map, a collector street provides for short distance (less than 3 miles) and primarily functions to collect and distribute traffic between local streets or high-volume generators and arterial streets. A typical collector right-of-way is 80’. The existing right-of-way conditions on 56th Street vary from a 66’ right-of-way to a 107’ right-of-way. Indian School Road is classified as a major arterial. Camelback and Thomas Road are both classified as arterials. Arterials provide for longer distance traffic movement than collectors.

2.5.2 Existing Physical Conditions

56th Street, between Thomas Road and Camelback Road, is a collector with a posted speed limit of 35 mph throughout the corridor. 56th Street is primarily a two-lane roadway with the exception of short four-lane segments at the Indian School Road and Thomas Road intersections. The project corridor has four (4) signalized intersections, multiple one-way and two-way stop-controlled intersections, an Arizona Canal Path crossing, and a roundabout at Exeter Boulevard. There are two schools within the corridor requiring special consideration: Ingleside Middle School and Veritas Preparatory Academy.

The existing lane configurations and traffic control are depicted in **Figure 2**. **Table 2** summarizes the existing posted speed limits in the study area.

Table 2: Study Area Speed Limits

On Road	Location	Posted Speed Limit (mph)
56 th Street	Thomas Road to Camelback Road	35
Thomas Road	At 56 th Street	45
Osborn Road	At 56 th Street	30 and School Zone
Indian School Road	At 56 th Street	40
Lafayette Boulevard	At 56 th Street	35

2.5.1 Existing Traffic Signals

There are four (4) existing traffic signals within the 56th Corridor at Camelback Road, Lafayette Boulevard, Indian School Road, and Thomas Road.

56th Street & Camelback: There is a permissive/protected left-turn (5-section head) for the westbound approach. The other approaches do not have left-turn arrows. Pedestrian signals are provided in each direction. However, there are no sidewalks or ramps.

56th Street & Lafayette Boulevard: There are pedestrian signals in each direction. No left-turn arrows are provided.

56th Street & Indian School Road: There are pedestrian signals in each direction. Left-turn arrows are provided for the westbound and southbound approaches.

56th Street & Thomas Road: There are pedestrian signals in each direction. A permissive/protected left-turn (5-section head) is provided for the westbound approach.

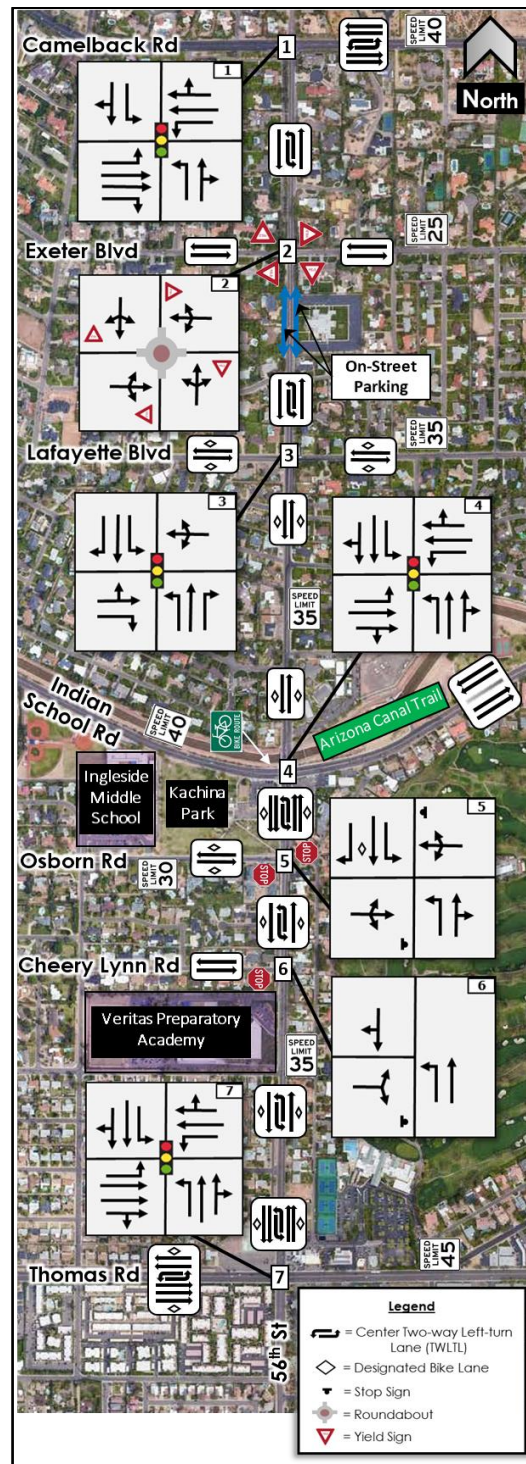


Figure 2: Existing Lane Configuration and Traffic Control

2.5.2 Existing Transit

A Valley Metro bus route does not follow the 56th Street corridor from Thomas Road to Camelback Road. The nearest bus connections are Route 29 on Thomas Road, Route 41 on Indian School Road, and Route 50 on Camelback Road.

Bicycling and pedestrians are complementary to transit. Connections to transit stops are important for the usefulness of a transit network and users should be able to access transit stops by bicycle as well as on foot. Transit users should feel that they have a safe and convenient route to and from transit stops. With this project adding bicycle lanes and improving sidewalks on 56th Street, an improved connectivity will be realized for all roadway users.

2.5.3 Existing Pedestrian and Bicycle Facilities

Sidewalks are not continuous on both sides of 56th Street. There are large gaps without sidewalk at the following locations: east side of 56th Street from Osborn Road to Orange Blossom Road (approximately ½ mile in length), west side of 56th Street between Indian School Road and Calle Tuberia (approximately ¼ mile in length), two sections on east side of 56th Street between Lafayette Boulevard and Exeter Boulevard (a total of 800 feet in length), and both sides of 56th Street between Exeter Boulevard and Camelback Road (approximately ½ mile in length).

Pedestrian crosswalks are provided at the signalized intersections of Lafayette Boulevard, Indian School Road, and Thomas Road. The signalized intersection at Camelback Road has marked crosswalks, however there are not paved sidewalks or ramps provided at the intersection. The existing roundabout at Exeter Boulevard does not provide any pedestrian facilities or crosswalks. There is one unsignalized marked crosswalk on 56th Street located on the north approach of the 56th Street/Osborn Road intersection.

The bike lanes are not continuous along the 56th corridor. There are no marked bike lanes between Lafayette Boulevard and Camelback Road (approximately ½ mile in length). There is an Arizona Canal Trail crossing on 56th Street, just north of Indian School Road.

2.5.4 Existing Pedestrian and Bicycle Connectivity

As discussed in the previous section, there are existing gaps in the pedestrian and bicycle facilities along the 56th Street corridor. Figure 3 illustrates these gaps. Improved facilities for all users along the 56th Street corridor will be provided to improve the pedestrian and bicycle environment for the residents, safer routes to the schools, and a connection to the Arizona Canal Trail. A goal of this project is to slow vehicular traffic on 56th Street and provide continuous sidewalks and bike lanes. The primary focus of “Complete Streets” is not the speed and efficiency of automobile travel, but on the safety and comfort of all users in the public right-of-way.

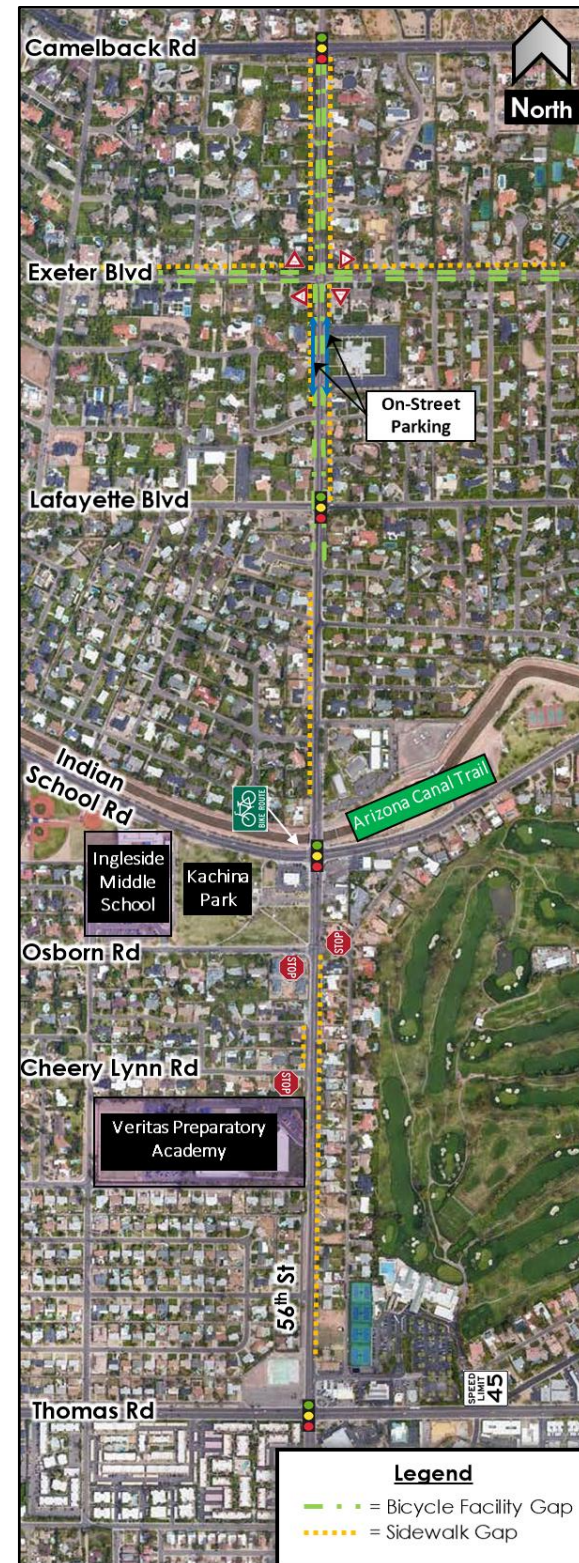


Figure 3: Existing Sidewalk and Bicycle Facility Gaps

2.5.5 Existing Traffic Volumes

New traffic count data were not obtained for this project assessment. Daily traffic volumes obtained from the City of Phoenix Traffic Volume Map are summarized in **Table 3**.

Table 3: Daily Traffic Volumes

Segment	Daily Traffic Volume
Thomas Road to Osborn Road	13,176 (September 2016)
Osborn Road to Indian School Road	15,896 (September 2016)
Indian School Road to Lafayette Blvd	13,395 (April 2017)
Lafayette Blvd to Camelback Rd	9,826 (April 2017)

Traffic counts conducted for previous studies were obtained from the City of Phoenix for the following locations:

56th Street and Indian School Road:
 Vehicle, Pedestrian & Bicycle Count (Nov 2016), 7-9 AM and 4-6 PM.

56th Street and Osborn Road:
 Pedestrian Count (Oct 2016) 7-10 AM, & 4-6 PM

56th Street and Thomas Road:
 Vehicle count in May 2015 and April 2017, 7-9 AM and 4-6 PM.

The existing traffic count locations are illustrated in **Figure 4**. Existing count data were not provided for the segment of 56th Street north of Indian School Road. Existing vehicle counts are depicted in **Figure 5**. **Figure 6** summarizes the pedestrian and bicyclist counts for the 56th Street/Indian School Road intersection.



Figure 4: Provided Traffic Count Locations

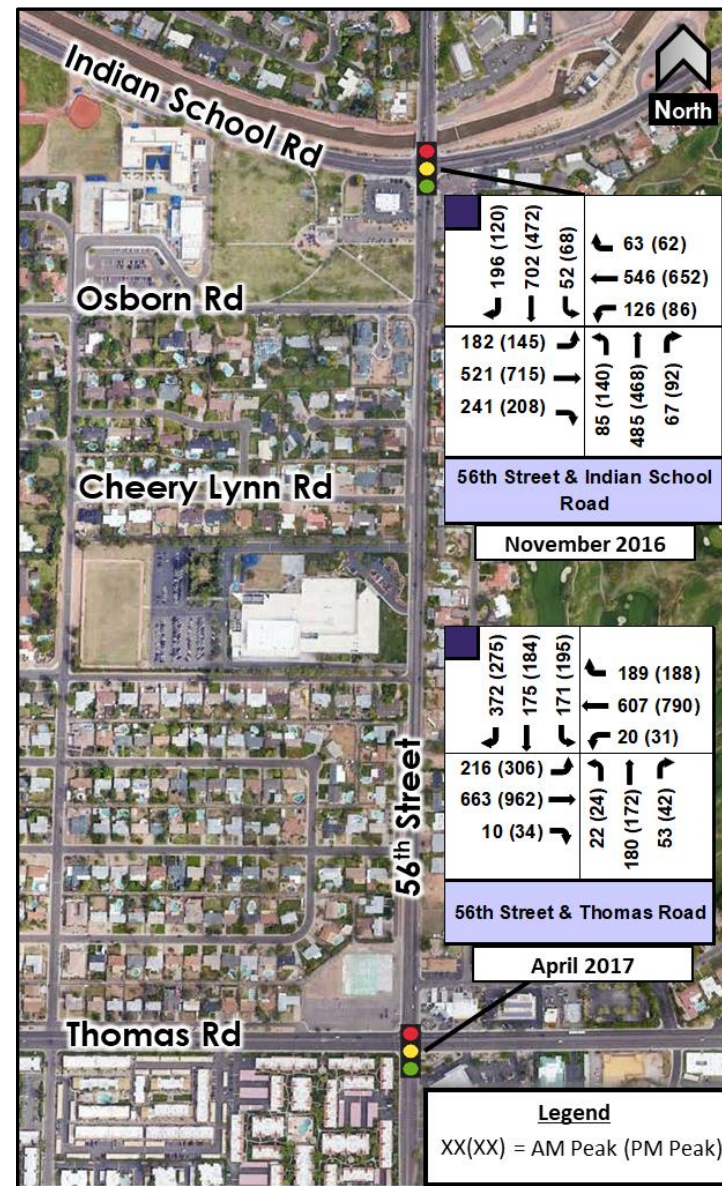


Figure 5: Existing Peak Hour Vehicle Counts

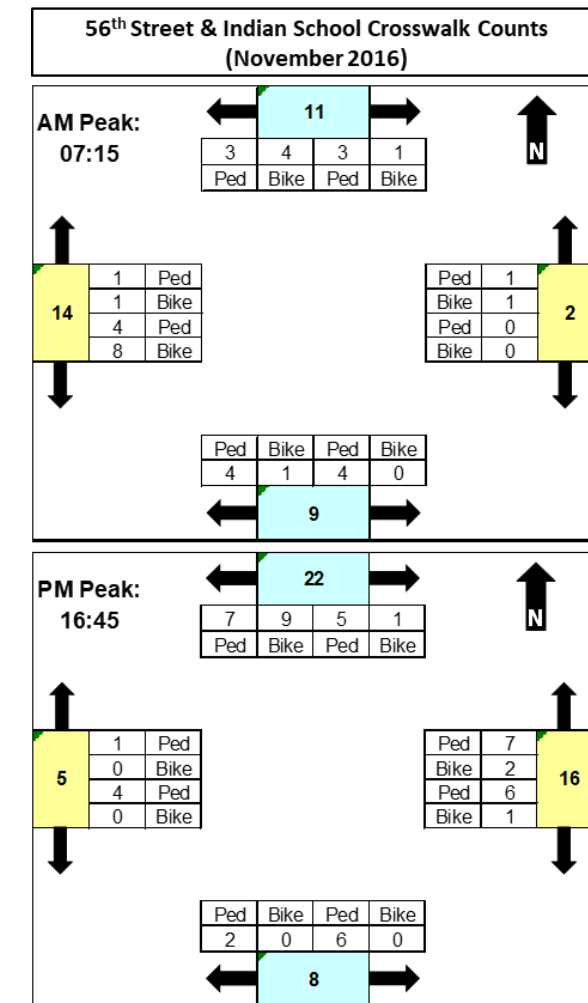


Figure 6: Crosswalk Counts at 56th Street & Indian School Road

56th Street and Osborn Road

Pedestrian counts were conducted by CivTech at the 56th Street/Osborn Road intersection on October 25, 2016 for another project. The observer noted that there is no sidewalk on the west side of 56th Street, south of Osborn Road. Therefore, all pedestrians crossing Osborn Road utilized the west leg. At approximately 2:30 PM, 50-60 students were observed walking with school staff through the park in the northwest corner of the intersection. Some of the students met parents who were waiting in the park parking lot and others continued with school staff to the 56th Street/Indian School Road intersection where they crossed. The pedestrian counts are summarized in Table 4.

Table 4: Pedestrian Count at 56th Street/Osborn Road Intersection

DIRECTION	7 AM – 10 AM	2 PM – 4 PM
Northbound (West Leg)	14	37
Southbound (West Leg)	8	7
Eastbound (North Leg)	5	2
Westbound (North Leg)	8	0

2.5.6 Crash History

Five years of Accident Location Identification Surveillance System (ALISS) crash data (2012-2016) were obtained from ADOT's Safety Data Mart database for the 56th Street corridor to evaluate all crashes involving vehicles, pedestrians, and bicyclists. There is a total of 151 crashes recorded in the database within the 56th corridor study limits from 2012 to 2016. The crashes are summarized by injury severity in **Table 5**. The majority of the crashes occurred at the 56th Street intersections with Thomas Road, Indian School Road, and Camelback Road. Four (4) single vehicle crashes and one (1) sideswipe crash were recorded at the Exeter Boulevard roundabout from 2012 to 2016. Another single vehicle crash occurred at the Exeter Boulevard in 2018.

Table 5: Total Reported Crashes on 56th Street from Thomas Road to Camelback Road

YEAR	Injury Severity				TOTAL
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	No Injury	
2012	0	0	5	14	19
2013	0	2	13	18	33
2014	0	1	10	19	30
2015	0	1	11	18	30
2016	0	1	13	25	39
TOTAL	0	5	52	94	151

Of the 151 total crashes, four (4) crashes involving pedestrians and six (6) crashes involving bicyclists were recorded within the study limits from 2012 to 2016. These crashes are summarized in **Table 6**.

Table 6: Pedestrian and Bicycle Crashes

56 th Street (Thomas Road to Camelback Road) Pedestrian Crashes										
Year	Location	Injury Severity	Pedestrian				Driver/Vehicle			Incident ID
			Age	Direction of Travel	Action	Violation	Direction of Travel	Action	Violation	
2016	56th Street & Indian School Road	Non-incapacitating	60	North	Crossing in West Crosswalk	None	E	Right Turn	Disregarded Signal	3164143
2014	56th Street & Osborn Road	Possible	8 Mo.	North	Stroller in North Crosswalk	None	N	Straight	Failed to Yield	2810120
2013	56th Street & Osborn Road	Incapacitating	28	West	Crossing in North Crosswalk	None	E	Left Turn	Failed to Yield	2719720
2013	56th Street & Thomas Road	Non-Incapacitating	17	West	Crossing in North Crosswalk	None	E	Left Turn	Failed to Yield	2758845
56 th Street (Thomas Road to Camelback Road) Bicycle Crashes										
Year	Location	Injury Severity	Bicyclist				Driver/Vehicle			Incident ID
			Age	Direction of Travel	Action	Violation	Direction of Travel	Action	Violation	
2016	56th Street & Indian School Road	Non-incapacitating	14	North	Riding in West Crosswalk	Disregarded Signal	East	Right Turn	None	3139455
2013	56th Street & Indian School Road	Non-incapacitating	14	South	Riding in West Crosswalk	Unknown	South	Right Turn	Unknown	2729081
2016	56th Street & Cheery Lynn Road	Possible	22	South	Riding in Bike Lane	None	North	Left Turn	Failed to Yield	3145219
2015	56th Street & Thomas Road	Possible	46	South	Riding With Traffic	Disregarded Signal	West	Straight	None	2911553
2015	56th Street & Thomas Road	Possible	28	East	Riding Against Traffic	Other	South	Right Turn	None	2964186
2013	56th Street & Thomas Road	Incapacitating	49	East	In Road	None	East	Straight (Rear End)	None	2813345

2.6 EXISTING DRAINAGE

The 56th Street study corridor currently experiences localized flooding at numerous locations during almost every storm event. Corridor residents have indicated that during particularly large events the water levels have resulted in flooding of portions of their homes. The properties located on the east side of 56th Street, immediately north and south of Earll Drive, appear to be the most impacted as a result of the roadway low point in this area. These conditions result from insufficient storm water collection and conveyance infrastructure (curb and gutter, catch basins, storm drain pipe, retention basins etc.) within the corridor. The specific offsite, onsite, and floodplain characteristics are described below:

Offsite

The historical offsite flow path is from north-east to south-west. Flows from the north drain to and then are conveyed within 56th Street to the intersection of 56th Street and Camelback Road. Offsite flows then may enter a storm drain pipe that crosses Camelback Road and discharges to a roadside swale within the 56th Street right-of-way along the east edge of pavement. Flows from the east drain to and then are conveyed within each cross-street to its intersection with 56th street. Offsite flows then both traverse across 56th street and continue west within the cross-street road prism or discharge into irregularly defined roadside swales within 56th Street right-of-way along the east / west edges of pavement.

Onsite

The historical onsite flow path for the corridor is from north to south, with the exception of the segment between Earll Drive and Thomas Road which flows south to north. 56th Street is a normally crowned roadway with intermittent existing vertical curbs to convey onsite flows. In areas with no vertical curb flows are conveyed on the roadside. Onsite flows currently discharge at four locations:

1. On-grade catch basins on the east and west side of 56th Street north of the Arizona Canal which discharge into the canal.
2. On grade catch basins on the four (4) legs of the Indian School Road intersection which discharge into the canal.
3. Two (2) on-grade catch basins north of Earll Drive and one (1) sump catch basin at Earll Drive with discharge into a 42" storm drain within Earll Drive.
4. On grade catch basins on the four (4) legs of the Thomas Road intersection which discharge into an SRP Irrigation junction structure located on the north-west corner.

FEMA Floodplain Information

The majority of the project area is classified as Zone 'X'. Zone 'X' is defined as "areas of 0.2% annual chance flood; areas of 1% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood."

The portion of the project just north of the Arizona canal is classified as Zone "A". Zone "A" is defined as "Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.



Figure 7: Existing Drainage Summary Map

2.7 EXISTING STRUCTURES AND UTILITIES

The following utility providers were determined to have infrastructure located within the study corridor according to Arizona 811 Blue Stake Inc. (Ticket No: 2018050101682.000)

- American Telephone and Telegraph
- City of Phoenix Traffic Signals
- City of Phoenix Water Services Department
- City of Scottsdale – Reclaimed, Sewer, and Water
- City of Scottsdale – Traffic Signals
- Cox Communications
- MCI – Fiber Optics
- Pauley Construction LLC – Communications
- SRP – Maricopa – Communications, Electric, Irrigation
- Southwest Gas Contact Located SE
- Southwest Gas High Pressure SE
- Zayo Group FKA AGL – Communications
- Arcadia Water Company – Irrigation

The locations of existing underground utilities have been shown on the 15% plans to the best of the design engineer’s knowledge and information provided by each utility provider.

The 56th Street Bridge at the Arizona Canal is the only structure located within the study area. The current condition of the bridge was not evaluated as part of this study and no modification to the bridge is anticipated.

2.8 EXISTING LANDSCAPE ARCHITECTURE

The existing landscape architecture of the 56th Street corridor study area has a diverse and inconsistent identity. The current streetscape includes residential lots that front the collector road, locations with frontage roads that include screen/sound walls, commercial lots that front access the corridor, a regional multi-use path and canal, and several key destinations like the Arcadia Park, 2 religious places of worship, and a charter school. The landscape character is a mix of bare soil, rock mulch with no plants, and different levels of urban vegetation density. Several locations have tall hedges of Oleander plant that encroach within the public right-of-way and create sight visibility and accessibility issues. At the north end of the project limits are a grove of Olive Trees that provide a buffer from a private access road. Select private development parcels have recent landscape improvements that are compliant with City of Phoenix development standards.

3 PROJECT SCOPE

The City of Phoenix is evaluating the 1.5-mile 56th Street corridor between Camelback Road and Thomas Road for bicycle and pedestrian safety improvements. The project has identified traffic, drainage, landscape, and active transportation circulation issues to be addressed.

The City of Phoenix 56th Complete Street project is a study to design and develop a safe corridor with emphasis on the pedestrian and bike environments. Local, regional, and national standards and guides have been collected and analyzed to provide information and recommendations to the future development of the site. These findings are to be used to guide the design team into creating the best possible design alternative for the corridor, ultimately allowing for a vibrant streetscape that can be used by many for years to come.

4 PROJECT DEVELOPMENT CONSIDERATIONS

The *City of Phoenix Project Development Requirements and Guidelines (February 2012)* establishes standards for consultants in the creation and submittal of street projects, such as paving, drainage studies and improvements, streetscape modernization, traffic operations, sidewalk enhancements, water or sewer improvements. This document is intended as a guide and does not dictate design or engineering judgement, nor does it impede on the use of other documents to provide a comprehensive plan.

4.1 ENVIRONMENTAL OVERVIEW

The preliminary environmental analysis was not undertaken within this concept study as this is a built environment. Environmental overview will be described and thoroughly reviewed upon completion of construction documents.

4.2 PUBLIC OUTREACH AND SCOPING

The City of Phoenix held three open houses for the 56th Street Corridor Study. The goal of the open houses was to solicit public input on how 56th Street should look in the future. Generally, the public agreed the primary issues along the corridor are the overall volume of traffic and the speeds at which traffic travels.

Open House 1 was held on June 20, 2018 at Prince of Peace Lutheran Church, where 151 people attended. During the meeting, attendees were shown a presentation that gave a general overview of the corridor study, potential design elements that could be included, and the schedule of the project. Poster boards that showed the existing conditions along the corridor were provided along with a project map.



The purpose of the Open House was to hear from community members on how they use the corridor, how they would ideally like to use the corridor in the future, and the current top issues with the corridor. Input was provided through a questionnaire, comment cards, and a Q & A session after the presentation.



section concepts. The presentation cross sections illustrated the existing conditions for the typical right-of-way widths found within the 56th Street project limits.

Two alternatives were shared identifying potential solutions for each typical right-of-way. Alternative 1 included 6-foot bike lanes with 2-foot separation buffers (within the road environment), 11-foot travel lanes, and 10-foot center lane for a 48-foot wide curb to curb corridor.

This option included landscape buffers with a potential bio-swale and a detached 6-foot wide concrete sidewalk continuous along the corridor. Alternative 2 described 6-foot bike lanes as a raised (6 inches above roadway – equal to sidewalk grade) environment, 11-foot travel lanes, and 10-foot center lane for a 32-foot wide curb to curb corridor.

Alternative 2 included a 5-foot landscape buffer between the bike lane and the sidewalk. Sidewalk is proposed to be a 6-foot wide concrete design. Larger right-of-way segments would include a landscape buffer outside of the back of sidewalks.

Open House 3 was held on September 26, 2018 at Veritas Preparatory Academy where 97 people attended. A summary of the input received from the two previous open houses was provided. Based on public input received, the community identified the desire for a grade-separated bike lane along the entirety of the corridor with a preference for the following design elements:

- Striped Buffers for Bike Lanes (when necessary)
- Green Paint over Asphalt
- Roll curbs and Concrete for Grade-Separated Bike Lanes
- Chicanes for Traffic Calming

Open House 2 was held on July 18, 2018 at Veritas Preparatory Academy, where 82 people attended. During the meeting, attendees were shown a presentation that summarized the results and input received from the first open house.

The event presentation focused on revisiting the project goals and schedule, sharing the summary of the input received from the community via Open House 1, and sharing alternative roadway cross



- Concrete Benches
- Roadway Lighting with attached Banners
- Chinese Pistache and Chaste Theme Trees
- Landscaped Bio-Swales and Drains
- Decorative Joints and Salt Finished Sidewalks
- Decorative, High Visibility Crosswalks
- H.A.W.K. Signals for Mid-Block Crossings

Two alternatives were presented at this open house, incorporating these design elements. The first alternative described the community preference of 11-foot travel lanes for vehicles, 6-foot grade separated bike lanes, and a landscaped buffer separating bike lanes from a 6-foot sidewalk. The second alternative described City-preferred alternative and was the same as the first with exception the placement of the landscaped buffer. In the second alternative, the bike lane and sidewalk were placed adjacent to one another and were separated from the roadway by the landscaped buffer.

The focus of this presentation was to gain general community consensus for a preferred alternative with the types of elements that should be included along the corridor and to convey that the finalized materials would be chosen during the engineering phase of the project.

4.3 CONSTRUCTION AND CONTRACT METHOD

Upon completion of the final engineering design, the **City of Phoenix** may competitively bid and award the project to the lowest responsive bidder. The procurement process will depend upon the funding source requirements.

4.4 GEOTECHNICAL AND DRAINAGE REQUIREMENTS

No geotechnical investigation was completed as part of this study. Geotechnical subsurface exploration is recommended during final design to determine the engineering parameters for design of any new pavement and provide recommendations for construction (excavation, bedding, backfill, etc.).

This study conducted a cursory review of existing drainage patterns within the study corridor and determined existing drainage infrastructure was inadequate for a Collector roadway. Proposed improvements may increase the impervious area within the corridor. Implementation of a storm drain system within 56th Street is recommended. The system will be designed in accordance with City of Phoenix Stormwater Policies and Standards to capture on-site storm flows from a 2-year, 6-hour storm event.

4.5 CRITICAL OUTSIDE AGENCY INVOLVEMENT

The involvement of the Flood Control District of Maricopa County (FCDMC) will be critical in identifying potential mitigation measures for significant off-site flows entering the corridor from the north and east.

4.6 RIGHT-OF-WAY REQUIREMENTS

In an effort to minimize design and construction costs, the project team focused its efforts on planning and recommending all improvements be within the City's existing right-of-way (R.O.W.). Temporary Construction Easements (TCE's) will be identified during final design and required at a minimum for construction of driveway entrances.

4.7 UTILITY RELOCATION REQUIREMENTS

Existing utilities have been located based upon maps provided by the individual utility providers and are shown on the 15% design plans. The proposed improvements are recommended to be designed to minimize conflicts with existing utilities (**see Table 7**). The following relocations are anticipated:

- Conversion of all overhead power to underground joint duct bank
 - Camelback Road to Calle Del Paisano
 - 250' north of Osborn Road to Osborn Road
- Conversion of all overhead telco to underground joint duct bank
 - Camelback Road to Indian School Road
- Relocation of 2" steel gas line
 - Mariposa to 200' south of Montecito Ave
 - Lafayette Blvd to CII Ventura
- Relocation of 12" sanitary sewer
 - 200' north of Calle Del Paisano to 56th Street bridge at Arizona Canal
- Relocation of 6" potable water main
 - Lafayette Blvd to 56th Street bridge at Arizona Canal
- Relocation of underground fiber optic line from Earll Drive to Orange Blossom

Table 7: Utility Relocation Analysis for Alternatives 2 and 3

Utility Relocation	Conflict	Limits of Relocation	Required for Alternative 2	Required for Alternative 3
Conversion of all overhead power to underground joint duct bank	Proposed trees conflict with overhead power lines and ROW not available to relocate poles.	Camelback Road to Calle Del Paisano	Yes	Yes
		250' north of Osborn Road to Osborn Road	Yes	Yes
Conversion of all overhead telco to underground joint duct bank	Proposed trees conflict with overhead Telco lines and ROW not available to relocate poles.	Camelback Road to Indian School Road	Yes	Yes
Relocation of 2" steel gas line	Proposed storm drain catch basins conflict with underground gas line	Mariposa to 200' south of Montecito Ave	Yes	Yes
		Lafayette Blvd to CII Ventura		
Relocation of 12" sanitary sewer	Existing sewer main is located beneath proposed curb and gutter and proposed storm drain catch basins conflict with sewer main.	200' north of Calle Del Paisano to 56 th Street bridge at Arizona Canal	Yes	Yes
Relocation of 6" potable water main	Proposed storm drain catch basins conflict with underground water main	Lafayette Blvd to 56 th Street bridge at Arizona Canal	Yes	Yes
Relocation of underground fiber optic line	Proposed trees and storm drain catch basins conflict with underground fiber optic line.	Earll Drive to Orange Blossom	Yes	Yes

Subsurface Utility Engineering (SUE) shall be completed during final design in accordance with City's Administrative Procedure (AP) No. 155 section 4.4.2. Additionally, utility coordination and relocation design shall occur to include:

- Submittal of design plans to utility providers at each submittal stage for conflict review.
- Conduction of utility coordination meetings
- Prior rights determination for all required utility relocations.
- Design of required utility relocations by consultant (water, sewer) and utility provider (power, irrigation, telco, etc.)
- Establishment / design of new power points of connection (POC) for street lighting and landscape irrigation controllers

4.8 SEASONAL CONSIDERATIONS

No construction will take place during severe or inclement weather. To the extent practical, the construction activities should be completed during the off-season or summer months to avoid impacting the school activities and circulation around Veritas and Ingleside School.

Placement of concrete and bituminous compounds will be conducted in accordance with temperature requirements as specified in the MAG Uniform Standard Specifications for Public Works Construction.

4.9 MANAGEMENT OF TRAFFIC REQUIREMENTS

Temporary transitions are anticipated for the construction of this project. The intersections will remain operational with movement restrictions, as necessary, to accommodate local traffic. Traffic control plans for maintenance and protection of traffic (MOT) will be necessary during construction of this project. Traffic control plans should conform to the latest edition of the City of Phoenix Traffic Barricade Manual which was prepared in conformance with the MUTCD. Traffic control plans should include signing, pavement marking and barricades to route pedestrian, bicyclists, and motorists around work zones.

4.10 DESIGN CRITERIA

4.10.1 References

The project will be implemented in accordance with the MAG Uniform Standard Details for Public Works Construction, latest edition; which is consistent with City of Phoenix standards. Design guidelines are listed as follows:

- MAG Uniform Standard Specifications and Details for Public Works Construction
- City of Phoenix Supplements to MAG
- City of Phoenix Administrative Procedure 155
- City of Phoenix – Street Landscape Standards, 2006
- City of Phoenix Visibility Requirements for Landscaping Corner Lots, May 2018
- City of Phoenix Street Planning and Design Guidelines, December 2009
- City of Phoenix Traffic Signal Standard Details
- City of Phoenix Storm Water Policies and Standards Manual, 3rd Edition, December 2013
- City of Phoenix Design Standards Manual for Water and Wastewater Systems, 2017

- Manual on Uniform Traffic Control Devices (MUTCD)
- Arizona Supplement to the MUTCD approved by ADOT, January 2012
- AASHTO Policy on Geometric Design of Highways and Streets
- AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals
- AASHTO Roadside Design Guide
- AASHTO (American Association of State Highways and Transportation Officials) – Guide for the Development of Bicycle Facilities (2012)
- Public Rights-of-Way Accessibility Guidelines
- FHWA Separated Bicycle Lane Planning and Design Guide
- FHWA Roundabouts: An Informational Guide

City of Phoenix – Street Planning and Design Guidelines (2009)

Chapter 10 of the guidelines provides bikeway planning design. Per the guidelines, “On-street bike lanes are an integral section of a roadway which is marked for exclusive bicycle use. On-street bike lanes are always one-way. Bike routes may include shared streets, bike lanes, shared-use paths or multiuse trails, in any combination. Routes may be designated by signing or by placement on a map. Bikeways can be any combination of shared-streets, bike lanes, bike routes, shared-use paths or multi-use trails, and can be designated by signing, mapping, or consistent public use.” Chapter 11 discusses traffic calming measures and includes standard drawings for traffic calming measures including a football, choker, and chicane. Per the guidelines, the City of Phoenix follows *FHWA Roundabouts: An Informational Guide* for roundabout design. Additional traffic circle guidelines are provided in Chapter 11.

56th Street is classified as a collector street. A typical collector right-of-way is 80' as illustrated in **Figure 8**. The existing right-of-way conditions on 56th Street vary from a 66' right-of-way to a 107' right-of-way, which greatly differs from the City of Phoenix's street classification.

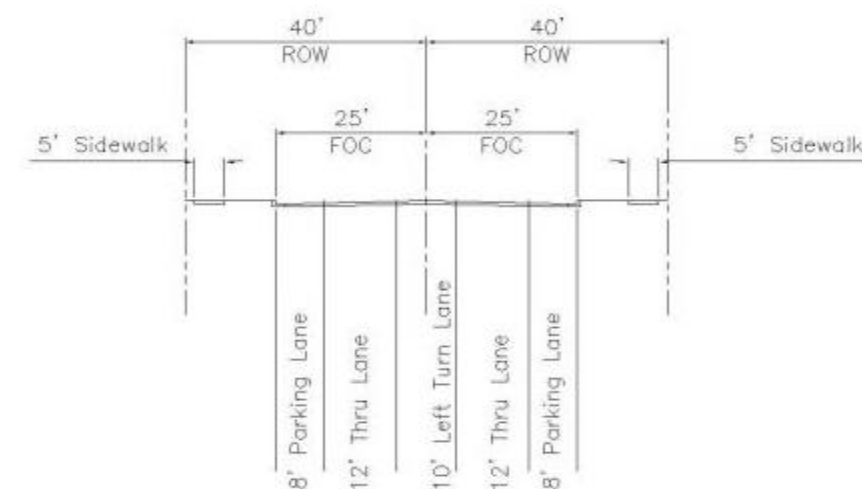


Figure 8: 80' Right-of-way Collector Road Section

The street planning and design guidelines for a collector street are the following:

Streetscape Construction

- ❖ A typical Right-of-way for a collector street is set at 80'.

- ❖ A collector street requires a geometric design, with even curb heights, a travel lane in each direction with a center turn lane or median, along with room for on street parking or bike lanes.

Streetlighting

- ❖ Must be spaced at 200' approximately in areas justified by location, traffic volume, or nighttime incidents.

Traffic Signals and Signage

- ❖ Traffic signals to be placed at all arterial and collector intersections and be approved by the Street and Transportation Department.

Traffic Management

- ❖ A collector street is designed around 5,000 ADT (average daily trips) to 30,000 ADT.
- ❖ Calming measures include football, choker, and chicane. Design standards and details are included.
- ❖ Per the guidelines, the City of Phoenix follows FHWA Roundabouts: An Informational Guide for roundabout design.

Access

- ❖ Includes requirements for driveways, alleyway access, and parking, along with standards for sidewalks and curb ramps.
- ❖ The minimum width for all sidewalks located on a collector street is 5' Bikeways.
- ❖ The City of Phoenix wants to incentivize the use of bikeways, and as such recommends that all minor collectors and above provide access.
- ❖ On-street bike lanes are always one-way, bike routes may include shared streets, bike lanes, shared-use paths, or multiuse trails, in any combination.
- ❖ Bike lanes shall be a minimum of 4' of asphalt from the edge of the gutter pan. If concrete, the bike lane must be 6' from face of curb.
- ❖ Routes to be designated by signage or by placement on a map.

ADA Accessibility

- ❖ Per ADA guidelines.

City of Phoenix – Street Landscape Standards (2006)

This City of Phoenix document was created to outline the landscaping requirements and standards that must be adhered to when designing a project within Phoenix's city limits. It dictates what acceptable plant materials, irrigation equipment, and other landscape enhancements must be provided, along with the landscape and irrigation construction details and design. This document provides standards for street landscape in the following areas:

Plant Material

- ❖ To comply with Arizona Nursery Standards
- ❖ Trees – Native or Adapted Tree Materials.
- ❖ Shrubs – Variety of species to promote diversity, color, and shape.
- ❖ Accents – Variety of species to promote diversity, color, and shape.

Irrigation Systems

- ❖ To insure consistency of equipment and ensure correct installation.

ADA Requirements

Safety Considerations

- ❖ To provide adequate space for planting to ensure public safety, promote safe working conditions, provide low maintenance, and high performing landscaping that is appropriate for the climate and context

Design Requirements

- ❖ Coordinate placement of site utilities
- ❖ Plants to be a mixture of drought tolerant deciduous and evergreen trees, shrubs, and groundcovers selected from the approved list, and covering no more than 40% of the landscaped area
- ❖ Eliminate all turf in Right-of-way locations.
- ❖ All plans to be reviewed by parks and recreational representatives.
- ❖ Planting Recommendations
- ❖ Street Tree Retrofitting

4.10.2 National Best Practices

Best practices on bicycle facility design have evolved and expanded since the most recent local and regional planning documents were adopted by MAG. National research indicates that separated bicycle facilities increase bicyclist comfort and confidence, create a designated separation between cyclists and motor vehicles and improve predictability and interaction between bicyclists and motor vehicles. National best practice for bicycle facilities is emerging with FHWA, and NACTO providing written guidance and recommendations for conventional or buffered bicycle lanes, two one-way separated bicycle lanes, a two-way separated cycle track, and side paths.

Bicycle lanes are most effective for streets with greater than 3,000 ADT, streets with a posted speed limit equal to or greater than 25 mph, or streets with a high transit vehicle volume (NACTO). According to FHWA, designers should consider issues such as bicycle volumes, connectivity and access to destinations, and potential conflicts. National best practices also recommend that the selected bicycle lane design address other contextual issues such as interaction with transit and conflicts at intersections and driveways.

5 RECOMMENDED IMPROVEMENTS

5.1 PROPOSED ALTERNATIVES

Recommended solutions include two (2) corridor design alternatives as presented at a public open house event which included a design option for a raised bike lane attached to back of curb with a landscape buffer and a detached sidewalk. Another alternative presented an at-grade bicycle lane with a detached sidewalk having a landscaped buffer. Key locations and features were included in both alternatives for a mid-block crossing near the Veritas and Ingleside school areas, enhanced crosswalks, bike buffers for the at-grade options, site furnishings for seating, lighting improvements to include pedestrian scale lighting with a themed fixture, and the development of a sense of place for the collector road corridor theme.

The existing corridor includes several right-of-way widths. The City standard width for a Collector Road right-of-way is 80 ft. The 56th Street corridor between Camelback Road and Thomas Road includes 66'-0", 73'-0", 76'-0", 80'-0", 83'-0", 98'-0", and 107'-0" right-of-way widths. The 98' and 107' conditions are where frontage roads for residential streets are parallel to 56th Street. This project intends to provide design solutions that fit these conditions so that no right-of-way is taken. The existing condition and proposed Alternative 2 and Alternative 3 roadway cross sections are provided in the **Appendix C** – Concept Alternative Design Cross Sections.

Alternative 1 Recommendations (not preferred)

The Alternative 1 streetscape design was shown during the Open House #2 event and was not preferred by the community. This alternative provided a 48'-0" wide roadway with a 6'-0" bike lane on both sides of the street. The bike lane included an additional 2'-0" painted buffer stripe, 11'-0" travel lanes, and a 10'-0" center turn lane.

Alternative 2 Recommendations (Community Preferred)

The Alternative 2 streetscape design was shown during the Open House #2 event and was preferred by the community. This alternative provided a 32'-0" wide roadway with a raised 6'-0" bike lane on both sides of the street behind the curb and gutter. The roadway included 11'-0" travel lanes, and a 10'-0" center turn lane. The raised bike lane included a 5'-0" wide landscape buffer (with a potential bio-swale feature) and a 6'-0" wide sidewalk. A rolled curb at the edge of the raised bike lane is considered to allow users an easier transition to the roadway as a design option.

In the 66'-0" ROW condition, the west side landscape buffer is limited to 2'-0" due to lack of available ROW.

In the 73'-0" ROW condition, both sides of 56th Street can accommodate the 5'-0" landscape buffer between the bike lane and the sidewalk. The 76'-0" ROW condition is only 3'-0" wider and provides 18" of additional landscape behind the sidewalks up to adjacent property lines.

The 98'-0" condition only occurs for a short segment between Flower Street and 80 ft. south of Cheery Lynn Road. This segment has the same cross-section as the 73'-0" ROW with an additional frontage road left in place. The existing sound wall is intended to be protected in place or restored when minor offsets conflict with proposed improvements.

In the 80'-0" ROW condition, the raised 6'-0" bike lane includes a 5'-0" landscape buffer and the 6'-0" sidewalk with an additional 6'-0" landscape buffer behind the sidewalk. This second landscape buffer provide a double row of trees versus the single row found in the 73' / 76' ROW. The 83'-0" ROW condition is only 3'-0" wider and provides 18" of additional landscape behind the sidewalks up to adjacent property lines.

The 107'-0" condition only occurs for a short segment south of Earll Drive to 300 ft south of Pinchot Avenue. This segment has the same cross-section as the 80'-0" ROW with an additional frontage road left in place. The existing sound wall is intended to be protected in place or restored when minor offsets conflict with proposed improvements.

The Alternative 2 solution provides opportunities to locate utilities in the landscape buffer areas between the bike lane and sidewalk, or in landscape areas behind the sidewalks. Existing private

development walls are intended to remain, unless they encroach within the City owner ROW. Encroached walls will need to be relocated by the private development to private property.

The Alternative 2 solution has advantages of separating the bike users from the pedestrians. It places the faster moving bike traffic near the roadway and allows for cycles to utilize the roadway environment. Bike users are more visible to vehicles in this placement as well.

The Alternative 2 solution has the disadvantage that the bike lanes ramp up and down to meet intersection and driveway grades. This condition is proposed to be minimized by only providing the raised environment if the segment of lane is greater than 80'-0" in length. For conditions where the raised bike lane is not a minimum of 80'-0", the bike lane is proposed to be an at-grade bike lane. The at-grade segments are proposed to provide a buffer material using a Bike Rail (Dezignline product) that will allow for surface watershed to cross the bike lane and have select landscape buffers become bio-swales in these areas.

The material selections for the design elements were identified using character imagery during the Open House #2 event and were voted on by the participant for which options were preferred. The summary and conclusion of the preferred materials are shown in are provided in the **Appendix D** – Concept Alternative Design Character Materials The following core streetscape design elements were presented:

- Bike Buffer Materials
- Bike Lane Materials
- Grade Separated Bike Lane Materials
- Traffic Calming features
- Site Furnishings
- Theme Trees
- Bio-Swale solutions
- Sidewalk Materials
- Crosswalks / Mid-Block crossing options

The preferred material selections for the core streetscape design elements from the community choices were:

- Bike Buffer Materials – painted striping in the roadway when used
- Bike Lane Materials – green paint for bike lanes
- Grade Separated Bike Lane Materials – rolled concrete curbs and concrete bike surface material
- Traffic Calming features – lane shift chicane to slow traffic speeds
- Site Furnishings – concrete benches with artistic placemaking features, pedestrian scale lighting using a goose-neck pole and LED fixture
- Theme Trees – Red Push Pistache tree for a primary (larger) tree, Chaste Tree for a secondary (smaller/utility provided approved) tree, maintain existing olive trees in the corridor where present
- Bio-Swale solutions – landscaped zone with inert materials for erosion protection, outfall drains
- Sidewalk Materials – concrete with decorative joint patterns for placemaking

- Crosswalks / Mid-Block crossing options – enhanced crosswalks for high visibility using street print patterns, mid-block pedestrian hybrid beacons when warranted, in pavement light markers preferred

The Alternative 2 streetscape elements will need to be evaluated during final design development of the corridor plan (beyond the 15% level provided with this study). The use of green bike lane paint should be placed at driveway crossings and at the approach of decision-making movements by cyclists or for vehicle awareness. Green bike paint is an added maintenance cost to the City and should be used in an efficient placement. The rolled curb placement in Alternative 2 will need to consider where there is a desire for cyclists to leave the bike lane and perform a transition maneuver (cross the road to reach a residential street or destination on the opposite side of the corridor). Vertical curb is acceptable as well. Traffic calming features will need further study for appropriate placement and function. Speed tables and chicane additions to the roadway are suggested at this level.

The site furnishings for the corridor are proposed to include seating features, wayfinding, pedestrian lighting additions, and bollards (near the Arizona Canal path intersection). The seating elements are to be placed at strategic destination locations and should be limited in quantity due to the land uses being primarily residential within the corridor. It is suggested that seating be placed near the Arizona Canal path, near the Arcadia Park (north of Osborn Road), at the Prince of Peace Church frontage, and at the Church of Jesus Christ of Latter-Day Saints frontage. The Veritas school is not recommended to receive seating as it may generate additional drop-off/pick up traffic. The community has expressed a preference for a precast concrete block seating element. Color of the seating should match a common color theme for the corridor with integral color agents in a tan, brown, or charcoal finish. Texture or decorative art additions are options for the concrete finishes to develop placemaking with the project area. Seating is proposed to be a surface mount installation.

The pedestrian lighting will need to be evaluated during final design. Lower height lighting focused on the bike and pedestrian pavements are suggested for improved visual awareness and safety of users. Street lighting may be sufficient to provide the City minimum lighting levels. The pedestrian scale lighting may be able to amend existing light poles with back mounted fixtures at a lesser height versus adding new poles. Some locations may require separate new pedestrian scale light poles. The community has expressed a preference for a light pole and fixture with a character different that



Secondary Theme Tree - Chaste Tree



Theme Tree - Chinese Pistache

standard City poles. Color of these poles should match a common corridor theme color such as bronze, grey, or tan.

Theme trees for the corridor were proposed to create a unified identity of the landscape of 56th Street. Theme trees are recommended to include a primary tree for the majority of the corridor where there are no constraints. For constrained areas, such as overhead utility line locations, a smaller secondary theme tree is recommended. Some locations within the corridor have healthy existing trees that are recommended to be protected. These locations may require slight adjustments to the layout or configuration of the landscape buffers or sidewalk to adapt to the existing tree location. There are several Olive Trees in the north portion of the corridor near Camelback Road that should be preserved. Select trees may need to be removed from this location. The Primary Theme tree recommended is the Red Push Pistache to provide seasonal color interest and help with minimizing the urban heat island effect of the summer months. The Secondary Theme tree recommended is the Chaste Tree (Vitex) as an evergreen flowering species that is approved by local utility providers for use under overhead service lines. Both species are low water use, low maintenance, and hardy plants.

Landscape Bio-swales are limited for the Alternative 2 solution. Only locations where the bike lane is at-grade, or within the roadway plane, should have bio-swales. Bio-swales are intended to capture nuisance water runoff from minor rain events. These bio-swales will augment the irrigation system for the landscape plants, not replace the need for irrigation. The design of the bio-swales will need to include improved percolation of the soils. Conditioning of the existing soils may be required by overexcitation (6-12") and mixing in additional aggregate to increase the porosity of the soils. Grading of the bioswales are intended to be 4:1 slope or less to limit erosion of the landscape basins. Larger size inert mulch may be required for the center of the swales to prevent erosion.

Sidewalks within the corridor are proposed to be concrete and be designed to City of Phoenix MAG standards. The finish of the concrete is recommended to be a medium broom with texture direction perpendicular to the direction of travel. A decorative jointing pattern is preferred by the community. This pattern will need to be developed during the final design stages beyond these 15% concept plans.

Crosswalks are suggested to be enhanced beyond standard basic parallel line paint. Higher visibility patterns and colors create greater awareness and slow traffic at crossing areas. This style of crosswalks is not the City standard and maintenance can become a burden if a complex material or pattern is utilized. Placement of enhanced crosswalks are encouraged at all controlled intersections and at all roadway crossings.

Mid-Block crossings are suggested for school area locations. On 56th street, the Veritas School is immediately adjacent to the street and the Ingleside School is within ¼ mile of the corridor. A potential location for a crossing is at the north side of the Osborn Road intersection. Additional pedestrian count data should be gathered to verify potential locations and the appropriate facilities for these locations.

Alternative 3 Recommendations (City Suggested)

The Alternative 3 streetscape design is a minor modification to the Alternative 2 concept. In this solution, the raised bike lane and the landscape buffer between the lane and sidewalk are reversed in position. The landscape buffer is placed at the back of curb and the bike lane is shifted to be adjacent to the sidewalk. This creates a 12'-0" shared-use path configuration. The selection of concept materials may include using different materials to identify the bike zone from the pedestrian zone. In

this solution, the landscape buffer has a greater opportunity to be used as a bio-swale to capture minor event run-off for the landscape.

Additional Options for Final Engineering Design (City Suggested)

The City may also consider an additional option for the typical 66'-0" right-of-way with a 42'-0" roadway width. This condition can be designed with an 8'-0" multi-use trail on the east side of 56th Street and bike lanes located in the roadway – **See Appendix C.**

Attached **Appendix C** – Concept Alternative Design Roadway Cross-sections

Attached **Appendix D** – Concept Alternative Design Character Materials

5.2 LANDSCAPE FEATURES AND AMENITIES

The landscape features of the proposed alternatives include providing shade trees per the City of Phoenix development standards spacing and size requirements. Theme tree(s) are encouraged to develop a sense of place and consistent identity. Trees are utilized to offset urban heat island effects created by excessive pavement use. A bio-swale planter is recommended to promote sustainability and capture water runoff for the use by plant materials. This will also help reduce the size of required infrastructure for storm drain systems. The amenities proposed are limited to community social seating areas. These seating areas are a concrete pre-cast bench per the public meeting input for preferred materials. The seating is proposed to be located near the Arcadia Park, near the Prince of Peace Church, and near the Church of Latter-Day Saints.



5.3 RAISED ISLANDS OR MEDIANS

Raised islands or medians are not proposed in the 15% design plans. If implemented in the final design, the minimum widths for accessible refuge islands and for design and placement of detectable warning surfaces are provided in the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)". NACTO also provides guidelines for median refuge islands. Per the MUTCD, "Raised islands or medians of sufficient width that are placed in the center area of a street or highway

can serve as a place of refuge for pedestrians who are attempting to cross at a midblock or intersection location. Center islands or medians allow pedestrians to find an adequate gap in one direction of traffic at a time, as the pedestrians are able to stop, if necessary, in the center island or median area and wait for an adequate gap in the other direction of traffic before crossing the second half of the street or highway.

5.4 EXETER ROUNDABOUT

The public expressed concern regarding the mini-roundabout at Exeter Boulevard. There is possible speeding approaching the roundabout, specifically from the north, and possible poor compliance. Due to limited right-of-way, a complete redesign of the mini-roundabout is not feasible. It is not recommended to replace with stop signs, since they can also result in poor compliance and are generally ineffective at reducing vehicle speeds. The following recommendations are made:

- Add textured pavement approaching mini-roundabout, specifically on the north side.
- Improve signing in advance of the mini-roundabout and at the mini-roundabout.
- Lengthen splitter islands on 56th Street and add splitter islands on Exeter Boulevard to improve awareness and provide pedestrian crossings.
- Consider lighting to improve visibility.

National best practices for roundabout design, signage, and pavement marking include the *Manual on Uniform Traffic Control Devices (MUTCD 2009)* and *FHWA Roundabouts: An Informational Guide*.

Manual on Uniform Traffic Control Devices (MUTCD 2009)

Chapter 3C of the MUTCD provides guidance for pavement markings at a roundabout, and Part 2 includes signing for roundabout applications. **Figure 9** depicts the relevant MUTCD signs for roundabouts.

Figure 2B-20. Roundabout Signs and Plaques

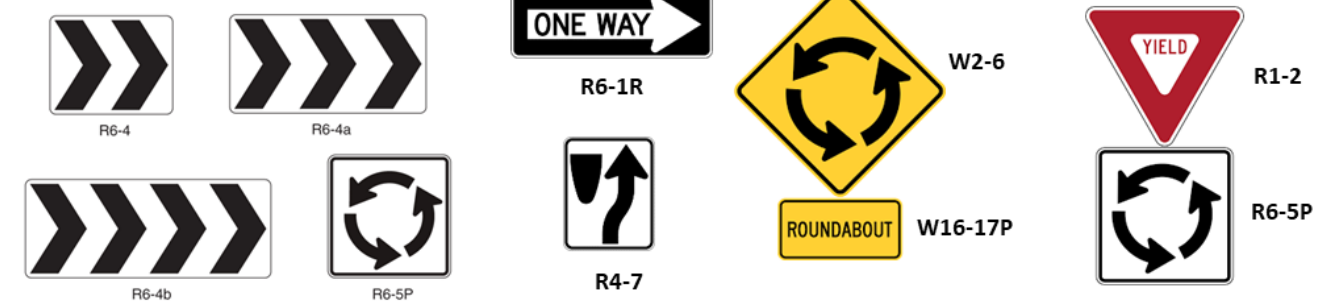


Figure 9: MUTCD Roundabout Signs

FHWA Roundabouts: An Informational Guide (March 2000)

This guide provides information and guidance on roundabouts, resulting in designs that are suitable for a variety of typical conditions in the United States. The scope of this guide is to provide general information, planning techniques, evaluation procedures for assessing operational and safety performance, and design guidelines for roundabouts. The City of Phoenix refers to *FHWA Roundabouts: An Informational Guide (March 2000)* in their *Street Planning and Design Guidelines (2009)*.

Warning signs shall be installed alerting the driver of the shift in the horizontal alignment. R4-7 signs shall be installed at any medians, and object markers shall be installed at any bulb-outs or curb extensions. **Figure 12** shows a photo of a constructed chicane.



Figure 12: Example of Chicane

5.5.2 Speed Humps/Cushions

Speed cushions are recommended as part of the 56th Street Complete Street project. Speed cushions are specifically recommended north of Exeter Boulevard to slow vehicle speeds approaching the mini-roundabout.

Per the *City of Phoenix's Speed Hump Program*, speed humps are permitted on local streets in residential areas where the speed limit is 25 mph and are not permitted on collector streets. Therefore, speed cushions are recommended instead of speed humps. With the installation of speed cushions, the speed limit on 56th Street would need to be lowered to 30 mph. Speed cushions can help control speeding on streets, by reducing average speeds. Unlike traditional police enforcement, speed cushions provide continuous service. They may also help discourage cut-through traffic by diverting it elsewhere without slowing emergency fire response times. Per the *City of Phoenix's Speed Cushion Program*, speed cushions are permitted on minor collector streets in residential areas where average daily traffic (ADT) is below 10,000 vehicles per day and where the speed limit is at or below 30 mph.

Speed cushions are not permitted:

- Within 200 feet of a STOP sign, YIELD sign or traffic signal.
- Closer than 500 feet apart.
- On or near steep grades or sharp curves.

- On streets containing unauthorized gutter ramps in violation of City codes or Arizona Revised Statutes §28-7053.
- At locations that the City of Phoenix Fire or Street Transportation Departments deem unsuitable for speed cushions.

Per the City of Phoenix, an advance warning speed cushion sign with the suggested speed of 20 mph and a "NEXT XX FEET" plaque shall be installed approximately 175' before a series of speed cushions. **Figure 13** is a photo of a speed cushion in the City of Phoenix.



Figure 13: Example of Speed Cushion

5.5.3 Raised Pedestrian Crosswalk/Speed Table

A proposed location for a raised pedestrian crosswalk is on the north leg of the unsignalized intersection of 56th Street and Osborn Road. An unsignalized marked crosswalk is currently provided. Osborn Road leads to the Ingleside Middle School, resulting in a high number of schoolchildren walking and bicycling to school within the vicinity. Currently, there is no sidewalk south of Osborn Road on the east side of 56th Street. Most of the existing crossings occur on the west approach with pedestrians/bicyclists crossing at the signalized intersection of 56th Street and Indian School Road. With an improved pedestrian and bicyclist environment and continuous sidewalk on the east side, this location would be a good candidate for a possible raised pedestrian crosswalk.

Raised pedestrian crosswalks serve as traffic calming measures by extending the sidewalk across the road and bringing motor vehicles to the pedestrian level. They are speed tables striped with crosswalk markings and signage to channelize pedestrian crossings, providing pedestrians with a level street crossing. Raised crosswalks also improve accessibility by allowing a pedestrian to cross at nearly a constant grade without the need for a curb ramp and makes the pedestrian more visible to approaching motorists. They have a trapezoid-shaped cross-section to slow motorists at the pedestrian crossing where the slowing will be most effective. They are effective at reducing speeds. When installing a raised pedestrian crosswalk, the impact to drainage needs to be considered along with proper signage and pavement marking.

Figure 14 depicts MUTCD signs for unsignalized pedestrian crosswalks.

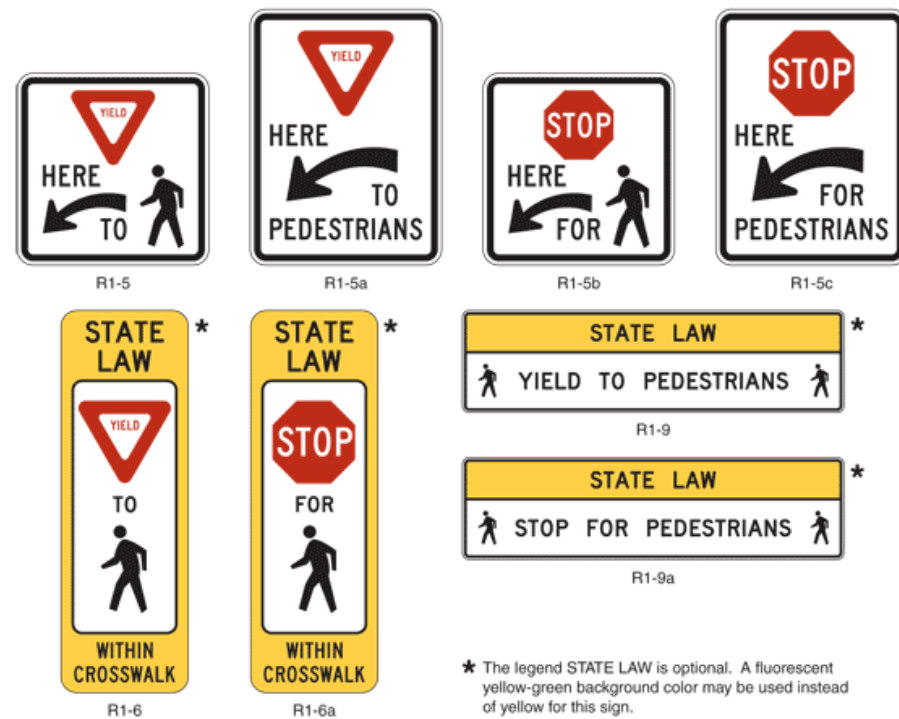
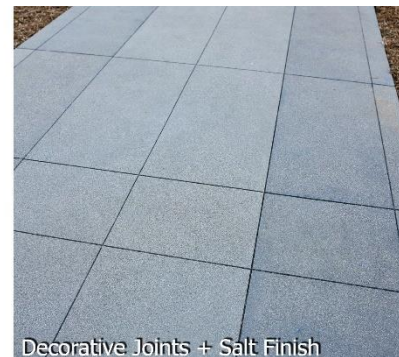


Figure 14: MUTCD Signs for Unsignalized Pedestrian Crosswalk

5.6 PEDESTRIAN FACILITIES

The proposed alternatives, Alt. 2 and 3, include continuous concrete sidewalk on both sides of 56th Street. The proposed sidewalk is recommended to be a detached condition (separated from the back of curb) and be a minimum of 6'-0" wide. A decorative score joint pattern is proposed from community input on preferred character imagery. A salt finish texture is suggested for the sidewalk to brand the community identity and develop a sense of place. Potential options include an integral color admix to create a context sensitive pavement to complement the Camelback Mountain identity of the corridor. In Alternative 2, the sidewalk is located adjacent to the 5'-0" landscape buffer. In Alternative 3, the sidewalk is located adjacent to the concrete bike lane to form a shared use path environment. The City may also consider an additional option for typical 66' of right-of way conditions that has a 8'-0" multi-use trail on the east side of 56th Street.



The pedestrian environment in both alternatives include recommended enhanced crosswalks for greater visibility. Enhanced crosswalks are decorative and utilize alternative materials to develop contrast in crosswalk areas. This study recommends an asphalt

The pedestrian environment in both alternatives include recommended enhanced crosswalks for greater visibility. Enhanced crosswalks are decorative and utilize alternative materials to develop contrast in crosswalk areas. This study recommends an asphalt

street print with colored patterns for roadway crossings within the project limits. This includes residential roadway crossings, not exclusively at traffic device-controlled intersections. Crosswalks are recommended to be a minimum of 12'-0" wide and include 24" buffer striping to delineate the safe crossing area for pedestrians.

56th Street/Osborn Road

There is an existing unsignalized crosswalk on the north leg of the 56th Street and Osborn Road intersection. A raised pedestrian crosswalk/speed table, discussed under traffic calming, is a possibility at this location. With an improved pedestrian and bicycle environment and completed connections, the north crosswalk is also an identified location for a high-intensity activated crosswalk (HAWK) beacon. This crosswalk should be monitored, and new pedestrian counts obtained. Warrant 5, School Crossing, of the *Manual of Uniform Traffic Control Devices (MUTCD)* requires a minimum of 20 schoolchildren during the highest crossing hour to warrant a signal control crossing along with inadequate gaps for crossing. Section 4F.01 of the MUTCD describes the standard and provides guidance for a pedestrian hybrid beacon.

5.7 BICYCLE FACILITIES

Alternative 2

The proposed alternatives include continuous separated and raised bike lanes on both sides of 56th Street. This design was identified as the preferred alternative by the community during the Open House 2 event. The bike lane in Alternative 2 is attached to the back of curb to provide a 6'-6" wide lane (including curb width) to allow for cycles to pass without re-entering the road environment. The attached raised bike lane option also recommends a rolled curb to allow for cyclists to transition easier into the roadway when making turning movements to destinations. The bike lane in Alternative 2 is proposed to be a concrete material and color contrast with the adjacent asphalt of the roadway. Select areas are proposed to receive green lane paint at driveway and roadway crossings. In limited areas, the bike lane of Alternative 2 will be placed in the roadway. The bike lane will intersect with several driveways, some of which are closely spaced. With the closely spaced driveways, to not create an up-down-up-down bike ramp condition, it is suggested that when the bike lane segment is less than 80 ft in length before a vertical transition happens, to keep the bike lane at the same level as the roadway. When these segments are greater than 80 ft, this will allow the raised bike lane to migrate up and down to respond to driveways and alley drives. During the condition when the segment of the bike lane is at the same level as the roadway, a buffering element such as a Deizignline raised metal curb



is to be provided.

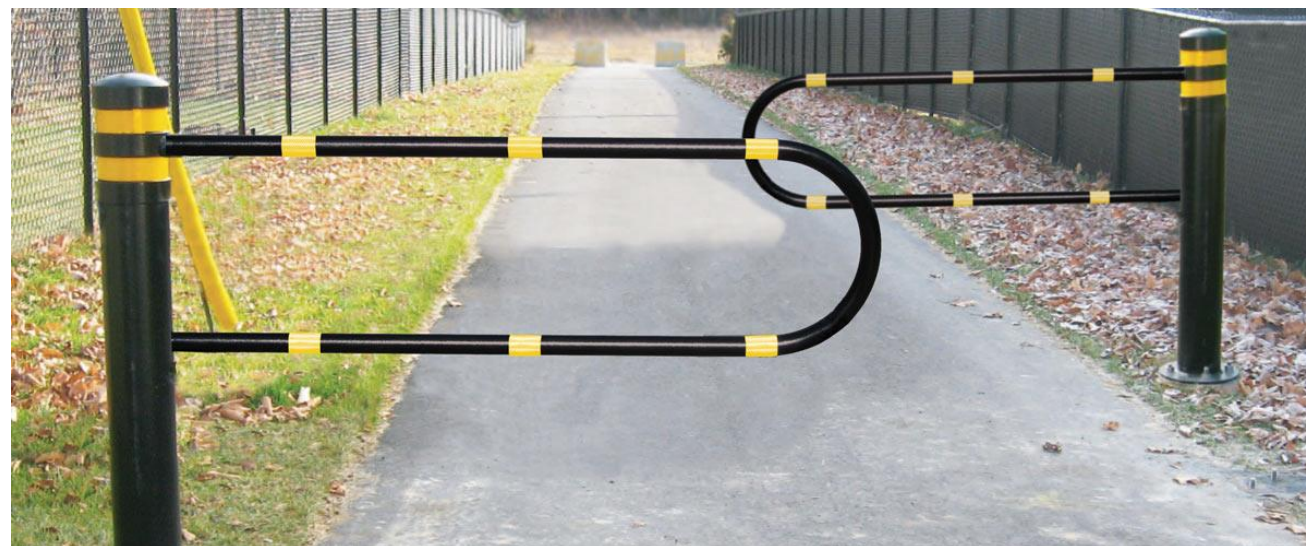
Alternative 3

This design concept adjusts the raised bike lane from the back of curb to the edge of proposed sidewalk. The landscape buffer area between the bike lane and sidewalk in alternative 2 is now moved to the back of roadway curb. The bike lane and the landscape buffer switch positions. In Alternative 3, the bike lane and sidewalk are adjacent to each other and form a shared use path that is 12'-0" wide. The treatment of this path is intended to have a separation stripe between the bike and pedestrian environments. The path surface materials are intended to be concrete. A potential option for the bike lane is to provide green surface paint. Another option is to provide bike lane markings as sandblasted stencils in the bike zone. Additional signage for separation of path functions can help segregate uses to avoid conflict between pedestrians and cyclists.



56th Street/Lafayette Boulevard

A protected intersection for bicyclists is proposed as part of the 56th Street Complete Streets project for the 56th Street/Lafayette Boulevard intersection. Both 56th Street and Lafayette Boulevard have bike lanes in both directions, which makes this intersection a good candidate for a protected intersection for bicyclists. Protected bike lanes are being implemented to improve safety for bike mobility. However, these protected bike lanes often lose their buffer separation at intersections, reducing the safety and comfort of riders. A protected intersection is a way of accommodating separated bikeways at intersections. It is an at-grade intersection in which cyclists and pedestrians are separated from vehicles. Vehicles turning right are separated by approximately one car length from crossing cyclists and pedestrians, providing increased reaction times and visibility.



Arizona Canal Crossing

At the Arizona Canal, the existing shared use pathway and the SRP utility maintenance road on the north side of the canal offer regional circulation. The south side of the canal path aligns with the Indian School Road crosswalk and offers a controlled safe crossing for users. At this time, there is no marked crossing for the north bank trail. The path is used as an access point by SRP to maintain the Arizona canal and has driveways at this location. To promote a safer bike environment, it is suggested to install a bike gate chicane at this location on both sides of 56th Street. The gate device is a swing arm and bollard layout that is staggered to slow down bicycles and require users to navigate through the device. It also orientates the cyclist towards the Indian school intersection to use the controlled crossing instead of cutting across the collector road. This gate will need to be reviewed and approved by SRP during final engineering design to allow for SRP maintenance vehicles to open the device for access.

5.8 SIGNING AND PAVEMENT MARKING

Signage

Signs will be installed per the *City of Phoenix Standard Signing/Marking Notes*. R2-1 shall be placed at a rate of four signs per side per mile. R4-Special will only be needed in cases where the bike lane is on the roadway and at intersections with through/right turn lanes to alert drivers of potential bicyclist conflicts. The bike lane is raised throughout most of the corridor. All additional signage will be installed per the *Manual on Uniform Traffic Control Devices (MUTCD)*. Relevant signs are depicted in **Figure 15**.



Figure 15: MUTCD Relevant Signs

Pavement Marking

Pavement marking not specified will be in conformance with the *Manual on Uniform Traffic Control Devices (MUTCD)*. The bike symbol shown in **Figure 16** below should be used four times per bike lane mile. Colored green pavement is recommended at potential areas of conflict to increase the visibility of the facility. Consistent application of color across a bikeway corridor is important to promote clear understanding for all users. The colored pavement should remain the same green color and applied in a consistent pattern. A sharrow symbol should be applied within the circular roadway of the Exeter roundabout.



Figure 16: MUTCD Bike Lane Pavement Markings

5.9 TRAFFIC SIGNALS

No new intersection traffic signals are proposed. A possible location for a signalized crosswalk is the north leg of the 56th Street/Osborn Road intersection discussed in a previous section.

The 56th Street corridor includes four signalized intersections at Camelback Road, Lafayette Boulevard, Indian School Road and Thomas Road. This project will rebuild or modify the existing signals as necessary to meeting the following objectives:

56th St/Camelback: Fully actuated signal detection for reduced minor street vehicle, bicycle, and pedestrian delay during off-peak periods. Crosswalk pedestrian signals for northbound and southbound movements across the west leg.

56th St/Lafayette: Signal improvements and pole relocation to accommodate a protected intersection with exclusive bicycle signal phasing. Pedestrian countdown signals for movements across all legs.

56th St/Indian School: Fully actuated signal detection for reduced bicycle and pedestrian delay for all directions of crossing. Pedestrian countdown signals for movements across all legs. Non-intrusive advanced detection for canal path users to activate the eastbound and westbound crossing of 56th Street on the north leg of the intersection. A study should be completed for the 56th Street/Indian School Road intersection that addresses signal timing, assesses the sight distance, evaluates protected/permissive with flashing yellow arrow left-turns for all approaches, considers a shorter cycle length or ITS options to serve 56th Street pedestrians more efficiently, and evaluates turn restrictions due to pedestrian and bicyclist activity. It should also consider altering the configuration of the northbound/southbound approach to include a left-turn lane, a through lane, and dedicated right-turn lane. A traffic study should be performed to evaluate protected/permissive with flashing yellow arrow left-turns for all approaches. Turning movement volumes and actual motor vehicle speeds should be collected for the intersection and on all approaches. Separated bicycle lanes will be evaluated on 56th Street northbound and southbound through the intersection, which would require exclusive bicycle signal phasing.

56th St/Thomas: Fully actuated signal detection for reduced minor street vehicle, bicycle, and pedestrian delay during off-peak periods. Pedestrian countdown signals for movements across all legs.

ADA and/or PROWAG compliant improvements, equipment upgrades, adjusted timing, and detection at each signalized intersection shall be evaluated and determined during final design.

5.10 DRAINAGE FACILITIES

The proposed system will divide the corridor into five separate collection areas, each with its own storm drain system as follows:

System 1 – Camelback Road south to Arizona Canal: Collect flows in catch basins on the west and east sides of 56th Street and convey south via a 24" trunk line within 56th Street. The trunk line outfalls into the Arizona canal.

System 2 – Indian School Road Intersection: Collect flows from all four legs of intersection in catch basins and convey north via a 18" lateral line. The lateral line outfalls into the Arizona Canal.

System 3 – Osborn Road to Cherry Lynn Rd: Collect flows in catch basins on the west and east sides of 56th Street and convey flows south via a 24" trunk line within 56th Street. Trunk line connects to an existing 36" storm drain trunk line within 56th Street immediately south of Cherry Lynn Road. Existing trunk line will convey flows south to Earl Dr. before turning west and ultimately outfalling into the Arizona Canal.

System 4 – Earl Dr. to immediately south of Pinchot Avenue: Collect flows in catch basins on the west and east sides of 56th Street and convey flows north via a 24" trunk line within 56th Street. Trunk line connects to the existing storm drain system at Earl Dr and flows will ultimately outfall into the Arizona Canal.

System 5 – Orange Blossom Lane to Thomas Road and the Thomas Road intersection. Collect flows in catch basins on the west and east sides of 56th Street and all four legs of the intersection in catch basins. Convey flows south and west via a 24" trunk line within 56th Street and Thomas Road. The trunk line connects into an existing storm drain system 300' west of 56th street.

6 TYPICAL SECTIONS

See **Appendix C** – Conceptual Alternative Design Cross Sections

- 66'-0" Existing / 66'-0" Alternative 2 / 66'-0" Alternative 3
- 73'-0" & 76'-0" Existing / 73'-0" & 76'-0" Alternative 2 / 73'-0" & 76'-0" Alternative 3
- 80'-0" & 83'-0" Existing / 80'-0" & 83'-0" Alternative 2 / 80'-0" & 83'-0" Alternative 3

7 15% PLANS

See **Appendix E**– 15% Plan Package – Recommended Alternative 2 (With Utility/Paving Plans)

See **Appendix F**– 15% Plan Package – Suggested Alternative 3 (Without Utility/Paving Plans)

8 ESTIMATED COST AND SCHEDULE

8.1 FUNDING SOURCE

A potential federal funding source is the Congestion Mitigation and Air Quality Improvement program. This source of funding requires a 5.7% local match that the City of Phoenix will be required to provide. The City will complete an Initial Project Assessment and a Final Project Assessment and obtain environmental clearance and a Categorical Exclusion through the Arizona Department of Transportation (ADOT). Currently, ADOT is responsible for review of environmental technical documentation, and for preparation of the Categorical Exclusion and final environmental clearance. Final design plans for the improvements will be determined when an implementation strategy is identified.

8.2 SCHEDULE

The project schedule is anticipated to include a funding identification phase, final engineering phase, a bid / advertisement phase, and a construction implementation phase. The City of Phoenix has a Capitol Improvements Program (CIP) that forecasts a 5-year projection of projects. This study is not currently on record for that 5-year forecast and will need to be added to the CIP.

As a reasonable timeline, the following table identified a typical duration of time for the project schedule beyond this study.

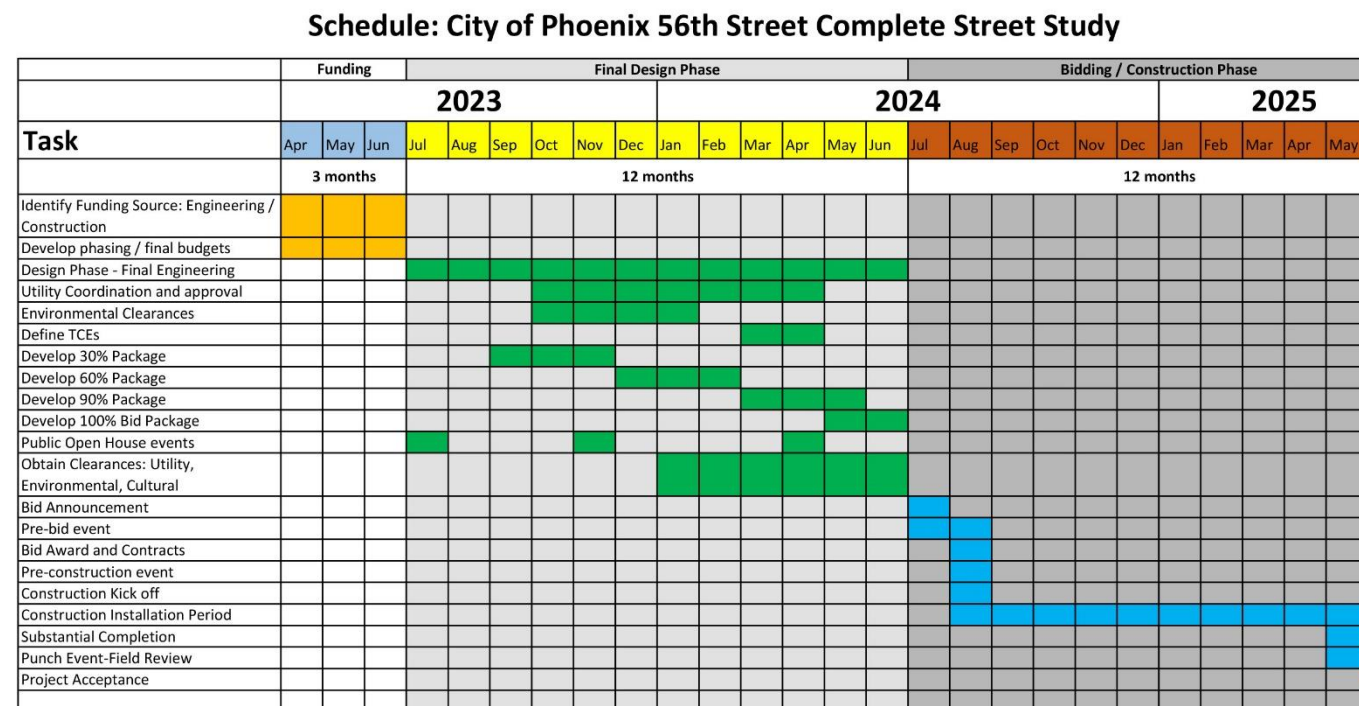


Figure 17: Potential Project Schedule

8.3 ESTIMATED COST

A preliminary review of current construction material costs was included with this study.

Tables of concept alternative project costs is provided in Figure 16 and 17. These tables summarize the Recommended / Community Alternative 2 and the City Suggested Alternative 3 design alternatives for the complete street environment as an itemized list of development expenses included to deliver the complete project. Phasing costs are not determined at this time as the division of any future phase has not been defined. Overall, the preliminary estimate of the completed street concept development of Alternative 2 is \$10,678,296. This includes a 20% contingency over the base concept costs. The Alternative 3 is \$10,809,180. This estimate does not include any permits, fees, final design fees, TCE expenses, or construction management costs.

Harrington Planning + Design					
City of Phoenix - 56th Street Study - Alternative 2					
Assumption of Probable Costs - 15% Plans Alternative 2					
56th Street: Camelback Road to Thomas Road Complete Street Study					
10/31/2018					
Item #	Item Description	Unit	Qty.	Price	Total
1	Clearing & Grubbing	L. SUM	1	\$25,000.00	\$25,000.00
2	Removal of Existing Curb/Gutter	L.F.	13,380	\$3.00	\$40,140.00
3	Removal of Asphalt Pavement	S.Y.	26500	\$12.00	\$318,000.00
4	Concrete Sidewalk, 4" thk, per MAG	S.F.	80280	\$7.00	\$561,960.00
5	Concrete Bike Lane, 4" thk, per MAG	S.F.	80280	\$8.00	\$642,240.00
6	ADA RAMP - Pedestrian	ea.	68	\$3,000.00	\$204,000.00
7	ADA Ramp - Bicycle	ea.	84	\$3,000.00	\$252,000.00
8	New Landscape Area	S.F.	44,720	\$3.00	\$134,160.00
9	New Tree - 36" box / 2" caliper	ea.	360	\$600.00	\$216,000.00
10	New Tree - 24" box / 1.5" caliper	ea.	78	\$400.00	\$31,200.00
11	New Curb / Gutter, 6" concrete	L.F.	13,380	\$18.00	\$240,840.00
12	New Asphalt Pavement, 4" (Including Subgrade Prep and Aggregate Basecourse)	S.Y.	26,667	\$63.00	\$1,680,000.00
13	Existing Utility Relocation / Modifications	L. SUM	1	\$800,000.00	\$800,000.00
14	Traffic Signal Modifications	L. SUM	1	\$500,000.00	\$500,000.00
15	Bicycle Lane Color Enhancements	S.F.	0	\$12.00	\$0.00
16	Bio-Swale Landscape features	S.F.	4,650	\$15.00	\$69,750.00
17	Seating Element, concrete, 6ft, surface mount	EACH	12	\$2,500	\$30,000.00
18	Lighting Improvements	L. SUM	1	\$700,000.00	\$700,000.00
19	Dezignline Bike Rail buffer	L.F.	887	\$80.00	\$70,960.00
20	Traffic Calming features (speed hump x 5)	L. SUM	1	\$15,000.00	\$15,000.00
21	Protected Bike Intersection improvements	L. SUM	1	\$80,000.00	\$80,000.00
22	Protection of existing landscape to remain	S.F.	10,000	\$1.50	\$15,000.00
23	New Mid-Block Crossing feature (HAWK)	EACH	1	\$200,000.00	\$200,000.00
24	New Drainage / Stormwater Infrastructure	L. SUM	1	\$1,500,000.00	\$1,500,000.00
25	New 6 ft CMU Screen Wall - match existing	L.F.	390	\$60.00	\$23,400.00
26	Crosswalk Enhancements - decorative stamped asphalt, colorized, 32 locations = 15000 sf	L. SUM	1	\$15,000.00	\$15,000.00
27	Bicycle gate chicane (at AZ Canal SUP)	EACH	2	\$4,000.00	\$8,000.00
28	Driveway replacement pavement, concrete	EACH	49	\$5,000.00	\$245,000.00
29	Round-About modifications at Exeter	L. SUM	1	\$300,000.00	\$300,000.00
30	Roadway Striping	L. SUM	1	\$60,000.00	\$60,000.00
31	Roadway Signage additions	L. SUM	1	\$30,000.00	\$30,000.00
Subtotal					\$9,007,650.00
Total	Total				\$9,007,650.00
Contingency - 20%		%	20	0.2	\$1,801,530.00
Project total					\$10,809,180.00

Figure 18: Alternative 2 Probable Costs

Harrington Planning + Design					
City of Phoenix - 56th Street Study - Alternative 3					
Assumption of Probable Costs - 15% Plans Alternative 3					
56th Street: Camelback Road to Thomas Road Complete Street Study					
10/31/2018					
Item #	Item Description	Unit	Qty.	Price	Total
1	Clearing & Grubbing	L. SUM	1	\$25,000.00	\$25,000.00
2	Removal of Existing Curb/Gutter	L.F.	13,380	\$3.00	\$40,140.00
3	Removal of Asphalt Pavement	S.Y.	26500	\$12.00	\$318,000.00
4	Concrete Sidewalk, 4" thk, per MAG	S.F.	80280	\$7.00	\$561,960.00
5	Concrete Bike Lane, 4" thk, per MAG	S.F.	80280	\$8.00	\$642,240.00
6	ADA RAMP - Pedestrian, concrete	ea.	69	\$3,000.00	\$207,000.00
7	ADA Ramp - Bicycle, concrete	ea.	42	\$3,000.00	\$126,000.00
8	New Landscape Area	S.F.	53,500	\$3.00	\$160,500.00
9	New Tree - 36" box / 2" caliper	ea.	367	\$600.00	\$220,200.00
10	New Tree - 24" box / 1.5" caliper	ea.	80	\$400.00	\$32,000.00
11	New Curb / Gutter, 6" concrete	L.F.	13,380	\$18.00	\$240,840.00
12	New Asphalt Pavement, 4" (Including Subgrade Prep and Aggregate Basecourse)	S.Y.	26,667	\$63.00	\$1,680,000.00
13	Existing Utility Relocation / Modifications	L. SUM	1	\$800,000	\$800,000.00
14	Traffic Signal - New x 2	L. SUM	1	\$500,000.00	\$500,000.00
15	Bicycle Lane Color Enhancements	S.F.	0	\$12.00	\$0.00
16	Bio-Swale Landscape features	S.F.	0	\$15.00	\$0.00
17	Seating Element, concrete, 6ft, surface mount	EACH	12	\$2,500.00	\$30,000.00
18	Lighting Improvements	L. SUM	1	\$700,000.00	\$700,000.00
19	Dezignline Bike Rail buffer	L.F.	0	\$80.00	\$0.00
20	Traffic Calming features (speed hump x 6)	L. SUM	1	\$18,000.00	\$18,000.00
21	Protected Bike Intersection improvements	L. SUM	1	\$80,000.00	\$80,000.00
22	Protection of existing landscape to remain	S.F.	10,000	\$1.50	\$15,000.00
23	New Mid-Block Crossing feature (HAWK)	EACH	1	\$200,000	\$200,000.00
24	New Drainage / Stormwater Infrastructure	L. SUM	1	\$1,500,000.00	\$1,500,000.00
25	New 6 ft CMU Screen Wall - match existing	L.F.	395	\$60.00	\$23,700.00
26	Crosswalk Enhancements - decorative stamped asphalt, colorized, 35 locations = 15000 sf	L. SUM	1	\$150,000.00	\$150,000.00
27	Bicycle gate chicane (at AZ Canal SUP)	EACH	2	\$4,000.00	\$8,000.00
28	Driveway replacement pavement, concrete	EACH	46	\$5,000.00	\$230,000.00
29	Round-About modifications at Exeter	L. SUM	1	\$300,000.00	\$300,000.00
30	Roadway Striping	L. SUM	1	\$60,000.00	\$60,000.00
31	Roadway Signage additions	L. SUM	1	\$30,000.00	\$30,000.00
Subtotal					\$8,898,580.00
Total					\$8,898,580.00
Contingency - 20%					\$1,779,716.00
Project total					\$10,678,296.00

Figure 19: Alternative 3 Probable Costs

9 FUTURE CONSIDERATIONS AND STUDIES

9.1 INTERSECTION OF 56TH STREET AND INDIAN SCHOOL ROAD

It is recommended that a detailed evaluation be completed for the 56th Street/Indian School Road intersection. The public mentioned concerns regarding sight-distance for left-turn movements and the merge on 56th Street, south of Indian School Road. The study should address signal timing, assess sight distance, evaluate left-turn movements, consider a shorter cycle length or ITS options to serve 56th Street pedestrians more efficiently, and evaluate turn restrictions due to pedestrian and bicyclist activity.

The City of Phoenix has plans to install flashing yellow left-turn arrows at the 56th Street/Indian School Road intersection. Any improvements to the intersection should be PROWAG compliant, and the intersection should be improved to full actuation. This project recommends altering the lane configuration on the southbound approach to consist of a dedicated left-turn lane, one through lane, and a dedicated right-turn lane. Removing the second through lane will result in further delay to this movement. However, the intent is to remove the speeding at the merge south of the intersection and reduce cut-through traffic throughout the 56th Street corridor. It is also recommended to tighten the corner radii to improve pedestrian and bicycle safety by reducing right-turn speeds.

9.2 VERITAS SAFE ROUTES TO SCHOOL (SRTS) STUDY BY CITY OF PHOENIX

The Veritas Preparatory Academy is located on the west side of 56th Street, south of Cherry Lynn Road. The campus at 3102 N. 56th Street serves both Archway Classical Academy (grades K-5) and Veritas (grades 6-12). The school has expanded with additional students for the 2018-2019 school year. During school drop-off and pick-up times, traffic queues onto 56th Street causing delay to other vehicles. Drivers currently utilize the bicycle lane when making a southbound right-turn into the school, since there is not a dedicated right-turn lane at the northern driveway, which currently operates as the entry for their circulation. There is an existing southbound right-turn lane at the middle and southern driveways. The southern driveway of the school currently operates as an exit only during drop-off and pick-up times and results in conflicts with Earll Drive, located immediately south of the school. It is recommended that a *Safe Routes to School (SRTS)* Study be initiated through the City of Phoenix to assess circulation and determine any necessary improvements. The City of Phoenix should pursue the SRTS study independently of MAG due to long lead time with the application and award process. MAG also provide crossing guard training workshops, which may be of benefit to the school.

9.3 PEDESTRIAN AND BICYCLE COUNTS

56th Street/Osborn Road

Osborn Road leads to Ingleside Middle School, thus resulting in pedestrian and bicycle activity in the vicinity. Pedestrian counts were provided for the 56th Street/Osborn Road intersection. Based on these counts, the majority of crossings occurred on the west approach (across Osborn Road). There is an existing marked crosswalk on the north approach on 56th Street. However, there is currently no sidewalk on the east side of 56th Street, south of Osborn Road. A raised crosswalk is recommended with initial design to calm traffic and to improve awareness of the crossing. With an improved pedestrian and bicycle environment and completed connections, the north crosswalk is also a possible location for a high-intensity activated crosswalk (HAWK) beacon. This crosswalk should be monitored, and new pedestrian counts obtained. Warrant 5, School Crossing, of the *Manual of Uniform Traffic Control Devices (MUTCD)* requires a minimum of 20 schoolchildren during the highest crossing hour to warrant a signal control crossing along with inadequate gaps for crossing. Section 4F.01 of the MUTCD describes the standard and provides guidance for a pedestrian hybrid beacon. Pedestrian and bicycle counts should be collected at this location before and after the project.

56th Street/ Veritas Preparatory Academy

The Veritas Preparatory Academy has requested a marked crosswalk in the vicinity of their school near Cheery Lynn Road. Existing observations reveal that there is minimal 56th Street pedestrian and bicycle crossings at the school. However, there is currently no sidewalk on the east side of 56th Street. This location should be monitored in the future to assess if an improved pedestrian/bicycle environment encourages more crossings warranting a school crossing. If a school crossing is

established, the school would be responsible for training and providing a crossing guard. The Maricopa Association of Governments (MAG) provides crossing guard training workshops, which may be of benefit to the school.

9.4 BEFORE AND AFTER SPEED AND TRAFFIC COUNTS

The goal of the 56th Street Complete Street project is to reduce vehicle speeds, reduce cut-through traffic, create a safer environment, and improve mobility for pedestrians and bicycles. New traffic and speed data were not collected for this project assessment. It is recommended to collect vehicle traffic counts and speed data before and after construction to adequately assess existing conditions and determine the effectiveness of the Complete Streets project in reducing vehicle speeds and cut-through traffic. It is also recommended to utilize the before traffic counts and speed data to address issues in final design. The 15% design was based on currently available data, whereas new counts may suggest specific locations for speed concerns.

9.5 ADDITIONAL STUDY REQUIRED

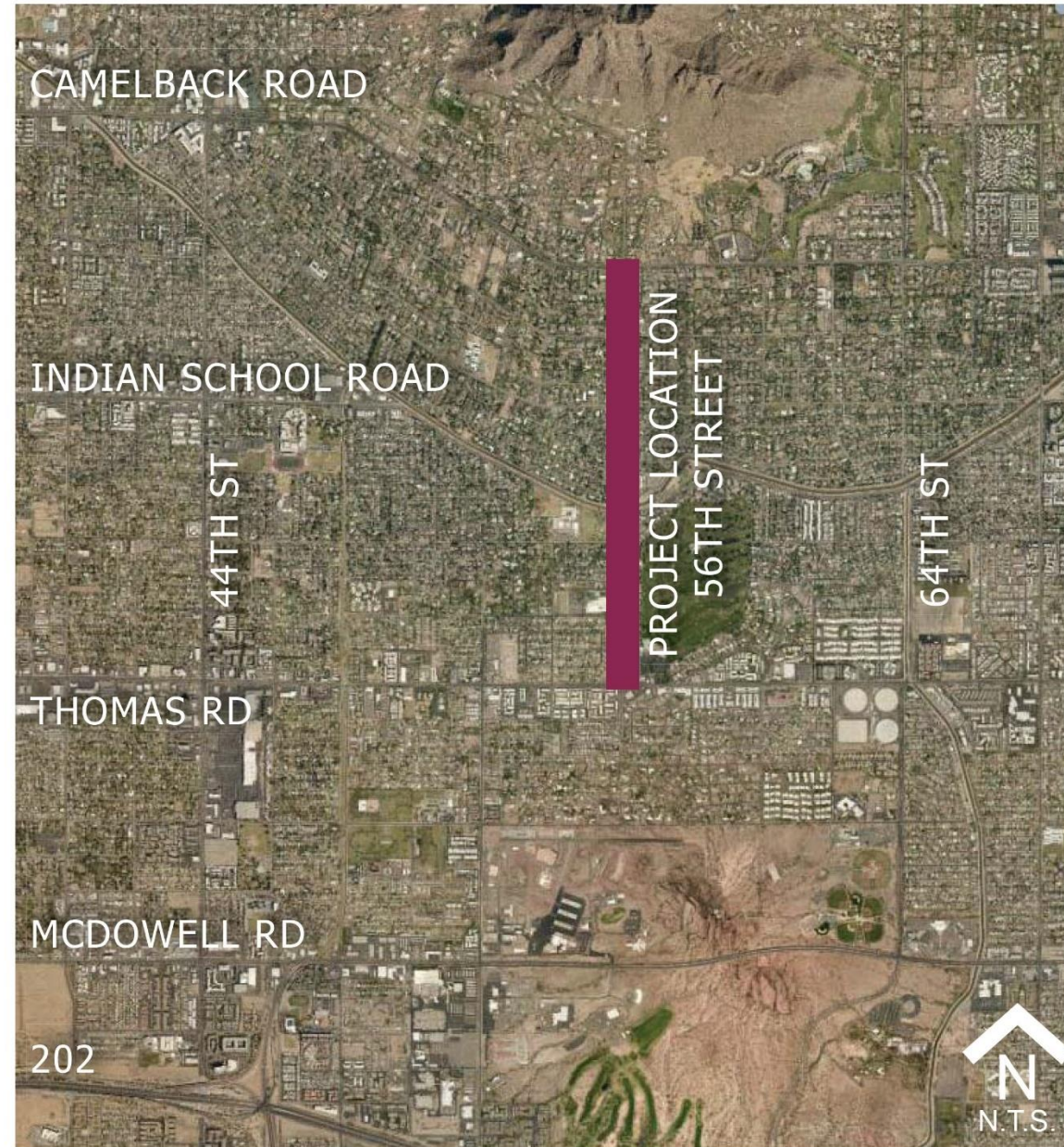
The results of this project assessment indicate that substantial work is required for both alternatives presented. The nature of the Design Assistance process is to enumerate the possibilities, identify some of the potential conflicts and itemize some of the work anticipated to build the project, including a contingency.

For both alternatives, this project assessment has considered almost 95% reconstruction of the street, including removal and replacement of 13,380 feet of curb, gutter, and sidewalk. The project assessment also recommends utility relocations of some sewer, water, natural gas, telco, fiber optic, and converting overhead power to underground. The city may wish to consider another alternative where more curb, gutter, asphalt, and sidewalk is preserved than proposed in Alternatives 2 and 3.

The city may pursue an alternative option where the bike lanes remain on the asphalt for long-distance riding and a multi-use trail for families is built on the east side of 56th street from Orange Blossom to Exeter. This alternative and others would need to be discussed with project stakeholders to reach a mutually beneficial agreement.

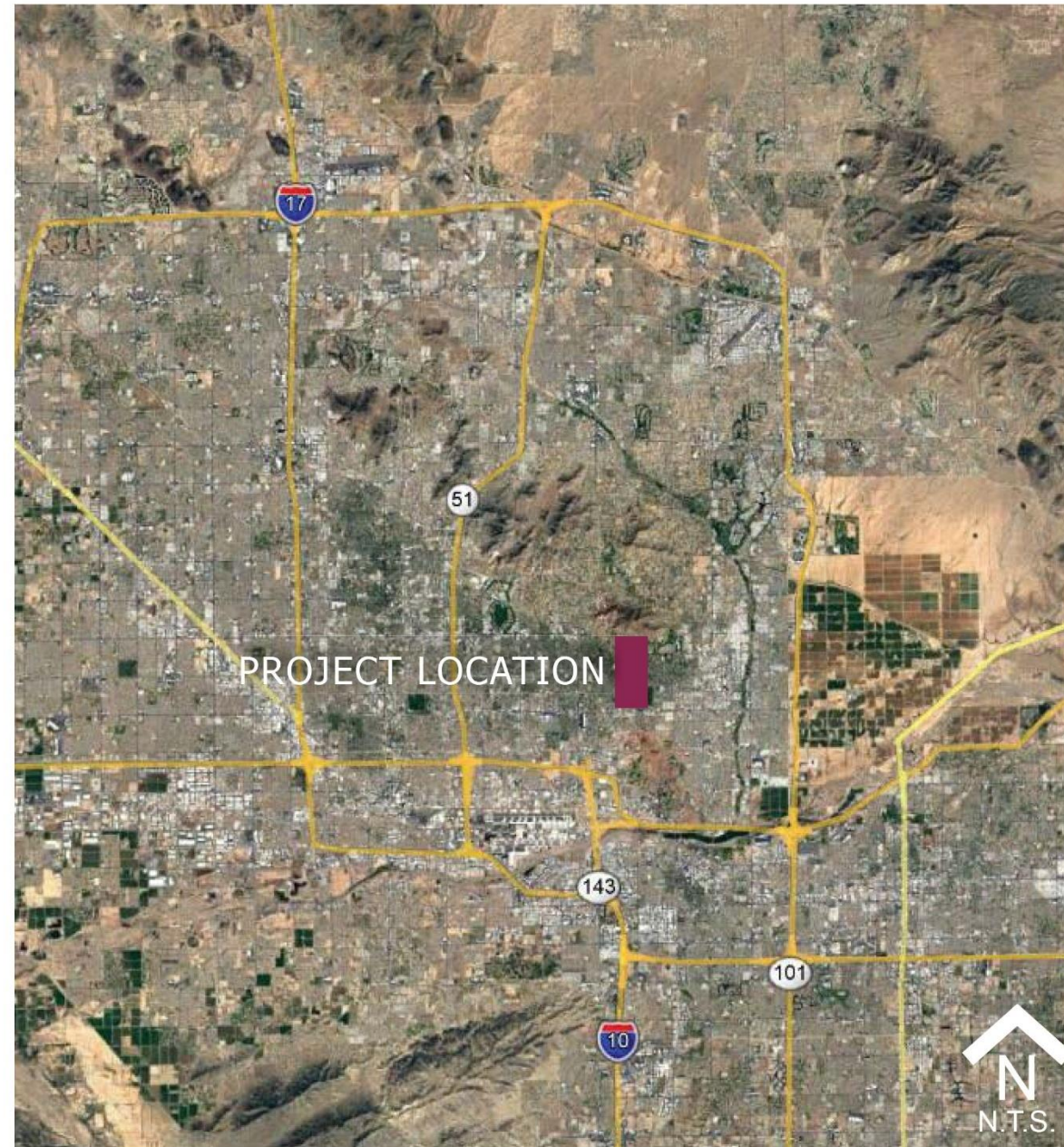
The city will need to pursue this project beyond the scope of this Project Assessment before making a decision to begin final design and/or fund the project.

10 PROJECT VICINITY MAP



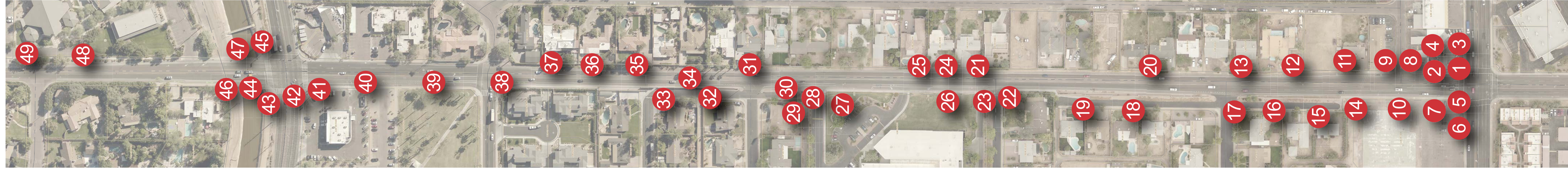
VICINITY MAP

11 PROJECT LOCATION MAP



AREA MAP

APPENDIX A – EXISTING SITE CONDITIONS PHOTOS (PHOTOS MAP / EXISTING IMAGERY)



Calle Ventura

Arizona Canal Trail

Indian School Road

Osborn Road

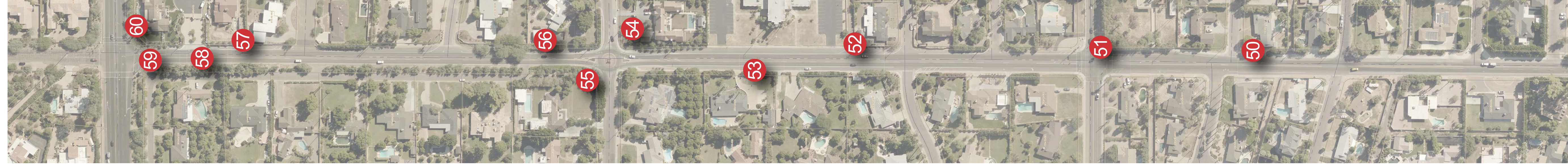
Flower Street

Cheery Lynn Road

Earll Drive

Pinchot Avenue

Thomas Road



Camelback Road

Montecito Avenue

Exeter Road

Monterosa Street

Lafayette Boulevard

Calle Tuberia

Calle Del Paisano

Calle Camelia



56TH STREET CORRIDOR STUDY



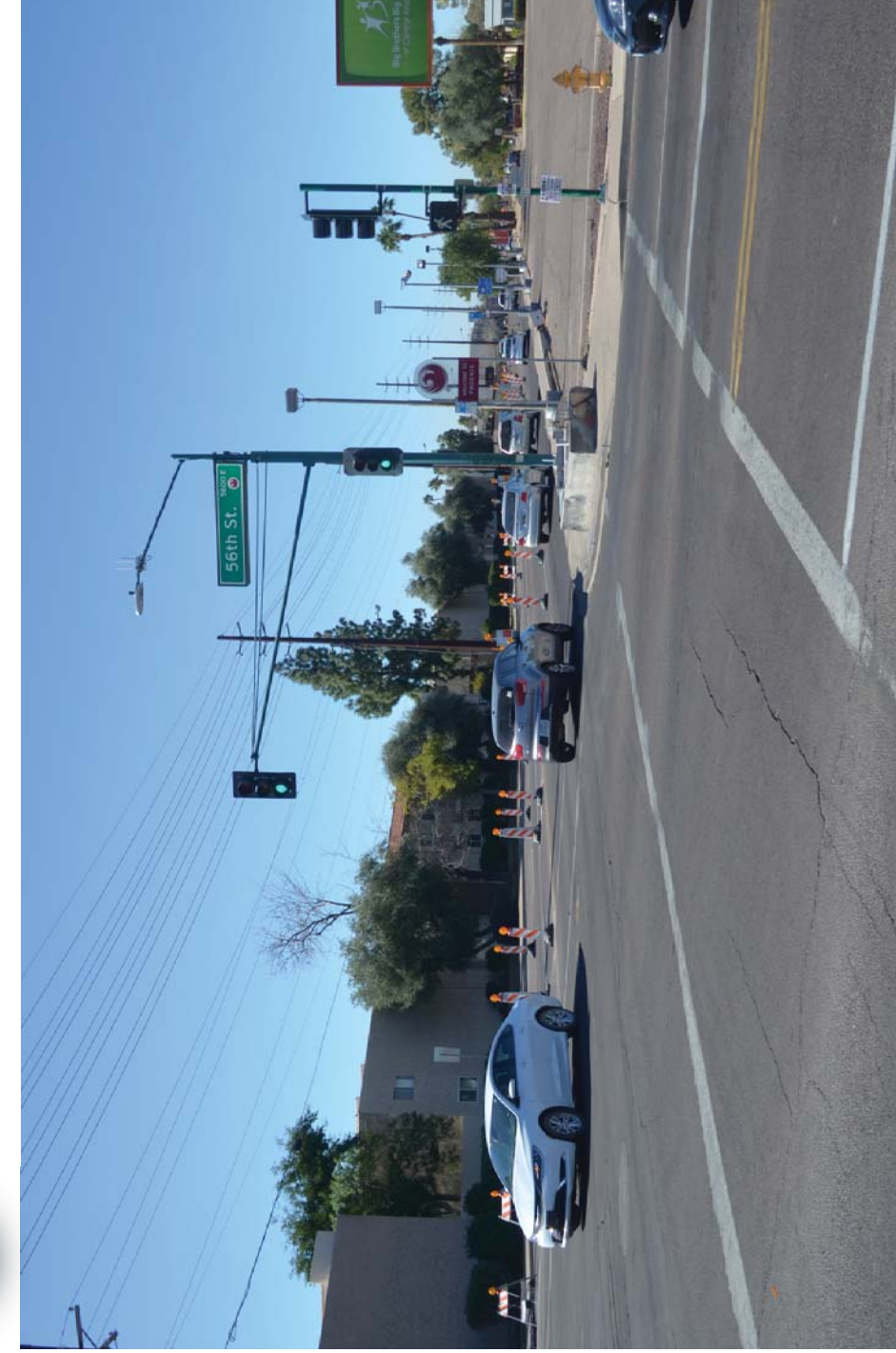
City of Phoenix

STREET TRANSPORTATION DEPARTMENT



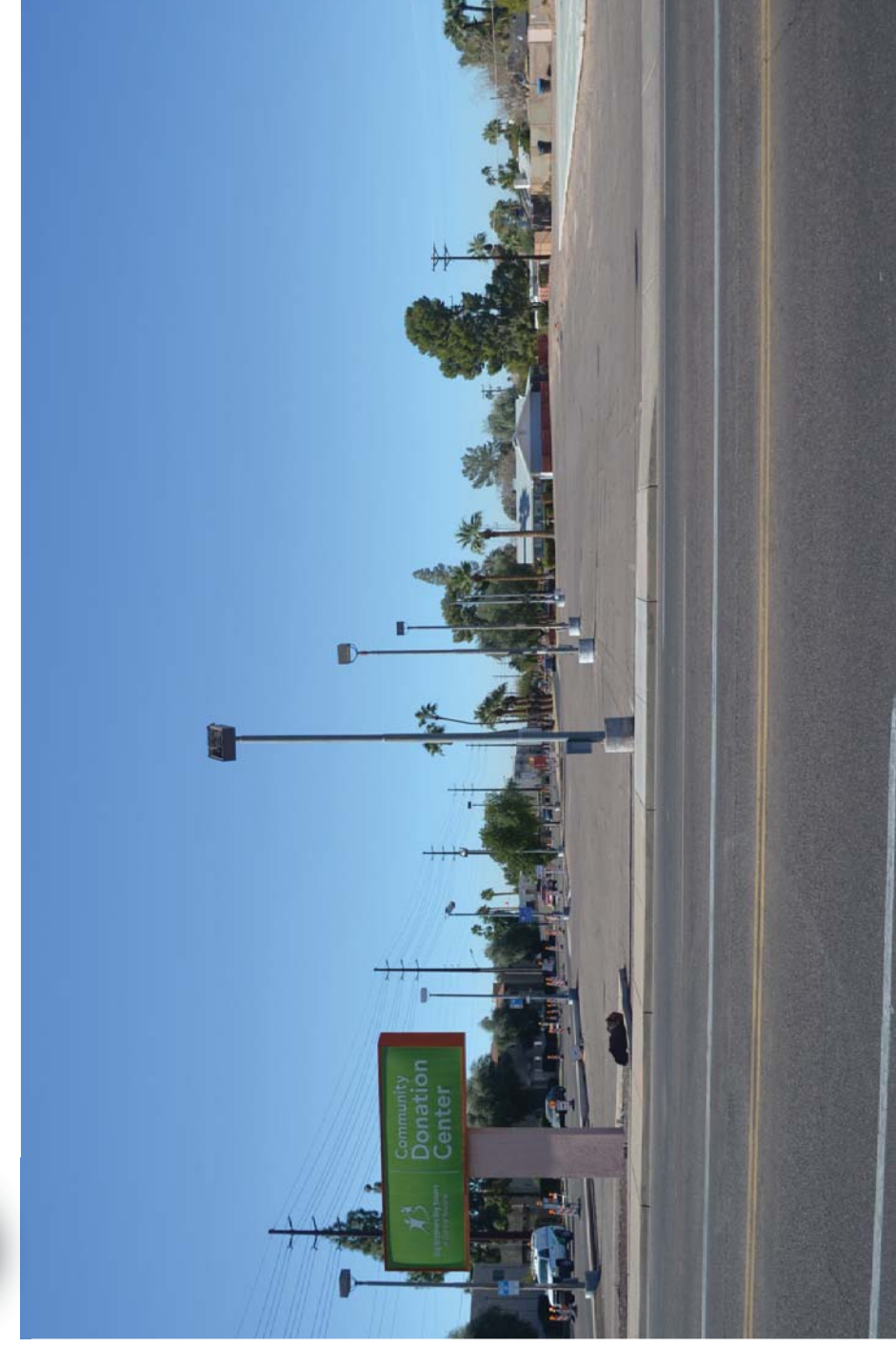
1

North East Corner of Thomas Road Looking West Across 56th Street



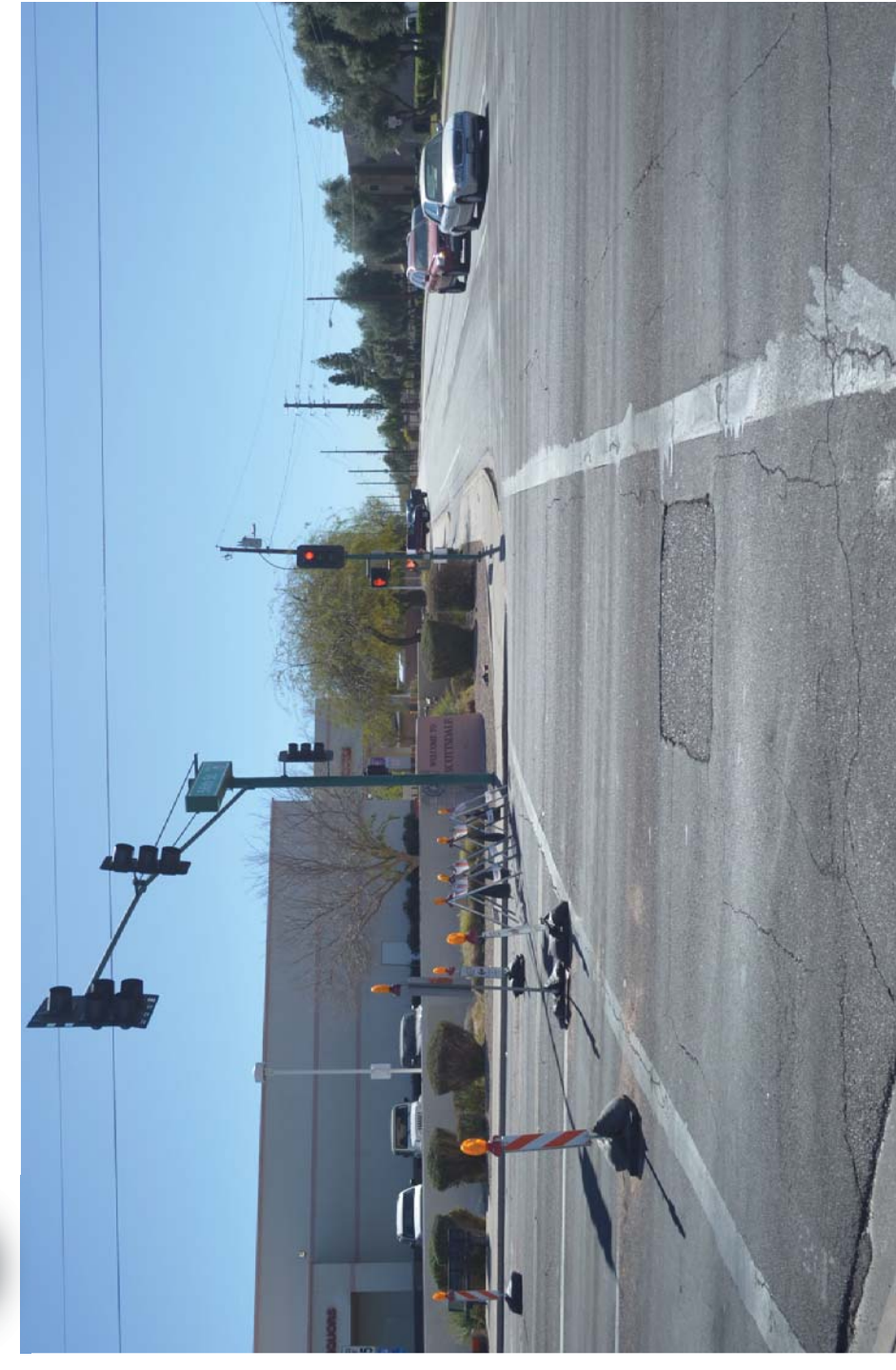
2

North East Corner of Thomas Road Looking West Across 56th Street



3

North East Corner of Thomas Road Looking South Across Thomas Road



4

North West Corner of Thomas Road Looking South West Along Thomas Road



5

North West Corner of Thomas Road Looking South Across Thomas Road



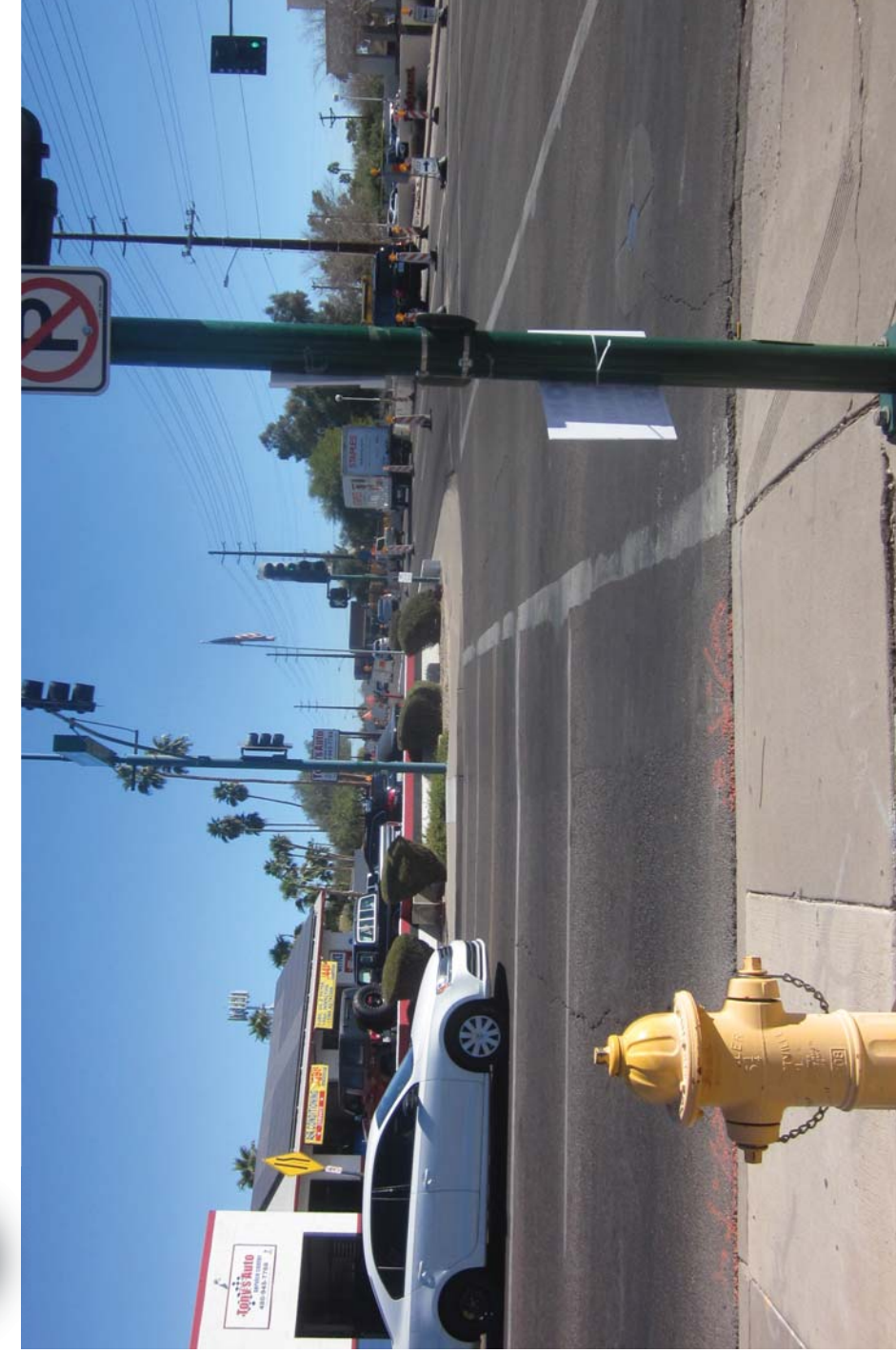
6

North West Corner of Thomas Road Looking East Across 56th Street



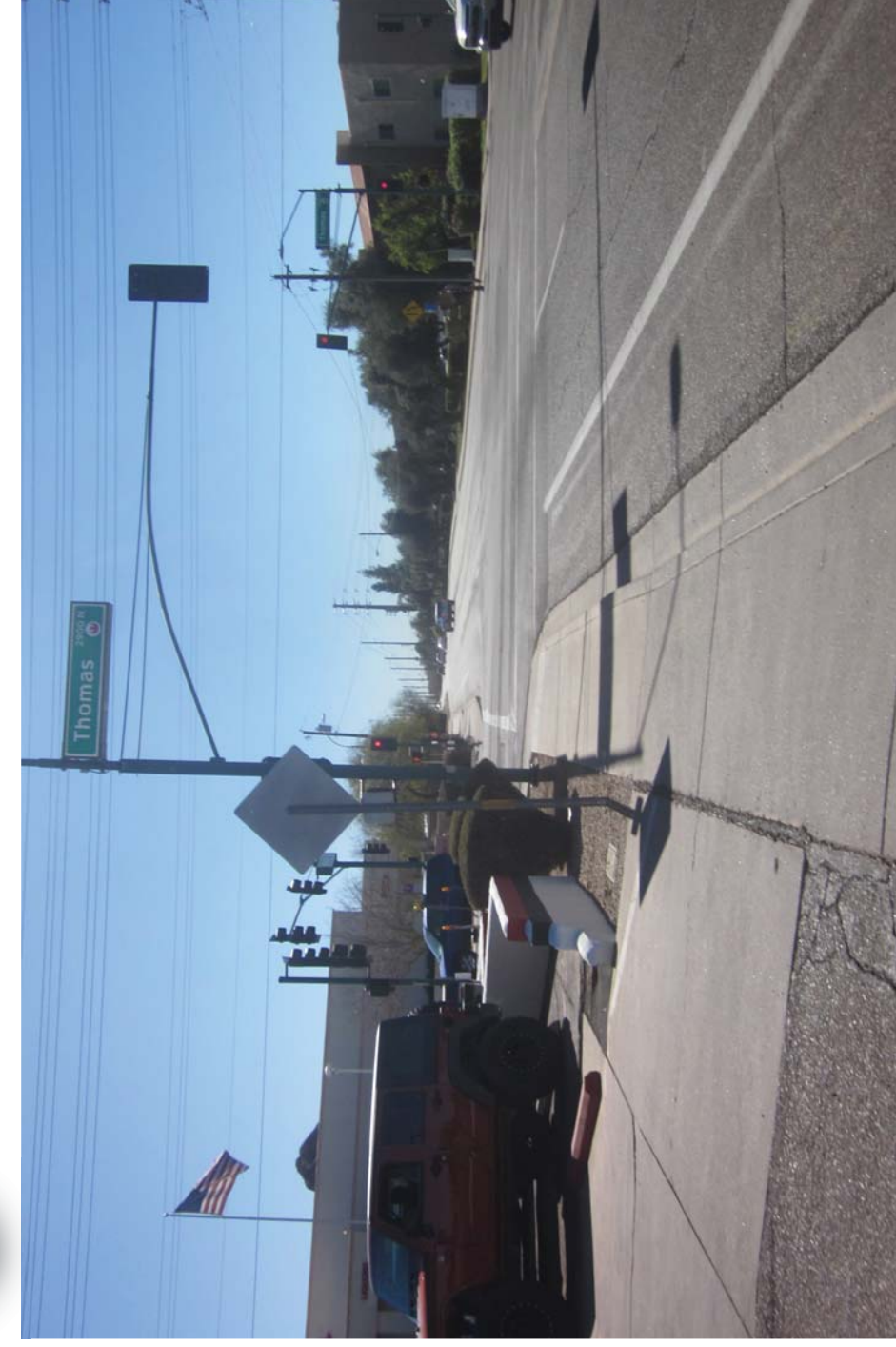
7

North West Corner of Thomas Road Looking East Across 56th Street



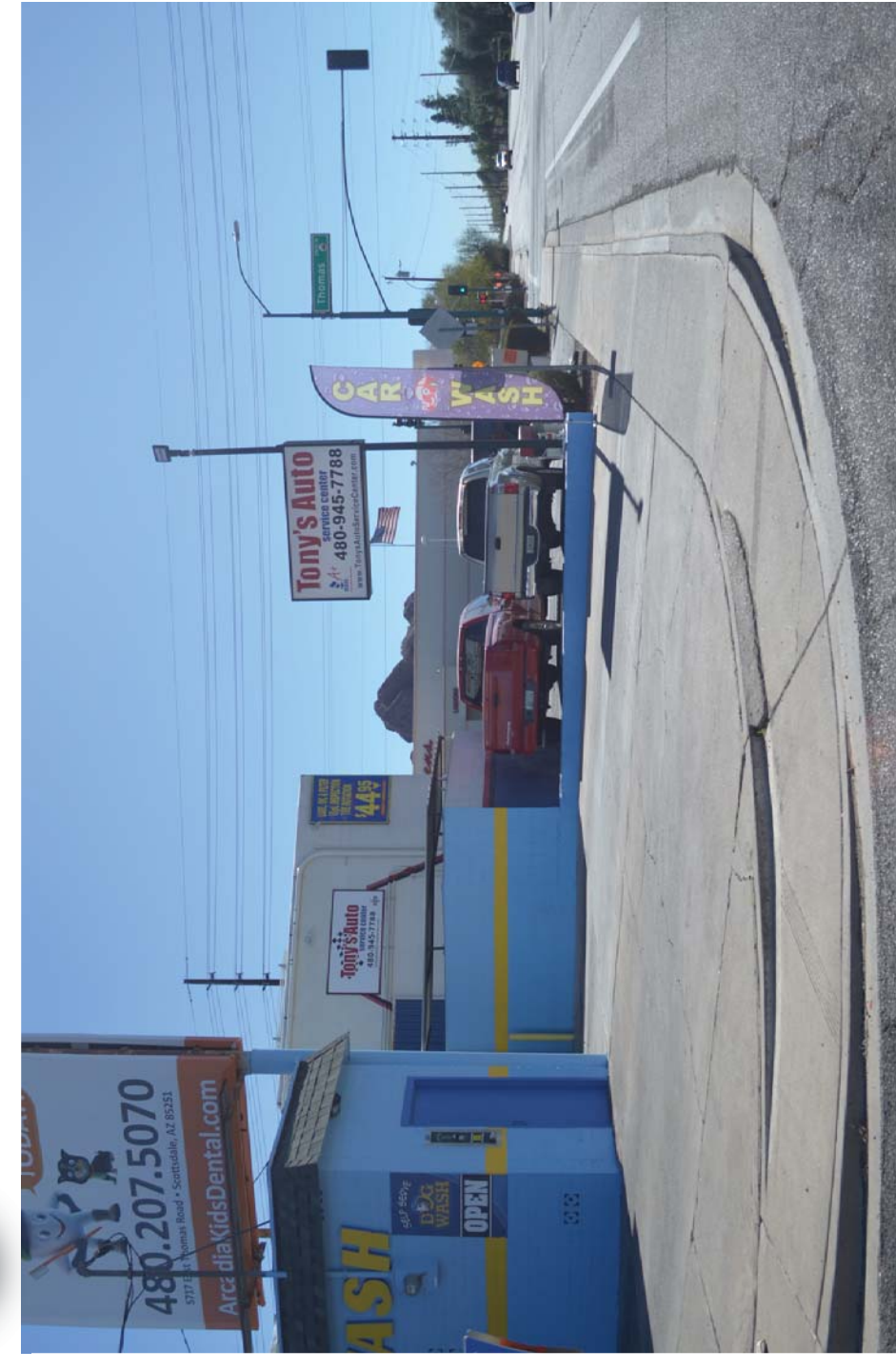
8

East Side of 56th Street Looking South to Thomas Road



9

East Side of 56th Street at Orange Blossom Lane Looking South to Thomas Road



10

West Side of 56th Street at Orange Blossom Lane Looking South to Thomas Road



11

East Side of 56th Street Looking South along Shoulder



12

East Side of 56th Street Looking North along Shoulder



13

East Side of 56th Street Looking South along Shoulder



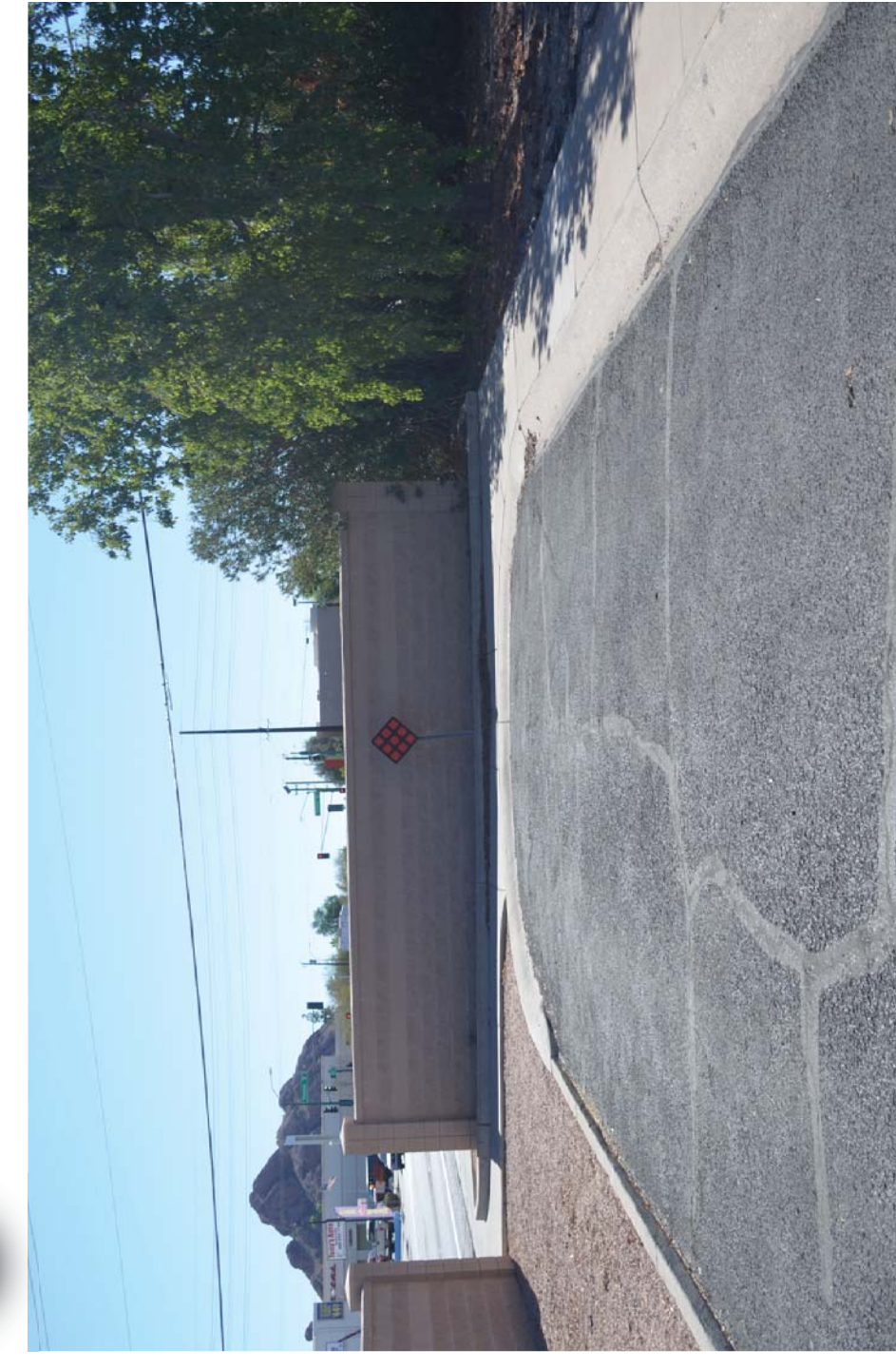
14

West Side of 56th Street Looking North along Noise Wall and Frontage Road



15

West Side of 56th Street Looking South towards end of Frontage Road



EXISTING IMAGERY



OH 4.0

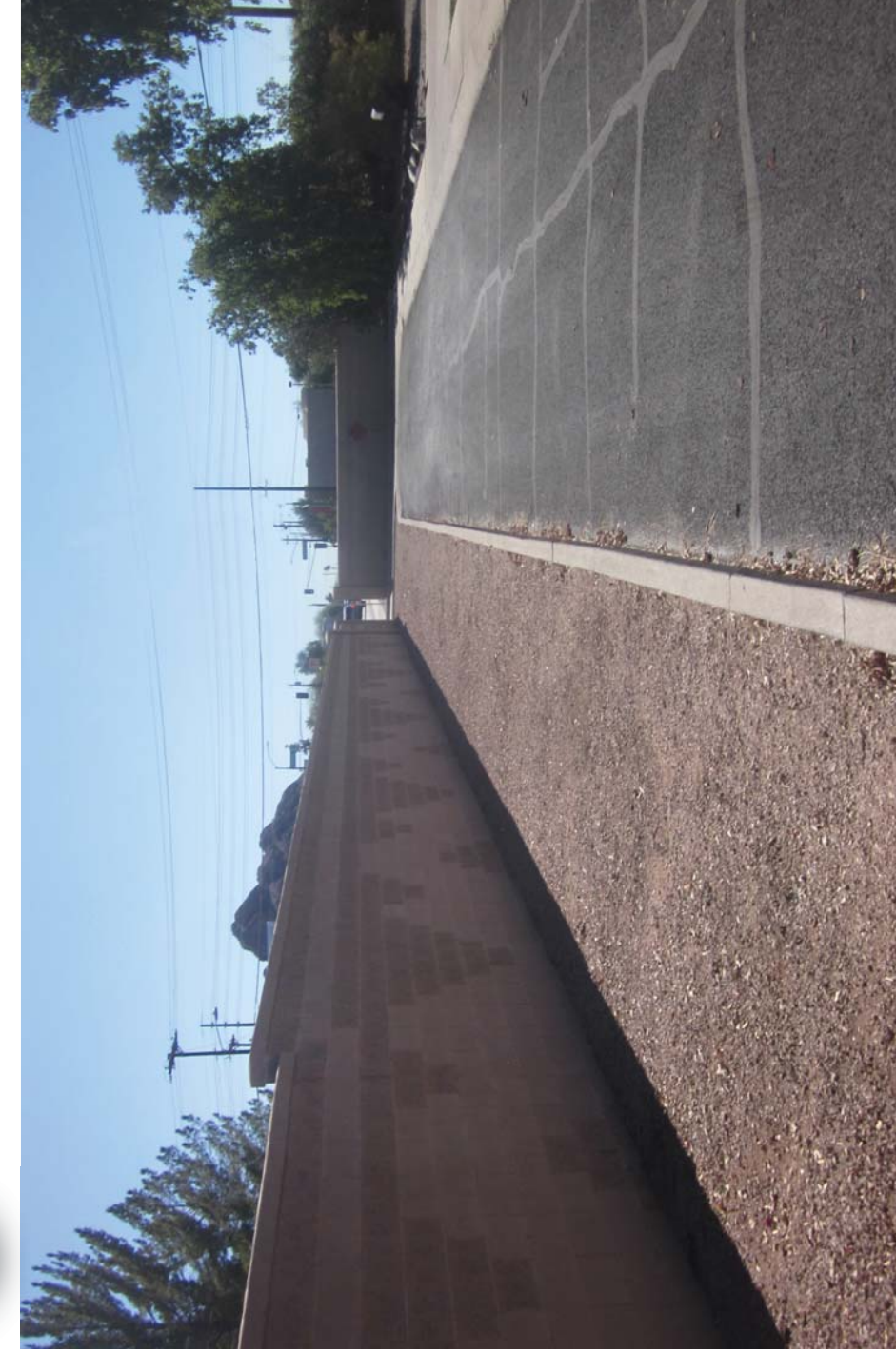
56TH STREET CORRIDOR STUDY



City of Phoenix
STREET TRANSPORTATION DEPARTMENT



16 West Side of 56th Street
Looking South along Noise Wall and Frontage Road



17 West Side of 56th Street at Pinchot Avenue
Looking North East across 56th Street



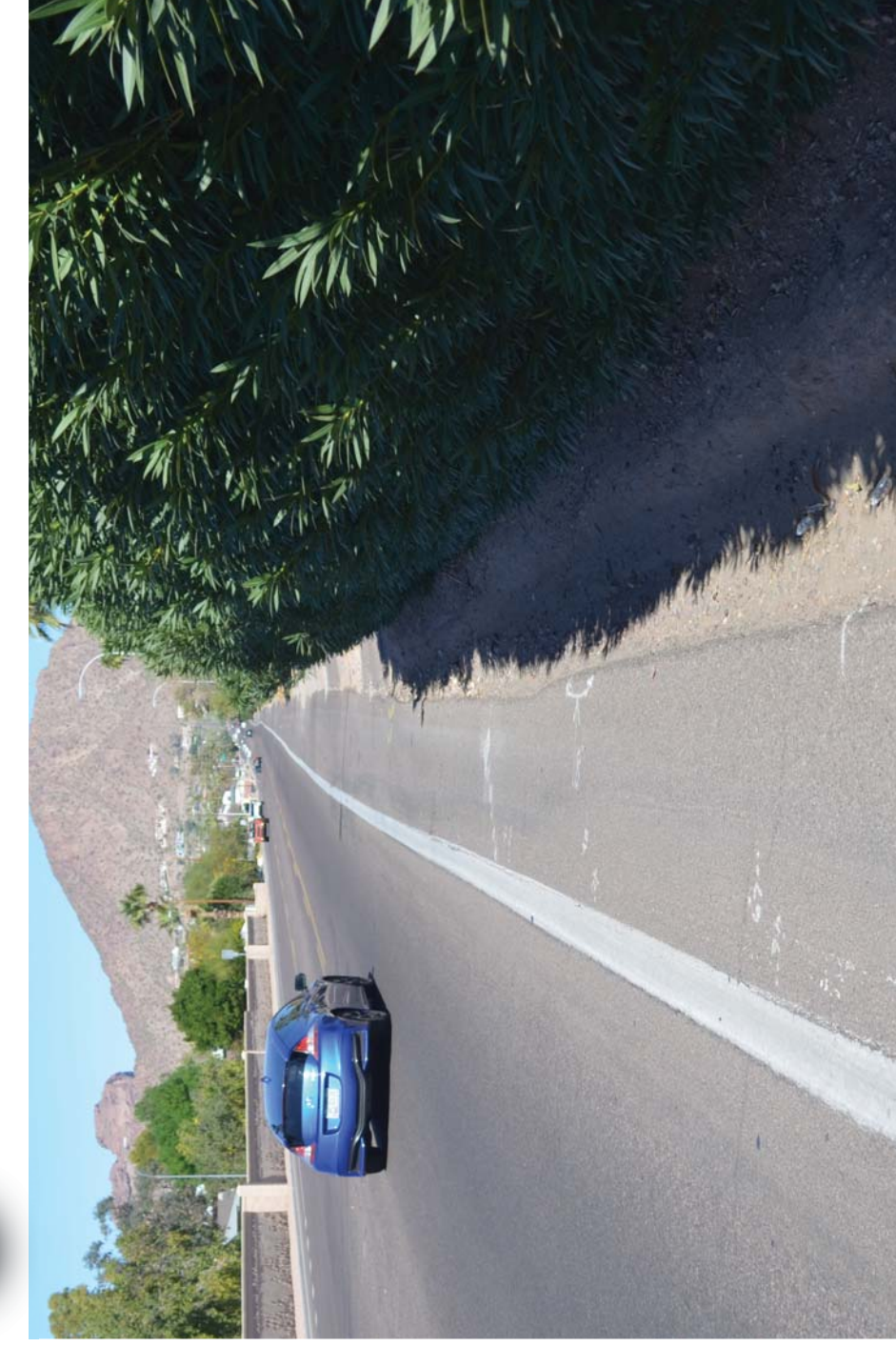
18 North East Corner of Thomas Road
Looking South Across Thomas Road



19 North East Corner of Thomas Road
Looking West Across 56th Street



20 East Side of 56th Street at Pinchot Avenue
Looking North along Shoulder



21 East Side of 56th Street
Looking South along Shoulder and Drainage



22 South West Corner of Earll Drive
Looking South



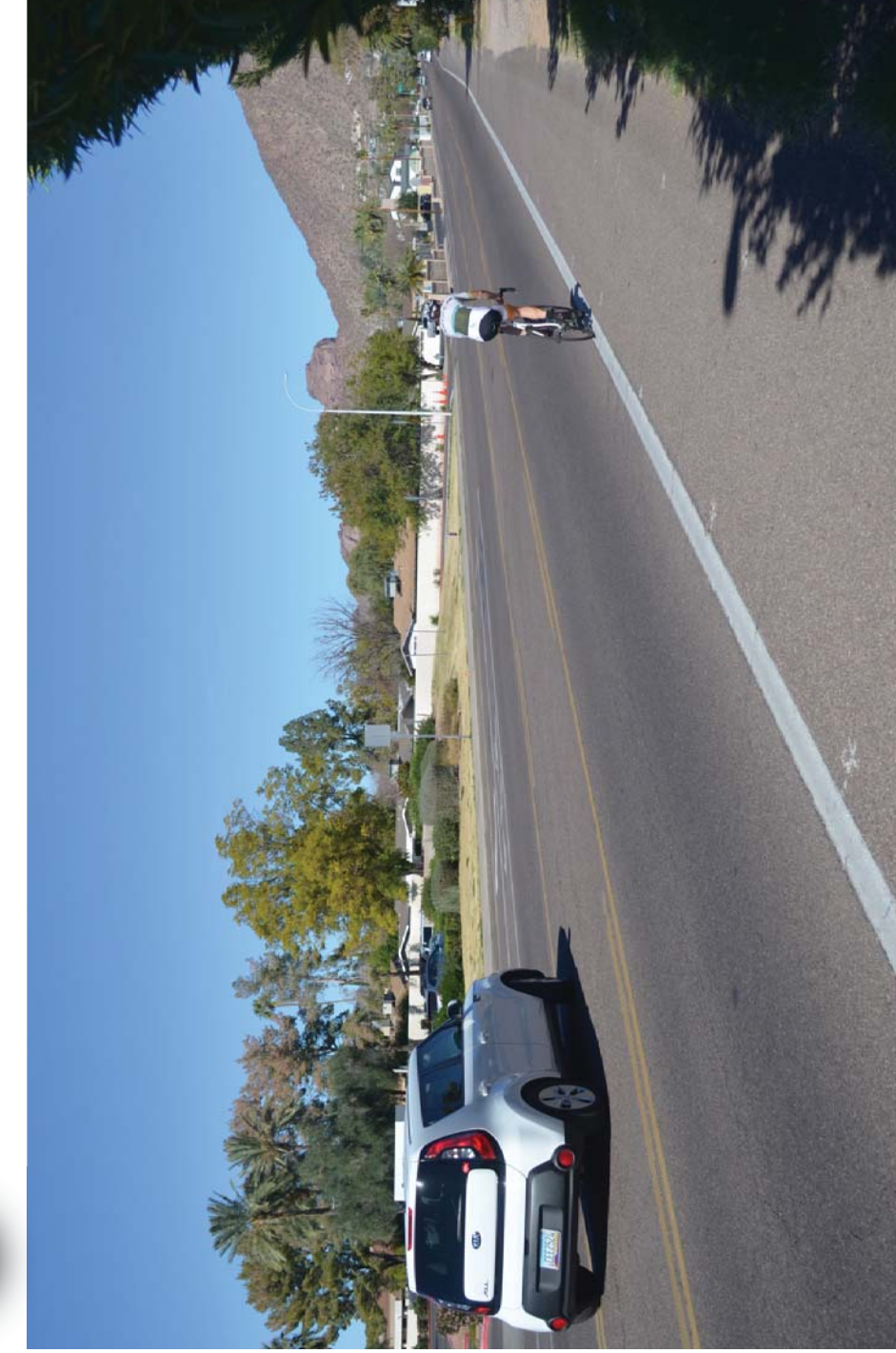
23 South West Corner of Earll Drive
Looking North towards Veritas Preparatory



24 East Side of 56th Street at Earll Drive
Looking South West towards Pinchot Avenue



25 East Side of 56th Street at Veritas Preparatory
Looking North along Shoulder



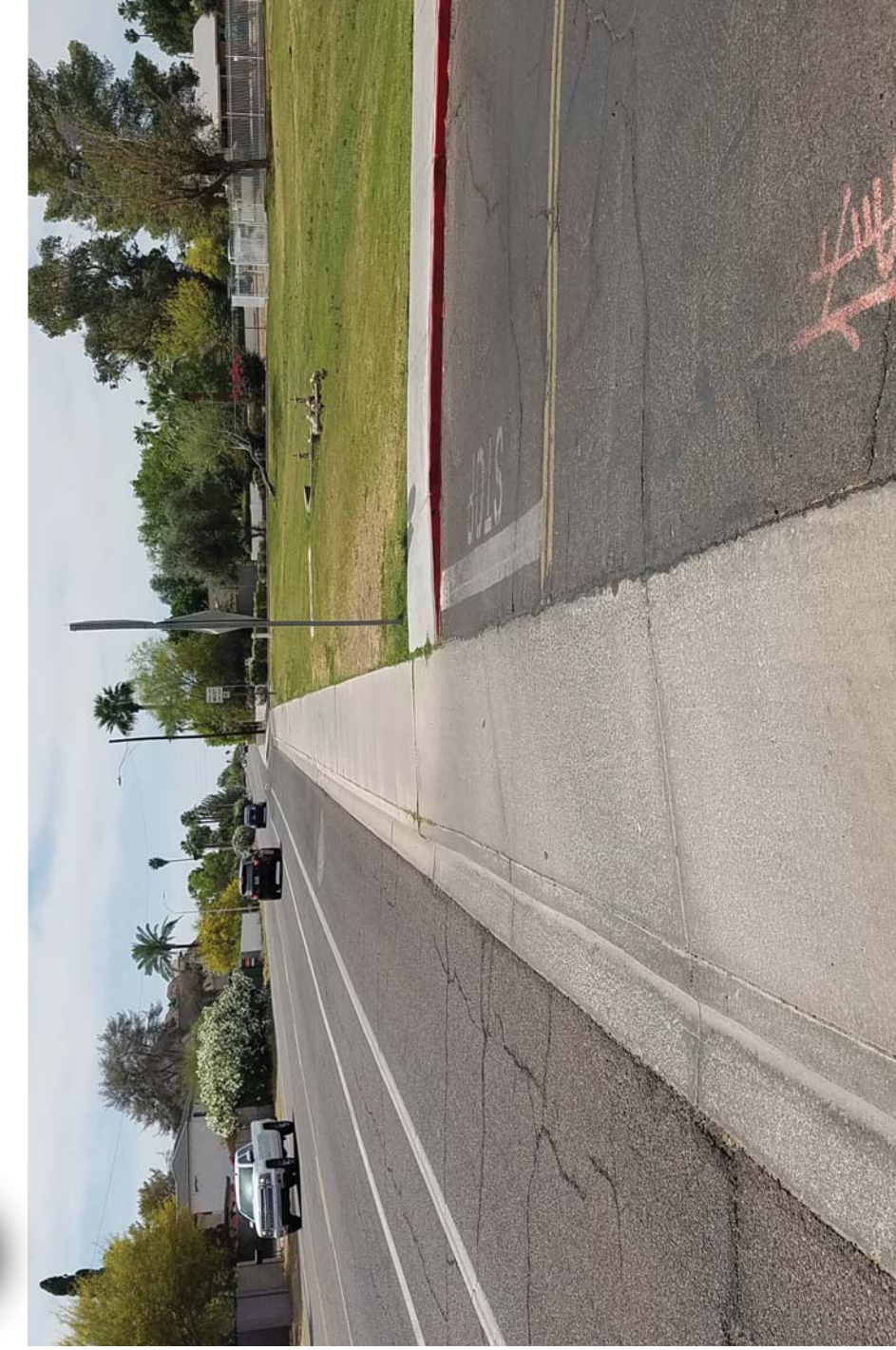
26 West Side of 56th Street at Veritas Preparatory
Looking North towards School Entrance



27 West Side of 56th Street at Veritas Preparatory
Looking North towards School Entrance



28 West Side of 56th Street at Veritas Preparatory
Looking South towards School Entrance



29 West Side of 56th Street at Cheery Lynn Road
Looking South towards end of Alley



30 West Side of 56th Street at Cheery Lynn Road
Looking North along Frontage Road



EXISTING IMAGERY



OH 4.1

56TH STREET CORRIDOR STUDY



City of Phoenix

STREET TRANSPORTATION DEPARTMENT

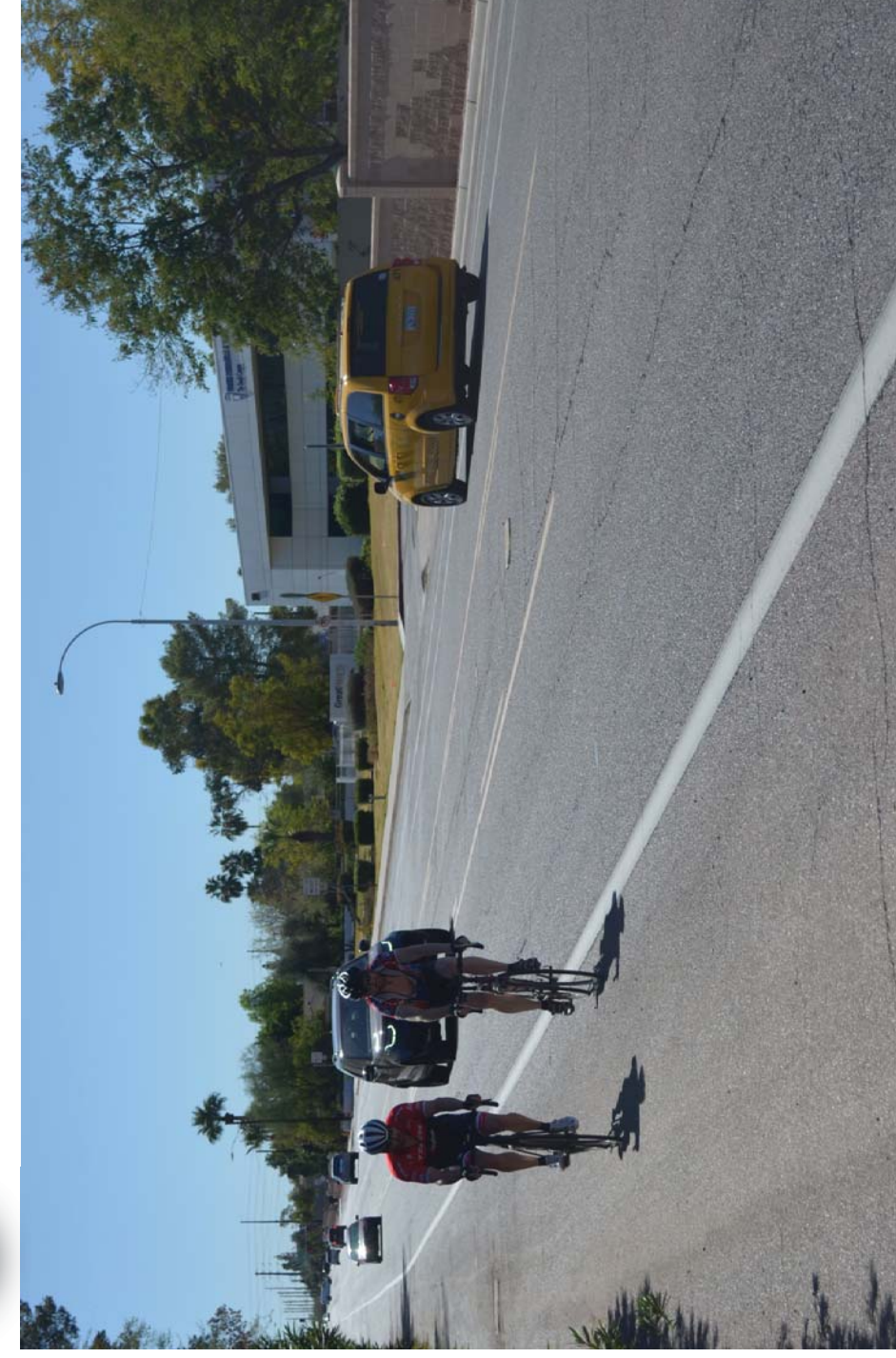


MARICOPA GOVERNMENTS



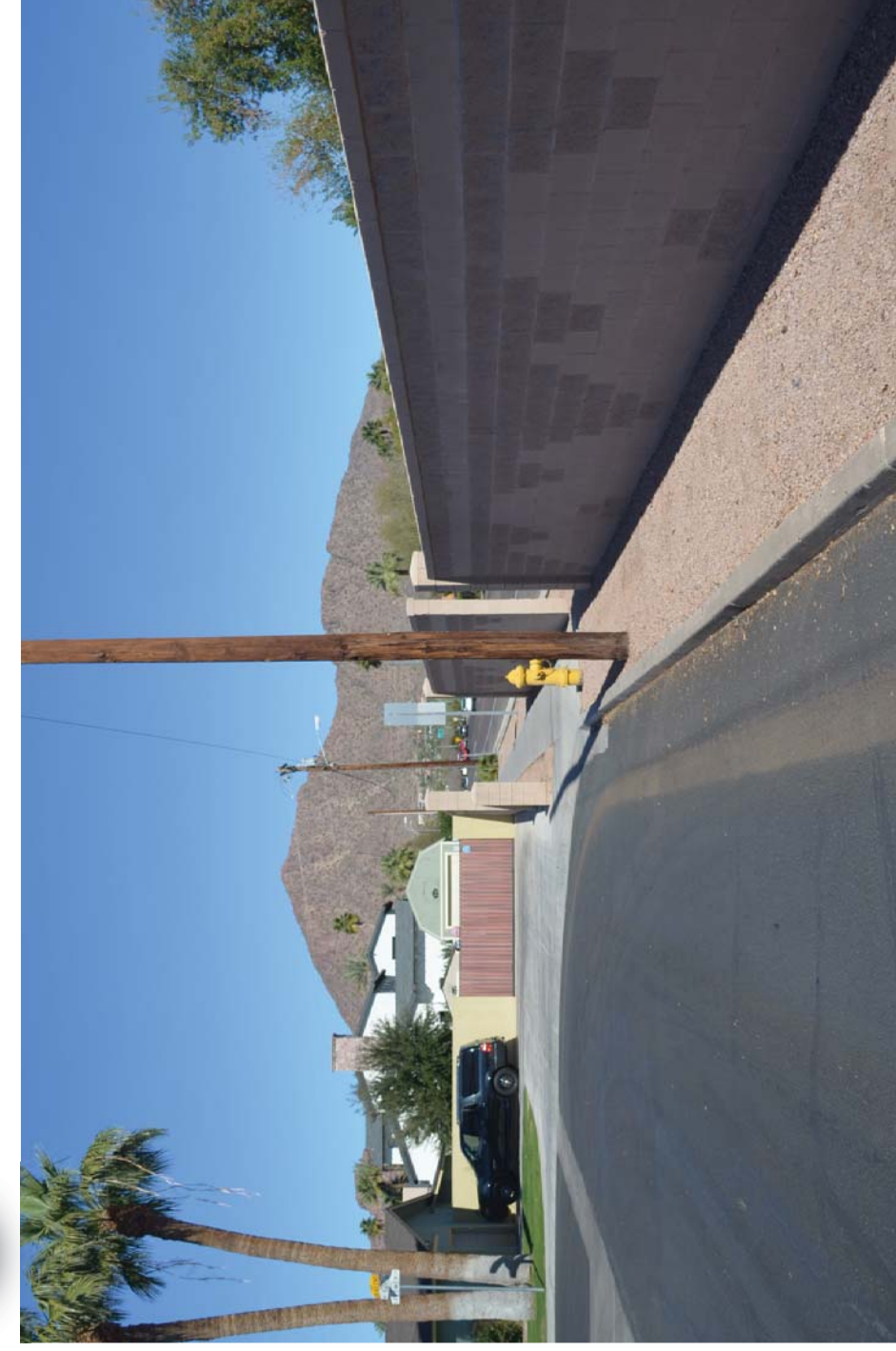
31

East Side of 56th Street at Cheery Lynn Road
Looking South towards School Entrance



32

West Side of 56th Street at Flower Street
Looking North along Noise Wall and Sidewalk



33

West Side of 56th Street at Flower Street
Looking North along Noise Wall and Sidewalk



34

West Side of 56th Street at Flower Street
Looking North along Noise Wall and Sidewalk



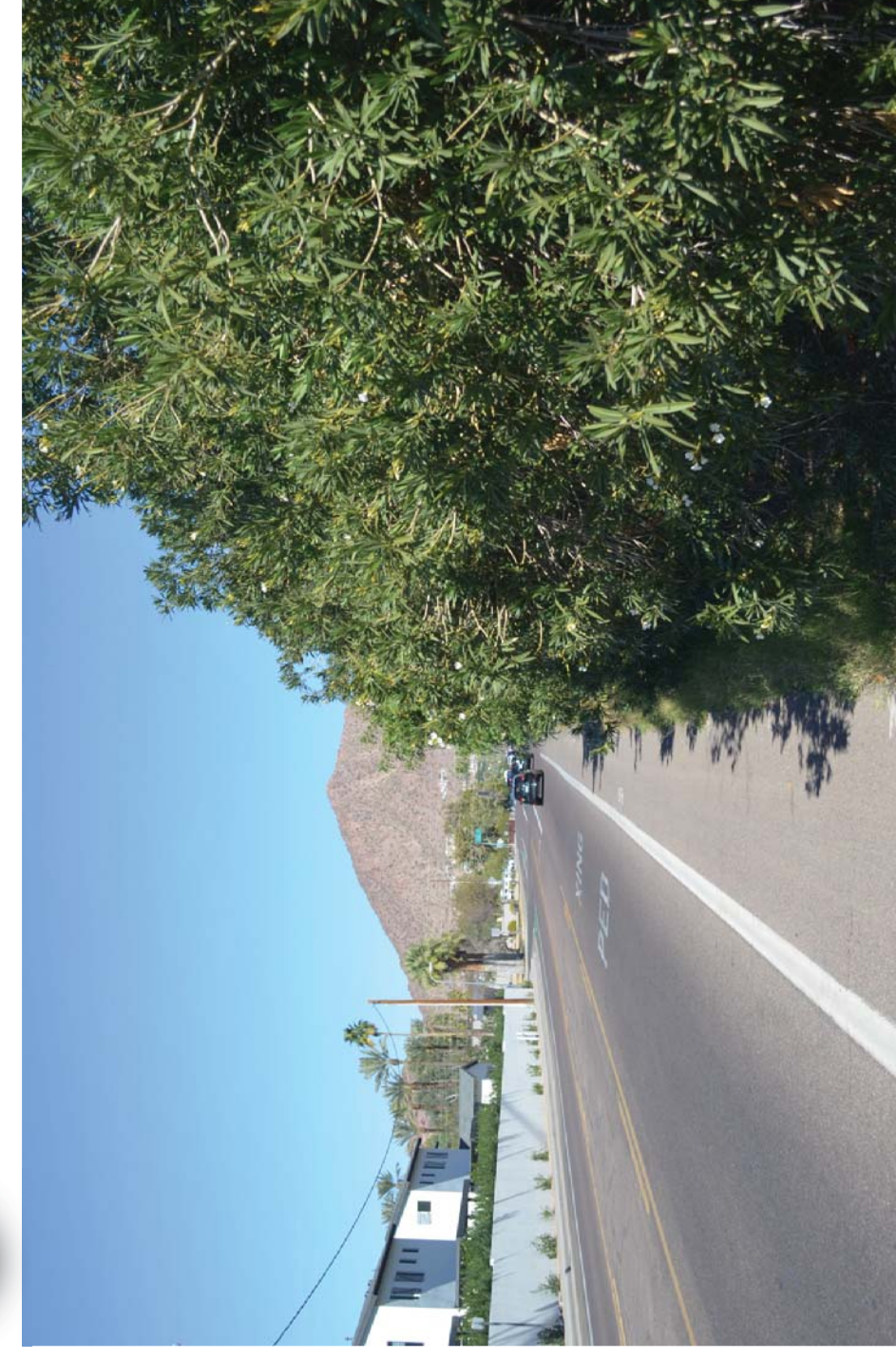
35

East Side of 56th Street
Looking South along Shoulder



36

East Side of 56th Street
Looking North along Shoulder



37

East Side of 56th Street
Looking North along Shoulder



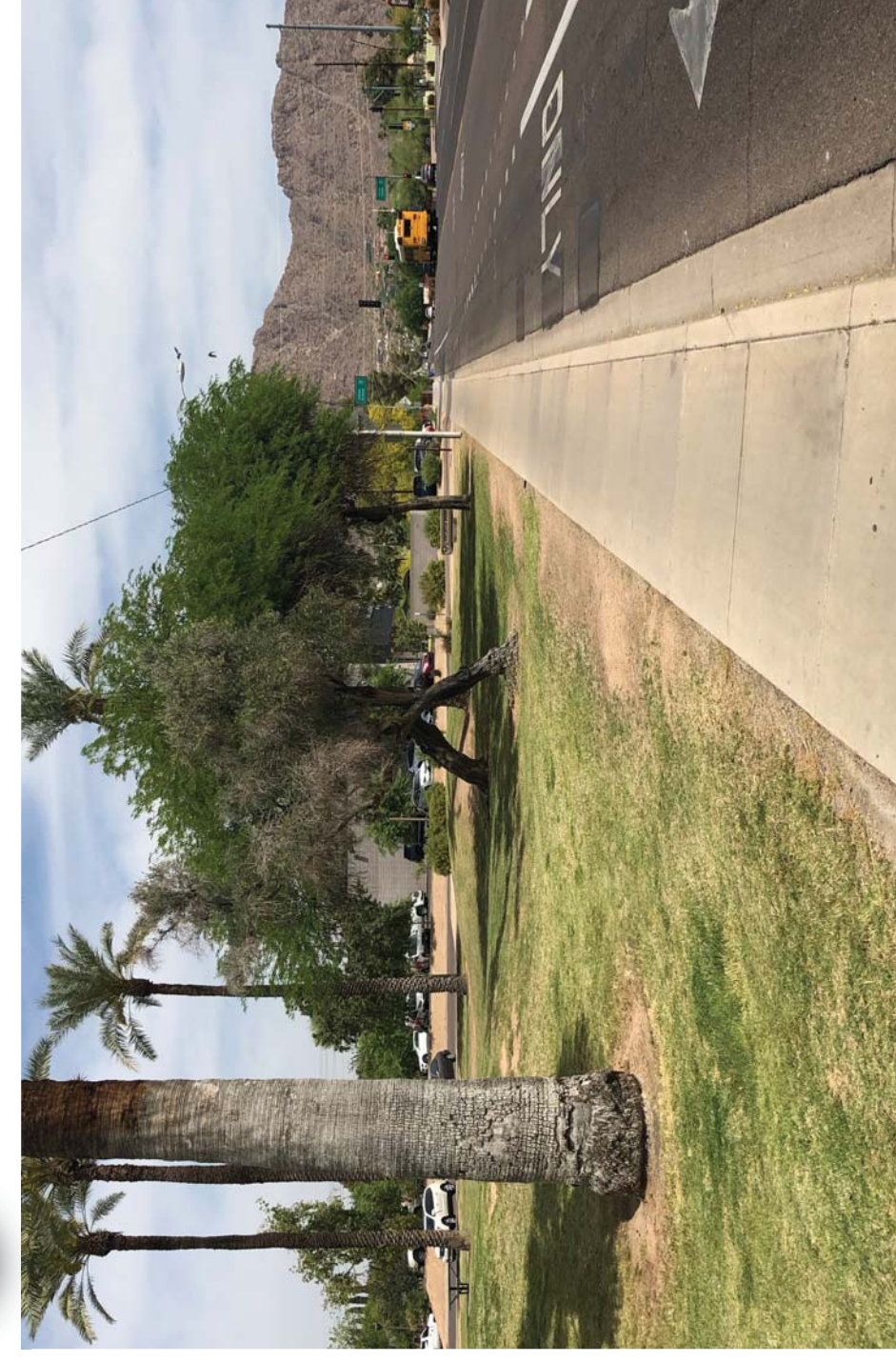
38

East Side of 56th Street at Osborn Road
Looking South West



39

West Side of 56th Street
Looking North along Arcadia Park



40

West Side of 56th Street at Starbucks Entrance
Looking South East



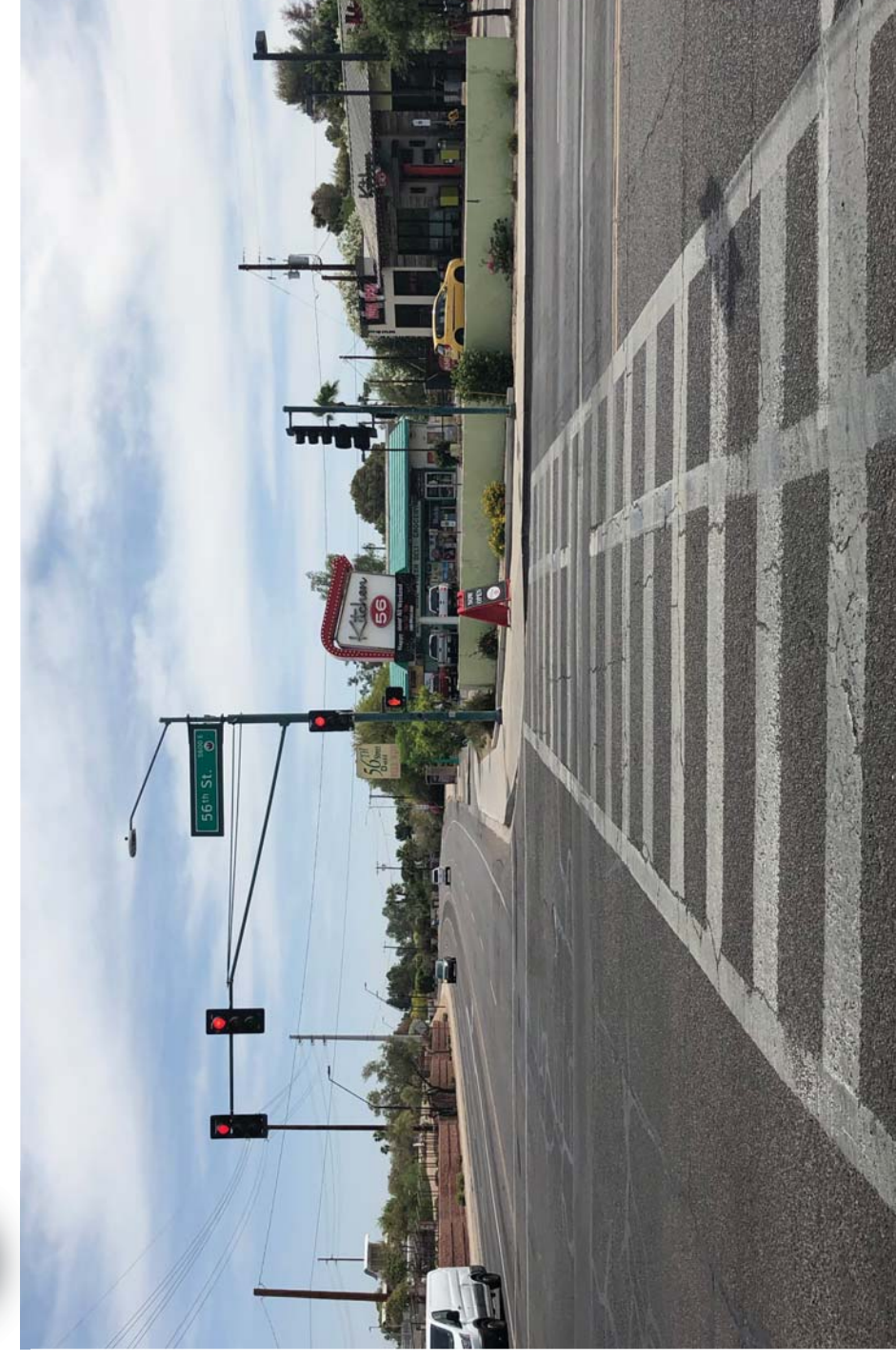
41

South West Corner of Indian School Road
Looking North West across Indian School Road



42

South West Corner of Indian School Road
Looking East along 56th Street Crosswalk



43

North West Corner of Indian School Road
Looking South along Indian School Road Crosswalk



44

North West Corner of Indian School Road
Looking East along 56th Street Crosswalk



45

North East Corner of Indian School Road
Looking South along 56th Street Crosswalk



EXISTING IMAGERY



OH 4.2

56TH STREET CORRIDOR STUDY



City of Phoenix
STREET TRANSPORTATION DEPARTMENT



46

West Side of 56th Street at Arizona Canal Trail
Looking North Along Bike Lane



47

East Side of 56th Street at Arizona Canal Trail
Looking North Along Bike Lane



48

East Side of 56th Street at Prince of Peace Church
Looking North West towards Calle Ventura



49

East Side of 56th Street at Prince of Peace Church
Looking North West towards Calle Ventura



50

East Side of 56th Street South of Lafayette
Looking North along Sidewalk



51

South East Corner of Lafayette Boulevard
Looking North across Lafayette Boulevard



52

East Side of 56th Street at Alley North of Monterosa
Street. Looking South along Shoulder



53

West Side of 56th Street
Looking South along Sidewalk



54

South East Corner of Exeter Road
Looking North West at Exeter Traffic Circle



55

North West Corner of Exeter Road
Looking South East at Exeter Traffic Circle



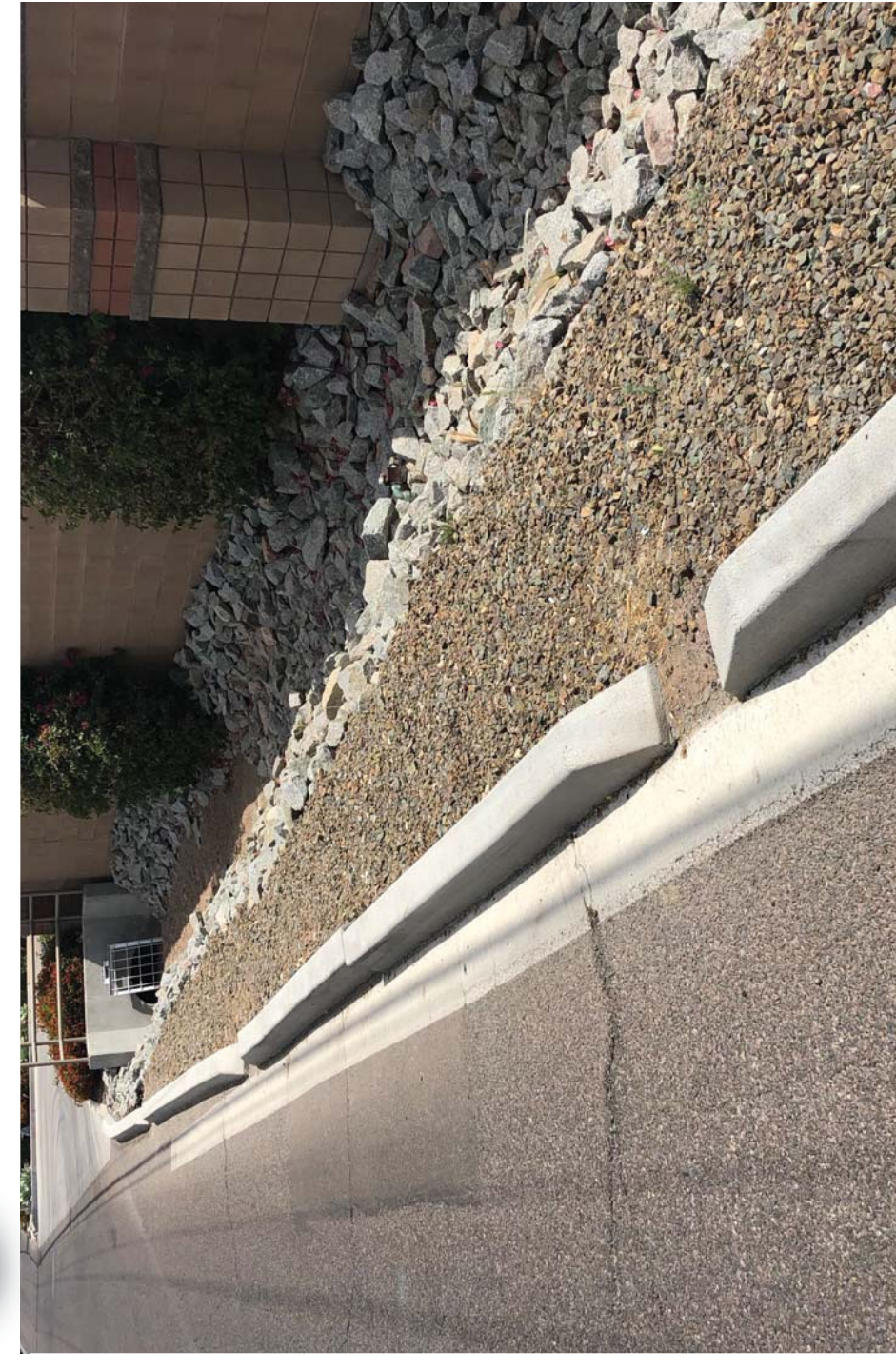
56

North West Corner of Exeter Road
Looking South East at Exeter Traffic Circle



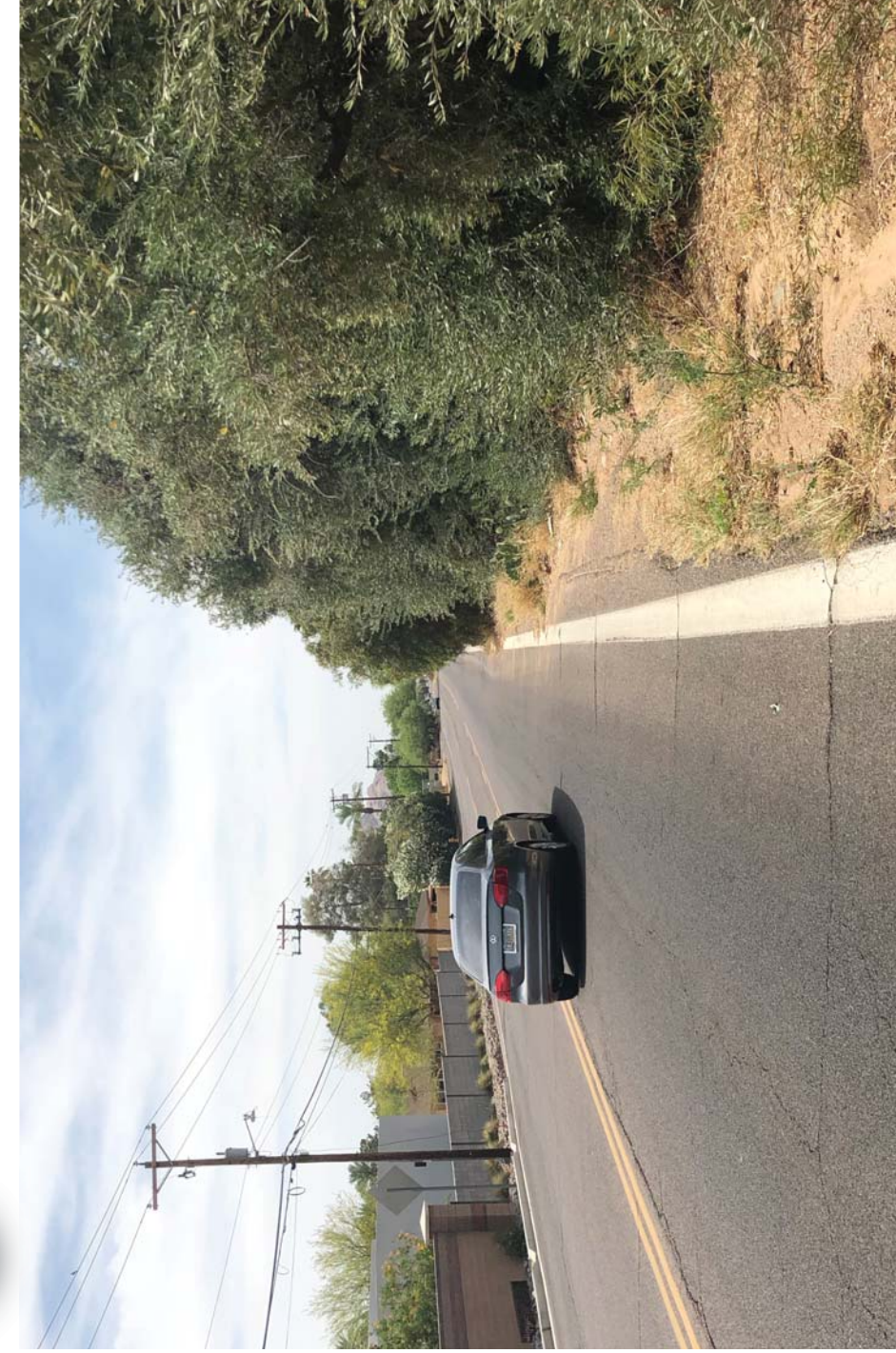
57

East Side of 56th Street
Looking North along Shoulder



58

West Side of 56th Street
Looking South



59

South West Corner of Camelback Road
Looking South along Shoulder



60

South East Corner of Camelback Road
Looking East



EXISTING IMAGERY

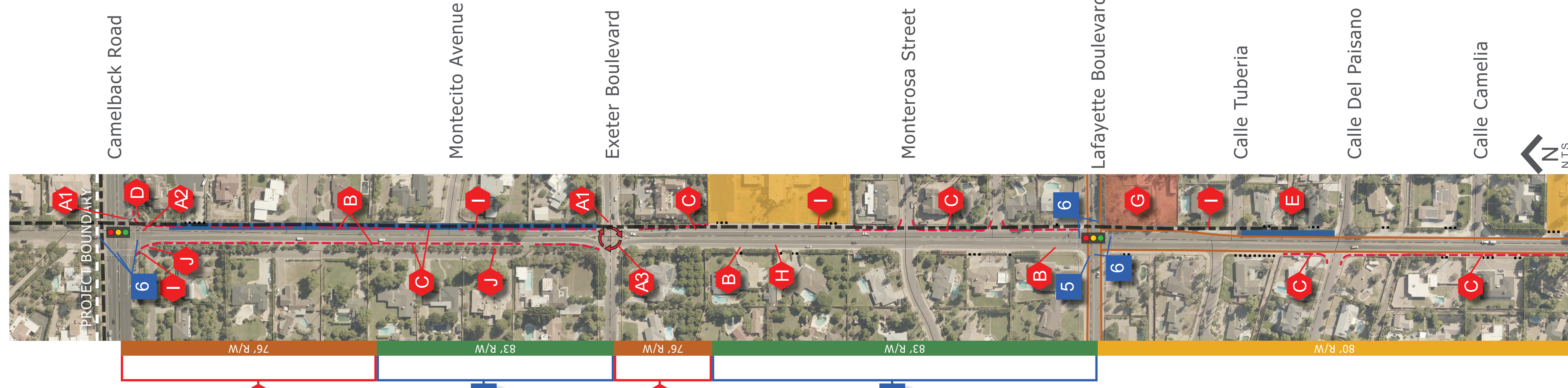
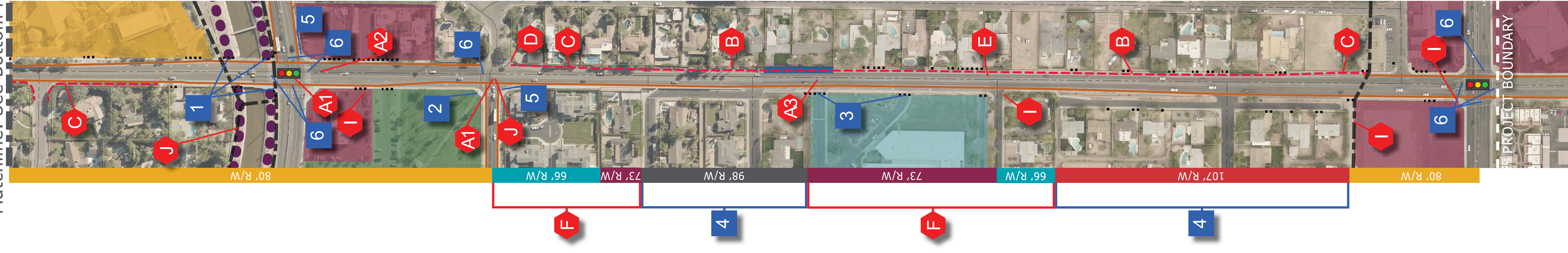


OH 4.3

APPENDIX B – OPPORTUNITIES AND CONSTRAINTS MAP



Matchline: See Bottom Right



Matchline: See Top Left

LEGEND

- Existing Right of Way
- - - Existing Center Line
- ⋯ Existing Driveway
- ⋯ Existing Overhead Power
- Existing Bike Lane
- - - Missing Sidewalk
- Arizona Canal Trail
- 🚦 Traffic Signal
- 🔄 Traffic Circle
- Commercial
- Church
- School
- Park
- Historic Homes
- Area Experiencing Erosion / Flooding

OPPORTUNITIES

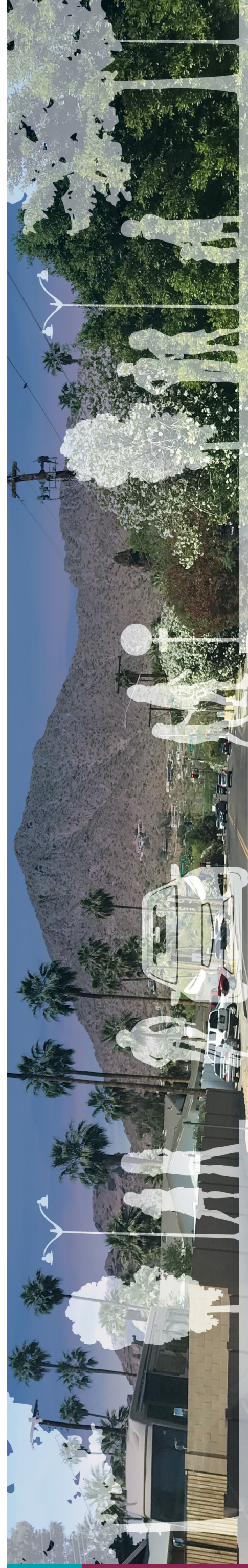
- 1 Trail Connection
- 2 Park Connection
- 3 Destination
- 4 Right of Way Over 80'
- 5 Bike Lane Connection
- 6 Existing Crosswalk

CONSTRAINTS

- A1 Pedestrian Traffic Conflicts
- A2 Lane Configuration Conflicts
- A3 Vehicular Traffic Conflicts
- B Missing Bike Lane
- C Missing Sidewalk
- D Missing ADA Ramps
- E Existing Drainage Issues
- F Right-of-Way Under 80'
- G Historic Property
- H Existing On Street Parking
- I Utility Conflicts
- J Sight Visibility Conflicts



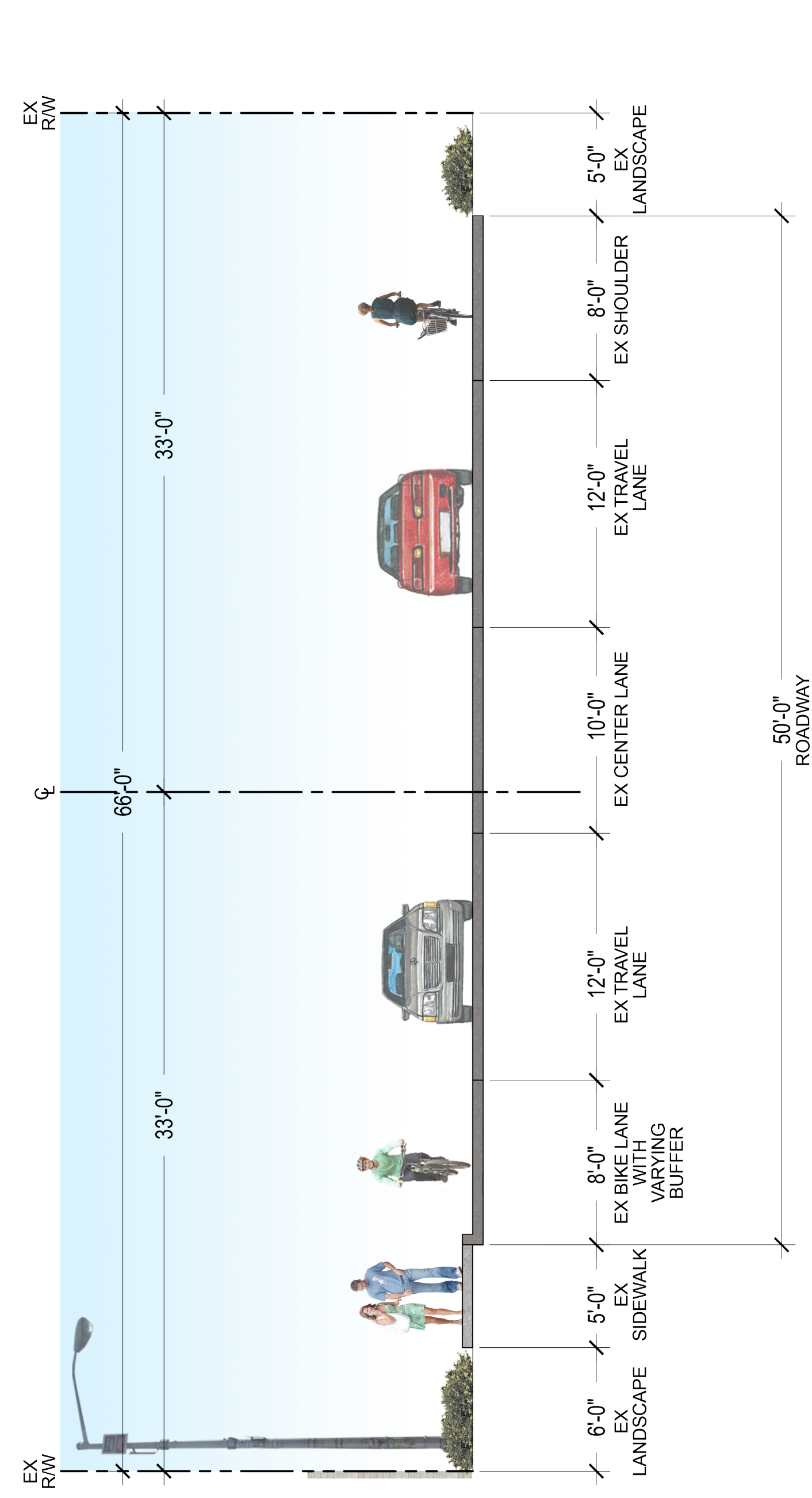
APPENDIX C – CONCEPTUAL ALTERNATIVE DESIGN CROSS SECTIONS (PREFERRED CONCEPT SECTIONS)



**66' TYPICAL
RIGHT-OF-WAY**

66' Right of Way - Existing

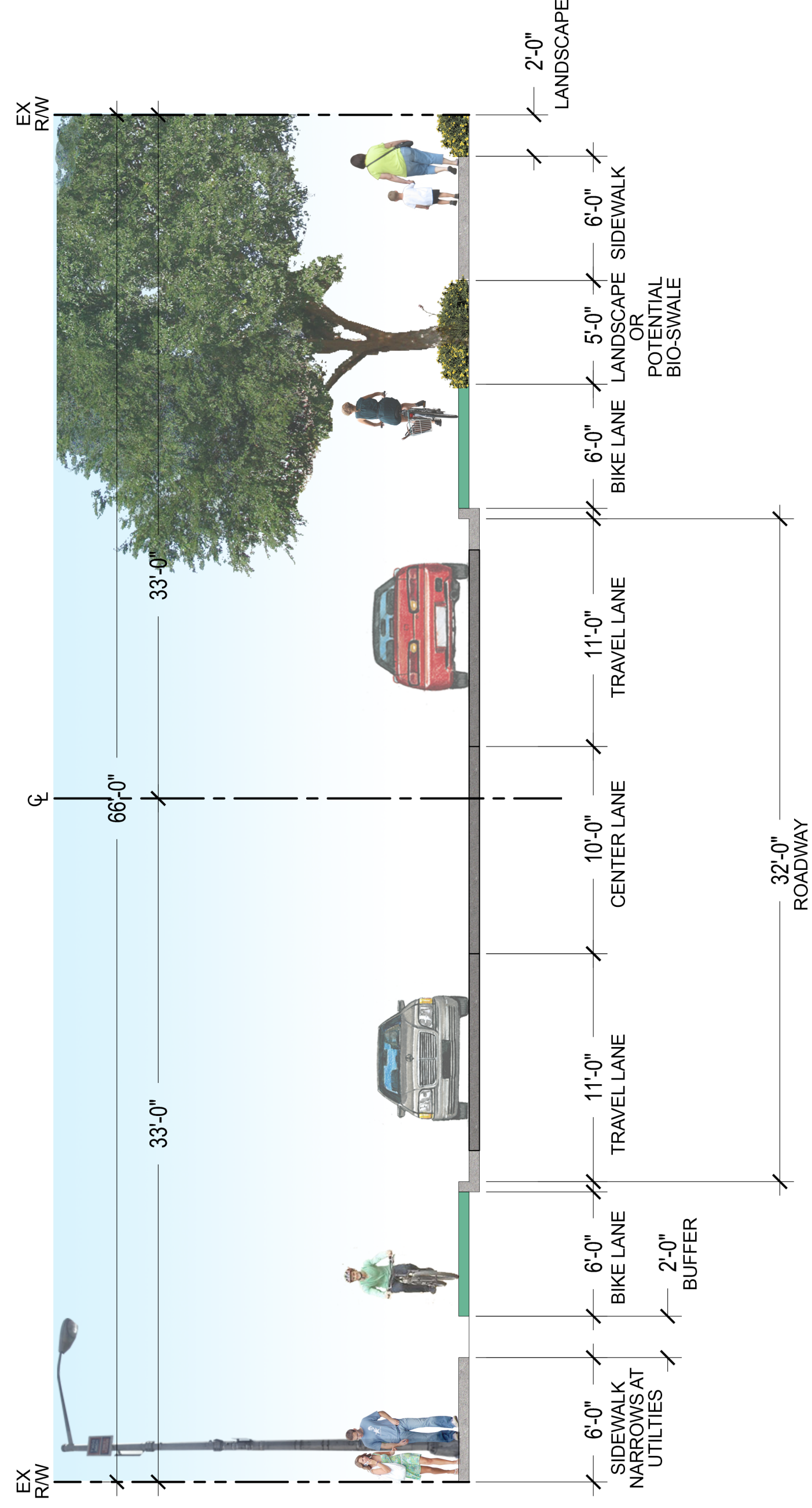
- 460' of the total corridor
- Locations with overhead utilities



**COMMUNITY
PREFERRED**

66' Right of Way - Alt 2

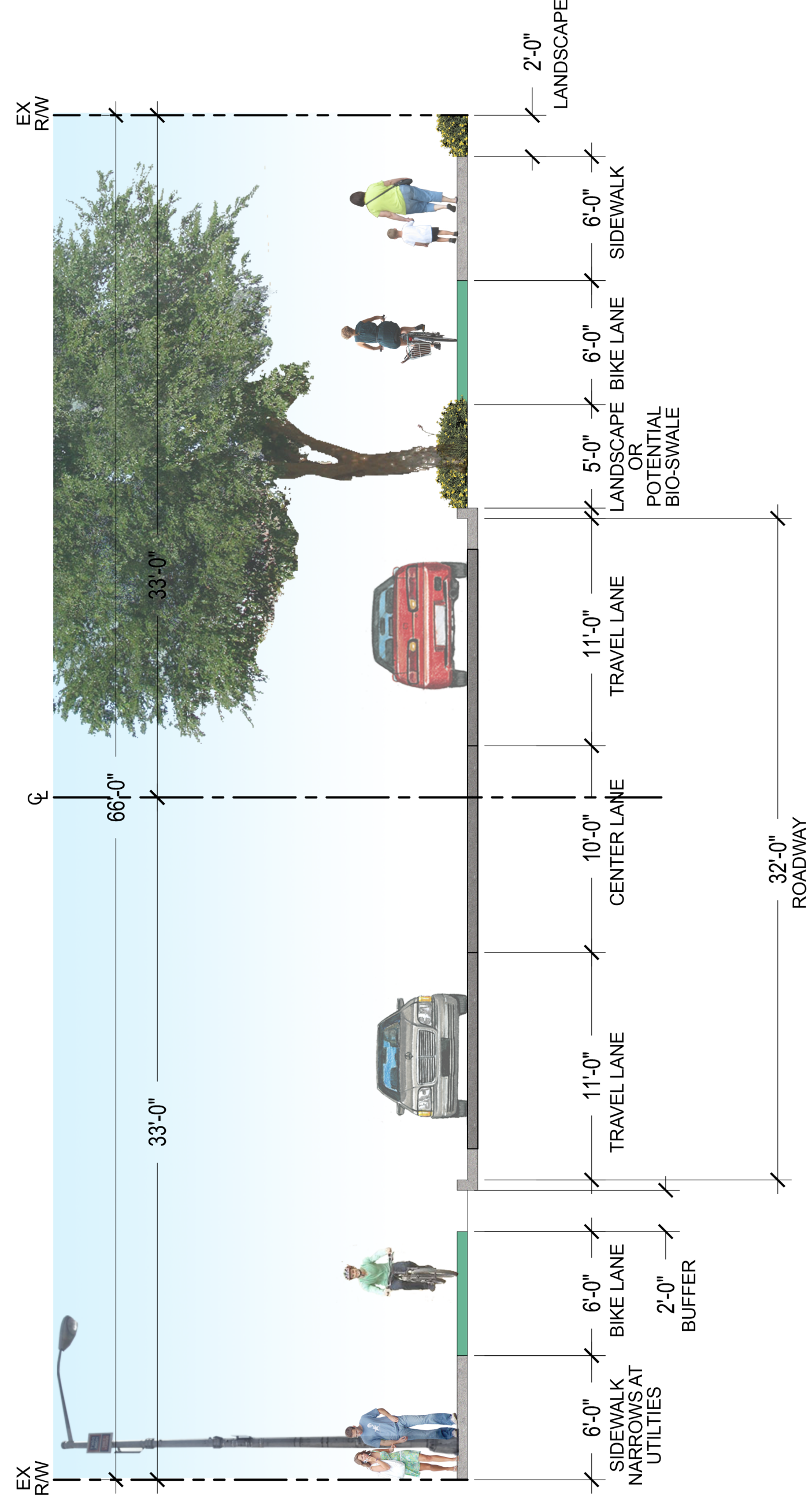
- Narrow roadway width for traffic calming (32')
- Bike Lane grade separated from traffic (potential roll curb)
- Detached Sidewalks



**CITY
SUGGESTED**

66' Right of Way - Alt 3

- Narrow roadway width for traffic calming (32')
- Landscape buffer adjacent to traffic (potential swale)
- Combined bike lane and sidewalk

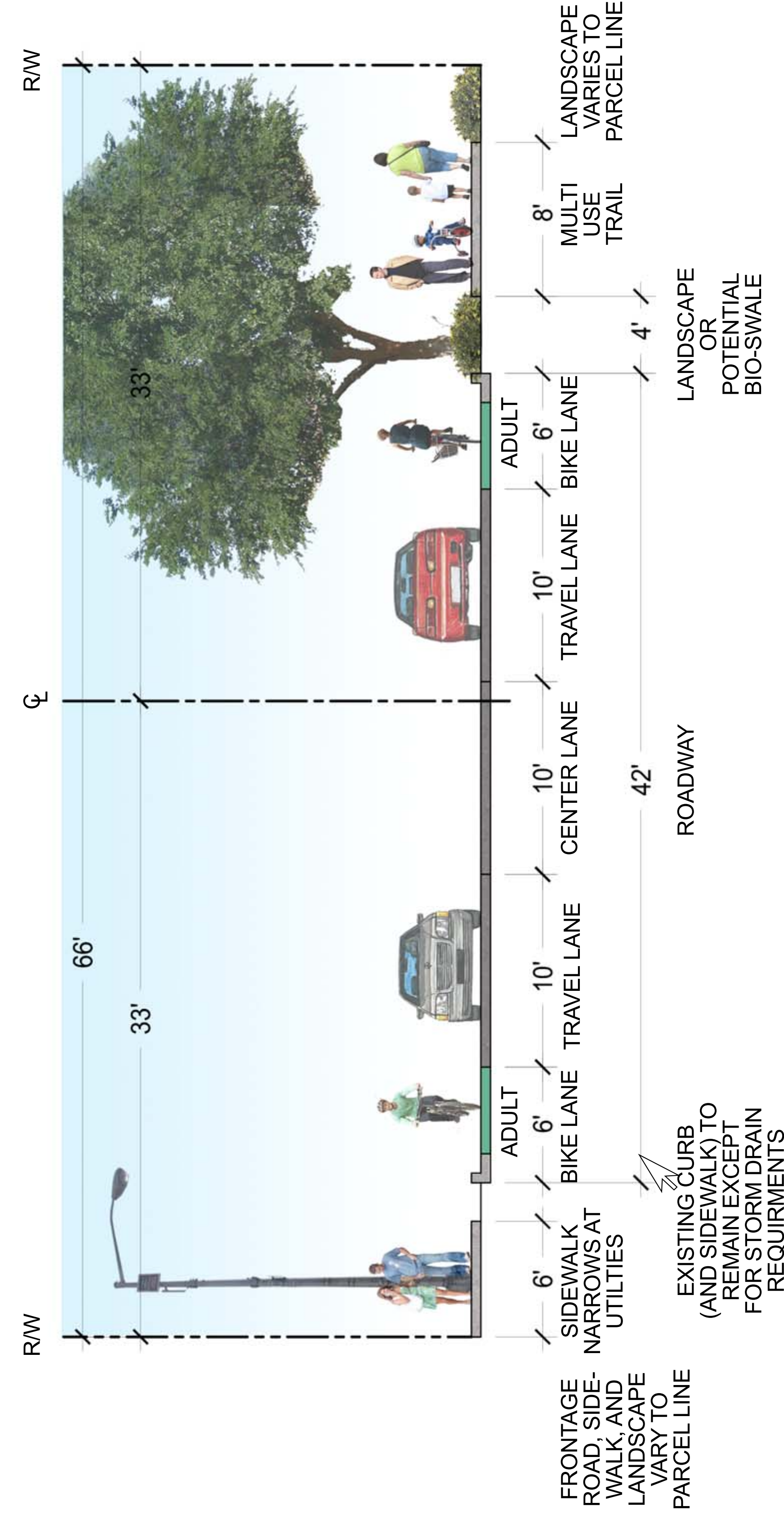




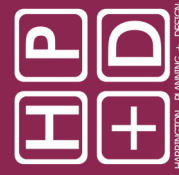
**ADDITIONAL OPTION
(CITY SUGGESTED)**

66' Right of Way

- 42'-0" roadway width
- 8'-0" multi-use trail
- Bike lanes located in roadway



PREFERRED CONCEPT SECTIONS



Additional Option - City Suggested



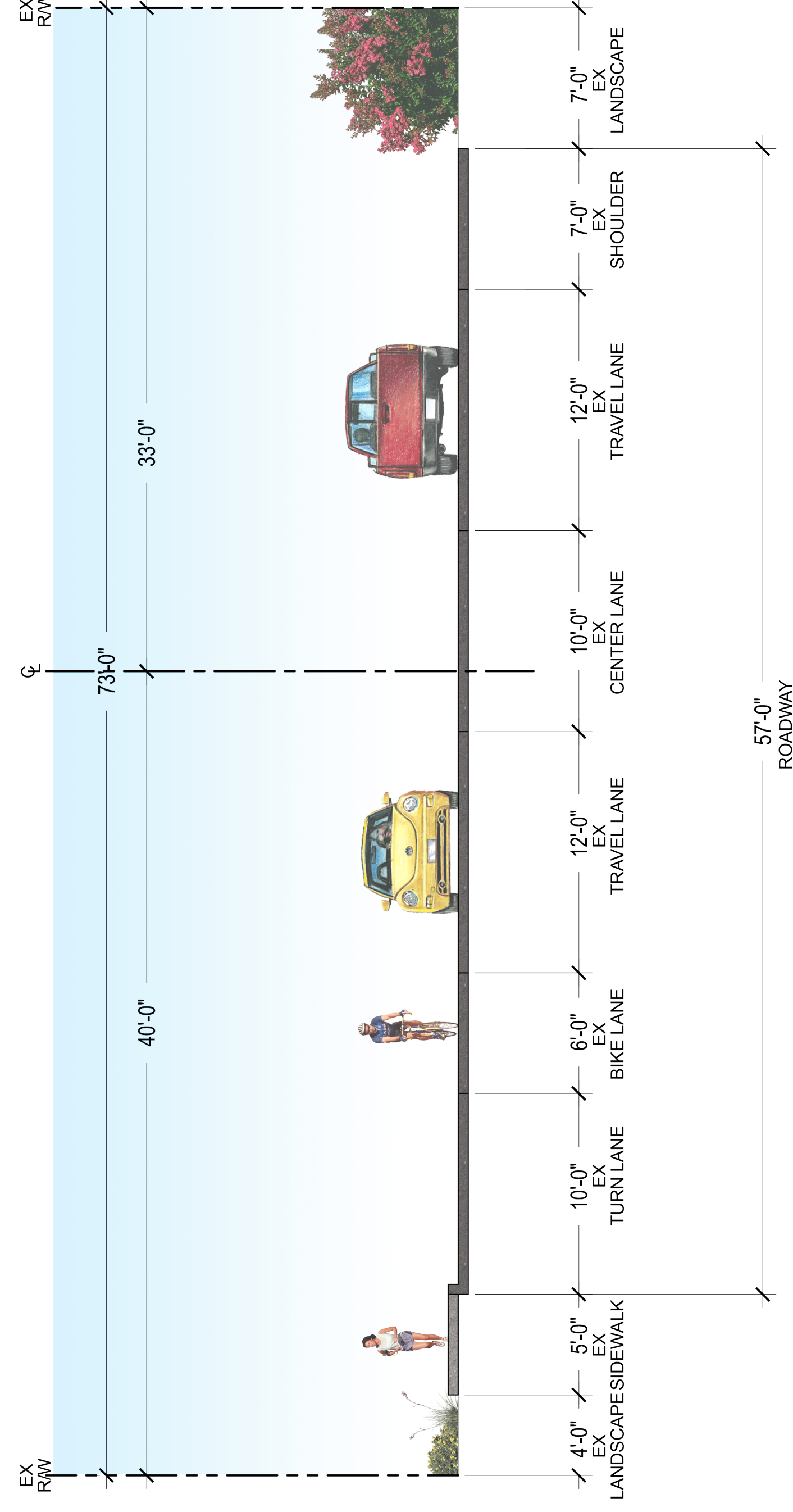
73' + 76' TYPICAL RIGHT-OF-WAY

73' Right of Way

76' Right of Way + Landscape

98' Right of Way + Frontage

- 615' of the total corridor for 73'-0" ROW
- 260' of the total corridor for 76'-0" ROW
- Segments missing curbs and sidewalks
- wide pavement cross-section



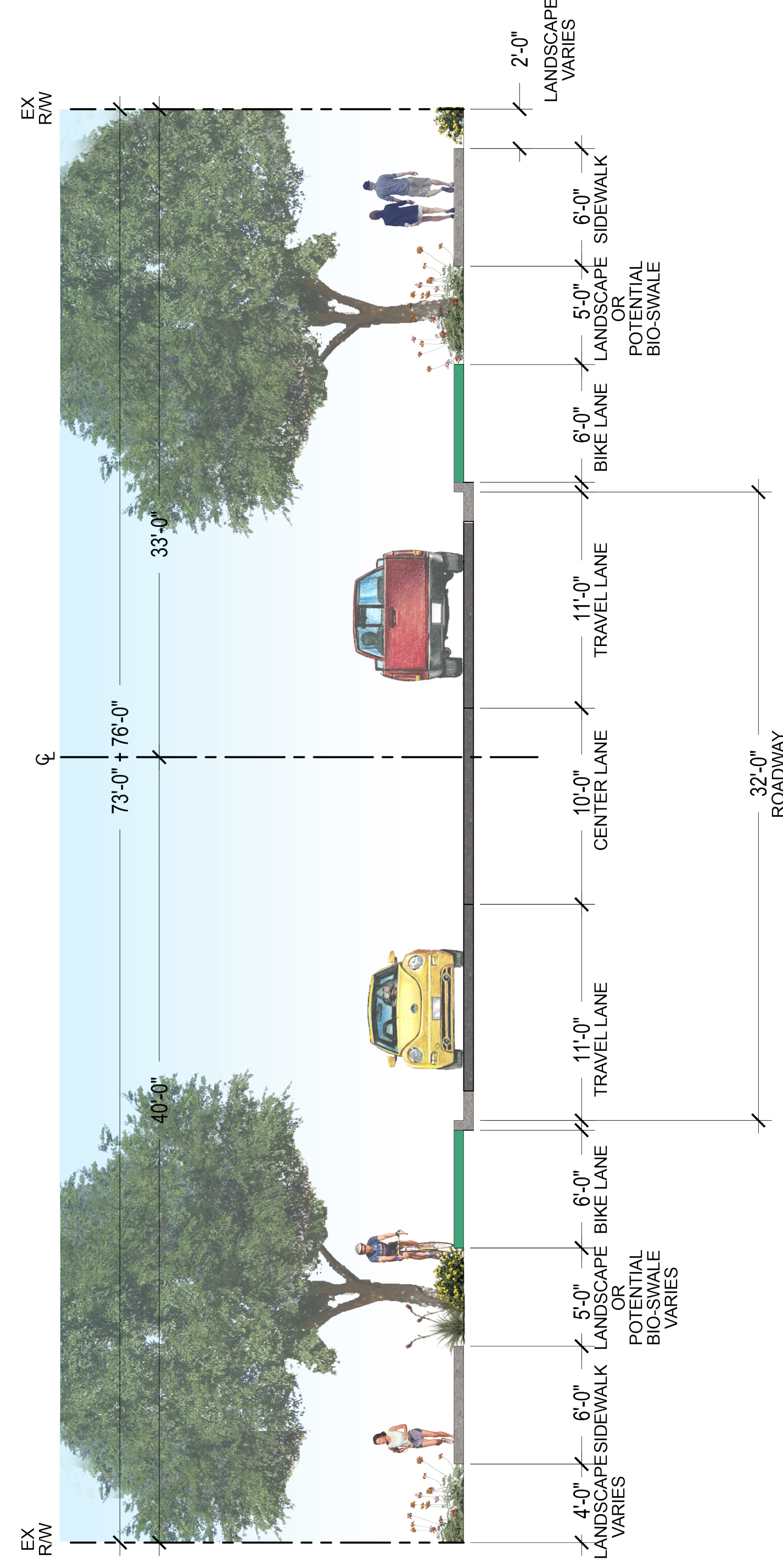
COMMUNITY PREFERRED

73' Right of Way + Alt 2

76' Right of Way + Alt 2

98' Right of Way + Alt 2

- Narrow roadway width for traffic calming (32')
- Bike Lane grade separated from traffic (potential roll curb)
- Detached Sidewalk on both sides with landscape buffers
- 76'-0" width adds +18" to landscape buffers or behind walk zone



CITY

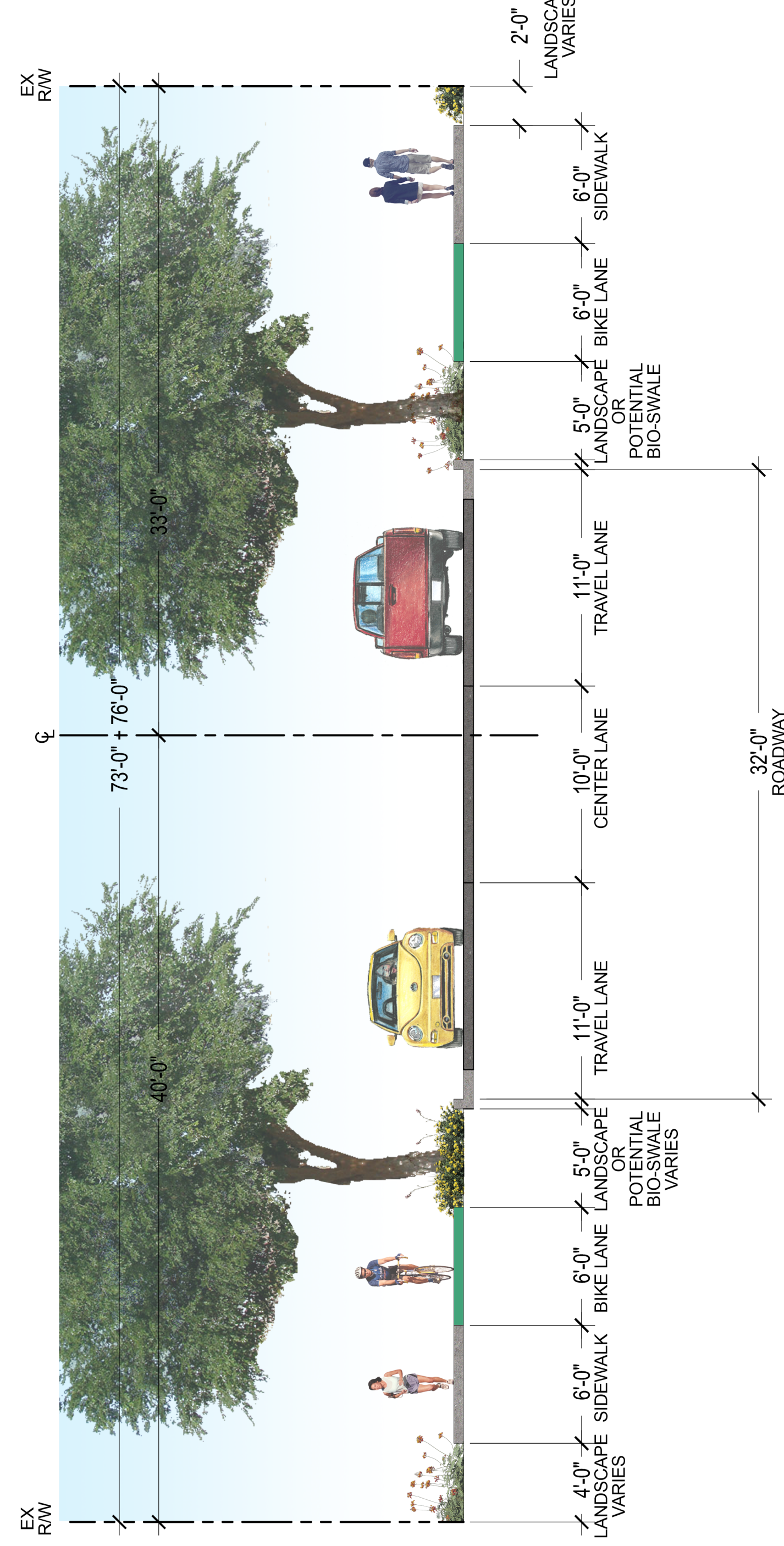
SUGGESTED

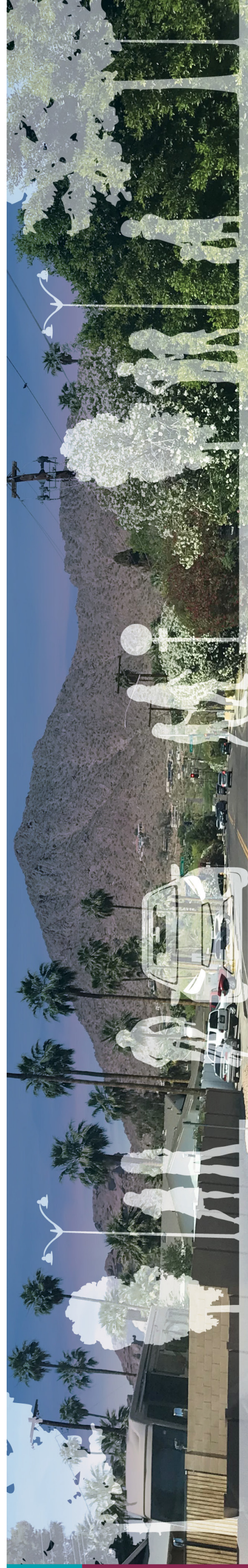
73' Right of Way + Alt 3

76' Right of Way + Alt 3

98' Right of Way + Alt 3

- Narrow roadway width for traffic calming (32')
- Detached Bike Lane/Sidewalk on both sides w/ landscape buffers
- 76'-0" width adds +18" to landscape buffers or behind walk zone





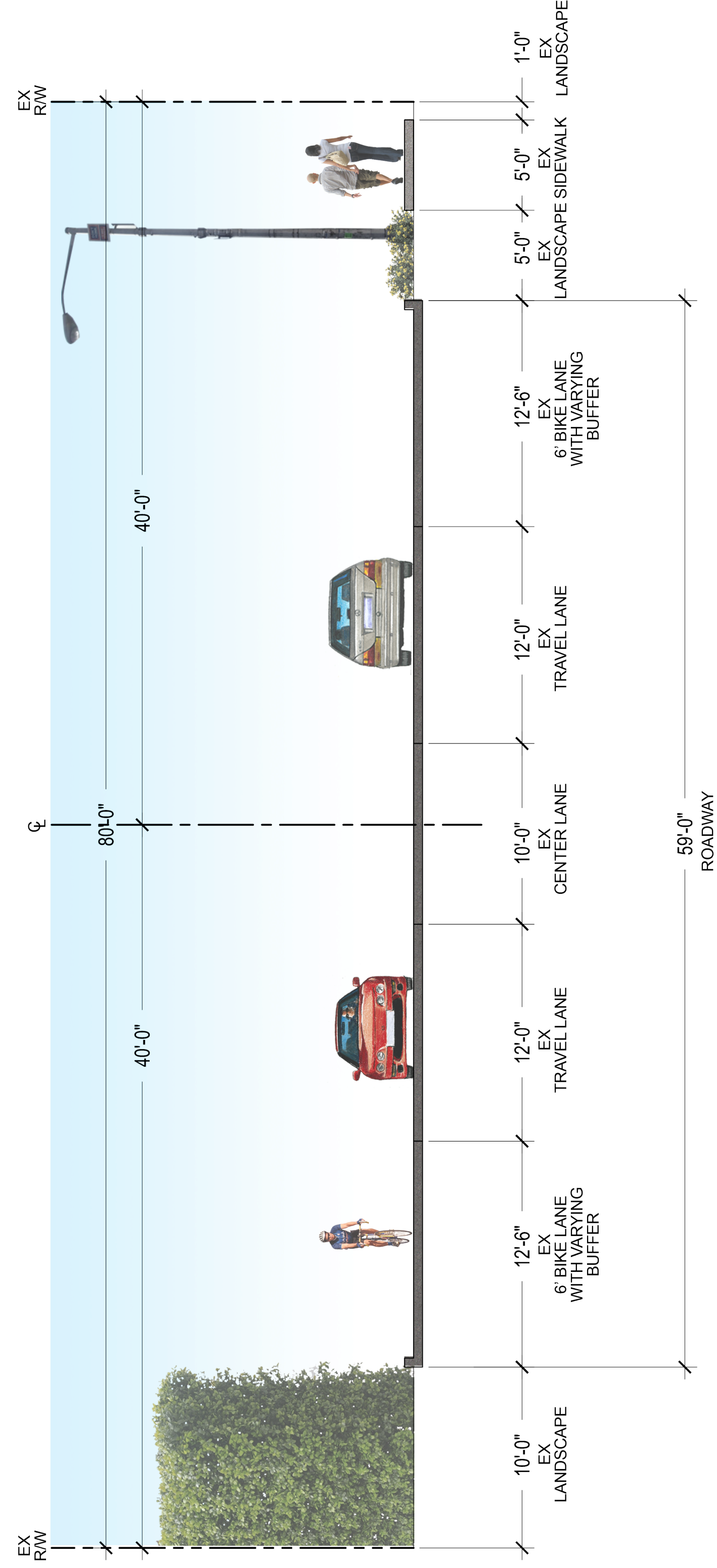
80' + 83' TYPICAL RIGHT-OF-WAY

80' Right of Way

83' Right of Way + Alt 1

107' Right of Way + Alt 1

- 2580' of the total corridor for 80'-0" ROW
- 1685' of the total corridor for 83'-0" ROW
- Segments missing sidewalks
- Wide pavement cross-sections



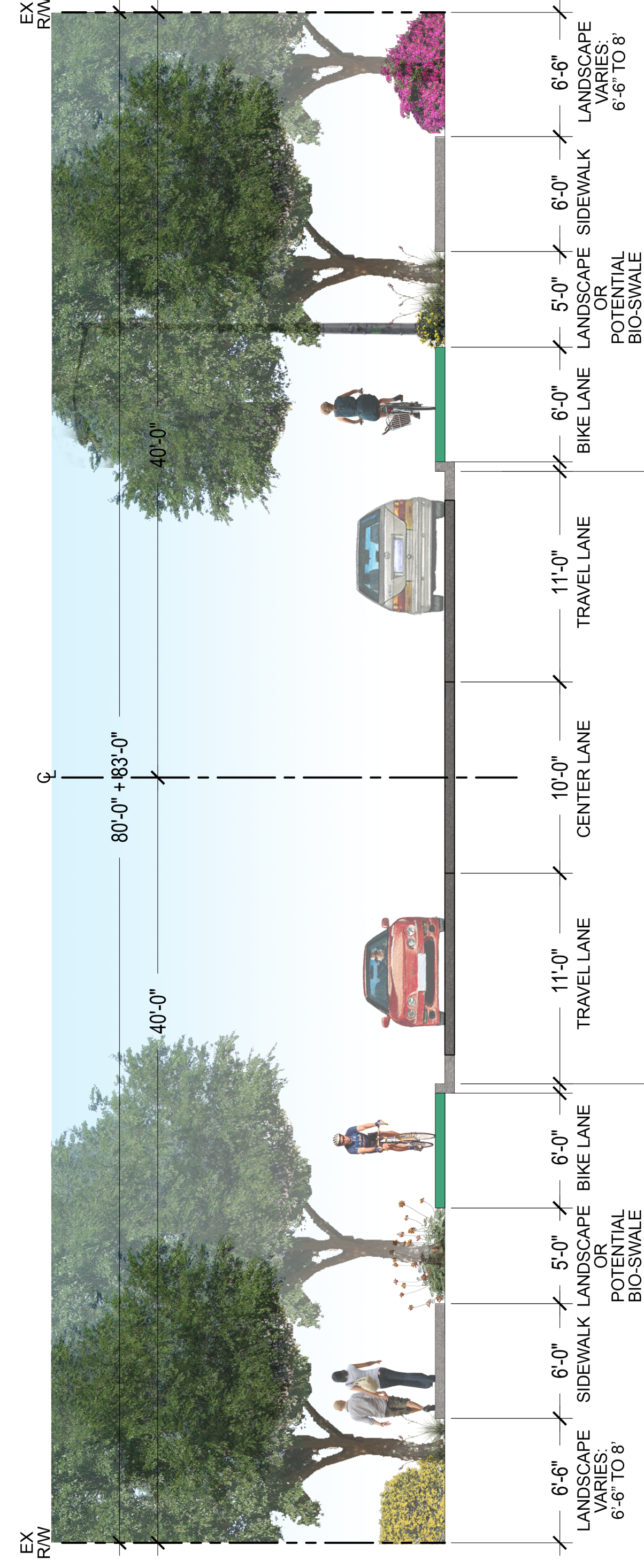
COMMUNITY PREFERRED

80' Right of Way + Alt 2

83' Right of Way + Alt 2

107' Right of Way + Alt 2

- Narrow roadway width for traffic calming (32')
- Bike Lane grade separated from traffic (potential roll curb).
- Detached Sidewalk on both sides with landscape buffers
- 83'-0" width adds +18" to landscape buffers or behind walk zone



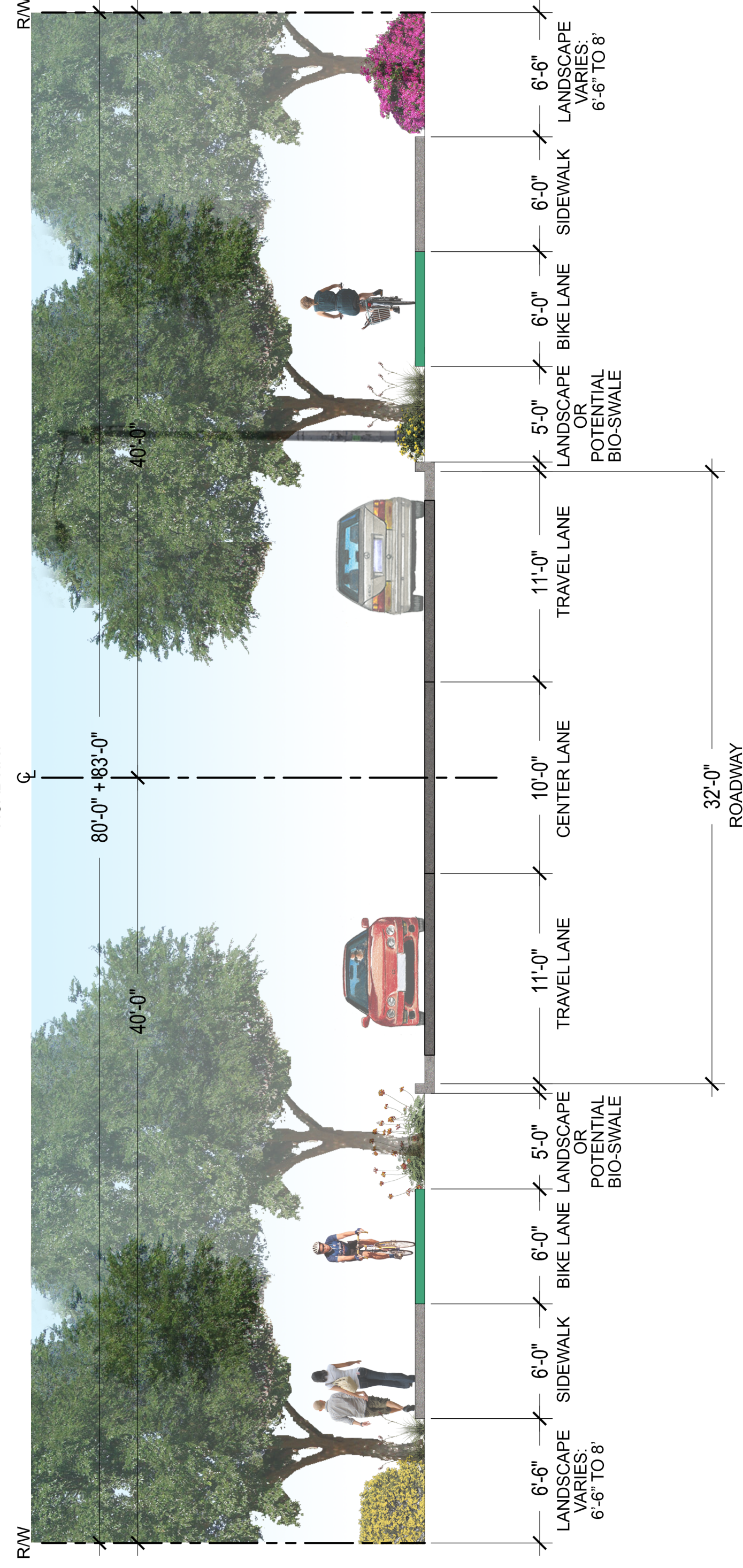
CITY SUGGESTED

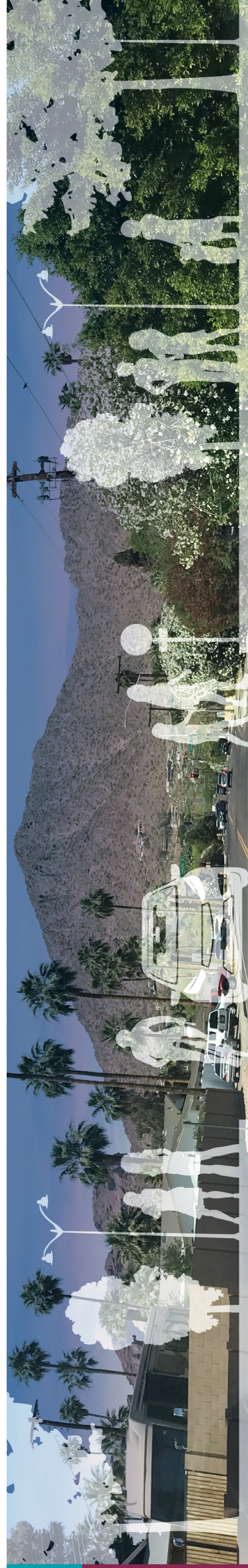
80' Right of Way + Alt 3

83' Right of Way + Alt 3

107' Right of Way + Alt 3

- Narrow roadway width for traffic calming (32')
- Detached Bike Lane/Sidewalk on both sides w/ landscape buffers
- 83'-0" width adds +18" to landscape buffers or behind walk zone

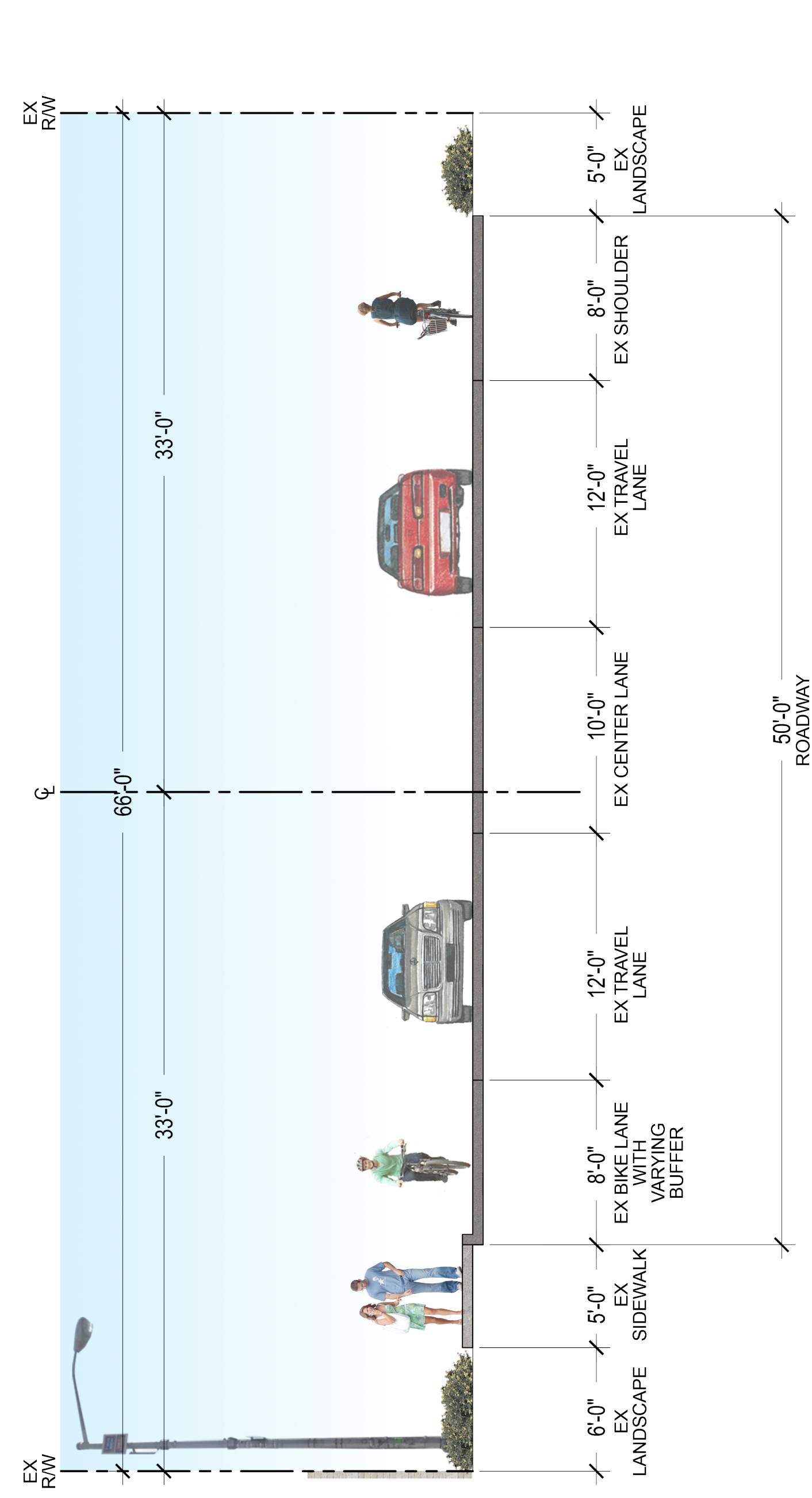




66' TYPICAL RIGHT-OF-WAY

66' Right of Way - Existing

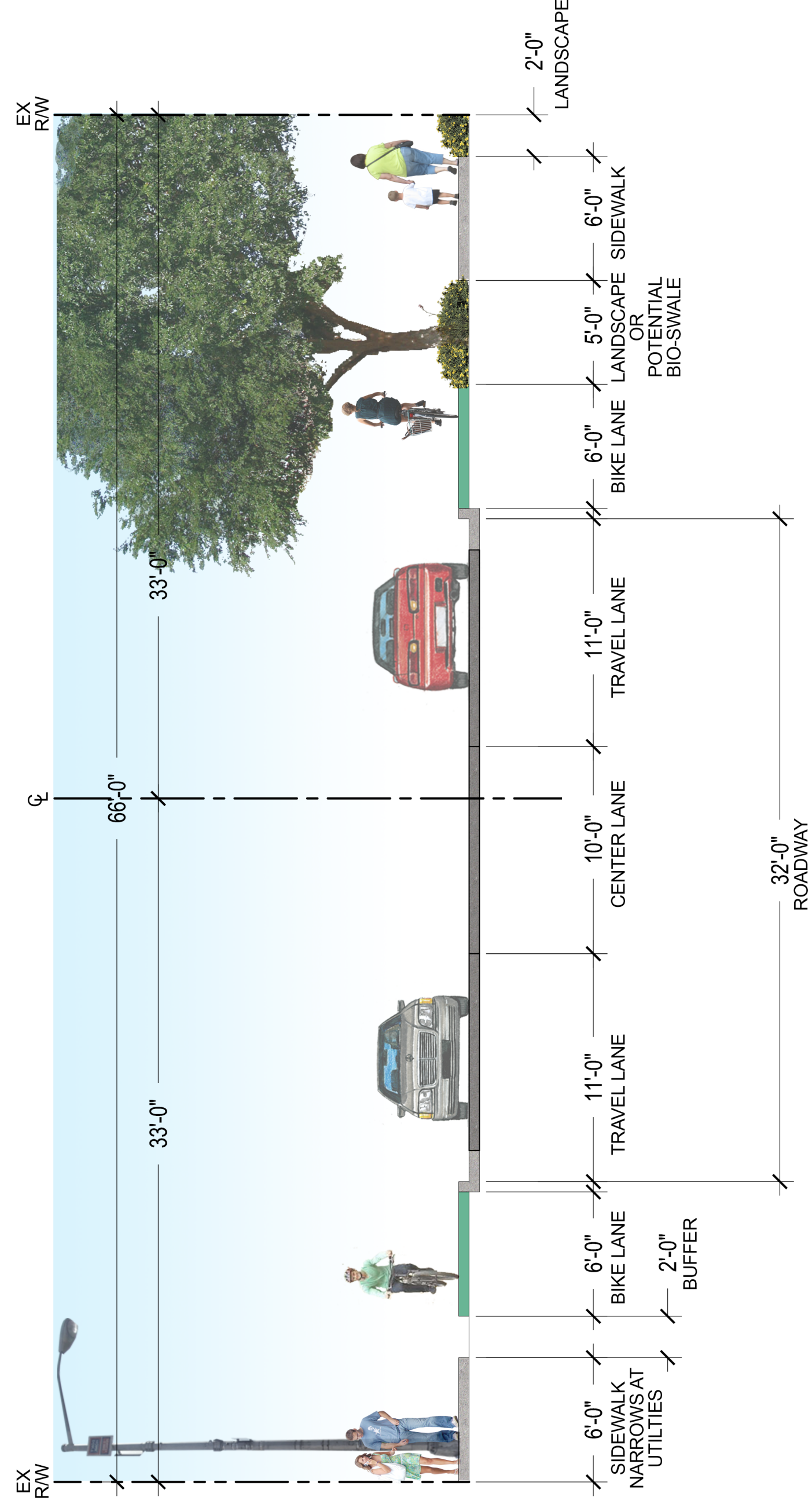
- 460' of the total corridor
- Locations with overhead utilities



COMMUNITY PREFERRED

66' Right of Way - Alt 2

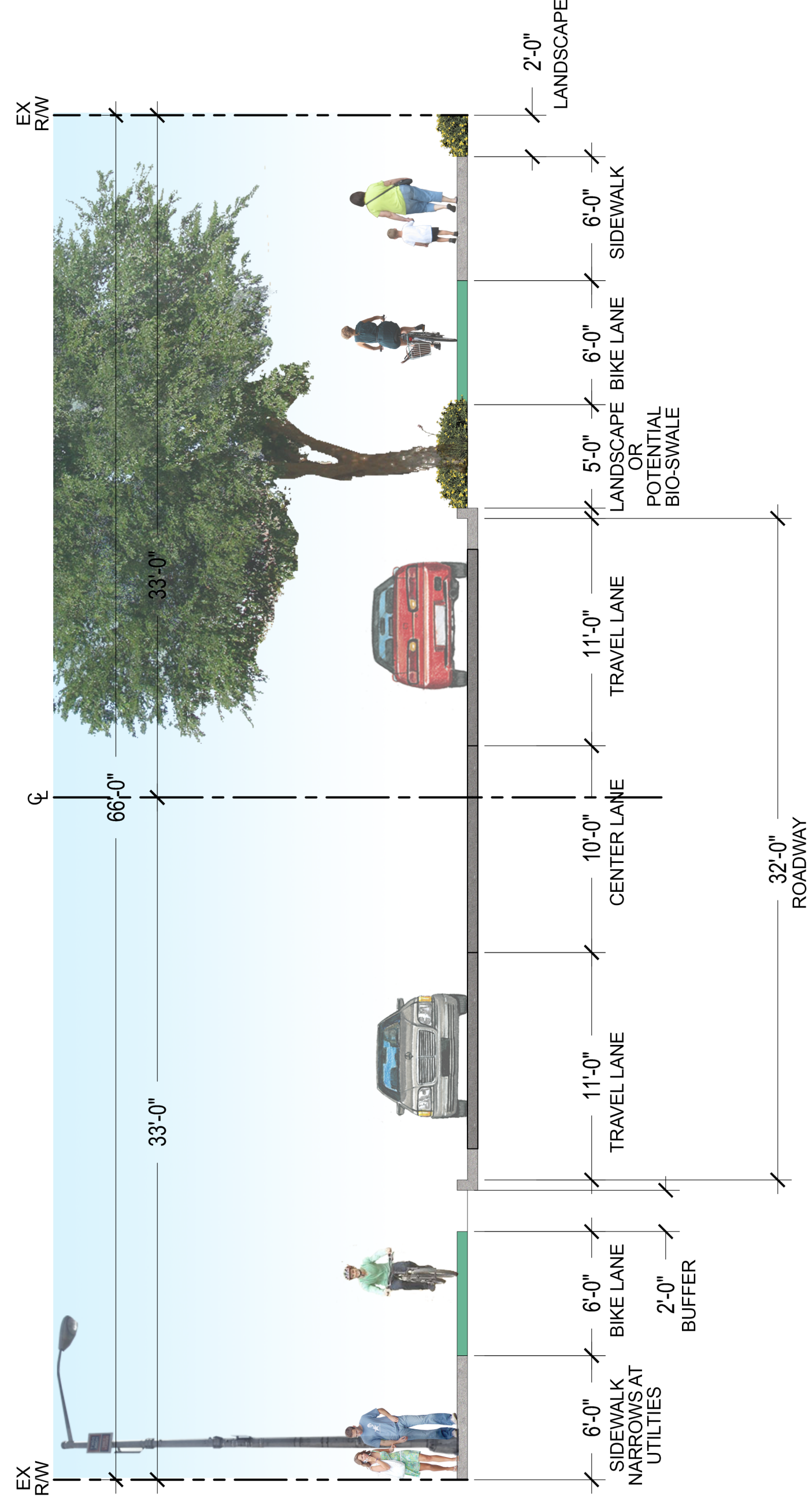
- Narrow roadway width for traffic calming (32')
- Bike Lane grade separated from traffic (potential roll curb)
- Detached Sidewalks



CITY SUGGESTED

66' Right of Way - Alt 3

- Narrow roadway width for traffic calming (32')
- Landscape buffer adjacent to traffic (potential swale)
- Combined bike lane and sidewalk





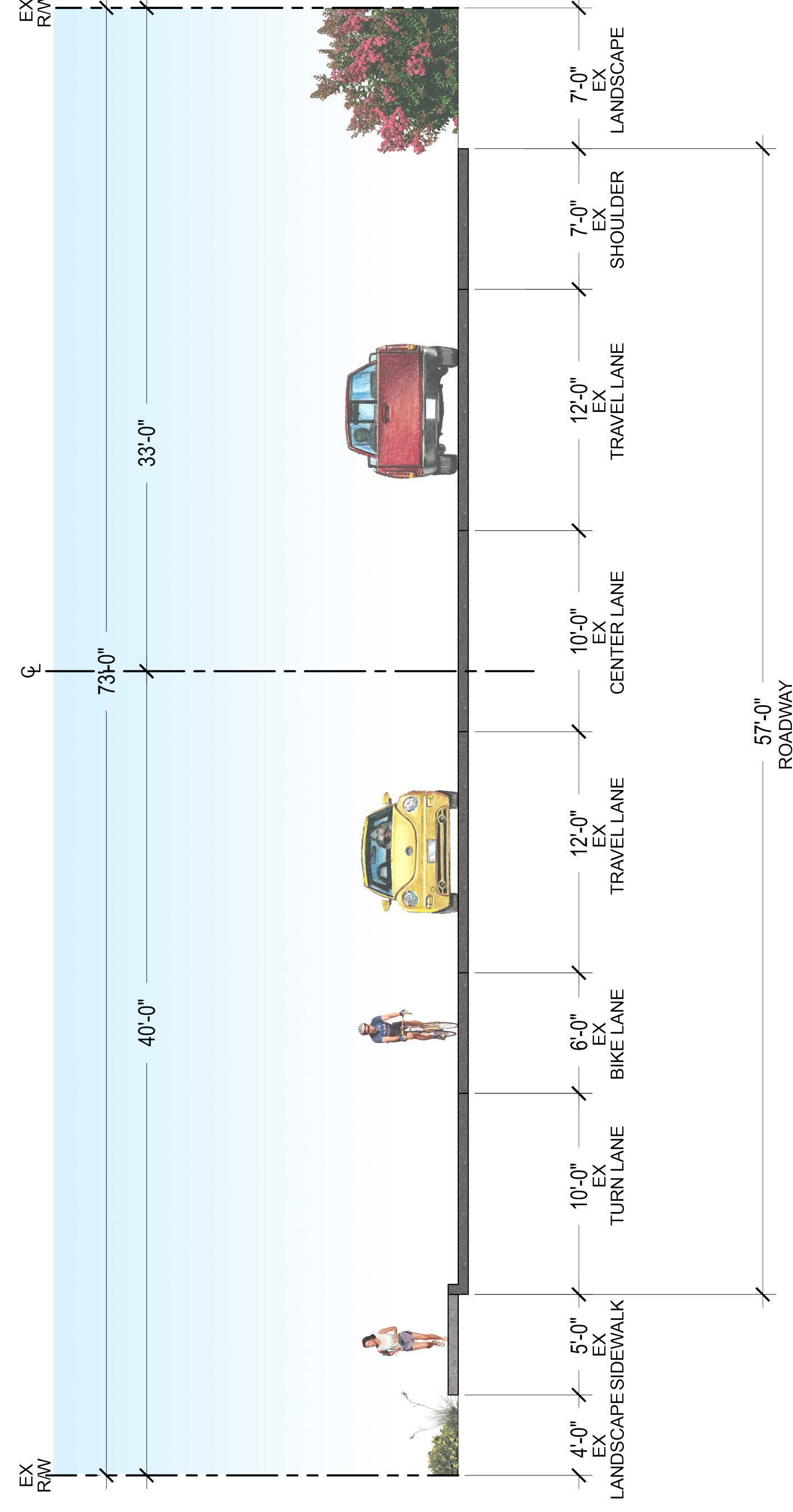
73' + 76' TYPICAL RIGHT-OF-WAY

73' Right of Way

76' Right of Way + Landscape

98' Right of Way + Frontage

- 615' of the total corridor for 73'-0" ROW
- 260' of the total corridor for 76'-0" ROW
- Segments missing curbs and sidewalks
- wide pavement cross-section



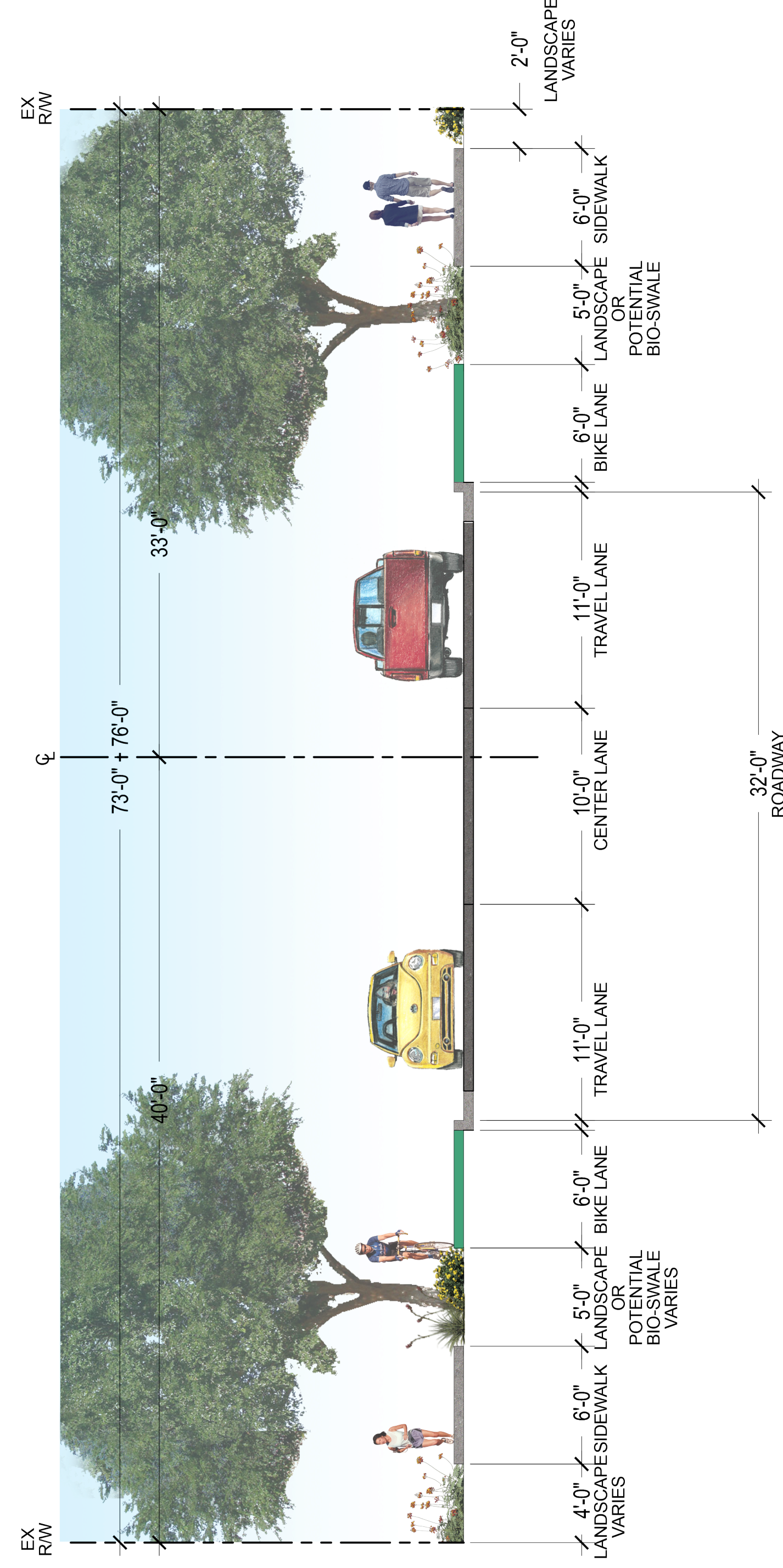
COMMUNITY PREFERRED

73' Right of Way + Alt 2

76' Right of Way + Alt 2

98' Right of Way + Alt 2

- Narrow roadway width for traffic calming (32')
- Bike Lane grade separated from traffic (potential roll curb)
- Detached Sidewalk on both sides with landscape buffers
- 76'-0" width adds +18" to landscape buffers or behind walk zone



CITY

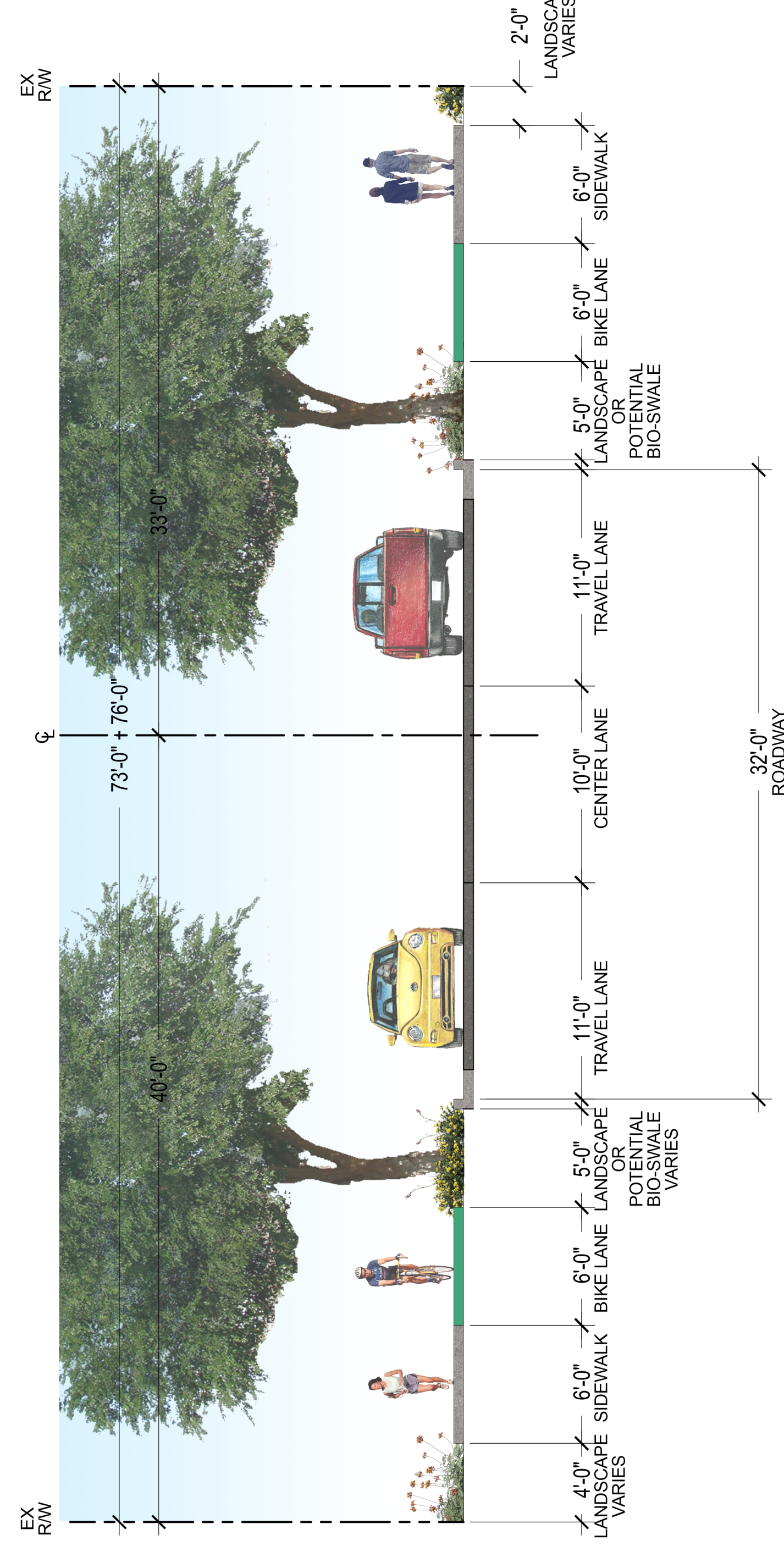
SUGGESTED

73' Right of Way + Alt 3

76' Right of Way + Alt 3

98' Right of Way + Alt 3

- Narrow roadway width for traffic calming (32')
- Detached Bike Lane/Sidewalk on both sides w/ landscape buffers
- 76'-0" width adds +18" to landscape buffers or behind walk zone





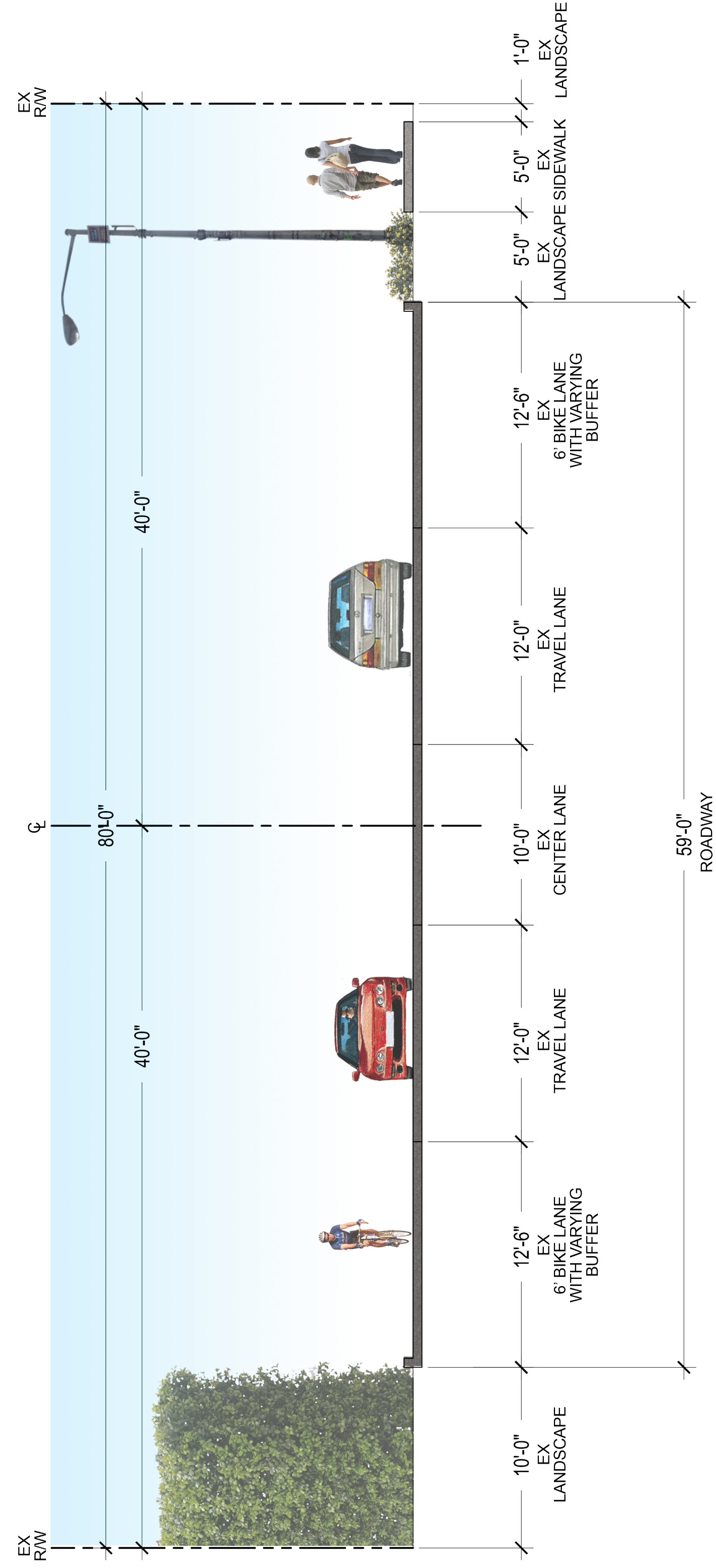
80' + 83' TYPICAL RIGHT-OF-WAY

80' Right of Way

83' Right of Way + Alt 1

107' Right of Way + Alt 1

- 2580' of the total corridor for 80'-0" ROW
- 1685' of the total corridor for 83'-0" ROW
- Segments missing sidewalks
- Wide pavement cross-sections



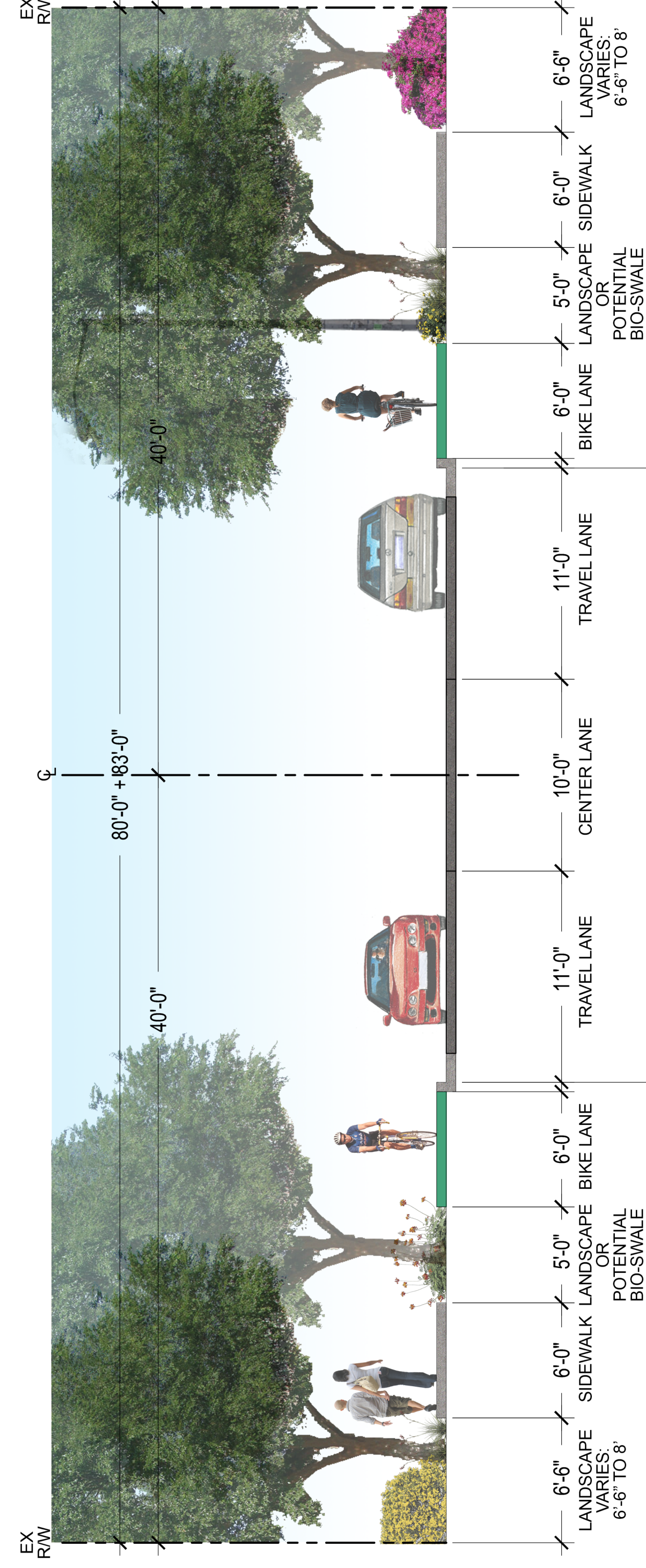
COMMUNITY PREFERRED

80' Right of Way + Alt 2

83' Right of Way + Alt 2

107' Right of Way + Alt 2

- Narrow roadway width for traffic calming (32')
- Bike Lane grade separated from traffic (potential roll curb).
- Detached Sidewalk on both sides with landscape buffers
- 83'-0" width adds +18" to landscape buffers or behind walk zone



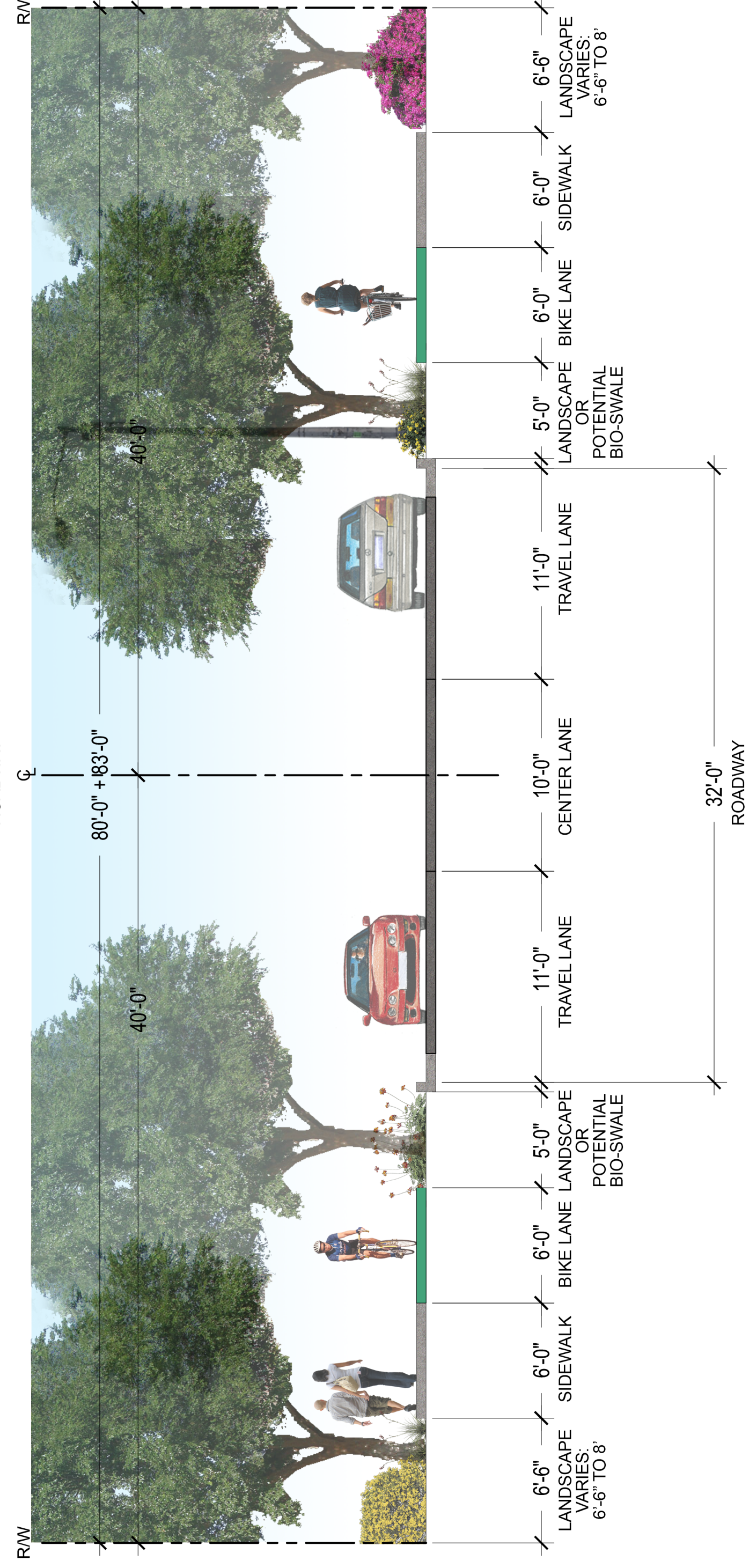
CITY SUGGESTED

80' Right of Way + Alt 3

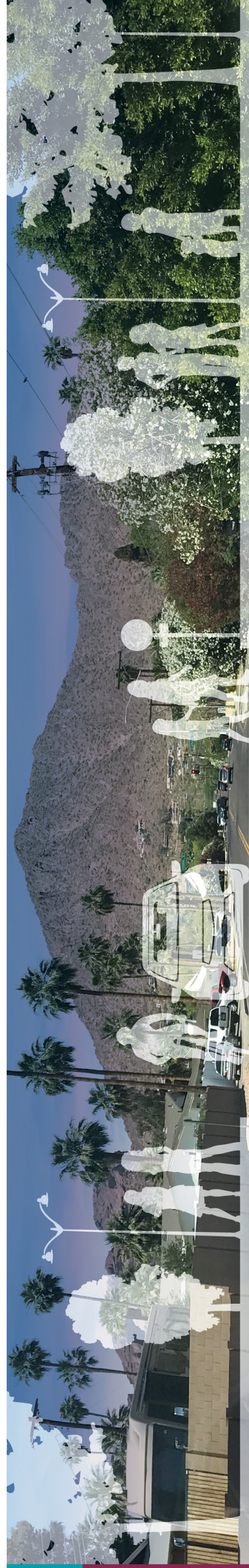
83' Right of Way + Alt 3

107' Right of Way + Alt 3

- Narrow roadway width for traffic calming (32')
- Detached Bike Lane/Sidewalk on both sides w/ landscape buffers
- 83'-0" width adds +18" to landscape buffers or behind walk zone



APPENDIX D – ALTERNATIVE DESIGN CHARACTER MATERIALS (PREFERRED DESIGN ELEMENTS)



BIKE BUFFER MATERIALS



Striped Buffer

- Open House 2 Preferred
- Not used together with raised bike lane

BIKE LANE MATERIALS



Green Paint over Asphalt

- Open House 2 Preferred
- Selective use of paint, locate at decision making places
- MUTCD standard green paint color only

GRADE SEPARATED BIKE LANE MATERIALS



Roll Curb



Concrete

- Open House 2 Preferred
- Concrete surface preferred longer life cycle material
- Rolled curb for Alt 2, allows transition to shared roadway

TRAFFIC CALMING



Chicane

- Open House 2 Preferred
- Slow down speeds by shifting lane alignment

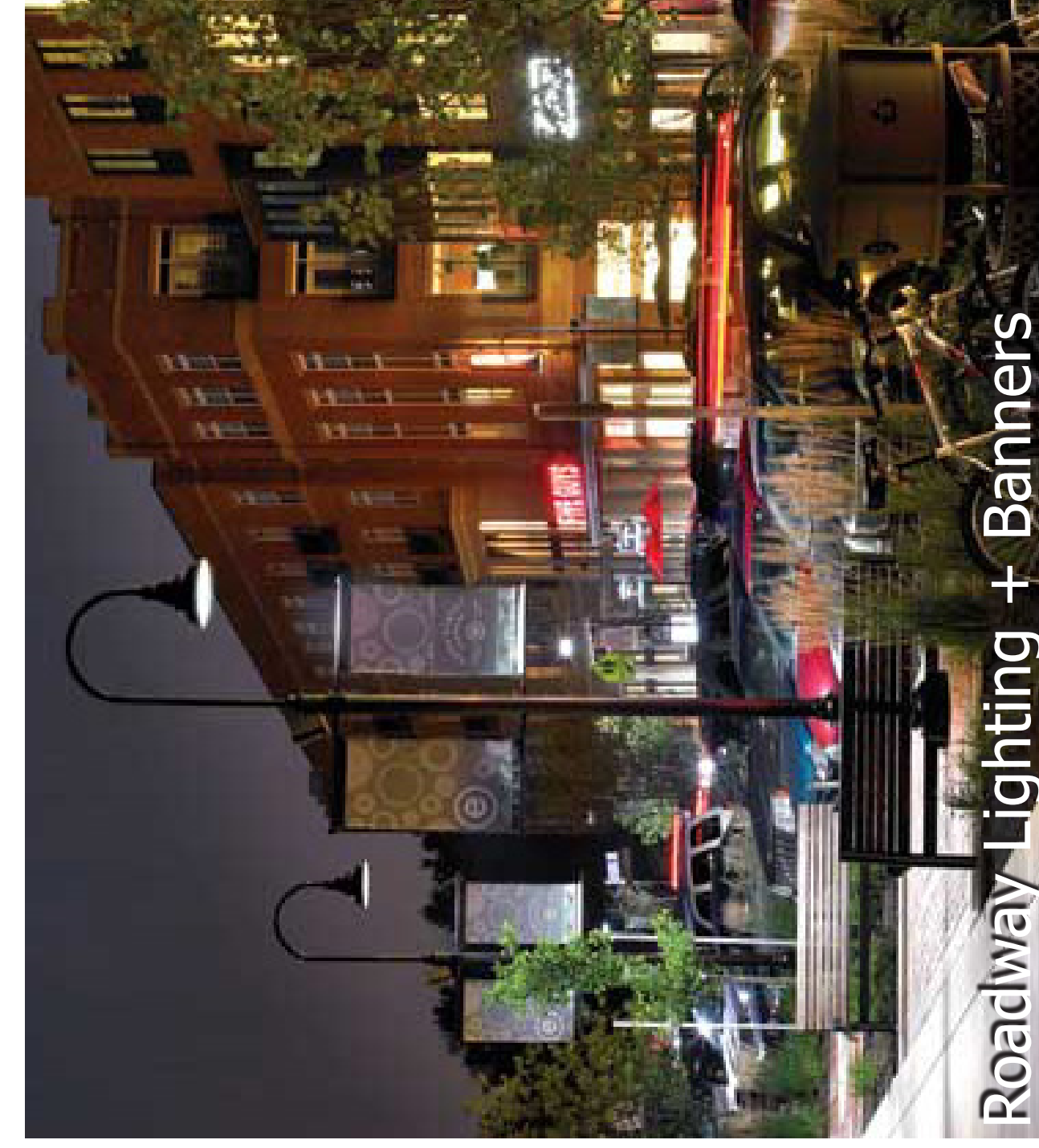


SITE FURNISHING



Concrete Bench

- Open House 2 Preferred
- Concrete surface preferred
longer life cycle material
classic character



Roadway Lighting + Banners

- Open House 2 Preferred
- Goose-neck style for character / identity, painted - theme color
- LED light
- potential banner arms
- City Standard Street Lighting / Fixtures



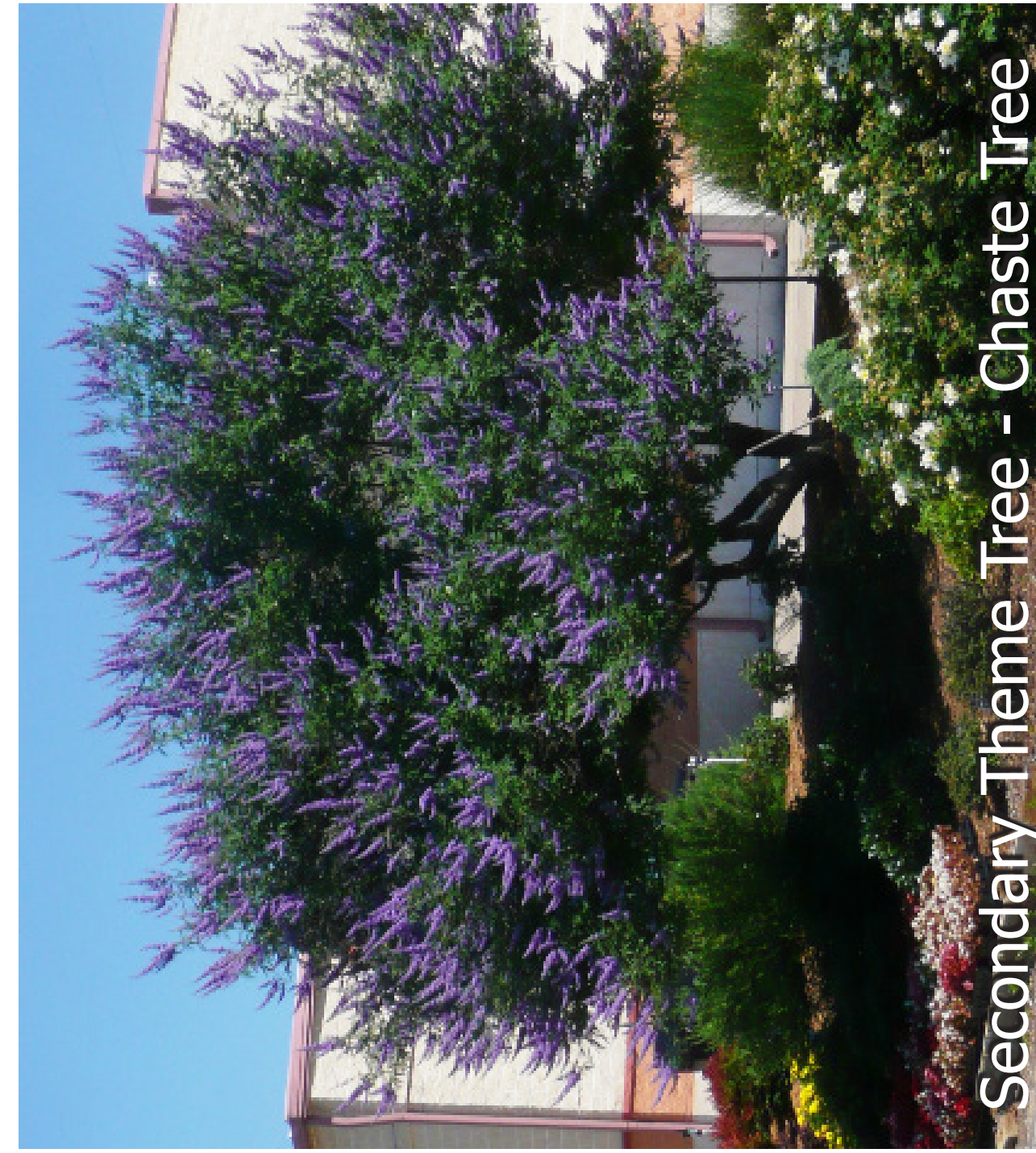
City Standard Street Lighting

THEME TREES



Theme Tree - Chinese Pistache

- Open House 2 Preferred
- Corridor theme tree
- seasonal interest - color
- low water use - hardy
- Shade tree for areas without height restriction

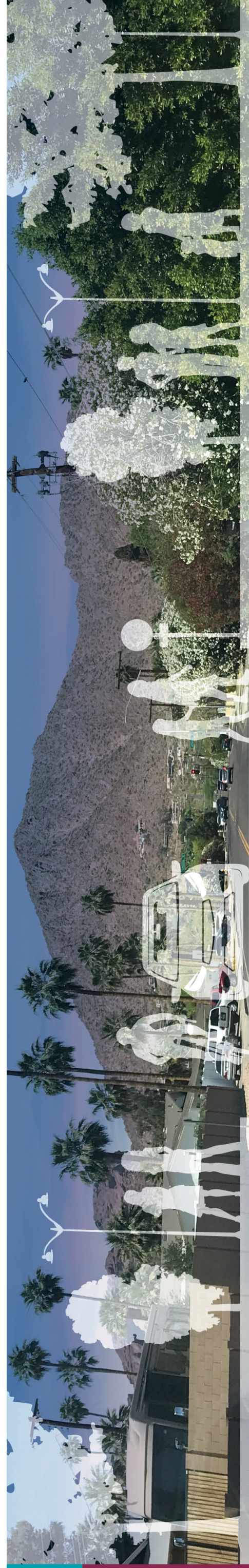


Secondary Theme Tree - Chaste Tree

- Open House 2 Preferred
- Corridor alternate tree
- seasonal interest - flower
- low water use - slow grow
- Accent tree for areas with overhead utilities or limited space

PREFERRED DESIGN ELEMENTS





BIO-SWALE



Landscaped Bio-Swale + Drain

- Open House 2 Preferred
- Bio-Swale LID tool for landscape benefit
- Preferred with Alt. 3, limited with Alt. 2

SIDEWALK MATERIAL



Decorative Joints + Salt Finish

- Open House 2 Preferred

- Concrete surface preferred longer life cycle material
- Placemaking - low cost signature character feature score joints

CROSSWALKS / MID-BLOCK



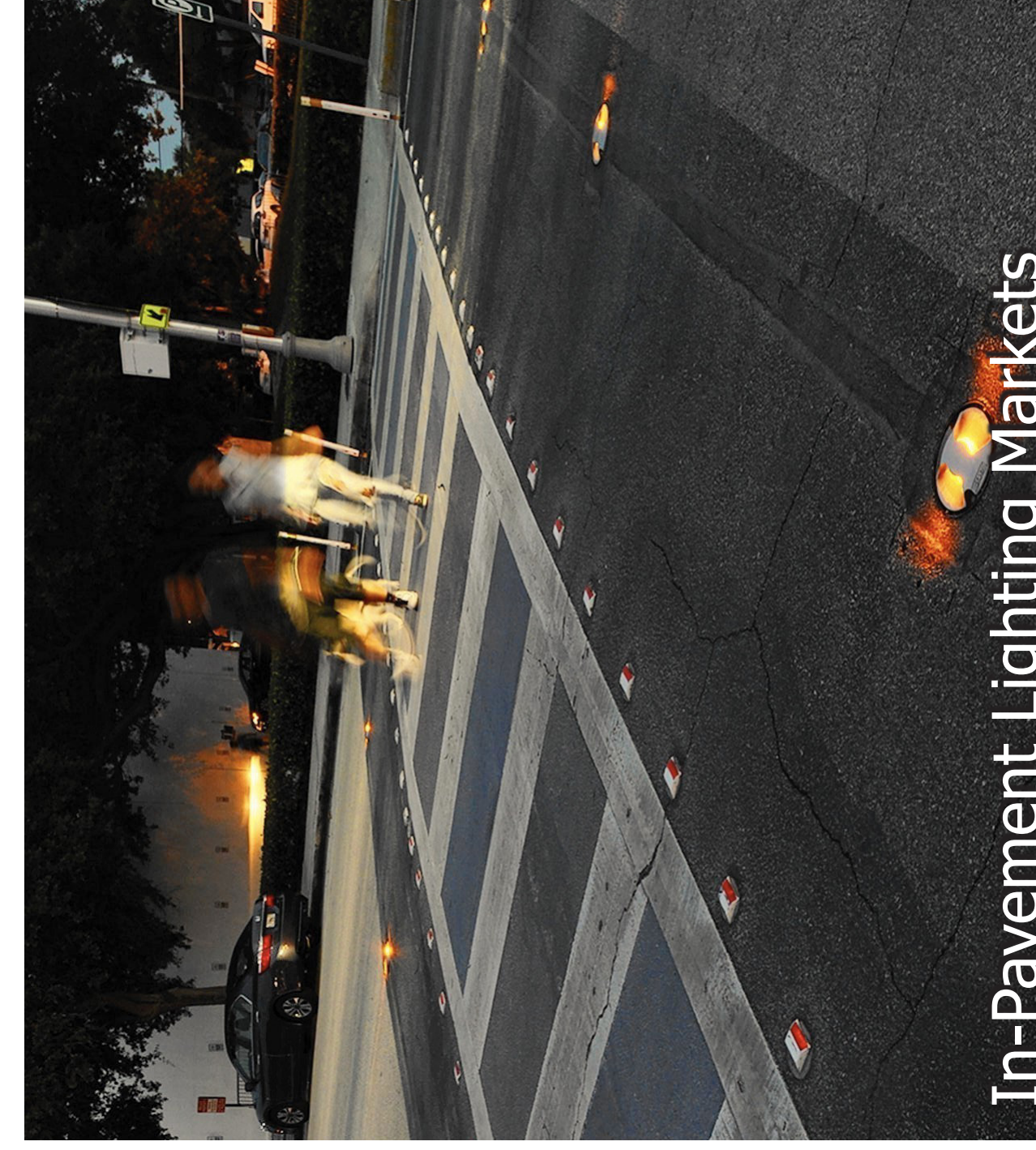
Decorative Paint Crosswalk

- Open House 2 Preferred
- Enhanced crosswalk for improved visibility and awareness
- Not standard for Street Transportation Department



Pedestrian Hybrid Beacon (H.A-WALK)

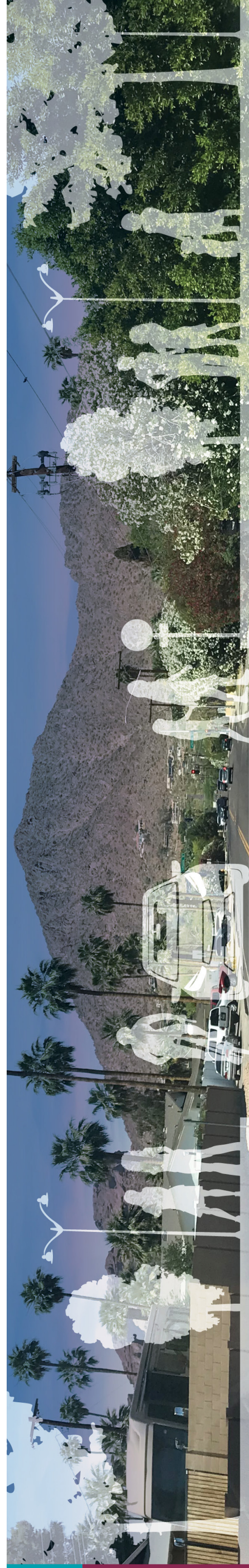
- Open House 2 Preferred
- Solution warrants required improved safety tool enhanced character opportunity



In-Pavement Lighting Markets

PREFERRED DESIGN ELEMENTS





BIO-SWALE



Landscaped Bio-Swale + Drain

- Open House 2 Preferred
- Bio-Swale LID tool for landscape benefit
- Preferred with Alt. 3, limited with Alt. 2

SIDEWALK MATERIAL



Decorative Joints + Salt Finish

- Open House 2 Preferred

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CROSSWALKS / MID-BLOCK



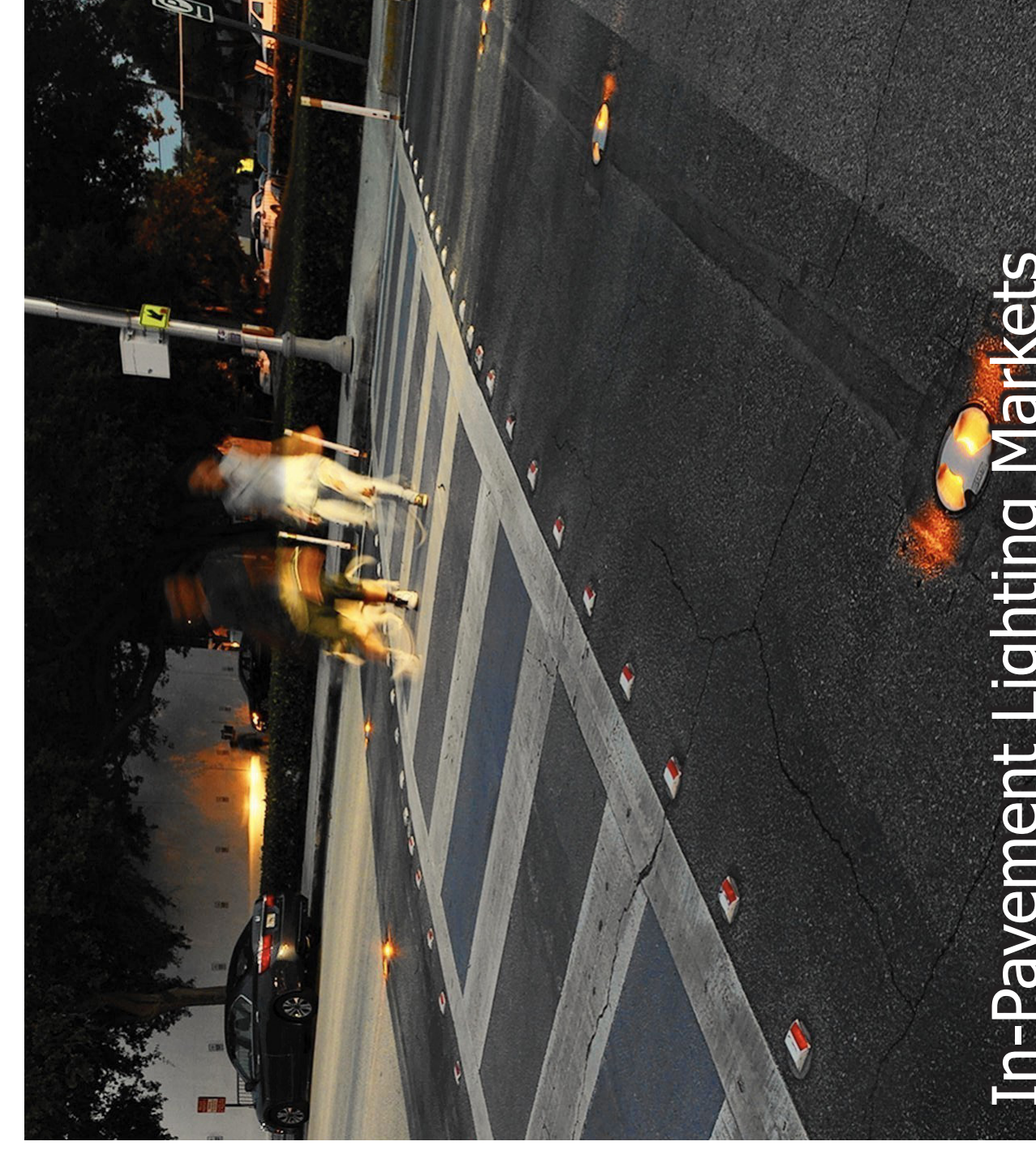
Decorative Paint Crosswalk

- Open House 2 Preferred
- Enhanced crosswalk for improved visibility and awareness
- Not standard for Street Transportation Department



Pedestrian Hybrid Beacon (H.A.W.K.)

- Open House 2 Preferred
- Solution warrants required improved safety tool enhanced character opportunity



In-Pavement Lighting Markets

PREFERRED DESIGN ELEMENTS



APPENDIX E & F 15% CONCEPT PLANS

Attached **Appendix E** – Plan Sheet Package at 1:30 scale for Alternative 2 (With Utility/Paving Plans)

Attached **Appendix F** - Plan Sheet Package at 1:30 scale for Alternative 3 (Without Utility/Paving Plans)

56th Street MAG Study
 Thomas Road to Camelback Road
 PHOENIX STREETS - MARICOPA CO.

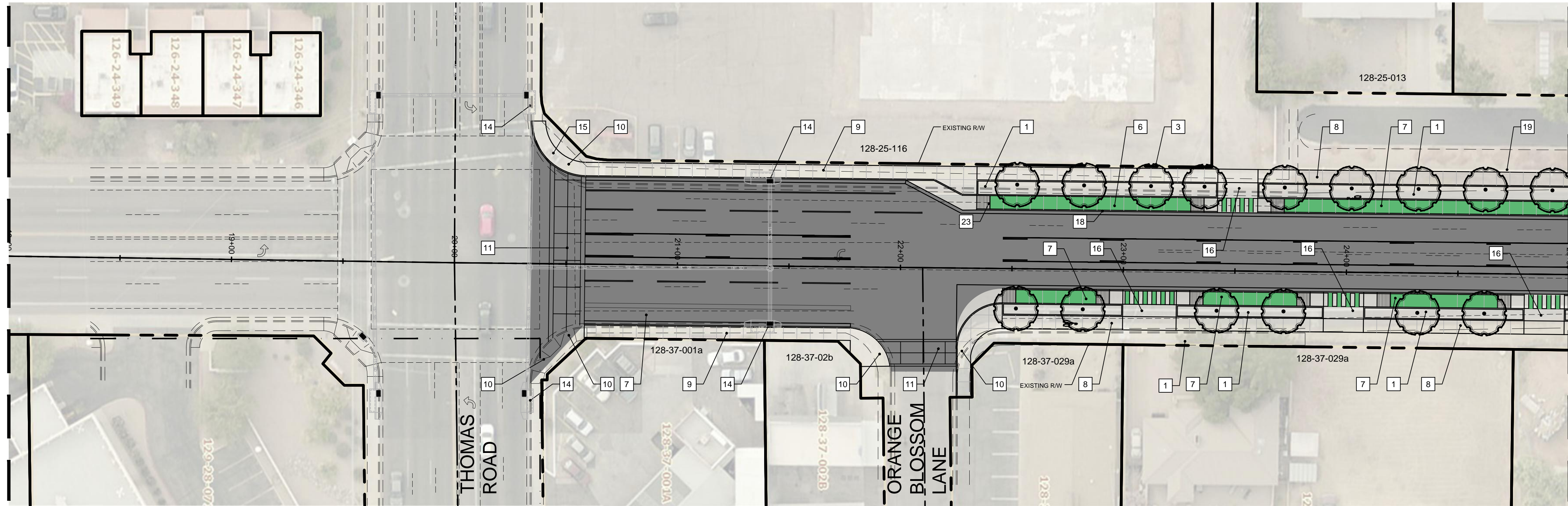
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NO.	DESCRIPTION	REV BY	CHK BY	DATE

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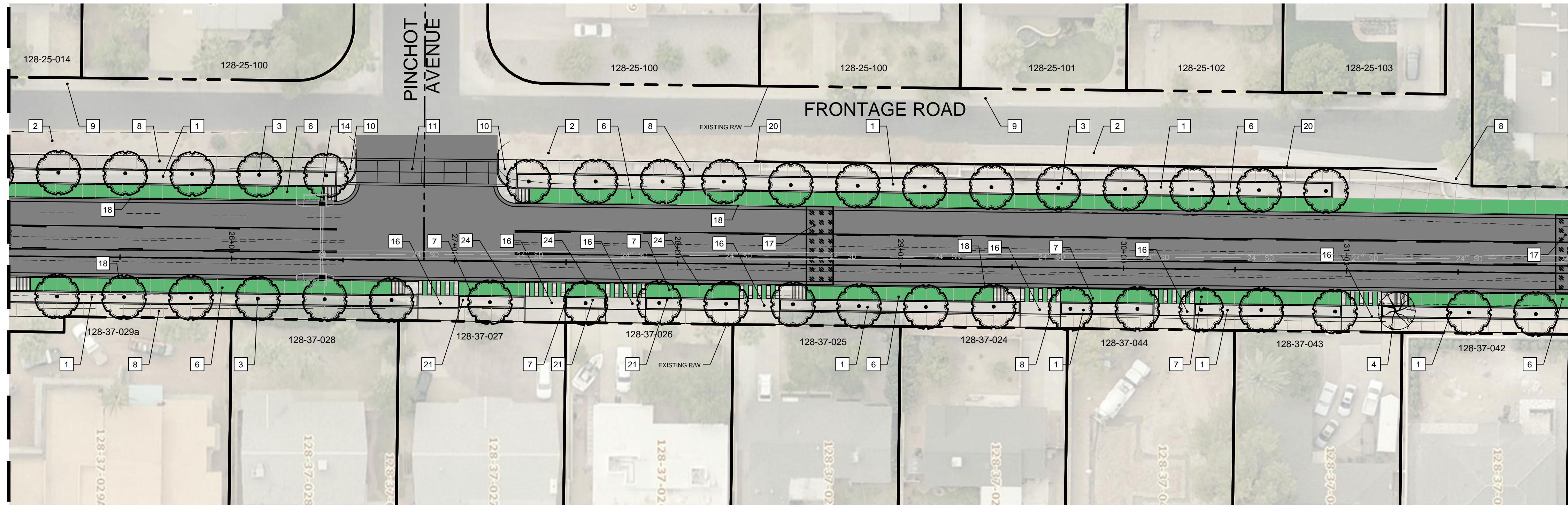
STA 18+00 END OF PROJECT



56TH STREET

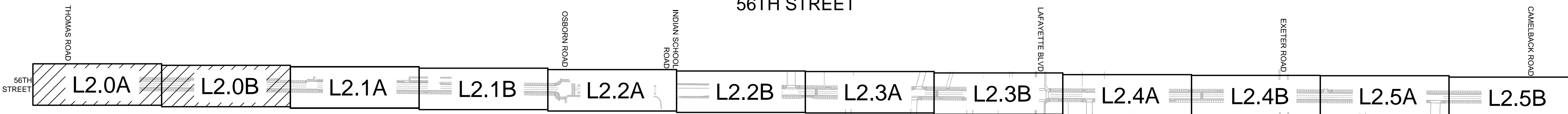
MATCH LINE STA 25+00 SEE BOTTOM LEFT

MATCH LINE STA 25+00 SEE TOP RIGHT



56TH STREET

MATCH LINE STA 32+00 SEE SHEET L2.1



PRELIMINARY
 15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING



STATE	PROJ. NO.	SHT	TOTAL
ARIZ.		-	-
DR:	DES:	CK:	DATE: 10/18
CONSTRUCTION NOTES			
NO	DESCRIPTION		
1	New Urban Landscape Replace Existing Landscape with new decomposed granite and understory plantings		
2	Existing Landscape Area to Remain Protect in Place		
3	Primary Trees - 36" Box		
4	Secondary Trees - 24" Box		
5	Existing Tree to Remain Protect in Place		
6	New Elevated Bike Lane		
7	New At Grade Bike Lane -		
8	New Sidewalk		
9	Existing Sidewalk to Remain Protect in Place		
10	New ADA Ramp Concrete - PROWAG compliant		
11	Enhanced Crosswalk		
12	Enhanced Mid-Block Crossing HAWK		
13	Traffic Calming Device Chicane		
14	New Storm Drain Catch Basin		
15	Existing Utility to Remain		
16	New Concrete Driveway -		
17	Traffic Calming Device Speed Hump / Table		
18	New Curb / Gutter Concrete		
19	Existing Wall to Remain Protect in Place		
20	New Wall - 6ft CMU match existing Demo existing		
21	Bio-Swale - LID Landscape		
22	Existing Utility - relocate / mitigate		
23	Bike Ramp - Concrete		
24	Protected Bike Lane Rail Dezignline or equal		
25	Protected Bike Intersection		
PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.			
15% LANDSCAPE PLANS - ALTERNATE 2 STA 18+00 TO STA 32+00			
CITY OF PHOENIX, ARIZONA STREET TRANSPORTATION DEPARTMENT			
56th Street Thomas Road to Camelback Road			
DR:	TMH	DES:	JEH
DATE:	10/18	DATE:	10/18
SCALE: 1" = 30' - SEE PLAN		SHT	TOTAL
		L2.0	-

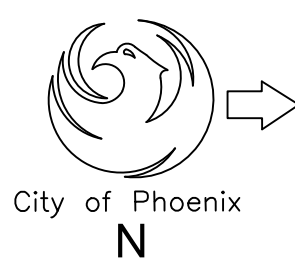


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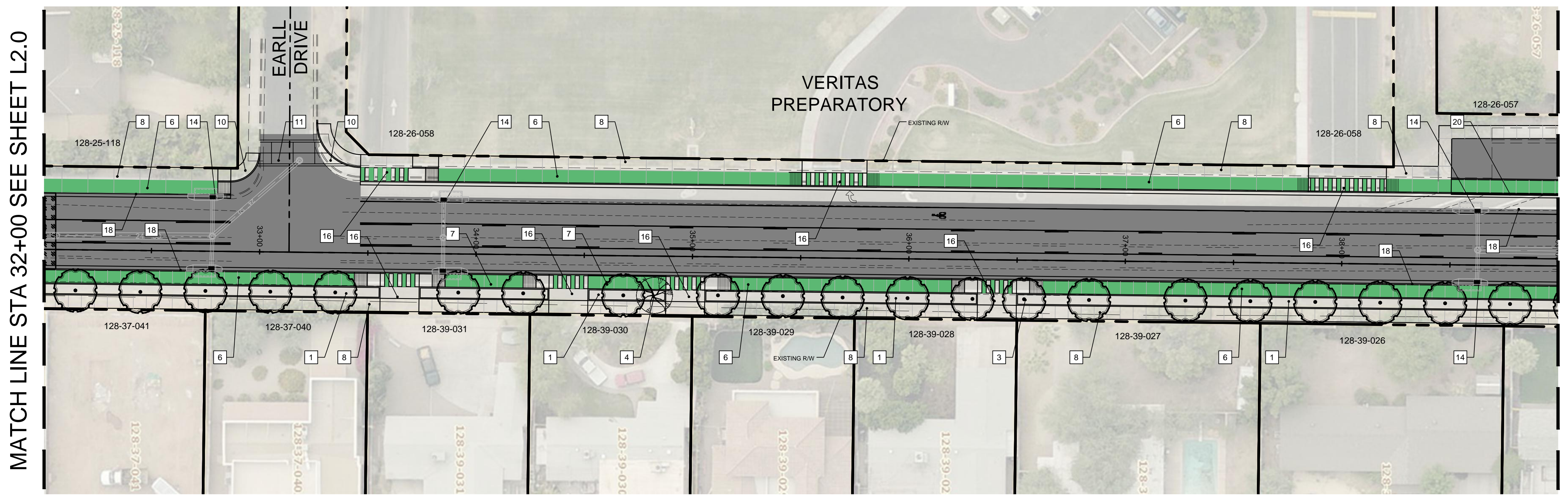
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PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING

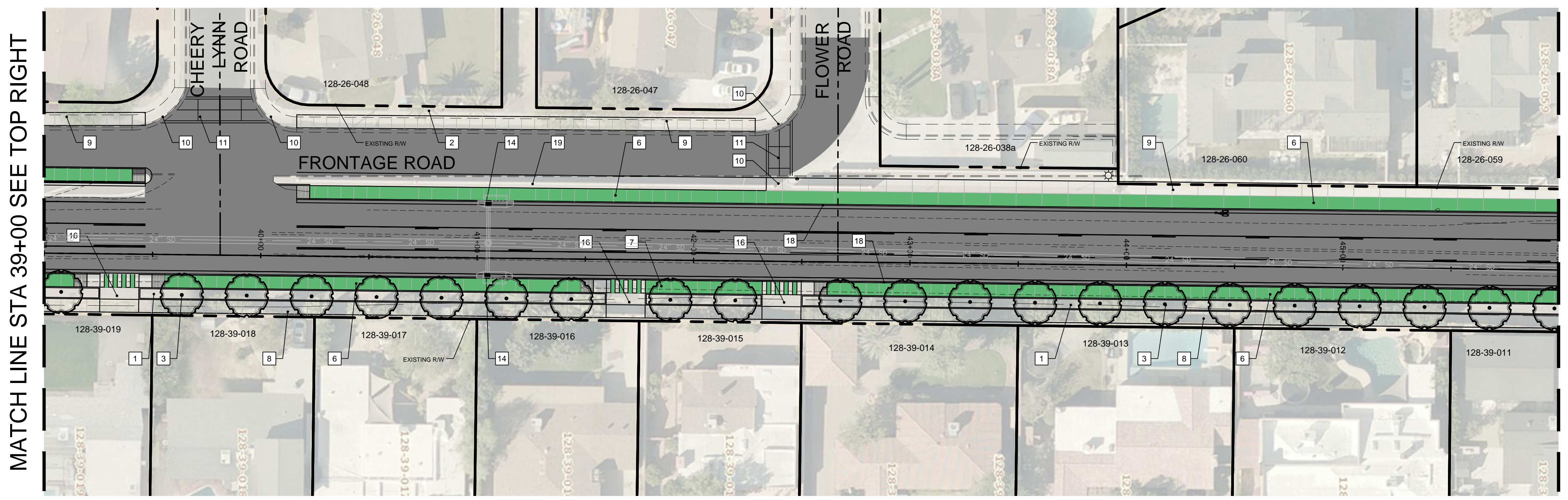
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DR:	DES:	CK:	DATE: 10/18
CONSTRUCTION NOTES			
NO	DESCRIPTION		
1	New Urban Landscape Replace Existing Landscape with new decomposed granite and understory plantings		
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7	New At Grade Bike Lane		
8	New Sidewalk		
9	Existing Sidewalk to Remain Protect in Place		
10	New ADA Ramp Concrete - PROWAG compliant		
11	Enhanced Crosswalk		
12	Enhanced Mid-Block Crossing HAWK		
13	Traffic Calming Device Chicane		
14	New Storm Drain Catch Basin		
15	Existing Utility to Remain		
16	New Concrete Driveway		
17	Traffic Calming Device Speed Hump / Table		
18	New Curb / Gutter Concrete		
19	Existing Wall to Remain Protect in Place		
20	New Wall - 6ft CMU match existing Demo existing		
21	Bio-Swale - LID Landscape		
22	Existing Utility - relocate / mitigate		
23	Bike Ramp - Concrete		
24	Protected Bike Lane Rail Dezignline or equal		
25	Protected Bike Intersection		
PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.			
15% LANDSCAPE PLANS - ALTERNATE 2 STA 32+00 TO STA 46+00			
CITY OF PHOENIX, ARIZONA STREET TRANSPORTATION DEPARTMENT			
56th Street Thomas Road to Camelback Road			
DR:	TMH	DES:	JEH
DATE:	10/18	DATE:	10/18
SCALE: 1" = 30'		SCALE: 1" = 30' - SEE PLAN	
SHT	L2.1	TOTAL	-



SCALE: 1" = 30'



56TH STREET



56TH STREET



56TH STREET

MATCH LINE STA 32+00 SEE SHEET L2.0

MATCH LINE STA 39+00 SEE BOTTOM LEFT

MATCH LINE STA 39+00 SEE TOP RIGHT

MATCH LINE STA 46+00 SEE SHEET L2.2

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NO.	DESCRIPTION	REV BY	CHK BY	DATE



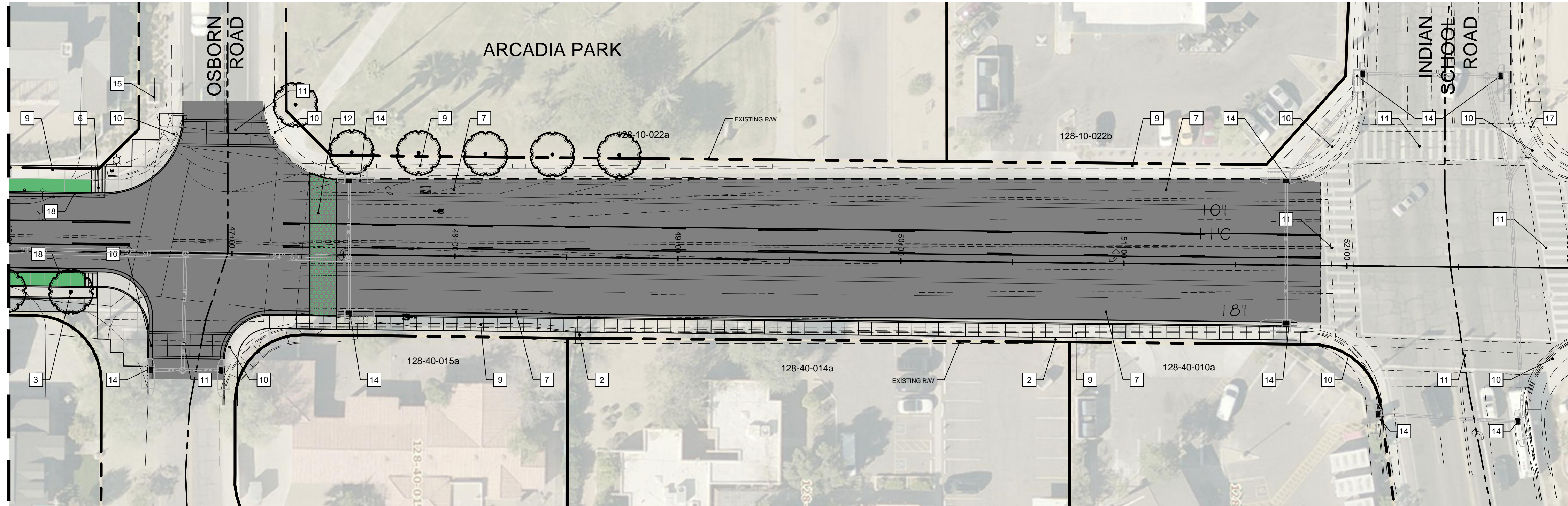
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REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE

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 NO. DESCRIPTION REV BY [CKD] BY DATE

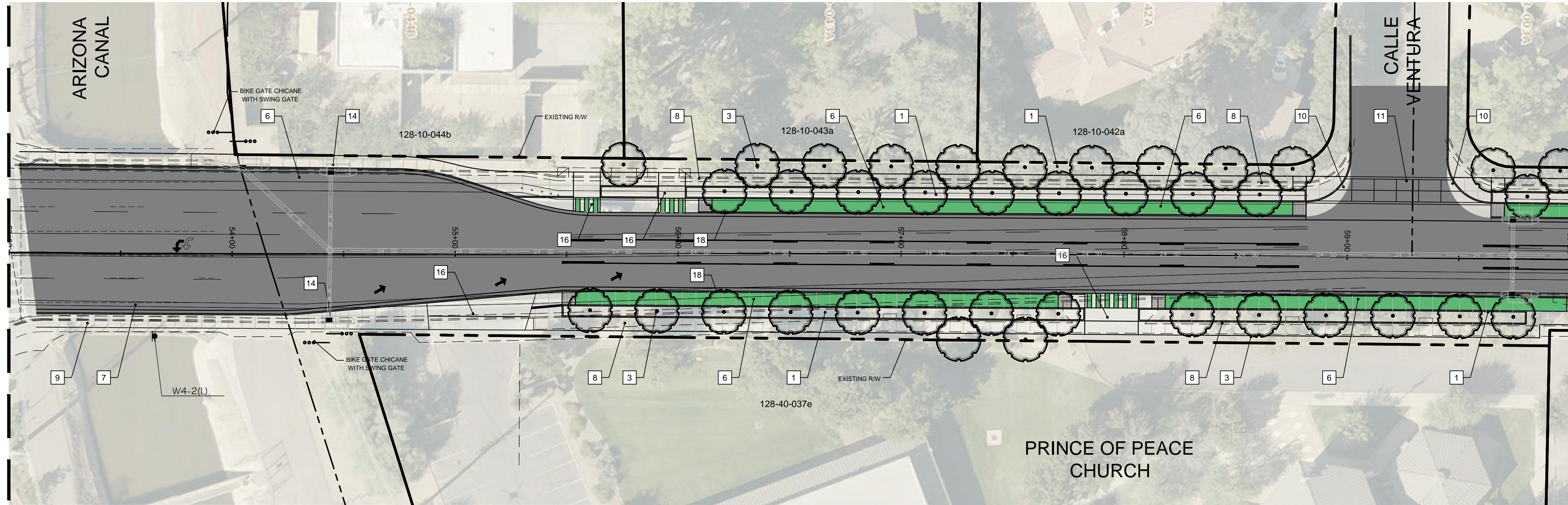
MATCH LINE STA 46+00 SEE SHEET L2.1



56TH STREET

MATCH LINE STA 53+00 SEE BOTTOM LEFT

MATCH LINE STA 53+00 SEE TOP RIGHT



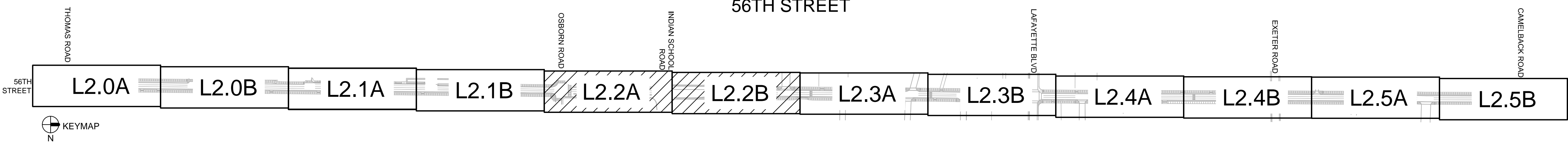
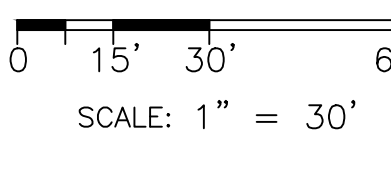
56TH STREET

MATCH LINE STA 60+00 SEE SHEET L2.3

PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING



STATE	PROJ. NO.	SHT	TOTAL
ARIZ.		-	-
DR:	DES:	CK:	DATE: 10/18
CONSTRUCTION NOTES			
NO	DESCRIPTION		
1	New Urban Landscape Replace Existing Landscape with new decomposed granite and understory plantings		
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22	Existing Utility - relocate / mitigate		
23	Bike Ramp - Concrete		
24	Protected Bike Lane Rail Designline or equal		
25	Protected Bike Intersection		
PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.			
15% LANDSCAPE PLANS - ALTERNATE 2 STA 46+00 TO STA 60+00			
CITY OF PHOENIX, ARIZONA STREET TRANSPORTATION DEPARTMENT			
56th Street Thomas Road to Camelback Road			
DR:	TMH	DES:	JEH
DATE:	10/18	DATE:	10/18
SCALE: 1" = 30' - SEE PLAN		SHT	TOTAL
		L2.2	-



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PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING

STATE	PROJ. NO.	SHT	TOTAL
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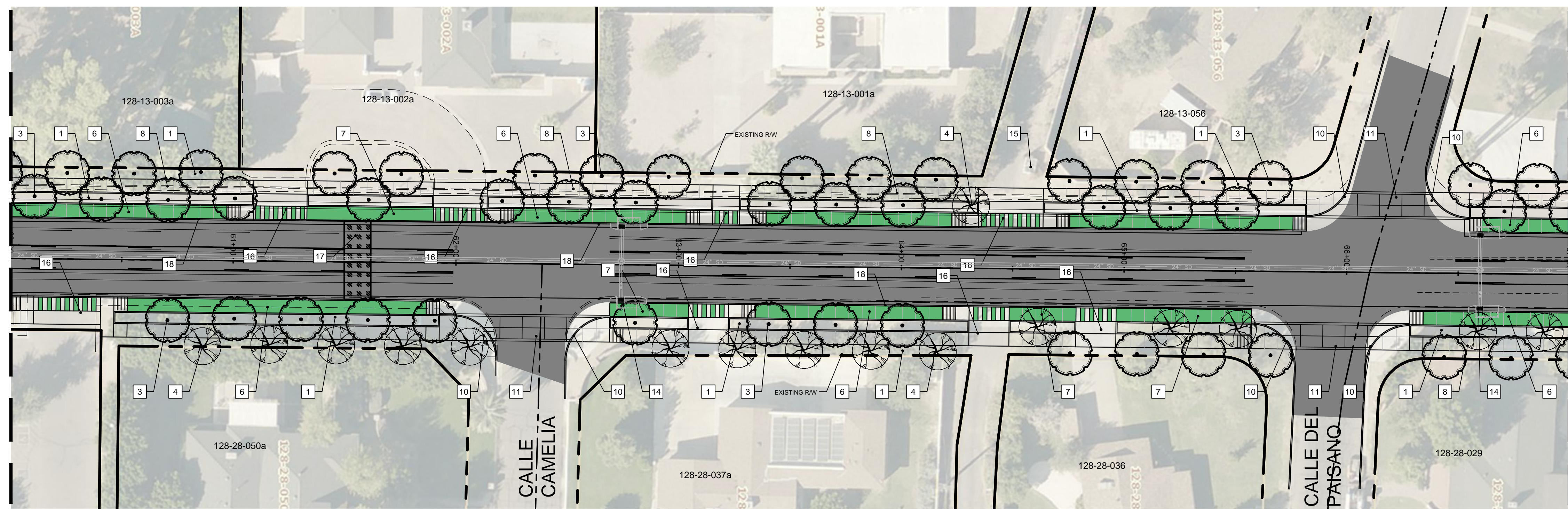
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CONSTRUCTION NOTES

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1	New Urban Landscape Replace Existing Landscape with new decomposed granite and understory plantings
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24	Protected Bike Lane Rail Dezignline or equal
25	Protected Bike Intersection

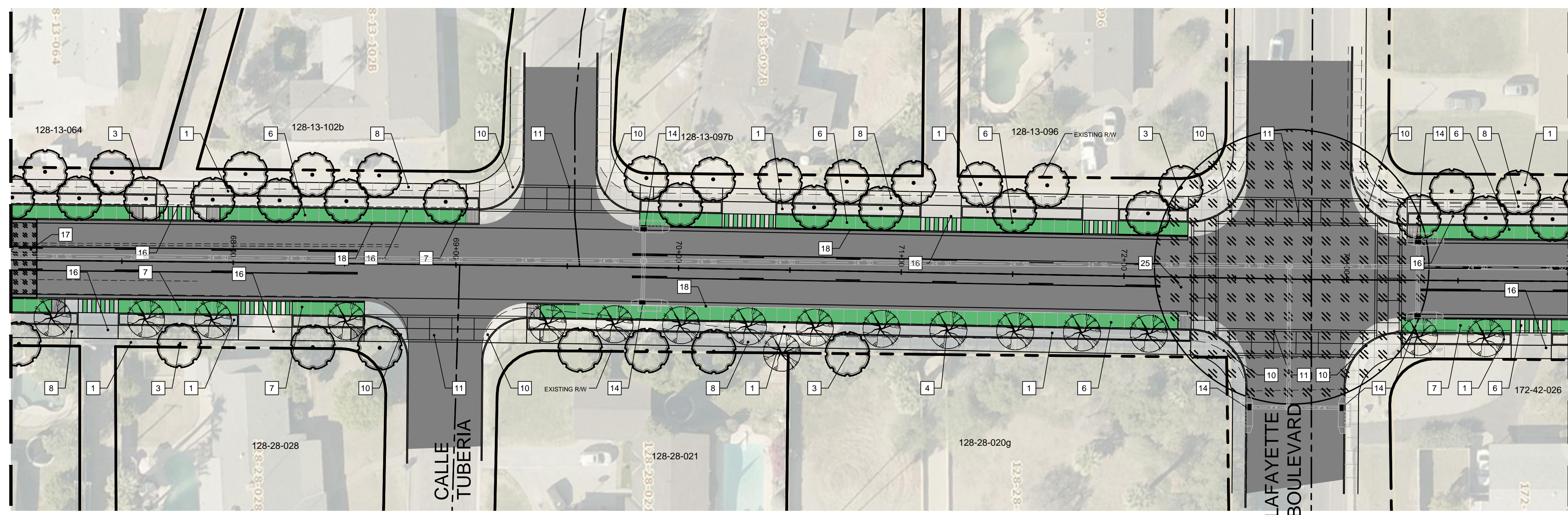


MATCH LINE STA 60+00 SEE SHEET L2.2

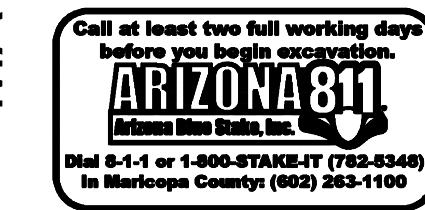


MATCH LINE STA 67+00 SEE BOTTOM LEFT

MATCH LINE STA 67+00 SEE TOP RIGHT



MATCH LINE STA 74+00 SEE SHEET L2.4



SCALE: 1" = 30'

"PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

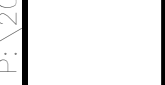
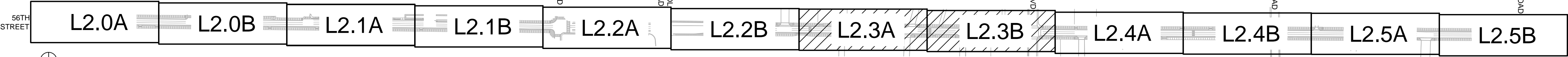
15% LANDSCAPE PLANS - ALTERNATE 2
 STA 60+00 TO STA 74+00

CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT

56th Street
 Thomas Road to Camelback Road

DR:	TMH	DES:	JEH	CK:	JEH	SHT	TOTAL
DATE:	10/18	DATE:	10/18	DATE:	10/18	L2.3	-

NO.	DESCRIPTION	REV BY	CHK BY	DATE



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 REVISION BY CITY OF PHOENIX
 REVISION BY CITY OF PHOENIX
 REVISION BY CITY OF PHOENIX

PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING

STATE	PROJ. NO.	SHT	TOTAL
ARIZ.		-	-

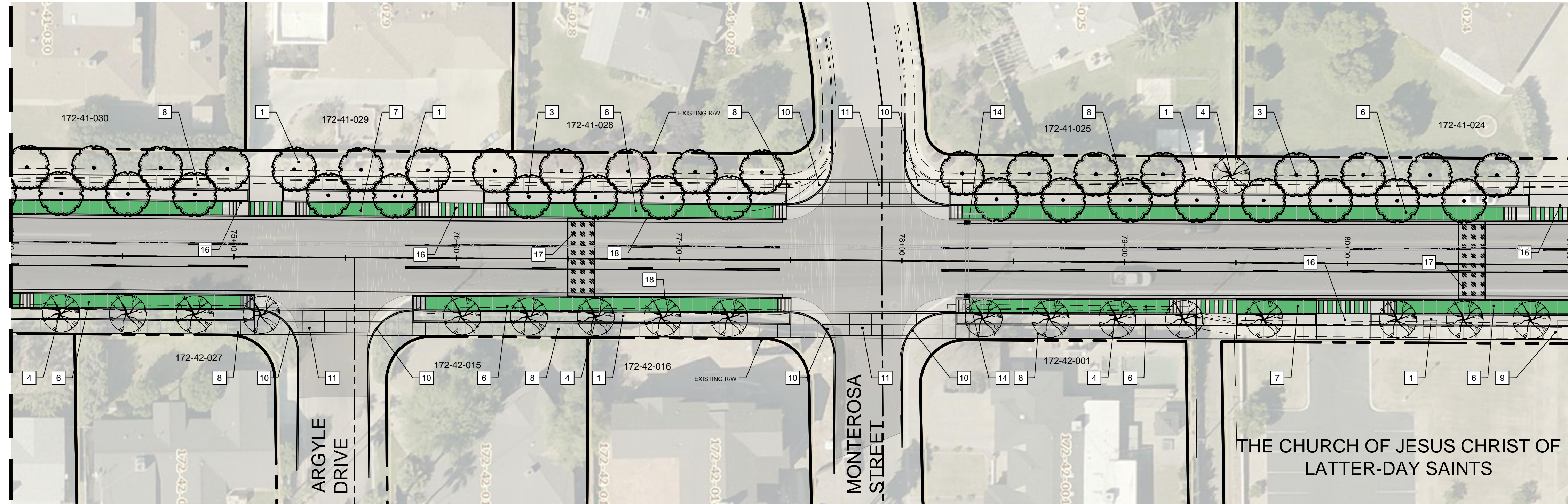
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CONSTRUCTION NOTES	
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13	Traffic Calming Device Chicane
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18	New Curb / Gutter Concrete
19	Existing Wall to Remain Protect in Place
20	New Wall - 6ft CMU match existing Demo existing
21	Bio-Swale - LID Landscape
22	Existing Utility - relocate / mitigate
23	Bike Ramp - Concrete
24	Protected Bike Lane Rail Dezignline or equal
25	Protected Bike Intersection



MATCH LINE STA 74+00 SEE SHEET L2.3

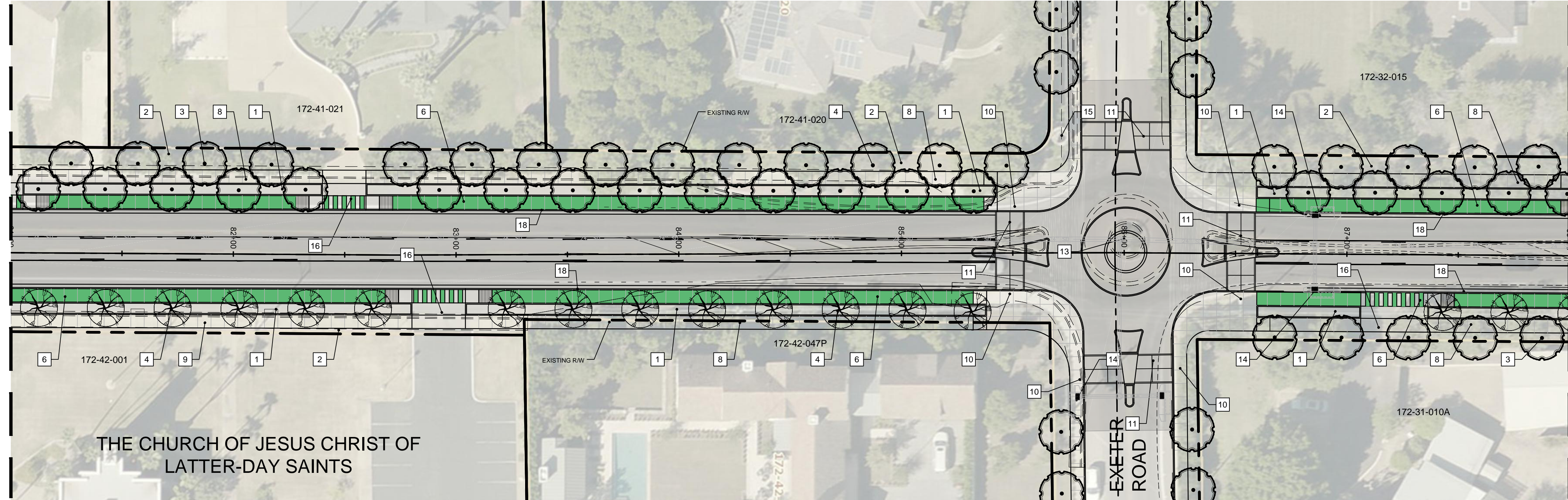
MATCH LINE STA 81+00 SEE BOTTOM LEFT



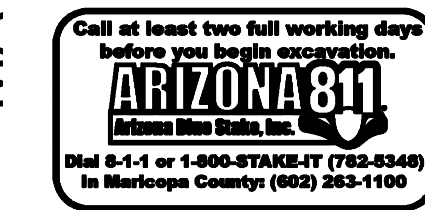
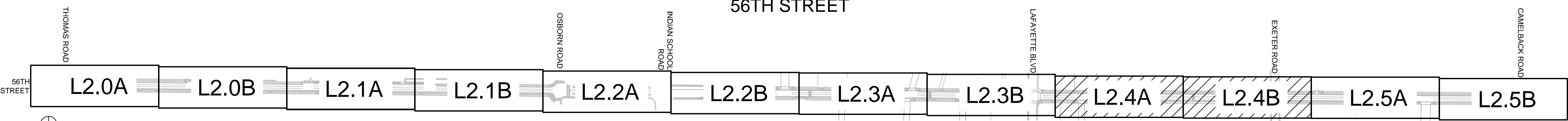
56TH STREET

MATCH LINE STA 81+00 SEE TOP RIGHT

MATCH LINE STA 88+00 SEE SHEET L2.5



56TH STREET



"PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

15% LANDSCAPE PLANS - ALTERNATE 2
 STA 74+00 TO STA 88+00

CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT

56th Street
 Thomas Road to Camelback Road

DR:	TMH	DES:	JEH	CK:	JEH	SHT	TOTAL
DATE:	10/18	DATE:	10/18	DATE:	10/18	L2.4	-
SCALE: 1" = 30' - SEE PLAN							

REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE
 REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE
 REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE

56th Street MAG Study
 Thomas Road to Camelback Road
 PHOENIX STREETS - MARICOPA CO.

PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING

STATE	PROJ. NO.	SHT	TOTAL
ARIZ.		-	-

DR: DES: CK: DATE: 10/18

CONSTRUCTION NOTES

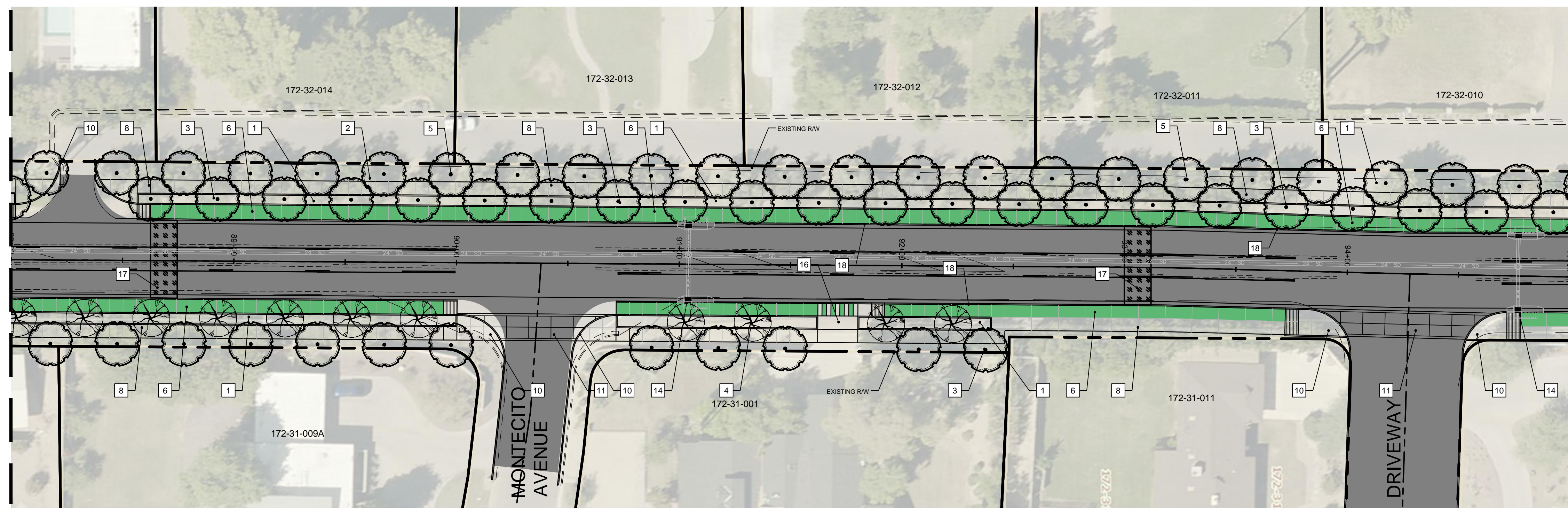
NO	DESCRIPTION
1	New Urban Landscape Replace Existing Landscape with new decomposed granite and understory plantings
2	Existing Landscape Area to Remain Protect in Place
3	Primary Trees - 36" Box
4	Secondary Trees - 24" Box
5	Existing Tree to Remain Protect in Place
6	New Elevated Bike Lane
7	New At Grade Bike Lane
8	New Sidewalk
9	Existing Sidewalk to Remain Protect in Place
10	New ADA Ramp Concrete - PROWAG compliant
11	Enhanced Crosswalk
12	Enhanced Mid-Block Crossing HAWK
13	Traffic Calming Device Chicane
14	New Storm Drain Catch Basin
15	Existing Utility to Remain
16	New Concrete Driveway
17	Traffic Calming Device Speed Hump / Table
18	New Curb / Gutter Concrete
19	Existing Wall to Remain Protect in Place
20	New Wall - 6ft CMU match existing Demo existing
21	Bio-Swale - LID Landscape
22	Existing Utility - relocate / mitigate
23	Bike Ramp - Concrete
24	Protected Bike Lane Rail Designline or equal
25	Protected Bike Intersection



REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE

MATCH LINE STA 95+00 SEE TOP RIGHT

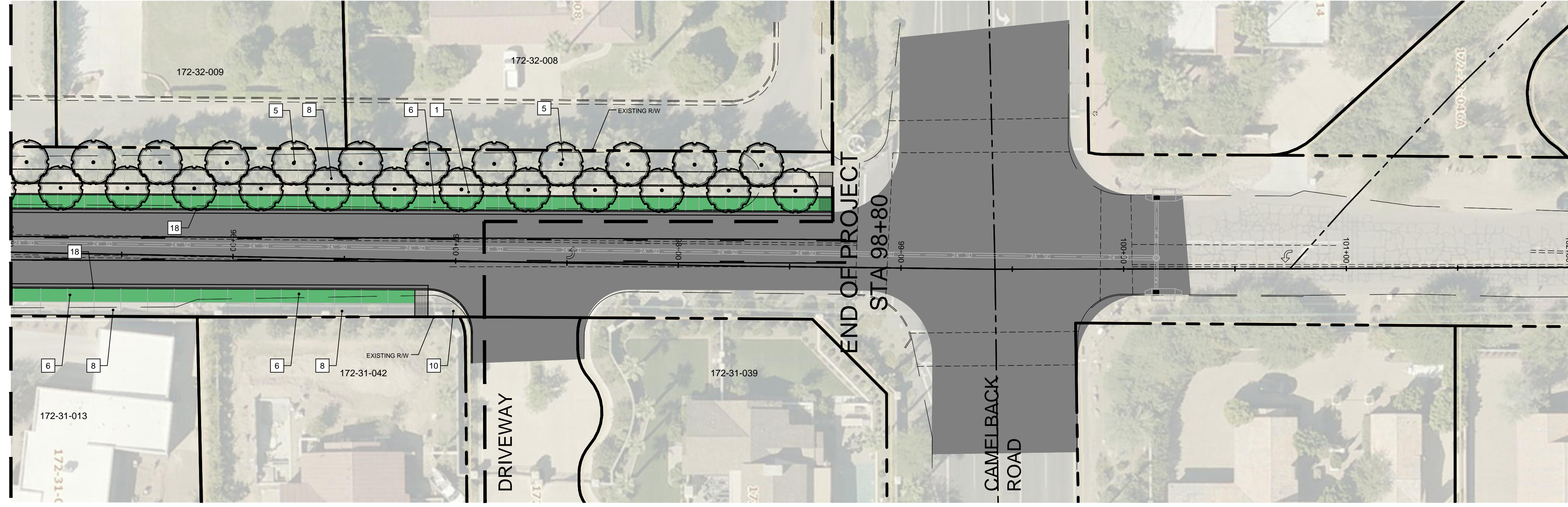
MATCH LINE STA 95+00 SEE BOTTOM LEFT



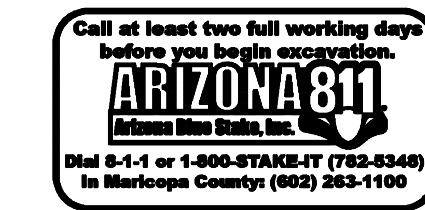
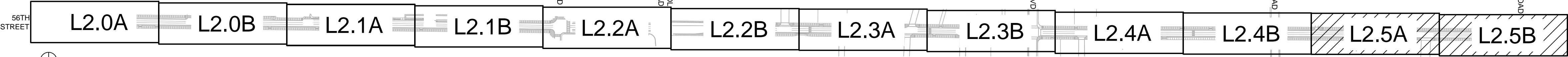
56TH STREET

REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE

MATCH LINE STA 95+00 SEE TOP RIGHT



56TH STREET



0 15' 30' 60'
 SCALE: 1" = 30'

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15% LANDSCAPE PLANS - ALTERNATE 2
 STA 88+00 TO STA 98+80

CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT

56th Street
 Thomas Road to Camelback Road

DR:	TMH	DES:	JEH	CK:	JEH	SHT	TOTAL
DATE:	10/18	DATE:	10/18	DATE:	10/18	L2.5	-
SCALE: 1" = 30' - SEE PLAN							

P:\2016_HFD_2018_003_MAG - Phoenix 56th St Corridor\04 - CAD\01 - Plans\2018_003_COP_56th - L502.dwg 10/29/2018 11:56 AM HFD_08

56th Street MAG Study
 Thomas Road to Camelback Road
 PHOENIX STREETS - MARICOPA CO.

PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING

STATE	PROJ. NO.	SHT	TOTAL
ARIZ.	56TH STREET CORRIDOR STUDY	01	12

DR:	DES:	CK:	DATE:
			08/18

REMOVAL / RELOCATION NOTES		
NO.	DESCRIPTION	QTY UNITS
1	SAWCUT & MATCH EXISTING	- LF
2	REMOVE AC PAVEMENT	- SY
4	REMOVE CURB & GUTTER	- LF
5	REMOVE CONCRETE SIDEWALK	- SF
6	REMOVE CONCRETE SIDEWALK RAMP	- EA
20	REMOVE VALLEY GUTTER AND APRON	- SF

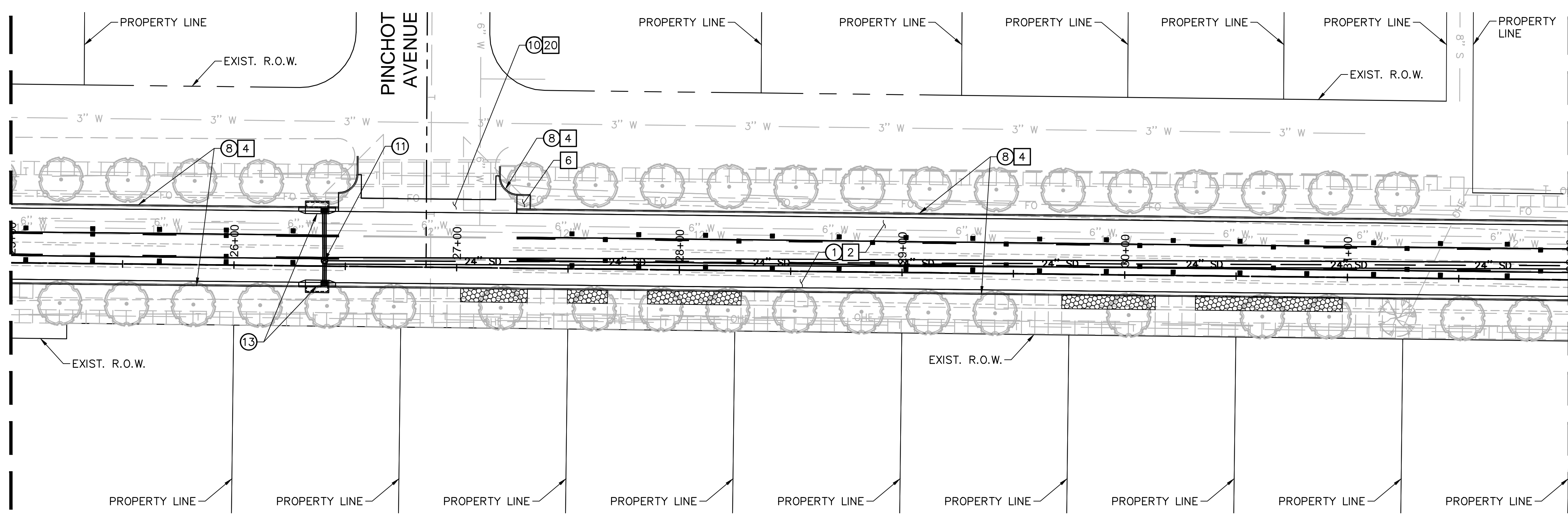
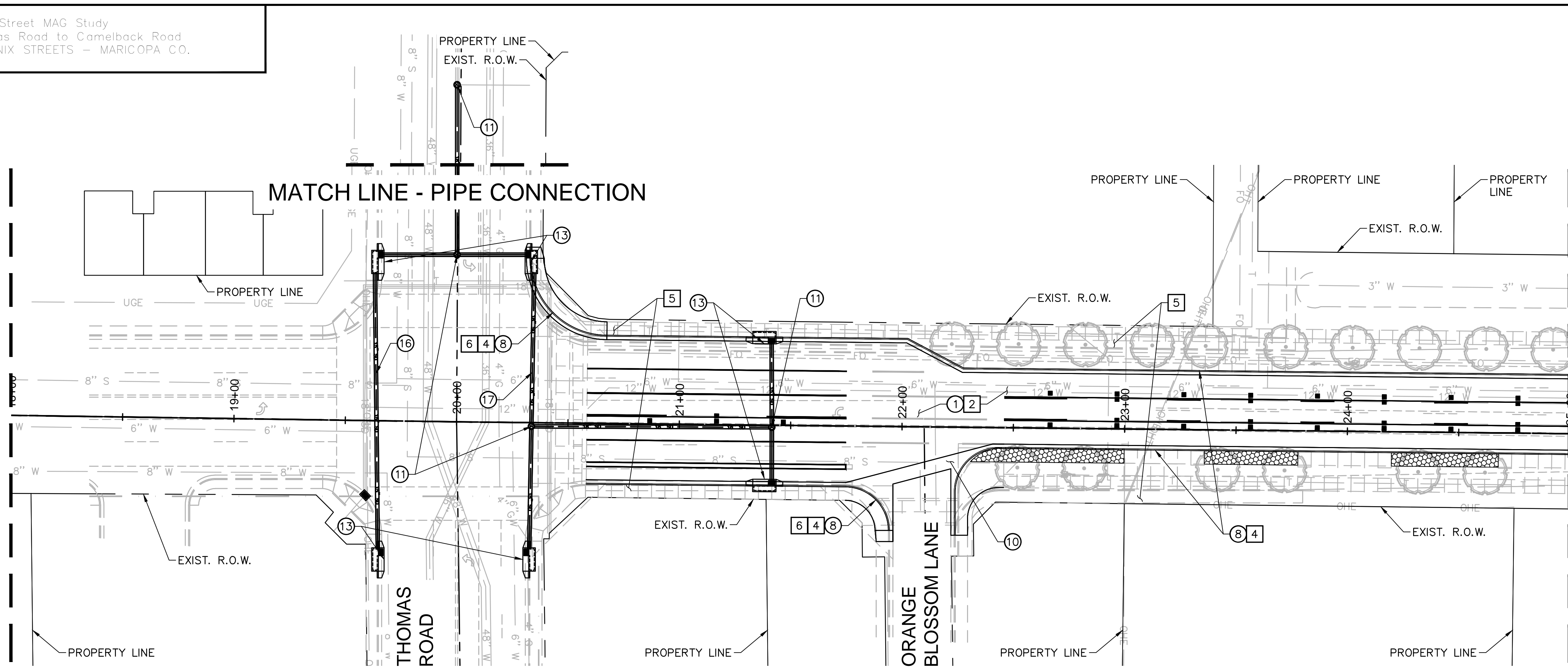
CONSTRUCTION NOTES		
NO.	DESCRIPTION	QTY UNITS
1	ASPHALT CONCRETE PVMT PER PVMT STRUCTURAL SECTION NO.1	- SY
8	CURB AND GUTTER PER MAG STD DET 220 TYPE A	- LF
10	CONCRETE VALLEY GUTTER PER MAG STD DTL 240	- SF
11	STORM DRAIN MANHOLE BASE PER MAG STD DTL 520	- EA
12	STORM DRAIN CURB OPENING CATCH BASIN PER MAG (530-539), TYPE (A,B,C,D,E,F,G,H)	- EA
13	CONSTRUCT CATCH BASIN PER MAG STD DTL 533	- EA
16	15" RGRCP, CLASS III PIPE	- LF
17	18" RGRCP, CLASS III PIPE	- LF
18	24" RGRCP, CLASS III PIPE	- LF

STA 18+00 END OF PROJECT

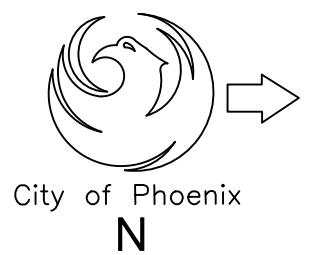
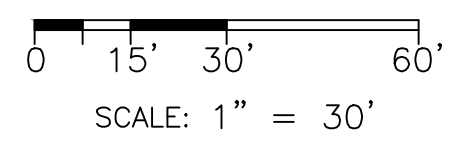
MATCH LINE STA 25+00 SEE TOP RIGHT

MATCH LINE STA 25+00 SEE BOTTOM LEFT

MATCH LINE STA 32+00 SEE SHEET PV02



NO.	DESCRIPTION	REV BY	CHK BY	DATE



H P
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WWW.RPAENG.COM

Call at least two full working days before you begin construction.

ARIZONA 811
Arizona One Call System

Call 8-1-1 or 1-800-STANLEY (782-9346) in Maricopa County (602) 253-1100

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15% PAVING PLANS
 STA 18+00 TO STA 32+00
CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT

56th Street
 Thomas Road to Camelback Road

DR:	LS:	DES:	N/A:	CK:	CG:	SHT	TOTAL
DATE: 08/18	DATE: 08/18	DATE: 08/18	DATE: 08/18	DATE: 08/18	DATE: 08/18	PV01	PV06

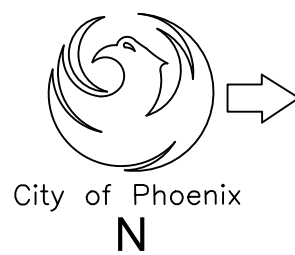
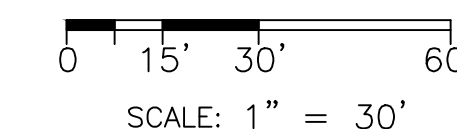
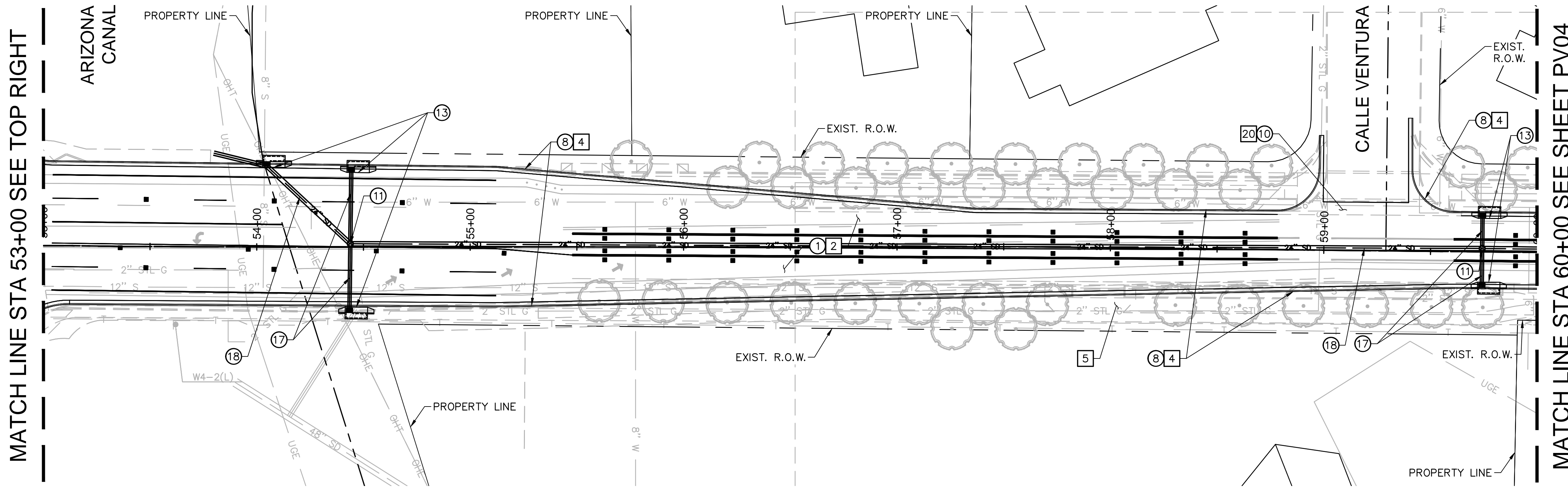
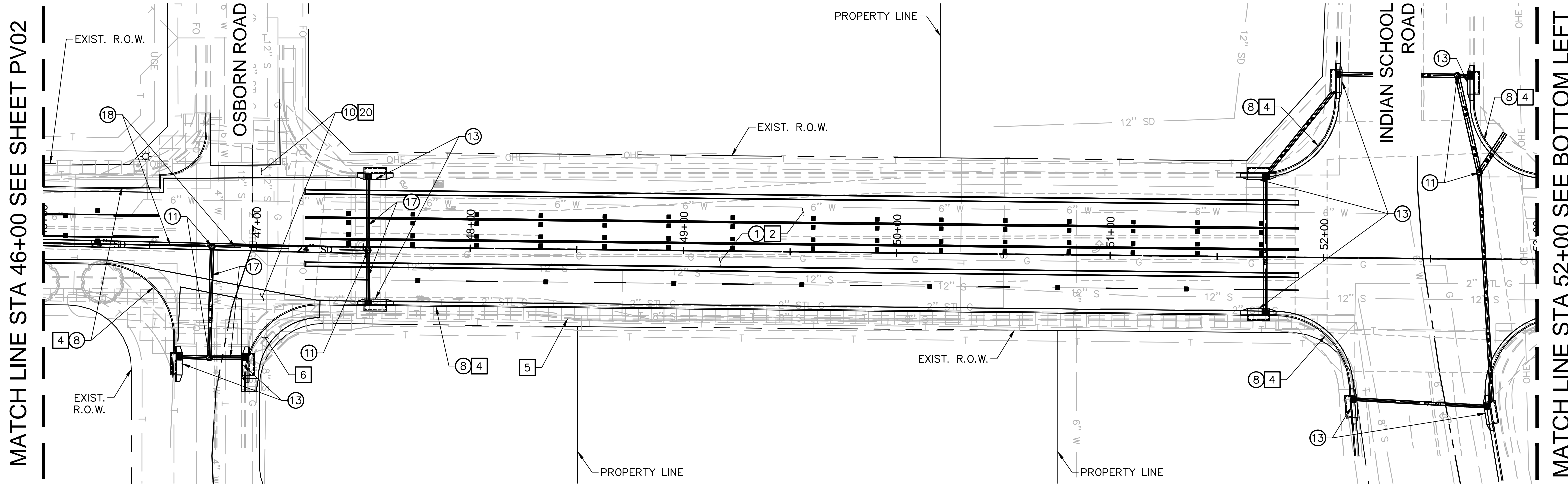
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56th Street MAG Study
 Thomas Road to Camelback Road
 PHOENIX STREETS - MARICOPA CO.

PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING

STATE	PROJ. NO.	SHT	TOTAL
ARIZ.	56TH STREET CORRIDOR STUDY	03	12
DR:	DES:	CK:	DATE: 08/18
REMOVAL / RELOCATION NOTES			
NO.	DESCRIPTION	QTY	UNITS
1	SAWCUT & MATCH EXISTING	-	LF
2	REMOVE AC PAVEMENT	-	SY
4	REMOVE CURB & GUTTER	-	LF
5	REMOVE CONCRETE SIDEWALK	-	SF
6	REMOVE CONCRETE SIDEWALK RAMP	-	EA
20	REMOVE VALLEY GUTTER AND APRON	-	SF

CONSTRUCTION NOTES			
NO.	DESCRIPTION	QTY	UNITS
1	ASPHALT CONCRETE PVMT PER PVMT STRUCTURAL SECTION NO.1	-	SY
8	CURB AND GUTTER PER MAG STD DET 220 TYPE A	-	LF
10	CONCRETE VALLEY GUTTER PER MAG STD DTL 240	-	SF
11	STORM DRAIN MANHOLE BASE PER MAG STD DTL 520	-	EA
12	STORM DRAIN CURB OPENING CATCH BASIN PER MAG (530-539), TYPE (A,B,C,D,E,F,G,H)	-	EA
13	CONSTRUCT CATCH BASIN PER MAG STD DTL 533	-	EA
17	18" RGRCP, CLASS III PIPE	-	LF
18	24" RGRCP, CLASS III PIPE	-	LF



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 www.HarringtonPlanningDesign.com

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15% PAVING PLANS
 STA 46+00 TO STA 60+00
CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT

56th Street
 Thomas Road to Camelback Road

DR:	LS:	DES:	N/A:	CK:	CG:	SHT	TOTAL
DATE: 08/18	DATE: 08/18	DATE: 08/18	DATE: 08/18	DATE: 08/18	DATE: 08/18	PV03	PV06
SCALE: 1" = 30' - SEE PLAN							

REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY (CKD BY) DATE
 REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY (CKD BY) DATE
 REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY (CKD BY) DATE

P:\Proj\15\2018\2182658 - MAG - COP-56th Street Corridor - STA 46+00 - 60+00 - 15% PAVING PLANS - 1/28/2018 1:45 PM A.C.G. LLC

56th Street MAG Study
 Thomas Road to Camelback Road
 PHOENIX STREETS - MARICOPA CO.

PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING

STATE	PROJ. NO.	SHT	TOTAL
ARIZ.	56TH STREET CORRIDOR STUDY	04	12

DR: DES: CK: DATE: 08/18

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	QTY	UNITS
1	SAWCUT & MATCH EXISTING	-	LF
2	REMOVE AC PAVEMENT	-	SY
4	REMOVE CURB & GUTTER	-	LF
5	REMOVE CONCRETE SIDEWALK	-	SF
6	REMOVE CONCRETE SIDEWALK RAMP	-	EA
20	REMOVE VALLEY GUTTER AND APRON	-	SF

CONSTRUCTION NOTES

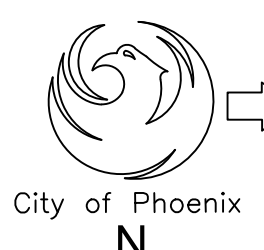
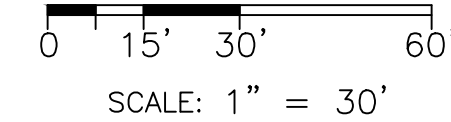
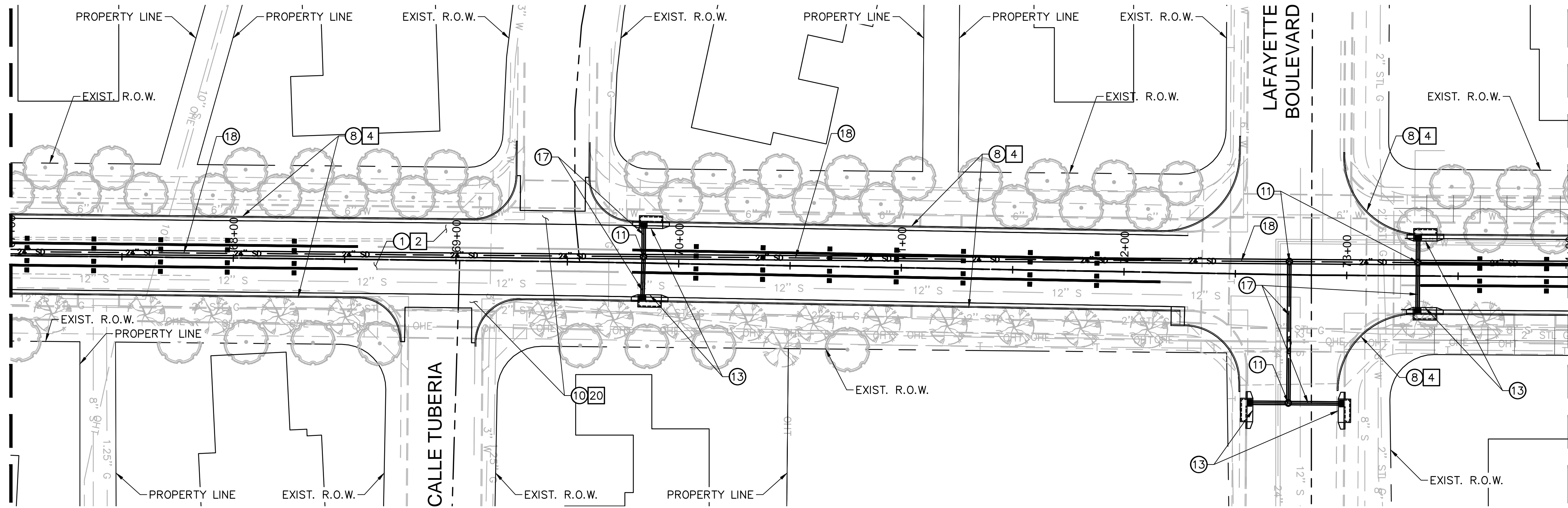
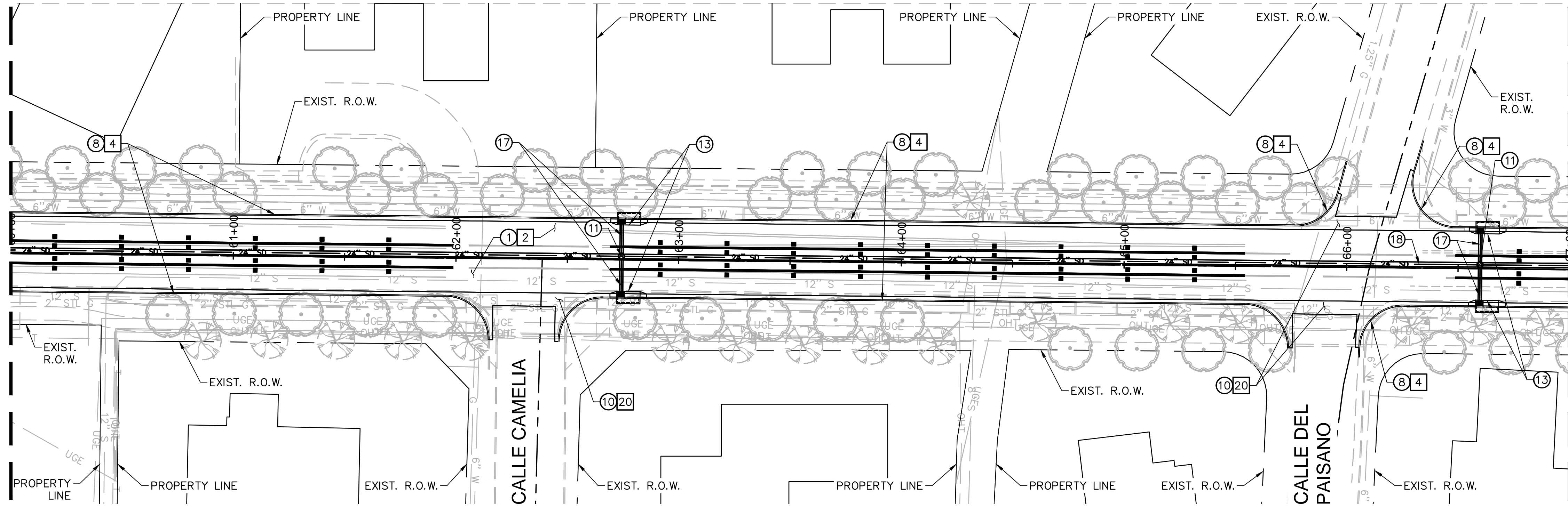
NO.	DESCRIPTION	QTY	UNITS
1	ASPHALT CONCRETE PVMT PER PVMT STRUCTURAL SECTION NO.1	-	SY
8	CURB AND GUTTER PER MAG STD DET 220 TYPE A	-	LF
10	CONCRETE VALLEY GUTTER PER MAG STD DTL 240	-	SF
11	STORM DRAIN MANHOLE BASE PER MAG STD DTL 520	-	EA
12	STORM DRAIN CURB OPENING CATCH BASIN PER MAG (530-539), TYPE (A,B,C,D,E,F,G,H)	-	EA
13	CONSTRUCT CATCH BASIN PER MAG STD DTL 533	-	EA
17	18" RGRCP, CLASS III PIPE	-	LF
18	24" RGRCP, CLASS III PIPE	-	LF

MATCH LINE STA 60+00 SEE SHEET PV03

MATCH LINE STA 67+00 SEE BOTTOM LEFT

MATCH LINE STA 67+00 SEE TOP RIGHT

MATCH LINE STA 74+00 SEE SHEET PV05



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15% PAVING PLANS
 STA 60+00 TO STA 74+00
 CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT

56th Street
 Thomas Road to Camelback Road

DR:	LS:	DES:	N/A:	CK:	CG:	SHT	TOTAL
DATE: 08/18	DATE: 08/18	DATE: 08/18	DATE: 08/18	DATE: 08/18	DATE: 08/18	PV04	PV06

REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY (CKD BY) DATE
 REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY (CKD BY) DATE
 REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY (CKD BY) DATE

P:\Projects\56th Street Corridor Study\56th Street Corridor - MAG - CDP - 56th Street Corridor - STA 60+00 - 74+00.dwg 1/28/2019 1:49 PM A. C. G. LLC

56th Street MAG Study
 Thomas Road to Camelback Road
 PHOENIX STREETS - MARICOPA CO.

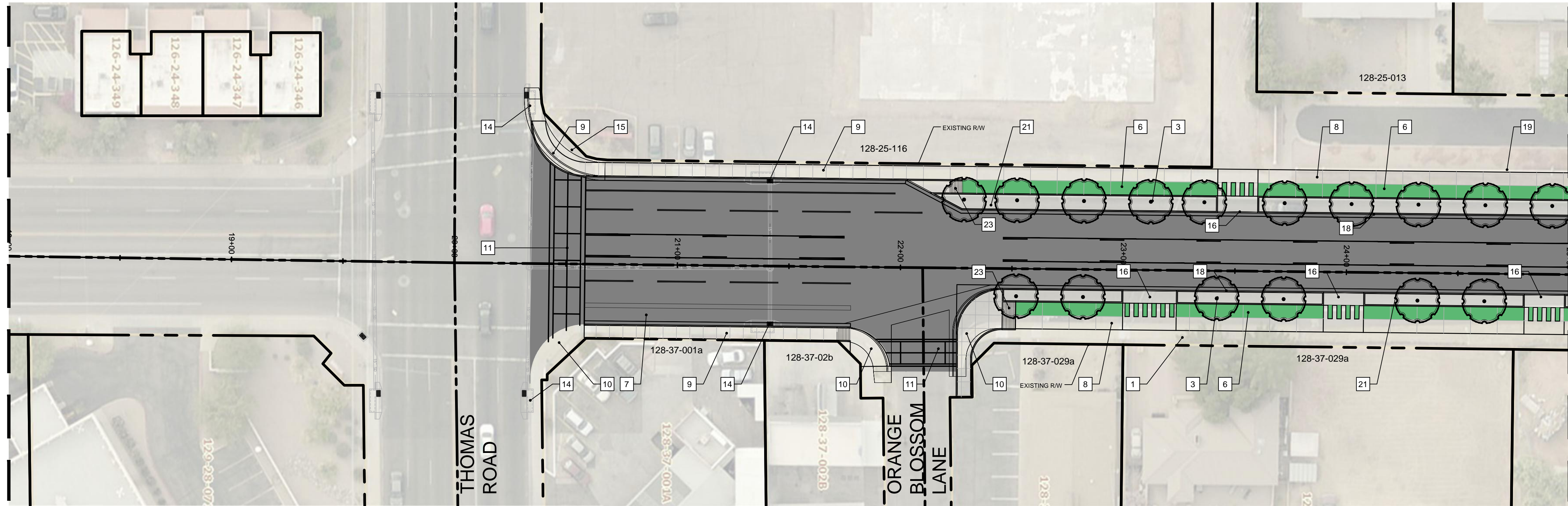
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 DESCRIPTION
 NO. REV BY [CKD] BY DATE

REVISION BY CITY OF PHOENIX
 DESCRIPTION
 NO. REV BY [CKD] BY DATE

REVISION BY CITY OF PHOENIX
 DESCRIPTION
 NO. REV BY [CKD] BY DATE

REVISION BY CITY OF PHOENIX
 DESCRIPTION
 NO. REV BY [CKD] BY DATE

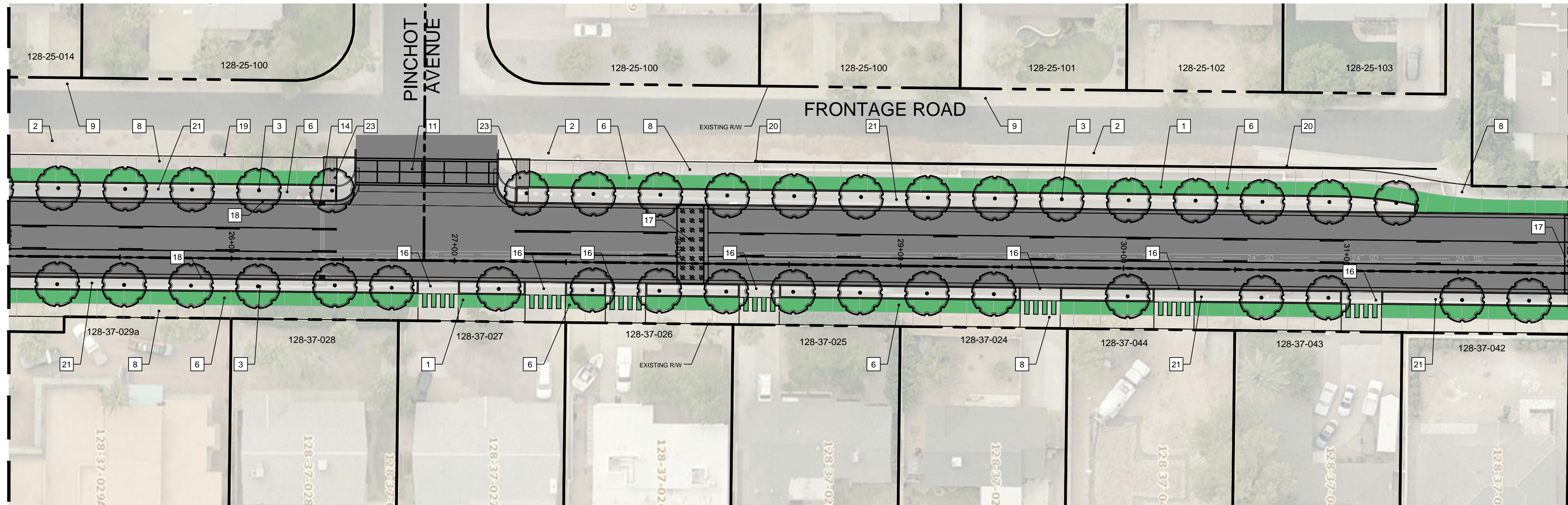
STA 18+00 END OF PROJECT



MATCH LINE STA 25+00 SEE BOTTOM LEFT

56TH STREET

MATCH LINE STA 25+00 SEE TOP RIGHT



MATCH LINE STA 32+00 SEE SHEET L3.1

56TH STREET



PRELIMINARY
 15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING



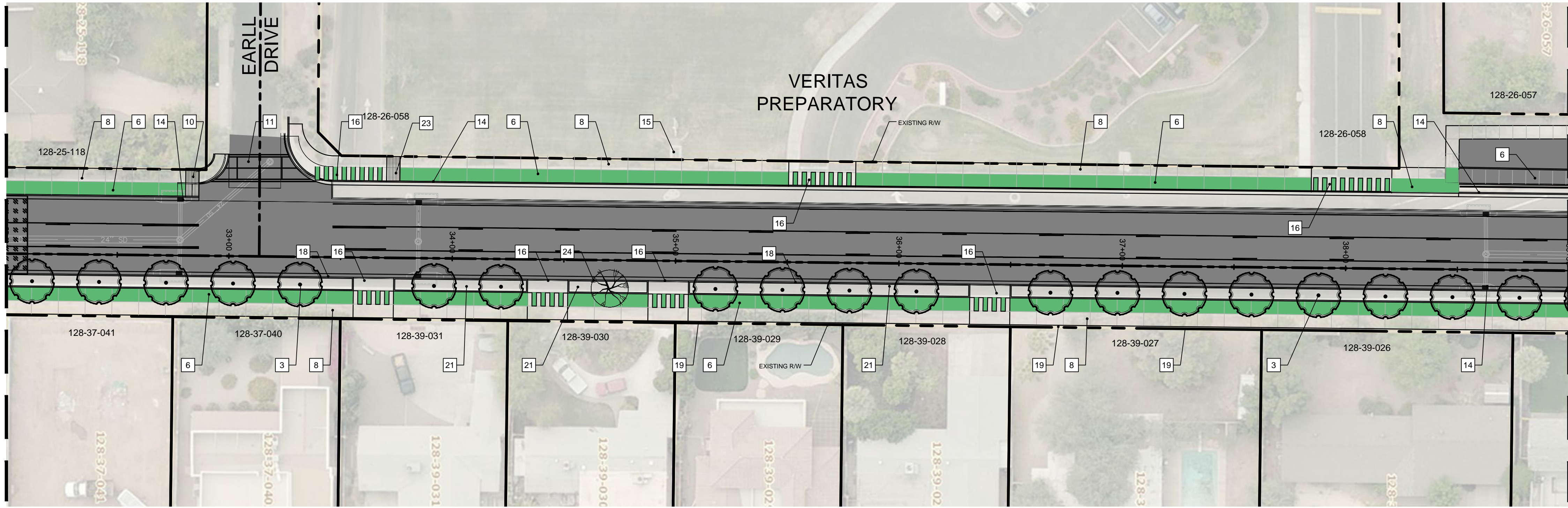
STATE	PROJ. NO.	SHT	TOTAL
ARIZ.		-	-
DR:	DES:	CK:	DATE: 10/18
CONSTRUCTION NOTES			
NO	DESCRIPTION		
1	New Urban Landscape Replace Existing Landscape with new decomposed granite and understory plantings		
2	Existing Landscape Area to Remain Protect in Place		
3	Primary Trees - 36" Box		
4	Secondary Trees - 24" Box		
5	Existing Tree to Remain Protect in Place		
6	New Elevated Bike Lane		
7	New At Grade Bike Lane -		
8	New Sidewalk		
9	Existing Sidewalk to Remain Protect in Place		
10	New ADA Ramp Concrete - PROWAG compliant		
11	Enhanced Crosswalk		
12	Enhanced Mid-Block Crossing HAWK		
13	Traffic Calming Device Chicane		
14	New Storm Drain Catch Basin		
15	Existing Utility to Remain		
16	New Concrete Driveway -		
17	Traffic Calming Device Speed Hump / Table		
18	New Curb / Gutter Concrete		
19	Existing Wall to Remain Protect in Place		
20	New Wall - 6ft CMU match existing Demo existing		
21	Bio-Swale - LID Landscape		
22	Existing Utility - relocate / mitigate		
23	Bike Ramp - Concrete		
24	Protected Bike Lane Rail Dezignline or equal		
25	Protected Bike Intersection		
PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.			
15% LANDSCAPE PLANS - ALTERNATE 3 STA 18+00 TO STA 32+00			
CITY OF PHOENIX, ARIZONA STREET TRANSPORTATION DEPARTMENT			
56th Street Thomas Road to Camelback Road			
DR:	TMH	DES:	JEH
DATE:	10/18	DATE:	10/18
SCALE: 1" = 30'		SCALE: 1" = 30' - SEE PLAN	
SHT	L3.0	TOTAL	-



SCALE: 1" = 30'

P:\2016_HFD\2016_003_MAG - Phoenix 56th St Corridor\04 - CAD\01 - Plans\2016_003_COP_56th - L3.03.dwg 10/29/2016 11:57 AM HFD-08

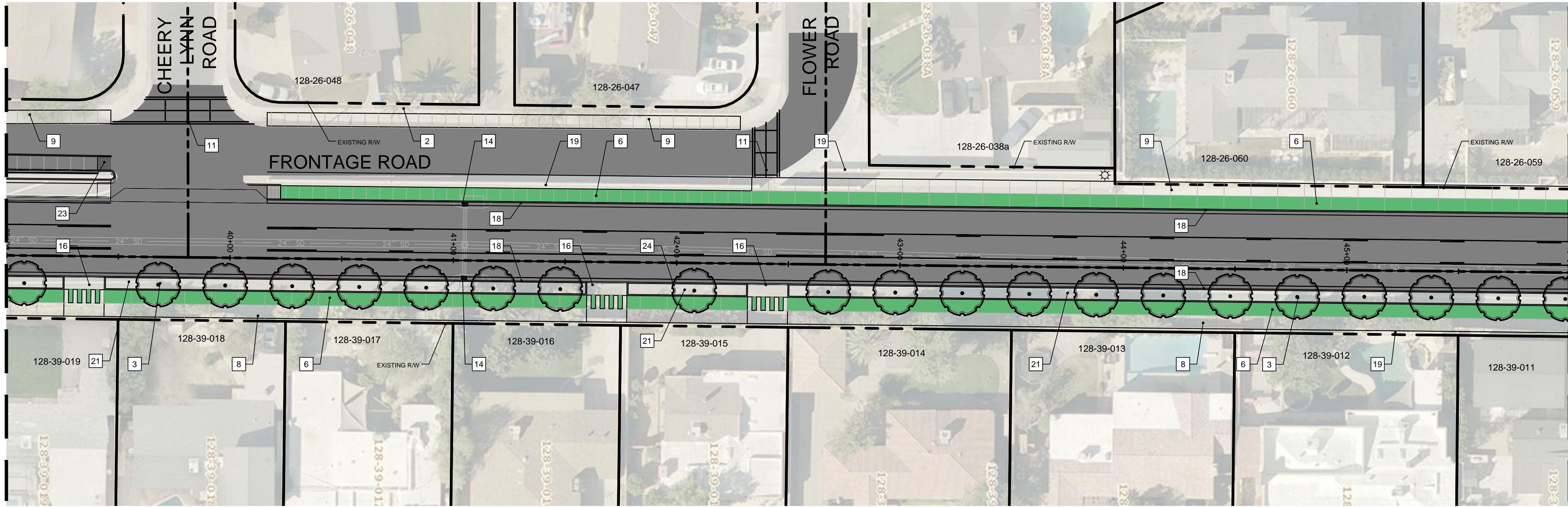
MATCH LINE STA 32+00 SEE SHEET L3.0



56TH STREET

MATCH LINE STA 39+00 SEE BOTTOM LEFT

MATCH LINE STA 39+00 SEE TOP RIGHT



56TH STREET

MATCH LINE STA 46+00 SEE SHEET L3.2

PRELIMINARY
15%
REVIEW
NOT FOR
CONSTRUCTION
OR RECORDING



STATE	PROJ. NO.	SHT	TOTAL
ARIZ.		-	-
DR:	DES:	CK:	DATE: 10/18

CONSTRUCTION NOTES	
NO	DESCRIPTION
1	New Urban Landscape Replace Existing Landscape with new decomposed granite and understory plantings
2	Existing Landscape Area to Remain Protect in Place
3	Primary Trees - 36" Box
4	Secondary Trees - 24" Box
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6	New Elevated Bike Lane
7	New At Grade Bike Lane -
8	New Sidewalk
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10	New ADA Ramp Concrete - PROWAG compliant
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12	Enhanced Mid-Block Crossing HAWK
13	Traffic Calming Device Chicane
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19	Existing Wall to Remain Protect in Place
20	New Wall - 6ft CMU match existing Demo existing
21	Bio-Swale - LID Landscape
22	Existing Utility - relocate / mitigate
23	Bike Ramp - Concrete
24	Protected Bike Lane Rail Designline or equal
25	Protected Bike Intersection

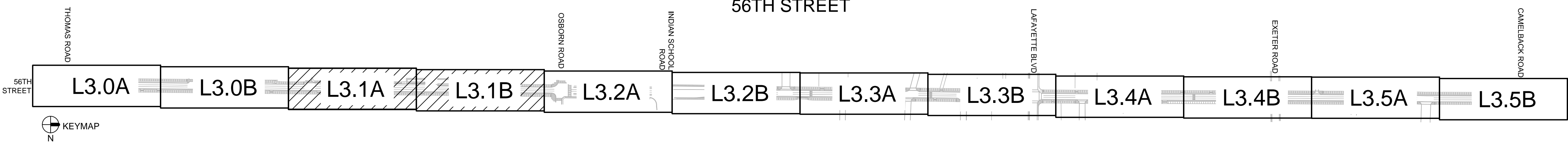
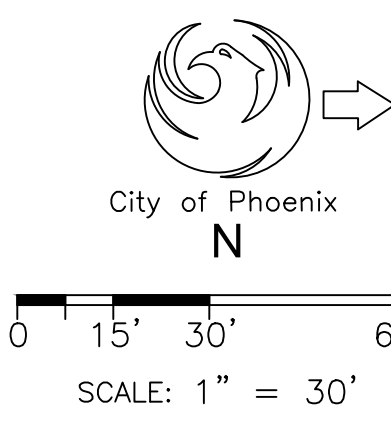
PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.



15% LANDSCAPE PLANS - ALTERNATE 3
STA 32+00 TO STA 46+00

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

56th Street
Thomas Road to Camelback Road



DR:	TMH	DES:	JEH	CK:	JEH	SHT	TOTAL
DATE:	10/18	DATE:	10/18	DATE:	10/18	L3.1	-
SCALE: 1" = 30' - SEE PLAN							

PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING

STATE	PROJ. NO.	SHT	TOTAL
ARIZ.		-	-

DR:	DES:	CK:	DATE: 10/18
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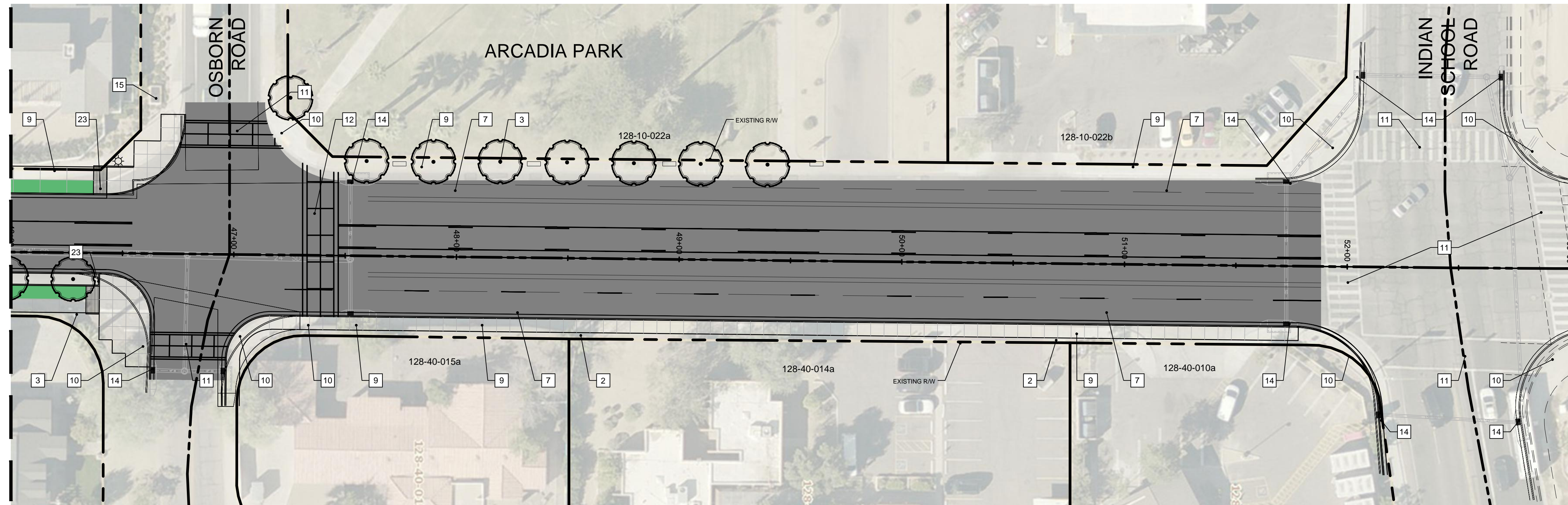
CONSTRUCTION NOTES

NO	DESCRIPTION
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2	Existing Landscape Area to Remain Protect in Place
3	Primary Trees - 36" Box
4	Secondary Trees - 24" Box
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21	Bio-Swale - LID Landscape
22	Existing Utility - relocate / mitigate
23	Bike Ramp - Concrete
24	Protected Bike Lane Rail Dezignline or equal
25	Protected Bike Intersection



MATCH LINE STA 46+00 SEE SHEET L3.1

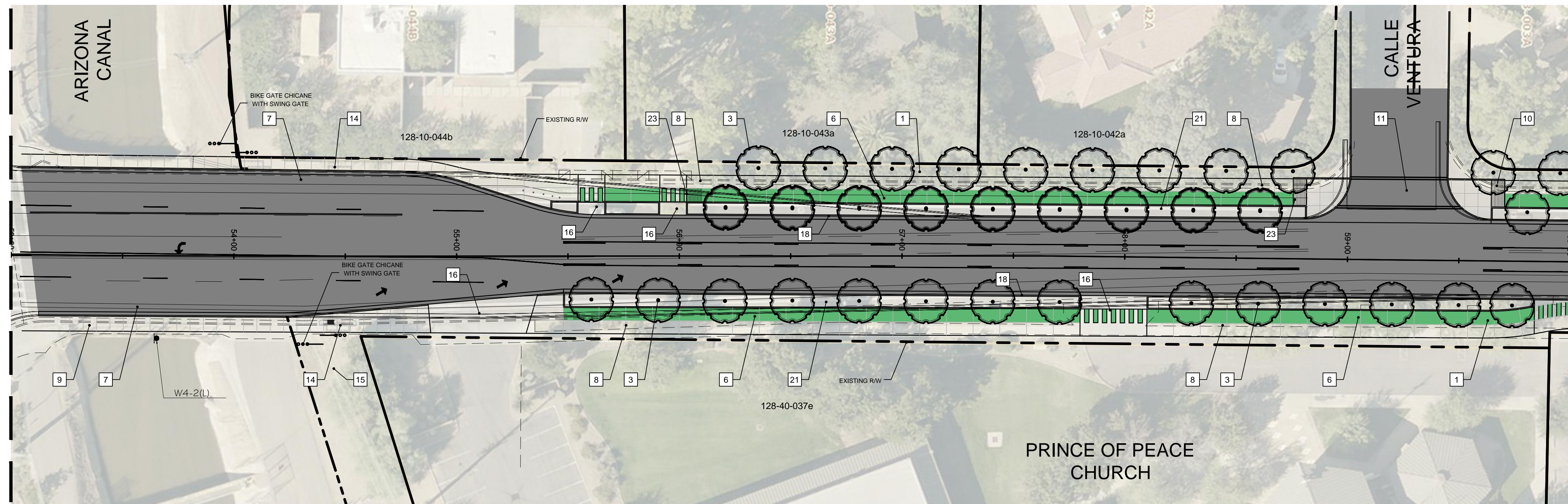
MATCH LINE STA 53+00 SEE BOTTOM LEFT



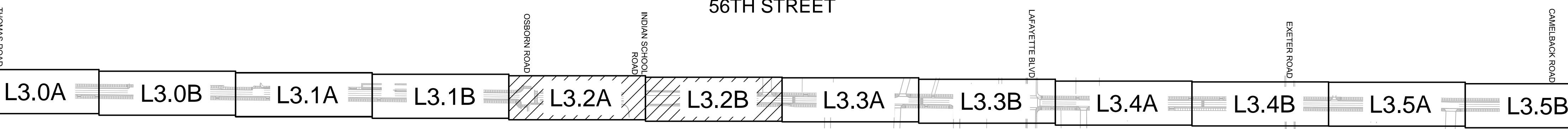
56TH STREET

MATCH LINE STA 53+00 SEE TOP RIGHT

MATCH LINE STA 60+00 SEE SHEET L3.3



56TH STREET



0 15' 30' 60'
 SCALE: 1" = 30'

PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.

15% LANDSCAPE PLANS - ALTERNATE 3
 STA 46+00 TO STA 60+00

CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT

56th Street
 Thomas Road to Camelback Road

DR:	TMH	DES:	JEH	CK:	JEH	SHT	TOTAL
DATE:	10/18	DATE:	10/18	DATE:	10/18	L3.2	-

REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE
 REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE
 REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE

56th Street MAG Study
 Thomas Road to Camelback Road
 PHOENIX STREETS - MARICOPA CO.

PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING

STATE	PROJ. NO.	SHT	TOTAL
ARIZ.		-	-

DR: DES: CK: DATE: 10/18

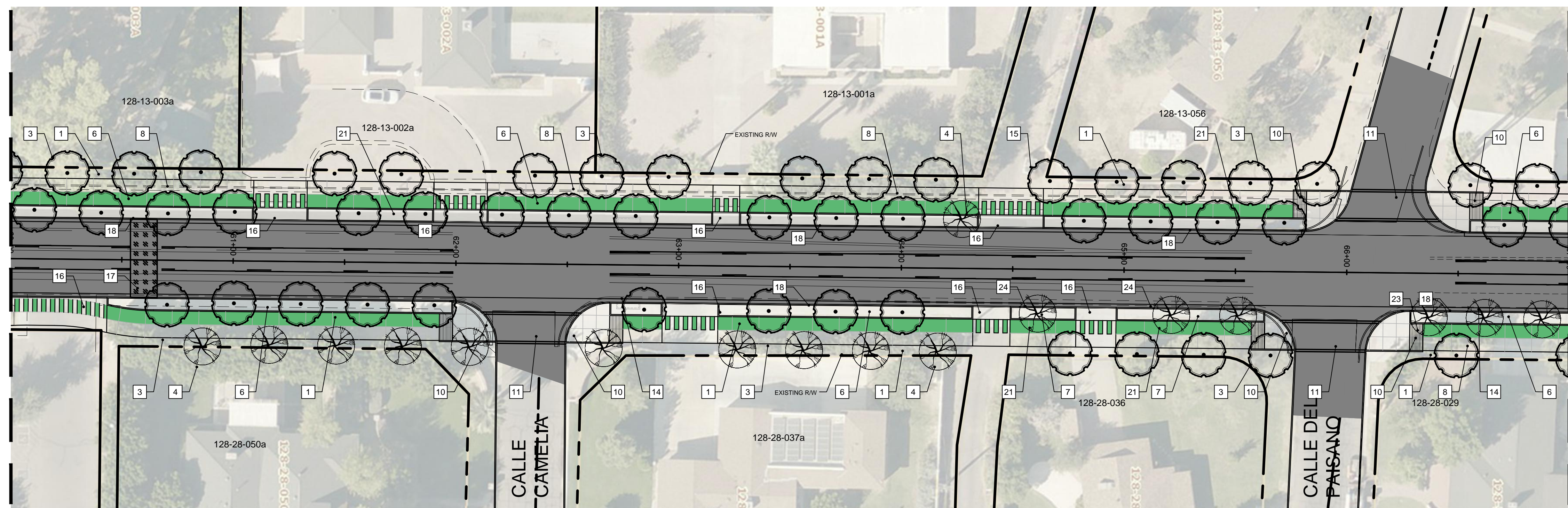
CONSTRUCTION NOTES

NO	DESCRIPTION
1	New Urban Landscape Replace Existing Landscape with new decomposed granite and understory plantings
2	Existing Landscape Area to Remain Protect in Place
3	Primary Trees - 36" Box
4	Secondary Trees - 24" Box
5	Existing Tree to Remain Protect in Place
6	New Elevated Bike Lane
7	New At Grade Bike Lane -
8	New Sidewalk
9	Existing Sidewalk to Remain Protect in Place
10	New ADA Ramp Concrete - PROWAG compliant
11	Enhanced Crosswalk
12	Enhanced Mid-Block Crossing HAWK
13	Traffic Calming Device Chicane
14	New Storm Drain Catch Basin
15	Existing Utility to Remain
16	New Concrete Driveway -
17	Traffic Calming Device Speed Hump / Table
18	New Curb / Gutter Concrete
19	Existing Wall to Remain Protect in Place
20	New Wall - 6ft CMU match existing Demo existing
21	Bio-Swale - LID Landscape
22	Existing Utility - relocate / mitigate
23	Bike Ramp - Concrete
24	Protected Bike Lane Rail Dezignline or equal
25	Protected Bike Intersection



MATCH LINE STA 60+00 SEE SHEET L3.2

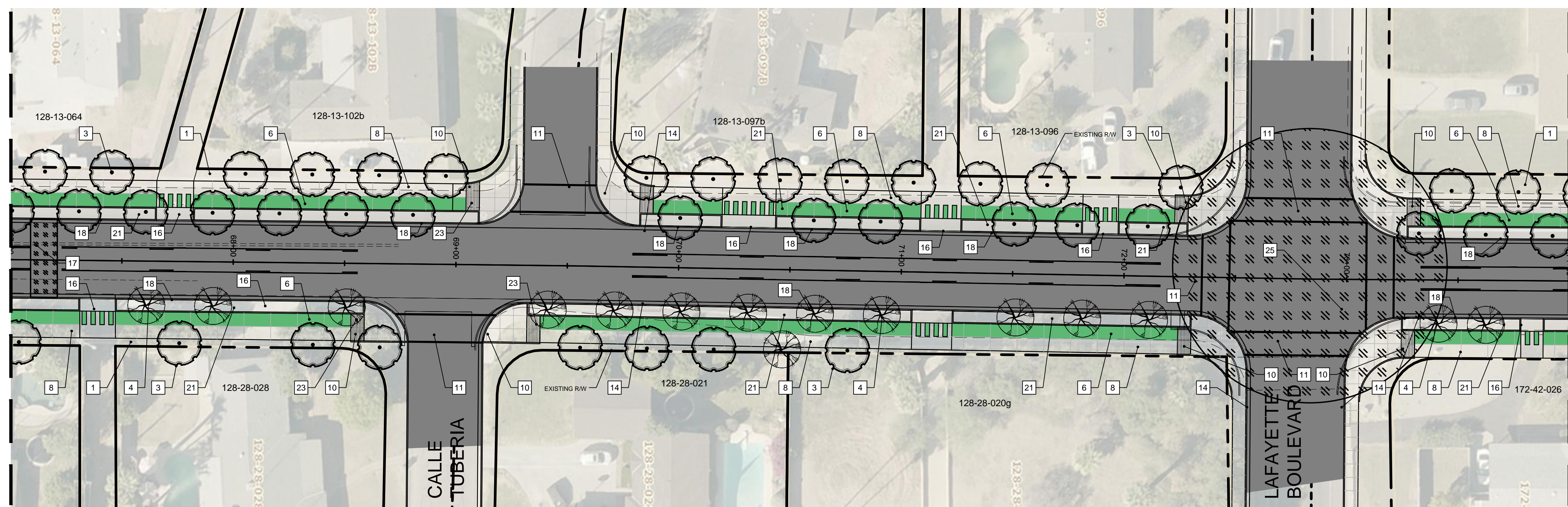
MATCH LINE STA 67+00 SEE BOTTOM LEFT



56TH STREET

MATCH LINE STA 67+00 SEE TOP RIGHT

MATCH LINE STA 74+00 SEE SHEET L3.4



56TH STREET



SCALE: 1" = 30'

PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.

15% LANDSCAPE PLANS - ALTERNATE 3
 STA 60+00 TO STA 74+00

CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT

56th Street
 Thomas Road to Camelback Road

DR:	TMH	DES:	JEH	CK:	JEH	SHT	TOTAL
DATE:	10/18	DATE:	10/18	DATE:	10/18	L3.3	-
SCALE: 1" = 30' - SEE PLAN							

REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE
 REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE
 REVISION BY CITY OF PHOENIX
 NO. DESCRIPTION REV BY [CKD] BY DATE

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 10/29/2016 11:58 AM JEPD-08
 10/29/2016 11:58 AM JEPD-08

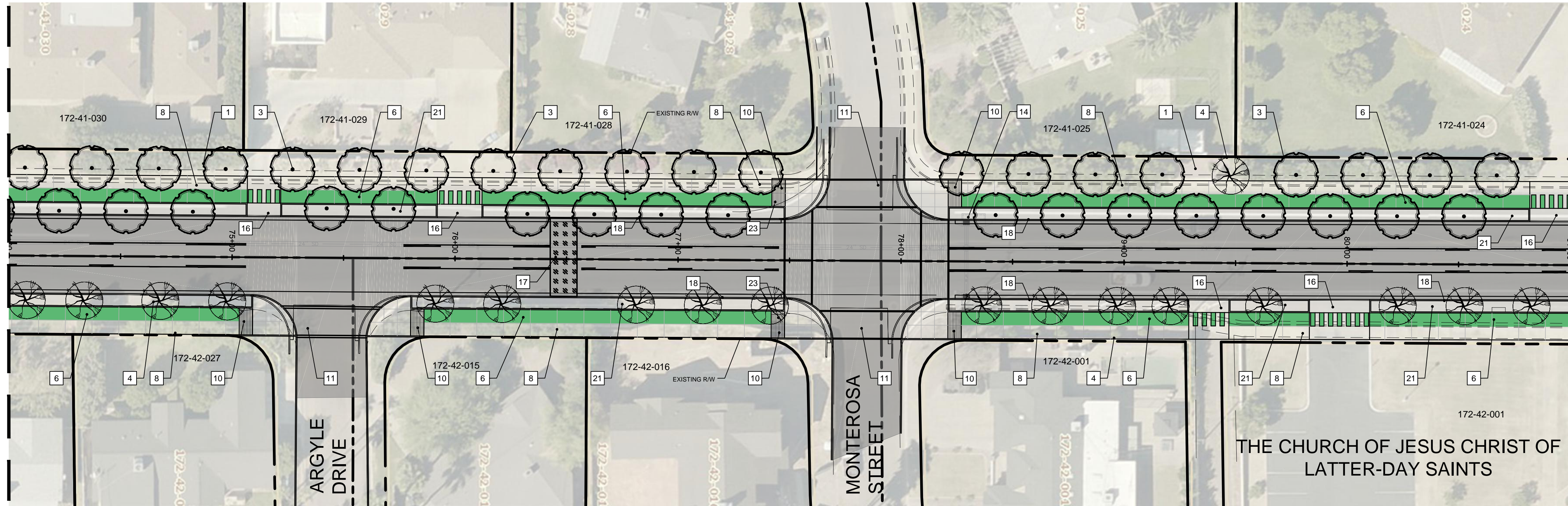
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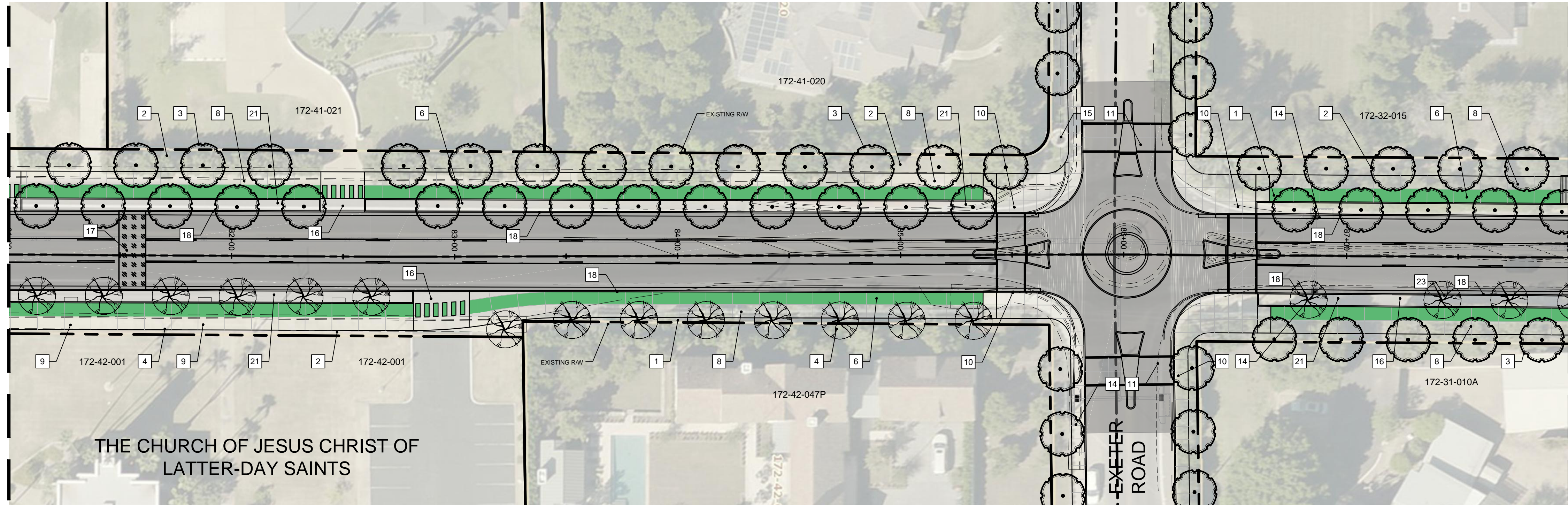
MATCH LINE STA 74+00 SEE SHEET L3.3



56TH STREET

MATCH LINE STA 81+00 SEE BOTTOM LEFT

MATCH LINE STA 81+00 SEE TOP RIGHT



56TH STREET

MATCH LINE STA 88+00 SEE SHEET L3.5

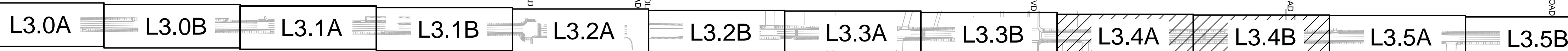
PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING



STATE	PROJ. NO.	SHT	TOTAL
ARIZ.		-	-
DR:	DES:	CK:	DATE: 10/18
CONSTRUCTION NOTES			
NO	DESCRIPTION		
1	New Urban Landscape Replace Existing Landscape with new decomposed granite and understory plantings		
2	Existing Landscape Area to Remain Protect in Place		
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4	Secondary Trees - 24" Box		
5	Existing Tree to Remain Protect in Place		
6	New Elevated Bike Lane		
7	New At Grade Bike Lane -		
8	New Sidewalk		
9	Existing Sidewalk to Remain Protect in Place		
10	New ADA Ramp Concrete - PROWAG compliant		
11	Enhanced Crosswalk		
12	Enhanced Mid-Block Crossing HAWK		
13	Traffic Calming Device Chicane		
14	New Storm Drain Catch Basin		
15	Existing Utility to Remain		
16	New Concrete Driveway -		
17	Traffic Calming Device Speed Hump / Table		
18	New Curb / Gutter Concrete		
19	Existing Wall to Remain Protect in Place		
20	New Wall - 6ft CMU match existing Demo existing		
21	Bio-Swale - LID Landscape		
22	Existing Utility - relocate / mitigate		
23	Bike Ramp - Concrete		
24	Protected Bike Lane Rail Dezignline or equal		
25	Protected Bike Intersection		
PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.			
15% LANDSCAPE PLANS - ALTERNATE 3 STA 74+00 TO STA 88+00			
CITY OF PHOENIX, ARIZONA STREET TRANSPORTATION DEPARTMENT			
56th Street Thomas Road to Camelback Road			
DR:	TMH	DES:	JEH
DATE:	10/18	DATE:	10/18
SCALE: 1" = 30'		SCALE: 1" = 30' - SEE PLAN	
SHT	L3.4	TOTAL	-



SCALE: 1" = 30'



KEYMAP

P:\2018_HFD\2018_003_MAG_Planet\56th-St-Corridor\04_CAD\01_Plan\2018_003_COP_56th-L3.03.dwg 10/29/2018 11:58 AM HFD-08

56th Street MAG Study
 Thomas Road to Camelback Road
 PHOENIX STREETS - MARICOPA CO.

PRELIMINARY
15%
 REVIEW
 NOT FOR
 CONSTRUCTION
 OR RECORDING

STATE	PROJ. NO.	SHT	TOTAL
ARIZ.		-	-

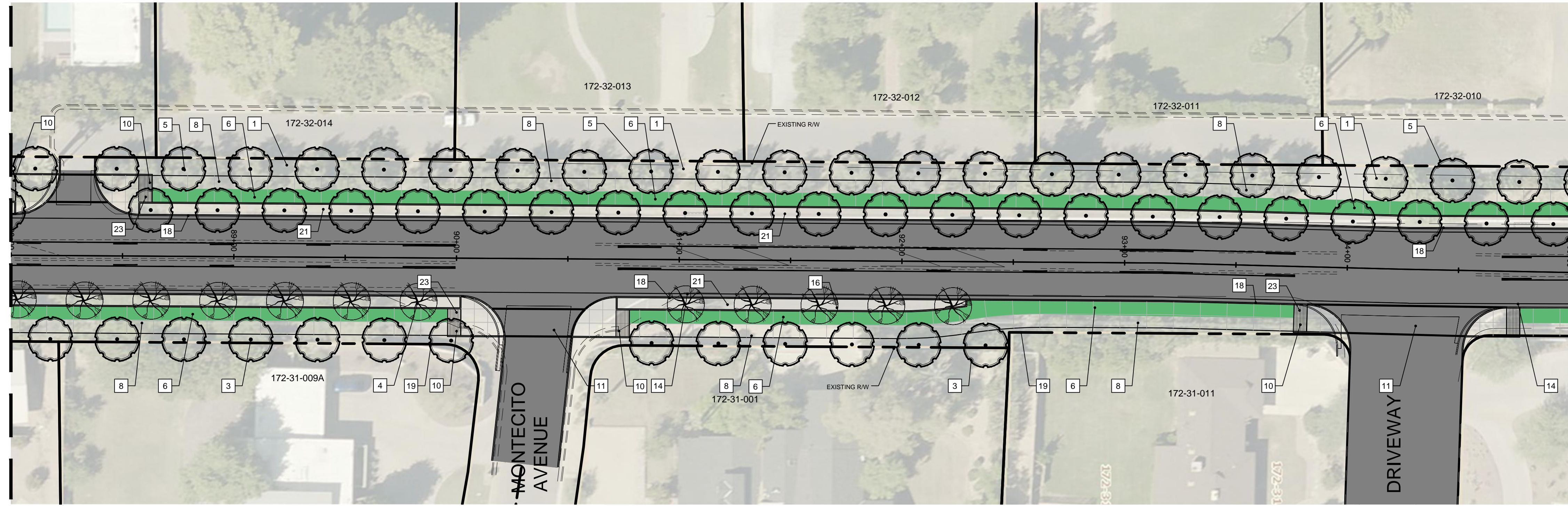
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CONSTRUCTION NOTES

NO	DESCRIPTION
1	New Urban Landscape Replace Existing Landscape with new decomposed granite and understory plantings
2	Existing Landscape Area to Remain Protect in Place
3	Primary Trees - 36" Box
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22	Existing Utility - relocate / mitigate
23	Bike Ramp - Concrete
24	Protected Bike Lane Rail Designline or equal
25	Protected Bike Intersection



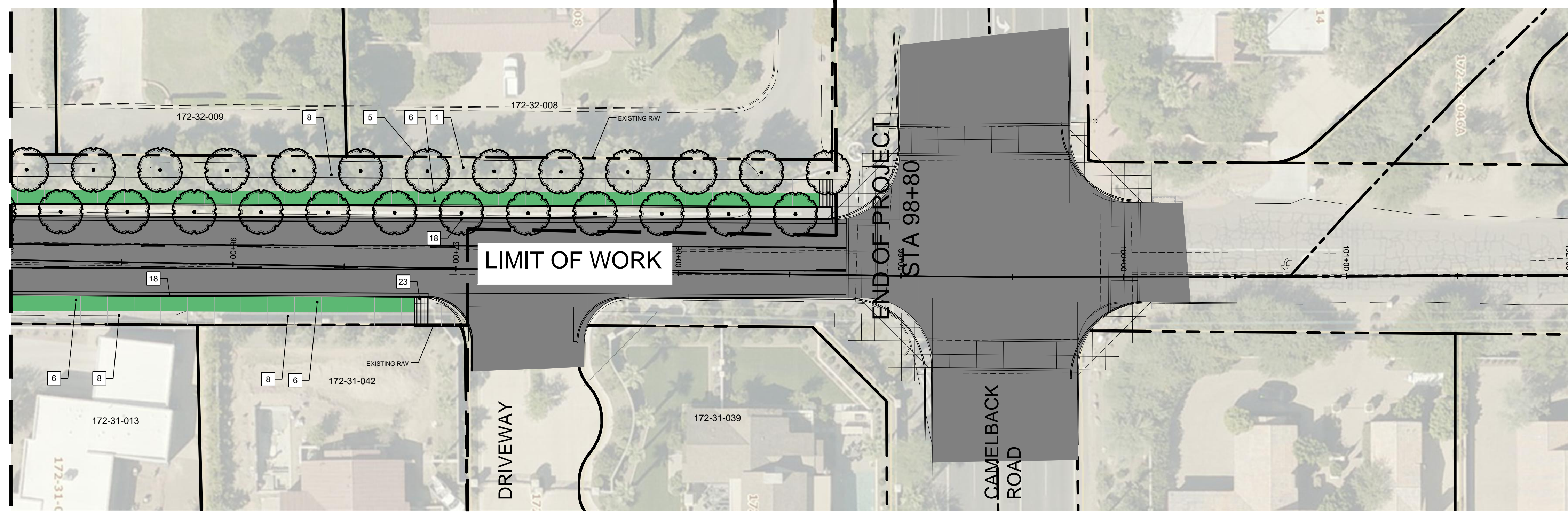
MATCH LINE STA 88+00 SEE SHEET L3.4



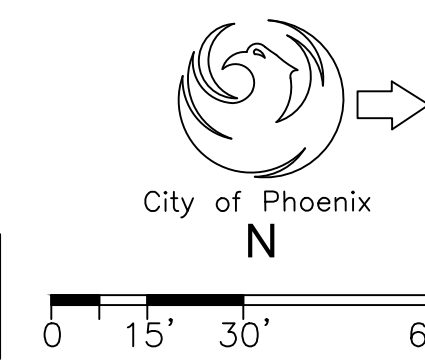
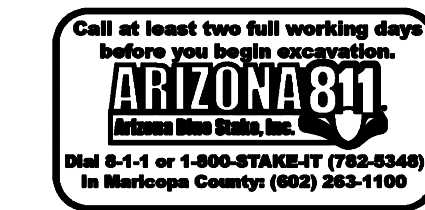
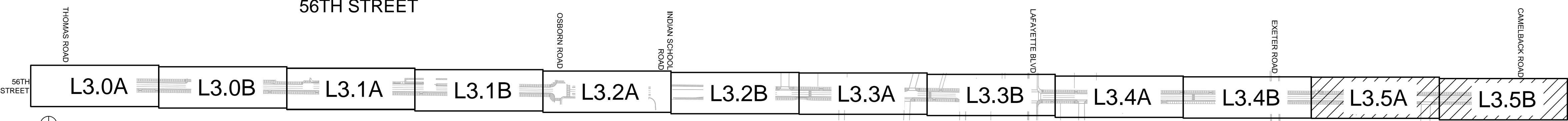
MATCH LINE STA 95+00 SEE BOTTOM LEFT

56TH STREET

MATCH LINE STA 95+00 SEE TOP RIGHT



56TH STREET



PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.

15% LANDSCAPE PLANS - ALTERNATE 3
 STA 88+00 TO STA 98+80

CITY OF PHOENIX, ARIZONA
 STREET TRANSPORTATION DEPARTMENT

56th Street
 Thomas Road to Camelback Road

DR:	TMH	DES:	JEH	CK:	JEH	SHT	TOTAL
DATE:	10/18	DATE:	10/18	DATE:	10/18	L3.5	-

P:\2016_HFD\2016_003_MAG_Phenix_56th_St_Corridor\04_CAD\01_Plan\2016_003_COP_56th_L303.dwg 10/29/2016 11:59 AM HFD_08
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