

**NOTICE OF PUBLIC MEETING
CITY OF PHOENIX
CITIZENS TRANSPORTATION COMMISSION**

Pursuant to A.R.S. Section 38-431.02, notice is hereby given to the members of the **CITY OF PHOENIX CITIZENS TRANSPORTATION COMMISSION** and to the general public, that the **CITIZENS TRANSPORTATION COMMISSION** will hold a meeting open to the public at **5 p.m. on April 27, 2023. The meeting will be open to attend virtually or in-person.**

OPTIONS TO ACCESS THE MEETING

Attend the meeting in-person in the Public Transit Building, 302 N. First Ave., Conference Room 7A on the 7th Floor.

Watch the live meeting virtually by clicking on the following link:

<https://coptransit.webex.com/coptransit/j.php?MTID=mdc11da63d4ba4dd0c4a20f57040c2a93>

Webex meeting information:

Webinar number: 2551 975 8672

Webinar password: KecJmfn736 (53235636 from phones and video systems)

Call-in to listen only to the meeting: Dial 602-666-0783, or 1-408-418-9388, and enter meeting Access Code: 2551 975 8672 and press # again when prompted for the attendee ID.

Register to speak and/or submit a comment on an agenda item:

- Contact: Lars Jacoby
- At: lars.jacoby@phoenix.gov or 602-534-6192
- By: **4 p.m. the day of the meeting**
 - Please indicate which agenda item you wish to address.

The agenda for the meeting is as follows:

1.	Call to Order	Chair Mellor
2.	Chair Announcements	Chair Mellor
3.	Approval or correction of the minutes from the March 23, 2023 meeting. <i>This item is for approval</i>	Commission Members
4.	Phoenix Bus Rapid Transit Program Planning This report requests the Citizens Transportation Commission recommend City Council approval to execute an amendment to the Phoenix Bus Rapid Transit Planning Support Services Contract with HDR Engineering Inc. to provide continued project management, community and business engagement, transit planning, and engineering oversight for the approved BRT corridor of 35th Avenue/Van Buren Street. <i>This item is for discussion and action</i>	Public Transit Department

5.	<p>Active Transportation Program Update</p> <p>This report provides an update to the Citizens Transportation Commission (CTC) on the activities of the Street Transportation Department's (Streets) Active Transportation Program.</p> <p><i>This item is for information and discussion</i></p>	Street Transportation Department
6.	<p>Valley Metro Business Assistance Program Update</p> <p>This report provides an update on the Valley Metro Business Assistance Programs along the South Central Extension/Downtown Hub and the Northwest Extension Phase II light rail alignments.</p> <p><i>This item is for information and discussion</i></p>	Public Transit Department
7.	<p>Economic Indicator Data for South Central Extension and Northwest Extension Phase II Business Corridors – Quarterly Update</p> <p>This report provides a quarterly update on the key economic indicator data for the business corridors located within the South Central Extension/Downtown Hub (SCE/DH) and Northwest Extension Phase II (NWEII) project areas, as well as key regional, state, and national benchmarks.</p> <p><i>This item is for information only</i></p>	Public Transit Department
8.	<p>Accelerated Pavement Maintenance Program</p> <p>This report provides an update on the progress of the citywide T2050 Accelerated Pavement Maintenance Program.</p> <p><i>This item is for information only</i></p>	Street Transportation Department
9.	<p>Updates from Public Transit and Street Transportation departments</p> <p>This item is scheduled to allow staff to provide brief informational reports on topics of interest to the Commission.</p> <p><i>This item is for information only</i></p>	Public Transit and Street Transportation Departments
10.	<p>T2050 financial update</p> <p>This report shows the current fiscal year sales tax revenues collected, life-to-date sales tax revenues collected, and the current year program expenditures.</p> <p><i>This item is for information only</i></p>	Report Only
11.	<p>Upcoming T2050 related public meetings/events</p> <p>This report provides a list of upcoming T2050 related public meetings/events held by the Public Transit and Street Transportation Departments, and Valley Metro.</p> <p><i>This item is for information only</i></p>	Report Only

12.	Call to the public Consideration, discussion, and concerns from the public. Those wishing to address the Commission need not request permission in advance. Action taken from public comment will be limited to directing staff to study the matter, or scheduling for further consideration.	Chair Mellor
13.	Request for future agenda items Commissioners request for information, follow-up or future agenda items.	Commission members
14.	Adjournment	Chair Mellor

For more information, or to request reasonable accommodations, please call Lars Jacoby, Management Assistant II, 602-534-6192 or TTY/7-1-1 as early as possible to coordinate needed arrangements.

Persons paid to lobby on behalf of persons or organizations other than themselves shall register with the City Clerk prior to lobbying, or within five business days thereafter, and must register annually to continue lobbying. If you have questions about lobbying registration, please contact the City Clerk's Office at 602-262-6811.

**CITY OF PHOENIX
CITIZENS TRANSPORTATION COMMISSION
MEETING MINUTES
MARCH 23, 2023**

Public Transit Department
302 N. First Avenue/WebEx

Commissioners Present	Public Present	City Staff Present
Brookelynn Nisenbaum		Albert Crespo
Carolyn Chatman		Gina Miller
David Martin		Jesús Sapien
David Moody		Joe Bowar
Gabe Loyola		Jorie Bresnahan
Gail Knight		Kelie Thomas
Jennifer Mellor (Chair)		Kevin Teng
Jess Bristow		Kini Knudson
Rick Naimark (Vice Chair)		Lars Jacoby
Sanjay Paul		Laura Farrell
Shannon McBride		Les Scott
Absent		Mario Paniagua
Christina Panaitescu		Markus Coleman
Joan Berry		Micah Alexander
Phil Pangrazio		Terry McAvoy

1. Call to Order
Chair Mellor called the meeting to order at 5:01 p.m. with a quorum present.
2. Chair Announcements
Chair Mellor made announcements regarding virtual meeting etiquette and voting protocols.
3. Approval or correction of the minutes from the Feb. 23, 2023, meeting
A motion was made by Commissioner Moody and seconded by Commissioner McBride to approve the minutes of the Feb. 23, 2023, meeting. The motion passed unanimously.
4. Renewable Liquefied Natural Gas Contract
Public Transit Director Jesús Sapien introduced the item and Transit's Deputy Director of Operations Albert Crespo presented the department's upcoming proposed purchase of Renewable Liquefied Natural Gas (RLNG) for use in heavy-duty buses that are currently fueled with compressed natural gas (CNG).

Commissioner Bristow had a question about emissions from RLNG buses. Mr. Crespo stated using RLNG in lieu of CNG would reduce the overall carbon footprint and emissions of greenhouse gases of the city's bus fleet, but there will still be emissions from vehicles that use RLNG.

Mr. Sapien added that the department is currently working to transition the heavy-duty bus fleet to zero- and near-zero emission fueled buses.

Commissioner Chatman asked for more information about the potential sources of the renewable natural gas and how the fuel is transported to Phoenix Transit fueling sites.

Mr. Sapien explained that potential sources are not specifically called out in the department's procurement document, but based on industry practices it will likely be derived from multiple sources. Mr. Crespo added that the fuel has traditionally been delivered by fuel tankers that utilize CNG fuel.

Vice Chair Naimark asked about the transit fleet's fuel mix after the transition, fuel to electric, to ensure the department wasn't relying too heavily on one type of fuel in case there is a failure in the ability of that fuel to be delivered.

Mr. Sapien said that after Phase 1 of the fleet transition plan, about 33% of the fleet will be either zero- or near-zero emissions, and that the figure is planned to increase to 100% zero-emissions by 2040, and that the department is aware of the need for fleet diversity and is participating in national discussions on the trend, which include discussions on how to prepare for and mitigate potential fueling interruptions.

5. T2050 Neighborhood Transit Study Update

Public Transit Director Jesús Sapien introduced the item and Transit's Principal Planner Kevin Teng provided an update on the T2050 Neighborhood Transit Study of the DASH circulator, including results from the recently completed public outreach phase that solicited feedback on proposed route options to create increased connectivity to entertainment, recreation, and housing destinations in the downtown area.

Commissioner Naimark asked if there were discussions on splitting the DASH into two separate routes to service the Capitol area and the downtown area independently.

Mr. Teng said the planning team did discuss this as an option but decided to keep it as one route to ensure steady ridership and that operationally, for buses and drivers, a single route is the best approach, but that once Central Station reopens or the light rail extension opens to the Capitol, staff may revisit the routing again.

6. Bus Ridership in Phoenix and the Region

Public Transit Director Jesús Sapien provided an update of bus ridership in Phoenix and the region as a whole, comparing pre- and post-pandemic ridership levels.

Commissioner Chatman had a question about expansion in southwest and northwest Phoenix and the plans for transit expansion.

Mr. Sapien stated that those areas are the focus for potential transit expansion and that staff works with other city departments such as Street Transportation and Community and Economic Development to plan new routes in conjunction with new transportation infrastructure or large employers opening, both of which can drive the need for transit expansion.

7. Updates from Public Transit and Street Transportation Departments

Street Transportation Director Kini Knudson provided an update on a \$2 million federal grant the department will use on the Grand Canal trail program. He also provided an update on the department's accelerated pavement maintenance program, which is nearly complete.

Light Rail Administrator Markus Coleman provided updates on the progress of the ongoing West Phoenix High Capacity Transit Study and the two ongoing light rail construction projects.

8. Monthly Ridership Update

Report provided to Commission members.

9. T2050 financial update

Report provided to Commission members.

10. Upcoming T2050 related public meetings and events

Report provided to Commission members.

11. Call to the public

None.

12. Request for future agenda items

None.

13. Adjournment

The meeting was adjourned at 6:27 p.m.

CITIZENS TRANSPORTATION COMMISSION REPORT

TO: Mario Paniagua
Deputy City Manager

FROM: Jesús Sapien
Public Transit Director

SUBJECT: Phoenix Bus Rapid Transit Program Planning
Support Services Contract Amendment

This report requests the Citizens Transportation Commission recommend City Council approval to execute an amendment to the Phoenix Bus Rapid Transit Planning Support Services Contract (#149143) with HDR Engineering Inc. to provide continued project management, community and business engagement, transit planning, and engineering oversight for the approved BRT corridor of 35th Avenue/Van Buren Street. The additional expenditures included in this amendment will not exceed \$5.5 million through the remainder of the contract.

Current Contract Background

In March 2022, the BRT Program exercised the final three-year contract extension through March 2025. This time-only amendment did not include additional funds to the base contract amount of \$3 million, as strategies for increased communities and other planning tasks were being developed. Since that time, the BRT Program has evaluated expenditures to support future phases of community and business engagement, transit planning, engineering oversight, and project management to continue developing the approved BRT corridor.

Summary

In 2015, Phoenix voters approved Proposition 104, creating the 35-year street and transit plan known as Transportation 2050 (T2050) which identified BRT as a key component to continue expanding the city's high-capacity transit network. BRT is a high-capacity bus service that focuses on improved speed, reliability, convenience, and the overall transit experience. There are common recurring elements found in successful BRT systems, such as: advanced fare collection, enhanced stations, dedicated lanes, custom buses, transit spot improvements, and unique branding.

In 2019, the Phoenix BRT team was tasked by the CTC and City Council with reevaluating the BRT corridors as originally outlined in the T2050 plan. The reevaluation was sought as the result of the passage of time since the development of the T2050 plan, whereby Phoenix has experienced significant changes in residential and commercial developments, population growth and density, in addition to ongoing regional efforts to identify additional BRT corridors that may travel through Phoenix.

Based on a robust technical analysis and community education and engagement efforts, the initial BRT corridor of 35th Avenue/Van Buren Street was approved by the CTC in May 2021, the Transportation, Infrastructure and Planning (TIP) Subcommittee in September 2021, and the City Council in October 2021.

The overall structure of the BRT Program included two contract packages to provide transportation planning services. Package A, with HDR Engineering Inc., includes project management, transit planning, and community education and engagement services. Package B, with AECOM, includes conducting an Alternatives Analysis, developing conceptual designs, and developing 15% preliminary engineering design plans.

To further develop and design the approved corridor, the CTC in February 2022 and City Council in April 2022 approved an extension to AECOM's contract for 24 months (ending September 2024) to conduct an Alternatives Analysis, develop conceptual designs, and develop 15% preliminary engineering design plans.

Currently, the BRT Program is conducting an Alternatives Analysis process and developing conceptual designs for the corridor, which includes various phases of community and business engagement efforts.

With the unanimous approval of the initial corridor, the BRT program has identified the continued need of HDR because of their multidisciplinary, national BRT planning experience and insight to provide community and business engagement support.

The scope of work for HDR's services include:

- Project management
- BRT Planning
- Community and Business Engagement
- Funding, Finance and Delivery strategies
- Corridor Program

BRT Program major milestones

- In August 2022, established a Technical Advisory Committee (TAC) and Executive Leadership Committee (ELC) to gather technical insight and perspective on key decisions for the development of the 35th Avenue and Van Buren Street BRT Corridor. The TAC and ELC include representatives from the BRT Program team, city of Phoenix departments, regional/state government agencies, and council districts.
- In October 2022, completed Phase I of community and business engagement for the Alternatives Analysis. This phase included a BRT Corridor Survey and a revamp of the MeetPhoenixBRT.com website.
- In October 2022, identified BRT priorities based on input from the public and a Goals Workshop with the ELC and TAC.
- In December 2022, toured the MetroRAPID Silver Line BRT in Houston, Texas with Phoenix Mayor, and council district 1, 4, 7, and 8 teams.
- In January 2023, identified and documented initial BRT Alternatives Analysis Design Assumptions.
- In February 2023, developed initial BRT cross-sections to demonstrate the range of opportunities, impacts, and necessary trade-offs of a BRT corridor alignment.
- From March 21, 2023, to April 21, 2023, Phoenix BRT Program hosted two in-person public meetings, one virtual public meeting, and two outreach events within the 35th Avenue and Van Buren Street corridor.
- On March 21, 2023, the BRT Program launched the BRT Online Meeting website and the Preliminary BRT Cross-Section Survey at MeetPhoenixBRT.com.

The BRT Program next steps

- Engaging with the Technical Advisory Committee monthly to refine corridor alternatives to align priorities and balance amenities, benefits, and impacts.
- Continuing coordination with ongoing and correlating projects along the corridor.
- Preparing efforts for Phase 3 of community and business engagement for the Alternatives Analysis.

Contract Term

The Package A contract with HDR Engineering Inc. commenced on March 15, 2019, and it expires on March 14, 2025.

Financial Impact

The initial authorizations and previous amendments for the Transportation Planning Support Services Package A Contract 149143 were authorized for an expenditure not to exceed \$3 million. This amendment will increase the authorization for the contract by an additional \$5.5 million.

Funding for the BRT program is available in the T2050 fund.

Concurrence/Previous Council Action

- On Oct. 4, 2017, City Council granted approval to issue a Request for Qualifications (RFQ) to solicit firms to provide services for planning and preliminary engineering for the BRT program based on recommendations from the CTC and Transportation and Infrastructure Council Subcommittee. This approval included a stipulation that the planning RFQ included an assessment of the criteria used for the initial identification of the BRT corridors.
- On May 31, 2018, the CTC recommended approval of the award recommendation to the Council Subcommittee by a vote of 13-0.
- On Sept. 25, 2018, the Aviation and Transportation Subcommittee recommended approval to enter into agreement with Package A and B in support of the BRT program by a vote of 3-0.
- On May 27, 2021, the CTC recommended approval of the initial BRT corridor of 35th Avenue/Van Buren Street by a vote of 10-0.
- On Sept. 15, 2021, the Transportation, Infrastructure and Planning Subcommittee recommended approval of the initial BRT corridor of 35th Avenue/Van Buren Street by a vote of 4-0.
- On Oct. 6, 2021, City Council granted approval of the initial BRT corridor of 35th Avenue/Van Buren Street by a vote of 9-0.
- On Feb. 20, 2022, the CTC recommended approval to continue community and stakeholder engagement, alternatives analysis and 15 percent design plans for the initial BRT corridor of 35th Avenue and Van Buren Street by a vote of 11-1.
- On April 20, 2022, Phoenix City Council granted approval to continue community and stakeholder engagement, alternatives analysis and 15 percent design plans for the initial BRT corridor of 35th Avenue and Van Buren Street by a vote of 8-1.

Recommendation

This report is for discussion and action.



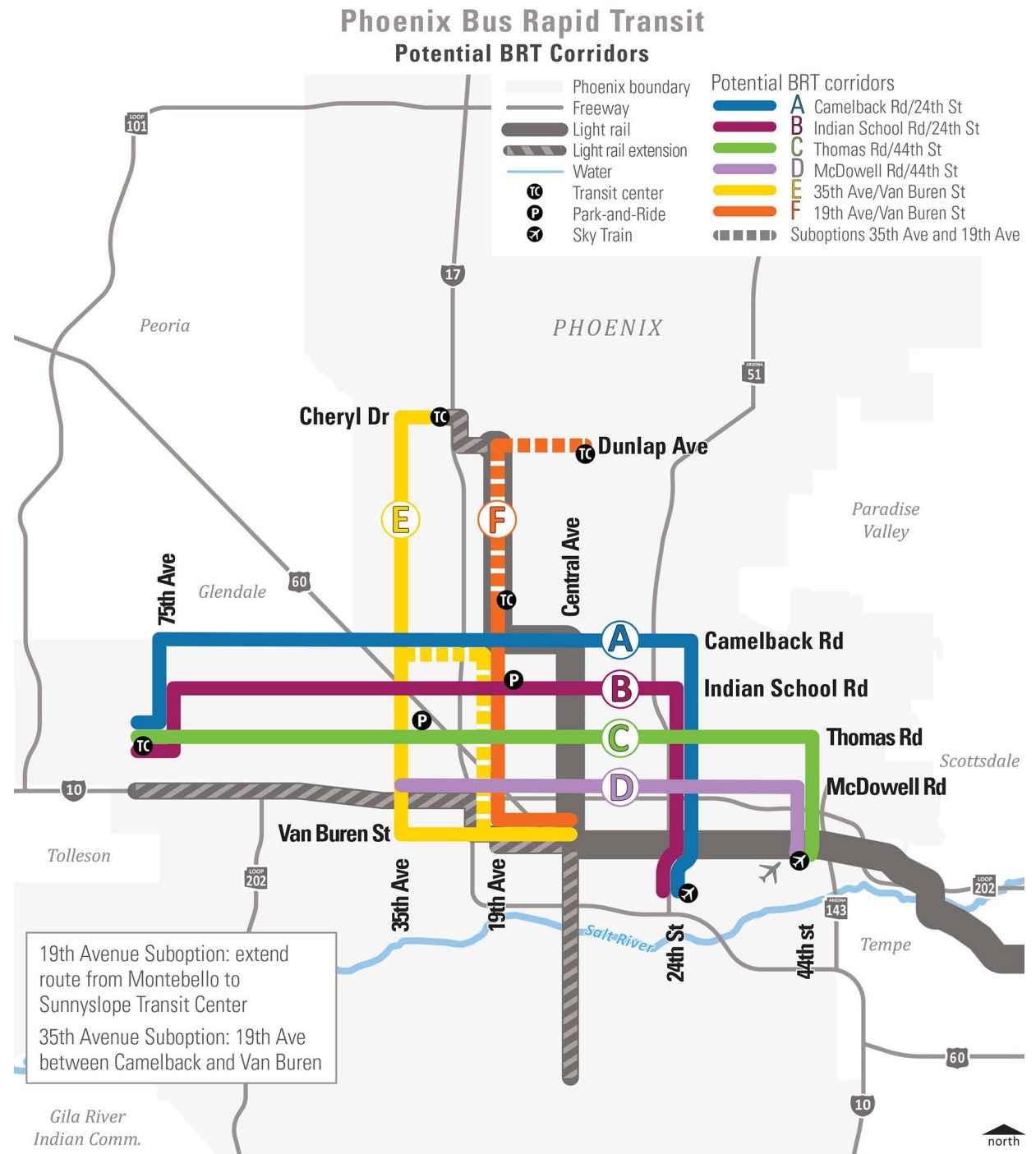
Phoenix Bus Rapid Transit Planning Support Services Contract Amendment

Citizens Transportation Commission

April 27, 2023

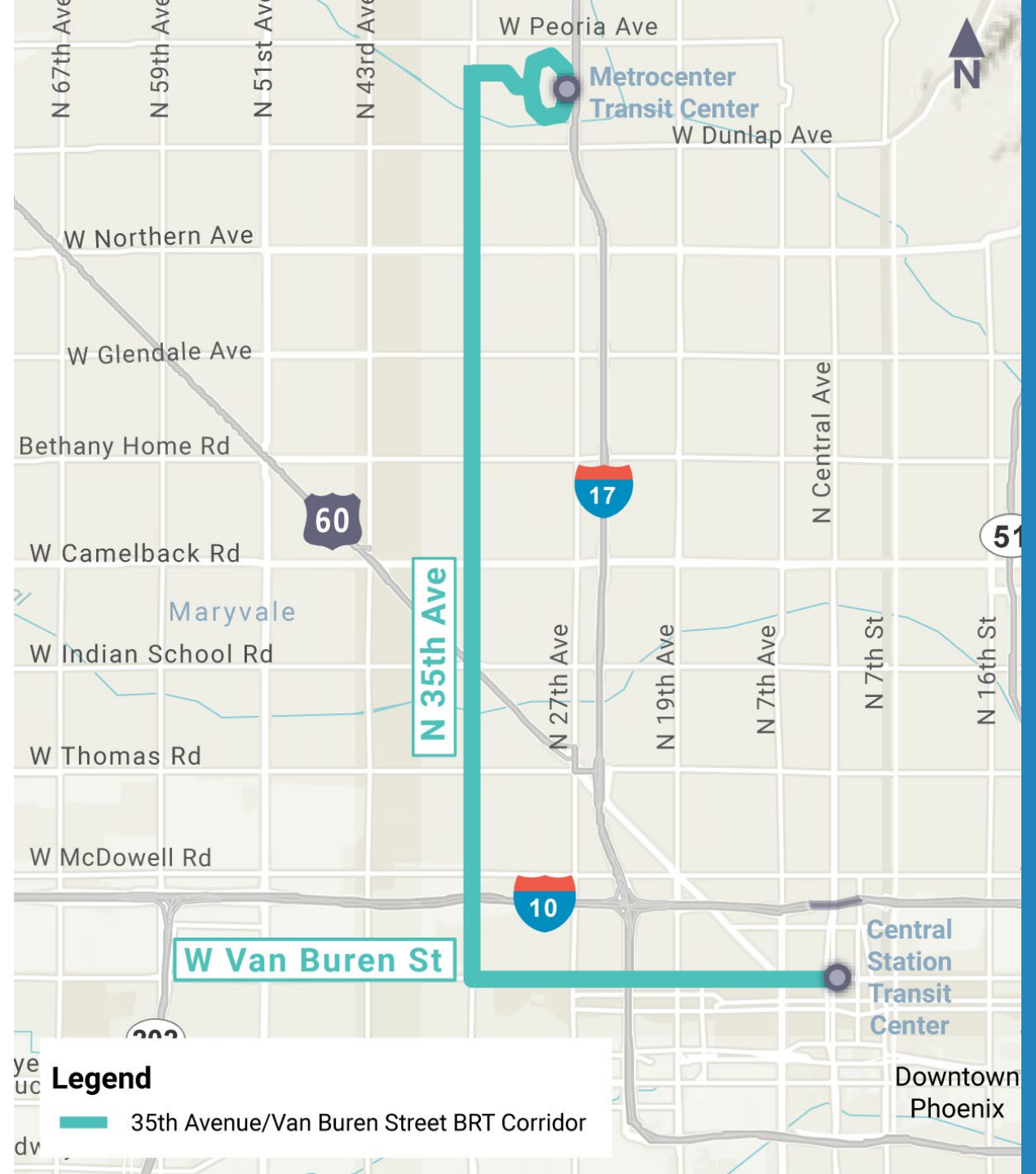
Where We've Been

- In 2019, the project team was tasked with reevaluating the BRT corridors identified in the Transportation 2050 plan.
- In 2020, the team completed a transit analysis and one year of community outreach.
- In October 2021, Phoenix City Council unanimously approved the initial Bus Rapid Transit corridor of **35th Avenue and Van Buren Street**.



Where We Are

- In April 2022, Phoenix City Council approved the Phoenix BRT Program to continue with the tasks of community and stakeholder engagement, alternatives analysis, and 15% design plans for the **initial BRT corridor**.
- The BRT Program is currently conducting an **Alternatives Analysis** and developing conceptual designs for this corridor.



The Corridor

35th Avenue and Van Buren Street

13.6 miles

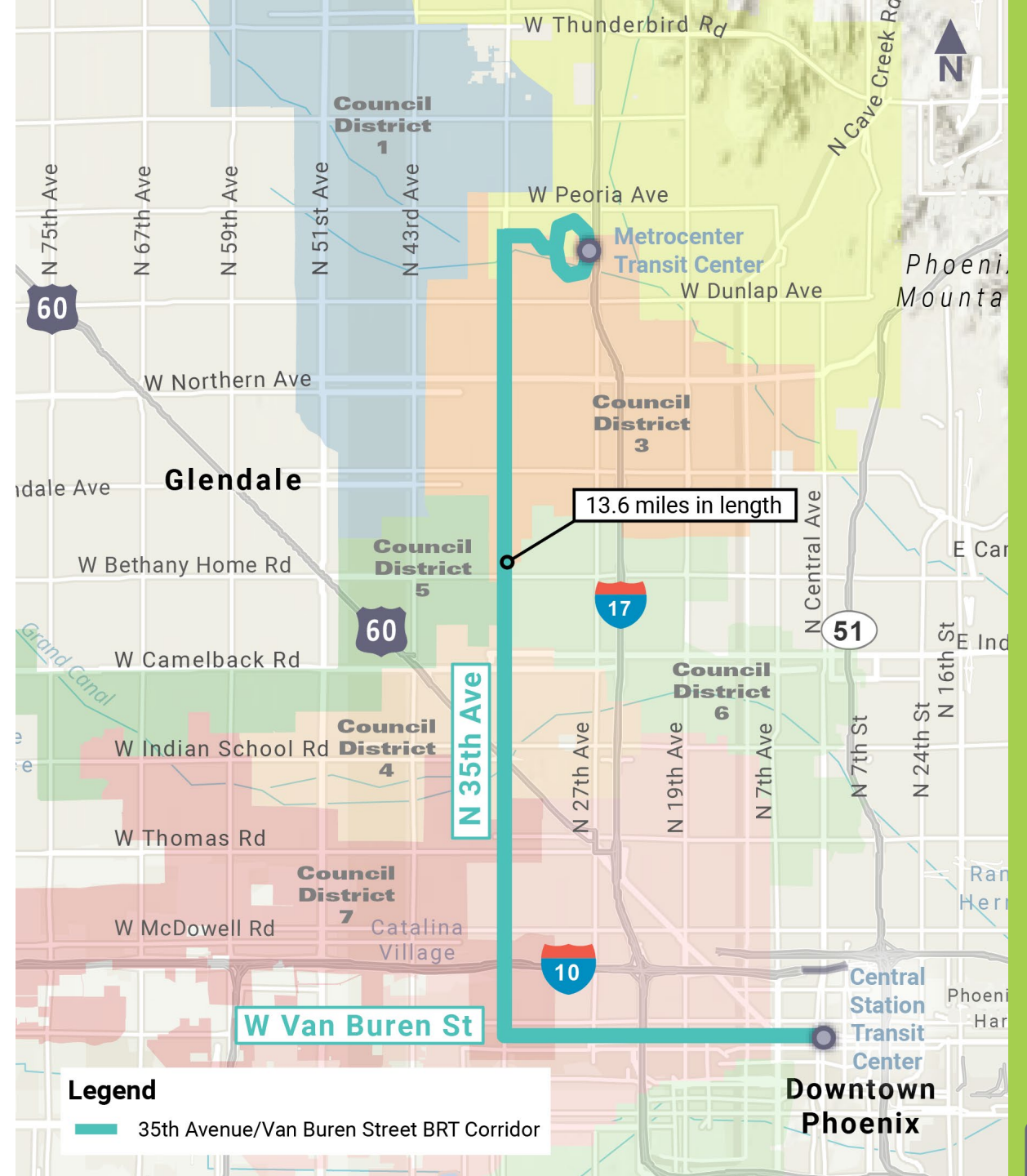
16 proposed stations

44 signalized intersections

7 correlating projects

4 Phoenix Council Districts (1, 4, 5, 7)

2 transit centers



BRT Program Schedule

**WE ARE
HERE**



Transit Analysis

Spring 2020 - Spring 2022

- Initial transit analysis
- Approval of corridor
- Approval to begin corridor planning

Detailed Corridor Planning

Fall 2022 - Fall 2024

- Alternatives analysis
- 15% design
- Station planning
- Corridor alignment
- Preliminary right-of-way (ROW)
- Traffic analysis

Final Design

Fall 2024 - Winter 2026

- Final design plans
- Corridor refinement
- ROW refinement
- Bus procurement/design

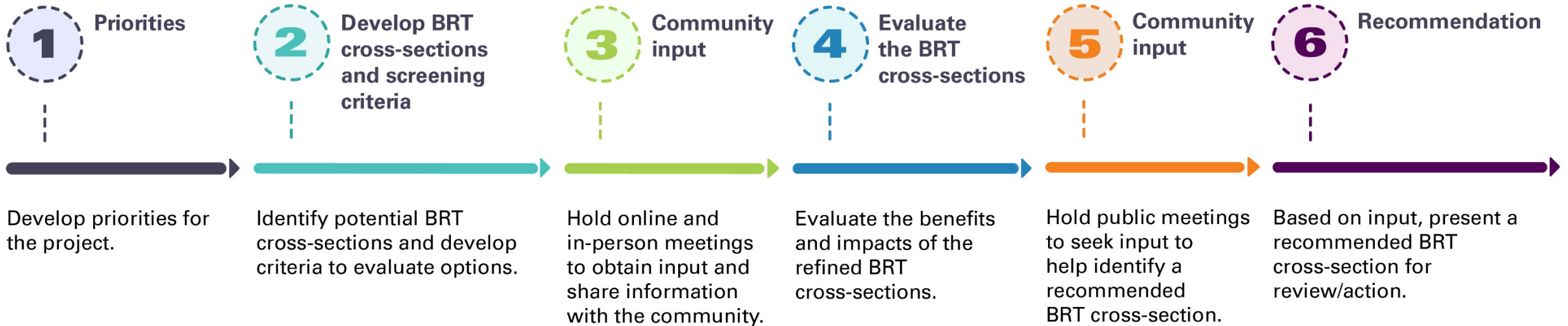
Construction

Fall 2026 - Winter 2028

- Station development
- Traffic signal improvements
- Roadway enhancements
- Vehicle testing

Community and stakeholder engagement

Process to a Recommended BRT Cross-Section



We are here!

Fall/Winter 2022

Spring 2023

Summer/Fall 2023

Roles and Responsibilities

Package A - HDR

- Transit Planning
- Project Management
- Community & Business Engagement
- Engineering Oversight
- Funding Plan
- Corridor Program

Package B - AECOM

- Alternatives Analysis
- Traffic Analysis
- 15% Design Plans

Package A – HDR Engineering

- **Background**

- Agreement #149143 is a 3-year base term with one 3-year option to extend, in a not-to-exceed amount of \$3 million.
- The City exercised the 3-year option in March 2022 (through March 2025), additional funding was not needed at that time.
- HDR is operating under the original contract budget (intended for the first three years only).
- HDR has delivered the City's original scope under budget, therefore was able to extend budget past the original 3-year contract date.
- Forecast to reach the current budget's limit is Summer 2023.
- This request is for the approval of \$5.5 million of continued scope and augmented community outreach from July 2023 through March 2025.

Package A – HDR Engineering

Project Management	BRT Planning	Community Education and Engagement	Funding	Corridor Program
<ul style="list-style-type: none">• Project administration• Package B coordination	<ul style="list-style-type: none">• Transit and traffic analysis• Ridership analysis (current and forecasting)• Operations planning• Capital costs planning	<ul style="list-style-type: none">• Community and Business Engagement Plan• Citywide efforts• Corridor-specific outreach• Websites• Branding exercise	<ul style="list-style-type: none">• Funding options• Financing scenarios• Project delivery	<ul style="list-style-type: none">• Engineering review and oversight• Station planning

Recommendation: Package A - Contract

The Public Transit Department requests the Citizens Transportation Commission recommend City Council approval to execute an amendment, in the amount of \$5.5 million, to the Phoenix Bus Rapid Transit Program Transportation Planning Support Services Contract with HDR Engineering to provide further project management, community and business engagement, transit planning, and engineering oversight for the approved BRT corridor of 35th Avenue/Van Buren Street.

Thank You!



www.meetphoenixbrt.com

CITIZENS TRANSPORTATION COMMISSION REPORT

TO: Alan Stephenson
Deputy City Manager

FROM: Kini L.E. Knudson
Street Transportation Director

SUBJECT: ACTIVE TRANSPORTATION PROGRAM UPDATE

This report provides an update to the Citizens Transportation Commission (CTC) on the activities of the Street Transportation Department's (Streets) Active Transportation Program.

Streets is tasked with implementation of the 35-year Transportation 2050 (T2050) goal to add 1,080 bi-directional miles of new bicycle lanes, with an annualized target of 30.9 new bike lane miles. After Streets identified an administrative error in the reporting of new bike lane miles, which resulted in an overreporting of 26.9 bike lanes miles, Streets committed to accelerating the delivery of new bike lane miles over the annualized target miles by June 30, 2024 to mitigate this error.

This report provides information about the bicycle lane miles installed in Fiscal Year (FY) 2022 and the first half of FY2023, bicycle lane miles planned for installation as part of the Pavement Maintenance Program through FY2027, and bicycle lane miles currently planned for installation outside of the Pavement Maintenance Program. This report also summarizes the Active Transportation Plan and the recent launch of Phoenix's Shared Micromobility Program.

BIKE LANE INSTALLATION

From Jan. 1, 2016, to June 30, 2022, 222.2 bike lane miles have been added to the City's bicycle network. In FY2022 (July 1, 2021 to June 30, 2022), Streets added 35.4 new bike lane miles, and added buffers to 26.5 bike lane miles and added protection to 0.5 bike lane miles. And in the first half of FY2023 (July 1, 2022 to Dec. 31, 2022), Streets installed 14.8 new bike lane miles (**Attachment A**).

To correct the administrative error in reporting new bike lane miles, Streets' Active Transportation Team identified a total 29.1 miles "catch-up" bike lane projects. In FY2022, the Department installed 4.5 miles of "catch-up" bike projects. Currently, the team is working to deliver 24.6 miles of additional "catch-up" bike projects in FY2023 and FY2024. Internal reviews and public outreach have been completed for 13.8 miles of these projects, which should be installed by the end of this calendar year. The remaining 10.8 miles of "catch-up" bike projects are on track to be completed in FY2024 (**Attachment B**).

Through its Pavement Maintenance Program, Streets is planning to add another 87.8 new bike lane miles with the remainder of FY2023 and through FY2027. In this same time frame, Streets plans to add buffers to 81.3 miles of existing bike lanes **(Attachment C)**.

Streets also plans to add an additional 2.9 new bike lane miles through its Five-Year Capital Improvement Program (CIP) with the remainder of FY2023 through FY2028 **(Attachment D)**.

It should be noted that development activity and projects have also contributed to nearly 7 new bike lane miles annually over the last three years, and Streets expects this trend to continue. All planned or proposed bicycle lane installation projects are always subject to further research and analysis prior to actual implementation.

In addition to on-street infrastructure, Streets is actively pursuing canalscape projects in order to expand the off-street active transportation network. Currently, the Department is preparing to begin construction on two canalscape projects through the utilization of the Salt River Project's (SRP) municipal aesthetics program funding. The two projects are: Grand Canal Phase III: 75th Avenue to 47th Avenue and Western Canal Phase I: 4th Avenue to 24th Street. These are both exciting opportunities to enhance and promote increased active transportation along canal banks within growing communities in western and southern portions of Phoenix.

ACTIVE TRANSPORTATION PLAN

The Active Transportation Plan kicked off in 2020 and will be presented to the City Council for approval in the next few months. The Active Transportation Plan updates the Comprehensive Bicycle Master Plan originally approved in 2014, with an innovative approach focused on design guidance, policy recommendations, and network development. A draft version of the Plan is included **(Attachment E)**.

Rather than providing a map of recommended bicycle or active transportation projects, the Active Transportation Plan recommends a community-focused program for developing the active transportation network in Phoenix. Streets will work in each of Phoenix's urban villages to conduct in-depth community outreach and recommend a network of bike lanes that can be quickly implemented. Staff will work with two urban villages per year to create plans and then work to install the bike lanes within two years after finishing the plans. The process will also identify potential larger projects that will require longer planning timelines and additional funding. The urban villages will be prioritized based on equity, and the program is anticipated to take ten years to complete.

The design guidance section will be a reference manual for staff and consultants on how to design streets for active transportation. It reflects the current best practices for active transportation with a special focus on Phoenix's unique challenges. The design guidance section will be shared internally and made available on Phoenix's website as a standalone document for use by consultants and developers.

The policy section recommends updates to policies and procedures to ensure alignment with approved plans and policies and to support the four principles of the plan: Equitable, Safe, Connected, and Enjoyable. It supports the further implementation of Complete Streets, the Climate Action Plan, and the Vision Zero Road Safety Action Plan. The recommendations are grouped in short-term, medium-term, and long-term priorities based on public input and feasibility.

The Active Transportation Plan continues the commitments to build bike lanes and report on progress annually. It also recommends tracking metrics for the overall plan, which would be included in future annual reports to the CTC.

SHARED MICROMOBILITY PROGRAM

On Dec. 14, 2022, City Council awarded contracts to Lime and Spin to operate the new Shared Micromobility Program. Streets launched the new program on Jan. 20, 2023, replacing the E-Scooter Pilot Program. E-scooters and e-bikes have been available from day one of the new program. The launch of rentals for traditional bikes and adaptive vehicles has been delayed due to supply chain issues. Lime and Spin will offer traditional bikes through a library system. Adaptive vehicles will be available for rental from both vendors through a library system that allows users to reserve adaptive vehicles and pick them up from the vendor to use for the day. A library system is being used for both the traditional bikes and the adaptive vehicles because they are not able to accommodate GPS tracking devices and the library system prevents potential theft of those vehicles.

The new program introduced new requirements to address equity, safety, and parking concerns. Census tracts with limited transportation options were designated as “Equity Zones.” The vendors are required to deploy 30 percent of their fleet within these neighborhoods. Additionally, the vendors offer a 30 percent discount on trips originating in Equity Zones. The operational boundaries for the shared micromobility program were also expanded beyond the downtown area boundaries utilized for the E-Scooter Pilot Program. This initial expansion covers the area shown in **Attachment F**. Within the downtown core, parking corrals will continue to be used. Outside of the downtown core, riders must lock the vehicles to a bike rack or other approved fixed infrastructure. With a larger program area, the fleet cap was raised to 1,500 per vendor. In late February, the City added a 600-vehicle fleet cap per vendor within the downtown core to address overcrowding.

Since the launch of the program, over 47,000 trips have been logged. In the week leading up to the Super Bowl, residents and vendors took 13,049 trips. A new program record was recorded on Feb. 11, 2023, with over 4,200 trips in one day. Likely due to the public’s familiarity with the device, e-scooters remain more popular than e-bikes, making up roughly 98 percent of trips.

Streets will provide a six-month update to City Council later this year to review the program and discuss potential changes.

RECOMMENDATION

This item is for information and discussion only.

ATTACHMENTS

Attachment A: Bike Lane Miles Installed July 1, 2022-Dec. 31, 2022

Attachment B: Catch Up Bike Lane Miles Progress

Attachment C: Planned Pavement Projects with Proposed Bike Lanes FY23-FY27

Attachment D: CIP projects with Bicycle Infrastructure FY23-FY28

Attachment E: Draft Active Transportation Plan

Attachment F: Shared Micromobility Program Boundary Map

Active Transportation Program Update

Citizens Transportation Commission
April 27, 2023





OVERVIEW

- Bike Lane Installation
- Active Transportation Plan
- Shared Micromobility Program
- Next Steps

BIKE LANE INSTALLATION



JANUARY 1, 2016 – DECEMBER 31, 2022

Total Installed
Bike Lane
Miles

237

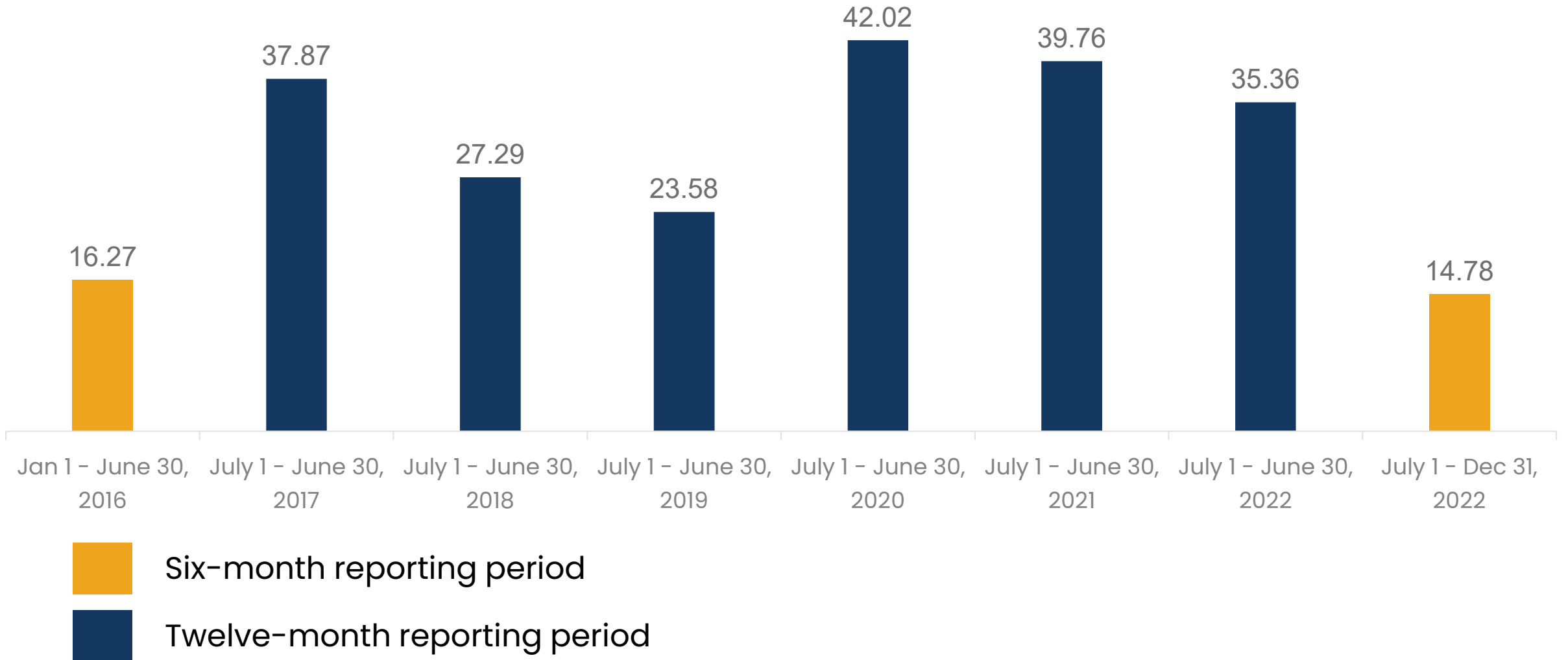
Annual
Average Bike
Lane Miles

33.8

Annual T2050
Bike Lane
Miles Target

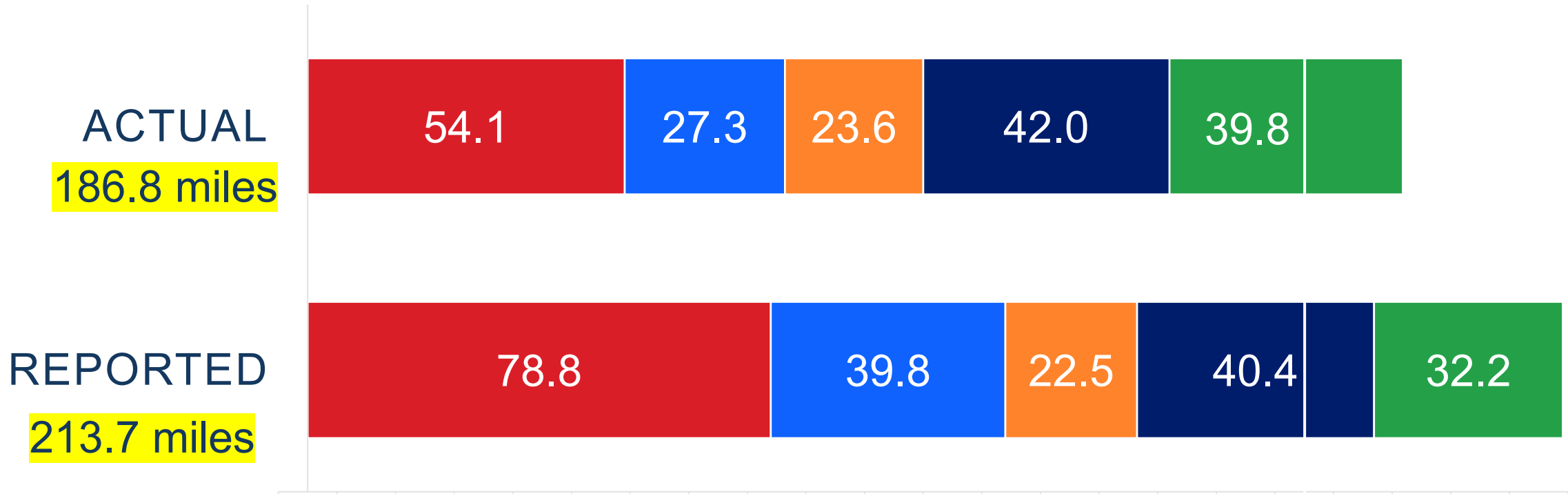
30.9

BIKE LANE MILES INSTALLED PER YEAR



JAN 1, 2016 – JUNE 30, 2021 REPORTING ISSUES

■ FY16-17
 ■ FY18
 ■ FY19
 ■ FY20
 ■ FY21
 Target: 169.9 miles



Discrepancy: 26.9 miles

INSTALLATION OF 26.9 ADDITIONAL BIKE LANE MILES

- 4.5 miles in excess of annual target delivered in FY22
- Internal review and outreach completed for 13.8 miles in FY23
- Plan to deliver 10.8 additional miles in FY24

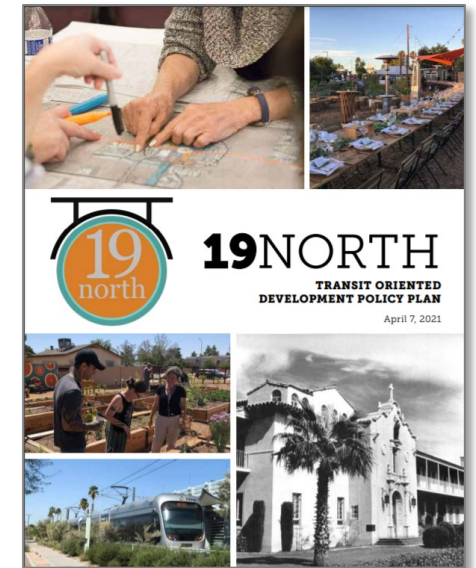
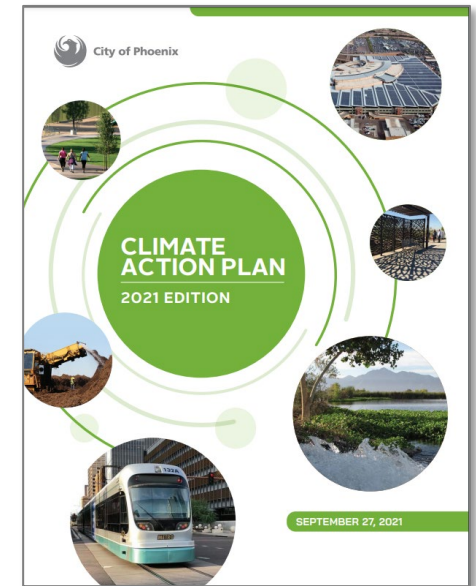
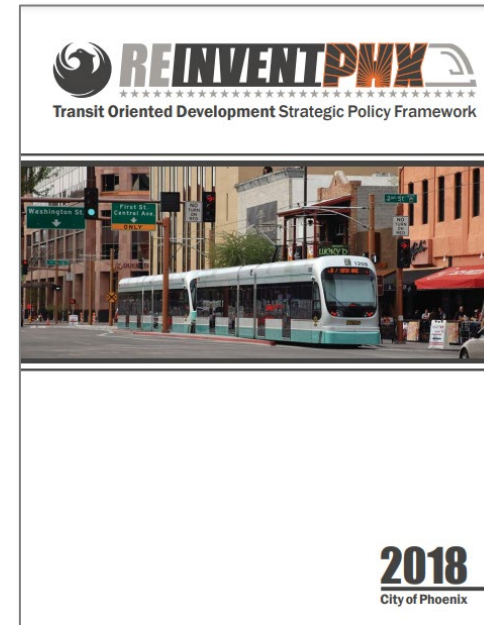
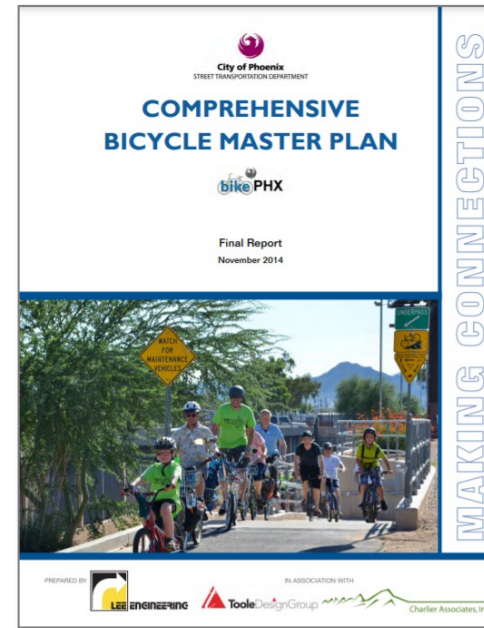


ACTIVE TRANSPORTATION PLAN



PRIMARY OBJECTIVES

- Identify policy & implementation barriers
- Collaborate with different city plans & initiatives
- Build from current successes
- Develop design guidance
- Define a Network Development Program that is responsive to change
- Broaden community voices



KEY FOCUS AREAS

DESIGN GUIDANCE

Best practices and technical standards to help guide facility design and implementation

NETWORK DEVELOPMENT

Core principles and rationale for how active transportation facilities are prioritized and implemented

POLICY

Evaluate existing policy & procedures; recommendations to reduce barriers and create win/win opportunities that advance active transportation

GUIDING PRINCIPLES



Equitable



Safe



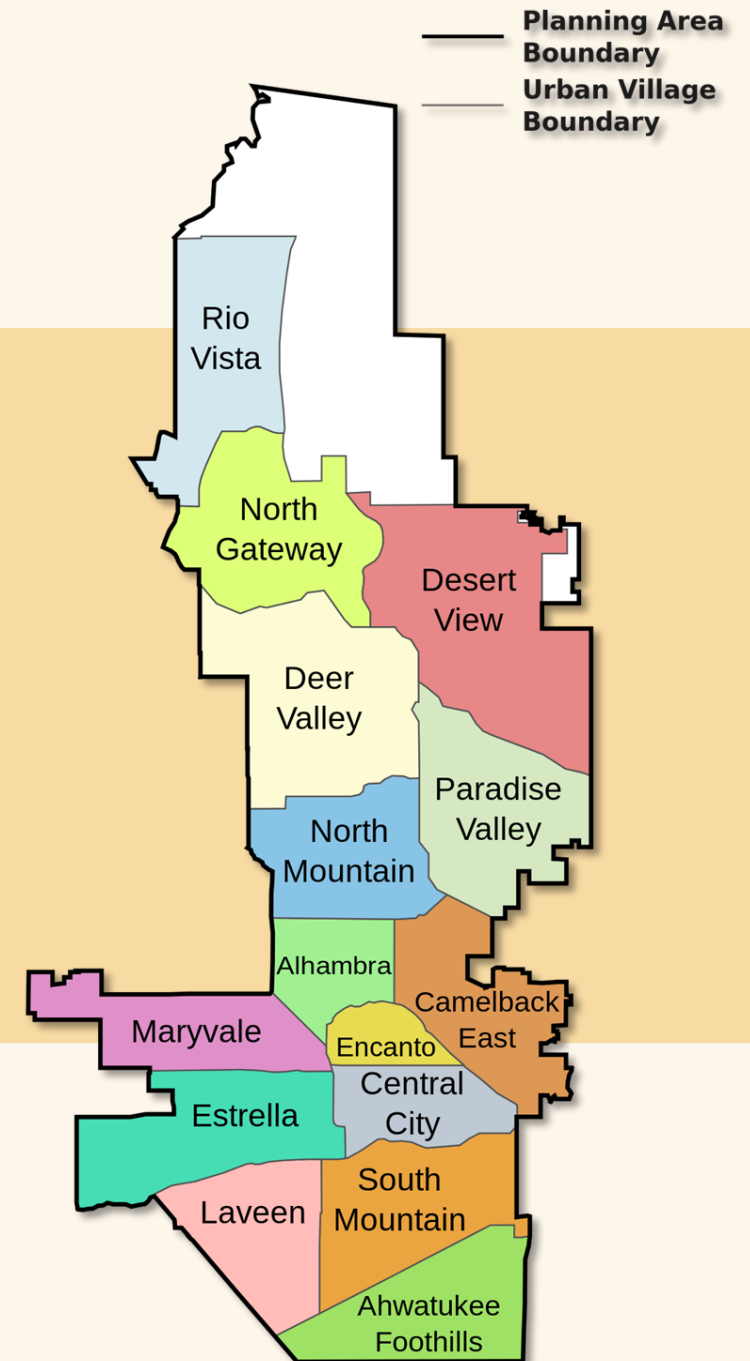
Connected



Enjoyable

COMMUNITY ACTIVE TRANSPORTATION NETWORK PROGRAM

- Urban Village approach & scale (two urban village assessments per year)
- Community-identified connections
- City department collaboration
- Manageable implementation
- Equity / needs-based approach
- Identify larger projects that may be future opportunities



POLICY RECOMMENDATIONS



Objective 1: Advance Complete Streets Policy Implementation



Objective 2: Support the Goals of the Climate Action Plan



Objective 3: Support the Vision Zero Road Safety Action Plan



Objective 4: Share Opportunities for Integrating Active Transportation Policies and Guidance into the General Plan



POLICY RECOMMENDATIONS



Objective 5: Build Safe Active Transportation Networks



Objective 6: Build Connected Active Transportation Networks



Objective 7: Build Enjoyable Active Transportation Networks



Objective 8: Build Equitable Active Transportation Networks



DESIGN GUIDANCE

- Design guidance & best practices curated for Phoenix
- Guidance for the design of city facilities
- Facility selection guide
- Level of stress/comfort

City of Phoenix Design Guidance

SEPARATED BIKE LANE BARRIERS

Separated bike lanes may use a variety of vertical elements to physically separate the bikeway from adjacent travel lanes. Barriers may be robust constructed elements such as curbs, or may be more interim in nature, such as flexible delineator posts.

Barrier Separation

- Flexible Delineators (0'-40' spacing)
- Modular curbing (6' spacing, 1' from travel lane)
- 3' Buffer and Spatial Envelope for Barriers
- Planter Boxes (Consistent spacing)
- Jersey Barriers (Consistent spacing)

Median Separation

- Raised Curb (2' min. width, 4' if plantings present)

Elevation Separation

Parking Separation

City of Phoenix Design Guidance

BIKE BOULEVARDS OVERVIEW

A Bike Boulevard is a low-speed, low-volume roadway that is designed to enhance comfort and convenience for people bicycling. It provides better conditions for bicycling while improving the neighborhood character and maintaining emergency vehicle access. Bike Boulevards are intended to serve as a low-stress bikeway network, providing direct, and convenient routes across Phoenix. Key elements of Bike Boulevards are unique signage and pavement markings, traffic calming and diversion features to maintain low vehicle volumes, and convenient major street crossings.

Treatments depicted may vary per roadway segment or location.

Typical Use

- Parallel with and in close proximity to major thoroughfares (1/4 mile or less) on low-volume, low-speed streets.
- Follow a desire line for bicycle travel that is ideally long and relatively continuous (2-5 miles).
- Avoid alignments with excessive zigzag or circuitous routing. The bikeway should have less than 10% out of direction travel compared to shortest path of primary corridor.
- Local streets with traffic volumes of fewer than 1,500 vehicles per day (for the majority of their length) and with average operating speeds below 25 mph. Utilize traffic calming speeds to maintain or establish low volumes and discourage vehicle cut through / speeding.

Design Features

- Signs and pavement markings are the minimum treatments necessary to designate a street as a bike boulevard.
- Implement volume control treatments based on the context of the bike boulevard, using engineering judgment. While motor vehicle volumes should not exceed 3,000 vehicles per day, ideal conditions are 1,500 vehicles per day or less.
- Intersection crossings should be designed to enhance comfort and minimize delay for bicyclists of diverse skills and abilities.

Design Needs of Wheelchair Users

As the American population ages, the age demographics in Phoenix may also shift, and the number of people using mobility assistive devices (such as manual wheelchairs, powered wheelchairs) will increase.

Manual wheelchairs are self-propelled devices. Users propel themselves using push rims attached to the rear wheels. Braking is done through resisting wheel movement with the hands or arm. Alternatively, a second individual can control the wheelchair using handles attached to the back of the chair.

Power wheelchairs use battery power to move the wheelchair. The size and weight of power wheelchairs limit their ability to negotiate obstacles without a ramp. Various control units are available that enable users to control the wheelchair movement, based on their ability (e.g., joystick control, breath controlled, etc).

Maneuvering around a turn requires additional space for wheelchair devices. Providing adequate locations is an important element of accessible design.

Wheelchair User Design Considerations

Effect on Mobility	Design Solution
Difficulty propelling over uneven or soft surfaces.	Firm, stable surfaces and structures, including ramps or beveled edges.
Cross-slopes cause wheelchairs to veer downhill.	Cross-slopes of less than two percent.
Require wider path of travel.	Sufficient width and maneuvering space.

Wheelchair User Dimensions

Person in Wheelchair:

- Eye Height: 3'8" (1.1 m)
- Handle: 2'6" (0.9 m)
- Armrest: 2'5" (0.76 m)
- Physical Width: 2'6" (0.75 m)
- Minimum Opening Width: 3' (0.9 m)
- Minimum Width of Accompany* 4' (1.2 m)
- Minimum to Make a 180 Degree Turn 5' (1.5 m)

Person in Power Wheelchair:

- Physical Width: 2'7" (0.7 m)
- Minimum Opening Width: 3' (0.9 m)
- Minimum to Make a 180 Degree Turn 5' (1.5 m)

*Provide 5' x 5' passing zone every 200' if travel way width is less than 5 feet

ACCOUNTABILITY

Existing

Goal	Evaluation Metrics
Add 1,080 bike lane miles from 2015 to 2050	Target of 30.9 new bike lane miles per year
Multi-use paths along 90% of canals in Phoenix by 2050	New miles of paths included in the annual T2050 reports
Achieve Platinum level Bicycle Friendly Community Status	Apply for Bicycle Friendly Community Status every two years to benchmark progress

New

Plan Assessment Area	Evaluation Metrics
Design Guidance	<ul style="list-style-type: none"> • Design guidance internally distributed • Design guidance posted on Street Transportation Department website • Internal staff survey to check whether it is being used one year after adoption
Network Development	<ul style="list-style-type: none"> • Network planning conducted with two villages per year until all villages are completed. • % of recommended quick-build projects within two years of finalizing Community Active Transportation Network recommendations
Policy Recommendations	<ul style="list-style-type: none"> • % of policy recommendations initiated within the recommended timeframe

MICROMOBILITY PROGRAM



SHARED MICROMOBILITY PROGRAM

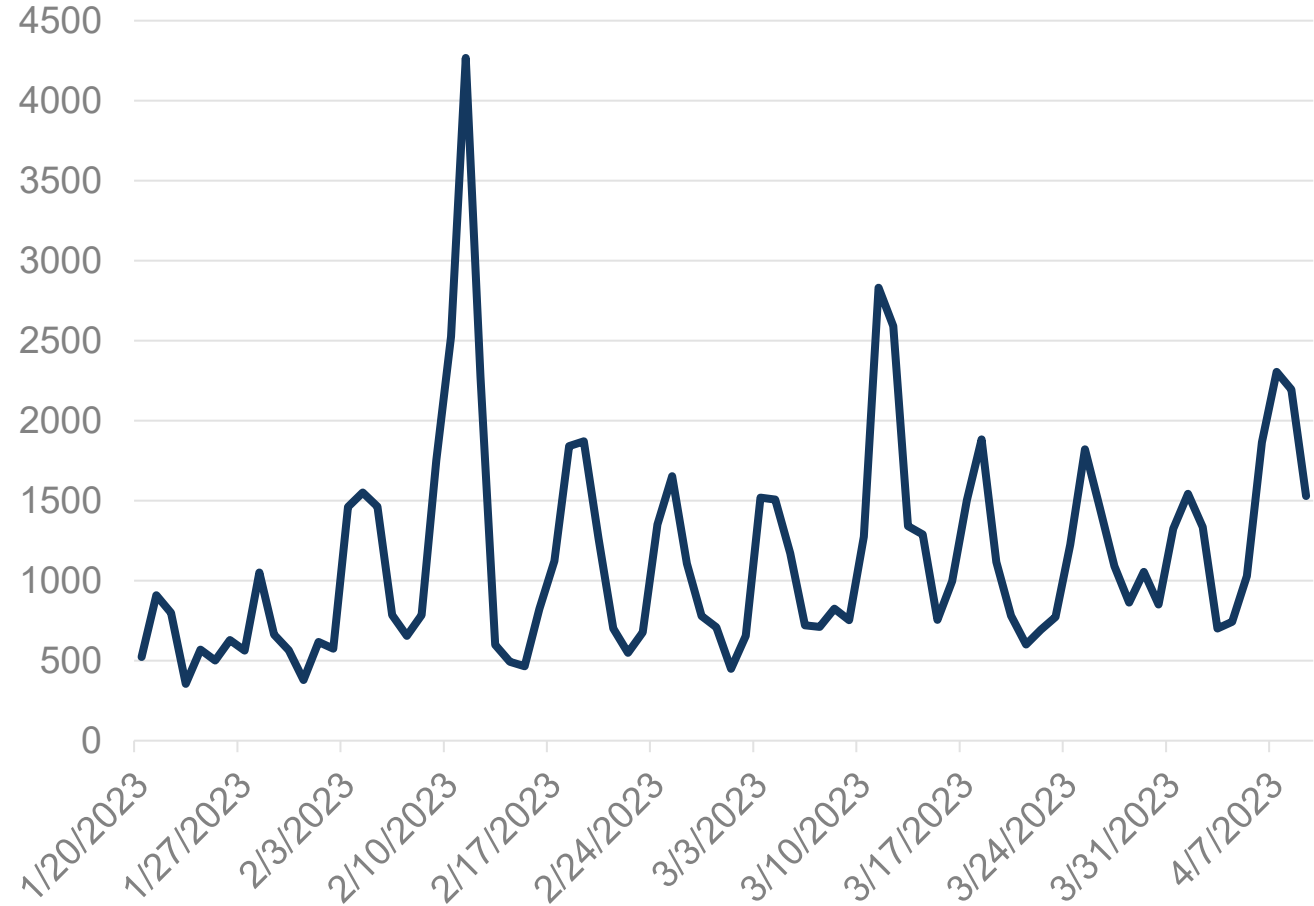
- Lime and Spin launched the new permanent program in January 2023
- E-scooters and E-bikes now available to rent in the public right-of-way
- Traditional bikes and adaptive vehicles will be available through a library system



RIDERSHIP

- Overall: 47,000+ trips
- Trips per day: 954.5 trips
- Average distance: 0.7 miles
- Average duration: 8.4 minutes
- Super Bowl weekend (Feb 9–12): 10,823 trips
- M3F Festival (Mar 3–4): 3,028 trips

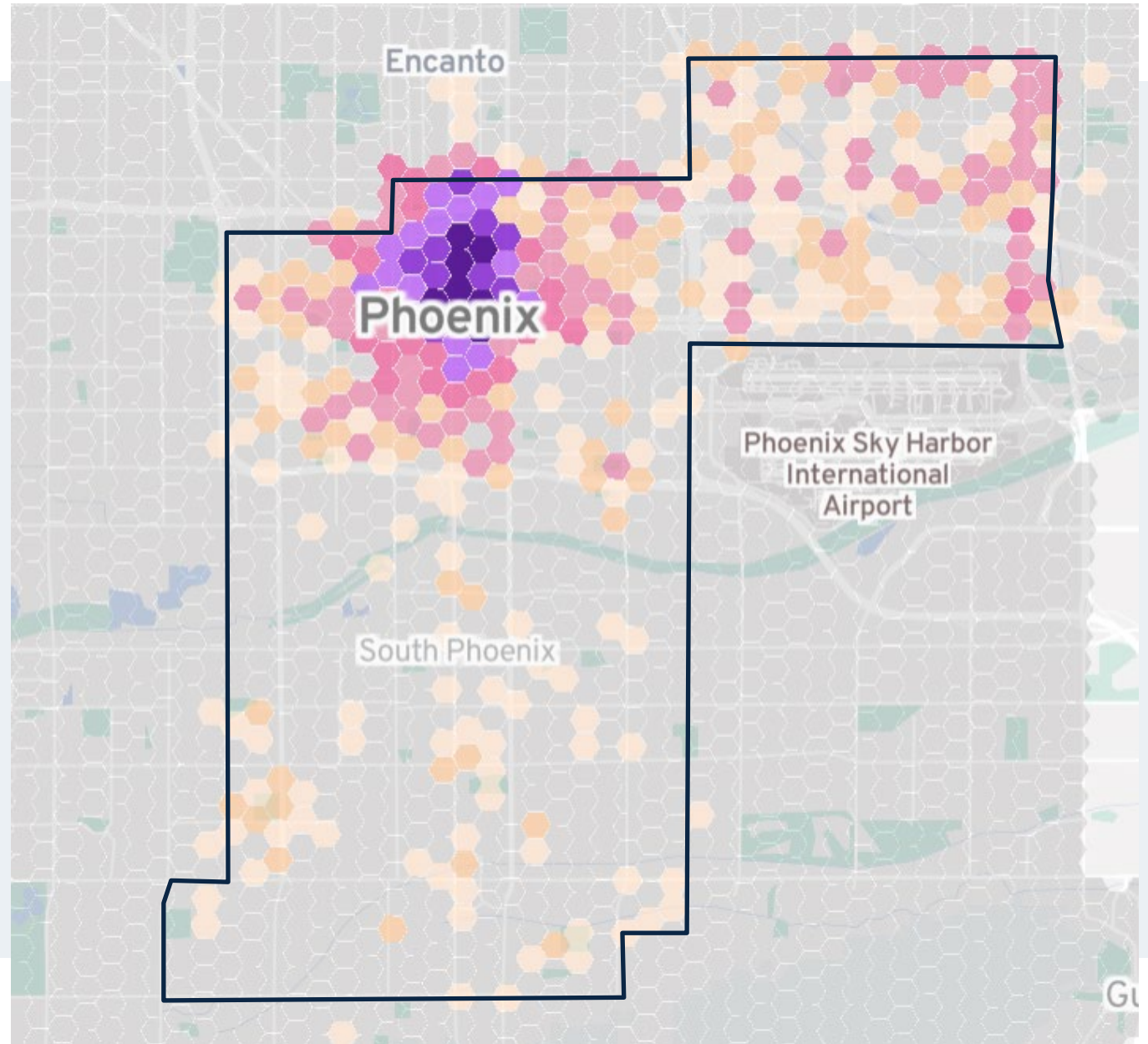
Daily Trips, January 20 – April 9



RIDERSHIP PATTERNS

Trip Starts

January 20 – April 9, 2023



NEXT STEPS

- **Continue to install bike lanes through pavement, development, and capital projects**
 - *Ongoing*
- **Submit Active Transportation Plan to City Council**
 - *May 2023*
- **Present six-month micromobility program update to City Council**
 - *Fall 2023*

Marielle Brown, AICP

Active Transportation Principal Planner

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phoenix.gov/streets/activetransportation



THANK YOU!

Active Transportation Program

phoenix.gov/streets/activetransportation

Marielle Brown, AICP

Active Transportation Program Manager

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Attachment A

Active Transportation Program Report
Bike Lane Miles Installed July 1st, 2021 – December 31st, 2022

FY2022 July 1, 2021 - June 30, 2022 Bike Lane Installations

On Street	From Street	To Street	Bike Lane Type	Install Date	Length Feet
N 23RD AVE	W DAHLIA DR	W CACTUS RD	BUFFERED	7/17/2021	2486
S 43RD AVE	W VAN BUREN ST	W BUCKEYE RD	STANDARD	7/19/2021	5264
W LIBERTY LN	S 18TH AVE	S 17TH AVE	STANDARD	7/27/2021	476
W ENCANTO BLVD	N 31ST AVE	N 27TH AVE	STANDARD	7/28/2021	2673
E MAYO BLVD	E/O N 56TH ST	N 64TH ST	BUFFERED	8/5/2021	3806
W HACKAMORE DR	N 39TH AVE	N 35TH AVE	STANDARD	8/7/2021	2774
W ELLIOT RD	500' W/O S 56TH AVE	S 55TH AVE	BUFFERED	8/10/2021	1229
S 55TH AVE	W ELLIOT RD	W COUNTRY GARDEN LN	BUFFERED	8/12/2021	1663
W ROSE GARDEN LN	N 27TH AVE	I17@ROSE GARDN SB ON RMP	STANDARD	8/19/2021	1186
W ROSE GARDEN LN	I17@ROSE GARDN SB ON RMP	N BLACK CANYON HWY E	STANDARD	8/19/2021	403
W ROSE GARDEN LN	N BLACK CANYON HWY E	N 23RD AVE	STANDARD	8/19/2021	1064
N 19TH AVE	W UNION HILLS DR	W BELL RD	STANDARD	8/30/2021	5310
W SOUTH MOUNTAIN AVE	S 59TH AVE	S 53RD AVE	BUFFERED	9/1/2021	3367
W LOWER BUCKEYE RD	1,076' E/O S 59TH AVE	475' W/O S 52ND AVE	BUFFERED	9/7/2021	3067
N 3RD AVE	W ADAMS ST	W WASHINGTON ST	STANDARD	11/17/2021	394
N 3RD AVE	W VAN BUREN ST	W ADAMS ST	BUFFERED	11/17/2021	764
N 3RD AVE	W ROOSEVELT ST	W VAN BUREN ST	BUFFERED	11/17/2021	2642
N 55TH AVE	W HAPPY VALLEY RD	W PINNACLE PEAK RD	BUFFERED	11/20/2021	5315
W GRANT ST	S 22ND AVE	S 19TH AVE	STANDARD	11/23/2021	1984
E OLYMPIC DR	S CENTRAL AVE	S JESSE OWENS PKWY	BUFFERED	12/18/2021	1434
S JESSE OWENS PKWY	S CENTRAL AVE	S 7TH ST	BUFFERED	12/19/2021	4388
E ROESER RD	S 32ND ST	530' E/O S 36TH ST	BUFFERED	12/20/2021	3159
N 43RD AVE	W CIRCLE MOUNTAIN RD	W ANTHEM WAY	BUFFERED	12/30/2021	5269
E OAK ST	N 3RD ST	N 14TH ST	STANDARD	6/30/2022	5314
E OAK ST	N 16TH ST	N 20TH ST	STANDARD	6/30/2022	2655
N 52ND ST	E GROVERS AVE	E BELL RD	BUFFERED	1/4/2022	2703
N 56TH ST	E PINNACLE PEAK RD	1962' N/O E DEER VALLEY DR	BUFFERED	2/10/2022	7139
E RANGER DR	N 56TH ST	N 59TH PL	BUFFERED	3/30/2022	824
E FILLMORE ST	N CENTRAL AVE	N 7TH ST	PROTECTED	5/16/2022	2629
N 15TH AVE	W GROVERS AVE	W BELL RD	STANDARD	5/20/2022	2636
W BUCKEYE RD	S 43RD AVE	S 35TH AVE	BUFFERED	5/31/2022	5266
S 43RD AVE	W BASELINE RD	S/O W BASELINE RD	STANDARD	6/4/2022	1911
N CAVE CREEK RD	N 8TH ST	E BARNES ST	BUFFERED	6/7/2022	655
N 40TH ST	SR202@40TH ST EB OF RMP	E WASHINGTON ST	STANDARD	6/10/2022	3827
W BROADWAY RD	S 94TH AVE	W/O S 91ST AVE	BUFFERED	6/23/2022	725

Total **35.4 Miles**

Attachment A

Active Transportation Program Report
Bike Lane Miles Installed July 1st, 2021 – December 31st, 2022

FY2022 (July 1, 2021 - June 30, 2022) Buffers Added to Existing Bike Lanes

On Street	From Street	To Street	Install Date	Length Feet
E GROVERS AVE	N CENTRAL AVE	N 7TH ST	7/1/2021	2626
N 40TH ST	S/O E MEADOWBROOK AVE	E CAMPBELL AVE	7/6/2021	186
N 40TH ST	E CAMPBELL AVE	E ROMA AVE	7/6/2021	436
N CAVE CREEK RD	N 24TH WAY	N 30TH PL	7/19/2021	3580
E BEARDSLEY RD	N CAVE CREEK RD	N 24TH WAY	7/19/2021	465
W LIBERTY LN	S 18TH AVE	S 1ST DR	7/27/2021	4693
S CENTRAL AVE	E CHANDLER BLVD	S 1ST DR	7/27/2021	5281
E BEARDSLEY RD	N 20TH ST	N CAVE CREEK RD	7/28/2021	2714
W DEER BALLEY RD	N 19TH AVE	N 7TH AVE	8/11/2021	5159
N 67TH AVE	S/O W TETHER TRL	W HAPPY VALLEY RD	8/19/2021	3912
N PYRAMID PEAK PKY	W JOMAX RD	S/O W TETHER TRL	8/19/2021	722
W UNION HILLS DR	N 19TH AVE	N 7TH AVE	8/28/2021	5158
N CAVE CREEK RD	600' S/O E UNION HILLS DR	E BELL RD	11/21/2021	4682
N 19TH AVE	W DEER VALLEY RD	SR101@19TH AVE WB OF RMP	11/22/2021	4874
S 24TH ST	E CHANDLER BLVD	E LIBERTY LN	1/11/2022	3504
W COPPERHEAD TRL	N NORTH VALLEY PKWY	N 14TH LN	1/20/2022	6312
S RANCH CIR E	E RAY RD	S MOUNTAIN PKWY	3/25/2022	5311
N 68TH ST	E CHAUNCEY LN	E PRINCESS DR	5/4/2022	1389
E PRINCESS DR	N 68TH ST	N ALLIED WAY	5/4/2022	1133
N 15TH AVE	W EDGEMONT AVE	S/O W CORONADO RD	5/17/2022	4759
W GRAND AVE	W ROOSEVELT ST	W VAN BUREN ST	6/26/2022	3737

Total 26.5 Miles

FY2022 (July 1, 2021 - June 30, 2022) Vertical Delineators Added to Existing Bike Lanes

On Street	From Street	To Street	Install Date	Length Feet
N 3RD AVE	W INDIAN SCHOOL RD	W OSBORN RD	1/30/2022	2647

Total 0.5 Miles

Attachment A

Active Transportation Program Report
Bike Lane Miles Installed July 1st, 2021 – December 31st, 2022

FY2023 (July 1, 2022 - December 31, 2022) Bike Lane Installations

On Street	From Street	To Street	Bike Lane Type	Install Date	Length Feet
W BROADWAY RD	S 107TH AVE	S 104TH AVE	BUFFERED	8/27/2022	2030
W BROADWAY RD	S 104TH AVE	S 103RD AVE	BUFFERED	8/27/2022	564
N 3RD ST	N/O E INDIAN SCHOOL RD	E PORTLAND ST	BUFFERED	9/19/2022	12755
N 3RD ST	E PORTLAND ST	E ROOSEVELT ST	PROTECTED	9/19/2022	497
N 4TH ST	E PORTLAND ST	E ROOSEVELT ST	PROTECTED	9/19/2022	496
W MAGNOLIA ST	S 79TH DR	S 79TH AVE	BUFFERED	10/7/2022	219
S 79TH AVE	W MAGNOLIA ST	W LOWER BUCKEYE RD	BUFFERED	10/7/2022	510
S 75TH AVE	S/O W DURANGO ST	W LOWER BUCKEYE RD	BUFFERED	10/28/2022	1456
W LOWER BUCKEYE RD	S 75TH AVE	W/O S 73RD DR	STANDARD	10/28/2022	651
N 32ND ST	E ROSE GARDEN LN	E BEARDSLEY RD	STANDARD	10/29/2022	2158
N 19TH AVE	W JOMAX RD	N/O W HAPPY VALLEY RD	STANDARD	11/17/2022	3749
W MARYLAND AVE	N 35TH AVE	N BLACK CANYON HWY W	BUFFERED	11/21/2022	6606
W BRONCO BUTTE TRL	N NORTH VALLEY PKWY	N PALOMA PKWY	BUFFERED	11/28/2022	4059
N 18TH ST	SR51 UNDERPASS	E MARYLAND AVE	STANDARD	12/1/2022	190
N 16TH ST	E ROOSEVELT ST	E JEFFERSON ST	STANDARD	10/30/2022	4181
Total					14.8 Miles

Attachment A

Active Transportation Program Report
Bike Lane Miles Installed July 1st, 2021 – December 31st, 2022

FY2023 (July 1, 2022 - December 31, 2022) Buffers Added to Existing Bike Lanes

On Street	From Street	To Street	Install Date	Length Feet
E GROVERS AVE	N CENTRAL AVE	N 7TH ST	7/1/2022	2626
W CASINO AVE	N NORTH VALLEY PKWY	N MELVERN TRL	7/26/2022	1606
N 56TH ST	E DEER VALLEY DR	SR101@56TH ST WB OF RMP	8/3/2022	2788
N 44TH ST	E TRAILBLAZER DR	E DEER VALLEY DR	9/23/2022	1612
S 55TH AVE	W HUNTINGTON DR	W SOUTHERN AVE	10/6/2022	460
W RIVER WALK DR	170' N/O S SEELY ST	W HUNTINGTON DR	10/6/2022	1180
S 79TH AVE	S 81ST AVE	S 79TH DR	10/7/2022	806
S 81ST AVE	W DURANGO ST	S 81ST AVE	10/7/2022	2132
S 103RD AVE	W DURANGO ST	W TORONTO WAY	10/18/2022	2221
N 32ND ST	S/O E BEHREND DR	E KERRY LN	10/29/2022	1049
N 32ND ST	E BEARDSLEY RD	E WAHALLA LN	10/29/2022	524
N 20TH ST	350' S/O E ROOSEVELT ST	E VAN BUREN ST	11/1/2022	2280
E MARYLAND AVE	E/O N 16TH ST	N 18TH ST	12/1/2022	794
E MARYLAND AVE	N 15TH ST	N 16TH ST	12/1/2022	519
E MARYLAND AVE	E/O N 7TH ST	N 12TH ST	12/1/2022	1974
W ENCANTO BLVD	N 41ST AVE	N 39TH AVE	12/13/2022	1325
S 7TH ST	E GRANT ST	E BUCKEYE RD	12/21/2022	1494

Total

9.2 Miles

Attachment B

Active Transportation Program Report Catch Up Bike Lane Miles Progress

Name of street	From Street	To Street	Status	Lane Miles
45th Avenue	Grand Canal	Camelback Road	Community outreach in process	3.0
55th Avenue	Thomas Road	Camelback Rd	Community outreach in process	3.0
7th St	Mineral Road	Dobbins Road	Community outreach completed and decision in process	1.0
31st Avenue	Baseline	Vineyard Rd	Community outreach in process	0.9
Vineyard	35th Avenue	31st Ave	Community outreach in process	1.2
71st Ave	McDowell Road	Thomas Rd	Striping plan in progress	2.5
21st Avenue	Bell Road	Morningside Drive	Striping plan signed	1.1
63rd Avenue	Thomas Road	Mitchell Dr	Striping plan signed	1.2
FY2023 Total				13.8
Riverview	7th St	16th St	Community outreach planned for FY2024	2.0
45th Avenue	Opportunity Way	Anthem Way	Community outreach planned for FY2024	1.0
Central Avenue	Aster Drive	Thunderbird Road	Notification and installation planned for FY2024	0.5
Encanto Blvd	75th Avenue	67th Avenue	Notification and installation planned for FY2024	2.0
Utopia Road	Cave Creek Road	32nd Street	Notification and installation planned for FY2024	2.0
28th St	Highline Canal	Baseline	Notification and installation planned for FY2024	0.8
Palm Lane	86th Drive	83rd Avenue	Notification and installation planned for FY2024	0.8
Opportunity Way	45th Avenue	Vision Way	Notification and installation planned for FY2024	0.4
Encanto Blvd	91st Avenue	86th Ave	Notification and installation planned for FY2024	1.3
FY2024 Lane Miles				10.8

Total Lane Miles 24.6

Attachment C

Active Transportation Program Update Planned Pavement Projects with Proposed Bike Lanes FY23-FY27

FY23 New Bike Lanes Planned

Street	From	To	Council District	One Way Miles
Maryland Ave	35TH AVE	I-17 / Black Canyon Freeway	5	0.8
THOMAS RD	W/O 48 ST	E/O 56 ST	6	1.9
MORNINGSIDE DR	BLACK CANYON PKWY (I-17)	19 AVE	1	1.7
Partially or fully buffered bike lanes				
SHEA BLVD	W/O 40 ST	E/O TATUM BLVD	3	2.0
47th St	HILTON AVE	University	8	2.4
			Total	8.8

FY23 Existing Bike Lanes with New Buffers Planned

Street	From	To	Council District	One Way Miles
ENCANTO BLVD	41ST AVE	39 AVE	4	0.5
7 ST	S/O UNION HILLS DR	PIMA FRWY	7	1.9
MARYLAND AVE	18 ST	20th St	6	0.6
36 ST	MCDOWELL RD	THOMAS RD	6	2.0
RANCHO PALOMA DR (SOUTH 1/2)	W/O 52 PL	N/O LONE MOUNTAIN RD	2	2.1
PRINCESS DR / 68 ST / CHAUNCEY LN	SCOTTSDALE RD	MAYO BLVD	2	2.0
20 ST	CAMELBACK RD	BETHANY HOME RD	7	2.0
Campbell Ave	24TH ST	28TH ST	7	1.0
39th Ave	Roosevelt Street	McDowell Road	7	1.0
95TH AVE / ENCANTO BLVD	MCDOWELL RD	91ST AVE	5	2.0
Hatcher Rd	7th Ave	Central Ave	3	1.0
HAPPY VALLEY RD	BLACK CANYON PKWY (I-17)	19 AVE	2	1.7
PINNACLE PEAK RD	35 AVE	BLACK CANYON FRWY (I-17)	3	2.4
			Total	20.2

Attachment C

Active Transportation Program Update Planned Pavement Projects with Proposed Bike Lanes FY23-FY27

FY24 New Bike Lanes Planned

Street	From	To	Council District	One Way Miles
CAMPBELL AVE	113 DR	107 AVE	5	1.5
CORONA	32 ST	36 ST	8	1.0
CHANDLER BLVD	N/O PECOS RD	S/O SHAUGHNESSEY RD / CHANDLER BLVD	6	0.6
16 ST	GREENWAY PKWY	BELL ROAD	3	0.6
CACTUS RD	I-17	19 AVE	1, 3	0.9
CENTRAL AVE	MOUNTAIN VIEW RD	WEST FOOTHILL DR	3	0.4
SOUTH MOUNTAIN AVE	E/O 7 AVE	7 ST	8	2.0
MARKET PLACE WAY	CHANDLER BLVD	DESERT FOOTHILLS PKWY	6	2.8
Partially or fully buffered bike lanes				
MARKETPLACE WY (SE)	DESERT FOOTHILLS PKWY	CHANDLER BLVD	6	0.9
31 AVE	NORTHERN AVE	DUNLAP AVE	1, 5	2.0
CENTRAL AVE	HATCHER RD	MOUNTAIN VIEW RD	3	1.0
			Total	13.7

FY24 Existing Bike Lanes with New Buffers Planned

Street	From	To	Council District	One Way Miles
31 AVE	ROSE GARDEN LN	DEER VALLEY RD	1	1.0
66 ST / ACOMA DR	KIERLAND BLVD	CLUBGATE DR	2	1.6
VIA PUZZOLA	CAREFREE HWY	CLOUD RD	2	2.1
61 AVE	CHARLOTTE DR	HAPPY VALLEY RD	1	1.0
PINNACLE VISTA DR	PYRAMID PEAK PKWY	58 LN	1	1.0
HATCHER RD	E/O CENTRAL AVE	W/O 12 ST	3	1.5
48 ST	N/O RAY RD	N/O WARNER RD	6	1.6
CAMELBACK RD	E/O 113 DR (450' E/O BRIDGE)	W/O 107 AVE	5	1.5
JEFFERSON ST	I-17	19 AVE	7	0.9
BASELINE RD	32 ST	40 ST	8	2.0
ROOSEVELT ST	15 AVE	7 AVE	4	1.0
			Total	15.2

Attachment C

Active Transportation Program Update
Planned Pavement Projects with Proposed Bike Lanes FY23-FY27

FY25 New Bike Lanes Planned

Street	From	To	Council District	One Way Miles
BUTLER DR	E/O 7 ST	W/O 12 ST	3,6	0.4
UTOPIA RD/CENTRAL AVE	7 AVE	BEARDSLEY RD	2	1.8
HIGHLAND AVE	7 ST	12 ST	4	1.0
20 ST	SHARON DR	WINCHCOMB DR	3	1.0
PARADISE LN	43 AVE	35 AVE	1	2.0
ROESER RD	21 AVE	19 AVE	8	0.5
PARADISE LN	44 ST	TATUM BLVD	2	1.2
CHOLLA ST	44 ST	TATUM BLVD	3	1.0
MOUNTAIN VIEW RD	CENTRAL AVE	7 ST	3	1.0
MEDINAN DR /CANTERBURY DR	THUNDERBIRD RD	MOON VALLEY DR	3	1.8
WINGED FOOT RD	MEDINAN DR	7 ST	3	0.8
79 AVE	CAMPBELL AVE	CAMELBACK RD	5	0.8
CAMPBELL AVE	83 AVE	79 AVE	5	1.0
CAMPBELL AVE	67 AVE	63 AVE	5	1.0
VINEYARD RD	20 ST	24 ST	8	0.9
39 AVE	NORTHERN AVE	DUNLAP AVE	1	1.9
15 AVE	BEARDSLEY RD	ROSE GARDEN LN	1	0.9
JEFFERSON ST	24TH AVE	25TH AVE	7	0.2
12 ST	N/O BELL RD	S/O UNION HILLS DR	2,3	1.0
25 ST	CHANDLER BLVD	THUNDERHILL PL	6	0.5
CLARENDON AVE	59 AVE	55 AVE	5	1.0
Partially or fully buffered bike lanes				
VINEYARD RD / 76 DR	CARTER RD	75 AVE	7	0.7
23 AVE	MOUNTAIN VIEW RD	PEORIA AVE	3	0.9
			Total	23.3

FY25 Existing Bike Lanes with New Buffers Planned

Street	From	To	Council District	One Way Miles
UNION HILLS DR	E/O 16 ST	E/O CAVE CREEK RD	2,3	2.0
15 AVE	GLENDALE AVE	NORTHERN AVE	3,5	2.0
15 AVE	BETHANY HOME RD	GLENDALE AVE	5	2.0
81 AVE / PAPAGO ST	DURANGO ST	79 AVE	7	1.0
LIBERTY LN	E/O 24 ST	E/O 32 ST	6	2.3
7 ST	ELWOOD ST	I-17 MARICOPA FWY	7,8	0.3
31 AVE	UNION HILLS	KRISTAL WAY	1	0.9
TOMBSTONE TRL / 21 AVE	NORTERRA PKWY	JOMAX RD	1	1.9
32 ST	THUNDERBIRD RD	GREENWAY RD	3	2.0
THUNDERHILL PL	CHANDLER BLVD	RAY RD	6	1.7
			Total	16.1

Attachment C

Active Transportation Program Update
Planned Pavement Projects with Proposed Bike Lanes FY23-FY27

FY26 New Bike Lanes Planned

Street	From	To	Council District	One Way Miles
PARADISE LN	20 ST	CAVE CREEK RD	3	1.0
12 ST	CAVE CREEK RD	PEORIA RD	3	0.8
101 AVE	CAMELBACK RD	MISSOURI AVE	5	1.0
26 ST	GROVERS AVE	UNION HILLS DR	2	2.0
PALM LN	40 ST	44 ST	8	1.0
GROVERS AVE	E/O 40 ST	E/O 44 ST	2	1.1
50 ST	FRYE RD	CHANDLER BLVD	6	1.0
64 ST	MCDOWELL RD	OAK ST	6	0.9
21 PL	VAN BUREN ST	/ ROOSEVELT ST	8	1.0
54 ST	SHEA BLVD	CHOLLA ST	3	1.0
CHOLLA ST	47 AVE	43 AVE	1	1.0
PARADISE VILLAGE PKWY	E/O TATUM BLVD	E/O TATUM BLVD	3	1.9
Partially or fully buffered bike lanes				
CAMPBELL AVE	E/O 35 AVE	W/O 27 AVE	4	1.9
31 AVE	BASELINE RD	VINEYARD RD	8	0.9
BEHREND DR	15 AVE	7 AVE	2	2.0
23 AVE	PIMA FRWY	DEER VALLEY DR	1	2.0
LINCOLN ST	E/O CENTRAL AVE	W/O 7 ST	8	0.9
Total			Total	21.4

FY26 Existing Bike Lanes with New Buffers Planned

Street	From	To	Council District	One Way Miles
CAMPBELL AVE	59 AVE	51 AVE	5	2.0
52 ST	THOMAS RD	OSBORN RD	6	1.0
ENCANTO BLVD	39 AVE	31 AVE	4	1.9
91 AVE	MCDOWELL RD	THOMAS RD	5,7	1.0
51 AVE	SOUTHERN AVE	BROADWAY RD	7	1.5
7 AVE	S/O ROESER RD	N/O BROADWAY RD	7	1.0
BASELINE RD	51 AVE	43 AVE	7,8	1.0
STETSON VALLEY PKWY	55 AVE/DEEM HILLS PKWY	END OF ROAD	1	2.3
65 PL	GREENWAY PKWY	68 ST	2	1.4
BASELINE RD	E/O 43 AVE	E/O 35 AVE	7	2.0
23RD AVE	SOUTH MOUNTAIN AVE	BASELINE RD	8	1.0
48 ST	N/O WARNER RD	NO ELLIOT RD	6	2.7
			Total	18.8

Attachment C

Active Transportation Program Update
Planned Pavement Projects with Proposed Bike Lanes FY23-FY27

FY27 New Bike Lanes Planned

Street	From	To	Council District	One Way Miles
46TH ST	SHEA BLVD	CHOLLA ST	3	1.0
7TH ST	JESSE OWENS PKWY	N/O JESSE OWENS PKWY	8	0.2
34TH ST	GREENWAY RD	PARADISE LN	2	1.0
15 AVE	S/O OLNEY AVE	S/O DOBBINS RD	8	1.0
28TH ST	OSBORN RD	INDIAN SCHOOL RD	6	1.0
SIENNA VISTA/71ST AVE	ELWOOD ST	LOWER BUCKEYE RD	7	1.0
PARADISE LN	32 ST	36 ST	2	1.0
CHOLLA ST	32 ST	40 ST	3	2.0
LILY LN	83RD AVE	LOWER BUCKEYE RD	7	1.4
56 ST	WINDSOR AVE	N/O WINDSOR AVE	6	0.2
OSBORN RD	73 AVE	71 AVE	5	0.6
ORANGEWOOD AVE	19 AVE	15 AVE	5	1.0
BUTLER DR	23 AVE	19 AVE	5	1.0
48TH AVE	JEFFERSON ST	VAN BUREN ST	7	1.0
9TH ST	CANAL	BASELINE	8	0.6
47 AVE	OSBORN RD	INDIAN SCHOOL RD	4	1.0
MARYLAND AVE	E/O 43 AVE	W/O 35 AVE	5	2.0
Partially or fully buffered bike lanes				
GRANDVIEW RD	BLACK CANYON HWY	19TH AVE	3	1.8
21ST AVE	GRANDVIEW RD	BELL RD	3	0.8
ENCANTO BLVD	GRAND AVE	W/O 19 AVE	7	1.0
			Total	20.6

FY27 Existing Bike Lanes with New Buffers Planned

Street	From	To	Council District	One Way Miles
28 ST	THUNDERBIRD RD	GREENWAY RD	3	2.2
RANCHO PALOMA DR	BLACK MOUNTAIN BLVD	CAVE CREEK RD	2	2.0
BLACK MOUNTAIN BLVD	DESERT FOREST TRL	RANCHO PALOMA DR	2	1.2
BLACK MOUNTAIN BLVD	RANCHO PALOMA DR	CAREFREE HWY	2	2.0
48 ST	ELWOOD ST	UNIVERSITY DR	8	1.4
51 AVE	BASELINE RD	SOUTHERN AVE	7,8	1.0
40 ST	MAYO BLVD	DEER VALLEY DR	2	1.2
			Total	11.0

Attachment D

Active Transportation Program Update
CIP projects with Bicycle Infrastructure FY23 – FY28

FY23-FY28 CAPITAL IMPROVEMENT PROGRAM PROJECTS WITH BICYCLE FACILITIES

Project Name	From	To	Project Type	Bike Lane Miles	Current Phase
3RD ST CONNECTOR	RIO SALADO NORTH BANK	LINCOLN ST	BIKE BOULEVARD	N/A	PRE-DESIGN
DOWNTOWN NORTH-SOUTH BIKEWAY STUDY	LINCOLN ST	ROOSEVELT ST	BIKE LANES	1.2	PRE-DESIGN
3RD AVE	THOMAS RD	OSBORN RD	UPGRADE BIKE LANES	N/A	PRE-DESIGN
3RD ST BIKE/PED BRIDGE	RIO SALADO SOUTH BANK	RIO SALADO NORTH BANK	BICYCLE AND PEDESTRIAN BRIDGE	N/A	DESIGN
GARFIELD-EDISON PARK BIKEWAY IMPROVEMENTS (VILLA/FILLMORE BIKE BOULEVARD)	7 ST	24 ST	UPGRADE BIKE BOULEVARD	N/A	DESIGN
20TH STREET IMPROVEMENT PROJECT	GRAND CANAL	HIGHLAND AVE	UPGRADE BIKE LANES	N/A	DESIGN
COLTER STREET BICYCLE AND PEDESTRIAN IMPROVEMENTS	15 AVE	20 ST	TRAFFIC CALMING	N/A	DESIGN
GRAND CANALSCAPE PHASE 3	75 AVE	47 AVE	MULTI-USE PATH	N/A	DESIGN
WESTERN CANALSCAPE	4 AVE	24 ST	MULTI-USE PATH	N/A	DESIGN
3RD AVE	INDIAN SCHOOL RD	CAMELBACK RD	BIKE LANES	0.6	DESIGN
56TH STREET	THOMAS RD	CAMELBACK RD	MULTI-USE PATH	N/A	DESIGN
3RD AND 5TH AVENUES IMPROVEMENT PROJECT (NORTH OF MCDOWELL)	MCDOWELL RD	THOMAS RD	PROTECTED BIKE LANES	1.1	CONSTRUCTION
Total				2.9	



City of Phoenix

ACTIVE TRANSPORTATION PLAN

DRAFT NOVEMBER, 2022



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01

BACKGROUND

BACKGROUND

Purpose & Need

The City of Phoenix Active Transportation Plan (ATP) establishes a framework to guide decision-making—through policies, programs, and infrastructure—to make walking, biking, and rolling more safe and enjoyable in Phoenix. This plan is a policy-level plan that highlights collaborative opportunities to advance active transportation through partnerships with other city initiatives, and also provides a neighborhood-centered approach to building active transportation priorities at the neighborhood scale.

This plan’s recommendations are organized into three main assessment areas of 1) Policy Framework, 2) Network Development guidance, and 3) Design Guidance. An overview of all three of these areas is contained within this document, which is guided by an overarching set of principles—**to create an active transportation network in Phoenix that is safe, connected, enjoyable, and equitable.**

Today, XX miles of roadway and XX miles of shared use paths support travel across the City. Each year, the City installs new bikeways, crossings, and pedestrian infrastructure in coordination with capital projects and the ongoing resurfacing program. This plan aims to accelerate active transportation progress by prioritizing neighborhood-scale and neighborhood-identified improvements and provides design guidance to create the next generation of bicycle and pedestrian infrastructure in Phoenix.

While the city aims to continue improving city-wide networks, a major focus of this plan is helping to create linkages and connections to everyday destinations within neighborhoods and urban villages with facilities that are designed to be safe and enjoyable for everyone. Many of these

local destinations - including grocery stores, restaurants, schools, and parks - are set up for travel through walking and biking as short trips within neighborhoods. This plan focuses on helping residents access and connect to these important local destinations.



Source: Maricopa Association of Governments

Three Plan Assessment Areas:



POLICY FRAMEWORK:

Review policies and internal practices that influence active transportation design.



NETWORK DEVELOPMENT:

Develop a network framework that is not map-based.



DESIGN GUIDANCE:

Create updated design guidance for how to design bicycle and pedestrian facilities.

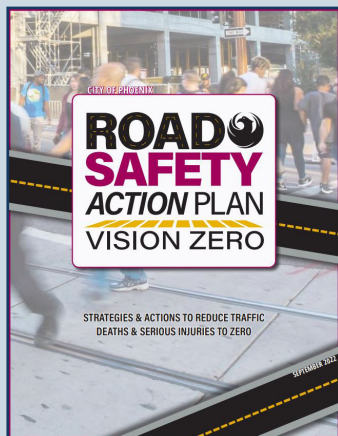
Safe and connected active transportation networks should meet the needs of all Phoenixians. This plan provides an assessment framework that helps to prioritize highest need areas and the neighborhood-specific approach speaks to Phoenix’s large geographic demographic diversity, allowing residents to identify projects and needs that are most impactful to their neighborhoods.

Advancing Existing Plans

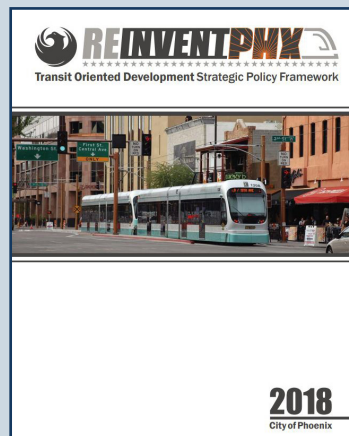
Phoenix is the 5th largest city and the fastest growing large city in the United States at this time. Many previous and existing planning efforts have contributed to and guided this growth to support Phoenix transitioning into a world class city. These plans, and this active transportation plan, build upon and support the cultural shift of designing roadways to be inclusive and safe for a variety of ways of travel and directly impact the lives, experiences, and quality of life of Phoenix’s residents. This ATP is an opportunity to build upon other planning efforts, like those highlighted below, to make biking and walking key components of the City’s transportation network as it continues to grow and evolve in the future.

Existing Plans Supported by This Plan

Multimodal and roadway-specific plans and policies across Phoenix that this plan supports are: Road Safety Action Plan: Moving to Vision Zero (2022); City of Phoenix Complete Streets Policy; and the City of Phoenix Transit Oriented Development (TOD) Strategic Policy Framework (2018).



The Phoenix Road Safety Action Plan: Moving to Vision Zero (2022) adopted by City Council in September 2022 with the goal of reducing traffic fatalities and serious injuries to zero in Phoenix by 2050.



The City of Phoenix Transit Oriented Development (TOD) Strategic Policy Framework (2018) prioritizes higher density land use around high capacity transit and provides opportunities for active transportation connections.



The City of Phoenix Complete Streets Policy provides support and direction around designing Phoenix’s streets to accommodate many different forms of travel, and to prioritize safe and comfortable facilities for people walking and biking.

Advancing Active Transportation

While the City of Phoenix first began planning for bikes when the Council adopted a proposed bike system in 1987, bikeway implementation and momentum for safe and comfortable facilities only recently began with the adoption of the City's first bicycle master plan in 2014. Since then, the City has made significant progress in expanding the bicycle network. To date, the City has implemented X miles of buffered bike lanes, X miles of protected bike lanes, X miles of bike boulevards, and X miles of traditional bike

lanes. In recent years, as national best practices have evolved, the City has begun planning and implementing bicycle facilities that are considered more comfortable for all ages and abilities. This includes bike boulevards, which are low stress routes along neighborhood streets, as well as protected bike lanes, which are on-street bicycle facilities that are physically separated from motor vehicle traffic by a vertical element or barrier, such as a curb, flexible delineators, or vehicle parking aisle.

The Evolution of Protected Bikeways in Phoenix:



2017

The City installed its **first protected bike lane** along 15th Avenue between Van Buren and Jefferson streets.



2019

The City installed its **first parking-protected bike lanes** along 39th Avenue from Encanto Boulevard to Edgemont Avenue and Earll Drive from Sixth to Third Avenues.



2021

The City installed its **first two-way protected bike lane** along 3rd Avenue between Roosevelt Street and McDowell Road.



2022

The City installed **protected bike lanes** on Fillmore Street from Central Avenue to 7th Street, and 3rd Street from Roosevelt Street to Indian School Road.

Another exciting milestone is the current design of a bike boulevard that includes significant traffic calming and traffic diverters along Fillmore Street from 7th to 16th Streets. This corridor will reflect current best practices in bike boulevard design and has been envisioned for over a decade.

Phoenix has made significant progress and the work by various departments, advocates, and community input have helped make each of these projects a reality for our community. The next 10 years will bring more opportunities to create safe and enjoyable roadways that provide space for different forms of travel.

Streets for All

The way we think about and design our streets in Phoenix and across the country is changing. We have made large strides as a community, and have invested significant resources, in building a transportation network that provides choices for how to travel, including not just driving, but walking, rolling, biking, transit, and other emerging types of mobility options. The extension of our light rail system, continued advancement of Bus Rapid Transit and the building of canal trails are all testaments to this commitment.

Walking and biking are critical pieces of this network. These modes are not just about providing a variety of options, but are also about including people of all ages and abilities (reference Design Guidance Element for more information on designing for different users). They provide safe connections for children to walk or bike to school and connect people to work, transit, and places they want or need to go. In many cases, walking and biking are also primary ways of moving around Phoenix. Many residents use walking and biking to access transit and other modes of transportation, and an increasing number of people are reducing household vehicle ownership for a variety of different reasons.

Building our active transportation network serves these purposes, among many others, and helps to guide how and where safe critical infrastructure investments can and should be made within our community.

Active Transportation accounts for a variety of different ways of travel, including walking, rolling, biking, and many emerging types of mobility options. But it's not just about types of travel options, it's also about different abilities including people with a disability and facilities that are comfortable for people of all ages and confidence levels.



3rd Avenue Protected Bike Lanes with the use of a buffer strip and vertical posts to separate bicyclists from traffic.
Source: Maricopa Association of Governments



02

BENEFITS OF ACTIVE TRANSPORTATION

BENEFITS OF WALKING & BIKING

Economic Benefits

Active transportation can benefit the bottom line of households, businesses, and cities. The economic benefits of walking and biking include lower transportation costs for individuals and families, savings to cities from less wear and tear on streets, greater neighborhood and community vibrancy, boosts in retail sales, and more young job seekers being attracted and retained.¹

Vehicle ownership and maintenance can be expensive, especially for lower-earning households. National research from 2019 shows that lower-earning American households proportionately spend roughly twice as much of their income as the average-earning household on transportation. In 2016, the lowest earning 20 percent of the population spent almost 30 percent of their income on transportation costs². Having more transportation choices, including biking, walking, and transit, presents important opportunities for individuals and families to be more financially stable and self-reliant.

Research suggests that active transportation also has the potential to contribute to the general economic vitality of the community, and in more specific ways as shown in the graphics at right.

DRIVING 4 MILES/DAY COSTS



IN FUEL AND VEHICLE WEAR AND TEAR

AAA, 2019

while...

WALKING AND BICYCLING COSTS



Your driving Costs: How Much are you really Paying to Drive? (2019). <https://exchange.aaa.com/wp-content/uploads/2019/09/AAA-Your-Driving-Costs-2019.pdf>

Increased **EMPLOYMENT AND SALES** for businesses facing **STREETS WITH IMPROVED WALKING & BIKING INFRASTRUCTURE**^{3, 4}



Proximity to **BICYCLE INFRASTRUCTURE** is associated with **INCREASING RESIDENTIAL PROPERTY VALUES**⁵

1. Railyards Blog. <https://railyards.com/blog/7-benefits-of-bike-friendly-communities>

2. ITDP (Institute for Transportation & Development Policy). *The High Cost of Transportation in the United States*. 2019. <https://www.itdp.org/2019/05/23/high-cost-transportation-united-states/>

3. Garrett-Peltier, H. (2011). *Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts*. University of Massachusetts, Amherst, Political Economy Research Institute.

4. Liu, J. H., & Shi, W. (2020). *Understanding Economic and Business Impacts of Street Improvements for Bicycle and Mobility— A Multicity Multiapproach Exploration (NITC-RR-1031)*. National Institute for Transportation and Communities, Portland State University.

5. Liu, J. H., & Shi, W. (2017). *Impact of Bike Facilities on Residential Property Prices*. *Transportation Research Record: Journal of the Transportation Research Board*, 2662, pp 50–58. <https://doi.org/10.3141/2662-06>

Safety Benefits

Dedicated infrastructure for walking and biking, combined with measures to reduce vehicle speeds, helps prevent crashes and saves lives. Many bicycle and pedestrian-involved crashes are preventable.

While education and other efforts are important, the design of safe infrastructure that is designed for slower vehicle speeds and separation between motorists, bicyclists, and pedestrians is the most effective way to reduce crashes and crash severity.

Speed management is important in preventing both crash instances and crash severity. Research shows that driver behavior, especially speed, is largely driven by roadway design, more so than posted speed limits or enforcement, and that streets designed for slower speeds result in fewer crashes.⁶

“Communities designed to be walkable can improve safety not only for people who walk but for all community members.” – Vivek H. Murthy, Surgeon General, 2015



Bicycling infrastructure (specifically separated and protected bike lanes) significantly reduce fatalities and improve road-safety outcomes for all road users, not just cyclists.⁷

A pedestrian hit by a vehicle traveling at **25 MPH**



has an **89%** chance of survival

A pedestrian hit by a vehicle traveling at **35 MPH**



has a **68%** chance of survival

A pedestrian hit by a vehicle traveling at **45 MPH**⁸



has a **35%** chance of survival

6. Ewing, Reid and Dumbaugh, Eric. 2009. *The Built Environment and Traffic Safety*. *Journal of Planning Literature*. Volume 23 Number 4.

7. Marshall, W. and Ferenchak, N. 2019 - *Why cities with high bicycling rates are safer for all road users*, *Journal of Transport & Health*

8. National Traffic Safety Board (2017) *Reducing Speeding-Related Crashes Involving Passenger Vehicles*. Available from: <https://www.nts.gov/safety/safety-studies/Documents/SS1701.pdf>

Health Benefits

Active transportation supports mental and physical well-being through reduced stress, reduced anxiety, and numerous health benefits associated with higher levels of activity.

The Centers for Disease Control and Prevention recommends that adults get 150 minutes of moderate-intensity physical activity every week (e.g., 30 minutes a day for five days) to reduce chances of chronic diseases, such as diabetes or cardiovascular disease. Most recent data shows that roughly 80 percent of American adults do not achieve this.⁹ Communities that make walking and bicycling safe and convenient ways to travel enable residents to incorporate physical activity into their daily routines.

Despite the inherent risks tied to bicycling in car-oriented cities, studies have shown that the health benefits of bicycling to an individual outweigh the risks 9 to 1, even when accounting for higher exposure to air pollution and risk of traffic collisions.¹⁰

9. Centers for Disease Control and Prevention. <https://www.cdc.gov/physicalactivity/index.html>

10. de Hartog, Jeroen Johan; Boogaard, Hanna; Nijland, Hans; Hoek, Gerard. 2010. Do the Health Benefits of Cycling Outweigh the Risks? *Environmental Health Perspectives*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2920084/>

11. Boyd, H., Hillman, M., Nevill, A., Pearce, A. and Tuxworth, B. (1998). Health-related effects of regular cycling on a sample of previous non-exercisers, *Resume of main findings*

Nationally, those who bike report¹¹:



A BETTER MOOD



HIGHER SELF-CONFIDENCE



HIGH TOLERANCE TO STRESS



HEALTHIER SLEEP PATTERNS



Those who are **PHYSICALLY ACTIVE** generally **LIVE LONGER** and have a **LOWER RISK FOR HEART DISEASE, STROKE, TYPE 2 DIABETES, DEPRESSION, AND SOME CANCERS.**

CDC, 2015



20 MINUTES WALKING OR BIKING each day is associated with a

21% LOWER RISK OF HEART FAILURE FOR MEN

&

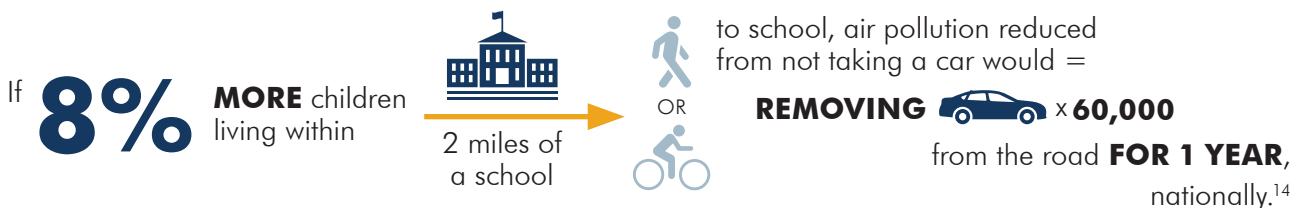
29% LOWER RISK FOR WOMEN

Rahman, 2014 and 2015

Environmental Benefits

By enabling people to make short trips on foot or bicycle instead of a car, active transportation can help communities address several environmental challenges. The most discussed, and perhaps most critical, environmental benefits of active transportation are reduced air pollution and emissions of greenhouse gases. Other environmental benefits include energy savings, less noise pollution, less water pollution, and even reduced pressure to develop agricultural and open space.

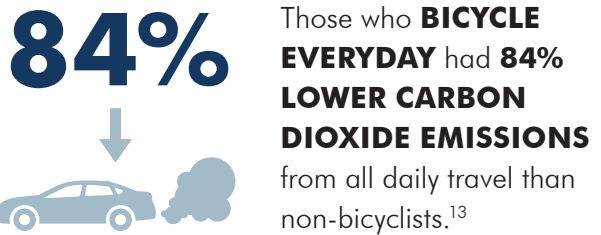
Replacing automobile trips with walking and bicycling trips can reduce particulate matter, nitrous oxide, sulfur oxide, volatile organic compounds and carbon dioxide that a typical motor vehicle emits.



By **2050**, if 7% of American commute trips were



ANNUAL GLOBAL GREENHOUSE GAS EMISSIONS would be reduced by approximately



Phoenix Climate Action Plan

In 2021, Phoenix adopted a climate action plan with the goal of reaching net-zero as a city by 2050 while also reducing 50% of emissions by 2030. Our active transportation network will be a key partnership opportunity in achieving these goals.

Key opportunities identified by the climate action plan that advance active transportation include:

- Creating a connected and comfortable bicycle network that is designed for all ages and abilities
- Expanding the network of multi-use pathways
- Linking active transportation connections with high capacity transit
- Creating walkable and bikeable neighborhood connections

Accessibility and Mobility Benefits

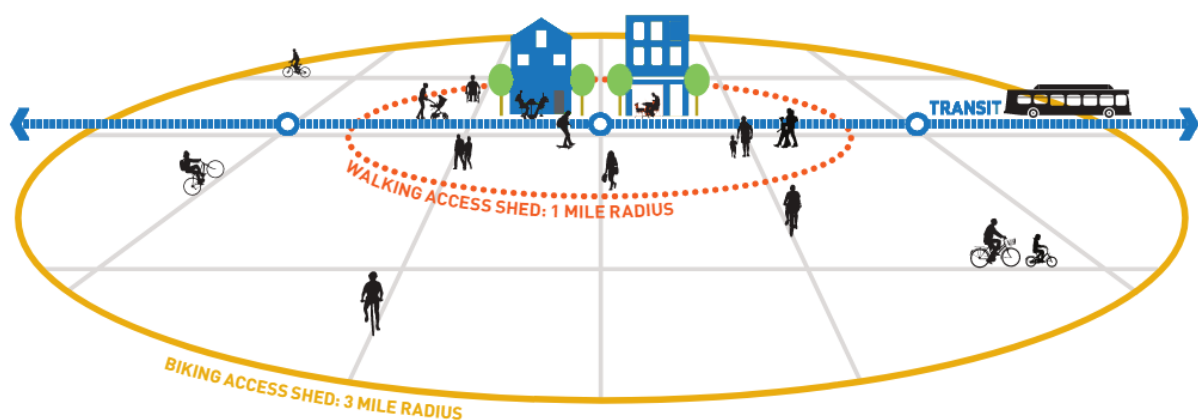
Active transportation provides more options for how people get around, regardless of their reason for travel. Improved infrastructure that provides comfortable and safe routes of travel can encourage more people to use active modes and increase connections to educational, economic, and recreational opportunities.

Walkways and bikeways, when applied comprehensively, provide a critical element of freedom to those who may not have access to, or the ability to drive a motor vehicle. A robust active transportation network can capture a high percentage of 0-5 mile trips, helping to maximize transportation efficiency, and provide greater choice for residents and visitors.



Source: Maricopa Association of Governments

On average, **40% OF ALL TRIPS** we make are for a distance of **TWO MILES OR LESS**—a distance that can easily be covered by a **10 MINUTE BICYCLE RIDE** or a **30 MINUTE WALK**.¹⁵



12. European Cyclists' Federations. (2016). *Cycle More Often 2 Cool Down the Planet! Quantifying CO2 savings of cycling*.ast Company <https://medium.com/fast-company/as-we-discuss-big-solutions-to-climate-change-dont-forget-people-friendly-streets-18514fe56a43>

13. Brand, C. et al., 2021, *The climate change mitigation effects of daily active travel in cities*. *Transportation Research Part D: Transport and Environment*

14. Pedroso, M, 2008, *Safe Routes to School Steps to a Greener Future: How walking and bicycling to school reduces carbon emissions and air pollutants*. *Safe Routes to School National Partnership*

15. NHTS 2009, FHWA Office of Policy



03

COMMUNITY INPUT & PRINCIPLES

INPUT THEMES

Community outreach for the plan was conducted through an online survey, poster polls at neighborhood and community events, and interviews with local leaders and advocacy organizations. This input guided the overall plan goals. Here is a snapshot of what we heard. The full engagement summary can be found in **Appendix A**.

Online Survey

Who Participated?



665

Survey Participants

What we heard:

DAILY TRANSPORTATION

65%  for daily transportation

70% would like to  more often.

TRANSPORTATION BARRIERS

Most common **BARRIERS** to **WALKING**:

 distance between places	 unsafe driving behavior	 heat/lack of shade
--	--	---

Most common **BARRIERS** to **BIKING**:

 lack of connected facilities	 unsafe driving behavior	 bike lane/road proximity
---	--	---

The highest percentage of respondents rate current conditions in Phoenix as **UNSAFE** for

 53% walking	 71% biking
---	--

58% of residents agree with “I would support lowering speed limits in exchange for making streets more comfortable for walking and biking” with 37% saying they strongly agree.

 **58%**
agree

TRANSPORTATION DESIRES

Respondents would **LIKE TO SEE MORE**:



bike infrastructure, specifically bike lanes protected by a curb

streets with sidewalks, specifically detached sidewalks with shade



midblock crossings

PRIORITIES

GENERAL TRANSPORTATION:



preventing injury-causing collisions



everyone has a comfortable option for using the street

STREET-SPECIFIC



expanded bikeway network



shade




neighborhood routes over regional



comfortable over low-cost



safety over upgrading/adding paths

 **65%** of respondents feel unable to find information and ways to provide input on local bicycle and pedestrian projects in their neighborhood.

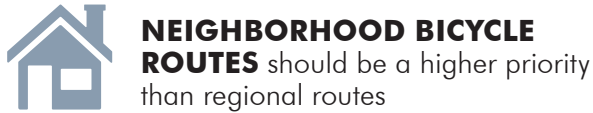
Poster Polls

Who Participated?



What we heard:

SPECIFIC PRIORITIES



GENERAL PRIORITIES



Interviews with Local Leaders and Advocacy Organizations

Who Participated?

- 4** representatives from two education and advocacy organizations
- 7** community leaders from the 6 marginalized zip codes identified in the equity map

What we heard:



BICYCLE ADVOCATES

- Need for increased awareness/education about city projects; better messaging when relating neighborhood projects to overall city goals.
- Concerns about traffic, speeding, and lack of infrastructure to make walking and biking safe.
- City should work to improve the culture with the streets department. In addition, there are concerns about internal politics, turnover, and a lack of strong advocates within the department.



COMMUNITY LEADERS IN HISTORICALLY MARGINALIZED AREAS

- Concerns about safety; lack of sidewalks in some residential communities (particularly West & South Phoenix), inconsistent bike paths, speeding, homeless encampments, violent crimes, drug use, and stray dogs.
- Need for more accountability and transparency from the city. In addition, they are not confident the city will show up for their communities; supportive of additional street infrastructure if it supported their current safety needs.

GUIDING PRINCIPLES

Developing an intentional active transportation network that is responsive to the community must be driven by key guiding principles. The future active transportation network in Phoenix should be one that is safe, connected, enjoyable, and equitable. These principles should guide future decision-making around facility selection and design and work together to create a better environment for people walking and biking in Phoenix.



Equitable

The City will develop active transportation networks that meet the needs of all Phoenixians and will prioritize improvements for areas with the highest need and vulnerable and disadvantaged populations. Your identity, ability, and/or where you live should not determine your ability to safely and enjoyably travel around Phoenix.



Safe

The City will develop active transportation networks that eliminate bicycle and pedestrian fatalities and serious injuries. People walking and biking in Phoenix should be able to travel to their destination without fear or the undue risk of being killed or seriously injured in traffic.



Connected

The City will develop active transportation networks that connect people to where they want and need to go. People in Phoenix should be able to walk and bike to destinations within their urban villages that allow them to meet their daily needs such as to school, work, parks and trails, attractions, healthcare, transit, and more.



Enjoyable

Travel along Phoenix's bikeways and pedestrian corridors should be an enjoyable experience. Routes that support people of all ages and abilities will include separation from motor vehicles, reduce exposure to high speed and high volume traffic, provide shade for heat resiliency, and encourage more people to walk and bike to nearby destinations.



04

REVIEW OF
EXISTING PLANS

REVIEW OF EXISTING PLANS

The City of Phoenix's transportation system is guided by a number of different local and regional plans and initiatives. Many of these completed plans and initiatives directly or indirectly address active transportation as part of their implementation priorities, which highlights the important role active transportation plays in achieving a variety of different objectives. The policies, design guidelines, and network development program outlined in this plan were drafted with this in mind, and are an attempt to build upon and advance many of the active transportation objectives already outlined in other plans.

Citywide plans reviewed included the Phoenix General Plan (2015), the Phoenix Strategic Plan, City of Phoenix Complete Streets Policy, the Transportation 2050 Plan (T2050), and

the Climate Action Plan (2021). Other plans reviewed included the 2014 Comprehensive Bicycle Master Plan, Sustainability Transportation Goals, Shifting Gears Five Year Bicycle Program (2018), the Downtown Phoenix Comprehensive Transportation Study, Reinvent Phoenix, and the Mobility Improvements Program.

This section is a summary of some of the key themes that came out of the existing plan review, and includes some specific policies and goals related to active transportation from those plans. These themes provided the foundation for policy and design guidance recommendations. The entirety of the existing plan review can be found in **Appendix B: Previous Plan Review Memorandum**.

Recommendation	Existing Plan	Summary
Theme 1: Improve Safety & Comfort for Pedestrians and Enhance the Pedestrian Experience		
Cores, centers and corridors will have pedestrian and bicycle connections to the surrounding community	Phoenix General Plan	There is an opportunity to better define pedestrian planning in Phoenix by building on policies and objectives in other city plans. The ATP should focus on pedestrian comfort and safety through policy development and design guideline updates. Factors influencing the pedestrian experience include safe crossings, lighting, visibility, shade, and separation from traffic, among others.
Plan, design, develop, and maintain green infrastructure, such as interconnected trail systems that increase shade canopy coverage and promote pedestrian mobility	Phoenix Strategic Plan	
Less traffic and more crosswalks are the future	Reinvent Phoenix	
Build more high comfort (safer, better-connected) networks	Maricopa Association of Governments (MAG) Active Transportation Plan	

Recommendation	Existing Plan	Summary
Theme 2: Prioritize Active Transportation Improvements Around First/Last Mile Transit Connectivity		
Create more walkable corridors to connect to station areas	Reinvent Phoenix	First/last mile connectivity to transit is an important intersect between public transit and active transportation; the provision of comfortable and safe bicycle and pedestrian facilities makes people more likely to walk or bike to transit. The provision of quality active transportation infrastructure around transit has the added benefit of increasing transit ridership.
Conduct additional project assessments for major street sidewalk improvements for ADA non-accessible bus stops	Mobility Improvement Programs	
A particular emphasis on improving connectivity and access to major transportation and transit corridors	Transportation 2050 Plan	
Encourage bike integration with the overall transit system	Phoenix Comprehensive Bicycle Master Plan	
Provide first-mile/last-mile connections that complement and even supplement transit during disruptions	Shared Mobility Program	
Theme 3: Improve Coordination Between Departments & Agencies on Active Transportation Implementation		
Phoenix street environment to be more inclusive of pedestrians, cyclists, and transit-users will require coordination with and support of many City departments and adjacent landowners	City of Phoenix Complete Streets Policy	Many plans, agencies, and departments reference active transportation as an objective, and while many positive references to active transportation in other plans exist, it's important to understand whether they are being implemented and what barriers to implementation might exist.
Street Transportation Department will lead implementation of Complete Streets for projects	Phoenix Strategic Plan	
Build off the agency partnerships that developed the plan to implement the TOD vision	Reinvent Phoenix	
Strengthen regional transportation planning coordination with state and regional governmental agencies and public service providers	Phoenix Comprehensive Bicycle Master Plan	
Theme 4: Understand and Assess Funding Sources		
The Planning and Development Department will provide guidance for privately funded projects to implement the Policy	City of Phoenix Complete Streets Policy	Understand what funding exists, how funding is being used and allocated, and understand public support and priorities in terms of funding.
T2050 dedicates nearly 14% of its total transportation funding towards improvements that expand bicycle and pedestrian connectivity	Transportation 2050 Plan	
The Street Transportation Department's Capital Improvement Program (CIP), the five-year program provides over \$750 million in improvements to street transportation infrastructure	Shifting Gears Five Year Bicycle Plan	
Seek State and Federal funding through the Maricopa Association of Governments (MAG) to assist with implementation of large and difficult projects	Phoenix Comprehensive Bicycle Master Plan	

Recommendation	Existing Plan	Summary
Theme 5: Design Guidelines and Standards		
Complete Streets principles will be included into the General Plan and other relevant plans, manuals, rules, regulations, ordinances and programs as determined by staff and the Complete Streets Advisory Board	City of Phoenix Complete Streets Policy	Developing Design Guidance that follow best practices allow for the implementation bicycle and pedestrian facilities that can attract users of all ages and abilities. This guidance can improve safety, functionality, and comfort for users. They are a tool for the Street Department for installation and can provide context sensitive designs that will help achieve mode shift goals and safety goals.
Potential improvement strategies should be “context sensitive” solutions.	Transportation 2050 Plan	
Update City of Phoenix guidelines addressing bicycle facility design and traffic control	Phoenix Comprehensive Bicycle Master Plan	
Building out a regional active transportation network for all ages and abilities	Maricopa Association of Governments (MAG) Active Transportation Plan	
Theme 6: Sustainability		
Create a network of shared-use trails and pathways that are safe, convenient and connected within preserves and parks	Phoenix General Plan	Active transportation is one main component in creating a sustainable future. Vehicular transportation is one of the largest contributors to greenhouse gas (GHG) emissions and contributes to climate change. The ATP will be the key planning document to reduce dependency on driving. Additionally, the ATP will provide recommendations for landscaping that could have benefits to water and urban heat issues.
Reducing energy usage from street lights while improve visibility by replacing 100,000 street lights with new LEDs	Shifting Gears Five Year Bicycle Plan	
Allowing 90% of the population to be a 10-minute walk from transit through the expansion of routes and service frequency (and shaded bus stops)	Environmental Sustainability Goals – Transportation	
Increase the active transportation mode share to 30 percent by 2040	Maricopa Association of Governments (MAG) Active Transportation Plan	
Continue to implement the Tree & Shade Master Plan to establish 25% tree and shade canopy in streets and pedestrian areas by 2030 (medium term 2030-2035)	Climate Action Plan	
Increase bike lane mileage in the City of Phoenix and ensure the bicycle network is connected and comfortable for riders of all ages and abilities. (long term 2040-2050)	Climate Action Plan	
Create a network of multi-use paths along the existing canal network in Phoenix (long term 2040-2050)	Climate Action Plan	
Develop a series of corridors with a strong emphasis on active transportation and connections to high-capacity transit corridors (long term 2040-2050)	Climate Action Plan	



05

**ACTION &
ACCOUNTABILITY**

ACTION & ACCOUNTABILITY

Translating Community Input into Action

The Active Transportation outreach approach was designed to capture community priorities, desired outcomes, and process approaches in order to draft plan recommendations aligned with community priorities. The initial round of community outreach focused on soliciting input that could form the basis of the plan guiding principles, priorities, and the general direction for recommendations.

The first round of outreach included an online survey, poster polls, and targeted outreach to neighborhood leaders and active transportation advocates. Each method of outreach was able to reach different populations; the poster polls at community events and targeted outreach to neighborhood leaders were a way to get feedback from residents that may not normally opt into online polls.

As City staff will be responsible for implementing the plan, stakeholder interviews with City staff were conducted to better understand challenges and feasibility as part of the initial outreach. The internal Active Transportation Advisory Team provided further information on opportunities and challenges from several departments, including:

- Streets & Transportation
- Parks & Recreation
- Office of Sustainability
- Planning & Development
- Public Transit
- Aviation
- Neighborhood Services
- Community & Economic Development

The internal staff outreach ensured recommendations were feasible by identifying what

could be achieved within the twenty-year planning horizon while also highlighting opportunity areas with potential for rapid actions.

Input from outreach is reflected in the plan guiding principles, network development program, design guidance, and the policy recommendations, as follows.

Plan Guiding Principles

Across each outreach method, respondents were asked about their big picture priorities and guiding principles when it comes to transportation. The survey and poster polls focused on tradeoffs to ensure plan recommendations and prioritization were grounded in community priorities.

In the online survey, respondents most frequently identified safety as their top priority, followed by canals, equity, high comfort facilities, and gap closure. Poster poll participants had largely similar priorities. At the Laveen BBQ, respondents ranked safety first, followed by parks and community centers, transit access, canals, and equity. At First Friday in downtown, respondents selected transit access as their top priority followed by safety, access to population and employment centers, equity, and canals.

These priorities are captured in the plan guiding principles of safe, connected, enjoyable, and equitable active transportation networks. Though each group of respondents had different top priorities for where active transportation networks should connect to, the neighborhood-scale planning recommendations in the Community Active Transportation Network Program will allow different communities to identify the important destinations for their neighborhoods. Policy recommendations on canal paths are also included in the plan.

Policy Recommendations

Active transportation infrastructure is part of the city fabric, usually sharing the same streets as cars, and connecting to the same places. In the survey and through targeted outreach, the planning team asked about overall transportation priorities to better understand how Phoenicians would like to see active transportation integrated into the city. Interconnected transportation and land use issues, along with the tradeoffs inherent to creating truly multimodal streets, were mentioned in targeted outreach and in survey comments.

While survey respondents overwhelmingly expressed interest in walking and biking more, features of the car-oriented built environment were consistently identified as the major barriers to active transportation in Phoenix. Unsafe driving and distances between places were most frequently identified as the top barriers to walking, while unsafe driving and bike lanes too close to traffic were the top barriers to biking. To meaningfully address these barriers, the policy recommendations include potential updates to policies and procedures that impact land use and street design.

Through the current General Plan, Complete Streets Policy, and Transit-Oriented Development planning the City of Phoenix already has strong policy support for multimodal street design and supportive land use. However, in conversations with internal City staff, a recurring theme was the need to translate high level policy recommendations into updates for existing procedures and practices.

The need to match high level policies with day-to-day practices was echoed in targeted outreach as well. Representatives of advocacy groups, who had been involved in campaigns to adopt these policies and plans, felt the recommendations had not always resulted in implementation. Neighborhood leaders representing historically marginalized

communities doubted the city could follow through on delivering their stated vision, based on direct experience with previous planning processes.

Carrying overarching policy recommendations into implementation is particularly important for active transportation as it is both a desired outcome in city plans and a means to achieving other outcomes, such as reducing carbon emissions reductions and improving air quality. As a result, the policy recommendations include specific recommendations for implementing existing plans through an active transportation lens. Recommendations for consideration in the upcoming General Plan update are also included to further link land use and transportation in Phoenix.

Overcoming Existing Active Transportation Barriers

While active transportation barriers exist, the new design guidance, policies, and network development approach, in conjunction with the work of other plans/initiatives, will continue to advance active transportation in Phoenix. Expanding active transportation culture will not happen overnight, it will happen incrementally.



Source: Maricopa Association of Governments

Network Development Program

During outreach, respondents were asked directly about tradeoffs in the planning and design process, specifically, whether they would prefer planning to focus on regional or local networks and whether they would prefer safer, more expensive infrastructure or more miles of lower-cost infrastructure. Across all outreach methods, respondents preferred to focus on connections to local destinations and higher-quality infrastructure, even if the increased cost resulted in less mileage overall. These preferences were particularly pronounced for poster poll participants.

Direct conversations with community leaders from historically marginalized neighborhoods helped the planning team to better understand needs and desires from communities that often do not get prioritized in citywide plans. Many community leaders expressed concerns about personal safety in addition to traffic safety. They mentioned the lack of sidewalks in some residential communities (particularly West & South Phoenix), inconsistent bike paths, speeding, homeless encampments, violent crimes, drug use in neighborhoods, and stray dogs.

The preference for local network connections tailored to neighborhood level concerns shaped the recommendations for network development. The Community Active Transportation Network Program is designed to provide an opportunity for the Street Transportation Department to work with communities at a scale that allows for careful consideration of community destinations and connections. The program's focus on equity, safety, and tying together existing connections will allow for the identification of projects that are driven by neighborhoods themselves, beginning with urban villages that have the greatest need. It will be a way for the department to create

stronger relationships with communities, share information, and be more transparent about decisions.

In addition to the quick-build projects that will be implemented as part of the program, the outreach is anticipated to identify maintenance issues and potential Capital Improvement Projects. The program will help guide available resources to high priority community projects, even outside of the quick-build projects envisioned for the program. When the program has worked with every urban village in Phoenix, the Street Transportation Department will work with Phoenix residents and City leadership to determine the next steps for further building out the network and how to best continue the work of the program.



Source: Maricopa Association of Governments

Design Guidance

The design guidance provides information on safe and comfortable active transportation infrastructure. The guidance is intended to support the design and implementation of infrastructure types that respondents prioritized during the outreach process.

In the online survey, respondents were asked more specific questions about infrastructure types and tradeoffs around speed limits. They were also asked whether they supported lowering speed limits in some cases. Respondents consistently supported safe, enjoyable, and connected infrastructure designs even if they added congestion. The preference for separation from motor vehicles and slower speeds informed policy recommendations in addition to the design guidance.

When asked about whether they would like to see more of a given type of infrastructure in Phoenix, respondents were most enthusiastic about infrastructure types that provided greater separation and shade. A detached sidewalk with shade was the single most popular picture, with 94% of respondents agreeing to some degree they would like to see more in Phoenix, and 74% strongly agreeing. For bike infrastructure, designs with more separation (e.g. curb protected bike lanes) received the most enthusiastic support while designs with no separation (e.g. Bike Boulevard) received the least enthusiasm. In all cases, the majority of respondents at least slightly agreed they would be willing to accept increased rush hour congestion as a trade off.



Source: Maricopa Association of Governments

Implementation and Tracking

The plan has three assessment areas, with three distinct paths to implementation. Additionally, the plan builds on previous plans, policies, and initiatives. Implementation timelines for each of these areas are detailed below. Progress on metrics will be included in an annual update to the Citizens Transportation Commission along with bike mile tracking.

Ongoing Commitments

The Street Transportation Department will prioritize maintaining momentum on active transportation initiatives already underway. The department will continue to deliver on the following programs and project types:

- Pavement projects and other striping projects: The department will continue to add bike lanes and upgrade bike lanes identified through pavement projects where there is space on the street
- Maricopa Association of Governments Active Transportation Plan Regional Routes: The department will continue to seek funding from the Maricopa Association of Governments to build out routes in the regional Active Transportation Plan
- Complete Streets: The department will continue to review development projects and Capital Improvement Plan projects to recommend bike lanes, sidewalks, street crossings, and other Complete Streets design features
- Canalscape projects: The department will continue to seek funding to build out the canal path network



Source: Maricopa Association of Governments

Ongoing Tracking Metrics

The Street Transportation Department will continue to report on active transportation metrics set by previous plans. Delivering on ongoing commitments and metrics is a key component of the Active Transportation Plan.

Existing plan or initiative	Goal	Evaluation Metrics
Transportation 2050	Add 1,080 bike lane miles from 2015 to 2050	<ul style="list-style-type: none"> Target of 30.9 new bike lane miles per year, reported annually to the Citizens Transportation Commission
Climate Action Plan	Multi-use paths along 90% of canals in Phoenix by 2050	<ul style="list-style-type: none"> New miles of paths included in the annual T2050 reports
2014 Comprehensive Bicycle Master Plan	Achieve Platinum level Bicycle Friendly Community Status	<ul style="list-style-type: none"> Apply for Bicycle Friendly Community Status every two years to benchmark progress Work continuously towards Platinum status (note- the previous timeline for achieving different levels of bicycle friendliness has been updated to emphasize more frequent applications rather than specific milestones as the Bicycle Friendly Community Status standards are regularly updated)

New Tracking Metrics

Plan Assessment Areas	Timeframe	Evaluation Metrics
Design Guidance	The design guidance will be used as a reference tool by internal staff and design teams as soon as it is finalized. The document is deliberately designed as a standalone piece in order for the PDF to be easily distributed and printed.	<ul style="list-style-type: none"> Design guidance internally distributed Design guidance posted on Street Transportation Department website Internal staff survey to check whether it is being used one year after adoption
Network Development	Staff will begin work on the Community Active Transportation Program as soon as the Active Transportation Plan is adopted. Outreach for the first two villages is anticipated to start in the fall of 2023.	<ul style="list-style-type: none"> Network planning conducted with two villages per year until all villages are completed. % of recommended quick-build projects within two years of finalizing Community Active Transportation Network recommendations
Policy Recommendations	Implementation priorities and timeframe are detailed in the Policy Recommendations chapter.	<ul style="list-style-type: none"> % of policy recommendations initiated within the recommended timeframe

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City of Phoenix



City of Phoenix

COMMUNITY ACTIVE TRANSPORTATION NETWORK PROGRAM ELEMENT

DRAFT NOVEMBER, 2022



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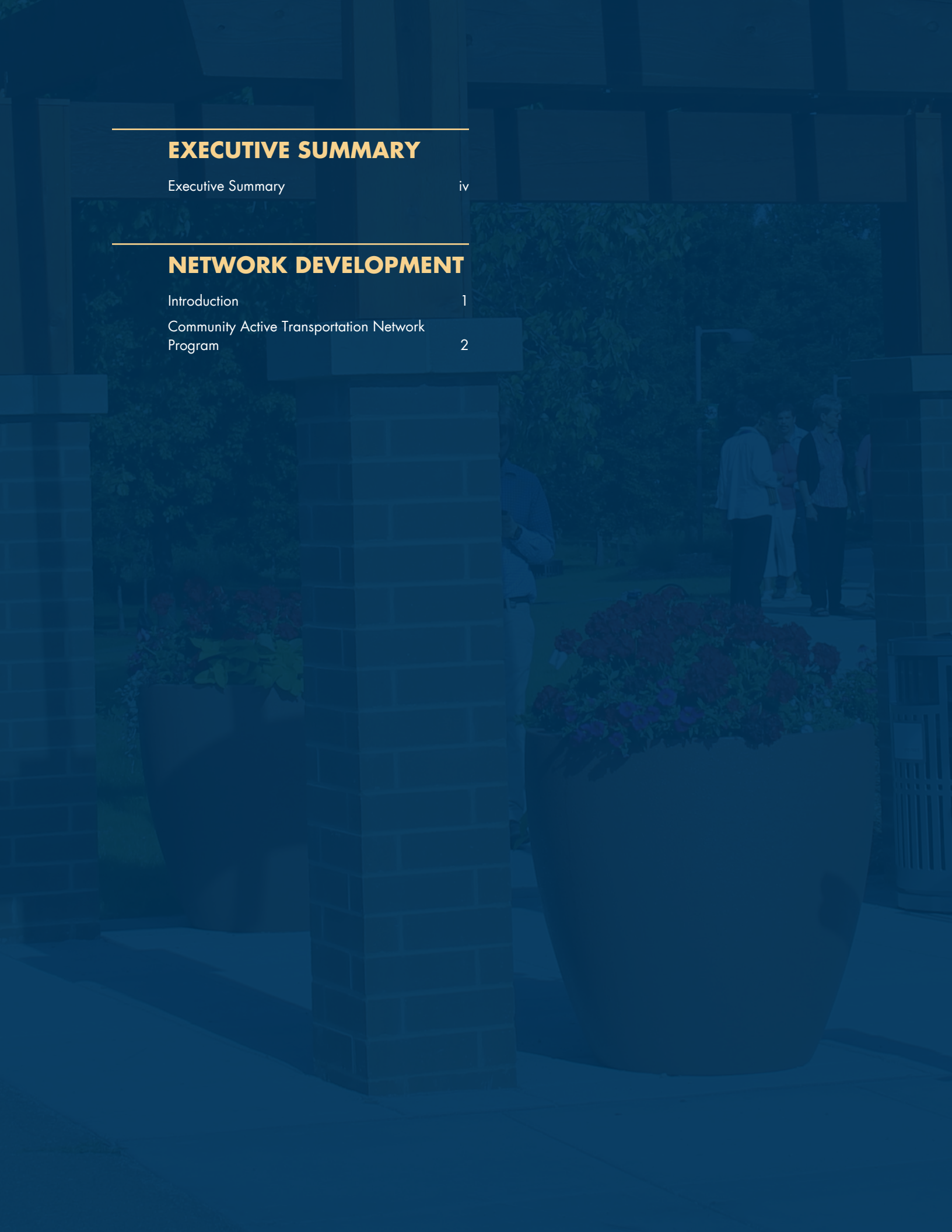
NETWORK DEVELOPMENT

Introduction

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Community Active Transportation Network
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EXECUTIVE SUMMARY

Network Development Opportunities

The current approach to implementation often focuses on long distance travel across the city. While citywide connections are important for the active transportation network, this approach doesn't always reflect people's experience or allow them to meet their daily needs where they live.

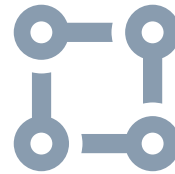
Respondents to the project survey and input at outreach events identified the desire and need for better neighborhood-focused connectivity that allows residents to walk, bike, and roll around their local neighborhoods more safely and enjoyably. Each neighborhood in Phoenix is unique, with varying levels of both need and opportunity. By focusing bicycle and pedestrian improvements at the neighborhood scale, the City has a greater opportunity to engage residents where they live and gather feedback about projects that have a direct impact on how they get around.

Phoenix covers nearly 520 square miles. When planning at the citywide scale, many of the more localized connections and issues can be missed or are deprioritized in favor of projects that connect across the city. Neighborhood-level planning can allow the City to better understand—through more direct community engagement—how people currently travel, where they would like to travel, and identify and prioritize the projects that will have the greatest impact at the local level. For example, at the neighborhood level, the City can better think about the pedestrian experience and critical crossing improvements that make shorter trips safer and more enjoyable, such as to schools, parks, community centers, and neighborhood retail.

NETWORK DEVELOPMENT PRIORITY THEMES HEARD DURING THE PUBLIC ENGAGEMENT PROCESS



NEIGHBORHOOD ROUTES OVER REGIONAL



EXPANDED BIKEWAY NETWORK



SAFETY IMPROVEMENTS OVER UPGRADING/ADDING PATHS



ADDITION OF COMFORTABLE, PROTECTED FACILITIES OVER MORE LESS-PROTECTED, LOW-COST FACILITIES

Proposed Program

Phoenix will continue its current process for implementing the active transportation network—through roadway resurfacing and capital improvements—but will improve neighborhood travel through a new program to network development. The new approach will focus bicycle and pedestrian planning and implementation efforts by Urban Village. As identified in the General Plan, the City is divided into 15 Urban Villages, which were established to help guide

planning and development at the local level. Urban Villages in Phoenix provide a manageable scale for assessing network opportunities while still being large enough to result in tangible improvements for how people get around both within their neighborhood and across the city. In order to complete a meaningful assessment, it is recommended that approximately two urban villages be assessed each year.



A Neighborhood-Driven Approach

Phoenix is a large city with diverse needs. The proposed network development approach for Phoenix is neighborhood driven, allowing each neighborhood to guide the selection of improvements that meet neighborhood needs.

Benefits of this approach include:

- Neighborhood-focused mobility assessment reflecting input themes.
- Reflects diversity of neighborhood priorities and needs
- Engagement conducted at the neighborhood level
- Neighborhood selected projects
- Better coordination and collaboration among city departments at neighborhood scale
- Equity and needs-driven approach



Source: Alta Planning + Design

The Urban Village network development approach includes the following steps:

Pre-Work: **Prioritize Urban Villages**



Urban villages will be prioritized based upon the location of historically disadvantaged and vulnerable populations as well as existing infrastructure deficiencies.

1. **Analyze Existing Conditions**



Analyze the connectivity, comfort, and safety of the existing bicycle and pedestrian networks.

2. **Identify Destinations and Gaps**



Explore locations where the existing network is missing or serves as a barrier to safe and enjoyable travel to destinations.

3. **Identify Network**



Consider projects that fill gaps in the existing network, provide local connections, and provide access to other areas of the city.

4. **Prioritize Projects**

- 1 Identify a network that can be quickly
- 2 built within one to two years based on
- 3 community priorities and plan principles.
- 4

5. **Implementation**

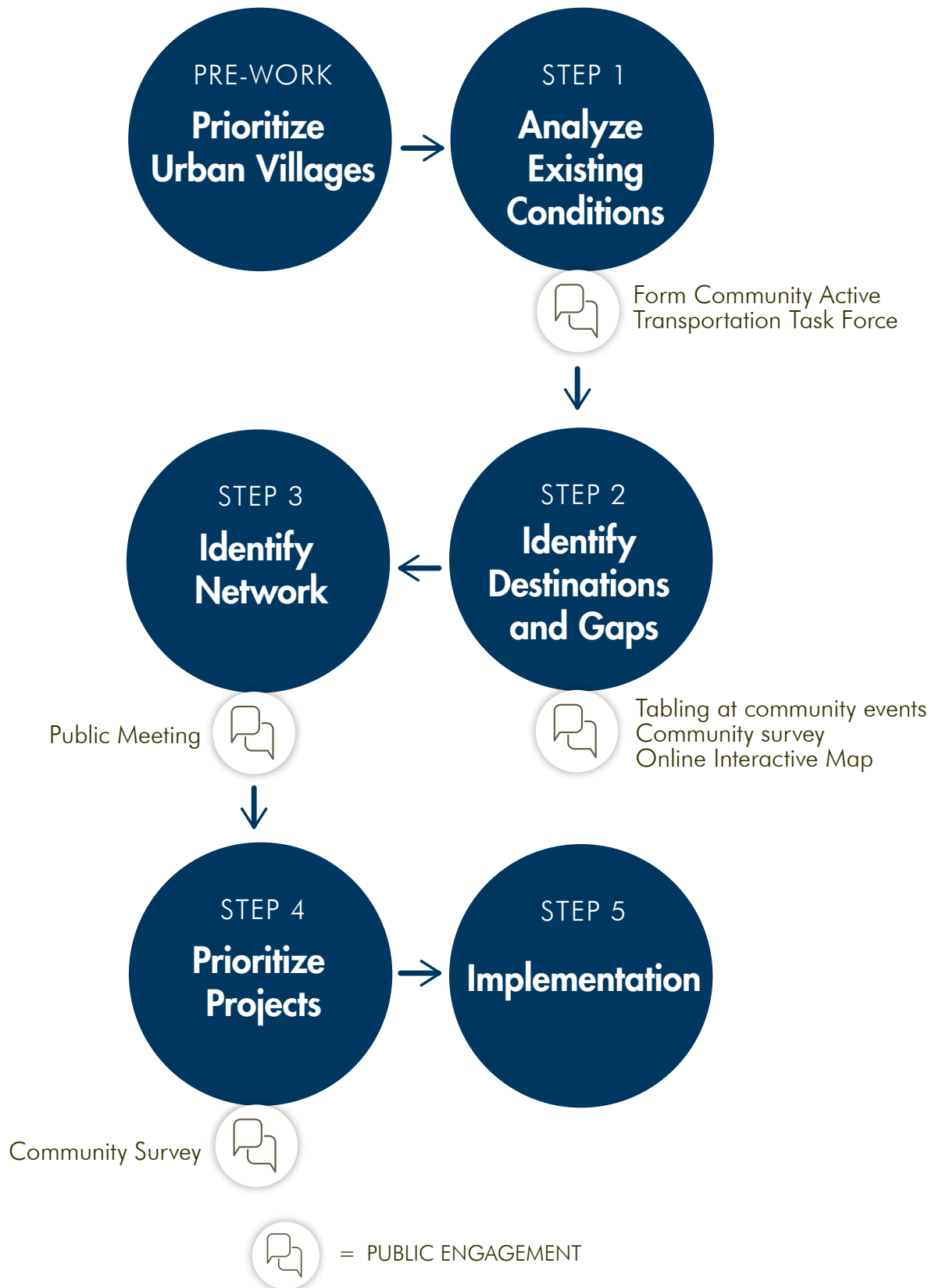


Build out the high priority, quick-build network while seeking funding for larger projects that will require additional planning and resources.

Community engagement is a critical element for each step of the process, and needs to be incorporated in order to provide a more comprehensive understanding of local community priorities and conditions and achieve the neighborhood-driven outcomes being recommended by this plan. Each urban village in Phoenix has different contexts and the engagement process is a way to help drive neighborhood-identified projects that truly make an impact.

The neighborhood-scale approach will also provide an opportunity to coordinate among city departments and integrate goals, projects, and policies identified by other planning efforts. Examples may include priorities identified through the Road Safety Action Plan; additional connection and access opportunities related to Transit Oriented Development; resident feedback gathered through Neighborhood Services; and more. The City will look for opportunities to convene relevant departments and groups to discuss opportunities for coordination, facilitate consistency among departments and city efforts, and identify project opportunities with potential shared objectives.

Network Development Approach





01

NETWORK
DEVELOPMENT

INTRODUCTION

The City of Phoenix Active Transportation Plan establishes a framework for advancing walking and biking infrastructure, programs, and policies in the City. While this plan does not explicitly analyze the existing network or recommend specific projects, it does propose a framework for how the City can advance these efforts in accordance with the Plan's vision, goals, and priorities. The following document outlines a program that would implement this framework, including recommended analyses, planning areas and priorities, and processes for translating analysis results and public input into a comprehensive network.

Responding to Plan Goals

This framework responds to the plan's goals and addresses the following:

- **Safe Networks:** Phoenix's walking and biking networks should facilitate safe travel to destinations across the city. People traveling in Phoenix should not experience undue risk of serious injury or death. The City will develop transportation networks that reduce conflict points and eliminate serious injuries and fatalities.
- **Equitable Networks:** Safe and connected active transportation networks should meet the needs of all Phoenixians. This plan provides an opportunity to invest in Phoenix's highest need areas and help remove barriers to access for vulnerable and disadvantaged populations in the city.
- **Connected Networks:** A functional and effective network will connect people to where they want and need to go. Bicycle and pedestrian network will support access to school, work, parks and trails, attractions, healthcare, transit, and more. The City will create a complete and connected bicycle and pedestrian network that supports travel within neighborhoods and across the city.
- **Enjoyable Networks:** Travel along Phoenix's bikeways and pedestrian corridors should be an enjoyable experience. Routes that support people of all ages and abilities will include separation from motor vehicles, reduce exposure to high speed and high volume traffic, provide shade for heat resiliency, and encourage more people to walk and bike to nearby destinations.



Source: Maricopa Association of Governments

COMMUNITY ACTIVE TRANSPORTATION NETWORK PROGRAM

The City of Phoenix covers nearly 520 square miles and is home to more than one million people. Today, 4,863 miles of roadway and 183 miles of shared use paths support travel across the city. Each year, the City installs new bikeways, crossings, and pedestrian infrastructure in coordination with capital projects and the ongoing resurfacing program. While this provides a method to advance active transportation networks in the city—and will continue to do so in the future—it does not directly consider opportunities to develop a complete and connected network by closing network gaps, improving safety at intersections, and connecting people to where they want to go, particularly at the neighborhood scale, a priority identified in the project outreach.

Improving routes across the whole city will require significant investment both in terms of funding as well as staff time. Phoenix covers more than 500 square miles, with varying levels of both need and opportunity in different areas of the city. To support development of high-quality networks in an organized and efficient manner, Phoenix can focus planning and implementation efforts by Urban Village. Urban Villages in Phoenix provide a manageable scale for assessing network opportunities while still being large enough to result in tangible improvements for how people get around both within their neighborhood and across the city. Focusing on assessment by Urban Village also creates an opportunity for an intentional neighborhood-focused engagement process where neighborhood residents can help identify and prioritize which local projects are most needed and most relevant to their daily lives.

The sections that follow outline the process, starting from selecting which Urban Villages to plan for first through analysis and project development. It includes the following steps:

Pre-work: Prioritize Urban Villages

1. Analyze Existing Conditions
2. Identify Destinations
3. Identify Network
4. Prioritize Projects
5. Implementation

Community engagement is a critical element of the process, and needs to be incorporated in order to achieve the neighborhood-driven project identification and prioritization outcomes being recommended by this plan. Respondents to the project survey and input at outreach events identified the desire and need for better neighborhood-focused connectivity that allows residents to walk, bike, and roll around their local neighborhoods more safely and enjoyably. This Urban Village assessment process is intended to address that feedback and allow the city to better understand and react to active transportation needs at the neighborhood scale. Each urban village in Phoenix has different contexts and the engagement process is a way to help drive neighborhood-identified projects that truly make an impact. The sections that follow identify recommended approaches for engagement to provide a more comprehensive understanding of local community priorities and conditions.

Pre-Work: Prioritize Urban Villages

Identification of priority Urban Villages (Figure 1) for network planning and implementation should consider the location of historically disadvantaged and vulnerable populations as well as existing infrastructure deficiencies. The results of the Equity Analysis (Figure 2) will inform identification of focus populations, while data capturing existing active transportation facility locations should be used to identify network deficiencies.

As the geographic coverage of Urban Villages varies, the City should combine smaller areas with comparable characteristics to facilitate network connections. For example, Encanto and Central City cover relatively small areas in comparison to other Villages and may be considered together.

Recommended Urban Village Assessment Prioritization Strategy:

Equity: Using the equity analysis, prioritize Urban Villages for assessment based on the percentage of the Village scoring as high need based on demographic and environmental justice factors.

Equity: Rank Urban Villages based on existing facility presence. Evaluate the ratio of miles of bikeways to miles of roadway centerline, as well as ratio of miles of sidewalk to miles of centerline miles. The City will need to obtain sidewalk data to support this assessment.

Safety: Rank Urban Villages based on active transportation related serious injuries and fatalities. Coordinate with Maricopa County Public Health to obtain hospital data on pedestrian and bicycle serious injuries and fatalities. Identify Urban Villages with highest numbers of pedestrian and bicycle serious injuries and fatalities.

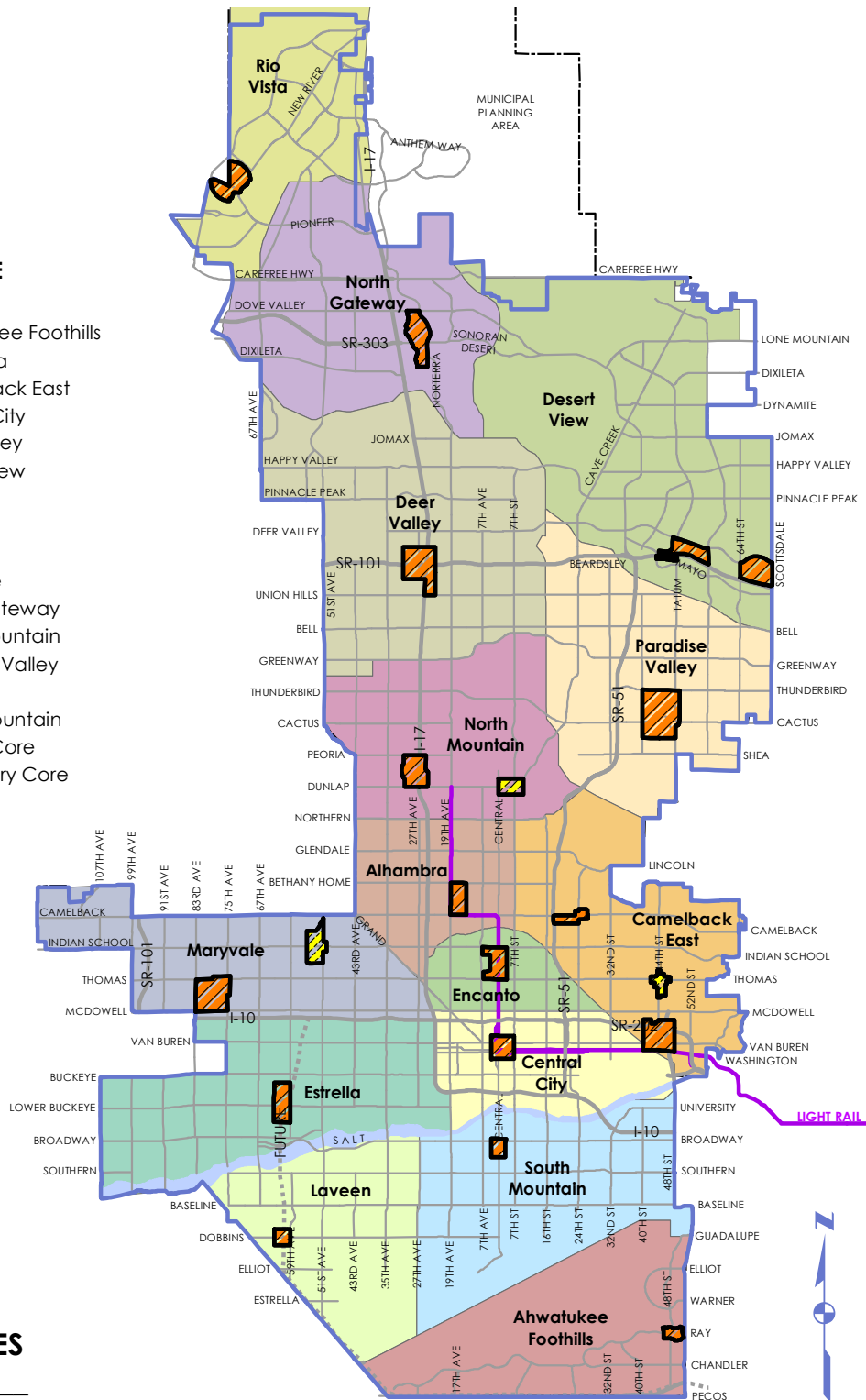


Source: City of Phoenix

URBAN VILLAGE & VILLAGE CORES

- Ahwatukee Foothills
- Alhambra
- Camelback East
- Central City
- Deer Valley
- Desert View
- Encanto
- Estrella
- Laveen
- Maryvale
- North Gateway
- North Mountain
- Paradise Valley
- Rio Vista
- South Mountain
- Primary Core
- Secondary Core

URBAN VILLAGES FIGURE



Equity Analysis Results

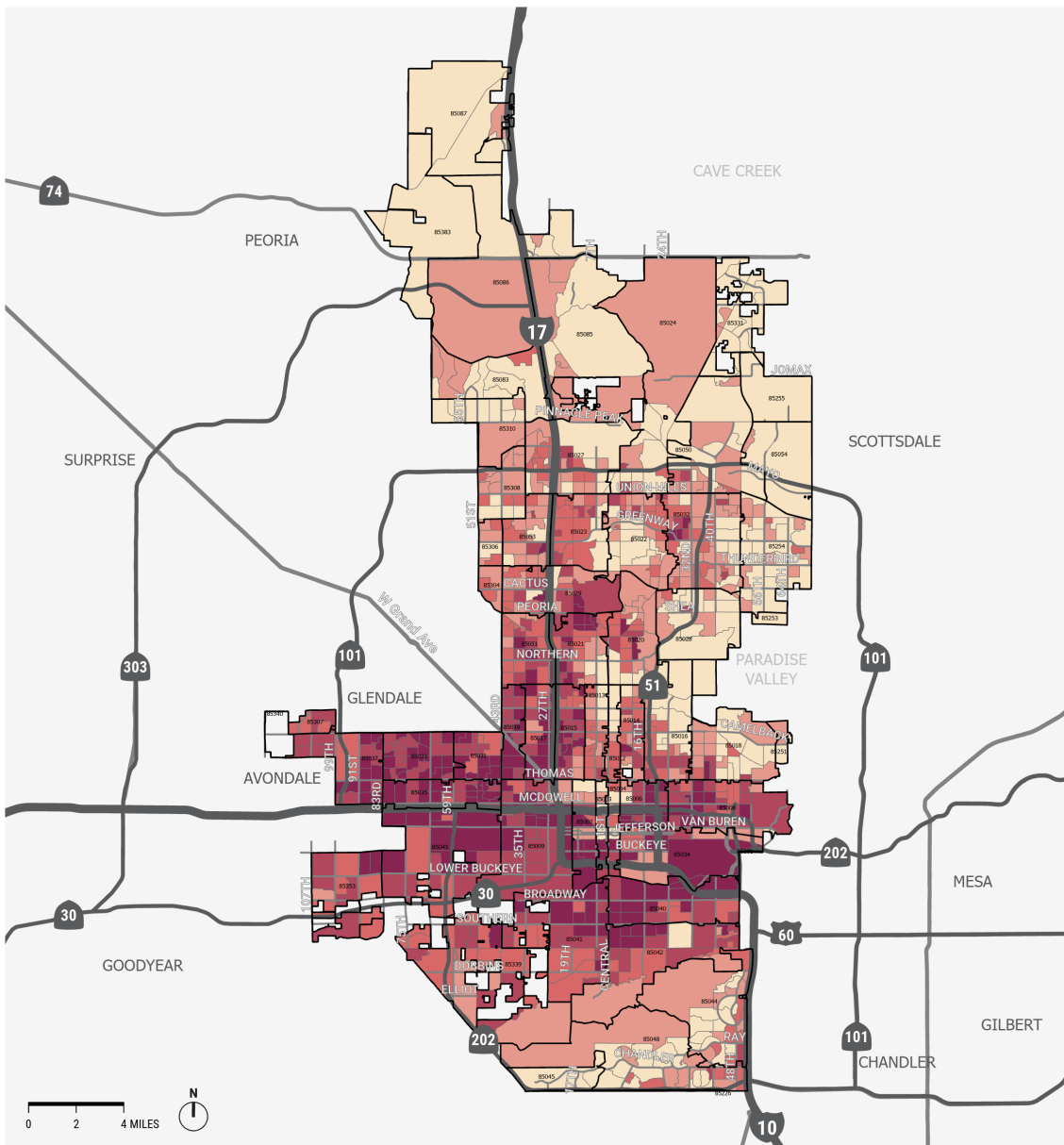
The equity analysis in Phoenix is shown on the next page and is broken down at the Census Block Group level. Generally, south and west Phoenix are shown as areas of highest need, with other pockets of need also shown along the I-17 corridor. Urban Villages with the highest need based on this analysis include South Mountain, Maryvale, Estrella, Alhambra, and North Mountain.

What is an Equity Analysis?

An equity analysis utilizes demographic and environmental metrics to help identify areas of the community with higher need. Generally, areas that also score high on the equity analysis area also areas that have been historically underserved and where infrastructure can be lacking behind other parts of the community. For the Phoenix ATP, The United States Environmental Protection Agencies Demographic and Environmental EJ Screen factors were used to help identify areas of need at the Census Block Group level in Phoenix. The results of this analysis are shown on the next page.



Source: Alta Planning + Design



Data provided by the EPA and ACS. Document: N:\Shared\PROJECTS\2020\00-2020-157_Phoenix_AZ_Bicycle_Master_Plan_Update\GIS\Process\EquityAnalysis\2020-157_Phoenix_EquityAnalysis.aprx. Date saved: 8/17/2021.

EQUITY ANALYSIS

CITY OF PHOENIX
ACTIVE TRANSPORTATION PLAN



Combined Level of
Environmental Exposure and
Demographic Need (by Census
Block Group)

Low Exposure + Need

High Exposure + Need

Zip Code Boundaries

Step 1: Analyze Existing Conditions

For each Urban Village, analyze the existing network conditions. The results of this step will provide baseline information that will guide project identification in subsequent steps. This process begins with mapping existing bikeways, sidewalks, and supporting infrastructure. Table 1 identifies the recommended analyses, based on plan goals, that can support the planning process. For each analysis, the table includes the following information:

- **Analysis Name and Description**, including what the analysis will accomplish and the information it provides for the planning process;
- **Required Data**, which can guide the City's identification of new datasets that may be required;
- **Anticipated Baseline Measurements**, which identify the metrics that will result from the analysis;
- **Recommended Metric**, or an identified standard to use as a point of comparison or for goal setting and progress tracking; and
- **Resources**, which link to available documentation or informational resources to learn more.

For the Recommended Metric, or identified standard, it is important to note that in many cases, specific standards or absolute rules are not available. Instead, the City of Phoenix should both track progress based on improving the metric (e.g., reduction of crashes annually) as well as identify standards that are appropriate for various contexts in the City based on considerations like existing level of service, land use and roadway context, and coordination across departments. For example, safety metrics should correspond with the policies and actions identified in the City's Vision Zero Road Safety Action Plan and in coordination with the Action Plan's goals. FHWA's Guidebook for Developing Pedestrian and Bicycle Performance Measures can help further guide the City in this effort.

Community Engagement

COMMUNITY ACTIVE TRANSPORTATION TASK FORCE

A Community Task Force will guide decision-making and oversee the selection of neighborhood priorities. The Task Force will be neighborhood-focused and representatives will include residents, businesses, community-based organizations, and neighborhood leaders. It is imperative that the Task Force represent a cross-section of the urban village to better identify neighborhood-specific needs.

The role of the Task Force will be to review the survey to help establish neighborhood-specific needs and challenges, engage their neighbors as routes are developed, and help prioritize facilities for implementation.

COMMUNITY SURVEY

An online and community survey will be conducted for residents and employees of the Urban Village. This survey will focus on identifying important community destinations, and establish an Urban Village-specific vision for network priorities.

Plan Goal	Analysis Name	Analysis Description	Required Data	Anticipated Baseline Measurements	Recommended Performance Measure / Outcome	Resources
Safe Network	Crash Analysis	Identify crash trends, hotspots, and characteristics through an analysis of bicycle- and pedestrian-involved crashes. Consider both frequency of crashes as well as severity. Areas with high frequencies of crashes or severe/fatal crashes can guide further analysis to identify relevant countermeasures.	<ul style="list-style-type: none"> Bicycle- and pedestrian-involved crashes for the last 5 years 	<ul style="list-style-type: none"> Annual trends crashes numbers, separated by severity Proportion of crashes involving bicyclists and/or pedestrians compared to all collisions Relationship of crashes locations to existing active transportation facilities 	Annual reduction in crashes. Zero traffic deaths	
	Safety Review	Analyze crash data to determine patterns in crash locations. Consider roadway characteristics, such as speed or number of lanes, and evaluate available crash characteristics, such as contributing factors. Identify factors that are associated with high crash locations. This step may also utilize existing crash profiles, as available and applicable.	<ul style="list-style-type: none"> Bicycle- and pedestrian-involved crashes for the last 5 years; Roadway Characteristics 	Summary of crash location trends and associated roadway characteristics.	Develop corresponding countermeasures, review and revise design requirements as needed	FHWA Safe System Approach
Connected Network	Destination Density	Identify activity centers and other destinations that active transportation networks will connect. Destinations will include schools by type; transit stops and hubs; parks; trails; shopping centers; employment centers; attractions; and other destinations as determined by the City of Phoenix. The results of this exercise will inform identification of key routes that connect destinations within an Urban Village.	<ul style="list-style-type: none"> Schools by type; Transit stops and hubs; Parks and trails; Employment Centers; Attractions; Other destinations as determined by the City of Phoenix. 	N/A. This analysis visualizes data to serve as a reference layer for gap identification and route development.	Establish minimum network spacing standards and connectivity requirements based on land use context and associated destinations.	
	Crosswalk Spacing	Evaluate the distance between signalized, marked crosswalks along major roadways, including arterials and collectors. The results of this analysis will provide insight into locations where crossing improvements are needed to support safer, more comfortable travel.	<ul style="list-style-type: none"> Traffic Signals, Pedestrian Hybrid Beacons, RRFBs 	Percent of roadways with crossing opportunities less than 800 ft apart; between 800 ft and ¼ mile; between ¼ mile and ½ mile; between ½ mile and 1 mile; greater than 1 mile	No absolute rule exists for crosswalk spacing. Recommended standard should consider land use context, desire lines and building entrances, and potential out of direction travel required to access a crossing	FHWA STEP STUDIO: Tools for Selecting and implementing countermeasures for improving pedestrian crossing safety, NACTO

Plan Goal	Analysis Name	Analysis Description	Required Data	Anticipated Baseline Measurements	Recommended Performance Measure / Outcome	Resources
Enjoyable Network	Level of Traffic Stress	Evaluation of the relative stress level associated with a roadway, based on roadway characteristics as well as provision of bicycle or pedestrian infrastructure. Network should be evaluated using both a Bicycle Level of Traffic Stress and Pedestrian Level of Traffic Stress approach.	<ul style="list-style-type: none"> Roadway centerline, including number of lanes, posted speed limit. Alternatively, functional class could be used. Bicycle facilities, including location, type, and width Pedestrian facilities, including location, type, and width 	<ul style="list-style-type: none"> Percentage of roadways by LTS score Relationship of LTS score and existing bikeways Percentage of network within specified distance of destination types (e.g., schools) that are low stress 	Designated bikeways should meet requirements for LTS 2. This assessment should consider impact of roadway crossings.	<p>Mineta Transportation Institute Low-Stress Bicycling and Network Connectivity</p> <p>Oregon Department of Transportation Analysis Procedures Manual</p>
	Connectivity Islands	Using the results of the Level of Traffic Stress, symbolize data to identify areas of connected low-stress corridors. This analysis helps to identify barriers to enjoyable travel and provide an early assessment of out-of-direction travel.	<ul style="list-style-type: none"> Results of the Level of Traffic Stress Analysis 	N/A. This analysis visualizes Level of Traffic Stress data to facilitate identification of barriers to comfortable travel in the Urban Village.	N/A Use this analysis to support visualization of out of direction travel, network gaps, and barriers.	Mineta Transportation Institute Low-Stress Bicycling and Network Connectivity
	Heat Assessment	Conduct a heat assessment to understand heat exposure on the network for purposes of assessing project design features, particularly when the key network segments and linkages are shown to have high levels of heat exposure.	<ul style="list-style-type: none"> Tree Equity Score map and Heat Vulnerability Index Map 	Percentage of network experiencing high heat exposure.	Reduction in heat along network corridor; increased tree canopy/vegetation coverage	<p>Planning for Urban Heat Resilience, PAS Report 600;</p> <p>Pima Association of Governments Resiliency Planning Maps</p>

Step 2: Identify Destinations and Gaps

Following analysis of existing conditions, the results of each analysis should be considered together to identify key trends and gaps in the existing network. While the characteristics and context of each Urban Village may require unique considerations for identifying project opportunities, the following can be used as a preliminary guide.

Connections to Destinations:

Utilizing the results of the Destination Density mapping exercise and community input, explore where connections are missing in the existing network. Some questions to ask are:

- How does the existing network connect to elementary schools or transit stops? Does the current network support direct access?
- Are there gaps that result in travel along high stress routes? For larger scale destinations, such as shopping centers or city parks, evaluate how neighborhoods are able to safely and enjoyably connect to the location.

It is expected that local networks should be denser to support access to local destinations by the greatest number of residents, so assess the availability of low-stress connections in relationship to different destination types.

Further, evaluate existing crossing opportunities, particularly in relationship to destinations. Using the results of the Crosswalk Spacing Analysis, identify roadway segments with limited crossings. Frequent dedicated crosswalks and bike crossings with signals can support low-stress routes, improve access to destinations, and encourage crossings at designated locations. Along major roadways, marked crosswalks should be provided every 800 feet or less.

Community Engagement

During Step 2, the planning team will attend existing community events and conduct a survey to ask residents about destinations and gaps.



Source: Alta Planning + Design

Enjoyable Networks:

What is the relative comfort of existing connections? For example, although a bike lane may provide direct access to a local elementary school, it's location along a higher speed road identifies this as a high stress (LTS 3 or 4) connection. Scenarios such as this may still be considered a network gap and project opportunity.

Further, consider the impact of high stress roadway crossings and if these corridors result in difficult connections along an otherwise enjoyable route. High stress roadway crossings are candidates for intersection improvements in the next step.



Source: Maricopa Association of Governments

Safe Networks:

Are collision hotspots located along existing active transportation routes? Are key routes consistent with high crash locations, or do they have characteristics similar to those associated with high crash locations? Evaluate the relationship among analysis results in coordination with safety analysis results to identify both opportunities to advance safe and comfortable routes as well as opportunities to improve safety for all modes of travel through development of active transportation routes.



Source: Maricopa Association of Governments

Step 3: Identify Network

Within each Urban Village, identify new connections of improvements to existing facilities to improve connections to destinations, support enjoyable networks, and proactively develop safe networks. This process is informed by the results of the Existing Conditions analysis (Step 1) and the identification of Network Gaps (Step 2). This process should include the following:

- **Fill Gaps in Existing Network:** For existing low-stress routes, fill any gaps in the network by identifying new low-stress bikeways and key intersection improvements. Low-stress bike routes should provide as direct of a route as possible while supporting enjoyable travel through increased separation from motor vehicles, traffic calmed routes, and complete and connected network links.
- **Develop Local Connections:** Create new connections that support access to schools, parks, transit stops, and other high priority destinations. For destinations along major roadways, such as transit stops or shopping centers, consider nearby crossing opportunities as well as sidewalk completeness to support direct access.
- **Develop Regional Connections:** Identify connections to nearby neighborhoods, Urban Villages, and regional destinations. Regional connections may be less dense than the local network and rely on high-quality facilities along larger corridors in some locations. Local networks should connect to the regional route to support a connected system.

For each corridor or intersection identified as a potential project, be sure to consider the associated facility selection and design guidance provided by this plan. Additionally, consider the heat assessment and opportunities for green infrastructure or shade features if the project is identified in an area of high heat exposure. If roadway characteristics require a more separated facility, but space does not allow for implementation, consider adjacent and parallel routes.



Source: Alta Planning + Design



Source: Maricopa Association of Governments

Step 4: Prioritize Projects

Within the planning process, prioritization helps us understand which projects should be implemented first. Specifically, the goal is to identify which projects are most needed and can provide the greatest community benefit. A successful process will have three key characteristics:

- **Aligned with local value and needs:** Prioritization should also be rooted in community values and needs, captured through a data-driven evaluation process. While infrastructure quality, economic conditions, and growth patterns may change over time, a prioritization process based on community values can help guide new project priorities that best reflect a shared community vision.
- **Practical and actionable:** By focusing on the necessary timeline and funding for projects, prioritization can identify a local network that can be quickly implemented.

Community Engagement

The Street Transportation Department will host a community meeting to get feedback on proposed projects and prioritization. A community survey with a map of proposed routes will also be used to gather community feedback.



Source: Alta Planning + Design

Creating an Effective Prioritization Process

The planning team will work with the task force to identify a network of projects that can be quickly built within 1 to 2 years. More complex projects that require additional funding and outreach will be prioritized in collaboration with the task force. The following are examples of how the prioritization process may utilize project goals:

- **Connected Networks:** Do projects support connections to key neighborhood areas and/or regional destinations? This can be assessed overall or separately for unique location types (e.g., connections to schools, parks, transit, neighborhood centers, etc.)
- **Safe Networks:** Does a project address an identified or evaluated roadway safety concern identified by the neighborhood residents, the safety assessment, or another plan? Project will include countermeasures that respond to crash history of location or the characteristics of a location that are consistent with city crash profiles.
- **Enjoyable Networks:** Project improves an existing high stress corridor or improves crossing conditions along a low stress route.
- **Community Input:** Project is supported by the residents, workers, and patrons within the Urban Village. This should be assessed through a focused survey/outreach effort within each Urban Village as part of its respective prioritization process.



Source: Maricopa Association of Governments

Step 5: Implementation

Using the priority projects developed in Step 4 and verified by the public, the Street Transportation Department will seek to implement quick-build projects, such as installing bike lanes that do not require major street redesigns as a top priority. The goal will be to install these projects within one to two years.

For larger projects that are better suited for the Capital Improvement Plan, the Street Transportation Department will seek funding opportunities, including external grants. For projects identified by the community that do not fit within the Active Transportation Program, staff will refer the projects to the appropriate program teams. When the program has worked with every urban village in Phoenix, the Street Transportation Department will work with Phoenix residents and City leadership to determine the next steps for further building out the network and how to best continue the work of the program.



Source: Maricopa Association of Governments

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City of Phoenix



City of Phoenix

POLICY RECOMMENDATIONS ELEMENT

DRAFT NOVEMBER, 2022



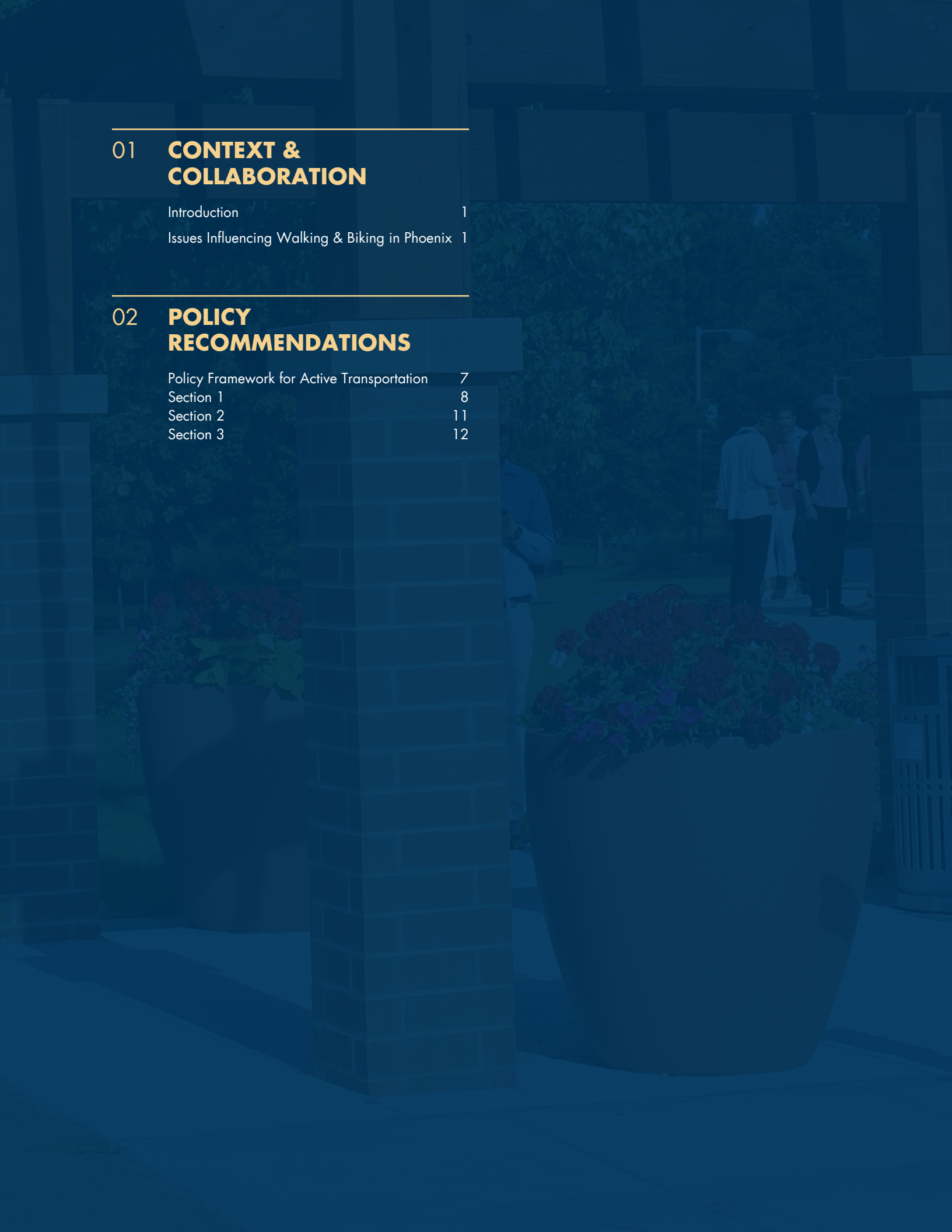
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01

CONTEXT &
COLLABORATION

INTRODUCTION

Policy recommendations are one of the three key focus areas of this planning process, the other two being a Network Development Program and Design Guidance. The Policy recommendations are intended to guide city actions towards continuing to build an equitable, safe, connected, and enjoyable active transportation network.

The policy recommendations found within this section are guided by a number of different

factors, including the city's physical and cultural context, common objectives found as part of the existing plan review of other city documents, and community outreach themes. The policy recommendations are a continuation of areas of success, but also represent a continued shift towards a more multimodal future in Phoenix where active transportation plays an important role alongside other ways of travel.

ISSUES INFLUENCING WALKING & BIKING IN PHOENIX

Physical and cultural context is one of the most important factors influencing the planning and design of active transportation facilities. For Phoenix, the two most significant factors contributing to this context are the city's historic development patterns and the warm summer climate. The city's development patterns have contributed to the reliance on a personal vehicle to travel, which is manifested in the way roadways are design and built for vehicular travel. This has led to safety concerns and issues, particularly for people walking and biking.

Additionally, despite an overall temperate climate that is conducive for walking and biking, the City's warm summer months present unique challenges for people walking and biking, particularly the dangers of heat exposure and heat related illness.

The following section is a summary of these factors, all of which directly inform the policy recommendations found later in this section.



Source: Maricopa Association of Governments

Development Patterns

Issue: Phoenix has seen rapid growth both in terms of land and population since the second half of the 20th Century. Much of that growth, however, has developed around the automobile characterized by single family homes, highways and high speed roadways, and a separation of land uses. Businesses and other community destinations are often located along these major roadways, and our community's design has influenced our reliance on a vehicle even for short trips.

Positive: This history of sprawling, low-density development has begun to change as the city aims to grow more sustainably by concentrating growth in Downtown, near high-capacity transit, and in transit oriented development areas. Greater access and shorter distances to destinations, creates more demand and opportunities for walking and biking.

Opportunity: Short trips are important to consider because they can be good candidates for replacing a motor vehicle trip with an active trip, such as by walking, biking, or rolling. While Phoenix has been adding density and creating more short trips by focusing growth near community destinations, many people in Phoenix already take many short car trips. Studies have shown that nearly 50% of all car trips in the United States are three miles or less¹⁸, a distance that could be supported by bicycling. In Phoenix, the grid system, particularly prevalent in central parts of the city, provides walkable connections between residential and commercial areas that can be leveraged.



Source: Alta Planning + Design

18. Curry, Melanie, et al. "Bikes and Scooters Could Replace a Lot of Car Trips in U.S. Cities." *Streetsblog California*, 17 Sept. 2019, <https://cal.streetsblog.org/2019/09/16/bikes-and-scooters-could-replace-a-lot-of-car-trips-in-u-s-cities/>. Accessed 5 July 2022.

Car Culture

Issue: For decades, Phoenix has excelled at building car-oriented places; internal policies and practices have been created with the primary goal of moving cars and limiting vehicle congestion during peak commuting hours. Decades of auto-oriented development has created barriers to walking and biking such as: limited street connections between neighborhoods, major roadways that are wide and have high speeds, destinations that are far apart, and highways that separate neighborhoods.

Positive: The City of Phoenix has made progress, especially over the last decade, in expanding the walking, bicycling, and the transit network as options for travel. For example, the City has implemented the following planning and policy initiatives that increase multimodal options: Comprehensive Bicycle Master Plan (2014), ReinventPHX (2015), the Walkable Urban Code (2015), City of Phoenix Complete Streets Policy (2017); the City of Phoenix Transit Oriented Development (TOD) Strategic Policy Framework (2018), the Key Corridors Master Plan (2020), and the Road Safety Action Plan: Moving to Vision Zero (2022). Transit options are improving through the continued expansion of the Valley Metro Light Rail and Bus Rapid Transit will soon provide Pheonicians with another high-capacity transit option. The City is also expanding and improving bicycle and pedestrian connections to and from transit.

Opportunity: This ATP is an opportunity to collaborate with and build upon the momentum from these various planning and policy initiatives to ensure biking and walking are a key component of the City's transportation network as it continues to grow and evolve in the future. The transportation system needs to work holistically across all modes, not just for motor vehicles.



Source: Maricopa Association of Governments

Safety

Issue: Decades of car-oriented development and streets designed to efficiently move motor vehicles through them, has led to an increasing number of traffic crashes resulting in fatalities and serious injuries on Phoenix streets. A disproportionate number of traffic fatalities and serious injuries in Phoenix involve people biking and walking. People traveling outside of motor vehicles are particularly vulnerable roadway users, particularly people biking and walking. More specifically, data across the country has shown that traffic fatalities and serious injuries are disproportionately impacting children, seniors, people with low and no income, unhoused residents, and people of color .

Streets designed for the movement of cars typically leads to cars traveling at high speeds. Speed is one of the most important factors in determining how severe a crash is, especially for people walking, biking or relying on transit. The faster a car is traveling, the less likely a person's chances are of surviving the crash. In addition to high speeds, car-oriented major roadways also typically have dangerous conditions for people walking and biking such as long crossing distances, incomplete sidewalks, a lack of bicycle facilities, and general lack of separation from motor vehicles.

Positive: To combat the growing number of people dying in traffic crashes, the City of Phoenix approved the Phoenix Vision Zero Road Safety Action Plan (2022), which establishes strategies and objectives to eliminate traffic fatalities and serious injuries in Phoenix. Vision Zero represents a cultural shift in Phoenix, and policies and practices directly support active transportation objectives.

Opportunity: With the momentum of various policy and planning initiatives, specifically the Complete Streets Policy (2017), Complete Streets Design Guidelines (2018), the Phoenix Vision Zero Road Safety Action Plan (2022), and this updated active transportation plan, the City has set the plans, policies, and design standards in place to proactively create streets safe for all roadway users.



Source: Maricopa Association of Governments

Climate

Issue: Temperatures in Phoenix have been rising over the past few decades and are expected to continue rising. Phoenix averages over 100 days per year where temperatures are over 100 degrees Fahrenheit. Heat can be a major barrier (as identified through public input in the previous section) to walking and biking in Phoenix. Heat is also experienced inequitably, with historically marginalized areas of Phoenix having less shade and being hotter than wealthier areas of the community.

Positive: Phoenix has been taking steps to lower temperatures that are magnified by the urban heat island effect, which makes already hot temperatures hotter due to surfaces that retain and absorb heat such as pavement. In 2020, the City began Cool Pavement Pilot Program, which has successfully lowered surface temperatures on the city's streets through a coating applied over the existing asphalt. In addition to cool pavement, the City has also developed a Cool Corridors Program in 2020 that aims to "create a network of cool corridors," primarily through planting trees, "across its communities to encourage movement from residential homes to various areas across the city that is safe and environmentally-conscious."¹⁹

Opportunity: The City has the opportunity to build upon the Cool Pavement and Cool Corridors program by providing facilities that are safe and enjoyable to walk and bike. Bicycle and pedestrian infrastructure should be prioritized and implemented in coordination with the Cool Pavement and Cool Corridors Programs—along streets with trees, shade, and cool pavement—to reduce the barrier that heat provides to walking and biking in Phoenix.



Source: Maricopa Association of Governments

19. <https://www.phoenix.gov/streetssite/Pages/Cool-Corridors.aspx>



02

POLICY
RECOMMENDATIONS

POLICY RECOMMENDATIONS FOR ACTIVE TRANSPORTATION

The Active Transportation Plan provides an opportunity for the City of Phoenix to support existing city policies, related plan recommendations, and ongoing programs and efforts that seek to improve the quality of life for all residents. The policy recommendations that follow identify specific opportunities to implement existing plans and policies, including the Road Safety Action Plan, Complete Streets Policy, and the Climate Action Plan, while advancing walking and biking in Phoenix.

The recommendations are focused on actions the Street Transportation Department can initiate, in collaboration with other City departments, agencies, and community groups. The prioritization takes into account community feedback, existing opportunities, and Street Transportation Department capacity. Throughout the 20 year planning horizon, the Street Transportation Department should seek new opportunities to update policies to support active transportation or adjust recommended priorities based on changing conditions and public input.



SECTION 1

Support Implementation Of Existing Plans



Objective 1: Advance Complete Streets Policy Implementation

City of Phoenix adopted a Complete Streets Policy in 2017, followed by Complete Streets Design Guidelines in 2018. The Street Transportation Department has been working to implement the Complete Streets priorities and designs by identifying appropriate streets and contexts for complete street transitions, updating procedures, and building additional active transportation infrastructure. Complete street designs have also been emphasized with new projects and development across the City.

Identifying appropriate contexts and designing streets for all modes remains a high priority for

Phoenixians. In the community survey, respondents were asked to rank priorities for overall transportation in Phoenix; “Giving everyone a comfortable option for using streets, whether they are driving, walking, biking, or taking transit” was the top priority for 29% of respondents, second only to “Preventing collisions that could injure people.” In survey comments and survey questions about specific types of infrastructure, respondents repeatedly showed support for street design that prioritizes comfortable and safe multimodal options above all.

Recommendation		Type of Change
Near term (2023 - 2026)		
1.1	Conduct a Complete Streets information and professional education campaign internally to improve awareness of active transportation best practices and Complete Streets design.	Continue ongoing work
1.2	Create internal guidance that documents existing policies and processes relevant to Complete Streets design elements for retrofits and new projects developed as part of the active transportation network	Prioritize resources
Medium term (2027 - 2032)		
1.3	Review and update project documentation and handoff process in the Capital Improvement Project process to incorporate Complete Streets goals and support Active Transportation.	Update existing procedures
1.4	Compile and report on information about Complete Streets compliance captured via the development process.	Prioritize resources
Long term (2032 - 2043)		
1.5	Review internal documentation of Complete Streets elements and collaborate internally to update policies and processes where appropriate to streamline implementation of Complete Streets design elements in support of Active Transportation.	Update existing policies
1.6	Establish a methodology for determining active transportation demand for Capital Improvement and development projects in order to ensure appropriate facilities are built.	Update existing policies



Objective 2: Support the Goals of the Climate Action Plan

The Climate Action Plan set a goal to shift how people get around Phoenix towards lower carbon modes of transportation, including active transportation. Building out the canal path network was one of the supporting goals for the plan as it increases opportunities for safe and comfortable biking and walking. The Street Transportation Department is committed to supporting the Climate Action Plan and the

following recommendations provide concrete steps for achieving the overarching goals.

Expanding and connecting canal paths was a recurring theme in the first round of public outreach. In the online survey respondents were asked to rank bicycle-specific improvements; “Canals – Adding and upgrading paths along existing canals” was the second most frequent top priority (19%), second only to safety.

Recommendation		Type of Change
Near term (2023 - 2026)		
2.1	Support electric vehicle adoption by continuing to manage the Micromobility Program and seek to expand the program boundaries and types of vehicles based on demand and future infrastructure expansion.	Continue ongoing work
2.2	Support electric vehicle adoption by revising Motorized Play Vehicle Ordinance to better regulate modern micromobility vehicles for safety and transportation options.	Update existing code
2.3	Collect data on existing shared use paths along canals, assess needs, and create a plan for building out 90% of the network by 2050.	Prioritize resources
2.4	Continue to build canal paths in line with the goal of paths along 90% of the canal network by 2050.	Continue ongoing work
Medium term (2027 - 2032)		
2.5	Support mode shift target by creating an anticipatory warrant process that provides an opportunity to install pedestrian and bicycle crossings proactively.	Update existing policies
2.6	Support mode shift target by integrating Benefits of Complete Streets Tool into CIP project evaluation to capture latent demand and mode shift potential as one of the evaluation criteria when assessing potential project impacts (i.e., Complete Streets Toolkit).	Update existing procedures
2.7	Initiate research into opportunities for safe and legal usage of micromobility along canal paths.	Outside agency would need to update existing policies
Long term (2033 - 2043)		
2.8	Support mode shift goals by seeking to collaborate with the Public Transit Department to identify last-mile sidewalk connections and crossings and seek funding for adding sidewalk.	Prioritize resources



Objective 3: Support the Vision Zero Road Safety Action Plan

The Road Safety Action Plan was adopted by Council in 2022 with strong support from Phoenixians. Safety was the top priority in the initial round of public outreach for this plan. It was the most frequently identified top priority for transportation overall and for improvements to the bicycle network. The following recommendations address how active transportation can support the implementation of the Road Safety Action Plan.

Recommendation		Type of Change
Near term (2023 - 2026)		
3.1	Integrate the High Injury Network and identified priority locations from the RSAP into the Community Active Transportation Network Program as part of the existing conditions analysis.	Update existing procedures
3.2	Integrate the High Injury Network and rebalancing recommendations from the RSAP into pavement project reviews for potential bike lanes.	Update existing procedures
3.3	Establish internal processes to integrate the Active Transportation Team in to the RSAP implementation process, specifically for the RSAP goals to review of mid-block crossings at priority arterial road locations, the development of checklist or toolkit to improve safety for pedestrians and bicyclists in project design, and the analysis of the transportation network to identify locations with risk-factors and countermeasures.	Prioritize resources
3.4	Advance school safety measures identified in the RSAP, including expanding education and awareness programs, developing Safe Routes to School Plans, and implementing school zone safety measures.	Prioritize resources

SECTION 2

Informing Future Plans



Objective 4: Share Opportunities for Integrating Active Transportation Policies and Guidance into the General Plan

The City of Phoenix will be updating its General Plan in 2025, in accordance with state law requirements that an update be performed every ten years. The upcoming General Plan update presents a significant opportunity for the Planning and Development Department to make recommendations, set priorities, and identify the process for procedural changes on land use and transportation policy in the City of Phoenix. The following recommendations are general guidance the Street Transportation Department can provide as opportunities to better support Complete Streets implementation and integrate active transportation, safety, and design into the General Plan.

During targeted outreach and in survey comments, a recurring theme was the need to link land use and transportation. The community survey asked respondents to identify the single biggest barrier to walking in Phoenix; the most frequent response was “Distance between places” (24%). Creating neighborhoods with walkable destinations requires land use policies that support a mix of uses within a walkable distance. The General Plan update also impacts policies that directly impact street design, including regulations around requirements for providing parking, mitigating traffic impacts, and street cross-section design.

	Recommendation	Type of Change
Near term (2023 - 2026)		
4.1	Provide broader policy guidance on multimodal evaluation priorities that can be used to inform the assessment and design of multimodal facilities.	Update existing policies
4.2	Introduce the Safe Systems Approach as a guiding principle for roadway planning and design and relationship between vehicular travel speed and crash outcomes.	Update existing policies
4.3	Integrate roadway cross-section flexibility that allows for the application of different sections depending on the context and mobility objectives, consistent with a Safe Systems Approach identified in the Road Safety Action Plan.	Update existing policies
4.4	Include comfort and safety as guiding principles for the development of the City's bicycle and pedestrian network	Update existing policies
4.5	Include the importance of a neighborhood-driven and equitable approach in identifying and implementing active transportation projects.	Update existing policies
4.6	Continue to advance a land use framework that also integrates context-appropriate street design flexibility.	Update existing policies

SECTION 3

Align Internal Standards And Practices With Active Transportation Plan Values



Objective 5: Build Safe Active Transportation Networks

Safety was identified as a plan value as it was a consistent theme throughout public outreach. The following recommendations support Phoenix’s Vision Zero goal and offer specific recommendations for developing safe active transportation networks.

Recommendation		Type of Change
Near term (2023 - 2026)		
5.1	Use the FHWA Bikeway Facility Guide, which provides facility selection criteria based on roadway characteristics and user considerations, as a baseline for facility selection and design on all bikeway projects.	Update existing procedures
5.2	Pilot the use of NACTO City Speed Limit Guide as a baseline for consideration on targeted, high-priority active transportation corridors.	Pilot
Medium term (2027 - 2032)		
5.3	In future updates of the City's Street Planning and Design Guidelines, reference and integrate best practice facility designs and treatments for bicycle and pedestrian facilities include in the Plan's Design Guidance section as well as emergent best practices.	Update existing policies
5.4	Evaluate the potential use of stop bars in high priority bicycle and pedestrian intersections.	Update existing procedures



Objective 6: Build Connected Active Transportation Networks

Connectivity was identified as a plan value as a network is only as strong as its weakest link. Connecting existing and future facilities is essential for creating a viable active transportation network. Adding crossings for people walking and biking along major streets

can effectively shorten walking and biking distances, as it reduces the chance of people walking out of their way to cross safely. The following recommendations identify specific opportunities to reduce gaps in the network and create safe and comfortable connections for people walking and biking.

Recommendation		Type of Change
Near term (2023 - 2026)		
6.1	Initiate a feasibility study for a pilot protected intersection in Phoenix.	Continue ongoing work
6.2	Pilot implementation of intersection treatments that elevate visibility, shorten crossing distances, and provide greater protection to people walking and biking at high-priority biking and walking intersections.	Pilot
Medium term (2027 - 2032)		
6.3	Document location of all bike lanes that allow time of day parking. Prioritize locations to work with the community on potential alternative designs with the goal of eliminating bike lanes that allow parking.	Prioritize resources
6.4	Establish standard intersection design practices that raise the visibility of people biking on approaches and through intersections, as recommended in the Plan's Design Guidance section.	Update existing policies
6.5	Create and implement consistent wayfinding on high priority active transportation corridors throughout Phoenix	Prioritize Resources
Long term (2033 - 2040)		
6.6	Seek to collaborate with the Parks and Recreation Department and the Planning and Development Department to identify opportunities for coordinated development of an interconnected, low-stress Multi-Use Path network in Phoenix.	Prioritize resources



Objective 7: Build Enjoyable Active Transportation Networks

Enjoyability was identified as a plan value as people will not use infrastructure they do not enjoy. The need for comfortable and enjoyable networks was a recurring theme in the initial round of public outreach. The following

recommendations offer specific guidance on building infrastructure that will attract new users and allow every Phoenician interested in walking and biking to be able to do so comfortably.

Recommendation		Type of Change
Near term (2023 - 2026)		
7.1	Establish outreach guidelines for including traffic calming in Capital Improvement Projects, including speed humps and speed bumps.	Update existing procedures
7.2	Collect data that will enable evaluation of bicycle and pedestrian Level of Transportation Stress (LTS). Data should specifically include: number of travel lanes; length, location, and number of travel lanes; parking signs; landscaping strips; and sidewalk location and width. This assessment informs facilities selection and design by evaluating the relative comfort and safety of someone walking or biking along a corridor.	Prioritize resources
Medium term (2027 - 2032)		
7.3	Seek to collaborate across departments to streamline permit process for structural shade in the ROW, specifically awnings.	Update existing policies
Long term (2033 - 2040)		
7.4	Seek to collaborate across departments to review the existing traffic calming design standards for horizontal and vertical traffic calming for potential updates to ensure designs effectively calm traffic while supporting emergency operations.	Update existing policies



Objective 8: Build Equitable Active Transportation Networks

Equity was identified as a plan value as it is a high priority for the City and for the community. Throughout the outreach process, residents asked for an equitable approach to developing infrastructure and planning processes that take

different community needs into account. The following recommendations seek to address historic inequities and to ensure that all Phoenicians have a chance to participate in active transportation planning processes and benefit from infrastructure investments.

Recommendation		Type of Change
Near term (2023 - 2026)		
8.1	Create easy to share fliers and slides with information on how to contact the Street Transportation Department and how to report maintenance to share during future outreach opportunities.	Prioritize resources
8.2	Track and incorporate publicly-submitted requests during the urban village assessment and project prioritization process.	Prioritize resources
Medium term (2027 - 2032)		
8.3	In future updates to the Street Transportation Department's Public Engagement Plan consider opportunities to better include low-income, historically-marginalized, disabled, and limited English-speaking residents in the decision-making and implementation process.	Update procedures
8.4	In future updates to internal public outreach standard processes and materials consider opportunities to better reach historically marginalized communities and empower residents to be actively involved in the decision making and implementation process.	Update procedures
Long term (2033 - 2040)		
8.5	Update existing program structures to support implementation of small projects that proactively support safe and enjoyable active transportation such as sidewalk infill, shade, street crossings, Low Impact Development/Green Infrastructure, ramps, and other Complete Streets design elements.	Update procedures
8.6	Evaluate Street Transportation Department programs that support active transportation, such as the Neighborhood Traffic Calming Program, for opportunities to update project selection criteria and outreach processes to better prioritize projects that reflect diverse needs and experiences.	Update procedures



City of Phoenix



City of Phoenix

BICYCLE & PEDESTRIAN DESIGN GUIDANCE ELEMENT

DRAFT NOVEMBER, 2022



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01

INTRODUCTION

CONTEXT

This toolbox presents high-level guidance for local planners, engineers, and advocates to improve the walkability and bikability of Phoenix and create more comfortable streets for pedestrians and bicyclists of all ages and abilities. Planners and project designers should refer to these guidelines in shaping future infrastructure projects; however, these guidelines are not intended to guide detailed design as they do not constitute standards.

Future roadway planning, engineering, design and construction will continue to strive for a balanced transportation system that includes a seamless, accessible bicycle and pedestrian network and encourages bicycle and pedestrian travel wherever possible.

The goal of a transportation system is to better meet the needs of people - whether in vehicles, bicyclists or pedestrians - and to provide access to goods, services, and activities.

Streets that include safe and inviting facilities for active modes provide users important transportation choices, whether it is to make trips entirely by walking or bicycling, or to access public transit. Often in urban or suburban areas, walking and bicycling are the fastest and most efficient ways to perform short trips.

Convenient, active travel provides many benefits, including reduced traffic congestion, financial savings for users, road and parking facility savings, improved economic development, and a more attractive and healthier environment through reduced greenhouse gases.

The design guidelines and recommendations in this document are intended for use on City of Phoenix roadways. Projects on Arizona Department of Transportation, county, or other roadways in other cities may require additional considerations.

Projects must not only be planned for their physical aspects as facilities serving specific transportation objectives; they must also consider effects on the aesthetic, social, economic and environmental values, needs, constraints and opportunities in a larger community setting.

Design guidance in this document meets or exceeds the minimums set by the Americans with Disabilities Act Accessible Design Guidelines (ADAAG) and the Public Right of Way Accessibility Guidelines (PROWAG).

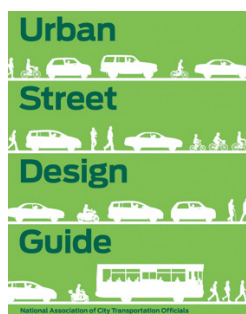
All traffic control devices, signs, pavement markings included in street projects must conform to the Arizona Supplement to the “Manual on Uniform Traffic Control Devices” (MUTCD).



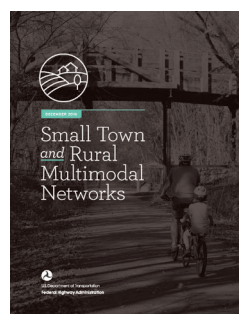
GUIDANCE BASIS

The sections that follow serve as an inventory of pedestrian and bicycle design treatments and provide guidelines for their development. These treatments and design guidelines are important because they represent the tools for creating a pedestrian- and bicycle-friendly, accessible community. The guidelines are not, however, a substitute for a more thorough evaluation by a professional engineer prior to implementation of facility improvements. The following guidelines are incorporated in this Design Guide.

Multi-modal Guidance

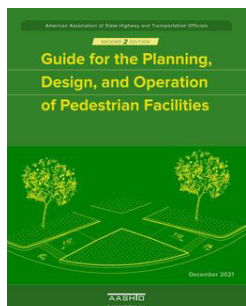


*The National Association of City Transportation Officials' (NACTO) **Urban Street Design Guide (2013)** is a collection of nationally recognized street design standards, and offers guidance on the current state of the practice designs.*

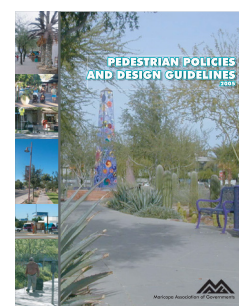


*The Federal Highway Administration's **Small Town and Rural Multimodal Networks Report (2016)** offers resources and ideas to help small towns and rural communities support safe, accessible, comfortable, and active travel for people of all ages and abilities. It connects existing guidance to rural practice and includes examples of peer communities.*

Pedestrian Guidance

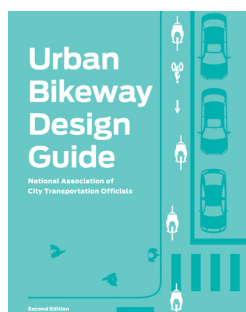


*The American Association of State Highway Transportation Officials' (AASHTO) **Guide for the Planning, Design, and Operation of Pedestrian Facilities (2021)** identifies effective measures for accommodating pedestrians on public rights-of-way, vary among roadway and facility types.*

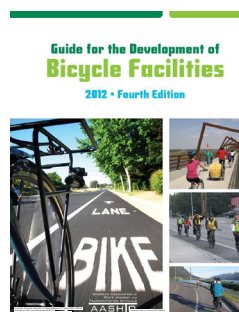


*The Maricopa Association of Governments' (MAG) **Pedestrian Policies and Design Guidelines (2005)** provides information and design assistance to better create and redevelop pedestrian areas throughout the region that integrate facilities for walking with other transportation modes.*

Bikeway Guidance



*The National Association of City Transportation Officials' (NACTO) **Urban Bikeway Design Guide (2012)** provides cities with state-of-the-practice solutions that can help create complete streets that are safe and enjoyable for bicyclists.*



*The American Association of State Highway Transportation Officials' (AASHTO) **Guide for the Development of Bicycle Facilities (2012)** provides information on how to accommodate bicycle travel and operations in most riding environments.*



*The **Separated Bike Lane Planning and Design Guide (2015)** is the latest national guidance on the planning and design of separated bike lane facilities released by the Federal Highway Administration (FHWA). The resource documents best practices as demonstrated around the U.S., and offers ideas on future areas of research, evaluation and design flexibility.*

DESIGN NEEDS OF PEDESTRIANS

Types of Pedestrians

Pedestrians have a variety of characteristics and the transportation network should accommodate a variety of needs, abilities, and possible impairments. Age is one major factor that affects pedestrians’ physical characteristics, walking speed, and environmental perception. Children have lower eye height and may walk slower than adults. They also perceive the environment differently at various stages of their cognitive development. Older adults walk more slowly and may require assistive devices for walking stability, sight, and hearing.

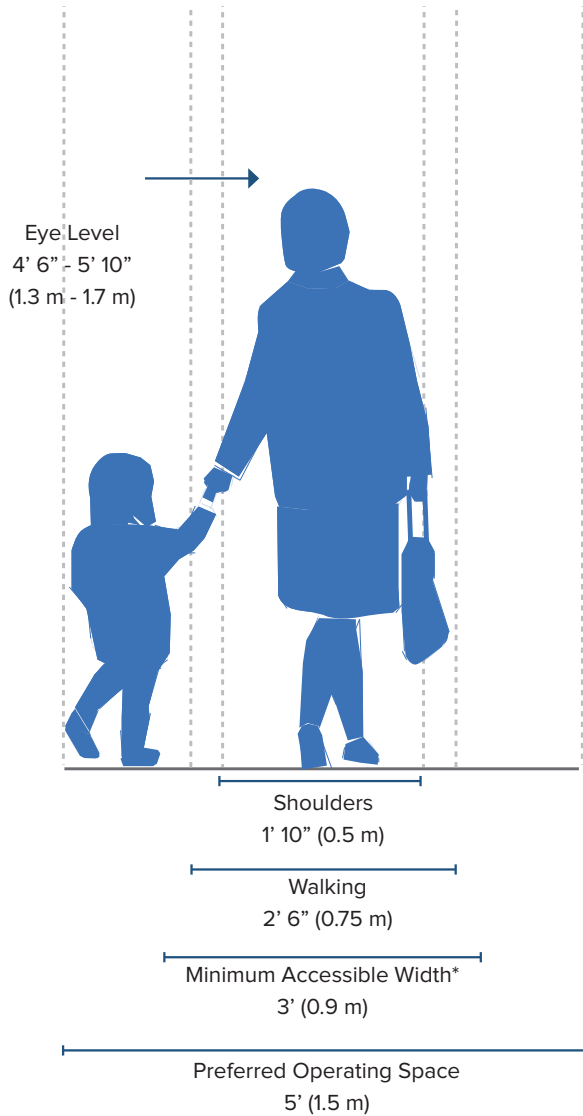
Disabled Pedestrian Design Considerations

The table below summarizes common physical and cognitive impairments, how they affect personal mobility, and recommendations for improved pedestrian-friendly design.

Disabled Pedestrian Design Considerations

Impairment	Effect on Mobility	Design Solution
Physical Impairment Necessitating Wheelchair and Scooter Use	Difficulty propelling over uneven or soft surfaces.	Firm, stable surfaces and structures, including ramps or beveled edges.
	Cross-slopes cause wheelchairs to veer downhill or tip sideways.	Cross-slopes of less than two percent.
	Require wider path of travel.	Sufficient width and maneuvering space.
Physical Impairment Necessitating Walking Aid Use	Difficulty negotiating steep grades and cross slopes; decreased stability and tripping hazard.	Cross-slopes of less than two percent. Smooth, non-slippery travel surface.
	Slower walking speed and reduced endurance; reduced ability to react.	Longer pedestrian signal cycles, shorter crossing distances, median refuges, and street furniture.
Hearing Impairment	Less able to detect oncoming hazards at locations with limited sight lines (e.g. driveways, angled intersections, channelized right turn lanes) and complex intersections.	Longer pedestrian signal cycles, clear sight distances, highly visible pedestrian signals and markings.
Vision Impairment	Limited perception of path ahead and obstacles; reliance on memory; reliance on non-visual indicators (e.g. sound and texture).	Accessible text (larger print and raised text), accessible pedestrian signals (APS), guide strips and detectable warning surfaces, safety barriers, and lighting.
Cognitive Impairment	Varies greatly. Can affect ability to perceive, recognize, understand, interpret, and respond to information.	Signs with pictures, universal symbols, and colors, rather than text.
Fatiguing Illnesses	Slower walking speed and reduced endurance; reduced ability to react. Increased chances of tripping or falling.	Longer pedestrian signal cycles, shorter crossing distances, median refuges, and street furniture. Smooth, non-slippery travel surface.

Pedestrian Characteristics by Age



*At point of contact

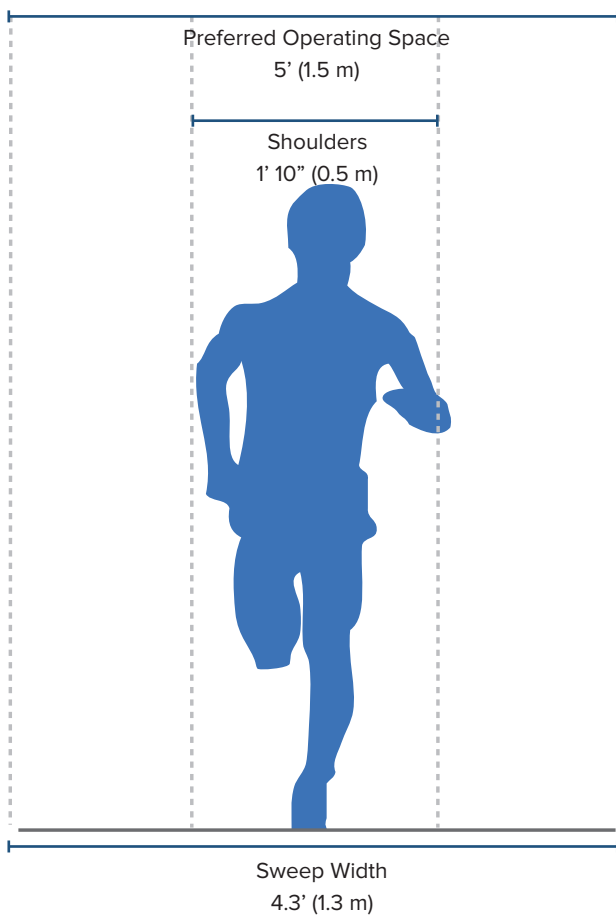
Age	Characteristics
0-4	<ul style="list-style-type: none"> Learning to walk Requires constant adult supervision Developing peripheral vision and depth perception
5-8	<ul style="list-style-type: none"> Increasing independence, but still requires supervision Poor depth perception
9-13	<ul style="list-style-type: none"> Susceptible to "darting out" in roadways Insufficient judgment Sense of invulnerability
14-18	<ul style="list-style-type: none"> Improved awareness of traffic environment Insufficient judgment
19-40	<ul style="list-style-type: none"> Active, aware of traffic environment
41-65	<ul style="list-style-type: none"> Slowing of reflexes
65+	<ul style="list-style-type: none"> Difficulty crossing street Vision loss Difficulty hearing vehicles approaching from behind

Source: AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities*, Exhibit 2-1. 2021.

Design Needs of Runners

Running is an important recreation and fitness activity commonly performed on shared use paths. Many runners prefer softer surfaces (such as rubber, bare earth or crushed rock) to reduce impact. Runners can change their speed and direction frequently. If high volumes are expected, controlled interaction or separation of different types of users should be considered.

Runner Dimensions

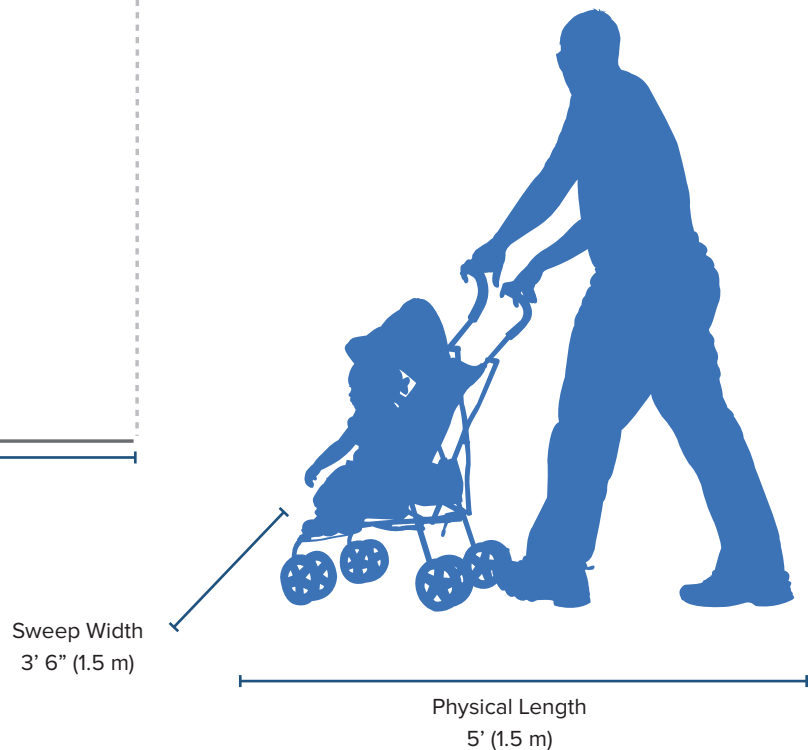


Design Needs of Strollers

Strollers are wheeled devices pushed by pedestrians to transport babies or small children. Stroller models vary greatly in their design and capacity. Some strollers are designed to accommodate a single child, others can carry 3 or more. Design needs of strollers depend on the wheel size, geometry and ability of the adult who is pushing the stroller.

Strollers commonly have small pivoting front wheels for easy maneuverability, but these wheels may limit their use on unpaved surfaces or rough pavement. Curb ramps are valuable to these users. Lateral overturning is one main safety concern for stroller users.

Stroller Dimensions



Design Needs of Wheelchair Users

As the American population ages, the age demographics in Phoenix may also shift, and the number of people using mobility assistive devices (such as manual wheelchairs, powered wheelchairs) will increase.

Manual wheelchairs are self-propelled devices. Users propel themselves using push rims attached to the rear wheels. Braking is done through resisting wheel movement with the hands or arm. Alternatively, a second individual can control the

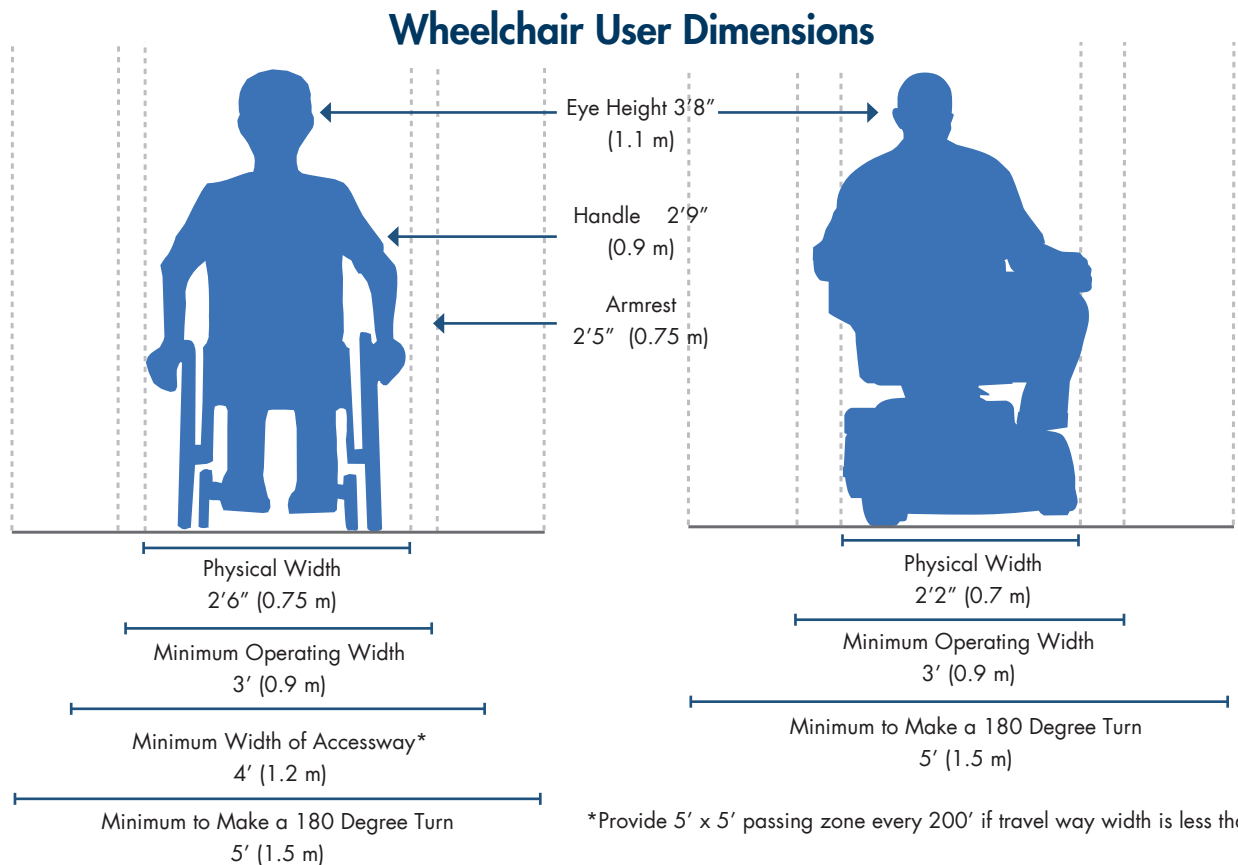
wheelchair using handles attached to the back of the chair.

Power wheelchairs use battery power to move the wheelchair. The size and weight of power wheelchairs limit their ability to negotiate obstacles without a ramp. Various control units are available that enable users to control the wheelchair movement, based on their ability (e.g., joystick control, breath controlled, etc).

Maneuvering around a turn requires additional space for wheelchair devices. Providing adequate space for 180 degree turns at appropriate locations is an important element of accessible design.

Wheelchair User Design Considerations

Effect on Mobility	Design Solution
Difficulty propelling over uneven or soft surfaces.	Firm, stable surfaces and structures, including ramps or beveled edges.
Cross-slopes cause wheelchairs to veer downhill.	Cross-slopes of less than two percent.
Require wider path of travel.	Sufficient width and maneuvering space.



DESIGN NEEDS OF BICYCLE & OTHER MICROMOBILITY DEVICE RIDERS

The facility designer must have an understanding of how bicycles and scooters operate and how the devices themselves influence that operation. People who ride bicycles and other micromobility devices, by nature, are much more affected by poor facility design, construction and maintenance practices than motor vehicle drivers. By understanding the unique characteristics and needs of bikes and micromobility devices, a facility designer can provide quality facilities that work for a wider spectrum of users and minimize user risk.

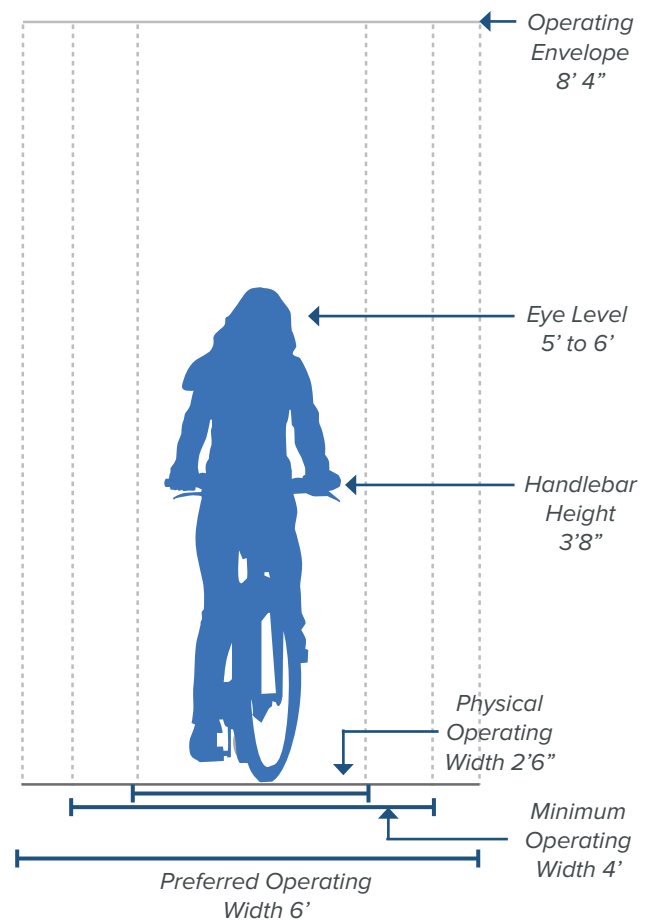
Bicycle as a Design Vehicle

Similar to motor vehicles, bicycles exist in a variety of sizes and configurations. These variations occur in the types of vehicle (such as a conventional bicycle, a recumbent bicycle or a tricycle), and behavioral characteristics (such as the comfort level of the bicyclist). The design of a bikeway should consider reasonably expected bicycle types on the facility and utilize the appropriate dimensions.

The figure illustrates the operating space and physical dimensions of a typical adult bicyclist, which are the basis for typical facility design. Bicyclists require clear space to operate within a facility. This is why the minimum operating width is greater than the physical dimensions of the bicyclist. Bicyclists prefer five feet or more operating width, although four feet may be minimally acceptable if the pavement is continuous and there is no curbing present..

In addition to the design dimensions of a typical bicycle, there are many other commonly used pedal-driven cycles and accessories to consider when planning and designing bicycle facilities. The most common types include tandem bicycles, recumbent bicycles, and trailer accessories.

Bicycle Rider - Typical Dimensions

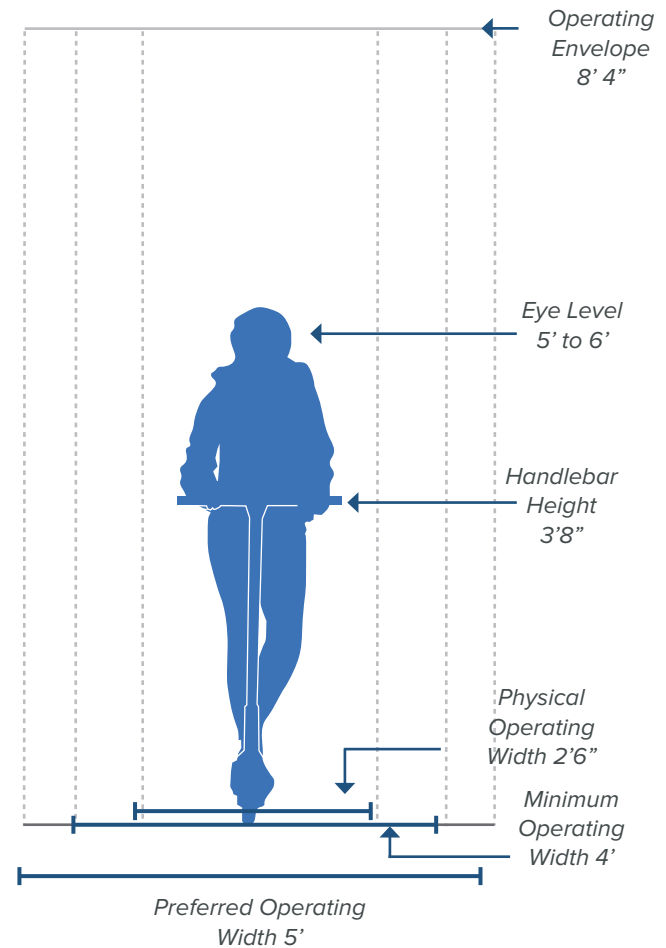


Other Micromobility Devices **Scooter Rider - Typical Dimensions**

Scooters, skateboards, and other similar micromobility devices, both human-powered and battery-powered are low-speed mobility devices that are typically operated in on-street bike facilities. These devices can be entirely human-powered, powered by an electric motor, or a combination of the two. They typically have an operating speed of 20 mph or less, but this can vary widely depending on whether manually-powered or motor driven, and other factors like hills.

In general, these devices have similar design operating envelopes of bicycles, (in some cases even narrower), and can be operated by a wide range of users, including those who may not be able to operate a traditional bicycle. As the wheels are smaller than bicycle wheels, potholes and large cracks are more disruptive to these vehicles

These devices have seen a dramatic increase in use, and will likely only continue to be the case as they become more affordable, available, and accessible, for both personal devices and shared micromobility systems.



Design Speed Expectations

BICYCLE TYPE	FEATURE	TYPICAL SPEED
Upright Adult Bicyclist	Paved level surfacing	8-12 mph
	Crossing Intersections	10 mph
	Downhill	25-30 mph
	Uphill	5-12 mph
Recumbent Bicyclist	Paved level surfacing	18 mph
E-bikes and E-scooters	Paved level surfacing	10-15 mph
	Crossing Intersections	10-12 mph
	Downhill	30 mph
	Uphill	10-15mph



02

PEDESTRIAN
TOOLBOX

INTRODUCTION

The Pedestrian Toolbox includes pedestrian-oriented infrastructure elements that create a more comfortable and safe pedestrian experience.

In Phoenix, in addition to all elements listed in the Toolbox, designing for heat mitigation is essential. To mitigate heat, trees, shade structures, and

building heights and setbacks should be designed to provide the maximum shade on sidewalks and streets - preventing the ground materials from absorbing too much heat from the sun. Surface materials and their respective UV reflective properties can also assist in reducing the effects of heat from the sun.

This toolbox will be helpful to in addressing pedestrian needs.



SIDEWALKS

SIDEWALKS

Sidewalk Zones & Widths

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel separated from vehicle traffic. Providing adequate and accessible facilities can lead to increased numbers of people walking, improved accessibility, and the creation of social space.

Design Features



Enhancement Zone	Amenity Zone	Pedestrian Access Route (PAR)	Building Frontage Zone
<p>The curbside lane can act as a flexible space to further buffer the sidewalk from moving traffic, and may be used for a bike facility. Curb extensions and bike corrals may occupy this space where appropriate.</p>	<p>The amenity zone, also called the furnishing or landscaping zone, buffers pedestrians from the adjacent roadway, and is also the area where elements such as street trees, signal poles, signs, and other street furniture are properly located.</p>	<p>The pedestrian access route is the area intended for pedestrian travel. This zone should be entirely free of permanent and temporary objects while fully meeting the requirements for pedestrian accessibility.</p> <p>Wide pedestrian zones are needed in areas or where pedestrian flows are high.</p>	<p>The building frontage zone allows pedestrians a comfortable “shy” distance from the building fronts, fencing, walls and vertical landscaping. It provides opportunities for window shopping, to place signs, planters, or chairs.</p>

Street Classification	Parking Lane/ Enhancement Zone	Amenity Zone	Pedestrian Access Route (PAR)	Building Frontage Zone*
Local Streets	Varies	4 - 6 ft	6 - 8 ft	2 ft
Pedestrian Priority Areas	Varies	6 - 10 ft	8 ft	2 - 8 ft
Arterials and Collectors	Varies	4 - 6 ft	6 - 8 ft	4 - 6 ft

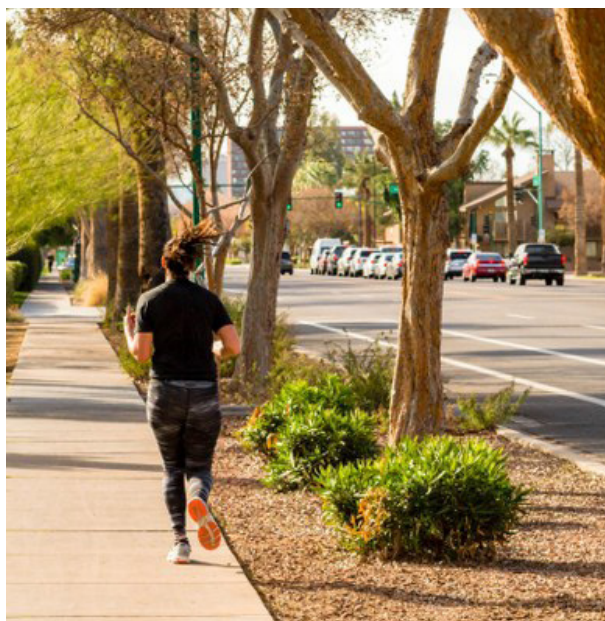
**Indicates ideal frontage zone space. Actual frontage zone is contingent upon the City's development code and required set backs*

Typical Application

- Wider sidewalks should be installed near schools, at transit stops, or anywhere high concentrations of pedestrians exist.
- At transit stops, an 8 ft by 5 ft clear space is required for accessible passenger boarding/ alighting at the front door location per ADA requirements.
- Sidewalks should be continuous on both sides of urban commercial streets, and should be required in areas of moderate residential density (1-4 dwelling units per acre).
- When retrofitting gaps in the sidewalk network, locations near transit stops, schools, parks, public buildings, and other areas with high concentrations of pedestrians should be the highest priority.

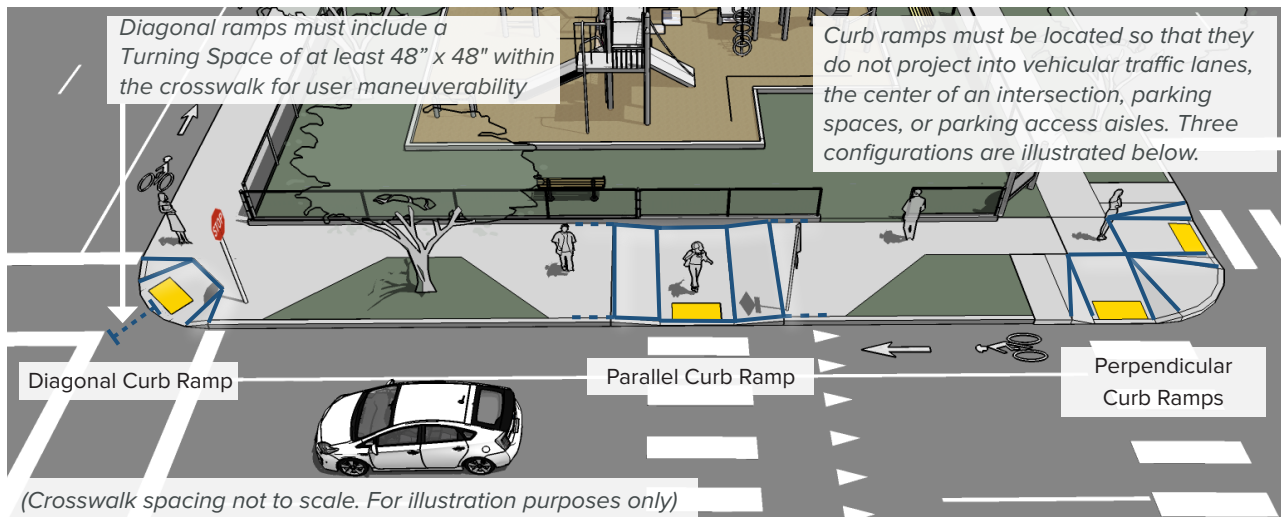
Materials and Maintenance

Sidewalks are typically constructed out of concrete and are separated from the roadway by a curb or gutter and sometimes a landscaped boulevard. Less expensive walkways constructed of asphalt, crushed stone, or other stabilized surfaces may be appropriate. Ensure accessibility and properly maintain all surfaces regularly. Surfaces must be firm, stable, and slip resistant. Colored, patterned, or stamped concrete can add distinctive visual appeal. See 'Sidewalk Maintenance' for more information.



CURB RAMPS

Curb ramps are the design elements that allow all users to make the transition from the street to the sidewalk. A sidewalk without a curb ramp can be useless to someone in a wheelchair, forcing them back to a driveway and out into the street for access. There are a number of factors to be considered in the design and placement of curb ramps.



Typical Application

Curb ramps must be installed at all intersections and midblock locations where pedestrian crossings exist, as mandated by federal legislation (1973 Rehabilitation Act and ADA 1990). All newly constructed and altered roadway projects must include compliant curb ramps. In addition, existing facilities must be upgraded to current standards when appropriate.

The edge of the Pedestrian Access Route (PAR) at the ADA Ramp opening, transitioning from the sidewalk to the street, is equipped with detectable warning surfaces (also known as truncated domes) to alert people with visual impairments to changes in the pedestrian environment. Visual contrast between the raised tactile device and the surrounding infrastructure is important so that the change is readily evident to partially sighted pedestrians.

Design Features

- The level landing at the top of a ramp should be at least 4 feet long and at least the same width as the ramp itself. The slope of the ramp should be compliant to current standards.
- If the top landing is within the sidewalk or corner area where someone in a wheelchair may have to change direction, the landing must be a minimum of 4'-0" long (in the direction of the ramp run) and at least as wide as the ramp, although a width of 5'-0" is preferred.



Not recommended: Diagonal curb ramp configuration.

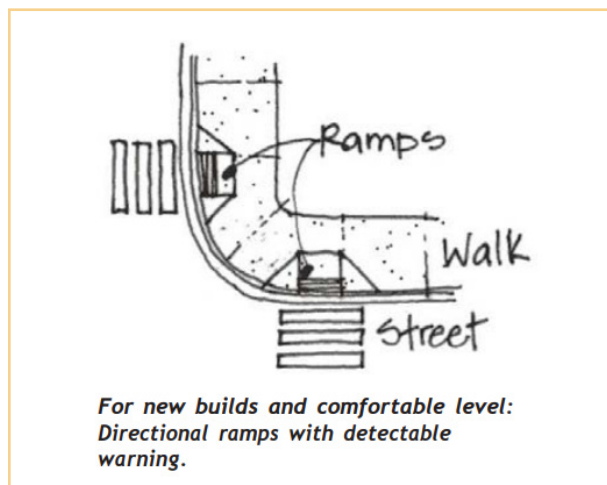


Recommended: Directional curb ramps for crossing in both directions.

Further Considerations

Where feasible, separate directional curb ramps for each crosswalk at an intersection should be provided rather than having a single ramp at a corner for both crosswalks. Ramps dedicated to a single pedestrian travel direction orient pedestrians directly into the center of the intersection, which can be challenging for wheelchair users and pedestrians with visual impairments. Diagonal curb ramp configurations are not allowed during new construction and can only be installed as part of a maintenance activity or after a technical infeasibility study and approval by the city engineer.

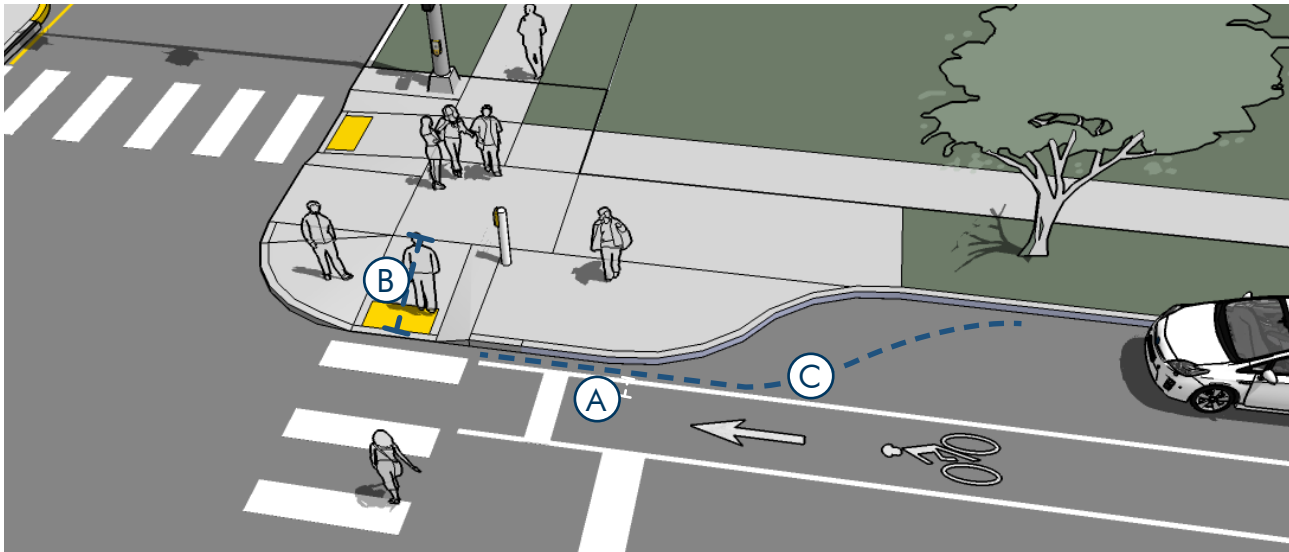
Curb radii need to be considered when designing directional ramps. While curb ramps are needed for use on all types of streets, the highest priority locations are on streets near transit stops, schools, parks, medical facilities, shopping areas.



*Pedestrian Policies and Design Guidelines, pg 56.
Maricopa Association of Governments, 2005*

Materials and Maintenance

It is critical that the interface between a curb ramp and the street be maintained adequately. Asphalt street sections can develop vertical differentials where concrete meets asphalt at the foot of the ramp, which can catch the front wheels of a wheelchair.



CURB EXTENSIONS

Curb extensions, also called curb bulbouts and neckdowns, minimize pedestrian exposure during crossing by shortening the crossing distance and giving pedestrians a better chance to see and be seen before beginning to cross. Curb extensions are appropriate for any crosswalk where it is desirable to shorten the crossing distance and there is a parking lane adjacent to the curb.

Typical Application

- For purposes of efficient street sweeping, the minimum radius for the reverse curves of the transition is 10 ft and the two radii should be balanced to be nearly equal.
- The curb extension width should terminate one foot short of the parking lane to maximize bicyclist safety when bicycle lanes are not present. This buffer is also preferred when bicycle lanes are present.

Design Features

- (A) Where a bike lane runs adjacent to the curb extension, design with a 1' buffer from edge of parking lane (preferred).
- (B) Crossing distance is shortened by approximately 6-8 feet with a parallel parking lane or 15 feet or more with an angled parking lane.

- (C) Curb extension length can be adjusted to accommodate bus stops or street furniture.

Further Considerations

If there is no parking lane, adding curb extensions across a roadway shoulder may be a problem for bicycle travel and truck or bus turning movements.

Materials and Maintenance

Planted curb extensions may be designed as a bioswale, a vegetated system for stormwater management. To maintain proper stormwater drainage, curb extensions can be constructed as refuge islands offset by a drainage channel or feature a covered trench drain.

CORNER RADII

The size of a curb's radius can have a significant impact on pedestrian comfort and safety. A smaller curb radius provides more pedestrian area at the corner, allows more flexibility in the placement of curb ramps, results in a shorter crossing distance and requires vehicles to slow more on the intersection approach. During the design phase, the chosen radius should be the smallest possible for the circumstances and consider the effective radius in any design vehicle turning calculations.

Typical Application

The curb radius may be as small as 3 ft where there are no turning movements, or 5 ft where there are turning movements and adequate street width. Wide outside travel lanes, on-street parking and bike lanes create a larger effective turning radius and can therefore allow a smaller physical curb radius.

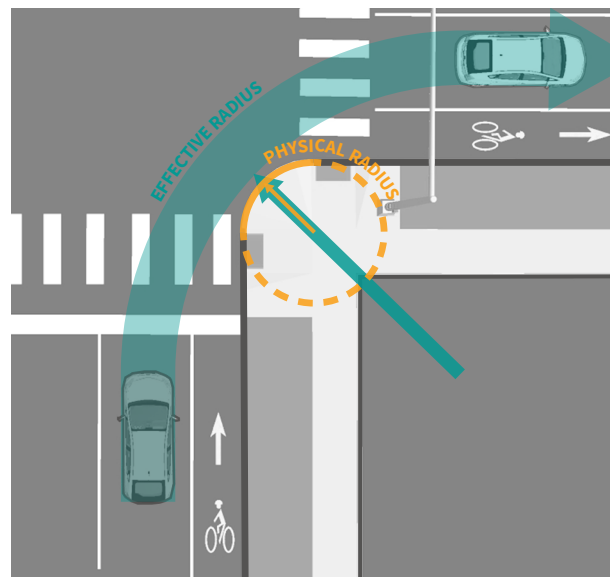
Design Features

Corners have two critical dimensions which must be considered together.

- The physical radius controls the pedestrian experience.
- The effective radius is the widest turning arc that a vehicle can take through the corner and is larger than the physical radius.

Further Considerations

Several factors govern the choice of curb radius in any given location. These include the desired pedestrian area of the corner, traffic turning movements, street classifications, design vehicle turning radius, intersection geometry, presence of a bus or other large vehicle route, and whether there is on-street parking or a bike lane (or both) between the travel lane and the curb. Dual radius corners with mountable aprons or other corner hardening devices such as modular speed bumps can be used to accommodate larger design/control vehicles while still effectively managing ordinary vehicular traffic.



Recommended: Bidirectional curb ramps for crossing in both directions.



HOV 2+
ONLY
6-9AM 3-7PM
MON-FRI
NEXT LEFT

CROSSWALK
STOP
ON
RED

FLASHING RED
STOP
PROCEED
WHEN SAFE

WEST
10

CROSSWALK
STOP
ON
RED

03

BICYCLE TOOLBOX

INTRODUCTION

Facility Selection: Bicycle User Type

The current AASHTO Guide to the Development of Bicycle Facilities encourages designers to identify their rider type based on the trip purpose (Recreational vs Transportation) and on the level of comfort and skill of the rider (Causal vs Experienced). An alternate, and commonly used, user-type framework for understanding a potential rider's willingness to bike is illustrated in the figure below. Developed by planners in Portland, OR* and supported by research**, this classification identifies four distinct types of bicyclists.

Strong and Fearless – This group is willing to ride a bicycle on any roadway regardless of traffic conditions. Comfortable taking the lane and riding in a vehicular manner on major streets without designated bicycle facilities.

Enthusied and Confident - This group of people riding bicycles who are riding in most roadway situations but prefer to have a designated facility. Comfortable riding on major streets with a bike lane.

Interested but Concerned – This group is more cautious and has some inclination towards bicycling, but are held back by concern over sharing the road with cars. Not very comfortable on major streets, even with a striped bike lane, and prefer separated pathways or low traffic neighborhood streets.

No Way, No How – This group comprises residents who simply aren't interested at all in bicycling and may be physically unable or don't know how to ride a bicycle, and they are unlikely to adopt bicycling in any way.

Typical Distribution of Bicyclist Types



* Roger Geller, City of Portland Bureau of Transportation. *Four Types of Cyclists*. <http://www.portlandonline.com/transportation/index.cfm?a=237507>. 2009.

** Dill, J., McNeil, N. *Four Types of Cyclists? Testing a Typology to Better Understand Bicycling Behavior and Potential*. 2012.

Facility Selection: Comfort

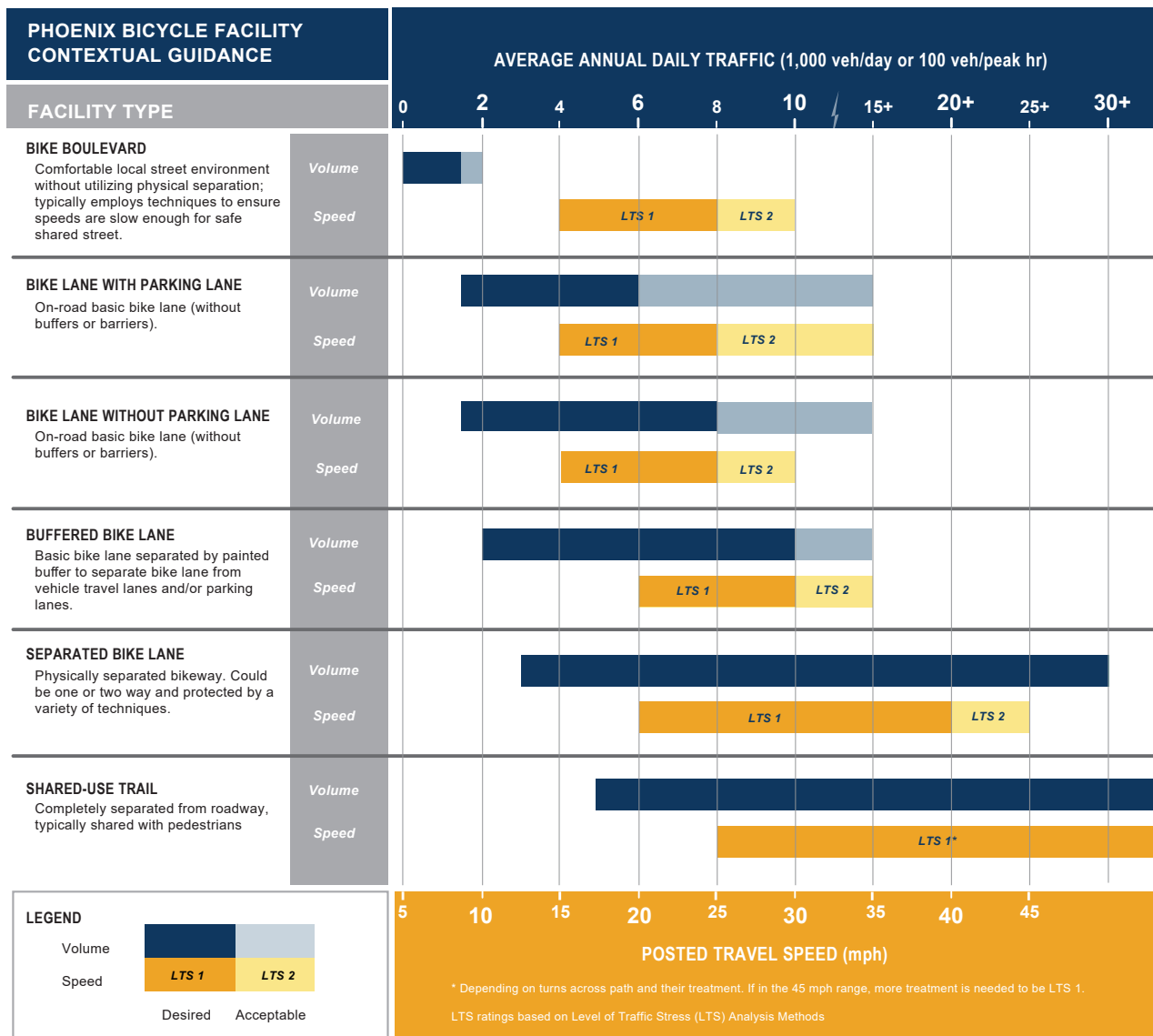
In order to provide a bikeway network that meets the needs of the Phoenix’s “Interested but Concerned” residents (who comprise the majority of the population), bikeways must be low-stress and comfortable. By using a metric called Level of Traffic Stress (LTS), specific facility types can be matched to the needs of people who bicycle in Phoenix. Generally, “Interested but Concerned,” users will only bicycle on LTS 1 or LTS 2 facilities.

Levels of Traffic Stress (LTS)

LTS LEVEL	DESCRIPTION	WHAT TYPE OF BICYCLISTS WILL RIDE ON THIS LTS FACILITY?		
		STRONG & FEARLESS	ENTHUSIASTIC & CONFIDENT	INTERESTED BUT CONCERNED
LTS 1	Presents the lowest level of traffic stress; demands less attention from people riding bicycles, and attractive enough for a relaxing bicycle ride. Suitable for almost all people riding bicycles, including children trained to ride in the street and to safety cross intersections.	YES	YES	YES
LTS2	Presents little traffic stress and therefore suitable to most adults riding bicycles, but demands more attention than might be expected from children.	YES	YES	SOMETIMES
LTS3	More traffic stress than LTS2, yet significantly less than the stress of integrating with multilane traffic.	YES	SOMETIMES	NO
LTS4	A level of stress beyond LTS 3. Includes roadways that have no dedicated bicycle facilities and moderate to higher vehicle speeds and volumes OR high speed and high volume roadways WITH an exclusive riding zone (lane) where there is a significant speed differential with vehicles.	YES	NO	NO

Facility Selection: Bikeways

As a starting point to identify a preferred facility, the chart below can be used to determine the recommended type of bikeway to be provided in particular roadway speed and volume situations. To use this chart, identify the appropriate daily traffic volume on the existing or proposed roadway, and locate the facility types indicated by those key variables. Other factors beyond volume which affect facility selection include traffic mix of including heavy vehicles, the presence of on-street parking, intersection density, surrounding land use, and roadway sight distance. These factors are not included in the facility selection chart below, but should always be considered in the facility selection and design process.

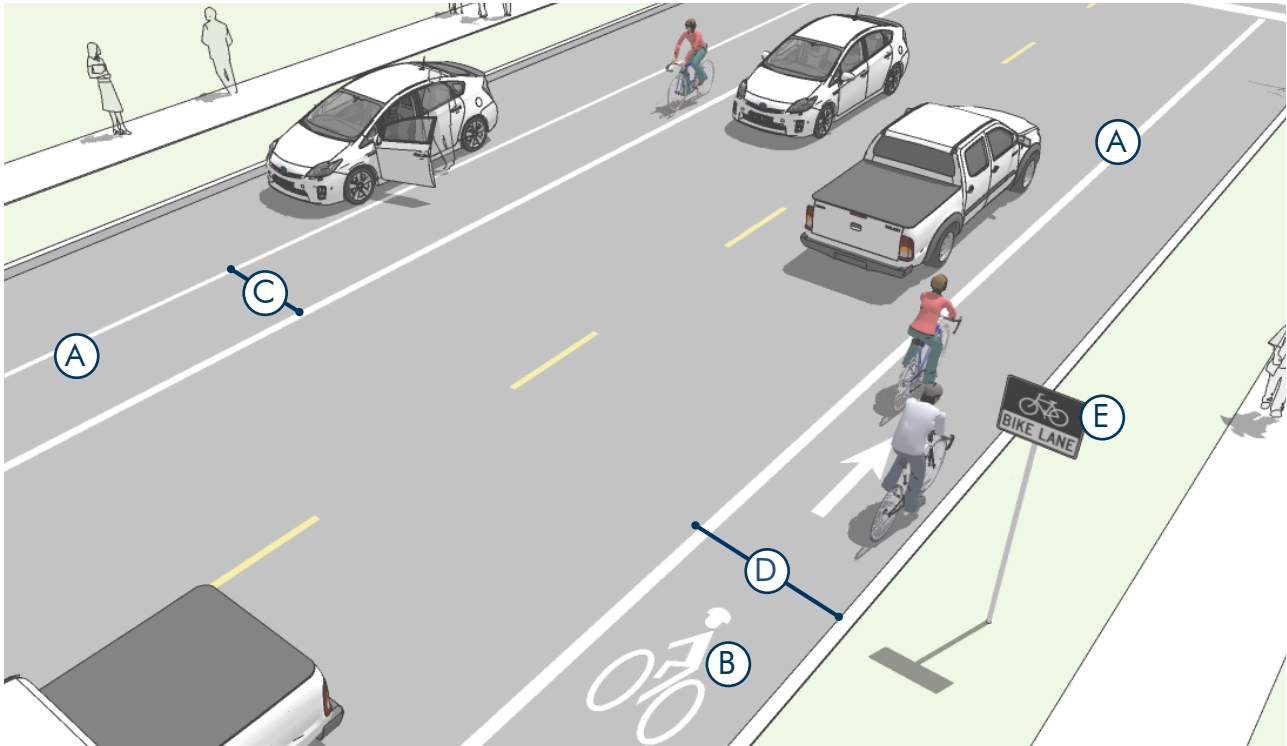


This chart can be used to identify a preferred bicycle facility, or facilities, that would provide an LTS 1 or 2 experience at a selected location. For street segments, desired and acceptable vehicular volumes for each facility are shown. These are the motor vehicle volume ranges that are appropriate for that facility. The correspondence between motor vehicle speed on the street and the LTS score for each facility are also shown. The speed entries determine the LTS scores for the facility. A facility should only be chosen when both the street volumes and LTS scores are appropriate. Since ranges overlap, it is important to allow more than one facility type to meet the desired LTS. Other factors should be considered when selecting a treatment, such as proximity to schools, parks, or trailheads.

BIKE LANES

STANDARD BIKE LANES

On-street bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signs. The bike lane is located directly adjacent to motor vehicle travel lanes and is used in the same direction as motor vehicle traffic. Bike lanes are typically on the right side of the street, between the adjacent travel lane and curb, road edge or parking lane.



Typical Application

- Bike lanes may be used on any street with adequate space, but are most effective on streets with moderate traffic volumes $\leq 6,000$ ADT ($\leq 4,000$ preferred).
- Bike lanes are most appropriate on streets with lower to moderate speeds ≤ 30 mph.
- Appropriate for skilled adult riders on most streets.
- May be appropriate for children when configured as 6+ ft wide lanes on lower-speed, lower-volume streets with one lane in each direction.

Design Features

- (A) Mark inside line with 8" stripe. Mark 4" parking lane line or "Ts".
- (B) Include a bicycle lane marking at the beginning of the bike lane, beginning and end of bike lane pockets, approaches and farside of arterial crossings, and major changes in direction. MUTCD recommends every 80 ft - 1,000 ft depending on land use context.
- (C) 6 foot width preferred adjacent to on-street parking, (5 foot min.). Buffer preferred when parking has high turnover, see Buffered Bike Lanes.

- (D) 5.5–7 foot preferred adjacent to curb and gutter or 4 feet more than the gutter pan width.
- (E) The R3-17 “Bike Lane” sign is optional, but recommended in most contexts.

Further Considerations

- On high speed streets (≥ 40 mph) the minimum bike lane should be 6 feet.
- It may be desirable to reduce the width of general purpose travel lanes in order to add or widen bicycle lanes.
- On multi-lane streets, the most appropriate bicycle facility to provide for user comfort may be buffered bicycle lanes or physically separated bicycle lanes.
- Contraflow bike lanes are a special type of bike lane that can be implemented in specific locations where a dedicated bike lane is needed for a particular direction of travel, but the roadway is oriented for one-way travel in the opposite direction, and/or when space constraints preclude a bike facility on nearby parallel routes that would otherwise serve this need. Contraflow bike lanes are effective in providing short, critical connections along bikeways, and special attention needs to be paid to facility transitions to other bikeway types.

Manhole Covers and Grates:

- Manhole surfaces should be manufactured with a shallow surface texture in the form of a tight, nonlinear pattern.
- If manholes or other utility access boxes are to be located in bike lanes within 50 ft. of intersections or within 20 ft. of driveways or other bicycle access points, special manufactured permanent nonstick surfaces ensure a controlled travel surface for bicyclists breaking or turning.
- Manholes, drainage grates, or other obstacles should be set flush with the paved roadway. Roadway surface inconsistencies pose a threat to safe riding conditions for bicyclists. Construction of manholes, access panels or



Bike lanes provided dedicated spaces for bicyclists to ride on the street.

other drainage elements should be constructed with no variation in the surface. The maximum allowable tolerance in vertical roadway surface will be 1/4 of an inch.

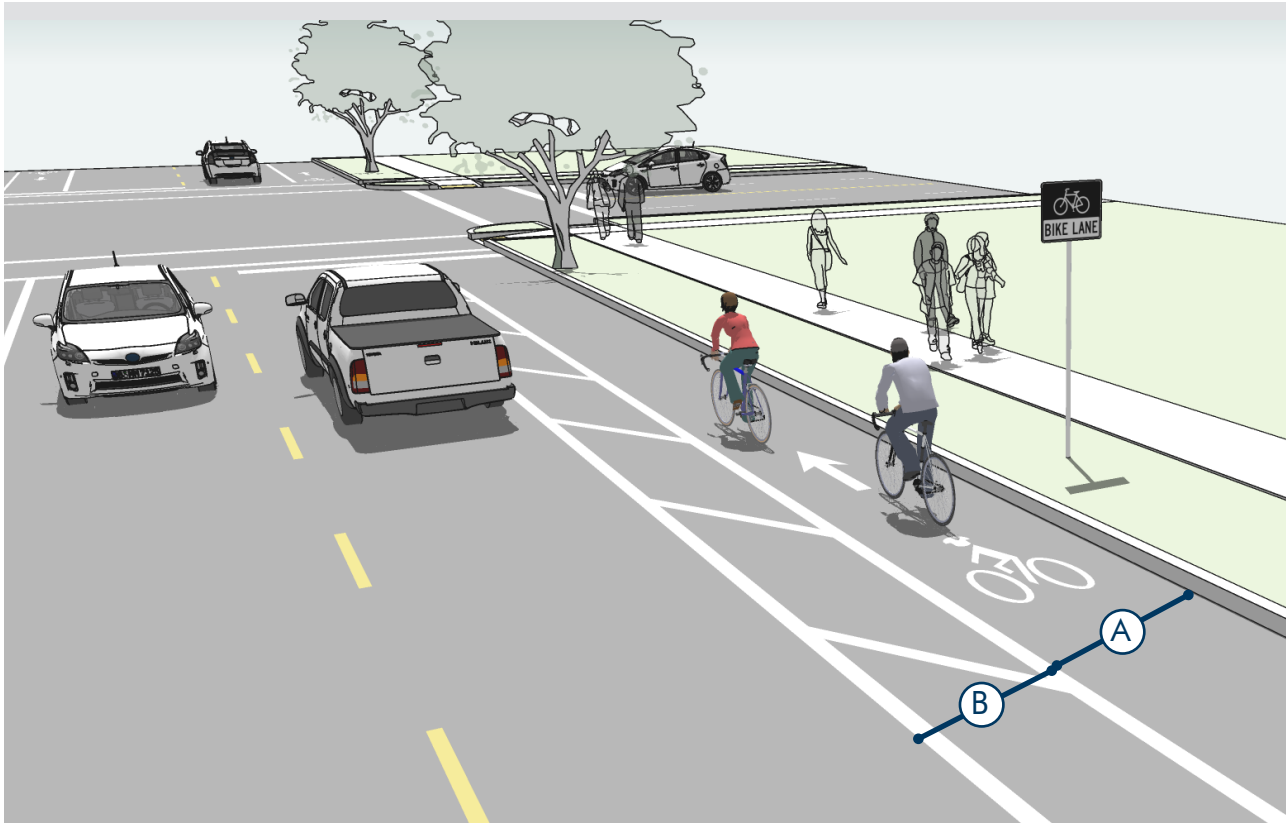
Materials and Maintenance

Bike lane striping and markings will require higher maintenance where vehicles frequently traverse over them at intersections, driveways, parking lanes, and along curved or constrained segments of roadway.

Bike lanes should also be maintained so that there are no pot holes, cracks, uneven surfaces or debris.

BUFFERED BIKE LANES

Buffered bike lanes are conventional bike lanes paired with a designated buffer space, separating the bike lane from the adjacent motor vehicle travel lane and/or parking lane.



Typical Application

- Anywhere a conventional bike lane is being considered.
- While conventional bike lanes are most appropriate on streets with lower to moderate speeds (≤ 30 mph), buffered bike lanes provide additional value on streets with higher speeds ($+30$ mph) and high volumes or high truck volumes (up to 6,000 ADT).
- On streets with extra lanes or lane width.
- Appropriate for skilled adult riders on most streets.

Design Features

- Ⓐ The minimum bicycle travel area (not including buffer) is 5 feet wide.
- Ⓑ Buffers should be at least 2.5 feet wide - but 3 feet or more in width is preferred. Diagonal markings are used in buffers that are 2.5 to 4 feet wide. Chevron markings are used in buffers over 4 feet wide.
- Buffers may be applied on the parking side, the travel side, both or alternating depending on the main source of concern.



Buffered bike lanes should include a striped buffer that is at least 2.5-3+ feet



The use of additional pavement markings delineates space between vehicles and bicyclists.

Further Considerations

- On multi-lane streets with high vehicle speeds, the most appropriate bicycle facility to provide for user comfort may be physically separated bike lanes.
- NCHRP Report #766 recommends, when space is limited, installing a buffer space between the parking lane and bicycle lane where on-street parking is permitted rather than between the bicycle lane and vehicle travel lane.¹ This buffer is particularly useful in commercial areas where parking turnover is higher.

Materials and Maintenance

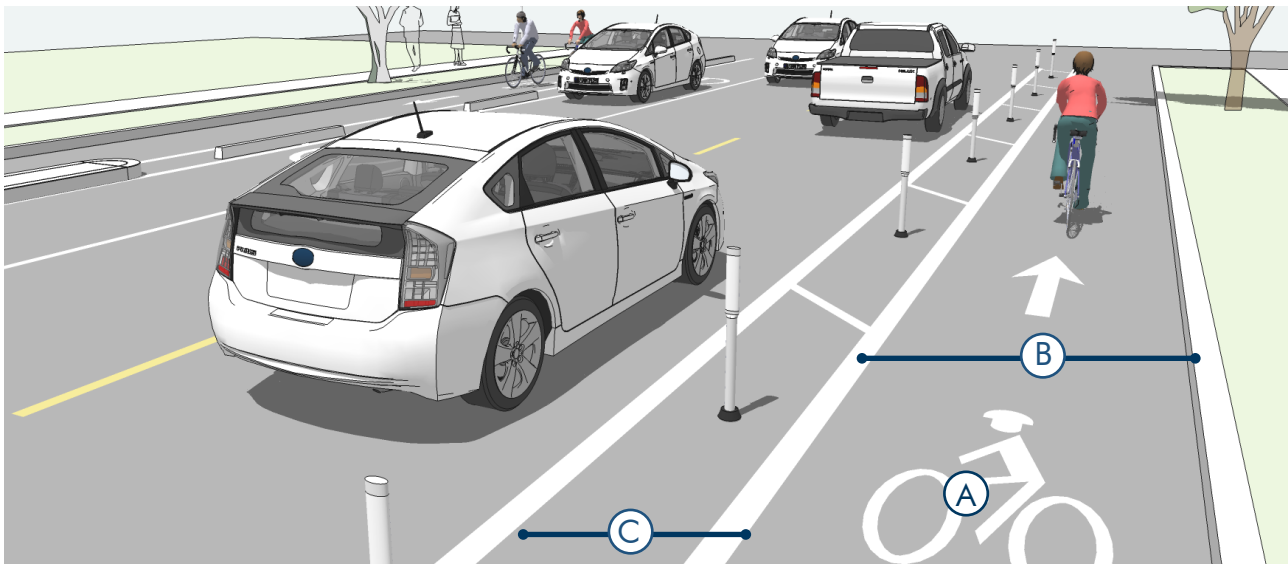
Bike lane striping and markings will require higher maintenance where vehicles frequently traverse over them at intersections, driveways, parking lanes, and along curved or constrained segments of roadway.

Bike lanes should be maintained so that there are no pot holes, cracks, uneven surfaces or debris.

¹ National Cooperative Highway Research Program. Report #766: Recommended Bicycle Lane Widths for Various Roadway Characteristics.

SEPARATED BIKE LANES: ONE-WAY

One-way separated bike lanes, also known as protected bikeways or cycle tracks, are on-street bikeway facilities that are separated from vehicle traffic. Physical separation is provided by a barrier between the bikeway and the vehicular travel lane. These barriers can include flexible posts, bollards, parking, planter strips, extruded curbs, or on-street parking. Separated bikeways using these barrier elements typically share the same elevation as adjacent travel lanes, but the bikeway could also be raised above street level, either below or equivalent to sidewalk level.



Typical Use

- Along streets on which conventional bicycle lanes would cause many bicyclists to feel stress because of factors such as multiple lanes, high bicycle volumes, high motor traffic volumes (9,000-30,000 ADT), higher traffic speeds (35+ mph), high incidence of double parking, higher truck traffic (10% of total ADT) and high parking turnover.
- Along streets for which conflicts at intersections can be effectively mitigated using parking lane setbacks, bicycle markings through the intersection, and other signalized intersection treatments.

Design Features

- A** Pavement markings, symbols and/or arrow markings must be placed at the beginning of the separated bikeway and at intervals along the facility based on engineering judgment to define the bike direction.

- B** 8 feet or more in width preferred in areas with high bicycle volumes or uphill sections to facilitate safe passing behavior. Minimum width, 6 feet (5.5 feet as an absolute minimum).

- C** When placed adjacent to parking, the parking buffer should be 4 ft wide to allow for passenger loading and to prevent door collisions.
 - Buffers should be wide enough to support the type of separation provided without that separation creating a hazard for drivers or bicyclists using the roadway.
 - When placed adjacent to a travel lane, one-way raised cycle tracks may be configured with a mountable curb to allow entry and exit from the bicycle lane for passing other bicyclists or to access vehicular turn lanes.
 - Include green elephant crossings marks at conflict points like intersections or driveways.



Parked cars serve as a barrier between bicyclists and the vehicle lane. Barriers could also include flexible posts, bollards, planters, or other design elements.

Further Considerations

- Diagonal markings are used in buffers that are 2.5 to 4 feet wide. Chevron markings are used in buffers over 4 feet wide.
- Curbs may be used as a channeling device. Grade-separation provides an enhanced level of separation in addition to buffers and other barrier types.
- Where possible, physical barriers such as removable curbs should be oriented towards the inside edge of the buffer to provide as much extra width as possible for bicycle use.
- A retrofit separated bikeway has a relatively low implementation cost compared to road reconstruction by making use of existing pavement and drainage and using a parking lane as a barrier.
- Gutters, drainage outlets and utility covers should be designed and configured as not to impact bicycle travel.
- For clarity at major or minor street crossings, consider a dotted line for the buffer boundary where cars are expected to cross.
- Special consideration should be given at transit stops to manage bicycle and pedestrian interactions.
- Consideration should be given to ensuring that entrances to separated bike lanes do not look like car travel lanes by incorporating clear signage and pavement markings.

Materials and Maintenance

Bikeway striping and markings will require higher maintenance where vehicles frequently traverse over them at intersections, driveways, parking lanes, and along curved or constrained segments of roadway. Green conflict markings (if used) will also generally require higher maintenance due to vehicle wear.

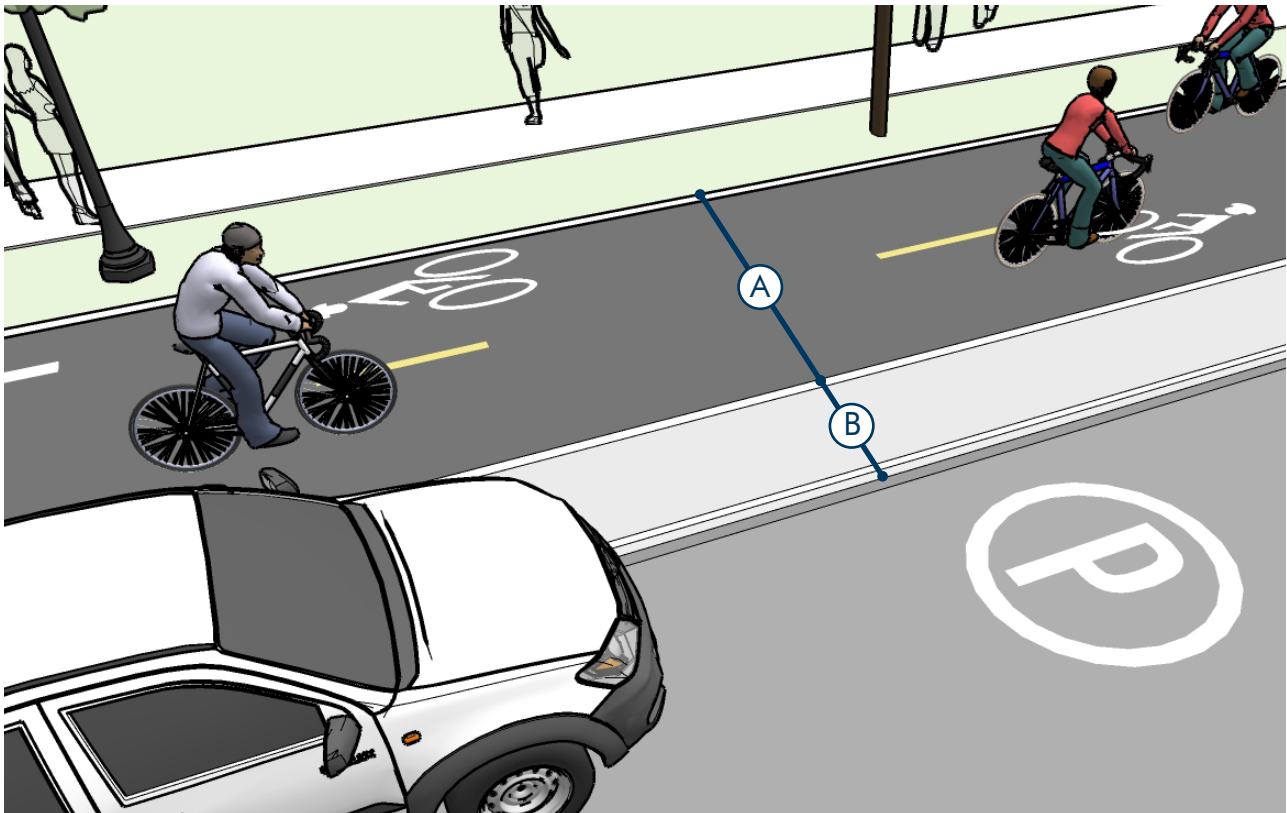
Bikeways should be maintained so that there are no pot holes, cracks, uneven surfaces or debris.

Access points along the facility should be provided for street sweeper vehicles to enter/exit the separated bikeway.

Install composite and reboundable delineator systems, which offer more durability.

SEPARATED BIKE LANES: TWO-WAY

Two-Way separated bike lanes are bicycle facilities that allow bicycle movement in both directions on one side of the road. Two-way separated bikeways share some of the same design characteristics as one-way separated bikeways, but often require additional considerations at driveway and side-street crossings, and intersections with other bikeways.



Typical Application

Works best on the left side of one-way streets.

- Streets with high motor vehicle volumes and/or speeds
- Streets with high bicycle volumes.
- Streets with a high incidence of wrong-way bicycle riding.
- Streets with few conflicts such as driveways or cross-streets on one side of the street.
- Streets that connect to shared use trails.

Design Features

- A** 12 foot operating width preferred (10 ft minimum) width for two-way facility.
 - In constrained locations an 8 foot minimum operating width may be considered for short intervals.
- B** Adjacent to on-street parking a 4 foot minimum width channelized buffer or island should be provided to accommodate opening doors. (NACTO, 2012).
 - Additional signalization and signs may be necessary to manage conflicts.



A two-way facility can accommodate bicyclists in two directions of travel.

Further Considerations

- A two-way separated bikeway on one way street should be located on the left side.
- A two-way separated bikeway may be configured at street level or as a raised separated bikeway with vertical separation from the adjacent travel lane.
- Two-way separated bikeways should ideally be placed along streets with long blocks and few driveways or mid-block access points for motor vehicles.
- Two-way separated bikeways may have implications for signalized and unsignalized intersections that put contra-flow bicyclists in increased levels of risk. This should be strongly considered with any project. Bicycle exclusive signals and other control elements are often recommended with two-way separated bikeways.
- Consideration should be given to ensuring that entrances to separated bike lanes do not look like car travel lanes by incorporating clear signage and pavement markings.

Materials and Maintenance

Bikeway striping and markings will require higher maintenance where vehicles frequently traverse over them at intersections, driveways, parking lanes, and along curved or constrained segments of roadway. Green conflict markings (if used) will also generally require higher maintenance due to vehicle wear.

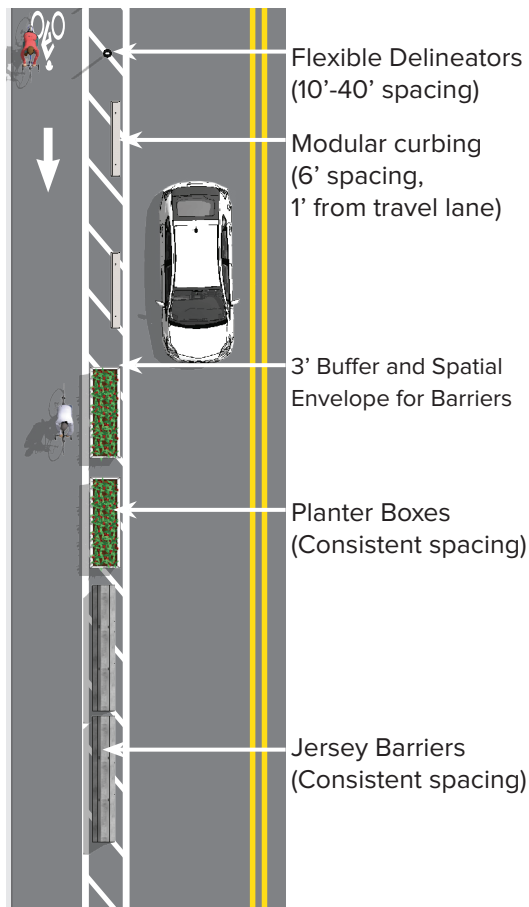
Bikeways should be maintained so that there are no pot holes, cracks, uneven surfaces or debris.

Access points along the facility should be provided for street sweeper vehicles to enter/exit the separated bikeway.

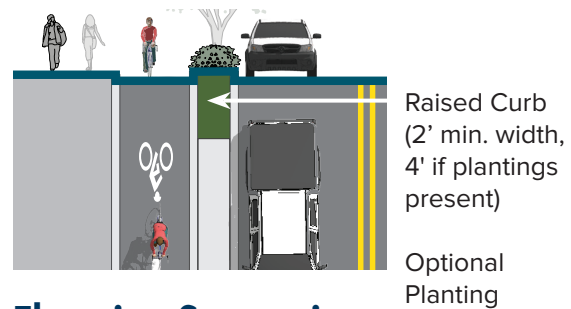
SEPARATED BIKE LANE BARRIERS

Separated bike lanes may use a variety of vertical elements to physically separate the bikeway from adjacent travel lanes. Barriers may be robust constructed elements such as curbs, or may be more interim in nature, such as flexible delineator posts.

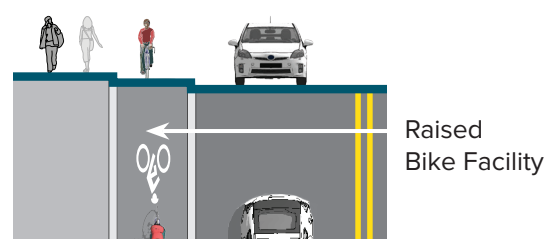
Barrier Separation



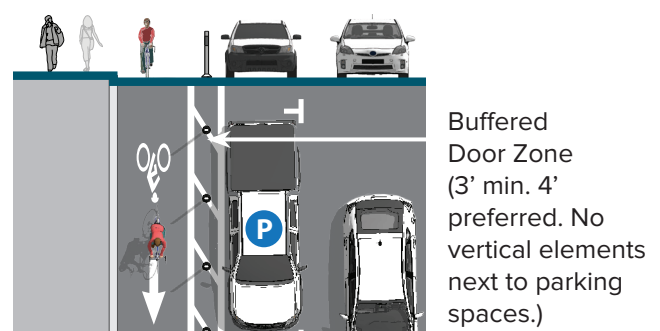
Median Separation



Elevation Separation



Parking Separation



Typical Application

Appropriate barriers for retrofit projects:

- Parked cars
- Flexible delineators
- Planters
- Modular curbing

Appropriate barriers for reconstruction projects:

- Curb separation
- Medians
- Landscaped medians
- Raised protected bike lane with vertical or mountable curb
- Pedestrian Refuge Islands



Raised separated bikeways are bicycle facilities that are vertically separated from motor vehicle traffic.

Design Features

- Maximize effective operating space by placing curbs or delineator posts as far from the through bikeway space as practicable.
- Allow for adequate shy distance of 1 to 5 feet from vertical elements to maximize useful space.
- When next to parking allow for 3 feet of space in the buffer space to allow for opening doors and passenger unloading.
- The presences of landscaping in medians, planters and safety islands increases comfort for users and enhances the streetscape environment.

Further Considerations

- With new roadway construction, a raised separated bikeway can be less expensive to construct than a wide or buffered bicycle lane because of shoulder trenching and sub base requirements.
- Parking should be prohibited within 30 feet of intersections and driveways to improve visibility. Clearly indicate the parking prohibition through the use of a red curb, signs, or other tools.

Materials and Maintenance

Separated bikeways protected by concrete islands or other permanent physical separation, can be swept and plowed by smaller street sweeper vehicles.

Access points along the facility should be provided for street sweeper vehicles to enter/exit the separated bikeway.

BIKE BOULEVARDS

BIKE BOULEVARD OVERVIEW

A Bike Boulevard is a low-speed, low-volume roadway that is designed to enhance comfort and convenience for people bicycling. It provides better conditions for bicycling while improving the neighborhood character and maintaining emergency vehicle access. Bike Boulevards are intended to serve as a low-stress bikeway network, providing direct, and convenient routes across Phoenix. Key elements of Bike Boulevards are unique signage and pavement markings, traffic calming and diversion features to maintain low vehicle volumes, and convenient major street crossings.



Treatments depicted may vary per roadway segment or location.

Typical Use

- Parallel with and in close proximity to major thoroughfares (1/4 mile or less) on low-volume, low-speed streets.
- Follow a desire line for bicycle travel that is ideally long and relatively continuous (2-5 miles).
- Avoid alignments with excessive zigzag or circuitous routing. The bikeway should have less than 10% out of direction travel compared to shortest path of primary corridor.
- Local streets with traffic volumes of fewer than 1,500 vehicles per day (for the majority of their length) and with average operating speeds below 25 mph. Utilize traffic calming to maintain or establish low volumes and discourage vehicle cut through / speeding.

Design Features

- Signs and pavement markings are the minimum treatments necessary to designate a street as a bike boulevard.
- Implement volume control treatments based on the context of the bike boulevard, using engineering judgment. While motor vehicle volumes should not exceed 3,000 vehicles per day, ideal conditions are 1,500 vehicles per day or less.
- Intersection crossings should be designed to enhance comfort and minimize delay for bicyclists of diverse skills and abilities.



A traffic circle included in an intersection along a Bike Boulevard calms traffic since vehicles are forced to slow down. Photo credit: Alta



An example of an large pavement marking to reinforce that the street is a Bike Boulevard.

Further Considerations

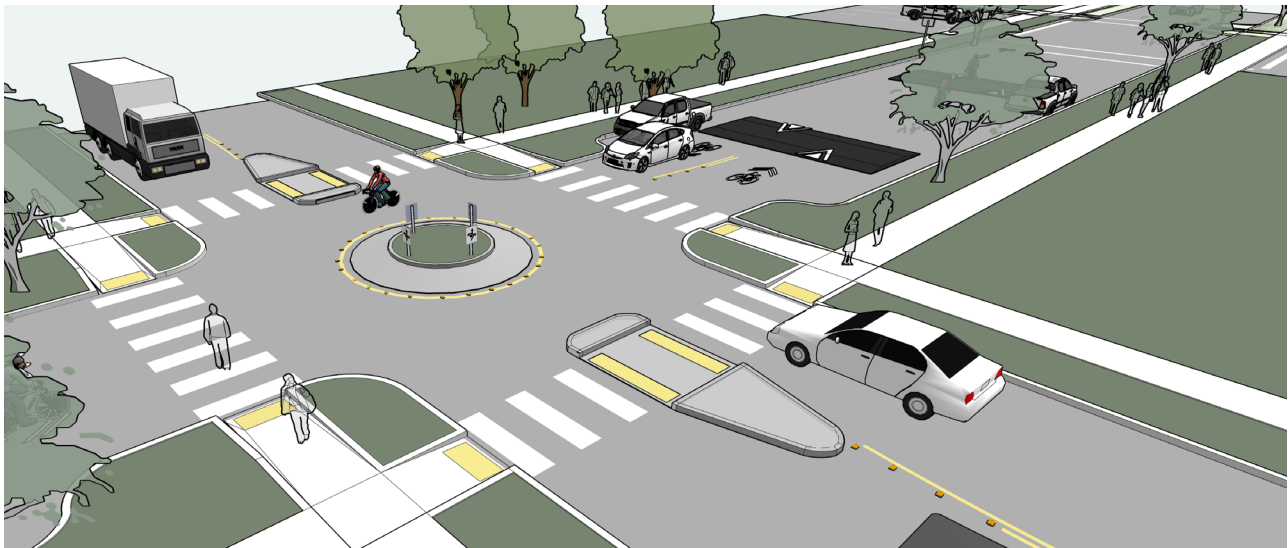
- Bike Boulevards are established on streets that improve connectivity to key destinations and provide a direct, low-stress route for bicyclists, with low motorized traffic volumes and speeds, designated and designed to give bicycle travel priority over other modes.
- Bike Boulevard retrofits to local streets are typically located on streets without existing signalized accommodation at crossings of collector and arterial roadways. Without treatments for bicyclists, these intersections can become major barriers along the Bike Boulevard.
- Traffic calming can deter motorists from driving on a street. Anticipate and monitor vehicle volumes on adjacent streets to determine whether traffic calming results in inappropriate volumes. Traffic calming can be implemented on a trial basis.

Materials and Maintenance

Bike Boulevards require few additional maintenance requirements to local roadways. Signage, signals, and other traffic calming elements should be inspected and maintained according to local standards.

TRAFFIC CALMING

Traffic calming devices can help mitigate speeding and cut-through traffic by changing driver behavior through a variety of visual or physical changes to the road environment. Such measures may reduce the design speed of a street and can be used in conjunction with reduced speed limits to reinforce the expectation of lowered speeds.



Typical Application

- Traffic calming measures should be limited to placement along local streets, typically with a maximum posted speed of 30 mph.
- Traffic calming measures should be implemented when the safety of all roadway users, especially pedestrians and bicyclists, is at risk due to high vehicular speeds. The risk can be determined by an engineering study.
- Traffic calming measures can be more applicable in areas with high potential for conflict between pedestrian/bicyclist and motor vehicles.
- Traffic calming measures may be most appropriate in areas with predominantly residential or mixed-use land use.
- If applicable, traffic calming measures should not infringe on bicycle space. Where possible, provide a bicycle route outside of the element so bicyclists can avoid having to merge into traffic at a narrow pinch point.

- Traffic calming measures should always consider emergency vehicle response times and turning abilities.

Design Features

- There are a variety of treatments and combinations of treatments that can be used for traffic calming.
- Priority traffic calming measures include strategies and devices that are primarily focus on safety. They are meant to regulate, warn, inform, enforce, and educate motorists, cyclists, and pedestrians on the road. Examples include, radar signs, pavement markings, turn restrictions, temporary speed bumps.
- Secondary traffic calming devices and roadway design features are used primarily to reduce traffic speeds within residential areas. These measures are used when primary calming devices have not been effective. Examples

include, speed tables, chicanes, traffic circles, and tree planting.

- Traffic diversion may be employed to discourage cut-through traffic from utilizing residential streets designated as Bike Boulevards. Traffic diverters are often employed when traffic volumes in a particular area have been found to be significantly higher compared to similar streets in other areas. Examples include, diverters, partial street closures, and median barrier/forced turn islands.

Further Consideration

Benefits of speed management include:

- Improves conditions for bicyclists, pedestrians, and residents on local streets.
- Reduced travel speeds decreases the exposure risks between bicyclists/pedestrians and motor vehicles.
- Reduced travel speeds result in reduced injury severity in the event of a collision.
- Helps achieve a safer and more livable neighborhood while balancing the transportation needs of the roadway.



Bulb outs narrow the right-of-way, creating visual friction and slowing cars.

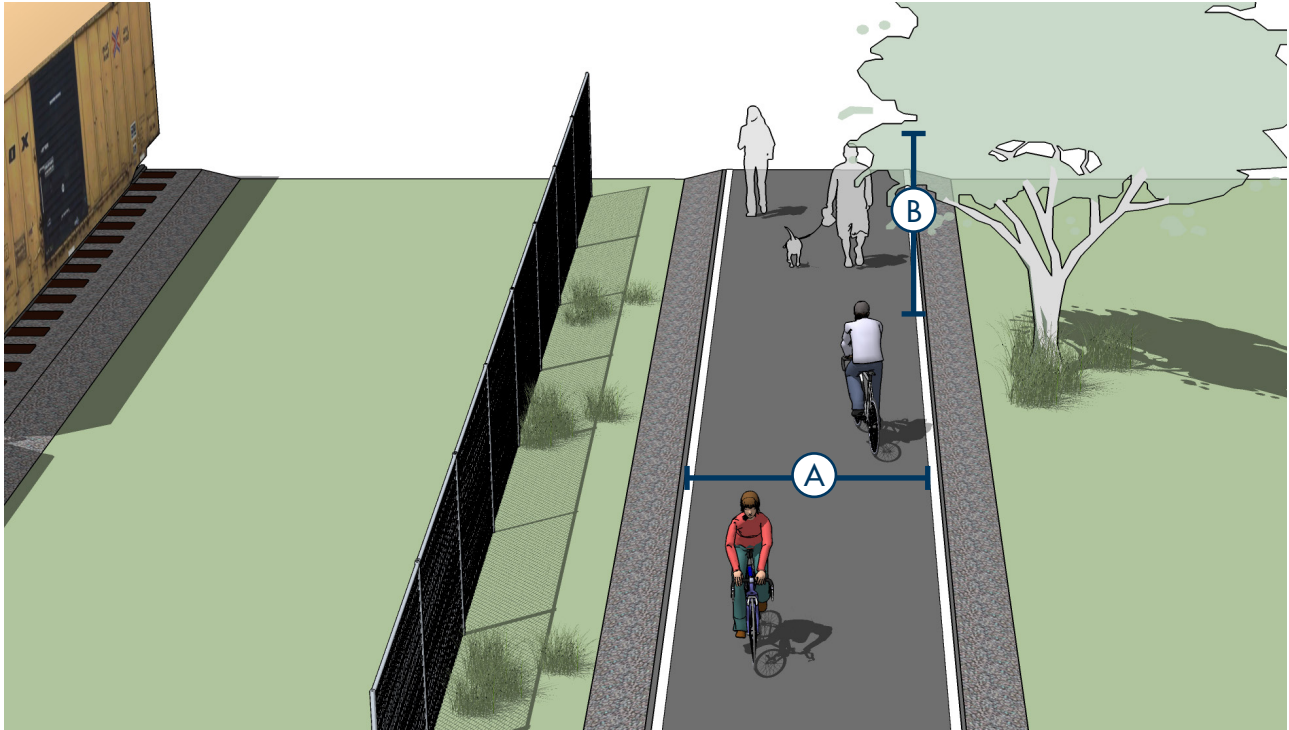


04

SHARED USE
PATHS

SHARED USE PATHS

A shared use path provides a travel area separate from motorized traffic for bicyclists, pedestrians, skaters, wheelchair users, joggers, and other users. Shared use paths are desirable for bicyclists of all skill levels preferring separation from traffic. These facilities should generally provide travel opportunities not provided by existing roadways.



Typical Use

- In waterway corridors, such as along canals, drainage ditches, rivers, and creeks.
- In abandoned rail corridors (commonly referred to as Rails-to-Trails or Rail-Trails.)
- In active rail corridors, trails can be built adjacent to active railroads (referred to as Rails-with-Trails.)
- In utility corridors, such as power line and sewer corridors.
- Along roadways.

Design Features

- Ⓐ 12-14 ft is recommended for heavy use situations with high concentrations of multiple users. A separate track (5' minimum) can be provided for pedestrian use.
- 10 ft is recommended in most situations and will be adequate for moderate to heavy use.

Lateral Clearance

- A 2 ft or greater shoulder on both sides of the path should be provided if the trail is constructed from asphalt. If the trail is constructed out of concrete these clearances should be maintained, but no gravel shoulder is required.
- 1-2 ft of clearance should be provided between the edge of path and barriers, such as walls or fences, or railing

Overhead Clearance

- Ⓑ Clearance to overhead obstructions should be 8 ft minimum, with 10 ft recommended.

Striping

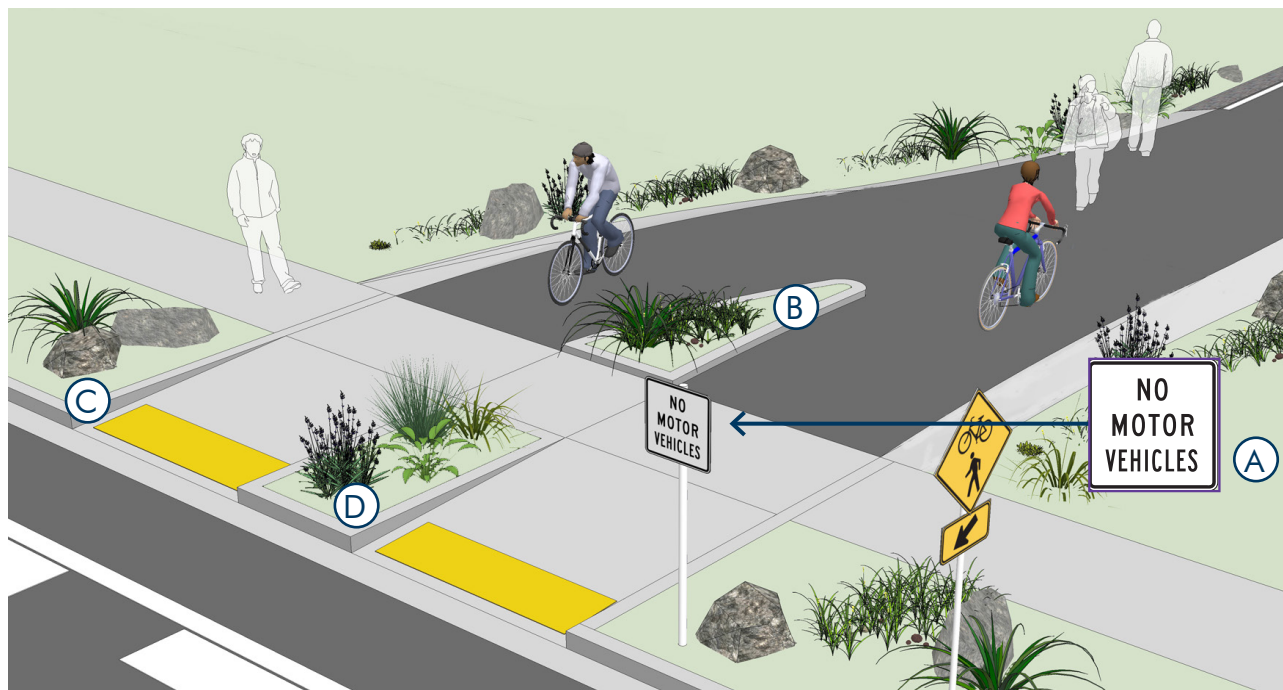
- When striping is desired, use a 4 inch dashed yellow centerline stripe with 4 inch solid white edge lines.
- Solid centerlines can be provided on tight or blind corners and transitions, and on the approaches to roadway crossings.

Further Considerations

- Under most conditions, centerline markings are not necessary. Centerline markings should only be used if necessary for clarifying user positioning or preferred operating procedure: Solid line = No Passing; Dashed line = Lane placement
- Paths with a high volume of bidirectional traffic should include a centerline. This can help communicate that users should expect traffic in both directions and encourage users to travel on the right and pass on the left. Wide trails will function better with higher levels of user traffic.
- Where there is a sharp blind curve, painting a solid yellow line with directional arrows reduces the risk of head-on collisions.
- Small scale signs should be used in trail environments.
- Terminate the path where it is easily accessible to and from the street system, preferably at a trailhead, controlled intersection, or at the beginning of a dead-end street.
- Use of bollards should be avoided when possible. If bollards are used at intersections and access points, they should be colored brightly and/or supplemented with reflective materials to be visible at night.

PATHWAY ENTRANCES

Bollards or other physical barriers are often used to restrict motor vehicle access to the shared use path. Unfortunately, physical barriers are often ineffective at preventing access, and create obstacles to legitimate path users. Alternative design strategies use signage, landscaping and curb cut design to reduce the likelihood of motor vehicle access.

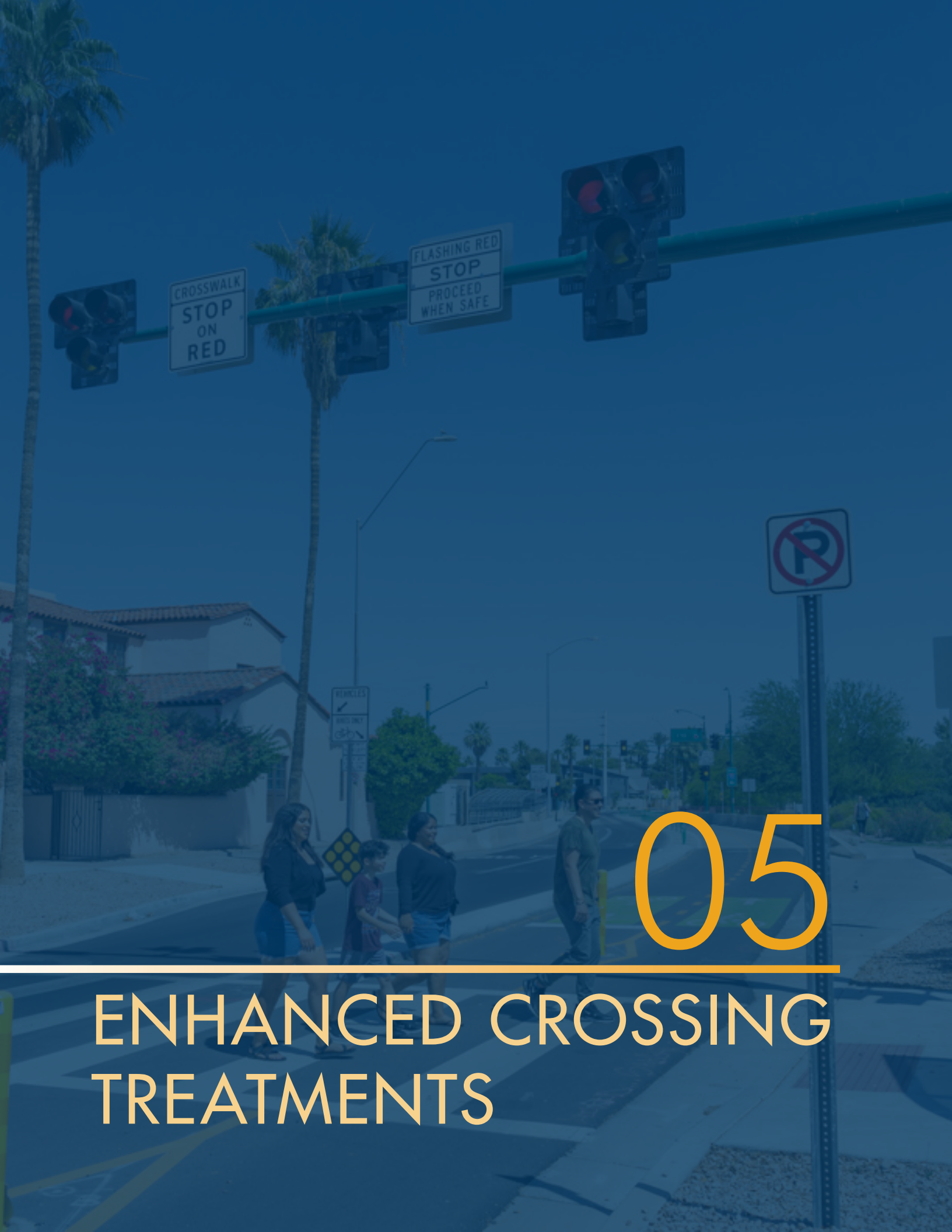


Typical Application

- Bollards or other barriers should not be used unless there is a documented history of unauthorized intrusion by motor vehicles.
- If unauthorized use persists, assess whether the problems posed by unauthorized access exceed the risks and issues posed by bollards and other barriers.

Design Features

- (A) “No Motor Vehicles” signage (R5-3) may be used to reinforce access rules.
- (B) At intersections, split the trail tread into two sections separated by low landscaping.
- (C) Vertical curb cuts should be used to discourage motor vehicle access.
- (D) Low landscaping preserves visibility and emergency access.



CROSSWALK
STOP
ON
RED

FLASHING RED
STOP
PROCEED
WHEN SAFE

05

ENHANCED CROSSING
TREATMENTS

INTERSECTION TREATMENTS

TWO-STAGE TURN BOXES

Two-stage turn boxes offer bicyclists a safe way to make turns at multi-lane signalized intersections from a physically separated or conventional bike lane. On separated bike lanes, bicyclists are often unable to merge into traffic to turn due to physical separation, making the two-stage turning critical. This treatment received Interim Approval from FHWA in 2017 (IA-20).

Typical Application

- Streets with high vehicle speeds and/or traffic volumes.
- At intersections of multi-lane roads with signalized intersections.
- At signalized intersections with a high number of bicyclists making a left turn from a right side facility.
- Preferred treatment to assist turning maneuvers on bike lanes, instead of requiring bicyclists to merge to make a vehicular left turn.
- Required for protected bikeways to assist left turns from a right side facility, or right turns from a left side facility.



- This design formalizes a maneuver called a “box turn” or “pedestrian style turn.”
- Design guidance for two-stage turns apply to both bike lanes and separated bike lanes.
- Two-stage turn boxes reduce conflicts in multiple ways; from keeping bicyclists from queuing in a bike lane or crosswalk and by separating turning bicyclists from through bicyclists.
- Bicyclist capacity of a two-stage turn box is influenced by physical dimension (how many bicyclists it can contain) and signal phasing (how frequently the box clears.)

Design Features

- The two-stage turn box should be placed in a protected area. Typically this is within the shadow of an on-street parking lane or protected bike lane buffer area and should be placed in front of the crosswalk to avoid conflict with pedestrians.
- 10 foot x 6.5 foot preferred dimensions of bicycle storage area (6 foot x 3 foot minimum).
- Bicycle stencil and turn arrow pavement markings should be used to indicate proper bicycle direction and positioning. (NACTO, 2012)

Further Considerations

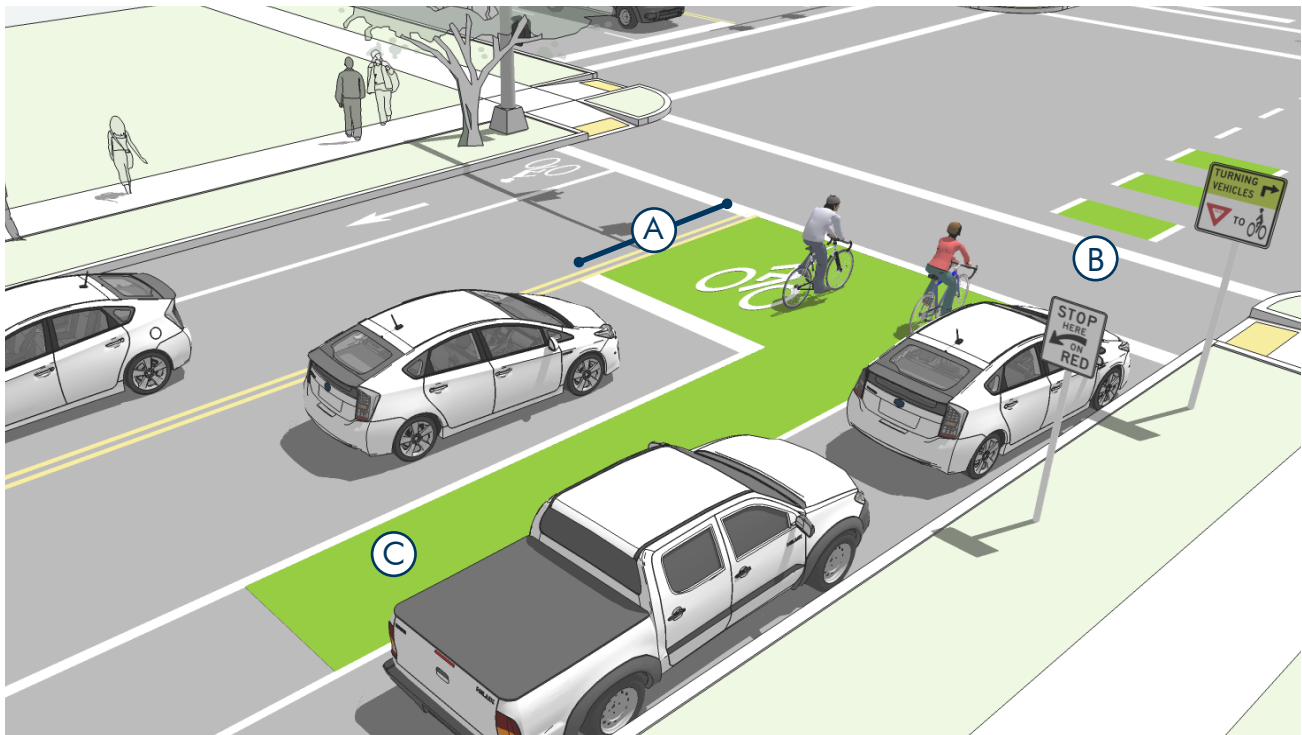
- Consider providing a “No Turn on Red” on the cross street to prevent motor vehicles from entering the turn box.

Materials and Maintenance

Turn boxes may be subject to high vehicle wear, especially turning passenger vehicles, buses, and heavy trucks. As a result, bike boxes with green coloring will require more frequent replacement over time. The life of the green coloring will depend on vehicle volumes and turning movements, but Thermoplastic or MMA are generally more durable material than paint.

BICYCLE BOX

A bicycle box is designed to provide bicyclists with a safe and visible space to get in front of queuing traffic during the red signal phase. Motor vehicles must queue behind the white stop line at the rear of the bike box. On a green signal, all bicyclists can quickly clear the intersection. This treatment received Interim Approval from the FHWA in 2016 (IA-18).



Typical Use

- At potential areas of conflict between bicyclists and turning vehicles, such as a right or left turn locations.
- At signalized intersections with high bicycle volumes.
- At signalized intersections with high vehicle volumes.
- Not to be used on downhill approaches to minimize the right hook threat potential during the extended green signal phase.

Design Features

- Ⓐ 14 foot minimum depth from back of crosswalk to motor vehicle stop bar. (NACTO, 2012)
- Ⓑ A “No Turn on Red” sign should be installed overhead to prevent vehicles from entering the Bike Box. A “Stop Here on Red” sign should be post mounted at the stop line to reinforce observance of the stop line.
- Ⓒ A 50 foot ingress lane should be used to provide access to the box.
 - Use of green colored pavement is recommended.



A bike box allows for bicyclists to wait in front of queuing traffic, providing high visibility and a head start over motor vehicle traffic. Photo credit: Marin County.

Further Considerations

- This treatment positions bicycles together and on a green signal, all bicyclists can quickly clear the intersection, minimizing conflict and delay to transit or other traffic.
- Pedestrian also benefit from bike boxes, as they experience reduced vehicle encroachment into the crosswalk.
- Bike boxes require permission from the FHWA to implement, and jurisdictions must receive approval prior to implementation. A State may request Interim Approval for all jurisdictions in that State.¹
- Bike boxes should not be used to accommodate bicyclist turns at intersections that have substantial parallel green time as bicyclists cannot safely occupy the box when arriving on green.

Materials and Maintenance

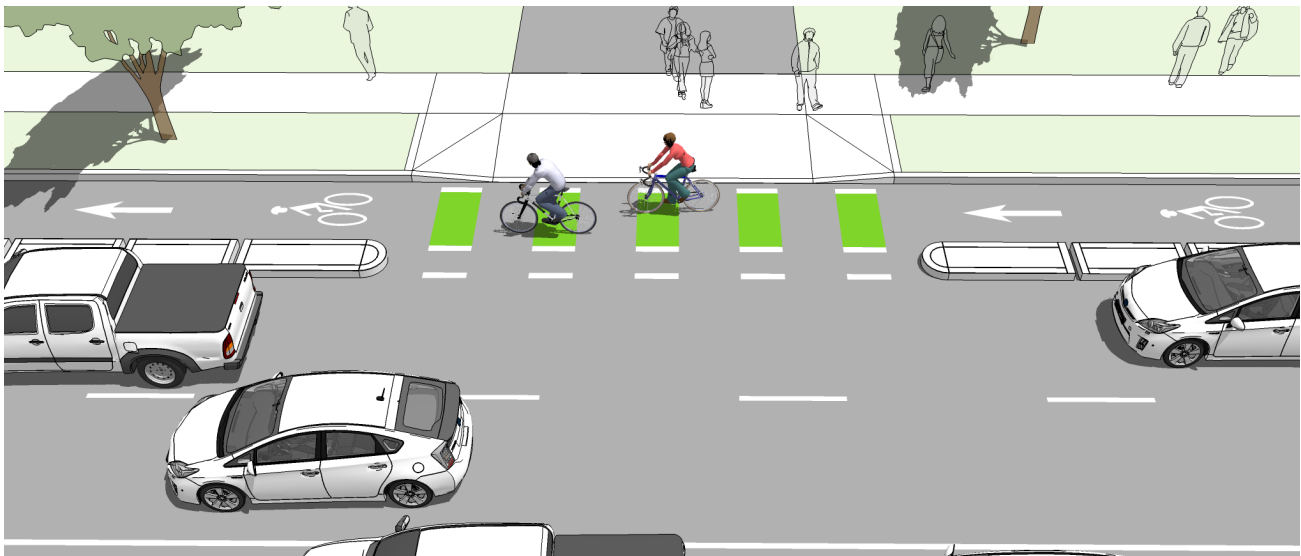
Bike boxes are subject to high vehicle wear, especially turning passenger vehicles, buses, and heavy trucks. As a result, bike boxes with green coloring will require more frequent replacement over time. The life of the green coloring will depend on vehicle volumes and turning movements, but thermoplastic is generally a more durable material than paint.

¹ FHWA. *Interim Approval for Optional Use of an Intersection Bicycle Box (IA-18)*. 2016.

DRIVEWAY & MINOR STREET CROSSINGS

The added separation provided by separated bikeways creates additional considerations at intersections and driveways when compared to conventional bicycle lanes. Special design guidelines are necessary to preserve sightlines and denote potential conflict areas between modes, especially in the case of a two-way bike lane when motorists turning into or out of driveways may not be expecting bicycle travel opposite to the main flow of traffic.

At driveways and crossings of minor streets, bicyclists should not be expected to stop if the major street traffic does not stop.



Typical Use

- Along streets with separated bikeway where there are intersections and driveways.
- Higher frequency driveways or crossings may require additional treatment such as conflict markings and signs.

Design Features

- Remove parking to allow for the appropriate clear sight distance before driveways or intersections to improve visibility. The desirable no-parking area is at least 30 feet from each side of the crossing.
- Use colored pavement markings and/or shared line markings through conflict areas at intersections.
- If a raised bikeway is used, the height of the lane should be maintained through the crossing, requiring automobiles to cross over.
- Motor vehicle traffic crossing the bikeway should be constrained or channelized to make turns at sharp angles to reduce travel speed prior to the crossing.
- Driveway crossings may be configured as raised crossings to slow turning cars and assert physical priority of traveling bicyclists.
- Motor vehicle stop bar on cross-streets and major driveways is setback from the intersection to ensure that drivers slow down and scan for pedestrians and bicyclists before turning.

SIGNALS AND BEACONS

TOUCAN SIGNAL

“Toucan” signalized crossings of streets are a special signal configuration at minor street crossings of a major street, exclusively for people walking and biking, so that “two can” cross the major street concurrently. Vehicles on the minor street do not have a signal, and are instead forced to turn right at a stop sign. This does function as a half signal since vehicles are not allowed to turn left or proceed through. The placement of the Toucan can vary within a given intersection, depending on the overall roadway width, and whether one-way vs. two-way operations are contained fully within the median in the middle of the minor street.



A Toucan signal in Tucson, AZ. Motorists must turn right onto Stone Avenue, the major roadway (from either direction). Bicyclists can turn left, right, or go straight. Bicyclists turning left or going straight can push a button to activate a green bicycle signal indication. Photo credit: Steven Vance.

Typical Use

- Appropriate at carefully designed intersection locations
- Across higher traffic streets where people walking and biking both require safe and comfortable crossings, such as along Bike Boulevards.

Design Features

- A toucan signal assembly may be created by pairing a bicycle and pedestrian signal heads. The bicycle signal must comply with requirement from FHWA Interim Approval 16.
- The major street faces a standard traffic signal (red, amber, and green indications) for the major road. When located at an intersection, the minor cross street has Stop sign to control minor street motor vehicle traffic.

- The pedestrian/bike phase is typically activated actively by a pushbutton or passively using other detection devices.
- At street crossings, the design must be paired with access management or other measures to reduce potential conflicts. Such measures as turn restrictions with dynamic (blank-out) No Right turn/No Left Turn signs, or access management to limit conflicting motor vehicle movements into the and out of the intersection
- High visibility crosswalk markings and bicycle lane dotted lane line extensions (when connecting bike lanes) help to clarify pedestrian and bicyclist paths.
- Pedestrians typically need more time to travel through an intersection than bicyclists. Signal timing and recall phases should be responsive to the detection and actuation by different users.
- Bicycle detection and actuation systems include user-activated buttons mounted on a pole, loop detectors that register a call to the bike signal when a bicycle is detected, microwave detectors, or video/thermal detection cameras that detect a change in the activity at the location.

Further Considerations

- The FHWA has been discouraging “half signals” for several decades because of the potential conflict issues caused when minor-street drivers make a right turn onto the major street, in conflict with the crossing pedestrians (the center-running configuration shown in the photo to right eliminates this risk).
- The steady red signal indication provides a clear regulatory message that typically receives a more uniform control response than warning signs or flashing beacons. Red signal indications receive a high-degree of yielding with over 95% compliance (NCHRP 562).
- Because this is not a common signal configuration at intersections, it is important to operate all toucan signals consistently across the jurisdiction for maximum understanding, compliance, and safety.
- FHWA has approved bicycle signals for use, if they comply with requirements from Interim Approval 16.

Materials and Maintenance

Pedestrian and bicycle signal detection equipment should be inspected and maintained regularly, especially if detection relies on manual actuation. Pushbuttons and loop detectors will tend to have higher maintenance needs than other passive detection equipment.

BIKE DETECTION AND ACTUATION

Bicycle detection and actuation is used to alert the signal controller of bicycle crossing demand on a particular approach. Proper bicycle detection should meet two primary criteria: accurately detects bicyclists and provides clear guidance to bicyclists on how to actuate detection (e.g., what button to push, where to stand).

Typical Application

- At signalized intersections within bicycle lanes or general purpose travel lanes.
- At signalized intersections within left turn lanes used by bicyclists.
- At signalized intersections within separated bike lanes.
- In conjunction with active warning beacons and pedestrian hybrid beacons.

Design Features

Video Detection

- Video detection systems use digital image processing to detect a change in the image at a location. These systems can be calibrated to detect bicycle, although there may be detection issues during poor lighting and weather conditions.

Thermal Detection

- Infrared detection systems typically consist of one or more thermal cameras, a microprocessor to process the thermal imagery, and software to interpret the traffic flow data and communicate with the traffic signal controller. These systems are typically able to extract a significant amount of data from the thermal imagery.

Microwave Detection

- Microwave sensor detection is a system which uses frequency modulated continuous wave radio signals to detect objects in the roadway. This method marks the detected object with a time code to determine its distance from the sensor.
- Microwave sensor detection is unaffected by temperature and lighting, which can affect standard video detection.

Materials and Maintenance

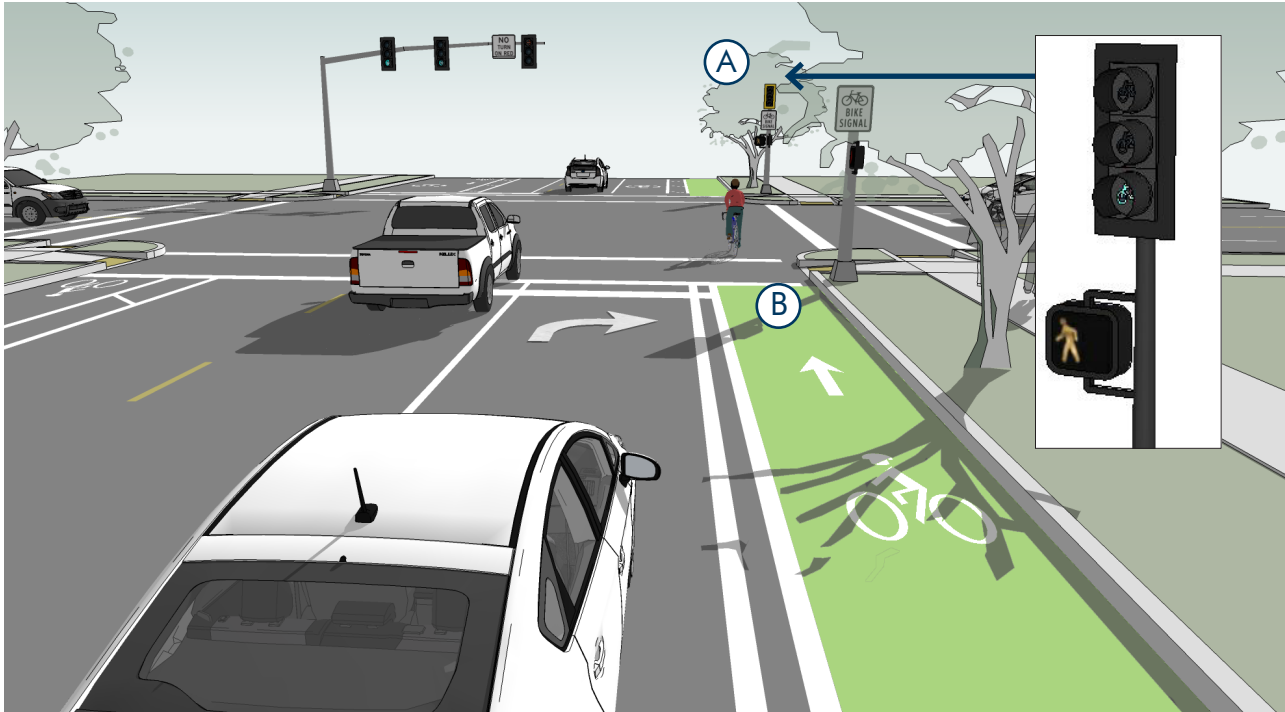
It is important to perform ongoing maintenance of traffic control equipment. Consider semi-annual inspections of controller and signal equipment, intersection hardware, and detectors.



Pavement markings are paired with a sign to teach riders how to activate the bicycle loop detection

BICYCLE SIGNAL PHASE

Separated bicycle lane crossings of signalized intersections can be accomplished through the use of a bicycle signal phase which reduces conflicts with motor vehicles by separating bicycle movements from any conflicting motor vehicle movements. Bicycle signals are traditional three lens signal heads with green, yellow and red bicycle stenciled lenses.



Typical Use

- Two-way protected bikeways where contraflow bicycle movement or increased conflict points warrant protected operation.
- Bicyclists moving on a green or yellow signal indication in a bicycle signal shall not be in conflict with any simultaneous motor vehicle movement at the signalized location
- Right (or left) turns on red should be prohibited in locations where such operation would conflict with a green bicycle signal indication.

Design Features

- Ⓐ An additional "Bicycle Signal" sign should be installed below the bicycle signal head.
- Ⓑ Designs for bicycles at signalized crossings should allow bicyclists to trigger signals via pushbutton, loop detectors, or other passive detection, to navigate the crossing.
- On bikeways, signal timing and actuation shall be reviewed and adjusted to consider the needs of bicyclists.



A bicycle signal head at a signalized crossing creates a protected phase for cyclists to safely navigate an intersection. Photo credit: TREC



A bicycle detection system triggers a change in the traffic signal when a bicycle is detected.

Further Considerations

- A bicycle signal should be considered for use only when the volume/collision or volume/geometric warrants have been met.
- The Federal Highway Administration (FHWA) has approved bicycle signals for use, if they comply with requirements from Interim Approval 16 (I.A. 16). Bicycle Signals are not approved for use in conjunction with Pedestrian Hybrid Beacons.
- Bicyclists typically need more time to travel through an intersection than motor vehicles. Green light times should be determined using the bicycle crossing time for standing bicycles.
- Bicycle detection and actuation systems include user-activated buttons mounted on a pole, loop detectors that trigger a change in the traffic signal when a bicycle is detected and video detection cameras, that use digital image processing to detect a change in the image at a location.

Materials and Maintenance

Bicycle signal detection equipment should be inspected and maintained regularly, especially if detection relies on manual actuation. Pushbuttons and loop detectors will tend to have higher maintenance needs than other passive detection equipment.

06

NETWORK
CONNECTIONS
AND SUPPORTING
FACILITIES

SHORT-TERM BICYCLE PARKING

People need a safe, convenient place to secure their bicycle when they reach their destination. This may be short-term parking of 2 hours or less, or long-term parking for employees, students, residents, and commuters.

Information on short- and long-term bike parking has been informed by the Association of Pedestrian and Bicycle Professionals (APBP) Bicycle Parking Guide, which is updated frequently and is available online at www.apbp.org.

Application

Bike Racks

- Bike racks provide short-term bicycle parking and are meant to accommodate visitors, customers, and others expected to depart within two hours. It should be an approved standard rack, appropriate location and placement.

Bike Corrals

- On-street bike corrals (also known as on-street bicycle parking) consist of bicycle racks grouped together in a common area within the street traditionally used for automobile parking.
- Bicycle corrals are reserved exclusively for bicycle parking and provide a relatively inexpensive solution to providing high-volume bicycle parking. Bicycle corrals can be implemented by converting one or two on-street motor vehicle parking spaces into on-street bicycle parking.
- Each motor vehicle parking space can be replaced with approximately 6-10 bicycle parking spaces.

Design Features

Bike Racks

- When placed on sidewalks, 2 feet minimum from the curb face to avoid 'dooring.'
- 4 feet between racks to provide maneuvering room.
- Locate close to destinations; 50 feet maximum distance from main building entrance.
- Minimum clear distance of 6 feet should be provided between the bicycle rack and the property line.
- While bike racks could be installed perpendicular or parallel to the curb, it is important to ensure there is sufficient room for pedestrian traffic, even when a bike is locked to the rack.

Bike Corrals

- Bicyclists should have an entrance width from the roadway of 5-6 feet.
- Can be used with parallel or angled parking.
- Parking stalls adjacent to curb extensions are good candidates for bicycle corrals since the concrete extension serves as delimitation on one side.

Further Considerations

- Where the placement of racks on sidewalks is not possible (due to narrow sidewalk width, sidewalk obstructions, street trees, etc.), bicycle parking can be provided in the street where on-street vehicle parking is allowed in the form of on-street bicycle corrals.
- Some types of bicycle racks may meet design criteria, but are discouraged except in limited situations. This includes undulating “wave” racks, schoolyard racks, and spiral racks. These discouraged racks are illustrated on the following page.
- Bike racks should be made of thick stainless steel to reduce the chance of thieves cutting through the racks to take bicycles. Square tubing can provide further protection from cutting, as well.
- If a bike rack is installed as surface mount, countersink bolts or expansion bolts should be used to keep the rack in place. Covering the bolts with putty or epoxy can provide additional protection.



Inverted-U racks provide two points of contact.



Racks with square tubing, good spacing, and a concrete base likewise offer two points of contact.

Types of Bike Racks to Use

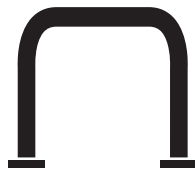
These racks provide two points of contact with the bicycle, accommodate varying styles of bike, allow for the frame of a bicycle and at least one wheel to be secured by most U-locks, and are intuitive to use.



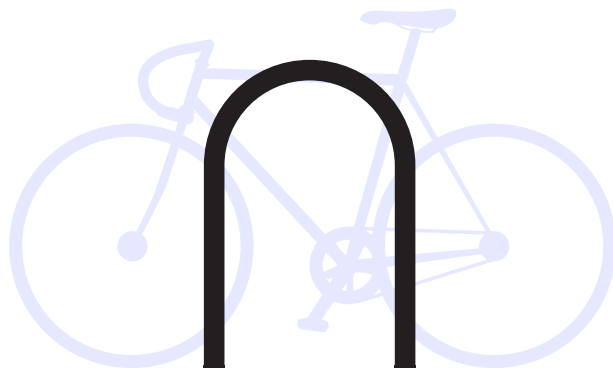
POST & RING



**WHEELWELL
SECURE**



INVERTED-U



Communities may consider purchasing branded U-racks for installation on sidewalks.

Types of Bike Racks to Avoid

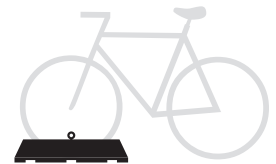
These racks do not provide support at two places on the bike, can damage the wheel, do not provide an opportunity for the user to lock the frame of their bicycle easily, and are not intuitive to use. Because of performance concerns, the APBP Essentials of Bike Parking Report recommends selecting other racks instead of these.



WAVE



COMB



WHEELWELL



COATHANGER

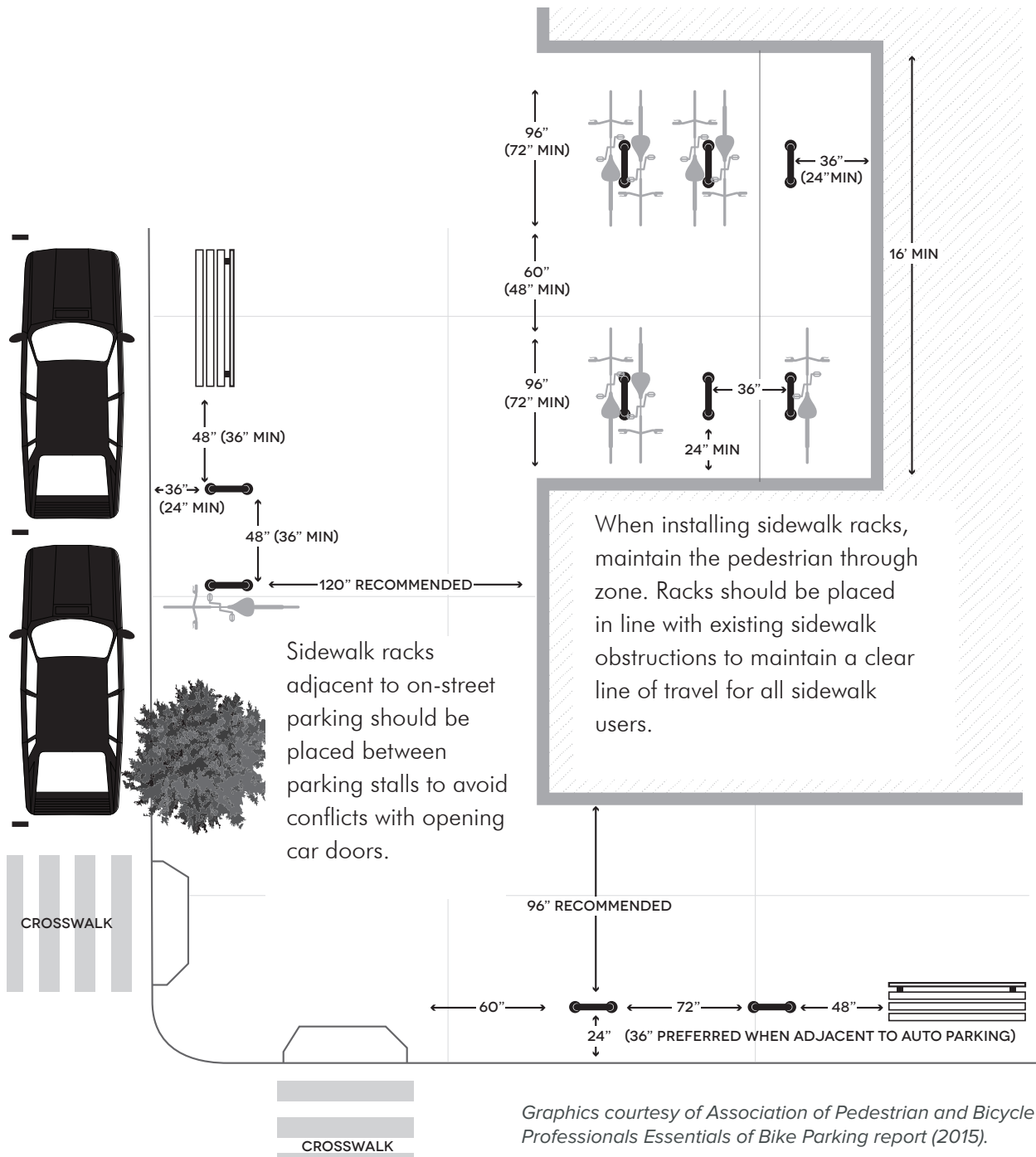


BOLLARD

Graphics courtesy of Association of Pedestrian and Bicycle Professionals Essentials of Bike Parking report (2015).

Space Requirements

The following minimum spacing requirements apply to some common installations of fixtures like inverted U or post and ring racks that park one bicycle roughly centered on each side of the rack. Recommended clearances are given first, with minimums in parentheses where appropriate. In areas with tight clearances, consider wheelwell-secure racks, which can be placed closer to walls and constrain the bicycle footprint more reliably than inverted U and post and ring racks. The footprint of a typical bicycle is approximately 6' x 2'. Cargo bikes and bikes with trailers can extend to 10' or longer.



LONG-TERM BICYCLE PARKING

Users of long-term parking generally place high value on security and weather protection. Long-term parking is designed to meet the needs of employees, residents, public transit users, and others with similar needs.

Information on short and long term bike parking has been obtained from the APBP Bicycle Parking Guide, which is updated frequently and is available online at www.apbp.org.

Application

- At transit stops, bike lockers or a sheltered secure enclosure may be appropriate long term solutions.
- On public or private property where secure, long-term bike parking is desired.
- Near routine destinations, such as workplaces, universities, hospitals, etc.

Design Features

Bike Lockers

- Minimum dimensions: width (opening) 2.5 feet; height 4 feet; depth 6 feet.
- 4 foot side clearance and 6 foot end clearance. 7 foot minimum distance between facing lockers.

Secure Parking Area

- Closed-circuit television monitoring or on-site staff with secure access for users.
- Double high racks & cargo bike spaces.
- Bike repair station with bench and bike tube and maintenance item vending machine.
- Bike lock “hitching post” – allows people to leave bike locks.

Further Considerations

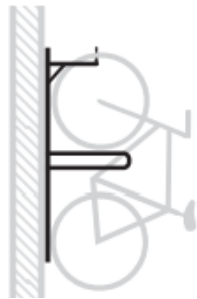
- As the APBP Bike Parking Guide notes, increasing density of bike racks in a long-term facility without careful attention to user needs can exclude users with less-common types of bicycles which may be essential due to age, ability, or bicycle type.
- To accommodate trailers and long bikes, a portion of the racks should be on the ground and should have an additional 36” of in-line clearance.

High Density Bike Racks

Racks may be used that increase bike parking density, like the ones below. While these types of racks provide more spaces, racks that require lifting should not be used exclusively. People with heavier bikes (i.e. cargo bikes) or people with disabilities or people who are simply small in stature may be unable to lift their bikes easily.



STAGGERED WHEELWELL-SECURE



VERTICAL



TWO-TIER

Bike Parking Rooms

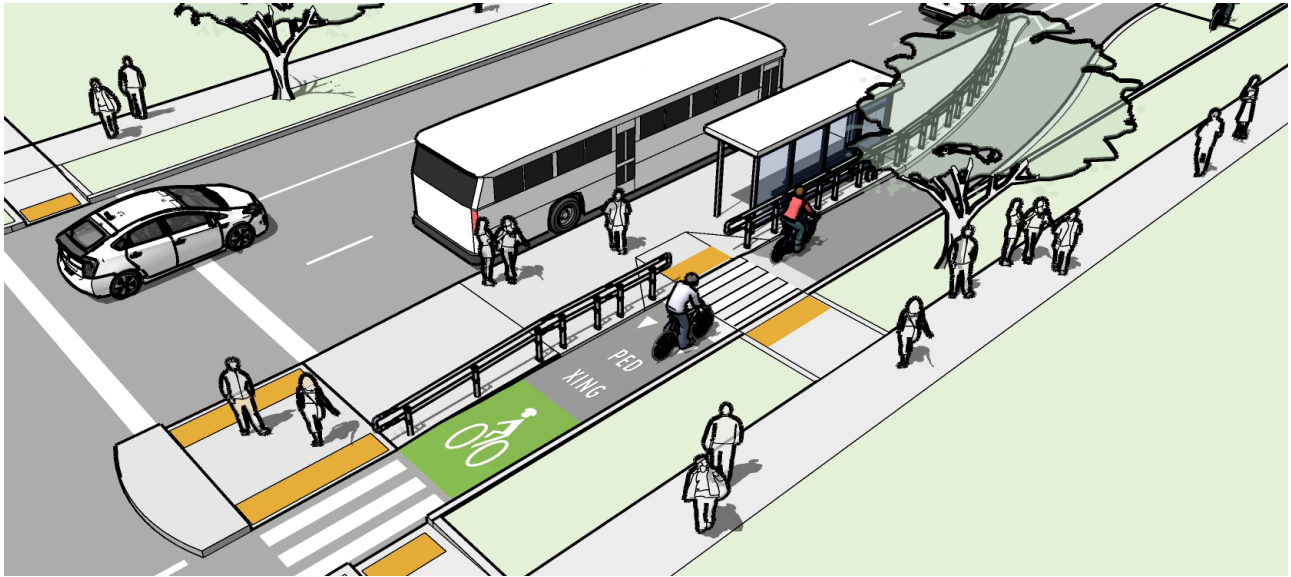
Long term bike parking may be available in dedicated rooms in residential and commercial buildings. Bicycle parking can be accommodated in 15 square feet per space or less.



Bike lockers



Secured parking areas



TRANSIT STOP DESIGN

Bus platforms or waiting areas serve as the critical transition point for pedestrians as transit passengers. As such, bus platforms, shelters, and shelter amenities need to be designed to the benefit of people boarding, alighting, waiting, and passing through. Transit platforms and shelters should be designed to be comfortable and safe, accessible for people with disabilities, sized appropriately based on ridership and demand, use space efficiently, and to minimize delay and conflicts with other modes such as bicycles, and competing sidewalk uses.

Typical Application

- Bus stops can range from simple curbside stops with a pole and seating, to in-roadway platforms with shelters and other shelter amenities depending on demand, adjacent land use, and available right of way.
- Typically, bus stop shelters and amenities occupy an area of the sidewalk, either in the furnishing zone, or a reserved space in the frontage zone. They can also be located on transit islands which accommodates bicycle through traffic, or in medians for center running alignments.
- Shelters can face toward the roadway or away from the roadway. Shelters facing toward the roadway provide better sightlines, but may compete with other sidewalk uses and adjacent property access and circulation.

Design Features

- Bus shelters should be designed to minimize potential for conflicts between the bus, and people walking and bicycling through the area.
- Site visibility is a critical safety and security factor. The bus operator needs to be able to see waiting passengers, and waiting passengers need to be able to see approaching buses. The shelter, street trees, and other vertical elements must not obstruct visibility. The stop and shelter should be adequately illuminated at night for safety and security.
- The shelter should maximize use of materials that maximize visibility for waiting passengers, and minimize incentive for vandalism.
- The shelter canopy should be sized to provide sufficient coverage based on stop demand.

SHARED USE TRAILS AND ON-STREET TRANSITIONS

Transitions occur where the trail meets a roadway or railway, where one trail typology meets another, such as when an elevated trail transitions into an at-grade trail or where separated trail segments transition into shared environments. Transitions may also include horizontal shifts to avoid physical obstacles such as utility towers or other structures. Trail access means providing a formalized way for people to arrive and depart from the trail network by a variety of travel modes.



Typical Application

- Regional trail access points can take several different forms ranging from major trailheads, minor trailheads, and neighborhood entryways. These vary in the level of infrastructure and facility amenities.
- These access points are multimodal transition points; they serve as the transition between the on-street network and the off-street network for people walking, biking, riding transit, and driving.
- All trailheads should be open to the public.

Design Features

- Major trailheads feature convenient access to transit, parking for 10 or more vehicles, (including accessible spaces), short- and long-term bicycle parking, restrooms, trash/recycling facilities, wayfinding/interpretive kiosks, benches/picnic tables, and other day use amenities.
- Minor trailheads include similar facilities as major trailheads but a lower provision of vehicle and bike parking and day use amenities, and may be further from major transit and bike connection points.
- Neighborhood entry points are the most basic form of local accessways that do not provide many of the amenities of trailheads due to space constraints, neighborhood context, and/or proximity to other trailheads.

Typology Transitions

Design elements used to alert trail users include pavement markings such as optical speed bars or zebra stripe crosswalks with yield/stop markings. Other visual indications include bike and pedestrian directional markings, centerlane striping, and the use of colored pavement to visually narrow or indicate a change in environment.

Tactile indications include speed humps, tactile speed bars, and the use of multiple surface types, such as concrete, asphalt, and pavers.

Advisory, regulatory, and/or wayfinding signage are should be considered at transition points. Physical treatments to alert and guide trail users include traffic calming measures such as vertical and horizontal deflection.

Trail illumination is an important design element that must be considered along the trail, but is especially important in transition zones.

Mixing Zones

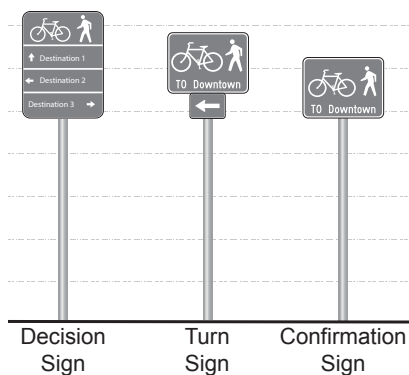
Mixing zones are necessary where physical space constraints do not allow for separated modes, or at locations along the trail where a high level of cross-traffic is expected. Mixing zones need to provide clear indication to all users that a transition is occurring in advance of the change, so that trail users can adjust their speeds and awareness appropriately to proceed carefully into the mixing zone.

Advanced warning can be accomplished with advisory signage, pavement markings, and the use of contrasting surface treatments (e.g. pavers/inlays with contrasting tones/textures, striping, or a combination of these treatments). These design elements help to guide trail users safely through the mixing zone by alerting users to the change in conditions and thus reducing the speed differential.

WAYFINDING

The ability to navigate across an urbanized area is informed by landmarks, natural features, and other visual cues. Signs throughout the city should indicate the direction of travel, the locations and travel time distances to those destinations. A pedestrian wayfinding system is similar to a transit, vehicular, or bike facility wayfinding system, in that it consists of comprehensive signing and/or pavement markings to guide pedestrians to their destination along routes that are safe, comfortable and attractive.

Sign types



Decision sign



Typical Application

Wayfinding signs will increase users' comfort and accessibility to the pedestrian system in denser urbanized areas and connections to other destinations across the larger region.

Signage can serve both wayfinding and safety purposes including:

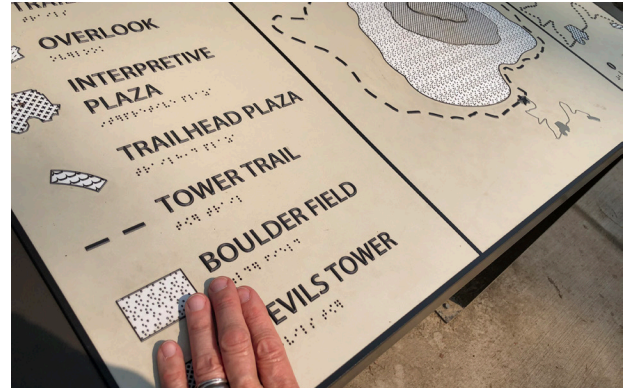
- Helping to familiarize users with the pedestrian network
- Helping users identify the best routes to destinations within walking distance or connections to other modes.
- Helping to address misperceptions about time and distance.
- Helping overcome a "barrier to entry" for people who are not frequent walkers.

Design Features

- Confirmation signs indicate to pedestrians that they are on the right trail to their destinations. They include destinations and distance/time, but not arrows
- Turn signs indicate where a route turns from one street onto another street.
- Decision signs indicate the junction of two or more pedestrian routes to access key destinations. These include destinations, arrows and distances. Travel times are optional but recommended.
- A regional wayfinding sign plan would identify sign locations, sign type, destinations, and approximate distance and travel time to destinations, and highlight connections between urban and non-urbanized areas.
- The Valley Path has existing branding and design guidance, see the *Valley Path Brand & Wayfinding Signage Guidelines*.

Further Considerations

- Bicycle wayfinding signs also visually cue motorists that they are driving along a bicycle route and should use caution. Signs are typically placed at key locations leading to and along bicycle routes, including the intersection of multiple routes.
- Too many road signs tend to clutter the right-of-way, and it is recommended that these signs be posted at a level most visible to bicyclists rather than per vehicle signage standards.
- Green is the color used for directional guidance and is the most common color of bicycle wayfinding signage in the US.
- Check wayfinding signage along bikeways for signs of vandalism, graffiti, or normal wear and replace signage along the bikeway network as-needed.



Tactile navigation sign



06

PEDESTRIAN-BICYCLE
OPERATIONS AND
MAINTENANCE

SIDEWALK MAINTENANCE

The sidewalk is an essential space for people walking and using wheelchairs and other personal mobility devices, and it is also the location where many other important activities take place. Each of the zones described in 'Sidewalk Zones' needs to be maintained for the overall sidewalk space to function as intended.

Maintaining Sidewalk Zones

- The **Pedestrian Access Route** must remain free and clear of obstacles and impediments. This is the primary accessway for people traveling along streets and to and from adjacent properties, and must be maintained to ADA standards.
 - Property owners are responsible for maintaining all sidewalk zones abutting their property, not just the Building Frontage Zone.
 - Maintaining a firm, stable, and slip resistant surfaces is necessary for people walking or rolling to traverse the Pedestrian Access Route without risk of tripping, slipping or otherwise uneven footing.
 - Regular sweeping ensures the Pedestrian Access Route and other sidewalk zones are kept free of natural debris and litter.
 - Routine maintenance of sidewalk damage due to tree roots, freeze-thaw, etc. is the responsibility of abutting property owners.
- The **Amenity Zone** is where street furnishing are located, where people are often picked up and dropped off, where mail is delivered, and where other loading/unloading happens. It's the space where trees and landscaping are planted, and where street lighting and other utilities are located. The Amenity Zone must be maintained properly to ensure access to this area and all of these curbside uses are possible.
 - Vegetation in the Amenity zone should be regularly maintained by the City so as not to encroach on the pedestrian travel zone. Maintenance should be prioritized by plant species, high demand areas, and/or narrow sidewalk corridors. When they are not maintained on schedule, the space for pedestrian travel becomes constrained, creating bottlenecks, and/or forcing pedestrians into the street.
- The **Building Frontage Zone** is the area between the Pedestrian Access Route and the abutting property. Along commercial corridors this space may be utilized by businesses for outdoor cafe seating by permit, and in residential areas, this space may be occupied by landscaping or other natural screening.
 - Outdoor seating shall not occupy the Pedestrian Access Route or inhibit travel along the sidewalk.
 - Landscaping in the Building Frontage Zone should be maintained in a manner similar to landscaping in the Amenity Zone. Landscaping should be maintained by property owners so as not to encroach on the Pedestrian Access Route.
- The **Enhancement Zone** must be maintained for the following uses: bike facilities, vehicle parking, curb extensions, and bike parking.
 - Street sweeping should be conducted per maintenance schedule and following significant weather events to help to ensure intended use of this space.



PARKING, LOADING, AND GARBAGE ACCESS

Where separated bikeways are adjacent to on-street parking, drop-off locations, freight loading zones, or designated garbage pick-up areas, the design of the separation at those locations should provide an accessible aisle and adequate landing area to allow for travel from the vehicle to the curb ramp.

Colored pavement within a bicycle lane may be used to increase the visibility of the bicycle facility, raise awareness of the potential to encounter bicyclists, and reinforce priority of bicyclists in conflict areas.

Typical Application

- Streets with on-street parking and a separated bikeway along the same block face.
- Where ADA-accessible spaces are desired, either due to proximity to nearby building entrances, street grades, or other factors.
- Where loading and garbage pick-up zones are desired along the same side of the street as a separated bikeway due to adjacent commercial users such as retail or hotels, and cannot be relocated to adjacent block faces or alleys.



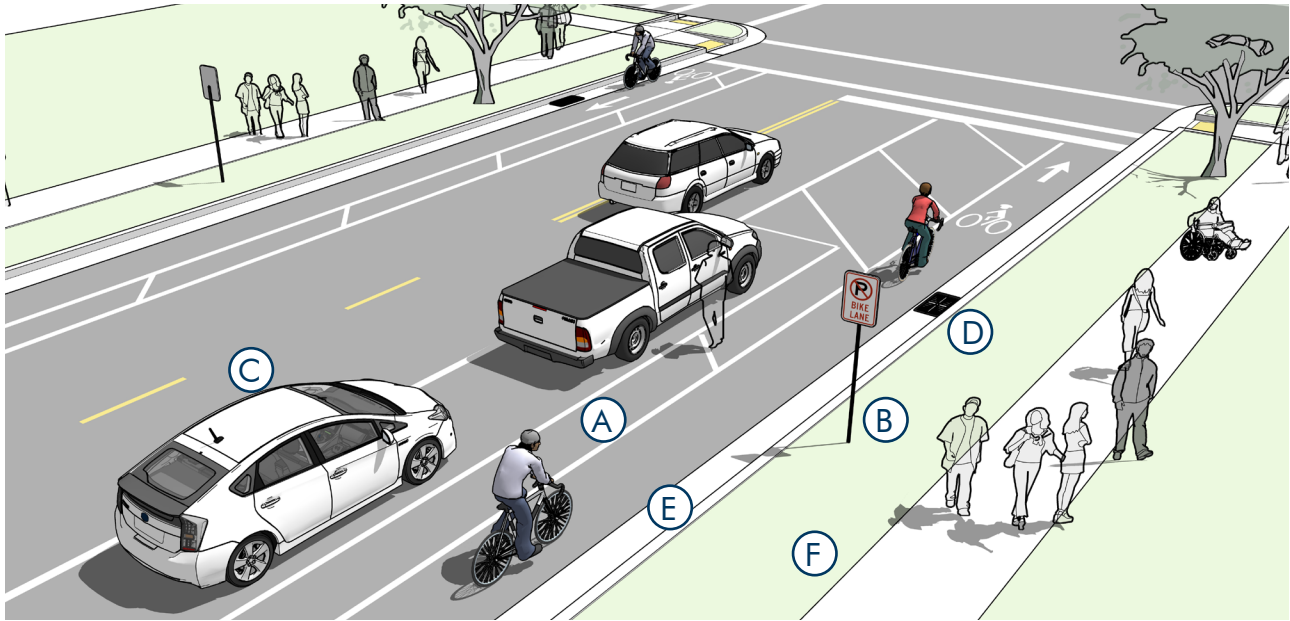
A passenger loading zone allows pedestrians to cross the separated bike lane to access the loading island. These designs should also incorporate truncated domes to alert people walking with vision disabilities of the crossing.

Design Features

- Accessible spaces should be located adjacent to intersections to simplify access to curb ramps.
- Accessible spaces must comply with all ADA requirements.
- To connect between the sidewalk and parking spaces, a crosswalk across the separated bikeway and curb ramp (6' minimum width) must be provided.
- Place a **YIELD HERE TO PEDESTRIANS (MUTCD R1-5)** sign where the separated bikeway crosses the parking access route to clearly establish a right-of-way. Yield line pavement marking may be placed prior to the crosswalk.

Further Considerations

- Garbage pick-up, freight loading, and drop-off hours should be restricted to hours of the day when less bicycle traffic is expected, to minimize potential interactions.
- The City can provide guidance to both waste management operators and customers on desirable recycling/trash can and bin placement with respect to both walkways and bikeways to improve safety and use of these facilities.



BIKE FACILITY MAINTENANCE

Regular bicycle facility maintenance includes sweeping, maintaining a smooth roadway, trimming encroaching vegetation, ensuring that the gutter-to-pavement transition remains relatively flush, and installing bicycle friendly grates. Pavement overlays are a good opportunity to improve bicycling facilities. The following recommendations provide a menu of options to consider to enhance a maintenance regimen.

A Sweeping

Debris that is allowed to accumulate can become a hazard due to loss of control, inner tube blow outs, as well as service dog safety.

- Cover both on-road and off-road bikeways under the jurisdiction of the city. Can establish a seasonal sweeping schedule that allows for prioritization of routes. The schedule could prioritize facilities designated as major bikeways, before roadways designated as minor bikeways.
- Sweep bikeways periodically to minimize accumulation on the facility to maintain safe surface conditions.

B Signage

- Include bikeway regulatory and wayfinding signing as part of the roadway sign maintenance program, regularly checking for vandalism, graffiti, and wear. Schedule replacement/repair as needed.

© Roadway Surface

- Smooth pothole-free surfaces are especially critical for people on bikes.
- The finished surface on bikeways does not vary more than 1/4" for new roadway construction.
- Pavement should be maintained so ridge buildup does not occur at the gutter-to-pavement transition or adjacent to railway crossings.
- Ensure pavement inspections occur after trenching activities are completed and if excessive settlement has occurred to require mitigation prior to the expiration of the project's warranty period.
- To the extent possible, pavement markings and green-colored areas should be placed out of the vehicle path of travel to minimize wear. In general, striping, pavement markings, and green colored areas should be well maintained especially areas in the path of vehicle travel, and where high-turning movements occur.

© Drainage Grates

- New drainage grates should be bicycle-friendly. Grates should have horizontal slats on them so that bicycle tires and assistive devices do not fall through any vertical slats.
- Create a program to inventory all existing drainage grates, and replace hazardous grates as necessary - temporary modifications such as installing rebar horizontally across the grate should not be an acceptable alternative to replacement.

© Gutter-to-Pavement Transition

- Gutter-to-pavement transitions should have no more than a 1/4" vertical transition.
- Pavement transitions should be examined during every roadway project for new construction, maintenance activities, and construction project activities that occur in streets.

© Landscaping

- Vegetation on the edge of the roadway should not hang into or impede passage along bikeways.
- After storm events, remove fallen trees or other debris from bikeways as quickly as possible.

Coordination With Emergency Responders

- General roadway maintenance should be coordinated and prioritized on emergency response routes that overlap with major and minor bikeways.
- Provide fire, police, and EMS services with a map of major and minor bikeway routes.

Recommended Bikeway Maintenance Activities

The City should ensure that each of these activities is addressed in City requirements, various operations plans, or emergency response plans. The frequency of each activity is at the discretion of the City Engineer. However, the activity should be done in a timely enough manner to ensure bikeways are operated in a safe manner for all users.



City of Phoenix



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PUBLIC OUTREACH SUMMARY

APPENDIX A
DRAFT, NOVEMBER 2022

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Q11: Which of the following stops you from walking more? Please select all that apply. (N=600)
..... 2

Q12: Thinking of the list above, what is the single biggest barrier when it comes to walking?
Please select one. (N=594) 3

Q13: Which of the following stops you from biking more? Please select all that apply. (N=591) 4

Q14: Thinking of the list above, what is the single biggest barrier for you when it comes to
bicycling? (N=587) 5

Q15: For the following questions, please indicate how strongly you agree or disagree with the
following statements. (N=584) 1

Q16: For the following question, please indicate how strongly you agree or disagree with the
following statements. (N=584) 1

Q17: For the following question, please indicate how strongly you agree or disagree with the
following statements. (N=585) 1

Q18: For the following question, please indicate how strongly you agree or disagree with the
following statements. (N=583) 1

Q19: For the following question, please indicate how strongly you agree or disagree with the
following statements. (N=582) 1

Q20: For the following questions, please indicate how strongly you agree or disagree with the
following statements. (N=568) 1

Q21: For the following question, please indicate how strongly you agree or disagree with the
following statements. (N=568) 1

Q22: For the following question, please indicate how strongly you agree or disagree with the
following statements. (N=570) 1

Q23: For the following question, please indicate how strongly you agree or disagree with the
following statements. (N=569) 1

Q24: For the following question, please indicate how strongly you agree or disagree with the
following statements. (N=570) 1

Q25: For the following question, please indicate how strongly you agree or disagree with each
of the following statements. (N=536) 1

Q26: What are your broader priorities for transportation in Phoenix? Please rank the following
choices: Please prioritize the broader transportation objectives listed below from highest (1) to
lowest (6) priority: (N=528) 2

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Q27: The list before provides a number of different street-specific priorities. Please organize the list below from your highest (1) to lowest (10) priority. (N=522)	1
Q28: What types of improvements are most important for Phoenix's bicycle network? Please rank the following based on what you think is most important: (N=510)	2
Q29: Which types of bicycle routes are most important? (N=523).....	1
Q30: When thinking about the continued development, buildout, and improvement of the city's bicycle and pedestrian network, which of the following do you think is more important? (N=522)	1
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Executive Summary

Context

For decades, Phoenix has excelled at building car-oriented places; internal policies and practices have been created with cars as the top priority. However, Phoenixians have shown increased interest in multimodal transportation. Therefore, the City of Phoenix responded by expanding the walking, bicycling, and transit network. The City implemented the following planning and policy initiatives to increase multimodal options: Comprehensive Bicycle Master Plan (2014), Complete Streets Ordinance, Policy, and Guidelines, ReinventPHX, the Key Corridors Master Plan, and the Walkable Urban Code.

The Active Transportation Plan (ATP) process was an opportunity to build upon these previous efforts and attempted to answer the following questions:

- When it comes to transportation, what kind of city does Phoenix want to be?
- How well do current policies and practices work to build that desired city?
- What are the strategies for becoming the desired city when it comes to people riding bicycles?

This process focused on understanding priorities, the impacts of decisions, and why they matter to better inform proposed solutions. Feedback from community residents was obtained through an online survey, poster polls, and interviews with local leaders and advocacy organizations.

Methods & Summary

Method	Participation
Online Survey	<ul style="list-style-type: none"> • 665 participants submitted a survey response. Of these participants, 655 individuals chose to complete the English Version and 10 individuals chose to complete the Spanish version.
	<p>Summary</p> <ul style="list-style-type: none"> • Over 70% of survey participants identified as white and over 60% identified as male. Around 40% of survey participants were between ages 30-39 and over 1/3 of respondents reported a household income between \$100-200k. The most commonly reported zip code was 85103, with 62 respondents residing in it. • Over 80% of respondents lived in the City of Phoenix, with over 40% both working and living in Phoenix. In addition, most reported to own or have access to regularly, a car or truck.

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	<ul style="list-style-type: none"> The following themes were identified based on the individual comments: Design, Development & Infrastructure, City Website, Climate, Homelessness, Issues & Requests, Public Transportation, Routes, Safety & Speeding, Scooters, and Survey Feedback.
Methods	Participation
Poster Polls	<ul style="list-style-type: none"> Staff from the City of Phoenix attended the 70th Annual Laveen BBQ and First Friday to conduct poster polls. In total 79 community members participate in the poster polls.
	<p>Key Findings</p> <ul style="list-style-type: none"> Community members tended to either answer the dot poll posters or the open-ended questions, but usually not both. Community members wanted to talk more than interact with posters. The conversations seemed to align with the poll data in that community members were interested in safer, local connections for walking and biking. The following questions were asked at each event: <ul style="list-style-type: none"> Should regional routes or neighborhood routes be priority? Should the focus be on cost versus comfort? What are your top three community priorities? Where do you enjoy walking and biking in Phoenix? What stops you from walking or biking more in Phoenix?
Methods	Participation
Targeted Outreach	<ul style="list-style-type: none"> 4 representatives from two education and advocacy organizations 7 community leaders from the 6 marginalized zip codes identified in the equity map
	<p>Key Findings</p> <ul style="list-style-type: none"> Representatives from the advocacy organizations mentioned the need for increased awareness and education about city projects. In addition, they suggested better messaging when relating neighborhood projects to overall city goals.

	<ul style="list-style-type: none">• Representatives from the advocacy organizations expressed concerns about traffic, speeding, and the lack of infrastructure to make walking and biking safe. In addition, they suggested the city work to improve the culture with the streets department.• Representatives from the advocacy organizations recommended the city work to improve the culture with the streets department. In addition, they expressed concerns about turnover and a lack of strong advocates within the department.• Many community leaders expressed concerns about safety. They mentioned the lack of sidewalks in some residential communities (particularly West & South Phoenix), inconsistent bike paths, speeding, homeless encampments, violent crimes, drug use in neighborhoods, and stray dogs.• Many community leaders expressed the need for more accountability and transparency from the city. In addition, they are not confident the city will show up for their communities. However, they seemed to be supportive of additional street infrastructure if it supported their current safety needs.
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Online Survey

665 participants submitted a survey response. Of these participants, 655 individuals chose to complete the English Version and 10 individuals chose to complete the Spanish version. Both English and Spanish responses have been combined. The Spanish qualitative data has been translated to English.

Demographics

Zip codes (N=651)

There were 651 responses to this question making the completion rate 98.05%. The zip code with the most respondents was 85013 (Midtown/Uptown), with 62 respondents.

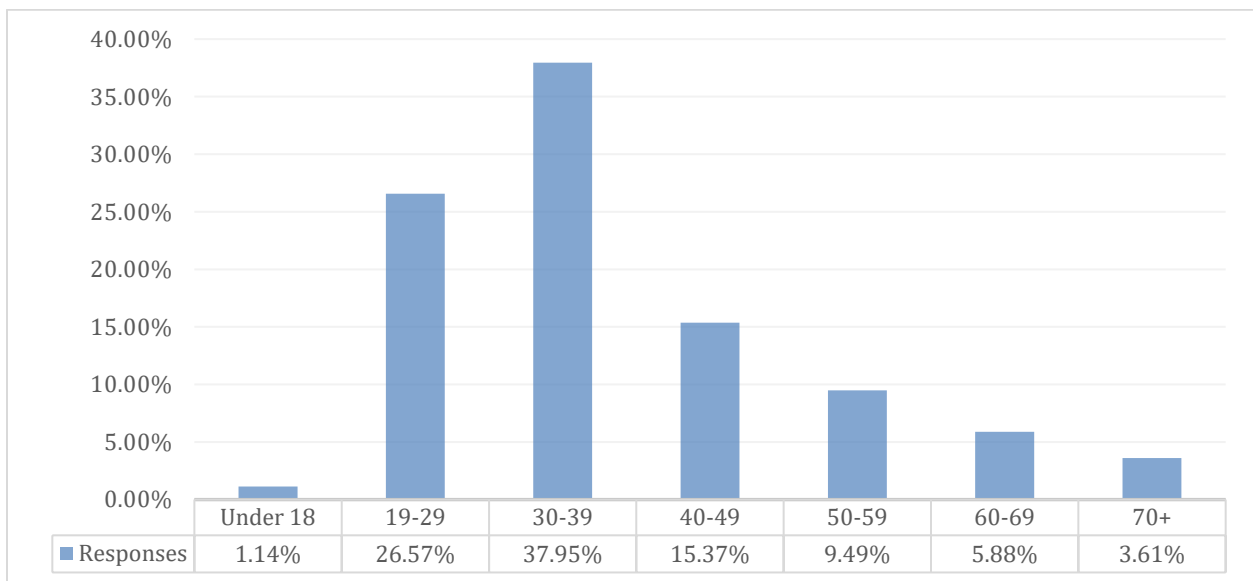
Zip Code	# of Responses	Zip Code	# of Responses	Zip Code	# of Responses
23235	1	85043	3	85282	9
84051	1	85044	15	85283	10
85001	1	85045	1	85286	3
85003	25	85048	4	85295	2
85004	29	85050	9	85296	1
85005	1	85051	2	85297	1
85006	31	85053	9	85301	1
85007	24	85054	2	85302	4
85008	19	85083	3	85303	1
85009	11	85085	4	85305	1
85012	13	85086	1	85306	3
85013	62	85142	1	85308	4
85014	13	85201	5	85309	1
85015	27	85202	2	85326	1
85016	28	85203	3	85331	3
85017	6	85204	1	85335	1
85018	31	85207	1	85338	2
85019	4	85208	3	85339	15
85020	16	85209	1	85345	2
85021	7	85212	1	85353	1
85022	17	85215	1	85374	2
85023	4	85224	7	85375	1
85024	3	85225	1	85377	1
85027	6	85226	2	85379	2

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85028	4	85233	1	85381	1
85029	5	85234	3	85382	1
85031	2	85236	1	85383	1
85032	10	85248	1	85388	1
85033	4	85250	1	85395	2
85034	4	85251	6	85396	1
85035	5	85254	6	86018	1
85037	6	85255	1	86016	1
85040	3	85257	8	86281	1
85041	13	85280	1		
85042	8	85281	14		

Age (N=527)

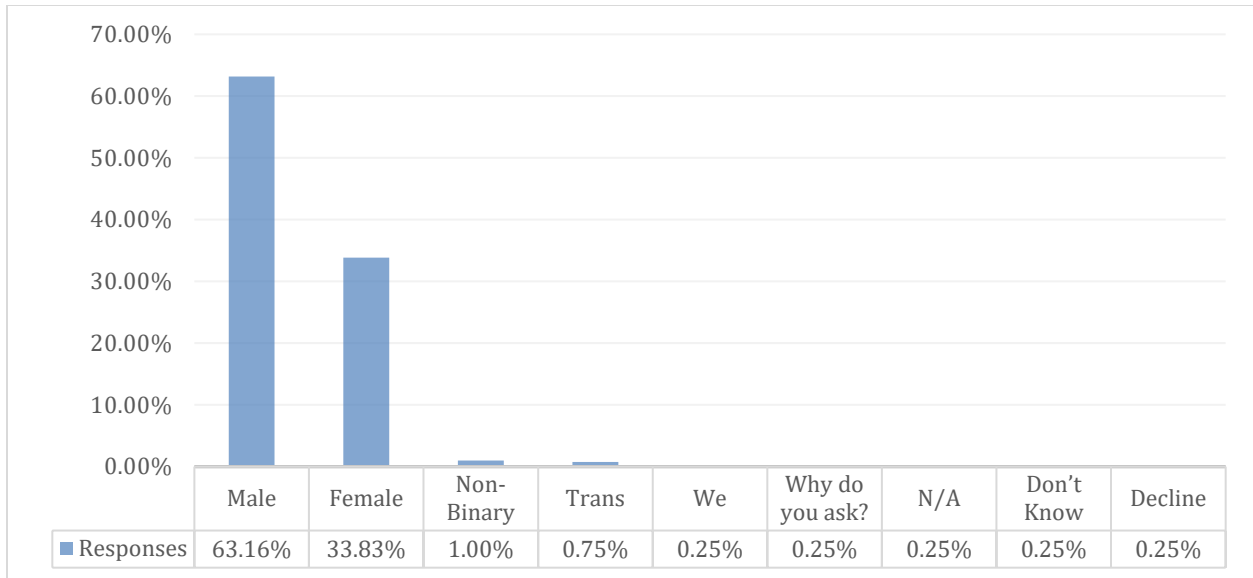
There were 527 responses to this question making the completion rate 79.25%. The largest age group was ages 30-39.



Gender (N=399)

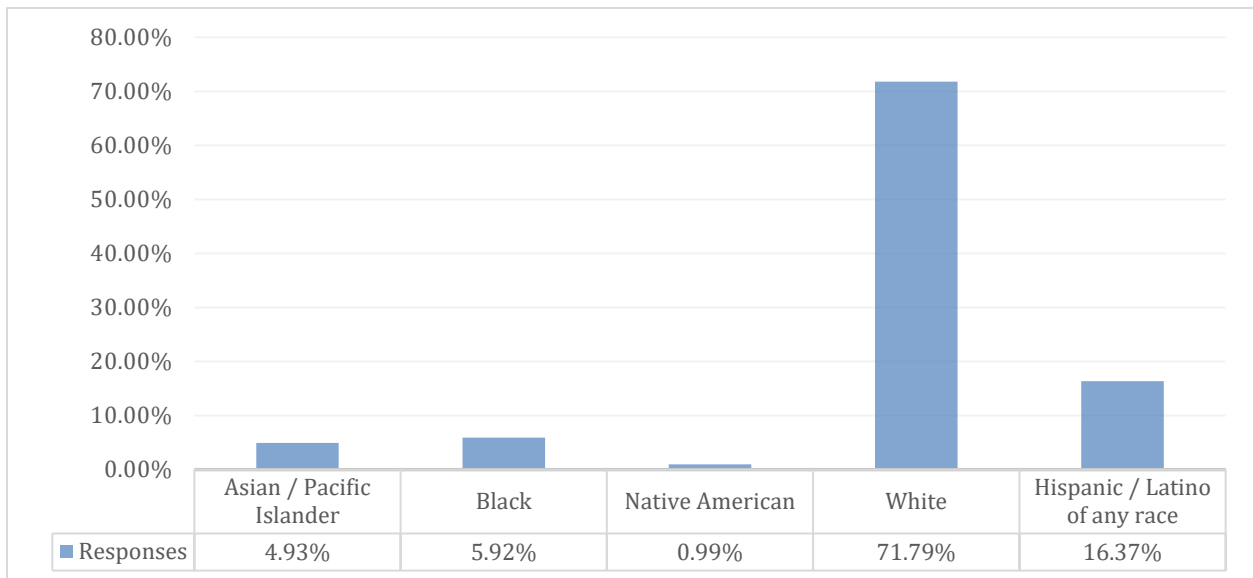
There were 399 responses to this question making the completion rate 60%. Most participants identified as male.

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Race/Ethnicity (N=507)

There were 507 responses to this question making the completion rate 76.24%. Most participants identified as White.



Household Income (N=503)

There were 503 responses to this question making the completion rate 75.64%. The most frequent response was a household income of \$100K-\$200K.

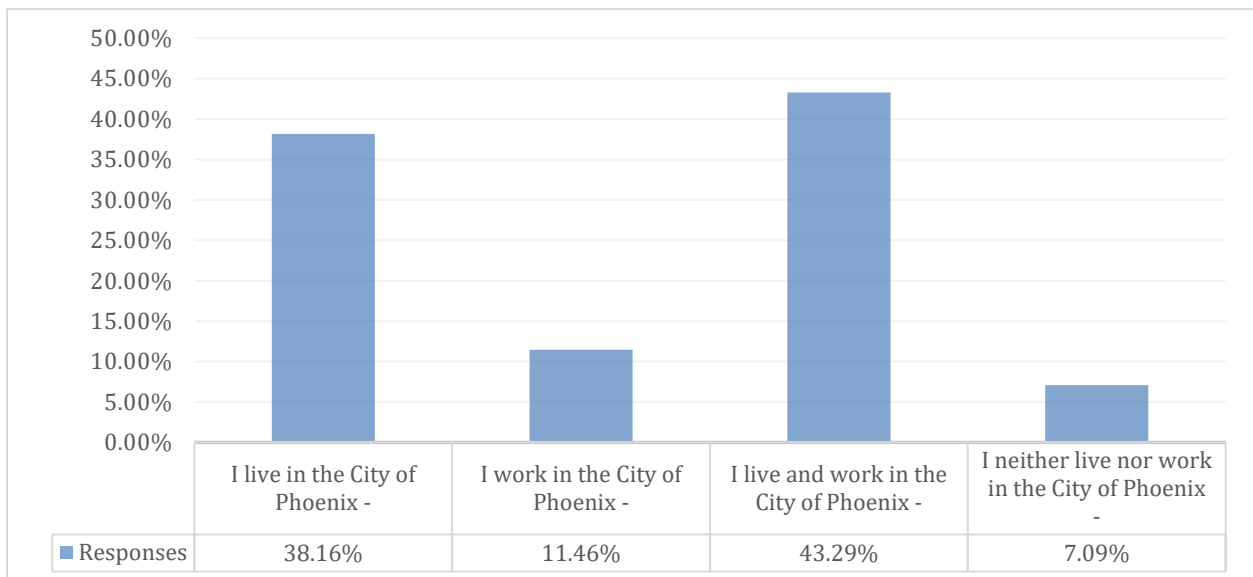
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Questions

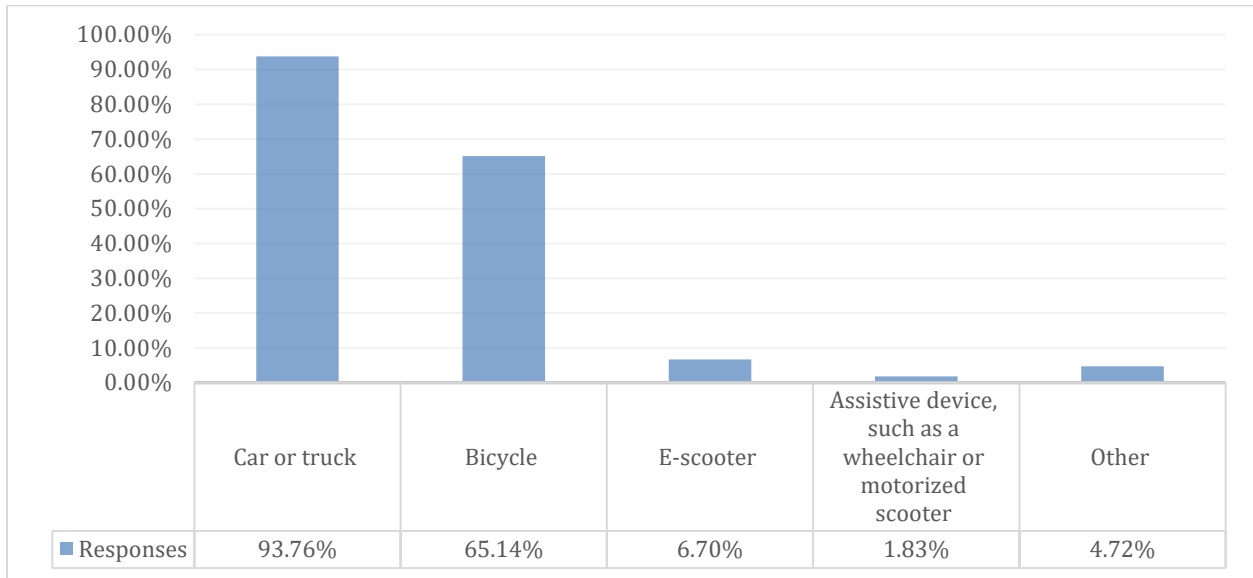
Q1: Which of the following best describes you?

There were 663 responses to this question making the completion rate 99.70%. The most frequent response was both living and working in the City of Phoenix.



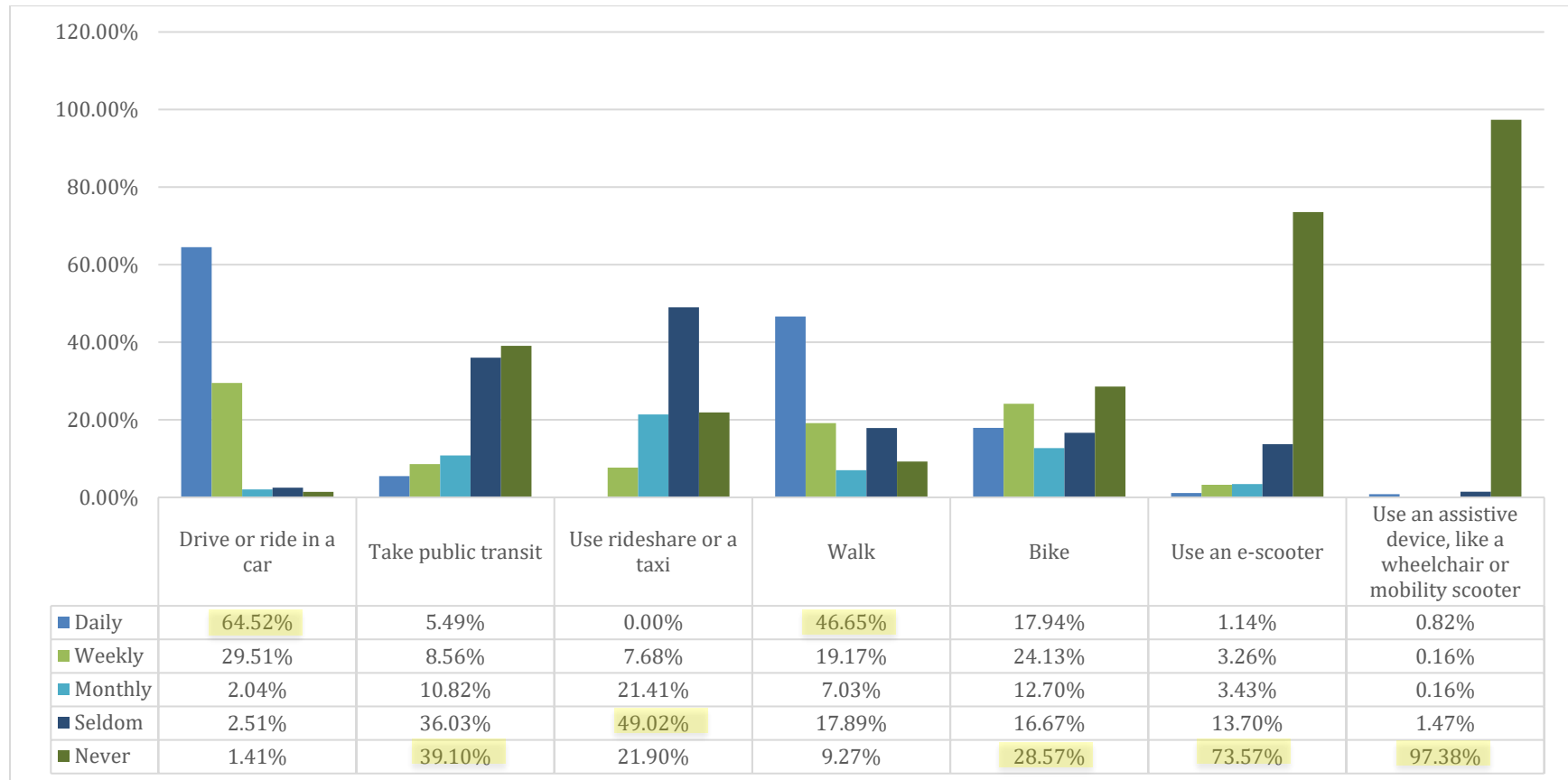
Q3: Which of the following do you own or have access to regularly? Please check all that apply: (N=657)

There were 657 responses to this question making the completion rate 98.80%. Most participants own or have access to regularly, a car or truck.



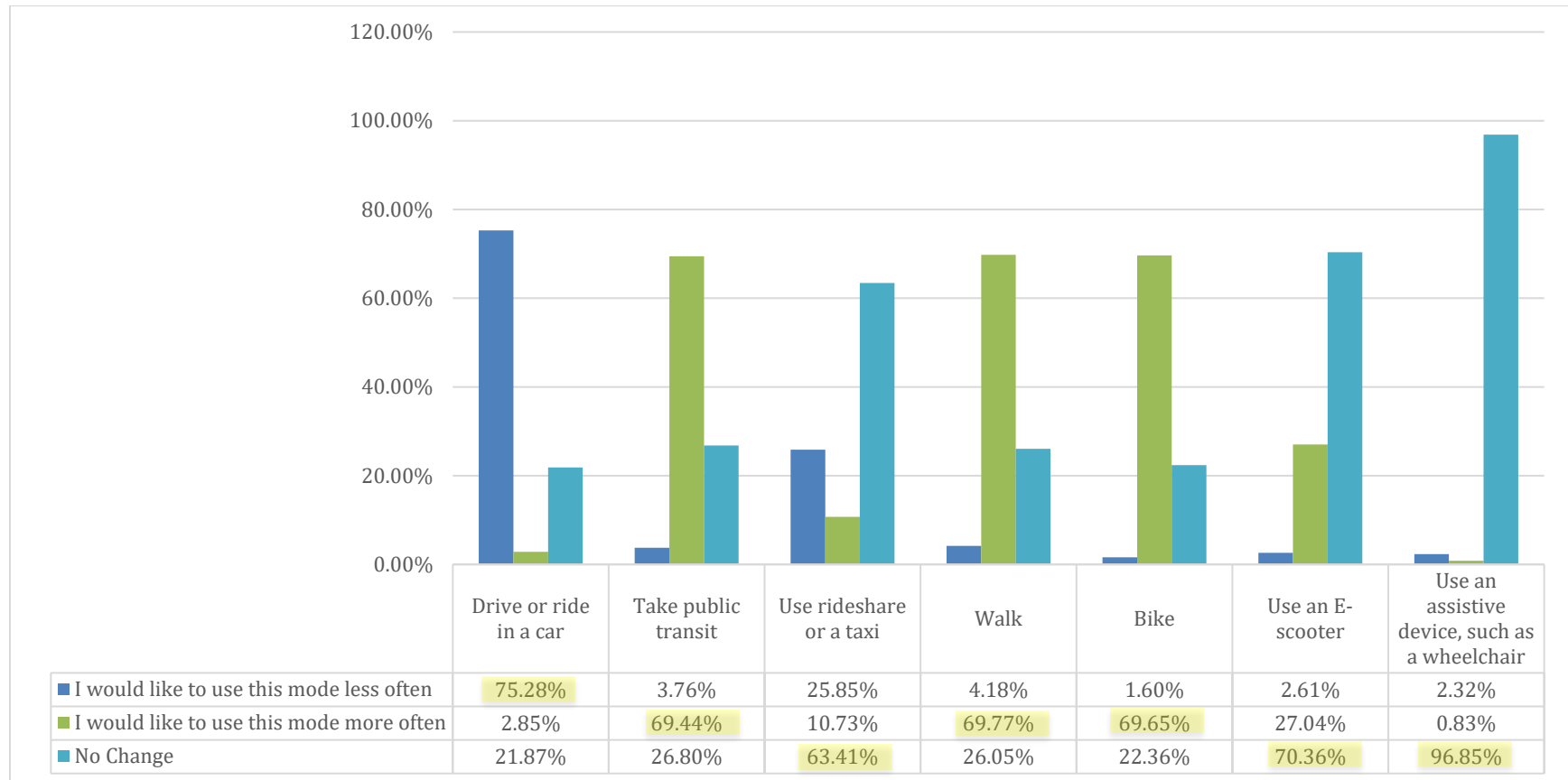
Q4: Please check how often you use each of these different ways of traveling. (N=639)

There were 639 responses to this question making the completion rate 96.09%. Highlighted below are the top responses for each way of traveling.



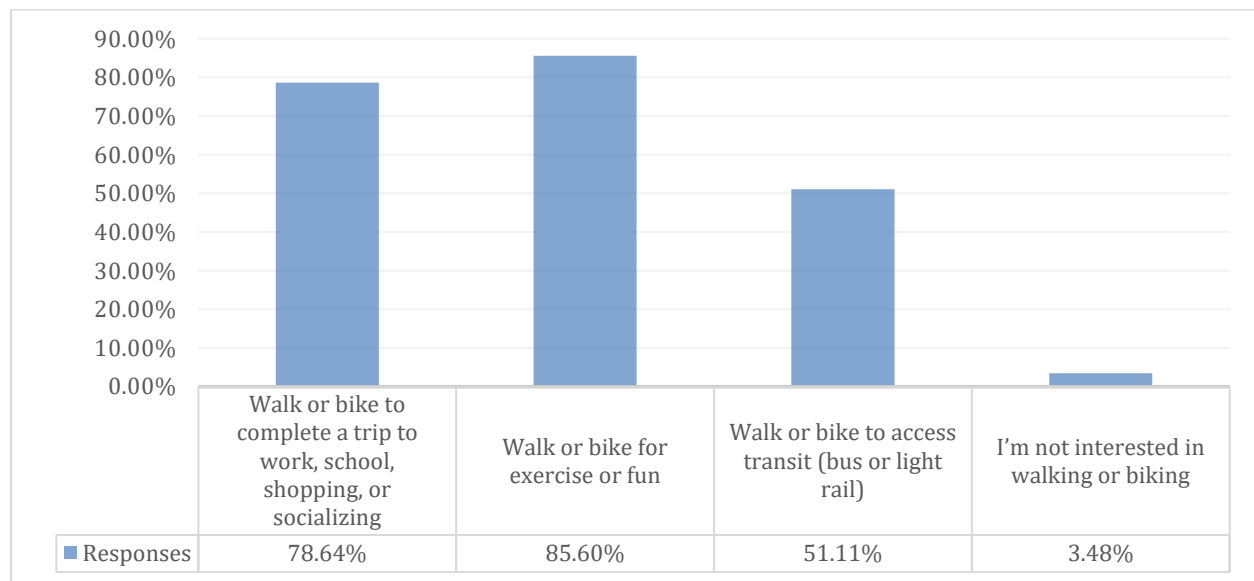
Q5: Please check how often you would like to use these different ways of traveling in the future. (N=636)

There were 636 responses to this question making the completion rate 95.64%. Highlighted below are the top responses for each way of traveling.



Q6: If you were to walk and bike more often, which of the following would describe the purpose of doing so? Please check all that apply. (N=632)

There were 632 responses to this question making the completion rate 95.04%. Most participants reported they would walk or bike for exercise or fun.



Q7: If you would like to provide more details, please use the space below. (N=95)

There were 95 responses to this question making the completion rate 14.29%. Based on the comments, the following themes were identified: Design, Development & Infrastructure, Climate, Public Transportation, Routes, Safety, and Scooters. Below are comments that align with each theme:

Design, Development & Infrastructure

- Phoenix needs to prioritize bicycles as transportation. I bought my home in an adjacent suburb because Phoenix's bicycle infrastructure is totally inadequate by any measure.
- The more walkability, the better. Phoenix currently has a depressing amount of car centric design.
- I dream of living in a city with real, people-centric infrastructure
- Phoenix (and its metro region) is obviously car centric - I know it's unrealistic for that to change in the future but 15 minute walkable communities would do enormous good for

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the general welfare of their residents. Walking and biking places is far superior to driving in most circumstances.

- It's going to take more than bike lanes to fix this urban hellscape. We need a dense walkable city not based around cars. Downtown needs to be at least twice as dense as it is.
- Need more grocery stores, pharmacies, hardware stores, and other amenities. Currently, none of these are walking distance for my neighborhood at 7th St & Osborn.
- I would love to be in an area that is walkable or bikeable. My area currently requires a car to get around anywhere.
- i would like to walk and bike more but the current landscape doesnt let me
- I love biking where it is feasible. I appreciate the improvements the city is making and feel that better bike infrastructure, especially physically protected bike lanes, would go a long way.
- If there were more walkable (walking only) spaces downtown, I would be interested in spending time in those areas.
- I bike as much as possible. I use public transit when biking is not possible (weather, health etc). I want to drive as little as possible, but I still have to sometimes because of infrequent bus stops on McDowell and 44th, or because bike infrastructure is incomplete (like on 40th street where the bike lane ends suddenly) and sometimes feels unsafe.
- Street Parking in my area is the real issue. Historic Downtown was not built for this many people and cars.
- Some people don't have the choice and must walk, bike and use transit for daily living. We must consider these most vulnerable members of our community.
- Rideshare would be an option in a self-driving model
- I enjoy biking and taking the bus; it's my "gym" and "study" time. However, I would like it if traffic to Downtown Phoenix were more reliable, so that, on occasion, I could drive to Downtown in case if I have an appointment or need to leave earlier or to sort out logistics like picking something up. Using rideshare or some foldable personal electric transport could also work, but it'd be nice if it weren't so expensive.
- This new project is not where I want my tax dollars going. The Government does not know how to do anything well. Just look at California who tried this plan. Unsuccessful. All forms of government need to get out of the people's lives. They work for us, not the other way around.
- The more opportunity to walk or bike, the better. Even if it comes at the expense of cars, I say as primarily a car user.
- I would also love to see bicycle symbols painted on city streets that are designated bikeways, such as Oak. There are some small street signs, but these can be easy to ignore or miss. Motorists should be aware of bikes and looking out for them on these streets, especially when there's no designated bike lane and bikes have to use the main road.
- We need a traffic light and safe sidewalk crossing at 43 rd Avenue and Dobbins. You need to hold your breath as you take your turn at the 4 way stop. Drivers are unkind and greedy when it comes to taking your turn at the 4 way stop. Children are biking and walking each day and school buses also have a challenging time at this intersection. There

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are 4 schools using this intersection = 2 charter and 2 public. Laveen is building approximately 8000 more homes and 2-3 more schools. What and when are the plans to install a traffic signal?

- I drive home on cave creek road at night and the traffic lights will turn red when no one is there. It makes zero sense.

Climate

- We need more shade. The added heat to the city from all the concrete is substantial. I read an article from someone who lived here over 100 years ago, and they described Phoenix as having only 2 seasons, spring and fall since the temperature was always perfect. We need that back
- The zip code 85004 should have more investment into green spaces, we need increased shade, more trees
- I would much prefer to walk and bike, but the general lack of shade throughout most of Phoenix prevents this during the peak summer months.

Public Transportation

- I don't have good access to light rail. If I did, I'd use it more.
- I would take the light rail but it smells of urine and filled with homeless.
- I have mobility issues so walking to bus/light rail is difficult. I wish there were buses that went through the neighborhood.
- The Metro is not an option in my area. I do use it occasionally for special events.
- Please extend the light rail route. The current route mainly runs east and west between Mesa and Phoenix. There should be a north and south route as well between Chandler and Scottsdale.
- I do not drive when possible. I use my electric skateboard or bike to go most everywhere I need to go in the city. I would like to be able to take my electric skateboard on the bus systems but it appears not allowed right now. I would also like better access to rail and bus systems on a more regular basis
- I've been car-free in the Valley for more than 15 years and only drive in case of emergencies. Cars and trucks to me are too much of a danger. This city is a disaster for pedestrians, the light rail was a nice touch but why are buses still only every half-hour? They should cost less to use or be free at least during summer months.
- I would love to walk to a bus or light rail stop, but it's almost a full mile to the nearest stop that goes in a direction I frequent.
- No light rail
- I would love to see more transit options in Laveen.
- I would like to use transit more, but the bus stops in my neighborhood are terrible—some have no shade at all.
- More bike racks for bus stops if there aren't any spaces on the bus.
- Buses absolutely need to come every 15 minutes minimum. We're a major city.
- Most of my car trips are short and only for bulky items. I'd love more separated bike lanes and easier access to public transport/have it go somewhere besides downtown and Tempe

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- Walking/biking/public Trans are my main means of transportation. I own a car, but try to not use it if I can help it.
- I wouldn't want to drive to get to public transit
- Trying to use public transport more

Routes

- Walking/Biking is an excellent way to get daily exercise in addition to getting to where you need to go in a quick way. What I believe we should still have a car for is longer trips/trips that involving hauling goods. However we should encourage at every opportunity the ability to choose different modes of transit. I live in Tempe, just east of the I-10, and I am sure that there are bike routes that connect swiftly and safely to Tempe; but I still wish I knew more about them prior. I would also love it if in general more pedestrian paths connected to other pedestrian paths. (Though a project like this is ensured to be expensive) I would love to see more pedestrian freeway overpasses connect to other freeway overpasses, thereby giving pedestrians multiple options of route across a freeway and allowing for a more efficient use of the space overall.
- I hate having to get in the car for a quick trip to the market or even just grab coffee. Better / more walking and bike ways would make this possible
- Would love to see bike paths through neighborhoods so I wouldn't have to ride on 7th Street to get to Thunderbird.
- There are zero bike lanes on Thomas Ave, and there is zero consideration taken for pedestrians to establish that.
- Use the canals for bike and walk paths! Use the large storm drain culverts and washes for bike and walk paths. Separate multi-use paths from traffic, too many stop lights for cyclists. Tie the paths into shopping areas. Make a huge effort to connect existing paths through power, drainage, canal easements. Get creative on the use of other rights-of-way. Work with the flood control district and canal co. on using rights-of-way for trails.
- I would love more multi use paths, separated from traffic by some sort of barrier.
- I use the bike path along the Rio Salado and it's wonderful. I would like to have more and better bike lanes getting to and from that bike path from my office at 1300 W Washington St.
- I would like to see more bike lanes on west to east streets and more bike routes without any vehicles, especially along canals.
- 11th Ave and Bethany Rd to popular shopping areas like uptown plaza and routes into downtown from 7th Ave
- More bike lanes to get around town on streets that are not too heavily used by motor vehicles
- The 3rd/5th Ave bike lanes are fantastic
- I bike to work in 85043 (7 miles from 85006) twice a week. Wish there were better East/west bike lanes especially away from downtown. Also, e scooters are the most goddamn annoying things people leave them everywhere. They need to have designated places to leave them.
- Walking and biking are so much nicer to get around, especially midtown and downtown. Would love more protected bike lanes and shade for pedestrians.

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- Many wide secondary streets do not have bike lanes.
- I love long bike rides where I can just GO with friends or by myself to enjoy Phoenix and get exercise. The bikeways throughout the valley are exceptional, I'd love to have more BUT I wish they were like the other canal bike system where it goes under the roadways so I don't ever have to stop at a light.
- I work from home and live a relatively walkable part of town (Melrose). However, I would love it if the city made the road more pedestrian and bicycle-friendly, with improved walkways, crosswalks, parking strips etc.
- I basically want the option to live without a car, weather permitting. I ride into Phoenix at least once per week. The canals are great but don't necessarily get me to the place I'm trying to go. Getting downtown should be easier, for example.

Safety – Cars, Speeding & Traffic

- I would love to be able to bike to the grocery store! I have 3 stores super close to me, but everyone drives so crazily that I can't. :(
- 82 years old so walk is better than bike. Seeing the way MORE DRIVERS with different backgrounds (country upbringing) drive I'm afraid there is going to be more people on bikes or walking getting killed.
- I am interested in walking and biking more, but the speed at which drivers drive through the downtown Phoenix area is outrageous. We need more investment in bicycle and pedestrian infrastructure downtown and drivers need to be held accountable for speeding and driving recklessly. Too many people die in our streets.
- Even with bike lanes, I do not feel safe riding in traffic. There aren't enough safeguards for cyclists. When walking, I often feel unsafe because the sidewalk is very often right next to the traffic lanes vs. having a parkway space giving space between the street and the sidewalk.
- Would walk more from my house downtown if there was more shade and safety projection from the fast cars. Walking along an arterial is suicide. This is why no one walks, the cars drive too fast and its scary.
- Phoenix is pretty pedestrian hostile. I live near some walkable amenities (the intersection of Bethany Home and 16th St), but I don't feel safe walking around this intersection with the volume of traffic it experiences. I especially don't feel safe taking my young daughter there. And safety aside, walking a few feet from cars going 40+ mph is not a PLEASANT experience to say the least, which I think also dissuades people from walking. I think it would be great if the city had things like dedicated bus lanes, protected bike lanes (more than one!) and separated, shaded sidewalks. Such things would go a long way to promoting more walkability and pedestrian safety.
- I'd like to bike more, but Phoenix has some of the most unsafe drivers I've ever seen in my life.
- I want to walk and bike as much as I can, but it's so dangerous because of cars and street design. I live within walking distance to the grocery store, but I feel like my life is at risk if I try to walk or bike there. Pedestrians don't have priority anywhere, speeds are super high on roadways, and drivers are very aggressive against pedestrians and cyclists.

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- Cars are noisy and dangerous and it would be nice to have zones that were exclusively pedestrian.
- I would love to be able to bike to work. But crossing streets like 7th St and Central is a death wish during rush hour. There is a single HAWK light I can use at 7th St but I would love to have more options. Also, I would like to express my frustration at the pitiful bike lane along Roosevelt Avenue, specifically near 7th Avenue. It is discontinuous and automobile drivers treat it like part of their own lane instead of a dedicated lane. That intersection also does not provide a protected left turn (dedicated turning green arrow) for cars turning left off of 7th Avenue which means people rush to turn as fast as they can, making the pedestrian crossing from Nortenos to the Circle K extremely dangerous

Safety – Infrastructure & Road Conditions

- Painted lines on the road are not bike infrastructure, not one vehicle respects them and they do nothing for safety. I've lost too many cycling friends over the years, enough is enough.
- If there was safe, shaded routes that are easy to access I would love to have biking as an easy alt. to take from work to surrounding areas. Both as a form of exercise & to enjoy the view outside.
- I would like to have to option to commute via public transit and walk /bike safely for daily needs. This would require road overhaul and increased pedestrian safety near my work place.
- Construction of effective and safe alternative travel is paramount to strong city design. Although not your exclusive jurisdiction, consider talking the Cities of Surprise, Sun City, and Deer Valley into improving bicycle infrastructure.
- I would like improved infrastructure to allow myself and other citizens to safely walk and bike around the city.
- I think if we had more viable alternatives to individual car trips fewer trips would be taken by cars and congestion would get better. Personally, I would like to take every trip by bike or on foot, especially if it was safer. Practically speaking bikes are already better for some trips in Phoenix. For instance, if it's busier downtown/on Roosevelt Row cycling can sometimes actually be faster because of the parking time. The problem is that cycling *is not safe enough*. Our roads are designed for speed, and that's why we have these racing problems now. We need to use engineering to reduce the natural speed, not just the speed limit, on our roads. Some of our roads that kind of act like arterial roads, like 15th ave, should have two-way bike lines, narrower car lanes, and lower speed limits. Please resist the temptation to plan bike infrastructure based on how many people currently cycle; this is like planning bridges based on how many people are swimming across a river. Infrastructure induces demand. Don't just put bike lines around downtown like it's some kind of novelty tourism activity like so many cities do. That's setting us up for failure. Spread our *from* downtown and the canal paths that already exist and make it progressively easier for people to get to the more central parts of the city by bicycle. And do it with *protected* two-way bike paths. These could be utilized by bicycles, class 1 and 2 e-bikes, e-scooters, and eventually perhaps even microcars for disabled people like

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they have in cities with better bike infrastructure. Lean on Valley Metro to improve the fare system and the bus routes. Phoenix is way behind in public transit right now.

- I do not feel safe biking to and from work and home. Another good alternative would be for me to bike from my home to the light right, unfortunately there is no safe route to do so.
- I don't feel that biking or walking is safe in Phoenix, and public transit is so unreliable that I do not take it even though I work downtown and would love to not pay for parking.
- Create more safe ways for bikes to cross streets or more bike lanes in high volume areas
- I would like to walk and bike more often however the streets in Phoenix are often very dangerous so my wife worries about me biking. We need better and wider sidewalks and buffered bike lanes so my kids and I have a place to walk and bike safely.
- I already use a bicycle for my daily work commute and am thankful that the route is relatively safe. If I needed to go in another direction, the routes would be much less safe. In much of Phoenix, I am not comfortable riding, especially with my wife and young child. In much of Phoenix, I would not be comfortable walking (even to transit or a nearby park) because the sidewalks are non-existent, uncomfortable due to their proximity to travel lanes, or are unsafe.
- I'm a virtual employee so no drives to an office. But I do go to the grocery store every other day. Being able to safely traverse the Phoenix roadways would make me much more likely to walk or bike.
- Paint is not a sufficient barrier. Both bicyclists and drivers are safer when there is a physical barrier between the road and the bike path. Specifically, there should be a barrier that would meaningfully impede progress, such as a curb or a wall- collapsible reflectors are insufficient.
- Our public transportation system isn't safe and makes it a difficult option to use.
- I would like short distance public transit to access other areas of downtown, to Tempe, etc. Biking is not currently ideal given the general lack of safety in terms of bike lanes, cars, and aggressive people.
- I live relatively close to my work and would love to bike there, but I do not feel safe with the bike infrastructure that currently exists. I would love protected bike lanes around the city. I would definitely bike more places. Walking can also be a challenge because of how close to cars they are. Walking with my young daughter in a stroller sometimes even feels dangerous. We live close to 16th street and Bethany Home where there are great restaurants and cafes, but walking to them is not fun, nor safe.
- I have a car I never use because I like to ride my bike BUT the bike lanes here are on uneven terrible roads, covered in glass, blocked by city of Phoenix street workers. It's very unsafe. For such a flat city it would be nice to utilize my bike outside of the 2 streets that are someone rideable.

Safety – Other

- I have no driver's license. I'd like to be able to reach mostly the same places as someone with a license. Currently, that is not possible safely.
- If biking were safer, and public transit biking options were better, I would see a significant increase in my bike usage for various errands and enjoyment.

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- It is very dangerous to drive with bikes on the road. These questions are a set up to push biking. This is not an honest survey.

Scooters

- Missing escooters in the warehouse district (around Maricopa County government center)
- More scooters available for rent would be helpful. Scooters are always hard to find downtown
- Prefer to use escooter for going to work, school, or shopping.
- I would also like to see e-scooters permitted on sidewalks. I don't think it's safe to ride an e-scooter on most streets in Phoenix, and this is a great transit mode for short distances and connecting to the light rail.

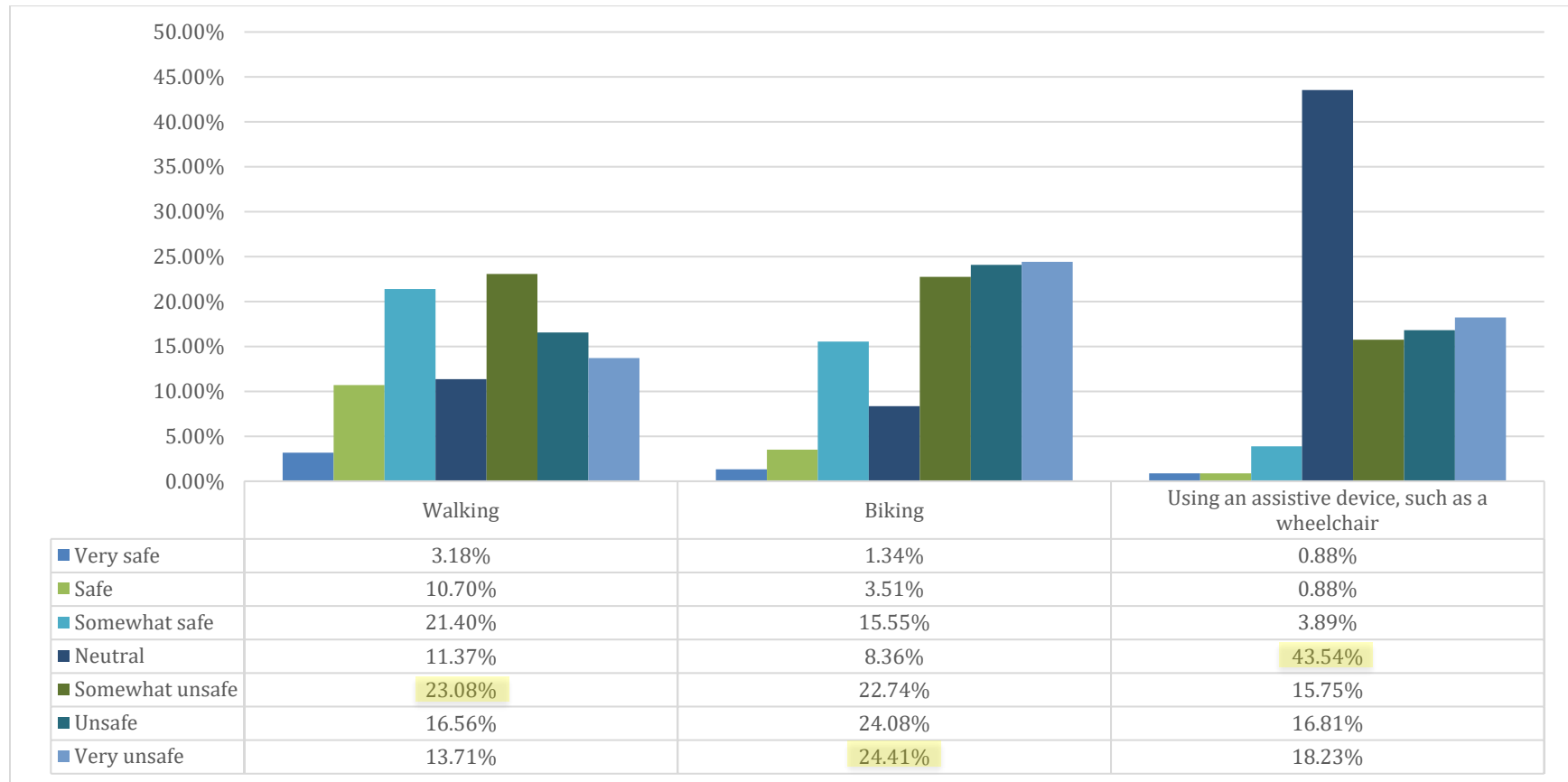
Additional Comments

- More people should bike and walk more and get out of their gas guzzlers.
- Gasoline is steadily going up and it would help the budget.
- I ride my bike daily to work because I enjoy it plus I dont enjoy sitting in traffic or dealing with the idiot drivers
- Primarily bicycle for purpose (no place for casual/enjoyable bike riding nearby). Walk for pleasure or for purpose if close.
- Walk dog more often
- I only bike for exercise and recreation
- Deseo hacer cambios en mi vida diaria , para estar más saludable(bajar colesterol y ayudar a mi presión arterial)

Translation: I want to make changes in my daily life, to be healthier (lower cholesterol and help my blood pressure).

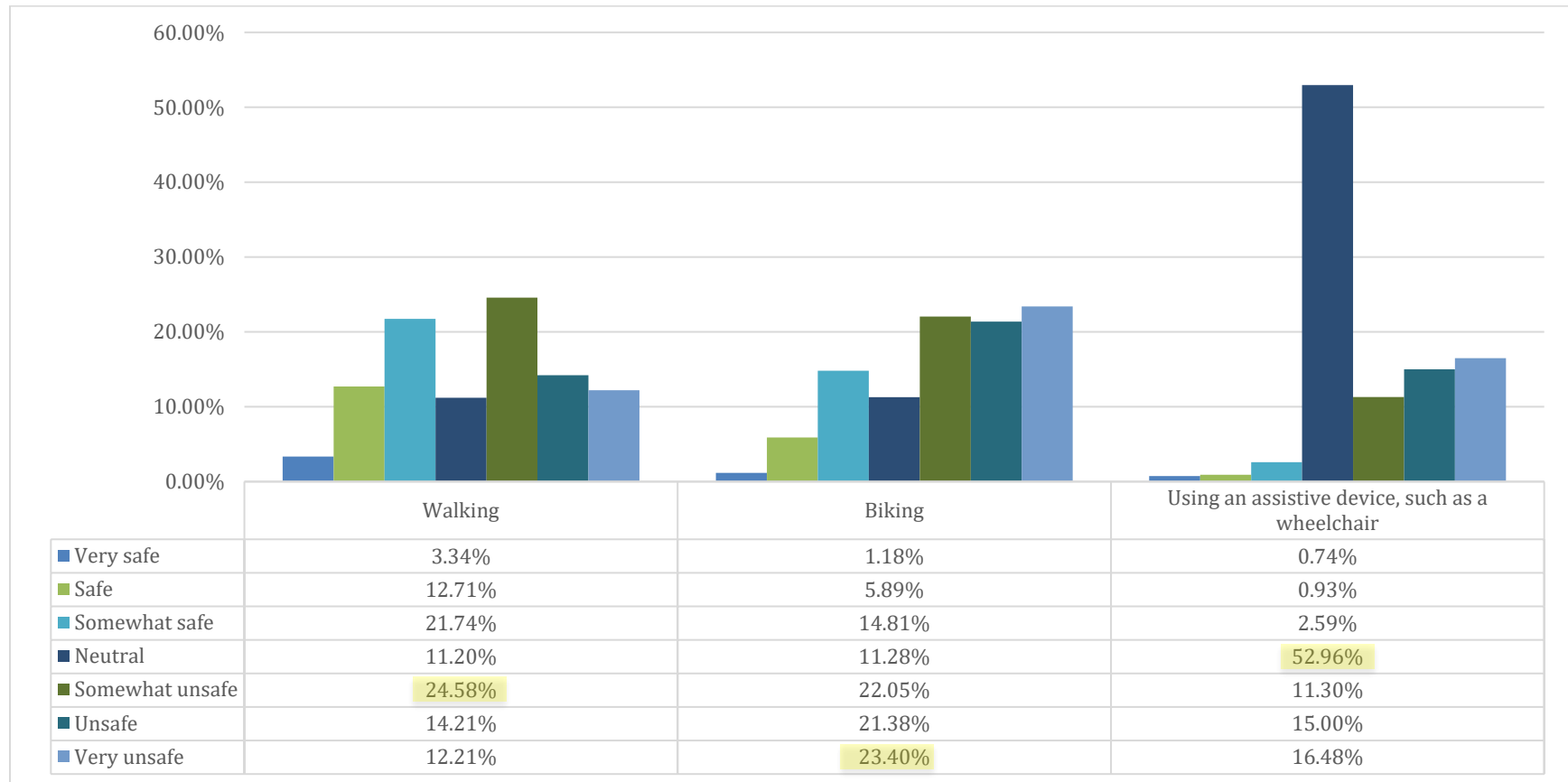
Q8: How would you rate the conditions in Phoenix for the following modes of travel? (N=599)

There were 599 responses to this question making the completion rate 90.08%. Highlighted below are the top responses for each mode of travel.



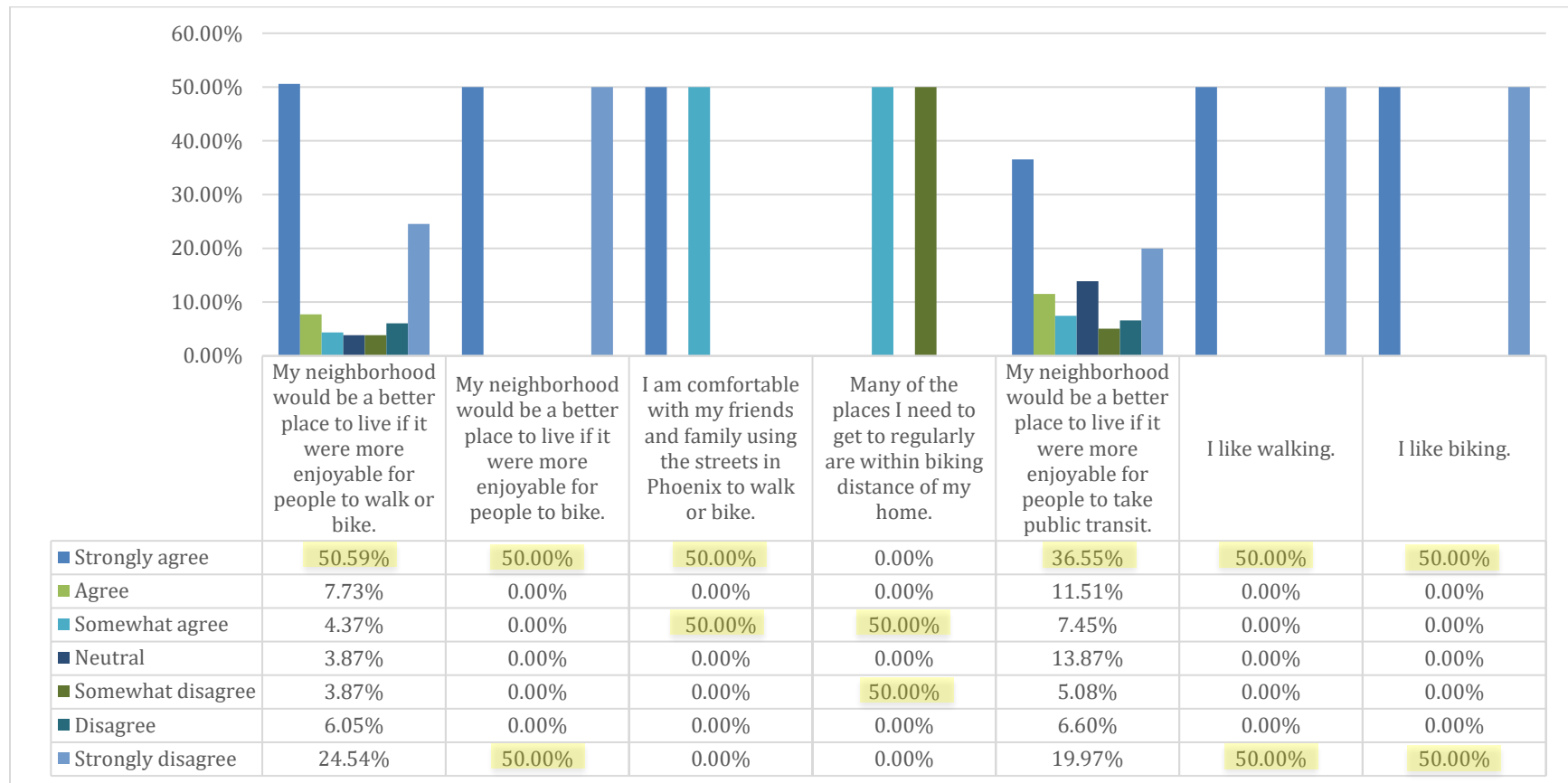
Q9: Thinking about safety, how safe do you currently feel in Phoenix using the following modes of travel? (N=599)

There were 599 responses to this question making the completion rate 90.08. Highlighted below are the top responses for each mode of travel.



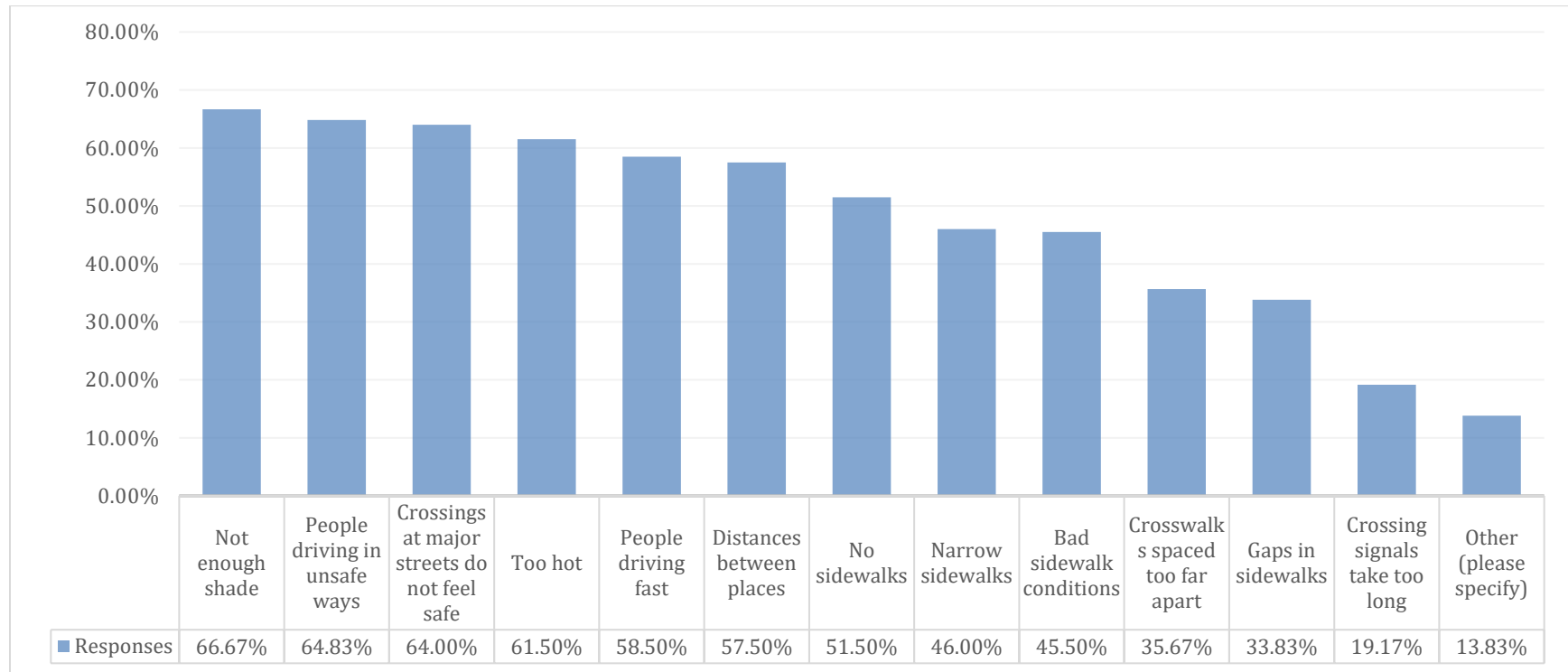
Q10: For the following question, please indicate how strongly you agree or disagree with each of the following statements. (N=601)

There were 601 responses to this question making the completion rate 90.38%. Highlighted below are the top responses for each statement. **Note:** Due to an error in the survey format, several participants did not response to every statement.



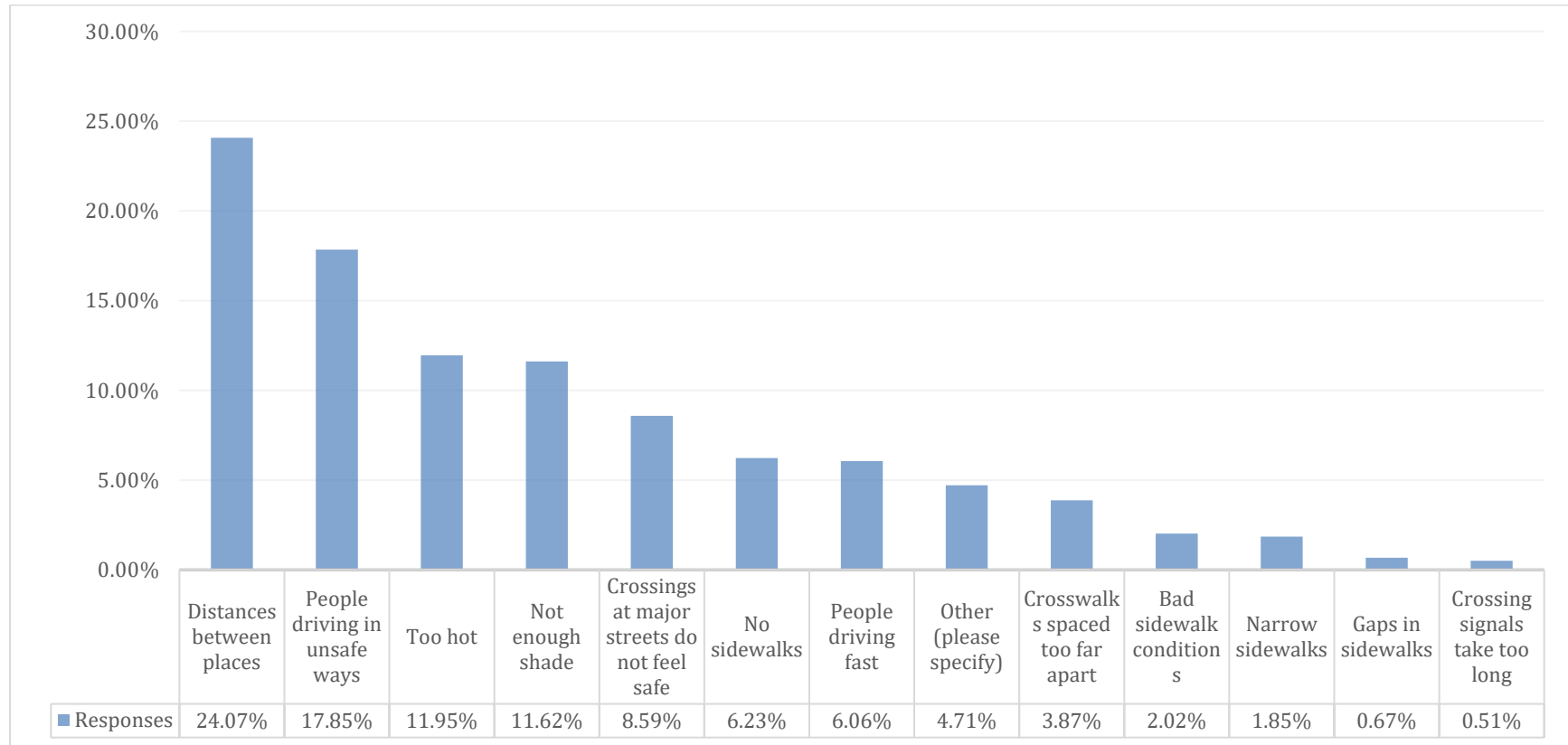
Q11: Which of the following stops you from walking more? Please select all that apply. (N=600)

There were 600 responses to this question making the completion rate 90.23%. Most participants selected not enough shade as the reason for why they do not walk more.



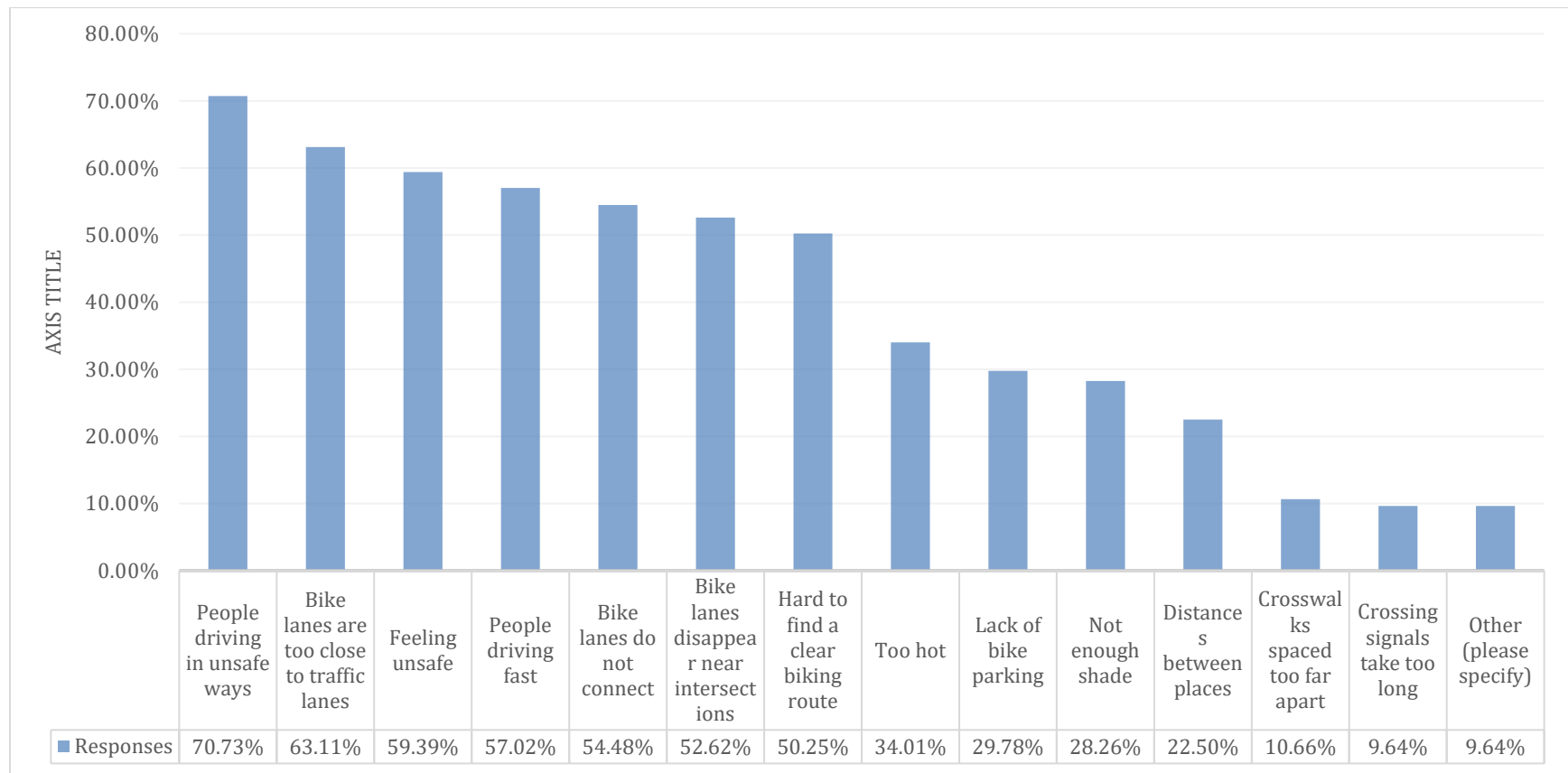
Q12: Thinking of the list above, what is the single biggest barrier when it comes to walking? Please select one. (N=594)

There were 594 responses to this question making the completion rate 89.32%. Most participants selected distance between places as the biggest barrier when it comes to walking.



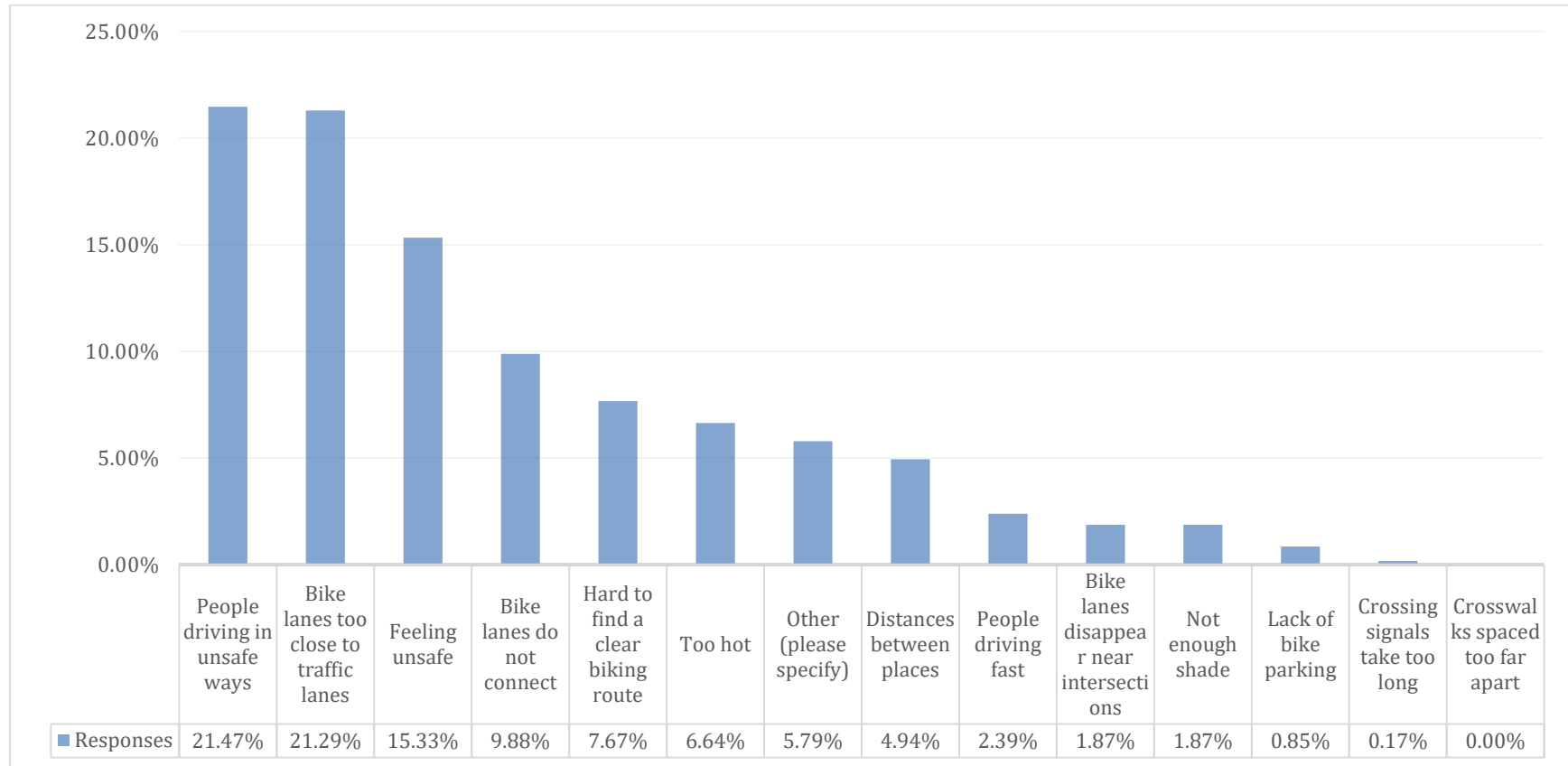
Q13: Which of the following stops you from biking more? Please select all that apply. (N=591)

There were 591 responses to this question making the completion rate 88.87%. Most participants selected people driving in unsafe ways as the reason for what stops them from biking more.



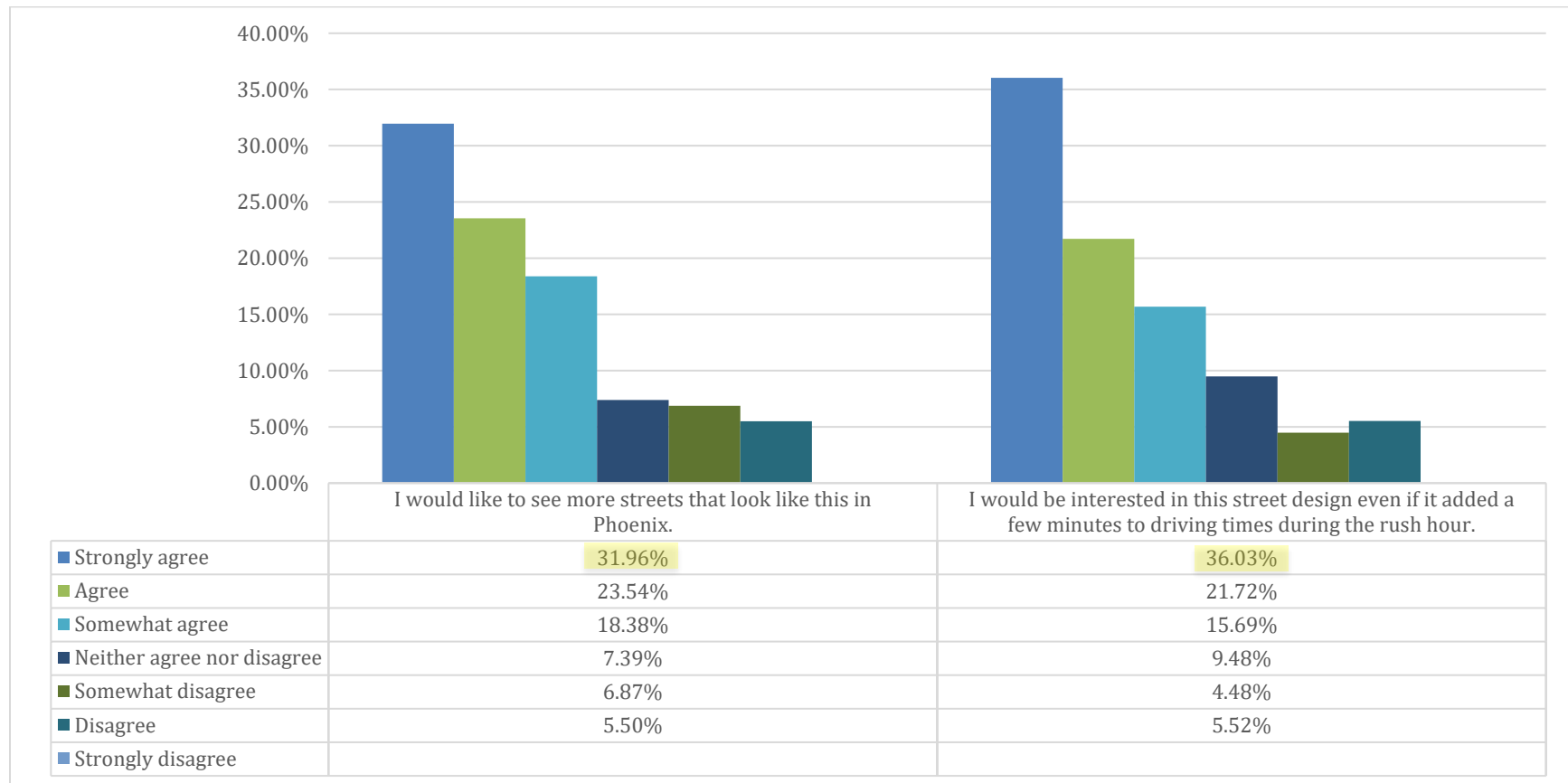
**Q14: Thinking of the list above, what is the single biggest barrier for you when it comes to bicycling?
(N=587)**

There were 587 responses to this question making the completion rate 88.27%. Most participants selected people driving in unsafe ways as the biggest barrier when it comes to bicycling.



Q15: For the following questions, please indicate how strongly you agree or disagree with the following statements. (N=584)

There were 584 responses to this question making the completion rate 87.82%. Highlighted below is the top response for each statement.



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Image: Major Street with a Buffered Bike Lane



Q16: For the following question, please indicate how strongly you agree or disagree with the following statements. (N=584)

There were 584 responses to this question making the completion rate 87.82%. Highlighted below is the top response for each statement.

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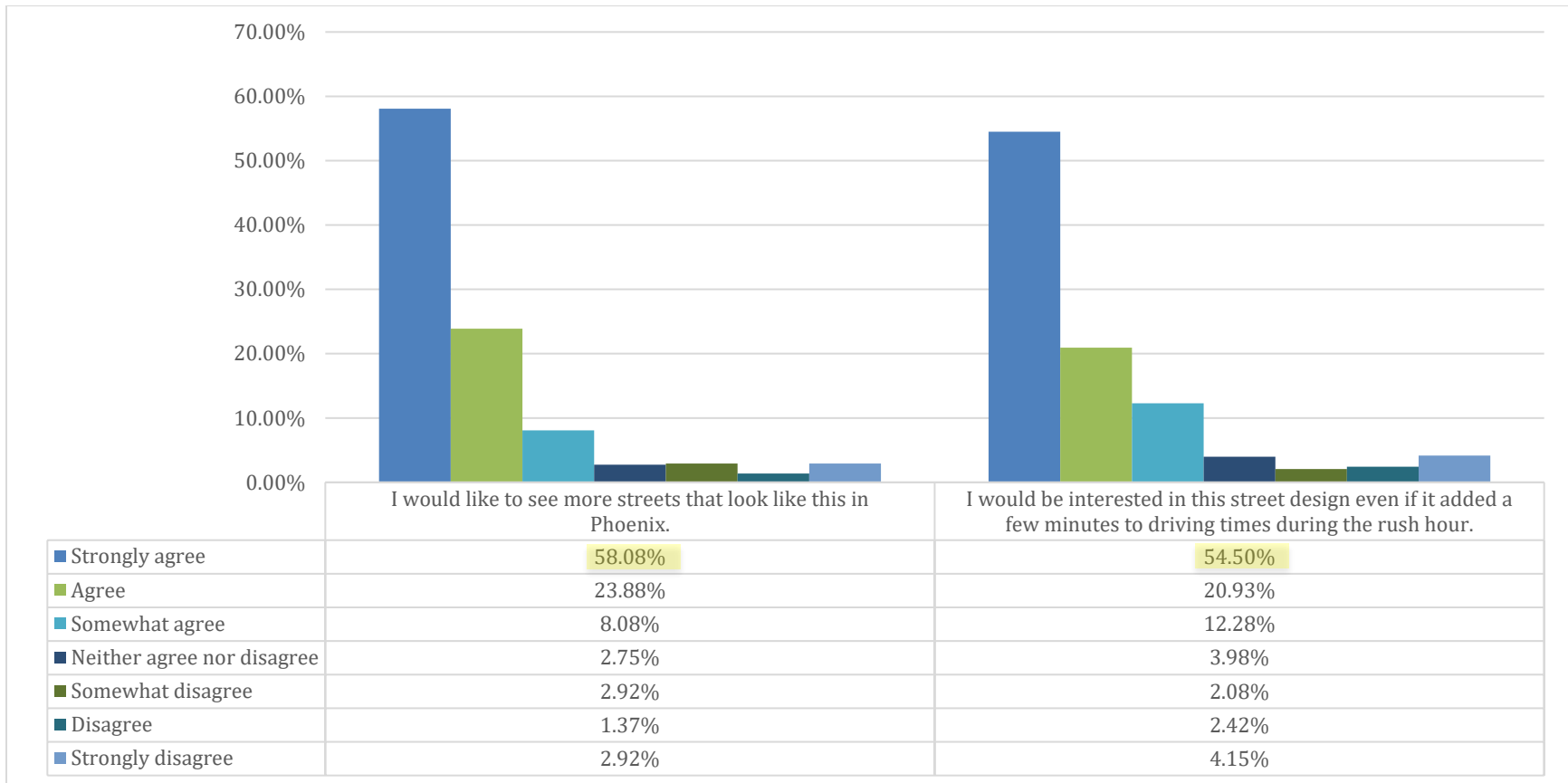
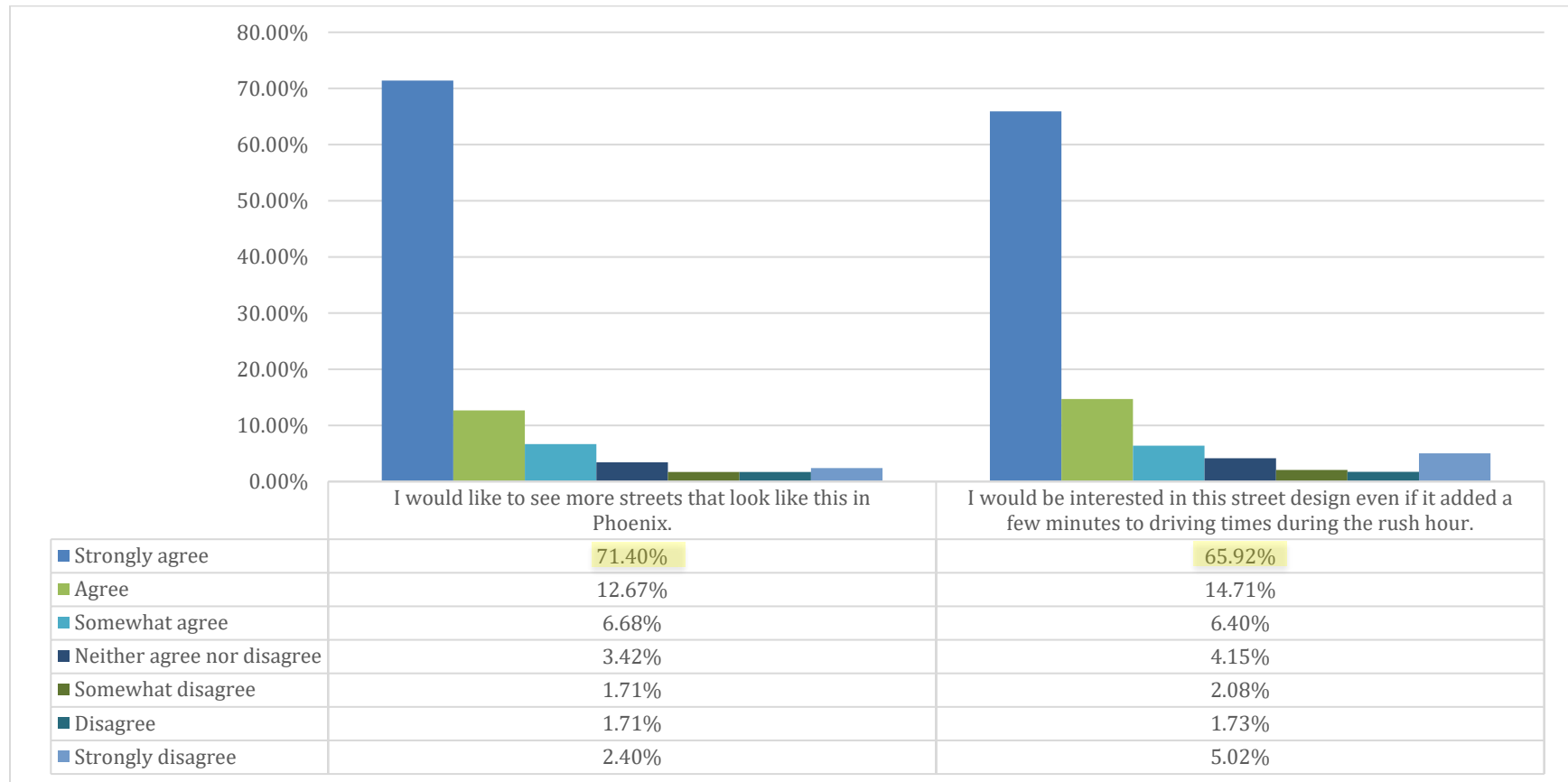


Image: Major Street with a Protected Bike Lan (Bollards Guideposts)



Q17: For the following question, please indicate how strongly you agree or disagree with the following statements. (N=585)

There were 585 responses to this question making the completion rate 87.97%. Highlighted below is the top response for each statement.



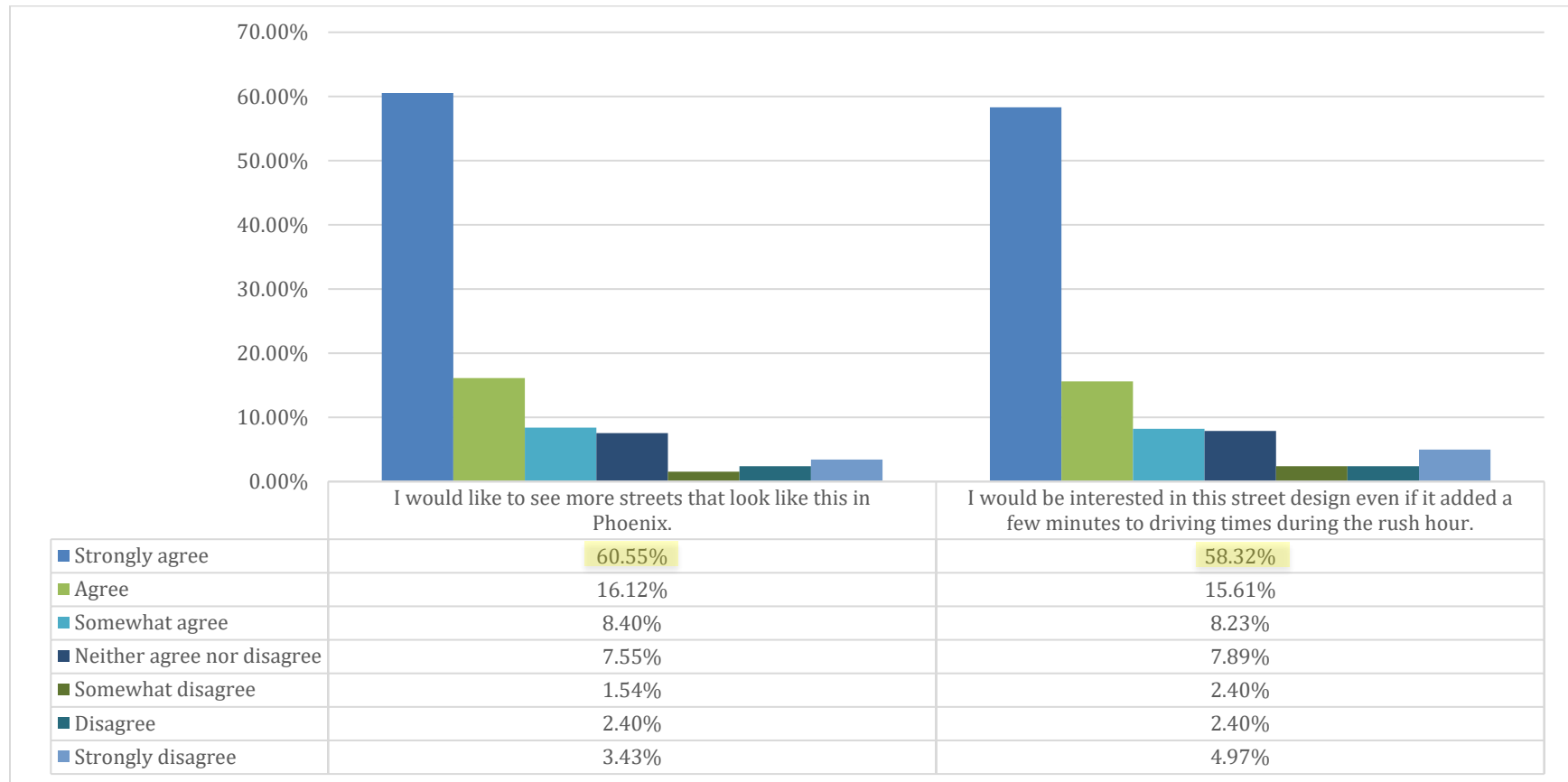
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Image: Street with a Protected Bike Lane (Two-way Protected Bike Lane with Curb)



Q18: For the following question, please indicate how strongly you agree or disagree with the following statements. (N=583)

There were 583 responses to this question making the completion rate 87.67%. Highlighted below is the top response for each statement.



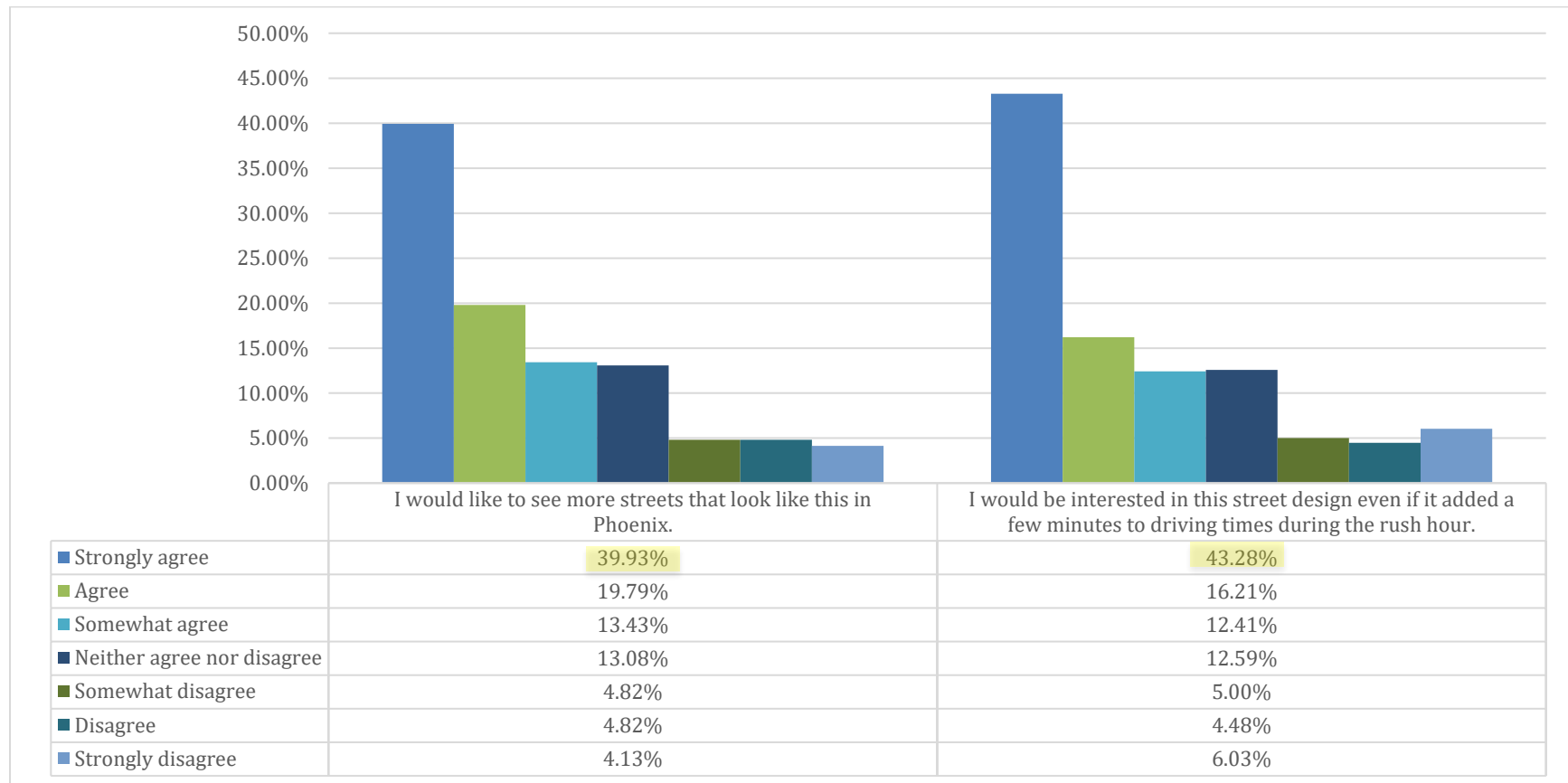
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Image: Protected Intersection on Major Street



Q19: For the following question, please indicate how strongly you agree or disagree with the following statements. (N=582)

There were 582 responses to this question making the completion rate 87.52%. Highlighted below is the top response for each statement.



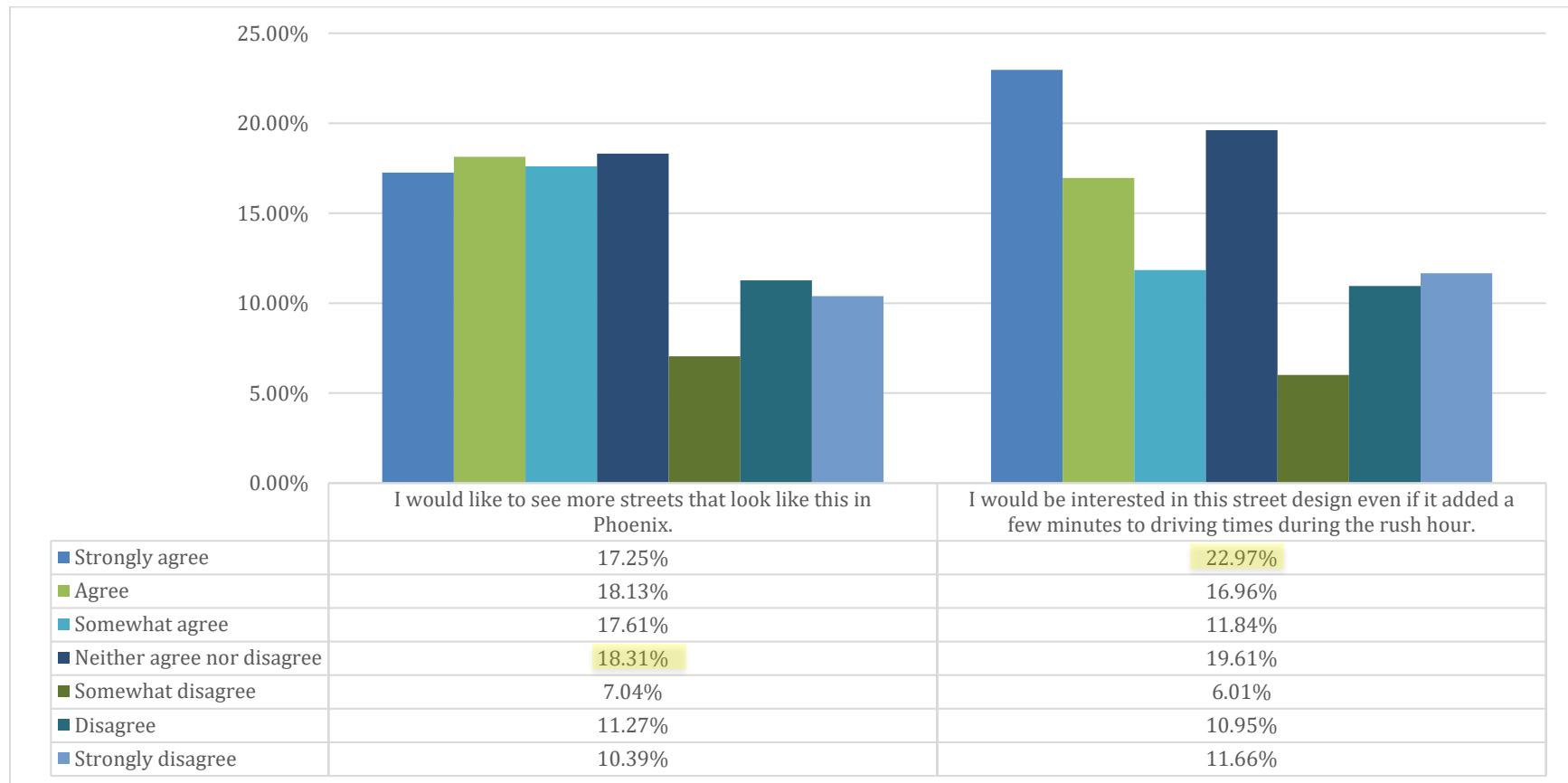
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Image: Local street with sharrows and traffic calming (Bike Boulevard)



Q20: For the following questions, please indicate how strongly you agree or disagree with the following statements. (N=568)

There were 568 responses to this question making the completion rate 85.41%. Highlighted below is the top response for each statement.



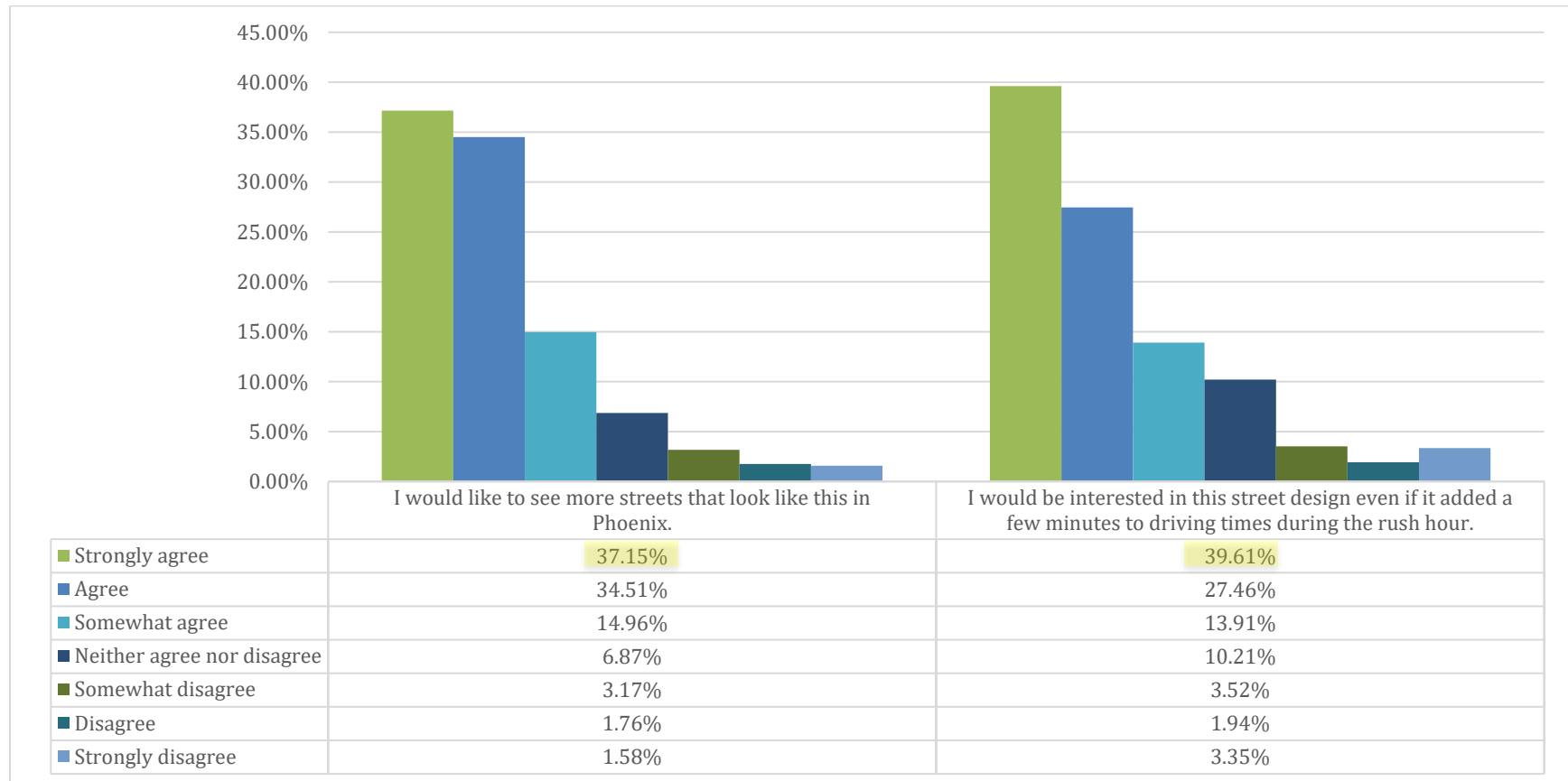
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Image: Major street and sidewalk without separation from the roadway (not detached)



Q21: For the following question, please indicate how strongly you agree or disagree with the following statements. (N=568)

There were 568 responses to this question making the completion rate 85.41%. Highlighted below is the top response for each statement.



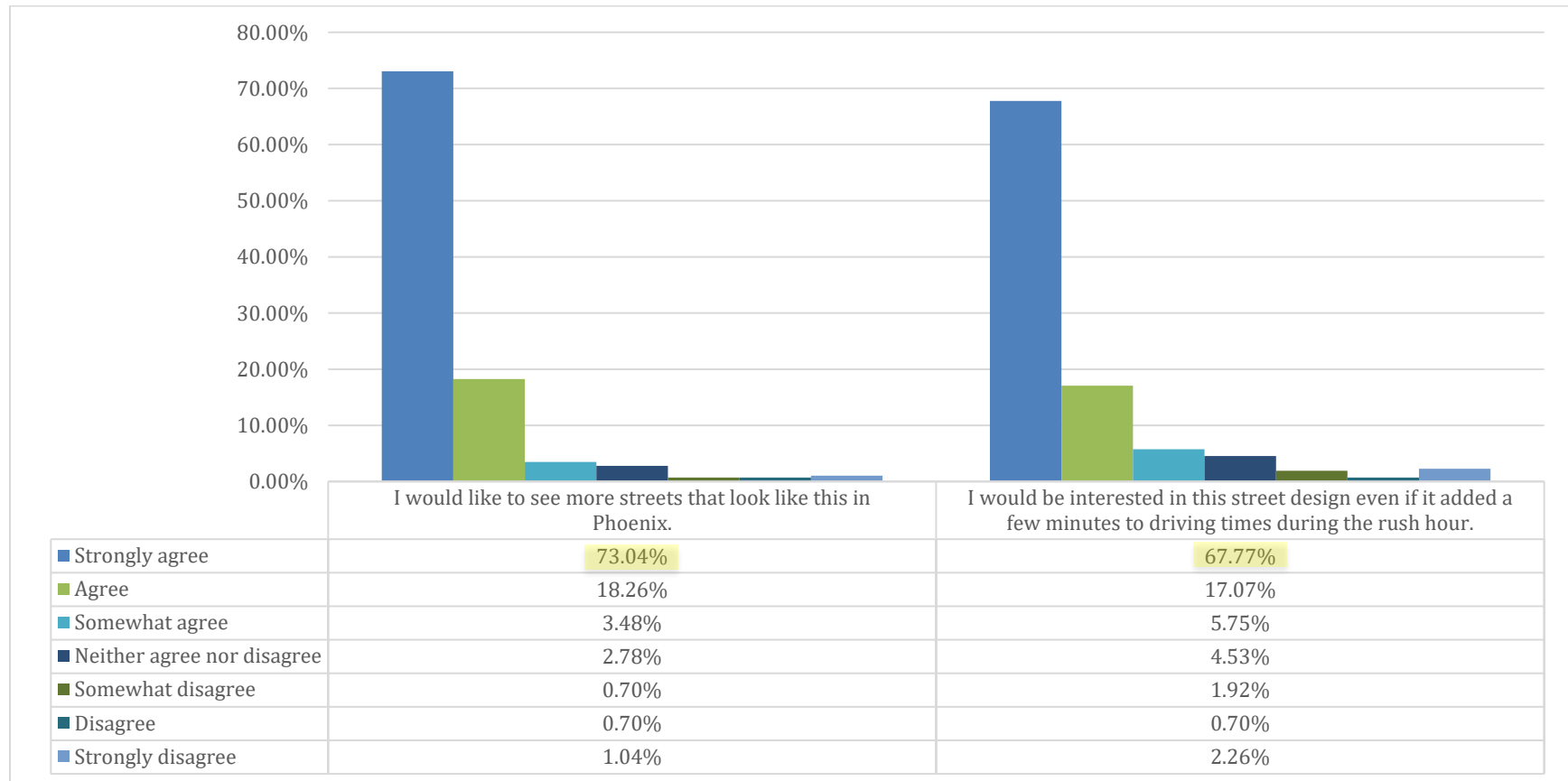
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Image: Major street with detached sidewalk



Q22: For the following question, please indicate how strongly you agree or disagree with the following statements. (N=570)

There were 570 responses to this question making the completion rate 85.71%. Highlighted below is the top response for each statement.



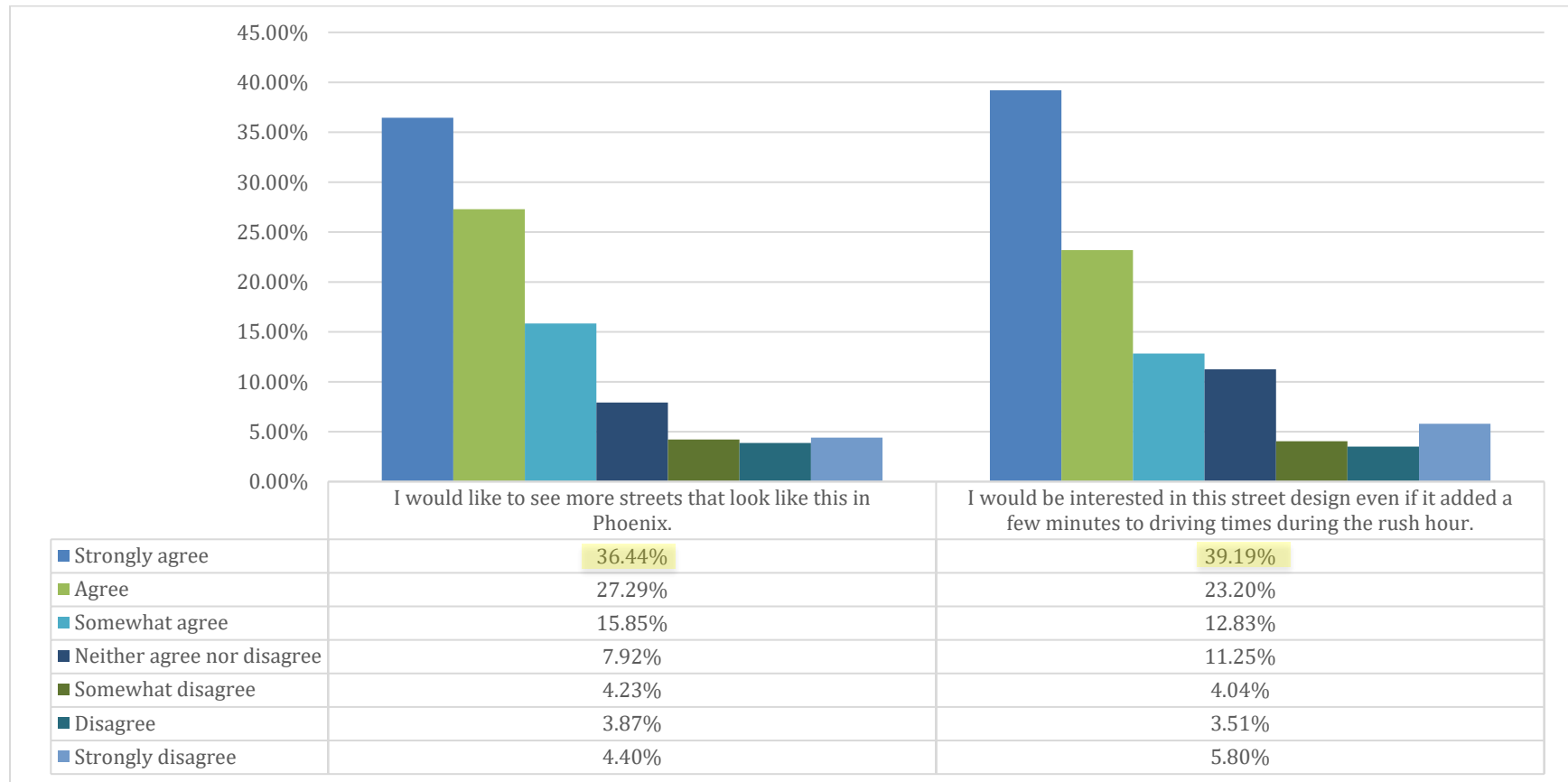
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Image: Street with detached sidewalk and shade



Q23: For the following question, please indicate how strongly you agree or disagree with the following statements. (N=569)

There were 569 responses to this question making the completion rate 85.56%. Highlighted below is the top response for each statement.



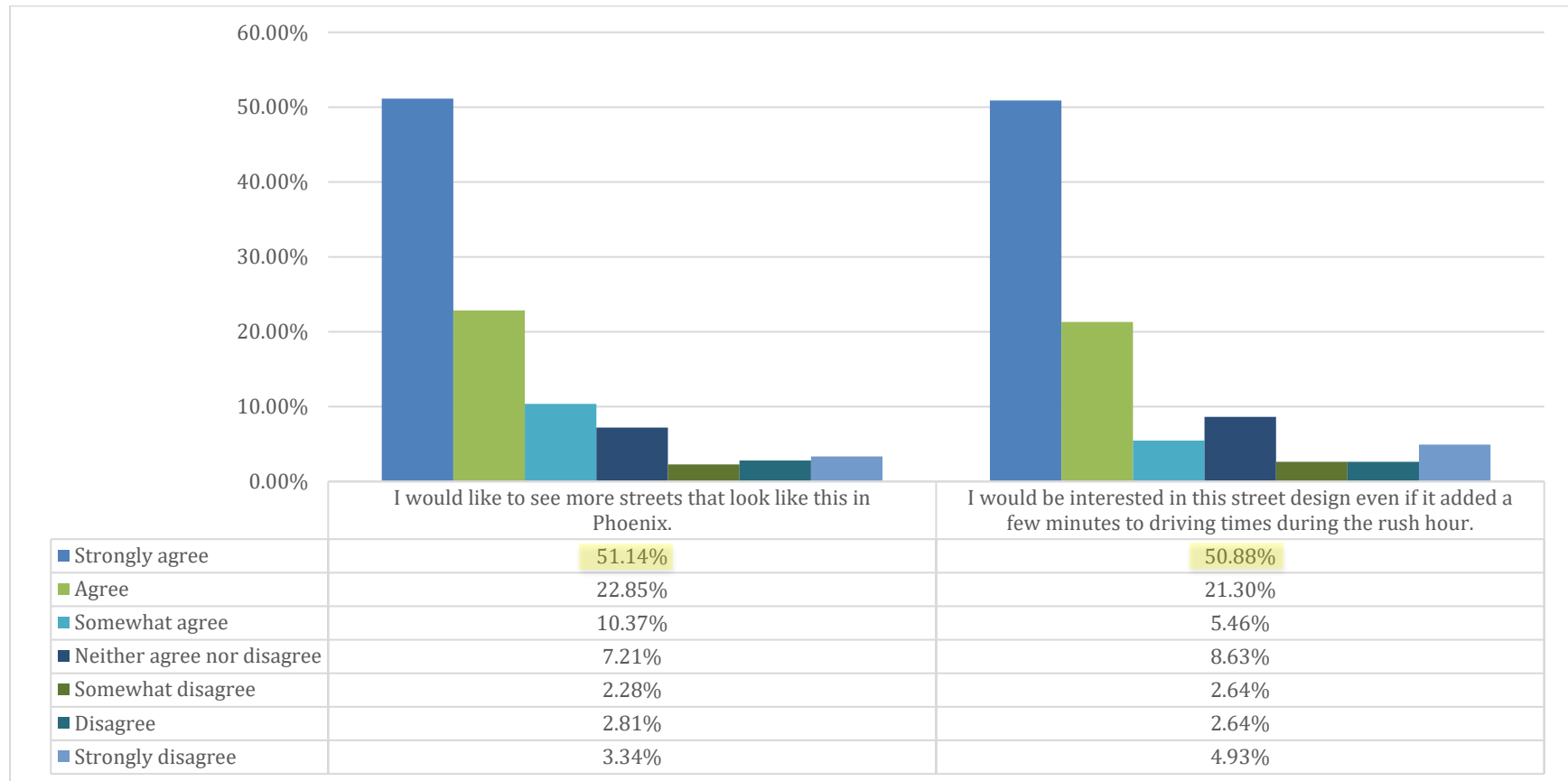
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Image: Mid-block crossing with flashing beacon and island



Q24: For the following question, please indicate how strongly you agree or disagree with the following statements. (N=570)

There were 570 responses to this question making the completion rate 85.71%. Highlighted below is the top response for each statement.



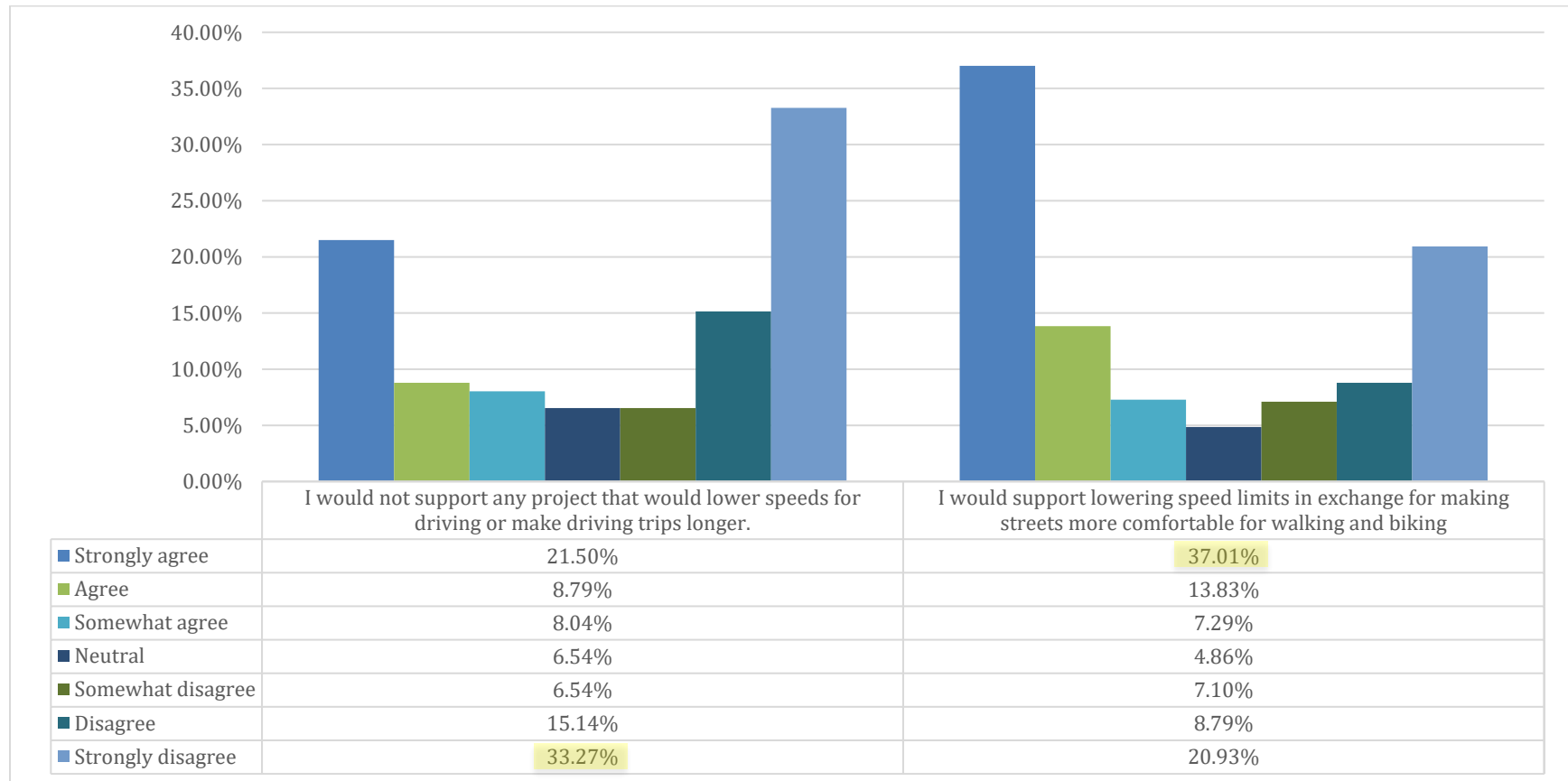
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Image: Mid-block crossing with HAWK signal



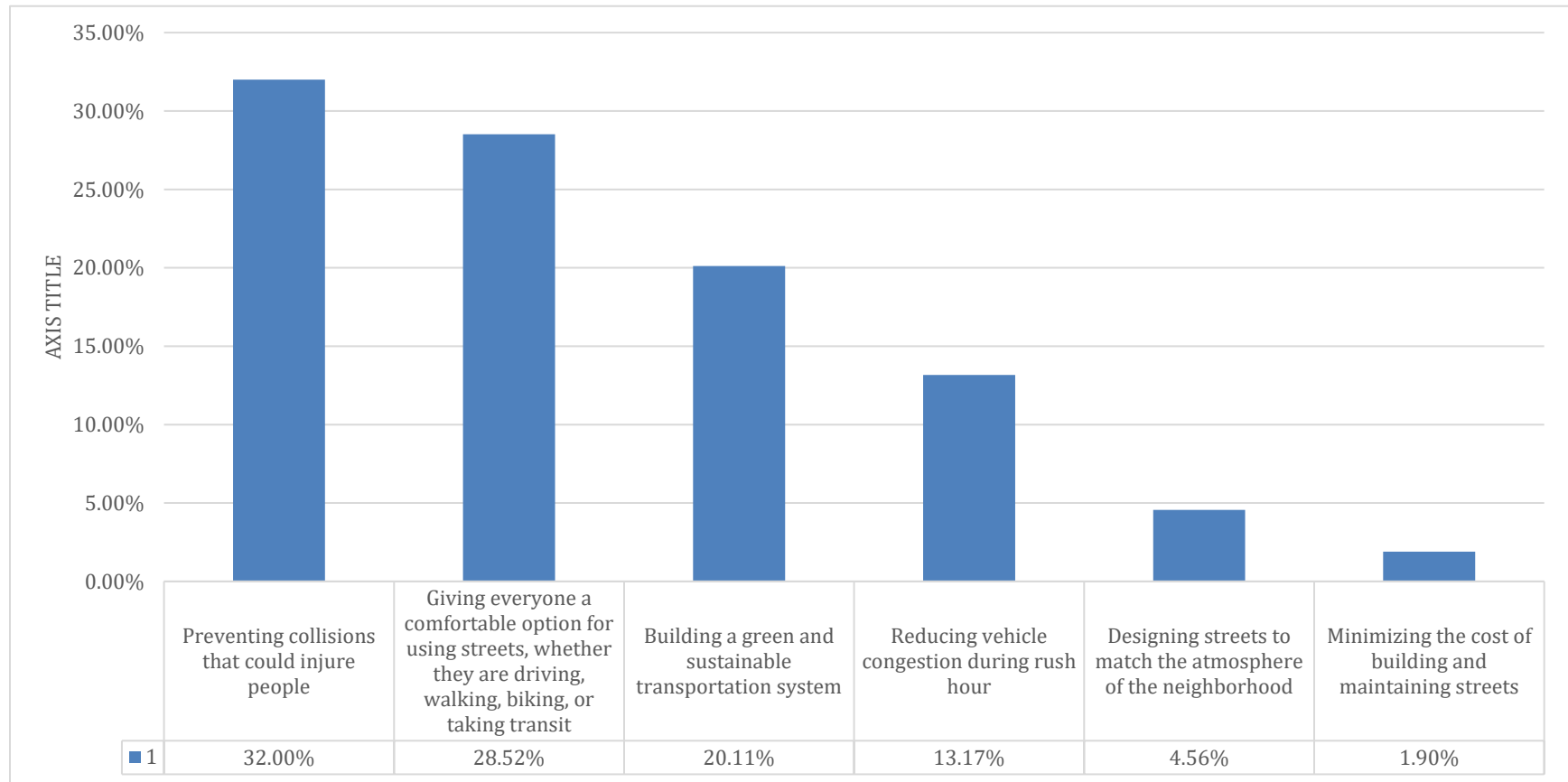
Q25: For the following question, please indicate how strongly you agree or disagree with each of the following statements. (N=536)

There were 536 responses to this question making the completion rate 80.60%. Highlighted below is the top response for each statement.



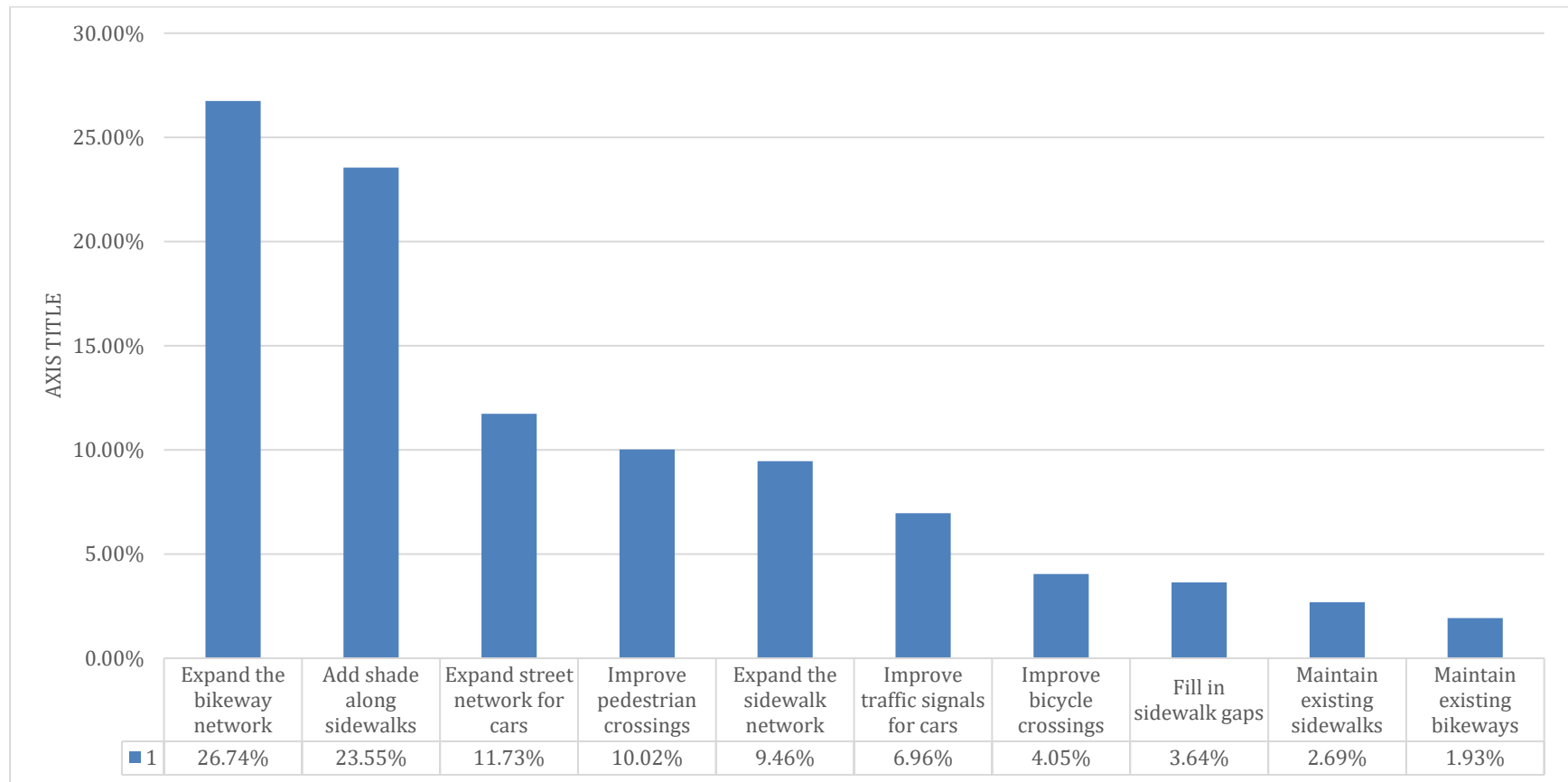
Q26: What are your broader priorities for transportation in Phoenix? Please rank the following choices: Please prioritize the broader transportation objectives listed below from highest (1) to lowest (6) priority: (N=528)

There were 528 responses to this question making the completion rate 79.40%. Highlighted below is the top response for each transportation objective.



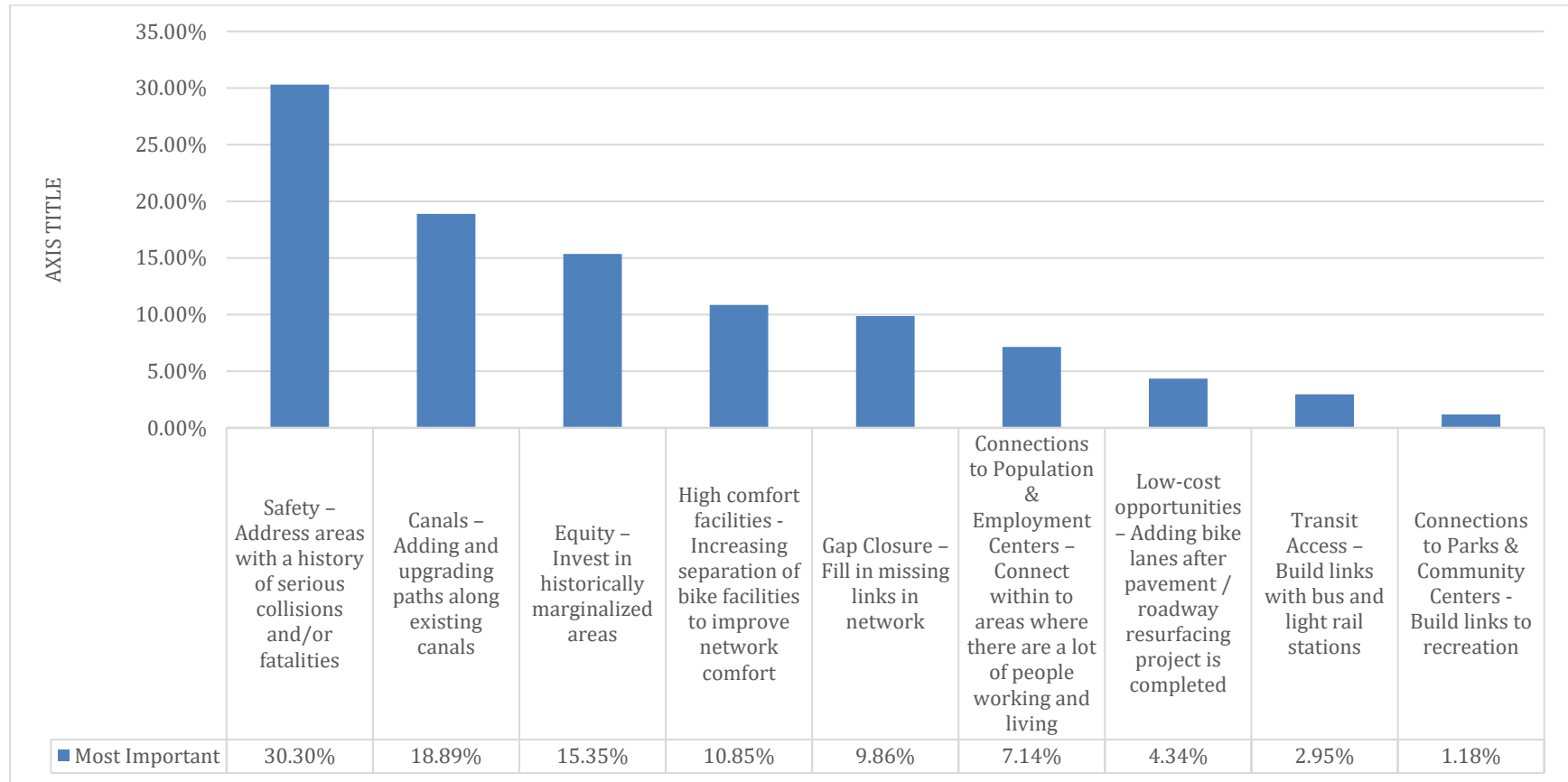
Q27: The list before provides a number of different street-specific priorities. Please organize the list below from your highest (1) to lowest (10) priority. (N=522)

There were 522 responses to this question making the completion rate 78.50%. Highlighted below is the top response for each street-specific priority.



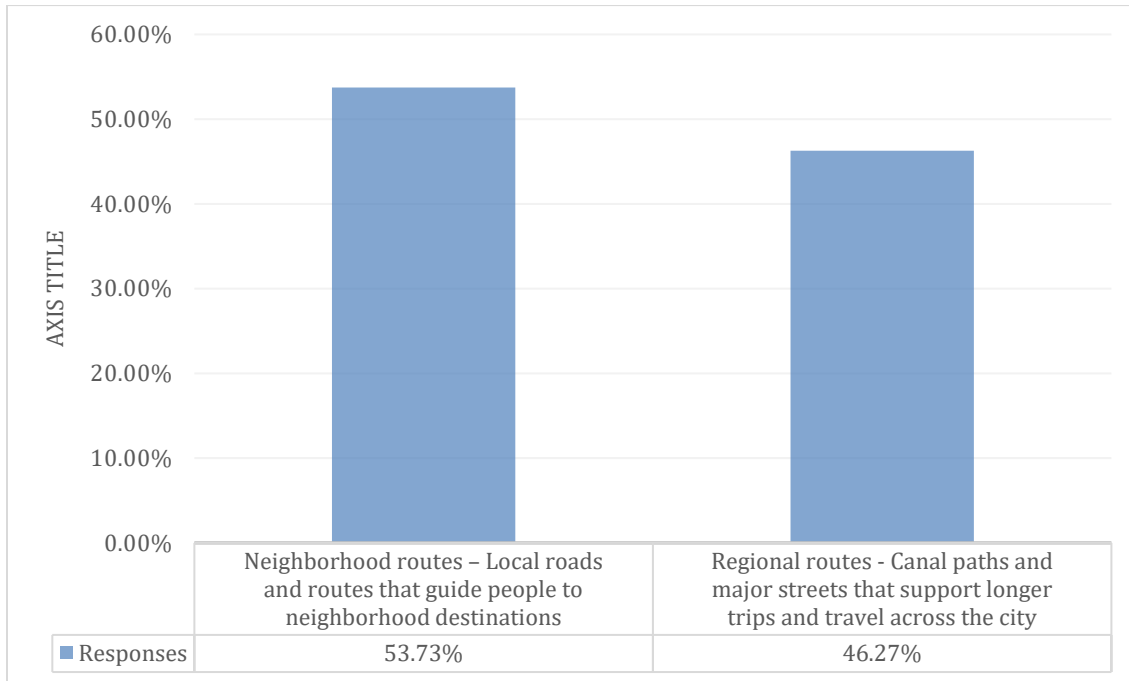
Q28: What types of improvements are most important for Phoenix's bicycle network? Please rank the following based on what you think is most important: (N=510)

There were 510 responses to this question making the completion rate 76.69%. Highlighted below is the top response for each type of improvement.



Q29: Which types of bicycle routes are most important? (N=523)

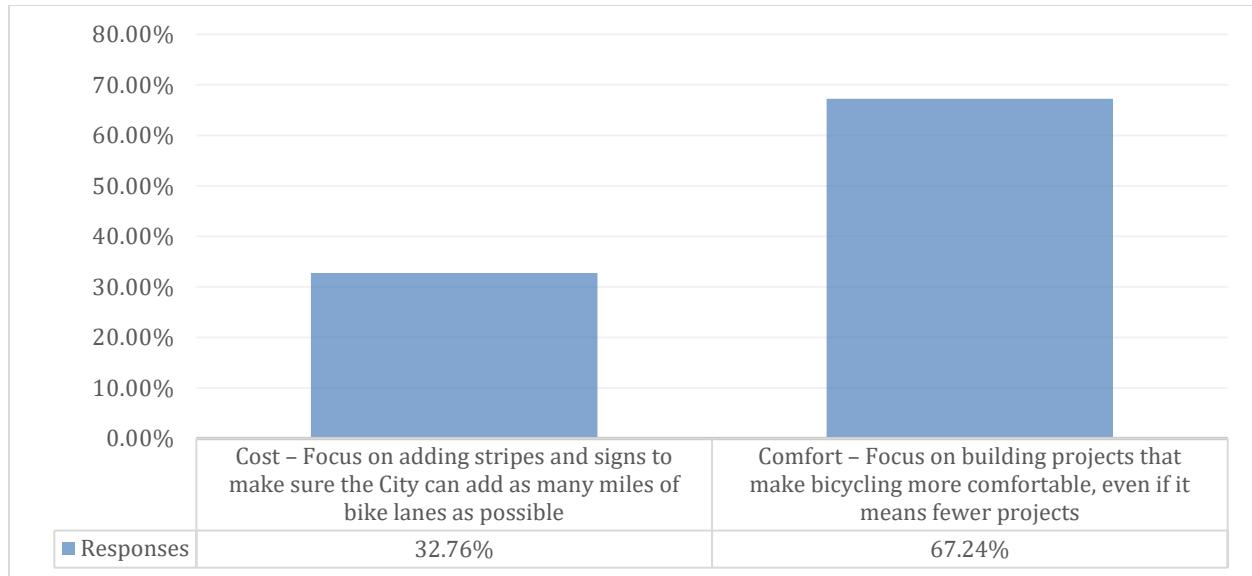
There were 523 responses to this question making the completion rate 78.65%. Most participants chose neighborhood routes as being most important.



Q30: When thinking about the continued development, buildout, and improvement of the city's bicycle and pedestrian network, which of the following do you think is more important? (N=522)

There were 522 responses to this question making the completion rate 78.50%. Most participants chose comfort as being most important.

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Q31: Is there any additional information you'd like to share with us about your active transportation priorities for Phoenix? (N=143)

There were 143 responses to this question making the completion rate 21.50%. Based on the comments, the following themes were identified: Design, Development & Infrastructure, Climate, Homelessness, Public Transportation, Routes, Safety, and Survey Feedback. Below are the comments that align with each theme.

Design, Development & Infrastructure

- Phoenix and surrounding cities have way too many parking lots and drive through fast food
- The lack of biking infrastructure makes this a pretty bad place to live, honestly.
- Transportation policy should have as its goal reducing congestion and travel time. For vehicles. Not cars, and not pedestrians. This is about how we move people from point A to point B as efficiently as possible. You people are trying to make driving undesirable through bad transportation planning that increases congestion to force people into your Green New Deal pipe dream of forcing people out of their cars. It won't work. Prioritize real transportation policy that benefits 99% of the population by reducing congestion. Add lane miles, not bike lanes that remove vehicle lanes. Ridiculous polling, for ridiculous ideas.
- The focus should overwhelmingly be on figuring out how to make Phoenix a more bike-able and walkable city. Car traffic should not be the priority. Part of that is a roadway concern, but it is also a development concern, and the City should prioritize in-fill projects that bring housing and businesses to the heart of the city.
- More focus on active trans projects and less focus on auto centric projects.

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- More density and mixed-use zoning to make walking and biking easier
- Infrastructure for physical and mental health and environmental benefits.
- More density everywhere makes it easier to afford and scale bicycle/pedestrian infrastructure
- Any amount of bicycle network additions are worthless if the construction zoning isn't conducive to walkable neighborhoods.
- Thanks for doing this survey. Phoenix could be an amazing bike city if we invest in the infrastructure. Please do as many bike and pedestrian projects as possible. We need to stop relying solely on cars, and we need to make our city more walkable and bikable to improve safety, tourism, satisfaction and equity.
- If we invest heavily up front in making non-car transportation viable, it will help with our car priorities as well by minimizing car-dependence and thus congestion, wear on roads, etc.
- We know bike infrastructure is way cheaper to construct and maintain than car infrastructure. Start being honest with the public please.
- Keep building bike lanes and shading sidewalks. We need road diets whenever possible.
- Design a course on respecting active transportation users required at any stage of getting a driving license.
- Cost for bicycle infrastructure wouldn't be an issue if sufficient funds were diverted from car infrastructure.
- You can't do any of this without addressing zoning and upzoning to mixed use multiple story buildings instead of the obsession with single family homes. Increase density and transit options and stop the sprawl. Separate vehicle traffic from every other mode of traffic to keep people safe.
- I live and bike in a 2 mi radius downtown. Continue to make micro-neighborhood hubs, like Roosevelt row, and switching from cars will be easier for the local people.
- Design streets for people. Cars are not people. People shouldn't need to own a car to thrive in PHX - many people don't have a vehicle and are disadvantaged by our street design
- The city needs to focus on building upwards and reducing the distance between places before address sidewalks or bicycle routes. A well built system of sidewalks and bike paths will be useless if everything is still far apart and impossible to get to in the summer.
- Bikes and pedestrians deserve infrastructure as much as cars do, and should not be treated as less important.
- How about Phoenix Greenbelt Division completely separate from Phoenix Street Division!! People could bike commute 9 months a year if the canals were bike routes. Separate the multi-use trails from streets. Get creative with other rights-of-way. Involve parks department, flood control, power, and canal easements for multi-use trails throughout the city. Make trail connections from existing parks and shopping centers using GIS. Bike commutes and shopping would reduce road traffic considerably. Bikes and walkers don't want to smell like exhaust.
- I would prioritize comfort, but in reality I want coverage to be established & a bike network to be adequately linked, then from there focus on enhancing the areas. I would have put comfort, but am also concerned that it would be invested in major routes that

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would serve only a certain population & leave out other disadvantaged areas. So transportation relies on having reliable connections first, then quality can come second. If better design could be implemented as roads & bikelanes are placed (such as shade) that would be the ideal. Both are so important.

- Are there not any win-win solutions where speed/time do not have to decrease for vehicles and where bikes/peds can have better travel conditions without much cost? Perhaps even widening the sidewalk and leveling the driveways so biking on the sidewalk is safer (e.g. Baseline Rd near Recker Rd in Gilbert). Can a protected bike lane be combined with a sidewalk and could cars be slowed down (e.g. square sidewalk connections and less rounding/sidewalk deviation) only when making turns into driveways or right turns where the slow down is splitting hairs (like tens of seconds rather than minutes)? A lot of these questions assume tradeoffs that matter, but are there tradeoffs that don't matter and where we are splitting hairs? Can we trend in investing in cars while also investing in bikes?
- 2. The last question for me isn't about cost v. comfort. It's a question of quantity v. quality. For a bike network to add real value to a population, it needs to connect across the region it serves — at a bare minimum. I chose my response because I think a functional, connected biking network that joins Phoenix with surrounding metro areas in all directions should be a first priority (quantity). When this groundwork is laid, more people will be able to effectively use the system to get where they need to go, making demand and support for future upgrades in quality possible. I want both! But quantity first³. The canals are interesting. I'd love to use them for transit but a lot of them are essentially just alleys. They are sparsely populated and unpatrolled. They don't feel particularly safe. Can we make room for appropriate development, maintenance and even attractions, food, or retail along the canalways in some areas? And make the areas that are more peaceful, like nature reserves or residential areas, more well lit and secure?
- Focus on making a state of the art bike network for recreation and exercise.
- When cars were first introduced, pedestrians always had the right of way. Somewhere along the line those switches places and it has become impossible to live in a lot of cities without a car. That is ridiculous.
- We need more transit oriented development and to stop the endless sprawl and urban heat island effect
- Investing in Public transportation/biking/walking will reduce traffic. Consider induced demand: if you build the infrastructure people will use it. This is why adding more lanes doesn't decrease rush hour traffic. The only traffic solution is to have less people on the road. This means getting rid of euclidean zoning and parking lot minimums.
- Everything phoenix does should have a focus on equity
- We shouldn't have to choose between cost and comfort when it comes to prioritizing peoples low cost access to living in a city. We should be able to get both. This is especially when the city continues to overfund a police department infested with crime, corruption, resignations.
- Convenience is key- if it's more convenient to ride a bike, car traffic will lessen as more people ride bikes.

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- Implement "superblocks" (i.e. Barcelona, Spain model) where car traffic is restricted.
- Allow active transport through gated communities. Sometimes it takes much, much longer to go somewhere because of the barriers.
- People primarily ride bikes for recreation so I think emphasizing and investing in the canals and connecting trails is key. Traffic can be awful here so I don't think reducing driving lanes for cyclists makes sense when peoples commutes are already pretty bad.
- We dont have the funds to make these improvements. Dont print any more money. Our current government has killed the US dollar
- Incentivize and educate people to use bikeways and ensure that commuters in historically marginalized areas have access to bicycles
- Street diets everywhere
- Id like to see more accessibility and incentives for Phoenix area residents to use alternative methods of transport than cars
- Traffic lights that monitor traffic flow. Mid city traffic lights don't manage traffic and congestion, they're so badly managed they actually create traffic and congestion. Indian School from 16th Street to 33rd avenue is one of the worst stretches of road for that in the country, especially between 12th St and 15th Ave. It's truly the worst thing I've ever seen day on y and day out year over year.
- Hawks are only effective if cars stop for them--and they don't. Bike lanes only function as bike lanes if cars are not parked in them--and they are parked in them.
- Traffic signal needed at 43 rd avenue and Dobbins ASAP!!
- Please put speed cameras at major intersections (ex. McDowell and 7th St). Drivers in this city are completely irresponsible wrt red lights and speed limits. It's one of the worst aspects of Phoenix.
- Put sharrows on Desert Foothills Parkway, please. Tons of people ride there and the locals speed and ride in the right lane.
- I'm all for adding bike access to marginalized communities if we have evidence that it will improve equity. Sharrows are useless. Please do not imitate so many other worthless bike projects by using the sharrow option. Car drivers are always texting and they don't see the sharrows. Car drivers don't think bicycles belong in the street. It doesn't matter if they're wrong if they keep hitting pedestrians and cyclists. I have a ton of hope for how forward-thinking the bike plan is in Phoenix.
- 27th ave and baseline, has a school on the SE corner and cars speed by during school hours due to lack of speed sign, baseline near that area is missing sidewalk so kids walk on dirt paths
- Badly need hawk signal at Tatum and Berneil - popular route for bikers but crossing Tatum is dangerous. No easy way to get to a light.
- There seems to be a new problem at "HAWK" crossing locations where drivers proceed through the flashing red without stopping or yielding. This could be due to misunderstanding on recently-added signs. The city should perform a formal study of this behavior and share the results.

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Climate

- Increasing shade throughout the city to help combat the intolerable heat would make biking and walking much more accessible for all communities. When it's nice out, you see Phoenixians out walking everywhere. Heat and lack of shade are the biggest barriers. Then the roads and everything else follow
- Adding bike lanes is nice, but again, won't fix the urban hellscape of terrible city planning that is Phoenix. No one wants to bike or walk miles through 115 degree heat, even in the shade, even on nice paths. The only way to fix this problem is building a dense city, not an endless sea of single family homes.
- Phoenix would be less hot with less asphalt streets and more alternative transportation options
- Too hot for long distance
- Phoenix is never going to be a bike commuter town a la Seattle or San Francisco. It's not dense enough and it's too hot in the summer.
- We live in the desert, we can't afford to ignore climate change. If more people could comfortably walk or bike it would be better for all of us.
- Increasing shade cover across sidewalks and bike lanes will lead to more biking and demand for lanes creating positive feedback loop
- If doing protected bike lanes please don't just add more asphalt and curbing and call it a day. This is an opportunity to provide shade, even if it's on the sidewalk side of the protected lane.
- Consider alternatives to asphalt for streets. There are cooler, and over the long term, cheaper alternatives.
- 1. Shade! There's no way this city can support walking or bicycling without it. I'd like to see the percentage of sidewalks without shade in Phoenix today, and in 5-10 years to see it at 100% over sidewalks and bikeways across the full transit network.

Homelessness

- Reduce roadside areas for homeless to camp. Increase traffic handling capabilities.
- None of this matters if we still have wave after wave of homeless people sleeping in underpasses, and places where I want to ride my bike or walk.
- On existing bike paths, clear out the homeless from under passes; not at all safe.
- I don't use canal paths anymore because the underpasses are trashed - used by homeless. I have compassion for homeless and would like more services for them, but this is a problem that needs to be addressed to improve biking in Phoenix.

Public Transportation

- I want fully separated bike lanes, better sidewalks for pedestrians, and easier access to transit, specifically the light rail. The light rail expansion will help but it has very little use right now.
- Given the heat biking and walking are often hostile, so supporting networks of bike lanes and sidewalks that lead to other public transit makes more sense to me. And thus public transit needs support of bikes etc.

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- I wish the light rail went more places especially the west valley. Also I wish it weren't a part of the traffic like above or below.
- I would love to see the various cities in the valley continue working together to make it less car centric! The light rail is a great start but it needs to be supported by other efficient options to facilitate inter-city travel
- I think any transportation plan has to address the abysmal bus and light rail service.
- Expanding the light rail, improving sidewalks & pedestrian crossings
- Prioritize railways
- I would love to see a high speed rail system like other metros have- something that can keep cars and people off the streets to make our beautiful city greener and safer. We have very minimal weather to prevent a rail system, our layout is already a grid, and there are few land features to prevent rail access/construction.
- Bus bays for all stops are needed. When busses are not able to pull out of the lane of moving traffic, it's a problem
- There should be a renewed emphasis on street car expansion
- More crossing on major streets, more bike racks

Routes

- Enforce crosswalk etiquette/rules rather than force hawk lights onto traffic.
- Creating more miles of bike paths would bring out more people on bikes.
- In general I think most streets in Phoenix could be narrowed to make room for additional bike paths (and potentially tax-generating parcels).
- More bike lanes. Wider shoulders.
- Buffered and wider bike lanes would make bicycling with the high volume of car traffic in the Phoenix metropolitan area much more comfortable for both the motorist and cyclist.
- Protections are needed for the bike lanes whether those are truly costly or not.
- painted bike lanes in the gutters are not bike lanes and should not be counted. Especially on Major and Collector roads.
- We desperately need more, longer, and more comfortable bike lanes - especially lanes that have a curb or other physical barrier. We especially need longer routes that connect businesses and parks. For example, we need a long, buffered bike lane from Steele Indian School Park to downtown, and from the Grand Canal to Downtown.
- Protect existing bike lanes with low cost options like flexible bollards (i.e crashing a car into them won't cause a major accident, but they should prevent parking in or passing using bike lanes)
- Painted lanes unfortunately don't work. Slow cars down and provide protected lanes throughout the city. Maybe focus on central Phoenix to start. We bear the brunt of heavy traffic in the region during week days when many of us would like active transit and a small portion of our streets back
- Both neighborhood and regional routes are important. I think something as simple as painting in the bike lane to be a solid color (ie green) would even help tremendously in defining that is a bike specific space and path

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- There is no clear bike route from southwest Phoenix to downtown. The salt river used to suffice, but it's been closed. We need more access to southwest Phoenix via bicycle to downtown.
- Some bike lane options, such as those with physical separation between bike and traffic lanes, do not allow for regular sweeping.
- 56th St and Indian School has AZ Falls what a cool spot but yet in either direction theres no pavement on the canal? Why???? So many people travel there, seems dumb this has been overlooked for so long.
- I love using the bike route between glendale and mcdowell along the az51
- The canal system is great and I think that's in a good spot now to where the focus can shift to other regional connections or figuring out where those gaps are.

Safety – Cars, Speeding & Traffic

- Reduce space for cars, make drivers go slower and pay attention. Neighborhood routes would feel safer but they still need to connect to destinations along major streets..
- Safety should be the highest priority and that will require taking space away from cars and slowing them down to make room for pedestrians, bikes and such. Our transportation network needs to focus on moving people, not just cars.
- Making the sidewalks and bikepaths safer for pedestrians is so necessary. It makes me nervous walking on a narrow sidewalk right against the street, when drivers regularly go 10-15 miles over the speed limit. When riding a bike, drivers often straddle the street and the bike lane and do not check for bikers when turning at an intersection. I fully support separations between sidewalks and streets, and protected bike paths and bike intersections. Traffic calming measures would do a lot as well, even if it's just narrowing the street lanes so drivers slow down and drive with more caution.
- Please, please do something to improve this! I hate being in the car, it's terrifying, especially because everyone drives super fast and super recklessly! I want to be able to safely bike to the store and to the light rail without sharing a street with cars; I've seen too many cyclists and pedestrians get run down to feel safe, but I hate being in the car. so I usually just don't go anywhere. If I could safely leave my house and go somewhere by walking or biking or taking transit, the city would be better off because I'd be more willing to spend money at local businesses and I'd be connected to the community and not want to leave here; as it stands, I'm counting down the end of my lease so I can move somewhere cars are unnecessary, like NYC or somewhere in Europe, and I'll be taking my software engineering salary and spending with me. It hurts, though; this is home, I want to stay, but all the traffic and cars are making it impossible for me. :(
- Safety from cars is the biggest issue for bikers and walkers in our city. A huge overhaul needs to occur to make Phoenix a biker/walker friendly city and to encourage people to use alternate modes of transportation other than a car.
- My weekly ride is 50% safe with great paths and 50% hair raising white knuckle in an area that is mostly people in big trucks who could care less about me. It sucks.
- Speeding and safety and NOISE

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- Walking and biking along an Arterial is scary. Street trees and on-street parking that buffer bikes and sidewalks are preferred. The trees and cars protect the pedestrians from the cars. Its actually safer to bike and walk when traffic is congestted and moving slowly.
- The biggest problem is the lawlessness of some of the driving population. Too fast, too crazy. We need red light cameras back to tamp down on that.
- Please make sure that all bike lanes are as seperated from this high speed traffic! nobody wants to ride next to 2 ton cars going 55mph, it poses a serious saftey concern
- Stop high speed cut through traffic near I-17. Cars exit freeway and cut through neighborhood streets to avoid major intersections and put others at risk. Look at Simpson neighborhood as an example.
- Personally Owned Vehicle operators cannot be trusted whatsoever. They drive fast, reckless, and without regard for their surroundings and people. I've only survived this far by pretending no one can ever see me. People do not pay attention and speeds are too fast.
- Love to bicycle and I've had several close calls with vehicles. My spouse no longer bicycles with me after an SUV ran a red light and missed her by inches. City of Phoenix & Streets department has valued cars over our lives for years, we hope that changes.

Safety – Infrastructure & Road Conditions

- For bicyclists feeling safe is the key. It seems that with the new infrastructure bill, we ought to be able to build more comfortable and safe biking projects. Safe intersection crossings need to be improved on streets with stripes and signs.
- I selected comfort because I think we need high-quality infrastructure to make biking and walking more accessible, but ideally there would be a balance of cost and comfort. More bikers means it's safer for everyone out there biking so the biggest goal should be to break down the barriers to cycling and that means infrastructure that brings more visibility to cycling, helps people feel safe, and signals to drivers that they don't own the road.
- I live near 27th Ave and northern. I want investment in my area. Why can't my neighborhood walkways and bike ways look like downtown? Underserved, lower income communities need these things more than other communities because they often don't have other choice s. Stop trying to appeal to wealthy people to be green and start making working people feel safe on their commute.
- Add as many miles of protected bike lanes as possible and improve safety at street crossings.
- You've made some good progress in the last 30 years, but, the bike network is a shambles that often goes nowhere, signals regularly ignore bikes, and drivers are often very unsafe sharing space with bikes.
- Bike lanes are worthless if they are not protected from out-of-control Phoenix drivers
- A dangerous bike lane is worse than no bike lane. See w Maryland westbound by central!
- My biggest concern is bike and walk crosswalks at intersections. We need more emphasis on traffic light control, biker and pedestrian safety at our intersections. (especially 56th street and Indian School).

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- Allow bikes and scooters on sidewalks. Would be much safer.
- I do not consider non-protected bike lanes to be functional infrastructure, more of a "surprise me, theres no rush" method of suicide waiting for the right texting driv
- Maybe making the crossing of major street light more accessible for those who are blind such as traffic light sound when safe to go
- I feel quite strongly that quality of infrastructure should take precedence over quantity. The safer and more comfortable people feel, the more they'll bike, walk and use transit, and the less they'll confine themselves to the relative safety of a private vehicle, which contributes to congestion, road maintenance and climate change.
- Our city's grid layout is hazardous if we "just add lane lines and try adding as many as possible". We need to separate the street from the bike lane so both can be safe
- Put bike lanes where people will use them (i.e., connect important locations) and make them safe so people actually will use them. A focused approach will yield more benefit than adding as many miles of bike lanes as possible
- Suicide lanes are too confusing to new drivers in the area
- Paint is not infrastructure, separate cars and bikes/peds and make the streets safer for all. It costs less to create and maintain infrastructure for humans than it does for vehicles and it should be prioritized. I hope to see a greener, safer Phoenix for all of us who choose to not pollute and drive vehicles the size of tanks. Less stuff for cars and more stuff for humans please
- Safety is number one issue. Bike lanes need to be separated from the road or else it is not completely safe
- Very small % of residents use biks - why spend the \$\$\$ for these few people - we need more \$\$\$ for full community safety not just a very small % of population. More \$\$\$ for police to provide safety for walkers & Bikers
- As a bike commuter, painted bike lanes are terrifying: cars pass too close at too high of a speed and there are conflicts with people making turns. The Dutch have already figured out how to build safe bike infrastructure. Look at CROW. I want to live in a place that is built at the human scale not for cars. Our urban planning prioritizes cars which is bullshit. Public space like streets cannot only be available for people who can afford to spend money on cars. Also, the design of streets causes people to speed, decrease the width of lanes and the road as well as blocking sight lines are great ways to reduce speeds. Changing speed limit signs is not enough. If pedestrians/bicyclists are dying bc of dangerous intersections or cars driving too fast, it is the engineers fault.
- It would be helpful if more decision makers (Traffic Engineers and City Council Officials) were to try walking down a busy arterial street (I suggest 7th Avenue) or bicycling down a unseparated bike facility (I suggest Central). If this happened, none would say they felt safe and hopefully some would change the way they design these public spaces. These are public spaces and should be treated as such, not freeways. I stated that I would like to see more bike boulevards in Phoenix but not as a substitute for actual bike facilities. Local streets should be narrow and tree lined to reduce vehicle speeds. HAWK and RRFB crossing islands are better than nothing but do not solve the problem. The problem is that our streets are hostile to people outside of vehicles.

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- The bike and pedestrian networks are only as strong as their weakest links. The path could be fine, but it becomes super dangerous at street crossings--this will also prevent new people from biking and walking.
- The southwest portion of Phoenix not only lacks in bicycle infrastructure, we face the real dilemma of large distribution trucks that sometimes outnumber cars. This makes for a very dangerous situations sometimes when biking on major streets.
- I would cycle more but getting from North Phoenix and around North and Shadow Mountain is impossible. No way would go on 7th Street. The Mountain pass is a incredibly dangerous. Once you get to Sunnyslope it is always dangerous with traffic and homeless to get downtown.
- New bike lanes are near useless unless they are 100% physically separated and protected. Far more phoenicians would start utilizing them and give the city more momentum to continue building out a truly protected system. Cars go way too fast in phoenix downtown.
- I skate. Some sidewalks are just plain dangerous! Cobblestones are deadly and cracks that run lengthwise along the sidewalk or path can break bones and make you bleed. Like the path next to the zoo. You spent a lot of money to make it pretty, but you made it very dangerous to skate on. We call it the death path! And stop making paths serpentine through the landscape. If you are trying to get somewhere yo want to go straight.
- At the end of the day, a bike lane is pointless and can not be used if it is on a bumpy, glass and trash covered lane/road. We need a team that maintains this.
- The city does a poor job of maintaining existing bicycle facilities, especially physically-separated ones. Nearly all separated facilities have a lot of loose sand/gravel, glass, thorns, and other hazards. Adding more separated facilities will likely make the situation worse.
- Bicycle punctures (flat tires) are a concern and road debris always accumulates near the curb.

Safety – Laws

- I would like to see stiffer penalties for harming pedestrians and cyclists (even if it was an "accident") as well as more public education awareness on laws for motorists. Today, you can basically murder someone on a bicycle on purpose and get away with a small fine.

Safety – People

- I wish I felt safe walking along the streets in my neighborhood, but there is a lot of violence on the streets. Beggars harassing pedestrians is also concerning, as is the homeless population that sleeps on the sidewalks. I would walk all the time if the crime rate wasn't so concerning. (85015)
- My feeling of safety is not only determined by those driving on the road but by those I encounter on my walking trip that create fear with unpredictable behavior.

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Safety - Other

- More so we want to protect the lives of those not choosing to get within a car. Why are peoples lives in cars being valued more than those outside of them?
- I am concerned that some of the questions in this survey present driver convenience as something to be traded off against safety. This is inconsistent with vision zero. You should be focussing on maximizing safety and reducing conflicts.
- Do you ask motorists if safety is a priority? I suspect not. Also, why does every option ask whether we are willing to slow commutes? Many of these should not impact motorist total drive times. The 2014 Bicycle Plan has over 100 pages of ideas for which you already paid a consultant. The city is clearly dangerous for pedestrians and bicyclists. Common sense indicates this. You can have a city with safe places for bicyclists, pedestrians and cars.
- When riding a bike in Phoenix is line riding on the road with a big target on your back. If the cars don't hit you, then your a target for the homeless. Phoenix is not safe for biking or walking. Fix that
- I wish there was a middle ground between cost and comfort. But the reality is that paint doesn't save lives, it just provides a false sense of security.
- Implementar la seguridad para los que usan la bicicleta ayudará a la reducción de jumó en la ciudad y también gente más saludable.

Translation: Implementing safety for those who use a bicycle will help reduce pollution in the city and also make people healthier.

Survey Feedback

- There's too much industry language in this survey. Last ranking question-- what is a comfort facility? What is meant by 'gap closure'? Missing links in what network? What does "Connect within to areas.." mean? It doesn't indicate 1=? and 9=? . Lastly, on the last question. Comfort doesn't have to be more costly.
- You changed the lowest and highest above, that was a trick to get more pluses for bikes. Most important is to train cyclists and make them get insurance. As it is only the driver spends for insurance, and cyclist pays nothing for the collisions he causes. It is not fair.
- We need more (any is an improvement) enforcement of speed limits and stop sign violations by motorists.
- Ranking questions too long.
- Thanks for doing the survey and the chance to give input.

Additional Comments

- Look to city of Minneapolis bike highway system!
- Please watch NotJustBikes and read up on Strongtowns for inspiration.
<https://www.youtube.com/c/notjustbikes> and <https://www.strongtowns.org/>
- This city is great for bike commuting. Even in summer, the mornings are good for cycling. The improvements to the canals have been outstanding. The light rail pairs well with

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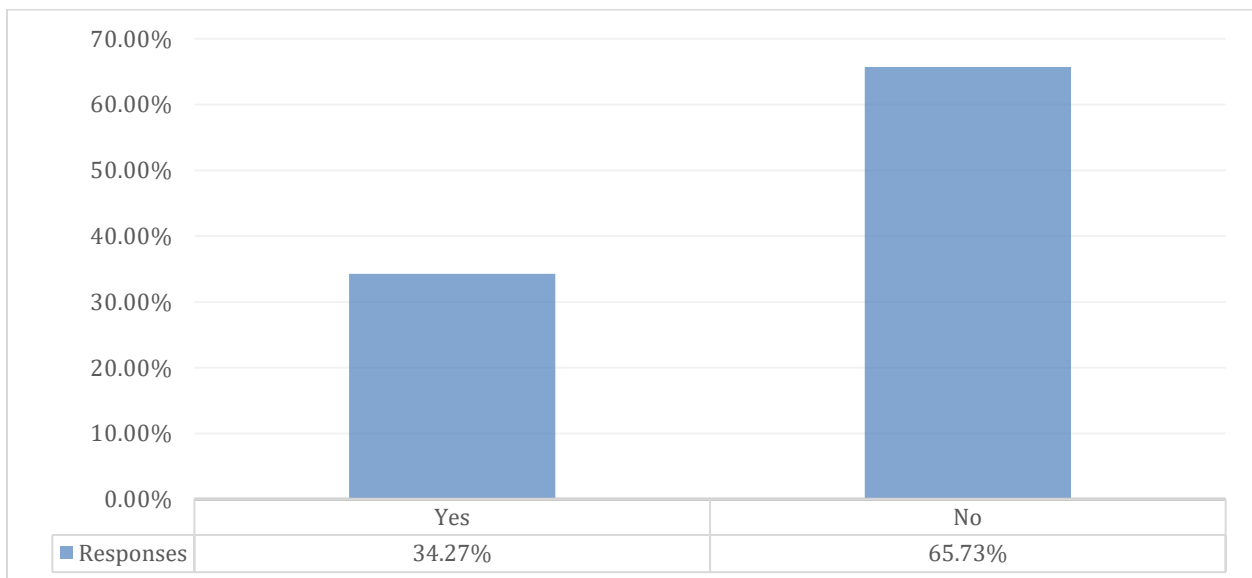
cycling if you are close to it. Thank you for making the city more friendly to non-car transit. Keep going!

- none
- While I no longer ride a bike, I have many friends and relatives who do. My answers are based upon their needs as expressed to me.
- The less attractive driving is as a transportation mode (relatively speaking), the better our city will be
- Go bikes!
- Either make obtaining a driver's license more in depth and harder or start punishing people for bad illegal habits.
- It's great as is.
- Las personas tomando decisiones con respecto al diseno de las calles deberian como minimo caminar y usar el transporte publico. La gente que toma estas decisiones solo piensa en la movilidad vehicular.

Translation: People making decisions regarding street design should at minimum walk and use public transportation. They people who make these decisions only think about vehicular mobility.

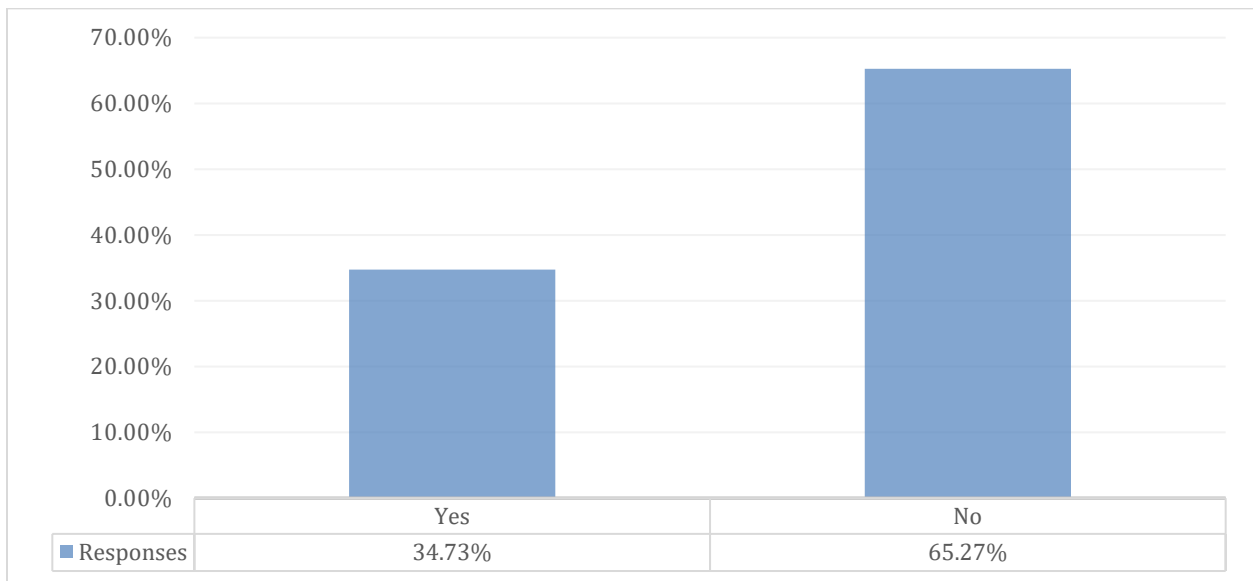
Q32: Do you know how to report street maintenance issues to the City of Phoenix? (N=531)

There were 531 responses to this question making the completion rate 79.85%. Most participants reported they do not know how to report street maintenance issues to the City of Phoenix.



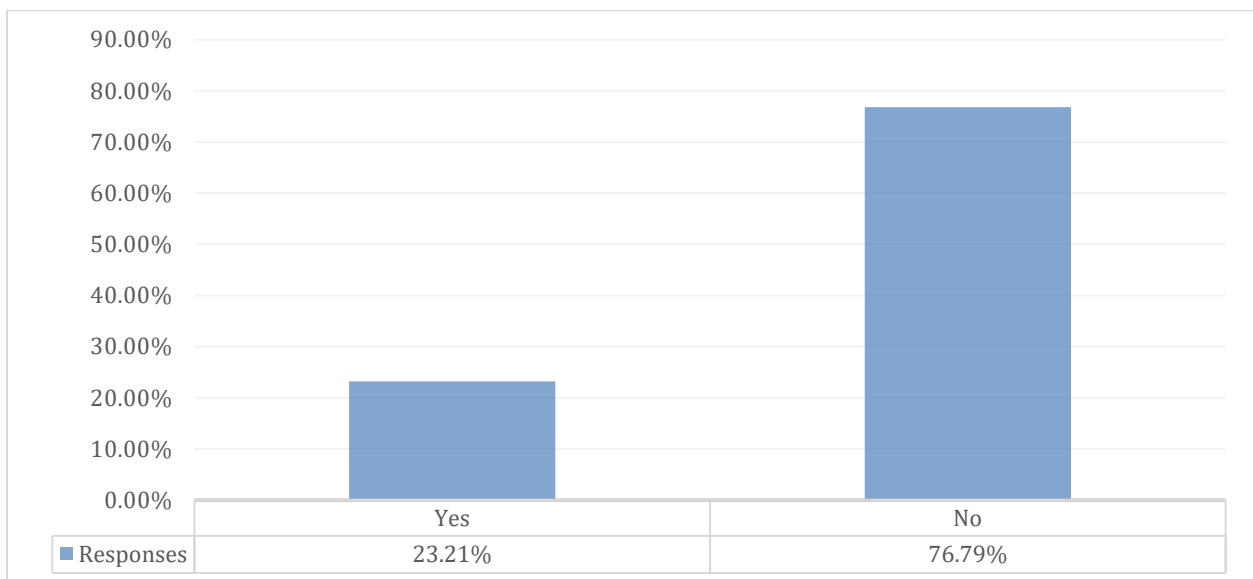
Q33: When there is a bicycle or pedestrian street project in my neighborhood, are you able to find information about the project and provide input? (N=524)

There were 524 responses to this question making the completion rate 78.80%. Most participants reported they do not know how to find more information about the project and provide input.



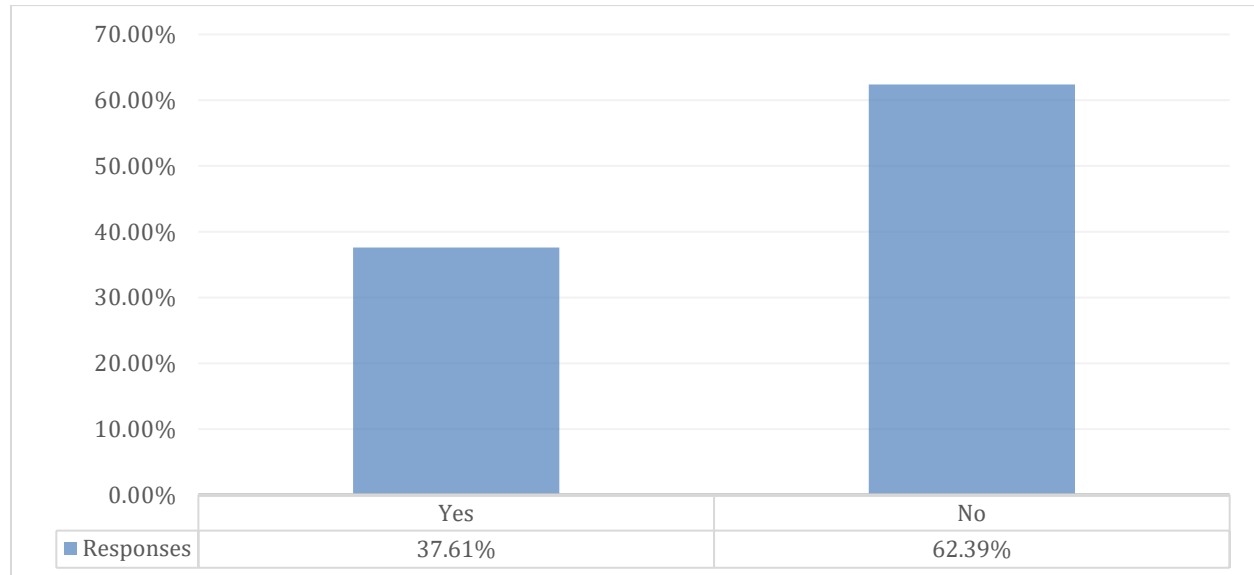
Q34: Have you ever reported a street issue to the City of Phoenix? (N=530)

There were 530 responses to this question making the completion rate 79.70%. Most participants reported they have never reported a street issue to the City of Phoenix.



Q35: If yes, were you satisfied with the outcome? (N=226)

There were 226 responses to this question making the completion rate 33.98%. Most participants reported they were not satisfied when they reported an issue to the City of Phoenix.



Q36: Is there any additional information you'd like to share with us about our outreach and engagement process or your experience reporting/contacting the city about a street-related issue? (N=68)

There were 68 responses to this question making the completion rate 10.23%. Design, Development & Infrastructure, City Website, Homelessness, Issues & Request, and Safety. Below are the comments that align with each theme.

Design, Development & Infrastructure

- Adopt the Key Corridors Master Plan.
- I hope The streets department begins to gradually think of our streets as public space for all, not simply sewers for cars during rush hour
- Very dissapointed in the final outcome of the Oak Street improvements. The improvement was minimal and cars seem to drive faster now that its better paved. None of the community suggestions were implemented to slow down cars. The lighting within the neighborhood seems most appropriate for a freeway. Should have been more pedestrian poles similar to Tempe. A lot of money was spent for minimal impact. Cars are the priority with the design and it shows.
- Bike lanes and paths should be planned comprehensively as a long route not piecemeal as the City does it now. The City currently only plans out and executes bike lanes at 1/4 or

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1/2 mile at a time, which is not how people travel or use bike lanes. It is fine for Vin Diesel from Fast and Furious to live his life 1/4 mile at a time, but we need the City to be planning and executing bike lanes at several miles at a time to facilitate people having a safe option to commute to work via bike.

- Pavers, gravel and permeable pavement are better for bikes and feet than asphalt and cement
- You could put QR codes on project signs to learn more about them.
- Every business needs to also have bike racking. Why is it a requirement to have specifics for vehicle parking, yet there's nothing for cycles. In South Phoenix, there's practically no where in official in public to lock up bicycles. Sometimes have to utilize objects not meant to be used for bike parking and therefore comes with increased risks for theft and vandalism.
- If engaging with a community it is critical to research and consult any efforts they have already invested time in. Referencing their past efforts as a starting point is an effective way to continue dialogue and install a design that is context sensitive to the neighborhood. In other words, something that is designed and accepted by the community will be used by the community.
- Investing in media may improve general knowledge about transportation resources. Billboards, signs, or even digital geofence ads are great tools for increasing awareness and reach.
- Downtown is becoming more attractive. I've even looked at houses downtown to be closer to transit. However, I'll continue to spend my time/money in the East Valley & Tucson until Phoenix steps it up and shows that they truly value any activity besides driving. Committees/surveys are not action. I type this as a driver with two cars.
- I've heard of the City doing green efforts & tree/shade programs, but one issue I've heard brought up is that maintenance cuts almost all of the branches off that it defeats the purpose. I understand the costs of maintaining & it may be suitable to have more aggressive measures, but ensuring that it doesn't take away the value is important. In terms of outreach, glad this is being done! I only wish (as with many plan updates) that it was more accessible such as on social media pages or in neighborhood newsletters so it's not only focused on people who are focusing on transportation topics, but everyday citizens.
- Dobbins at 70th Ave right before GRIR is really awful to travel on.
- I sometimes commute by bike from Ahwatukee to downtown and there is currently no good way to get there. But you could fix that.
- Adding a crosswalk to the canal crossing at 44th street and Campbell is a great example of a project that supporting cyclists and pedestrians but doesn't eat into lanes for cars. Projects like this seem like a win win for the community!!

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City Website

- I think, as a city/gov website, it's naturally hard to find the info on certain topics because there is so much info to sort through in general. Maybe if there were a simpler landing page that simply explains / breaks down the category or project and how u can provide input or report street issues would be very helpful in simplifying the user experience.
- I can generally find city info pretty quickly on the web page. It's very helpful.
- I find everything online, so do not know what opportunities are available for those without internet access to get information about city issues.
- The City website is very user friendly.
- Now that I have been on this website and know my way around, I can provide more input. However, this is a recent development.

Homelessness

- Homeless are encamping on the sidewalk/bikeroute just north of mcdowell and SR51. And I have reported it. I have to take a different route now.
- Again, clear out the homeless from underpasses on existing bike paths. not very safe for riders, walkers, joggers.
- I wish we could get the homeless people some help so they stop having sex and doing drugs and Thunderbird Park against the wall my house is up against.

Issues & Requests

- Specifically I have raised several issues with bicycle detection not working or being absent, which is especially frustrating on streets having a bike lane.
- I reported the lack of a crossing on 19th Ave. Years later, a needed hawk light was installed in place of bridge. I was happy with the outcome and use the hawk light often to cross. In two other recent cases, I was told the striped section of the road wasn't in the cue for repair and in the other recent report, I was told there was no money to complete the bike lane to the intersection (roadway too narrow).
- Desert Ridge, Tatum Blvd and 101 interchange needs pavement rehab BADLY. Pavement on 56th Street and Mayo is in too poor of condition for cycling. No bike lanes on Pinnacle Peak between Cave Creek Rd and Scottsdale Rd and you just repaved and didn't even add a bike lane. Why spend money on pavement and not add a bike lane? When will Pinnacle Peak Road be widen between Cave Creek and Scottsdale Rd? How many fatalities and crashes occur at Pinnacle Peak Rd/Scottsdale Rd intersection? Team with Scottsdale to make this intersection safer.
- There are oleander bushes blocking the view for see oncoming cars, pedestrians or bikers at 7th Ave and Clarendon. Between the bush and the large metal street light it's a blind spot every day...every car...

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- Traffic signal needed at 43 rd avenue and Dobbins ASAP!!
- I have reported street issues in the past, at least 3, and I have never heard of the resolution. Other cities I have lived in open a ticket and keep the reporter up to date with resolutions.
- I reported it to our City Councilman, Sal Diciccio and never had a reply back
- I have reported 2 street issues to the COP. I was satisfied with one. Unsatisfied with the other.
- The police won't even look into my stolen bike
- Add more shade to Tempe!!
- My mobile phone number is not answered when I call the non emergency number.
- Still need sidewalk on Rubicon near Hopi Elementary in East Phoenix.
- Would love some more civic engagement opportunities!
- I ride around a lot of Phoenix area streets and would love to have a convenient option to report issues with them.
- The above question, when i reported a street issue to the city, it was months later i got an email but they did not have the information i sent. Quit pretending, the city is not interested in knowing what people think, this is just all fakery and you are pushing bikes that have not earned the right to ride with motorists. But you must please the bike lobby which may pay your substantial salaries.
- Never saw my complaint resolved or heard back from streets
- I don't really know who I should contact. There's been times I've seen dangerous debris on the road, but I had no idea if I should call someone or if someone is already coming to fix it.
- I want to be able to report trash, weeds, downed trees, over grown grasses along roads and sidewalks.
- I reported a low visibility corner and while the reporting process was simple, the neighbor still has hedges which prevent you from seeing cross traffic
- Had 15 years of knowing a streets dept staff members who we could report problems to - he has transferred and no one has been hired in his place/. We now have problem reporting streets / public works problems
- I've heard discussions of the ability to report/contact the city about street-related issue, but didn't know it was possible.
- I have been repeatedly told by working staff at the city Street Transportation Department that it is official city policy to refuse to make bicycle-specific improvements to any street that has not been officially-designated as a "bicycle facility". This is in stark contrast to the responsiveness that the department showed in the past under a City Council not dominated by one political party.

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Safety – Cars, Speeding & Traffic

- We have a traffic calming circle in the neighborhood that should not have been put in. There were no safety or speed concerns. There's a house nearby (15th Ave/Bethany Home Rd) that has cars drive through their block wall regularly. It's almost like the traffic calming circle has made things more dangerous. Doesn't help make bike riding feel safe either.
- There needs to be accountability for unsafe driving, including red light runners and speeding. Changing speed limits will do nothing if no one is ever ticketed for speeding.
- speed limits should be addressed as part of this effort.
- More traffic enforcement
- Speed is a problem in our neighborhood. Too few speed bumps. Too many entitled drivers passing thru
- Surface street speed limits (45 mph) are too high knowing that motorists rarely obey speed limits. Speed limits should be reduced to 35 mph.
- Canal crossing at 40th st and camelback is a death trap for pedestrians and cyclists

Safety – Law Enforcement

- Defund the police and place more money into alternatives that provide more safety to people such as increased green spaces, creating more sustainable ways of living for people. Pour more money into communities of color that are the way they are because of white supremacy and a city that continually neglects their needs.

Safety – Road Conditions

- Broken glass at a busy sidewalk intersection for weeks.

Additional Comments

- I'd like to be more informed about potential projects; I want to be able to advocate for safer streets for pedestrians and cyclists. :)
- Thank you for this question. Hoping we will have a way of knowing the results of our effort of taking the survey. Even when reaching out to the City regarding neighborhood traffic issues the answer is always no. And we have to be the ones to ask what the decision is. Some current staff are not doing a good job at building relationships.
- Takes too long
- I was surprised by the attention given to the issue. Well done!
- Thank you and please keep connecting routes.
- The recent street maintenance program has been doing a great job!

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- i dont live in phoenix, but i hope that innovations taken in other parts of the country will motivate my local government to take action
- I'm really appreciate to contribute my thoughts on these important issues to the city, and I would love more opportunities to do so. I understand that the wheels of change turn slowly and bureaucracy can be labyrinthine, but I have hope that Phoenix can move things in the right direction and create a more sustainable, healthy and equitable urban environment.
- Road closures for events are not communicated well, I live on 7th ave and often get stuck and take much longer to get home after being rerouted. Construction closures are well communicated though.
- Parking in mixed residential/business zoned areas is bad
- It's sporadic and often depends on just how engaged the councilmember is.
- Be less concerned with biking and more with driving
- N/A
- Kind of satisfied with the outcome. Closer to yes than to no.
- Mas transparencia con los residentes con respecto a como los proyectos son elegidos y construidos. Mas presupuesto y consideracion para la movilidad comoda y segura de

Translation: More transparency with residents regarding how projects are chosen and built. More budget and consideration for comfortable mobility and safe mobility.

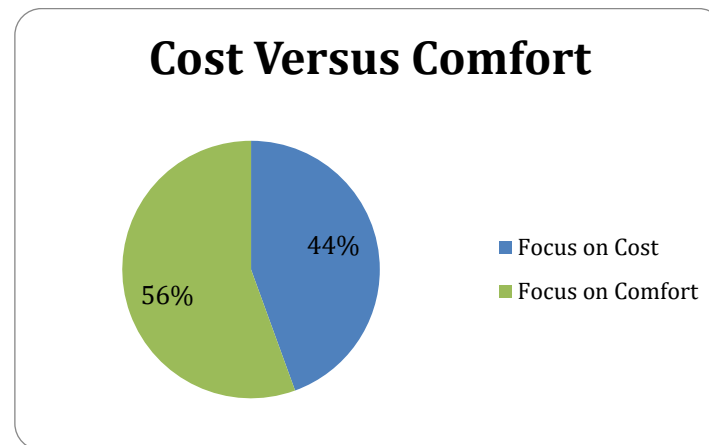
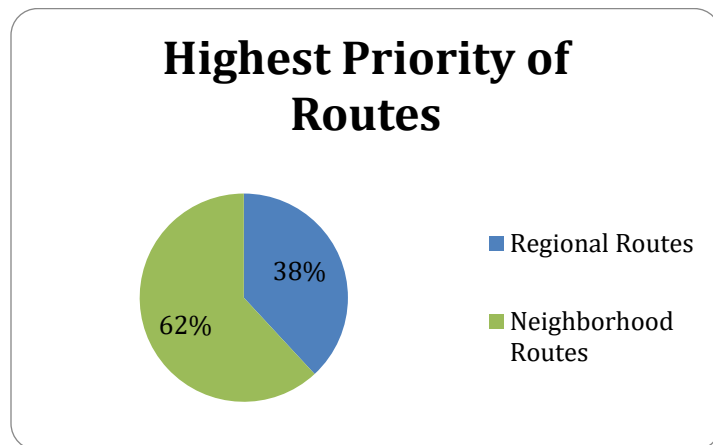
Additional Community Outreach

Laveen BBQ Results

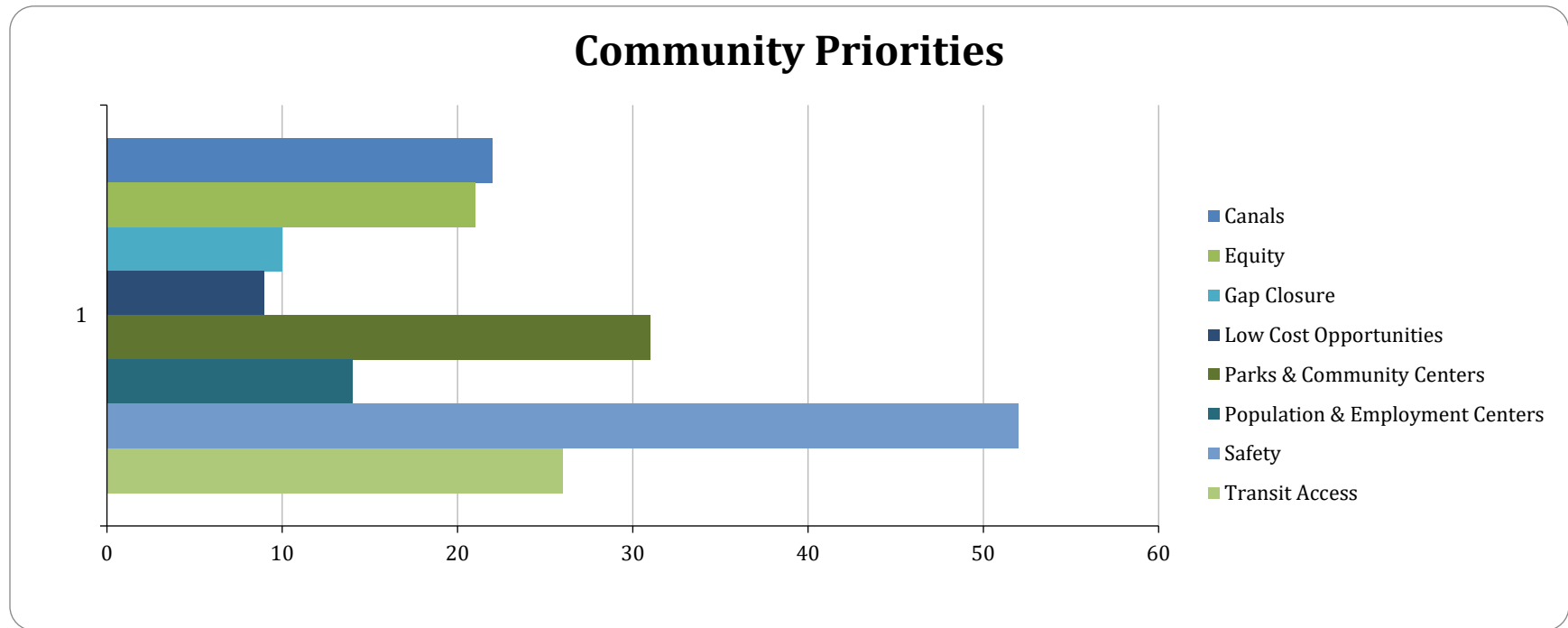
On Saturday February 26, 2022, staff from the City of Phoenix attended the 70th Annual Laveen BBQ to conduct poster polls. Community members were asked to provide feedback on four separate posters using sticky dots. On the first poster, community members were asked if regional routes or neighborhood routes should be priority and if the focus should be on cost versus comfort. **63 people** answered those two questions. On the second poster, community members were asked to rank their top 3 community priorities. **185 responses** were received for this question.

On the third poster, community members were asked to write down where they enjoyed walking and biking in Phoenix. **29 comments** were received for this question. Lastly, on the fourth poster, community members were asked to write down what stops them from walking or biking more in Phoenix. **34 comments** were received for this question.

Poster 1 Data



Poster 2 Data



Posters 3 & 4 Data

Where do you enjoy walking or biking in Phoenix?	What stops you from walking or biking more in Phoenix?
Hiking trails are great	Sidewalks falling apart
South Mtn, hiking trails, conveyance channel in Laveen	The littering; people leave trash
Tempe Lake	Safety; I don't feel safe anymore in Laveen walking or biking
Canals	The high rate of collision between vehicles and cyclists; Safety
Walking and biking along the canals and South Mountain	Safety
South Mountain Park	Unsafe roads or drivers
South/Carver Mtn	51st & Estrella; lots of crashes

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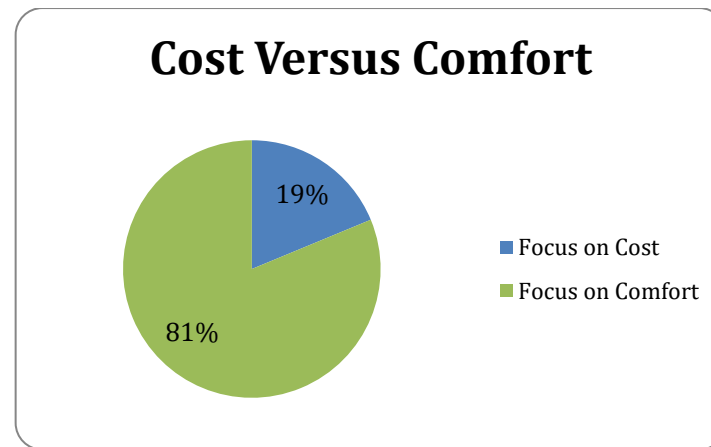
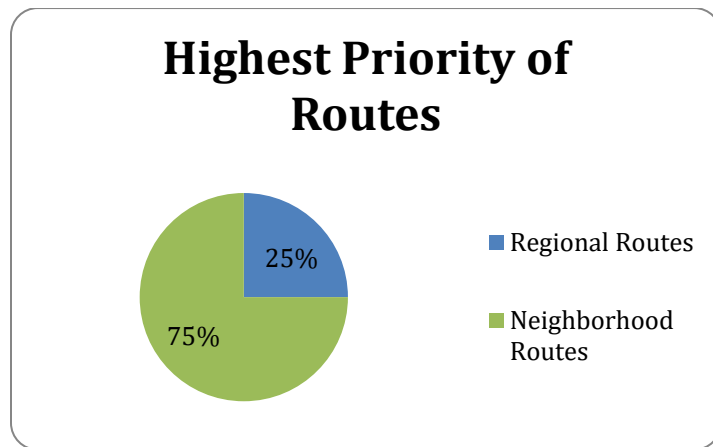
More lights	Nothing
Canals	Safety; traffic makes walk dangerous
Community canal trails	Ease of access
Bodies of water; pretty sitting areas; flowers; statues	More lighting on paths
All of the city parks	No time
Prado Park	Cars
Canal paths; parks	Getting to trails involves driving and parking
Parks and neighborhood trails	Scary high speed dangerous traffic! Speed limit too high!
Laveen Channel Trail	There are not enough sidewalks/safe biking paths and everything is very spread out
Canals - Rogers Ranch	I'm fat
Road biking on major streets	Traffic; unsafe areas to walk
Need sidewalks on Estrella Drive	Getto areas; safty; homeless ppl
Parks	We need more sidewalks!
Cesar Chavez Hiking trail	Risk of accidents
Shade	Cars/safety
Along trails	Distance between nice looking areas
Estrella & 51st Ave to 43rd Ave	Lack of shade
I like biking through the canals	Lack of interconnectivity b/n sidewalks and trails
Cesar Chavez Park	Dog poop
Stores	Lack of restaurants
Canals and Parks	Heat
South Phoenix	Road safety
	Having more walking paths off Dobbins
	Racist comments
	Putting shade along canals and biking paths
	Crime
	Safty

First Friday Results

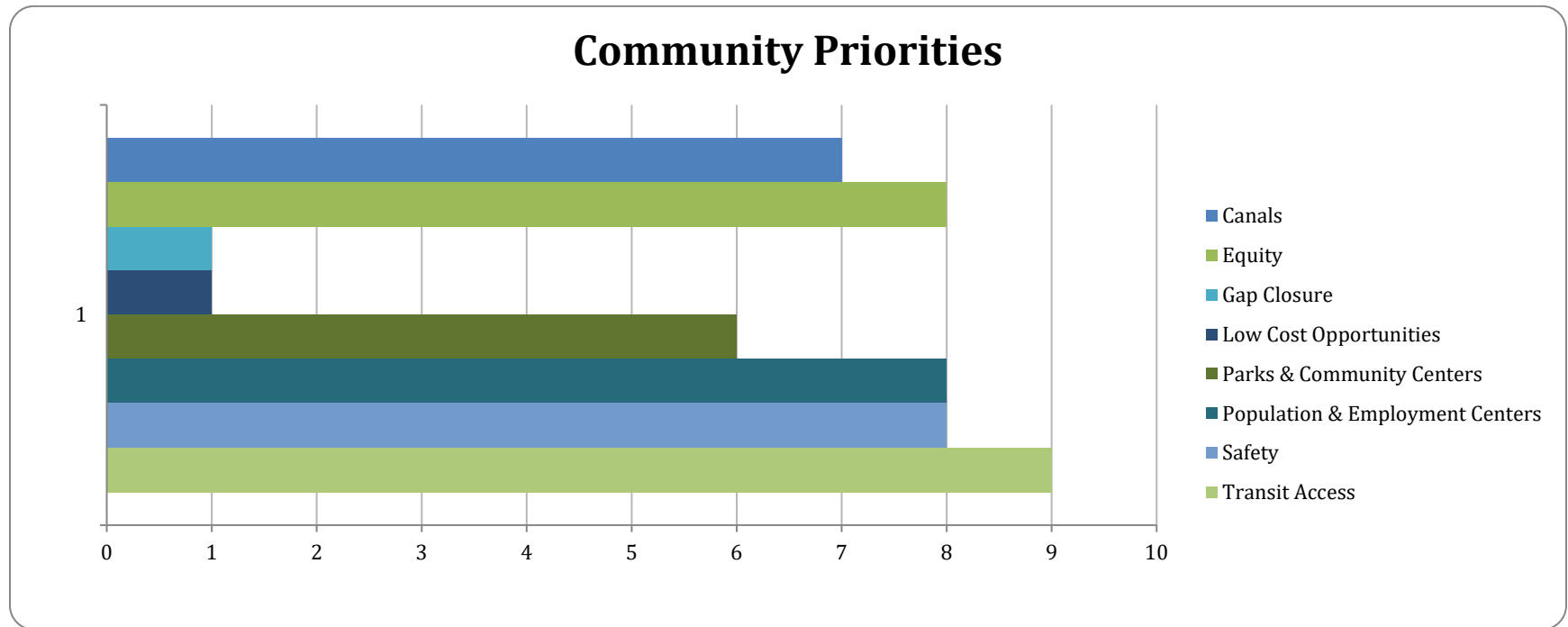
On Friday March 4th, 2022 staff from the City of Phoenix attended the First Friday to conduct poster polls. Community members were asked to provide feedback on 3 separate posters using sticky dots. On the first poster, community members were asked if regional routes or neighborhood routes should be priority and if the focus should be on cost versus comfort. **16 people** answered those two questions. On the second poster, community members were asked to rank their top 3 community priorities. **48 responses** were received for this question.

On the third poster, community members were asked to write down where they enjoyed walking and biking in Phoenix and what stops them from walking or biking more in Phoenix. **8 comments** were received for the first question and **9 comments** were received for the second question.

Poster 1 Data



[Poster 2 Data](#)



[Poster 3 Data](#)

Where do you enjoy walking or biking in Phoenix?	What stops you from walking or biking more in Phoenix?
Park paths	Proximity to parks
Park paths	Bike lanes/safety
Gym	Safety
Neighborhood	Safety
Park	Homeless
Parks	Wild animals
Park	dangers

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Canal, preserve, main streets	loose dogs
	safety

Targeted Outreach

Bike Advocates

To gather information about how the City of Phoenix can become more bike friendly, conversations were held with representatives from advocacy organizations that are working to make The City a better place to bike, walk and commute. Phoenix Spokes People and Urban Phoenix Project were the two organizations engaged.

Questions

The following questions were asked of the representatives:

1. How does your organization advance active transportation?
2. What is going well and where have you seen change improvement?
3. What are our biggest challenges moving forward?
4. What are some opportunities moving forward?
5. Additional comments

Themes

The following themes were identified from the conversations:

- Public Education – Representatives from the advocacy organizations mentioned the need for increased awareness and education about city projects. In addition, they suggested better messaging when relating neighborhood projects to overall city goals.
- Safety – Representatives from the advocacy organizations expressed concerns about traffic, speeding, and the lack of infrastructure to make walking and biking safe.
- City of Phoenix – Representatives from the advocacy organizations recommended the city work to improve the culture with the streets department. In addition, they expressed concerns about internal politics, turnover, and a lack of strong advocates within the department.

Marginalized Zip Codes

To expand outreach and better understand the needs of historically marginalized areas, the project team reached out directly to community leaders in the following zip codes: 85004, 85006, 85007, 85009, 85034 and 85040. The zip codes were selected based on the poverty percentage.

Questions

The following questions were asked of the community leaders:

1. What is the biggest challenge/issue when you walk in your community?
2. If there were more frequent crossings placed in streets (crossing before major street crossings), would you consider walking out of your way to use them?
3. What are some of the attitudes or feelings in your community around biking? What are some of the fears or concerns? Do people want to bike?
 - a. What is a biking economy and what does it mean? What is the walking/biking experience for homeless individuals? (Homeless shelter).
4. Do you walk or bike in your neighborhood? Where are you walking/biking to?
 - a. If yes how often, if no why not?
5. Do you feel safe walking or riding bikes in your neighborhood?
 - a. If yes, why, if no why not?
6. If you bike, what is your experience and where are you biking to?
7. Is there anything that would make you consider walking or biking more?
8. If you could prioritize sidewalks over bike facilities, which would you choose?
9. When you are walking or biking and you witness an issue, do you address it? With whom? If it is with the city, how has your experience been trying to resolve it? If you need something in your neighborhood connected to streets or ATP do you know who to contact or the process to get support?
10. If there was one thing to make walking and biking better, what would it be?
11. Is there anything you would celebrate connected to active transportation?

Themes

The following themes were identified from the interviews:

- Safety – Many community leaders expressed concerns about safety. They mentioned the lack of sidewalks in some residential communities (particularly West & South Phoenix), inconsistent bike paths, speeding, homeless encampments, violent crimes, drug use in neighborhoods, and stray dogs.

- City of Phoenix's Role – Many community leaders expressed the need for more accountability and transparency from the city. In addition, they are not confident the city will show up for their communities. However, they seemed to be supportive of additional street infrastructure if it supported their current safety needs.

Appendix A: Survey Questions

English Version

- Which of the following best describes you?
 - a. I live in the City of Phoenix
 - b. I work in the City of Phoenix
 - c. I live and work in the City of Phoenix
 - d. I neither live nor work in the City of Phoenix
- What is your zip code?
- Which of the following do you own or have access to regularly? Please check all that apply:
 - a. Car or truck
 - b. Bicycle
 - c. E-scooter
 - d. Assistive device, such as a wheelchair or motorized scooter
 - e. Other (open text)

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- Please check how often you use each of these different ways of traveling.

	Daily	Weekly	Monthly	Seldom	Never
Drive or ride in a car					
Take public transit					
Use rideshare or a taxi					
Walk					
Bike					
Use an e-scooter					
Use an assistive device, like a wheelchair or mobility scooter					

- Which of the following types of transportation would you like to use more in the future?
Please check all that apply.
 - Car
 - Public transit
 - Rideshare or a taxi
 - Walking
 - Bicycle
 - E-scooter
 - An assistive device, like a wheelchair or mobility scooter
 - None of the above

- Which of the following types of transportation would you like to use less in the future?
Please check all that apply.
 - Car
 - Public transit
 - Rideshare or a taxi
 - Walking
 - Bicycle
 - E-scooter
 - An assistive device, like a wheelchair or mobility scooter
 - None of the above

- In the last two months, have you walked or biked for any of the following reasons?
 - Walk or bike to complete a trip to work, school, shopping, or socializing

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- b. Walk or bike for exercise or fun
 - c. Walk or bike to access transit (bus or light rail)
 - d. I'm not interested in walking or biking
- If you were to walk and bike more often, which of the following would describe the purpose of doing so? Please check all that apply.
 - a. Walk or bike to complete a trip to work, school, shopping, or socializing
 - b. Walk or bike for exercise or fun
 - c. Walk or bike to access transit (bus or light rail)
 - d. I'm not interested in walking or biking
- How would you describe yourself from the options below, based on how often or comfortable you are with biking?
 - a. Not interested in biking – I do not want to bike
 - b. Interested in biking – I'm interested in biking more if there are more comfortable and safe bike facilities
 - c. Casual bike rider – I'm comfortable using bike lanes and bike paths
 - d. Assertive bike rider – I'm very comfortable biking on streets, even if they don't have bike lanes
- If you would like to provide more details, please use the space below (open text)
- How would you rate the current bicycling conditions in Phoenix?
 - a. Very good
 - b. Good
 - c. Somewhat good
 - d. Neutral
 - e. Somewhat poor
 - f. Poor
 - g. Very Poor
- How would you rate the current walking conditions in Phoenix?
 - a. Very good
 - b. Good
 - c. Somewhat good
 - d. Neutral
 - e. Somewhat poor
 - f. Poor
 - g. Very Poor

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- How would you rate the current conditions for assistive devices, such as wheelchairs, in Phoenix?
 - a. Very good
 - b. Good
 - c. Somewhat good
 - d. Neutral
 - e. Somewhat poor
 - f. Poor
 - g. Very Poor

- Thinking about traffic safety, how safe do you currently feel walking in Phoenix?
 - a. Very Safe
 - b. Safe
 - c. Somewhat safe
 - d. Neutral
 - e. Somewhat unsafe
 - f. Unsafe
 - g. Very Unsafe

- Thinking about traffic safety, how safe do you currently feel biking in Phoenix?
 - a. Very Safe
 - b. Safe
 - c. Somewhat safe
 - d. Neutral
 - e. Somewhat unsafe
 - f. Unsafe
 - g. Very Unsafe

- Thinking about traffic safety, how safe do you feel using an assistive device, such as a wheelchair, in Phoenix?
 - a. Very Safe
 - b. Safe
 - c. Somewhat safe
 - d. Neutral
 - e. Somewhat unsafe
 - f. Unsafe
 - g. Very Unsafe

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- For the following question, please indicate how strongly you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
My neighborhood would be a better place to live if it were more enjoyable for people to <u>walk</u> .							
My neighborhood would be a better place to live if it were more enjoyable for people to <u>bike</u> .							
I am comfortable with my friends and family using the streets in Phoenix to walk or bike.							
Many of the places I need to get to regularly are within biking distance of my home							
I would use public transit more often if it was convenient and safe to walk and bike to							
I like walking.							
I like biking.							

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- Which of the following stop you from walking more? Please select all that apply
 - a. People driving in unsafe ways
 - b. People driving fast
 - c. Narrow sidewalks
 - d. Bad sidewalk conditions
 - e. Gaps in sidewalks
 - f. No sidewalks
 - g. Crossings at major streets do not feel safe
 - h. Crossing signals take too long
 - i. Crosswalks spaced too far apart
 - j. Not enough shade
 - k. Too hot
 - l. Distances between places
 - m. Other (open text)

- Thinking of the list above, what is the single biggest barrier for when it comes to walking?
(Repeat list from above, single selection only to prioritize)

- Which of the following stop you from biking more? Please select all that apply
 - a. Bike lanes too close to traffic lanes
 - b. Bike lanes do not connect
 - c. Bike lanes disappear near intersections
 - d. Hard to find a clear biking route
 - e. Lack of bike parking
 - f. Crosswalks spaced too far apart
 - g. Crossing signals take too long
 - h. Feeling unsafe
 - i. People driving in unsafe ways
 - j. People driving fast
 - k. Not enough shade
 - l. Too hot
 - m. Distances between places
 - n. Other (open text)

- Thinking of the list above, what is the single biggest barrier for you when it comes to bicycling? *(repeat list, single selection only to prioritize)*

- Below are descriptions and pictures of different types of bicycle infrastructure. For each photo, please indicate whether you'd like to see more of that type of street in Phoenix and

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whether you'd support the design even if it added a few minutes to driving times during rush hour. *(for setup, list each of the two questions on a 1-7 scale from strongly agree to strongly disagree. Question 1: I would like to see more streets that look like this in Phoenix. Question 2: I would be interested in this street design even if it added a few minutes to driving times during rush hour).*

- a. Major street with 5 or 6 lanes / no bike lane
 - b. Major street with bike lane
 - c. Major street with buffered bike lane
 - d. Major street with protected bike lane (bollards / guideposts)
 - e. Major street with protected bike lane (cycletrack w/ curb)
 - f. Major street with wide sidewalk (10')
 - g. Secondary street with bike lane
 - h. Secondary street with buffered bike lane
 - i. Local street with sharrows and traffic calming (bike blvd)
 - j. Local street with no bike infrastructure
- Below are descriptions and pictures of different types of sidewalk infrastructure. For each photo, please indicate whether you'd like to see more of that type of street in Phoenix and whether you'd support the design even if it added a few minutes to driving times during rush hour. *(for setup, list each of the two questions on a 1-7 scale from strongly agree to strongly disagree. Question 1: I would like to see more streets that look like this in Phoenix. Question 2: I would be interested in this street design even if it added a few minutes to driving times during rush hour).*
 - a. Major Street and sidewalk with no buffer (flush with curb)
 - b. Major Street with buffer and shade
 - c. Secondary Street and sidewalk with no buffer
 - d. Secondary Street with buffer and shade
 - e. Mid-block crossing with HAWK signal on 6 or 7 lane arterial
 - f. Mid-block crossing with HAWK signal on a collector street (3 lanes)
 - g. Mid-block crossing without HAWK signal on a collector street
 - h. Mid-block crossing without HAWK with pedestrian refuge island
 - i. Major intersection with pedestrian enhancements
 - For the following question, please indicate how strongly you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
I would not support any							

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project that would lower speeds for driving or make driving trips longer.							
I would support lowering speed limits in exchange for making streets more comfortable for walking and biking							

- Thinking about transportation overall in the City of Phoenix, please rank your priorities:
 - a. Reducing vehicle congestion during rush hour
 - b. Preventing collisions that could injure people
 - c. Minimizing the cost of building and maintaining streets
 - d. Giving everyone a comfortable option for using streets, whether they are driving, walking, biking, or taking transit
 - e. Designing streets to match the atmosphere of the neighborhood
 - f. Building a green and sustainable transportation system

- Thinking of streets in Phoenix, what are your top five priorities? Please rank them with 1 being highest. *(setup to allow for items to be dragged to prioritize)*
 - a. Expand street network for cars
 - b. Improve traffic signals for cars
 - c. Maintain existing sidewalks
 - d. Expand the sidewalk network
 - e. Fill in sidewalk gaps
 - f. Improve pedestrian crossings
 - g. Add shade along sidewalks
 - h. Maintain existing bikeways
 - i. Expand the bikeway network
 - j. Improve bicycle crossings

- When thinking about how to add to Phoenix’s bicycle network, the City has to identify priorities and make decisions on where and how to invest. When we look at adding connections to the bicycle network, we have to prioritize where to connect to first. Please rank the following based on what you think is most important:

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- a. Canals – Adding and upgrading paths along existing canals
 - b. Equity – Invest in historically marginalized areas
 - c. Gap Closure – Fill in missing links in network
 - d. Low cost opportunities – Adding bike lanes after pavement projects
 - e. Parks & Community Centers – Build links to recreation
 - f. Population & Employment Centers – Connect within to areas where there are a lot of people working and living
 - g. Safety – Address areas with a history of serious collisions and/or fatalities
 - h. Transit Access – Build links with bus and light rail stations
- When thinking about how to add to Phoenix’s bicycle network, the City has to identify priorities and make decisions on where and how to invest. Regional routes usually use through streets and canals to guide people across the city. Neighborhood routes are focused on guiding people to destinations in their neighborhood. Which do you think is a higher priority?
 - a. Neighborhood routes – Focus on local routes to neighborhood destinations
 - b. Regional routes – Focus on citywide routes for people to make longer trips
 - Usually the most comfortable bicycle facilities also cost more money to build and maintain. Thinking about new bicycle facilities, which do you think is more important?
 - c. Cost – Focus on adding stripes and signs to make sure the City can add as many miles of bike lanes as possible
 - d. Comfort – Focus on building projects that make bicycling more comfortable, even if it means fewer projects
 - What other comments would you like to share with us? (open-ended)

The following questions are meant to help the City of Phoenix understand if it is sharing information. Please answer honestly.

- Do you know how to report street maintenance issues to the City of Phoenix?
 - a. Yes
 - b. No
- When there is a bicycle or pedestrian street project in my neighborhood, are you able to find information about the project and provide input?
 - a. Yes
 - b. No
- Have you ever reported a street issue to the City of Phoenix?
 - a. Yes

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- b. No
- If yes, were you satisfied with the outcome?
 - a. Yes
 - b. No

Please tell us a little more about you...

- Age:
 - a. 18 and under
 - b. 19-29
 - c. 30-39
 - d. 40-49
 - e. 50-59
 - f. 60-69
 - g. 70+
- Race & Ethnicity
 - a. Asian / Pacific Islander
 - b. Black
 - c. Native American
 - d. White
 - e. Hispanic / Latino of any race
- Gender
 - a. _____
- Household Income
 - a. Under \$35k
 - b. \$36-65k
 - c. \$66-100k
 - d. \$100k - \$200k
 - e. \$200k+

Spanish Version

- ¿Cuál de las siguientes te describe mejor?
 - a. Yo vivo en la ciudad de Phoenix
 - b. Trabajo en la ciudad de Phoenix
 - c. Vivo y trabajo en la ciudad de Phoenix
 - d. No vivo ni trabajo en la Ciudad de Phoenix

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- ¿Cuál es su código postal?

- ¿Cuál de los siguientes posee o tiene acceso regularmente? Por favor marque todos los que apliquen:
 - a. Coche o camión
 - b. Bicicleta
 - c. Scooter eléctrico
 - d. Dispositivo de asistencia, como una silla de ruedas o un scooter motorizado
 - e. Otro (texto abierto)

- Marque la frecuencia con la que usa cada una de estas diferentes formas de viajar.

	A diario	Semanal	Mensual	Raramente	Nunca
Conducir o viajar en un automóvil					
Toma transporte público					
Usa viajes compartidos o un taxi					
Camina					
Usa bicicleta					
Usa un scooter eléctrico					
Usa un dispositivo de asistencia, como una silla de ruedas o un scooter de movilidad					

- ¿Cuál de los siguientes tipos de transporte le gustaría usar más en el futuro? Por favor marque todos los que apliquen.
 - a. Coche
 - b. Tránsito público
 - c. Viaje compartido o un taxi

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- d. Caminando
 - e. Bicicleta
 - f. Scooter eléctrico
 - g. Un dispositivo de asistencia, como una silla de ruedas o un scooter de movilidad.
 - h. Ninguna de las anteriores

- ¿Cuál de los siguientes tipos de transporte le gustaría usar menos en el futuro? Por favor marque todos los que apliquen.
 - a. Coche
 - b. Tránsito público
 - c. Viaje compartido o un taxi
 - d. Caminando
 - e. Bicicleta
 - f. Scooter eléctrico
 - g. Un dispositivo de asistencia, como una silla de ruedas o un scooter de movilidad.
 - h. Ninguna de las anteriores

- ¿Cuál de los siguientes tipos de transporte le gustaría usar menos en el futuro? Por favor marque todos los que apliquen
 - a. Coche
 - b. Tránsito público
 - c. Viaje compartido o un taxi
 - d. Caminando
 - e. Bicicleta
 - f. Scooter eléctrico
 - g. Un dispositivo de asistencia, como una silla de ruedas o un scooter de movilidad.
 - h. Ninguna de las anteriores

- En los últimos dos meses, ¿ha caminado o andando en bicicleta por alguna de las siguientes razones?
 - a. Camine o ande en bicicleta para completar un viaje al trabajo, la escuela, ir de compras o socializar
 - b. Camine o ande en bicicleta para hacer ejercicio o divertirme
 - c. Camine o ande en bicicleta para acceder al transporte público (autobús o tren ligero)
 - d. No estoy interesado en caminar o andar en bicicleta.

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- Si tuviera que caminar y andar en bicicleta con más frecuencia, ¿cuál de las siguientes describiría el propósito de hacerlo? Por favor marque todos los que apliquen.
 - a. Camine o ande en bicicleta para completar un viaje al trabajo, la escuela, ir de compras o socializar
 - b. Camine o ande en bicicleta para hacer ejercicio o divertirme
 - c. Camine o ande en bicicleta para acceder al transporte público (autobús o tren ligero)
 - d. No estoy interesado en caminar o andar en bicicleta.

- ¿Cómo se describiría a sí mismo a partir de las siguientes opciones, según la frecuencia o la comodidad con la que se siente andando en bicicleta?
 - a. No me interesa andar en bicicleta - No quiero andar en bicicleta
 - b. Interesado en andar en bicicleta: estoy interesado en andar en bicicleta más si hay instalaciones para bicicletas más cómodas y seguras
 - c. Ciclista ocasional: me siento cómodo usando carriles para bicicletas y senderos para bicicletas
 - d. Ciclista asertivo: me siento muy cómodo andando en bicicleta en las calles, incluso si no tienen carriles para bicicletas

- Si desea proporcionar más detalles, utilice el espacio a continuación (texto abierto)

- ¿Cómo calificaría las condiciones actuales para andar en bicicleta en Phoenix?
 - a. Muy bien
 - b. Bien
 - c. algo bueno
 - d. Neutral
 - e. Algo pobre
 - f. Pobre
 - g. Muy pobre

- ¿Cómo calificaría las condiciones actuales para caminar en Phoenix?
 - a. Muy bien
 - b. Bien
 - c. algo bueno
 - d. Neutral
 - e. Algo pobre
 - f. Pobre

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- g. Muy pobre
- ¿Cómo calificaría las condiciones actuales de los dispositivos de asistencia, como las sillas de ruedas, en Phoenix?
 - a. Muy bien
 - b. Bien
 - c. algo bueno
 - d. Neutral
 - e. Algo pobre
 - f. Pobre
 - g. Muy pobre
- Pensando en la seguridad del tráfico, ¿qué tan seguro se siente actualmente caminando en Phoenix?
 - a. Muy seguro
 - b. A salvo
 - c. Algo seguro
 - d. Neutral
 - e. Algo inseguro
 - f. Inseguro
 - g. muy inseguro
- Pensando en la seguridad del tráfico, ¿qué tan seguro se siente actualmente al andar en bicicleta en Phoenix?
 - a. Muy seguro
 - b. A salvo
 - c. Algo seguro
 - d. Neutral
 - e. Algo inseguro
 - f. Inseguro
 - g. muy inseguro
- Pensando en la seguridad vial, ¿qué tan seguro se siente usando un dispositivo de asistencia, como una silla de ruedas, en Phoenix?
 - a. Muy seguro
 - b. A salvo
 - c. Algo seguro
 - d. Neutral
 - e. Algo inseguro

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- f. Inseguro
 - g. muy inseguro
- Para la siguiente pregunta, indique qué tan de acuerdo o en desacuerdo está con cada una de las siguientes afirmaciones.

	Muy en desacuerdo	Discrepar	Algo en desacuerdo	Neutra l	Parcialment e de acuerdo	Estar de acuer do	Totalment e de acuerdo
Mi vecindario sería un mejor lugar para vivir si fuera más agradable para la gente <u>caminar</u> .							
Mi vecindario sería un mejor lugar para vivir si fuera más agradable para la gente andar en <u>bicicleta</u> .							

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<p>Me siento cómodo con mis amigos y familiares usando las calles de Phoenix para caminar o andar en bicicleta.</p>							
<p>Muchos de los lugares a los que necesito ir regularmente están a una distancia en bicicleta de mi casa.</p>							
<p>Usaría el transporte público con más frecuencia si fuera conveniente y seguro caminar y andar en bicicleta para llegar.</p>							
<p>Me gusta caminar.</p>							

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Me gusta andar en bicicleta							
-----------------------------	--	--	--	--	--	--	--

- ¿Cuál de los siguientes le impide caminar más? Por favor seleccione todas las respuestas válidas
 - h. Personas que conducen de manera insegura
 - i. Gente manejando rápido
 - j. Aceras angostas
 - k. Malas condiciones de la acera
 - l. Huecos en las aceras
 - m. no hay aceras
 - n. Los cruces en las calles principales no se sienten seguros
 - o. Las señales de cruce tardan demasiado
 - p. Pasos de peatones espaciados demasiado lejos
 - q. No hay suficiente sombra
 - r. Demasiado caliente
 - s. Distancias entre lugares
 - t. Otro (texto abierto)
- Pensando en la lista anterior, ¿cuál es la barrera más grande para caminar?
 - a. Personas que conducen de manera insegura
 - b. Gente manejando rápido
 - c. Aceras angostas
 - d. Malas condiciones de la acera
 - e. Huecos en las aceras
 - f. no hay aceras
 - g. Los cruces en las calles principales no se sienten seguros
 - h. Las señales de cruce tardan demasiado
 - i. Pasos de peatones espaciados demasiado lejos
 - j. No hay suficiente sombra
 - k. Demasiado caliente
 - l. Distancias entre lugares
 - m. Otro (texto abierto)
- ¿Cuál de los siguientes le impide andar en bicicleta más? Por favor seleccione todas las respuestas válidas

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- a. Carriles para bicicletas demasiado cerca de los carriles de tráfico
 - b. Los carriles para bicicletas no se conectan
 - c. Los carriles para bicicletas desaparecen cerca de las intersecciones.
 - d. Difícil de encontrar una ruta clara para andar en bicicleta.
 - e. Falta de estacionamiento para bicicletas.
 - f. Pasos de peatones espaciados demasiado lejos
 - g. Las señales de cruce tardan demasiado
 - h. Sintiéndome inseguro
 - i. Personas que conducen de manera insegura
 - j. Gente manejando rápido
 - k. No hay suficiente sombra
 - l. Demasiado caliente
 - m. Distancias entre lugares
 - n. Otro (texto abierto)
- Pensando en la lista anterior, ¿cuál es la barrera más grande para usted cuando se trata de andar en bicicleta?
 - a. Carriles para bicicletas demasiado cerca de los carriles de tráfico
 - b. Los carriles para bicicletas no se conectan
 - c. Los carriles para bicicletas desaparecen cerca de las intersecciones.
 - d. Difícil de encontrar una ruta clara para andar en bicicleta.
 - e. Falta de estacionamiento para bicicletas.
 - f. Pasos de peatones espaciados demasiado lejos
 - g. Las señales de cruce tardan demasiado
 - h. Sintiéndome inseguro
 - i. Personas que conducen de manera insegura
 - j. Gente manejando rápido
 - k. No hay suficiente sombra
 - l. Demasiado caliente
 - m. Distancias entre lugares
 - n. Otro (texto abierto)
 - A continuación se encuentran descripciones e imágenes de diferentes tipos de infraestructura para bicicletas. Para cada foto, indique si le gustaría ver más de ese tipo de calle en Phoenix y si apoyaría el diseño incluso si agregara unos minutos al tiempo de conducción durante las horas pico.

City of Phoenix Active Transportation Plan

1	2	3	4	5	6	7
desde totalment e de acuerdo (Totally Agree)						totalmente en desacuerd o (Totally Disagree)

Pregunta 1: Me gustaría ver más calles que se vean así en Phoenix.

Pregunta 2: Estaría interesado en esta calle diseño incluso si añadía unos minutos a los tiempos de conducción durante las horas pico).

1. Calle principal con 5 o 6 carriles / sin carril para bicicletas
2. Calle principal con carril bici
3. Calle principal con carril bici protegido
4. Calle principal con carril bici protegido (pilonas / postes indicadores)
5. Calle principal con carril para bicicletas protegido (pista para bicicletas con bordillo)
6. Calle principal con acera ancha (10')
7. Calle secundaria con carril bici
8. Calle secundaria con carril bici amortiguado
9. Calle local con sharrows y control de tráfico (bike blvd)
10. Calle local sin infraestructura para bicicletas

- A continuación se encuentran descripciones e imágenes de diferentes tipos de infraestructura de aceras. Para cada foto, indique si le gustaría ver más de ese tipo de calle en Phoenix y si apoyaría el diseño incluso si agregara unos minutos a los tiempos de conducción durante las horas pico.

1	2	3	4	5	6	7
desde totalment						totalmente en

City of Phoenix Active Transportation Plan

e de acuerdo (Totally Agree)						desacuerd o (Totally Disagree)
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Pregunta 1: Me gustaría ver más calles que se vean así en Phoenix.

Pregunta 2: Estaría interesado en esta calle diseño incluso si añadía unos minutos a los tiempos de conducción durante las horas pico).

1. Calle principal y acera sin barrera (al ras del bordillo)
2. Calle Mayor con tope y sombra
3. Calle secundaria y acera sin amortiguador
4. Calle Secundaria con amortiguador y sombra
5. Cruce a mitad de cuadra con señal HAWK en arterial de 6 o 7 carriles
6. Cruce a mitad de cuadra con señal HAWK en una calle colectora (3 carriles)
7. Cruce a mitad de cuadra sin señal HAWK en una calle colectora
8. Cruce a mitad de cuadra sin HAWK con isla de refugio para peatones
9. Intersección principal con mejoras para peatones

- Para la siguiente pregunta, indique qué tan de acuerdo o en desacuerdo está con cada una de las siguientes afirmaciones.

2. las siguientes afirmaciones.

	Muy en desacuerd o	Discrepar	Algo en desacuerdo	Neutra l	Parcialment e de acuerdo	Estar de acuerdo	Totalment e de acuerdo
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City of Phoenix Active Transportation Plan

<p>No apoyaría ningún proyecto que reduzca la velocidad para conducir o haga que los viajes en automóvil sean más largos.</p>							
<p>Apoyaría la reducción de los límites de velocidad a cambio de hacer las calles más cómodas para caminar y andar en bicicleta.</p>							

- Pensando en el transporte en general en la Ciudad de Phoenix, clasifique sus prioridades:
 - a. Reducción de la congestión vehicular durante las horas pico
 - b. Prevención de colisiones que podrían lesionar a las personas
 - c. Minimizar el costo de construcción y mantenimiento de calles.
 - d. Brindar a todos una opción cómoda para usar las calles, ya sea que conduzcan, caminen, anden en bicicleta o tomen el transporte público.
 - e. Diseño de calles para que coincida con la atmósfera de la vecindad.
 - f. Construyendo un sistema de transporte verde y sostenible

- Pensando en las calles de Phoenix, ¿cuáles son sus cinco prioridades principales? Por favor clasifíquelos con 1 siendo el más alto.
 - a. Ampliar la red de calles para automóviles
 - b. Mejorar las señales de tráfico para los automóviles

City of Phoenix Active Transportation Plan

- c. Mantenimiento de las aceras existentes.
 - d. Ampliar la red de aceras
 - e. Rellene los huecos de la acera
 - f. Mejorar los pasos de peatones
 - g. Agregar sombra a lo largo de las aceras
 - h. Mantener los carriles para bicicletas existentes
 - i. Ampliar la red de ciclovías
 - j. Mejorar los cruces de bicicletas
- Al pensar en cómo agregar a la red de bicicletas de Phoenix, la Ciudad tiene que identificar prioridades y tomar decisiones sobre dónde y cómo invertir. Cuando buscamos agregar conexiones a la red de bicicletas, debemos priorizar dónde conectarnos primero. Clasifica lo siguiente según lo que creas que es más importante:
 - a. Canales: agregar y mejorar caminos a lo largo de canales existentes
 - b. Equidad: invertir en áreas históricamente marginadas
 - c. Cierre de brecha: complete los enlaces que faltan en la red
 - d. Oportunidades de bajo costo: Agregar carriles para bicicletas después de los proyectos de pavimento
 - e. Parques y centros comunitarios: construya vínculos con la recreación
 - f. Centros de población y empleo: conéctese con áreas donde hay mucha gente trabajando y viviendo.
 - g. Seguridad: aborde las áreas con un historial de colisiones graves y/o muertes
 - h. Acceso al tránsito: construya enlaces con estaciones de autobús y tren ligero
 - Al pensar en cómo agregar a la red de bicicletas de Phoenix, la Ciudad tiene que identificar prioridades y tomar decisiones sobre dónde y cómo invertir. Las rutas regionales generalmente usan calles y canales para guiar a las personas por la ciudad. Las rutas de vecindario se enfocan en guiar a las personas a destinos en su vecindario. ¿Cuál crees que es una prioridad más alta?
 - a. Rutas vecinales: concéntrese en rutas locales a destinos vecinales
 - b. Rutas regionales: concéntrese en las rutas de toda la ciudad para que las personas hagan viajes más largos
 - Por lo general, las instalaciones para bicicletas más cómodas también cuestan más dinero para construir y mantener. Pensando en nuevas instalaciones para bicicletas, ¿cuál crees que es más importante?
 - g. Costo: concéntrese en agregar rayas y letreros para asegurarse de que la ciudad pueda agregar tantas millas de carriles para bicicletas como sea posible

City of Phoenix Active Transportation Plan

- h. Comodidad: concéntrese en construir proyectos que hagan que andar en bicicleta sea más cómodo, incluso si eso significa menos proyectos.
- ¿Qué otros comentarios le gustaría compartir con nosotros? (Abierto)
- Las siguientes preguntas están destinadas a ayudar a la ciudad de Phoenix a comprender si está compartiendo información. Por favor responda honestamente.
 1. ¿Sabe cómo reportar problemas de mantenimiento de calles a la Ciudad de Phoenix?
 - a. Sí
 - b. No
 2. Cuando hay un proyecto de calles para bicicletas o peatones en mi vecindario, ¿pueden encontrar información sobre el proyecto y dar su opinión?
 - a. Sí
 - b. No
 3. ¿Ha informado alguna vez sobre un problema de la calle a la ciudad de Phoenix?
 - a. Sí
 - b. No
 4. Si la respuesta es afirmativa, ¿Estuvo satisfecho con el resultado?
 - a. Sí
 - b. No

Cuéntanos un poco más sobre ti...

1. Edad
 - a. 18 and under
 - b. 19-29
 - c. 30-39
 - d. 40-49
 - e. 50-59
 - f. 60-69
 - g. 70+
2. Raza y etnicidad
 - a. Asiático / Isleño del Pacífico
 - b. Negro
 - c. Nativo americano
 - d. Blanco
 - e. Hispano/Latino de cualquier raza

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3. Género

a. _____

4. Ingresos del hogar

a. Under \$35k

b. \$36-65k

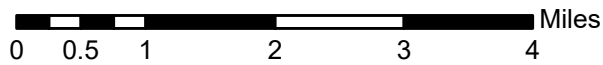
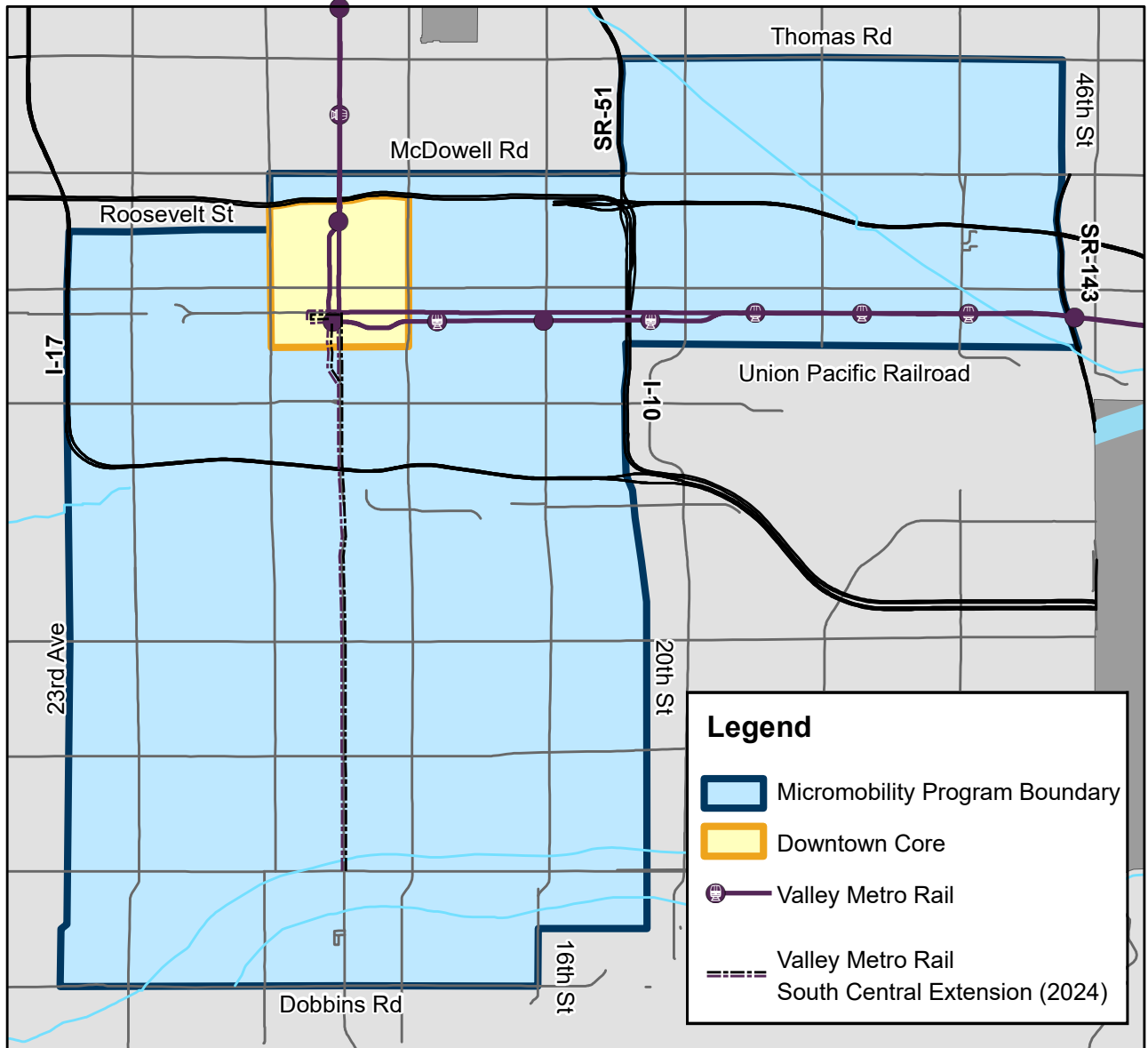
c. \$66-100k

d. \$100k - \$200k

e. \$200k+

Attachment F

Active Transportation Program Update Shared Micromobility Program Boundary Map



CITIZENS TRANSPORTATION COMMISSION

TO: Mario Paniagua
Deputy City Manager

FROM: Markus Coleman
Light Rail Administrator

SUBJECT: **Valley Metro Business Assistance Program Update**

This report provides an update on the Valley Metro Business Assistance (BA) Programs along the South Central Extension/Downtown Hub (SCE/DH) and the Northwest Extension Phase II (NWEII) light rail alignments.

THE ISSUE

Business Assistance Program Elements

The Valley Metro BA program for the SCE/DH and NWEII light rail projects includes the following elements:

- **Dedicated Team**
 - Community Relations and Business Assistance staff for direct, single point of contact
- **Construction Mitigation & Marketing**
 - Construction Notification
 - Advanced notification of construction activities
 - Quick resolution of stakeholder issues
 - Maintenance of access and a clean work zone
 - Marketing
 - Mailer campaigns
 - Print ads
 - Social media campaigns
 - Sponsored lunch events
 - Sponsored advertising
 - Signage
 - Individualized banners
 - Business access signage
 - *Our Community Deals & Discounts Online Map*
 - Business promotions through a GIS interactive map and associated print, social and/or digital media campaigns promoting the map
 - Community Events
 - Opportunity to showcase businesses' goods/services
- **Business Consulting Services**
 - Professional business assessment
 - Professional business consultants
 - Marketing and advertising

- Website development/search engine optimization/online presence
 - Accounting and finance
 - General business (risk assessments, operations, business plans)
 - Legal referrals
 - Human resources
- Financial Assistance – Small Business Financial Assistance Program (SBFAP) Pilot
 - A program to provide financial assistance to locally owned, small businesses immediately adjacent to light rail construction corridors
 - Offers two tiers of financial assistance: Tier I \$3,000; Tier II up to \$9,000 depending on demonstrated business impact
 - SBFAP funds can be applied to business operational expenses, such as utilities, rent/mortgage, insurance and/or payroll

Program Participation Status

The table below provides an updated summary of Business Assistance participation from program inception through March 31, 2023. Some businesses participate in more than one program element.

	NWEII	SCE/DH	TOTAL
Total Eligible Businesses	164	406	570
Total Participating Businesses	133	315	448
Percent Participation ¹	81%	78%	79%
Program Element			
Access Signs	100	259	359
Banners	24	169	193
Deals & Discounts Online Map	5	46	51
Lunch Events	8	52	60
Community Events			
Mailers (advertisement)	43	91	134
Business Consulting Services			
Projects Completed	7	48	55
In Progress	1	6	7
SBFAP Year 2 ONLY (April 1, 2022 – March 30, 2023)²			
Businesses Funded	8	61	69
Amount Funded	\$60,000	\$329,184	\$389,184
Tier I	\$6,000	\$102,000	\$108,000
Tier II	\$54,000	\$227,184	\$281,184

¹ Percentage is of total businesses in the construction corridor (164 for NWEII and 406 for SCE/DH).

² Projected end of year totals; final accounting in progress.

Activity Highlights

Marketing/Advertising

To help businesses prepare for and take advantage of the tens of thousands of fans and visitors attending Super Bowl LVII on February 12, 2023, the Business Assistance team implemented a plan for marketing and advertising that included the following:

- *Phoenix New Times* half-page ad (in their Big Game Guide, promoting Deals & Discounts)
- Emails to businesses with “prep tips” and social media content
- New Deals & Discounts business directory and “digital pass” promotion (customers earn rewards for the number of businesses they visit)
- Promotion of Deals & Discounts and the businesses via a media buy that includes ads on Facebook/Instagram
- Promotion via Valley Metro agency social media channels
- Promotion via Valley metro agency newsletters, including the weekly project emails
- Inclusion in Valley Metro’s Super Bowl printed pocket guide (quantity = 50k)
- Inclusion on Valley Metro’s Super Bowl webpage:
<https://www.valleymetro.org/sbgameplan>

A new print advertising campaign is underway, like last year’s *Phoenix New Times* marketing campaign, however, for this effort, two new publications are also engaged: *La Voz* and *North Central News*. The team is working with interested businesses to develop their ads; ads will begin appearing in the publications in the second quarter of 2023.

The team is also coordinating with local South Phoenix radio station, KDIF, on an advertising package expected to include weekly digital promotions and on-air announcements and interviews highlighting and promoting local businesses and the “shop local” message.

Events

In the first quarter of 2023, the Business Assistance team began arranging for program sponsorship of two large events: Old School City’s Cinco de Mayo festival in South Phoenix, and CINCOPHX in downtown. Valley Metro’s sponsorship will include enabling businesses to set up booths to promote and/or sell their products and services as well as continuing to promote the “Our Community” message that encourages support of local business.

Monthly lunch events sponsored by Friends of Transit offer business patrons a discount on their lunch orders, with Friends of Transit reimbursing the businesses for the first 100 patrons. Locations rotate between businesses along the NWEII project, along South Central and in downtown Phoenix. Events were held as follows:

- Jan. 20: Poncho’s (South Central)
- Feb. 28: Subway (NWEII)
- March 24: Crazy Jim’s (Downtown)

Just over 200 patrons participated in these three events and business satisfaction remains high. Since inception of the program in mid-2020, 100% of participating businesses said they would participate again, and 98% said they thought the event was worthwhile for their business.

Business Consulting Services

Website related services followed by accounting and finance continue to be the most popular Business Consulting Services provided to the area businesses. A breakdown of the completed and in-progress Business Consulting projects by type, since inception of the program and as of March 31, 2023, is provided in the following table.

Type of Assistance	NWEII	SCE/DH
Accounting/Finance	4	15
General Business	1	7
Human Resources		2
Marketing/Advertising	1	13
Website/SEO/Online	2	17

SBFAP

Year 2 of the Small Business Financial Assistance Program concluded on March 31, 2023. Metrics are provided in the participation table on page 2. Year 2 of the program saw 142 applications as compared to 109 for Year 1. Additionally, seven more businesses were funded in Year 2 vs. Year 1 with an increase in overall funding of nearly \$18,000 (total Year 2 disbursement was \$389,184, distributed to 69 businesses).

Since this funding program first began in mid-March 2021 (Year 1) and through March 31, 2023, a total of 131 grant awards have been distributed, totaling \$765,085. Approximately \$655,000 of that total has gone to SCE/DH area businesses, with the remaining (approximately \$110,000) to businesses in the NWEII area.

Recommendation

This report is for information and discussion

Business Assistance

Quarterly Update

Citizens Transportation Commission

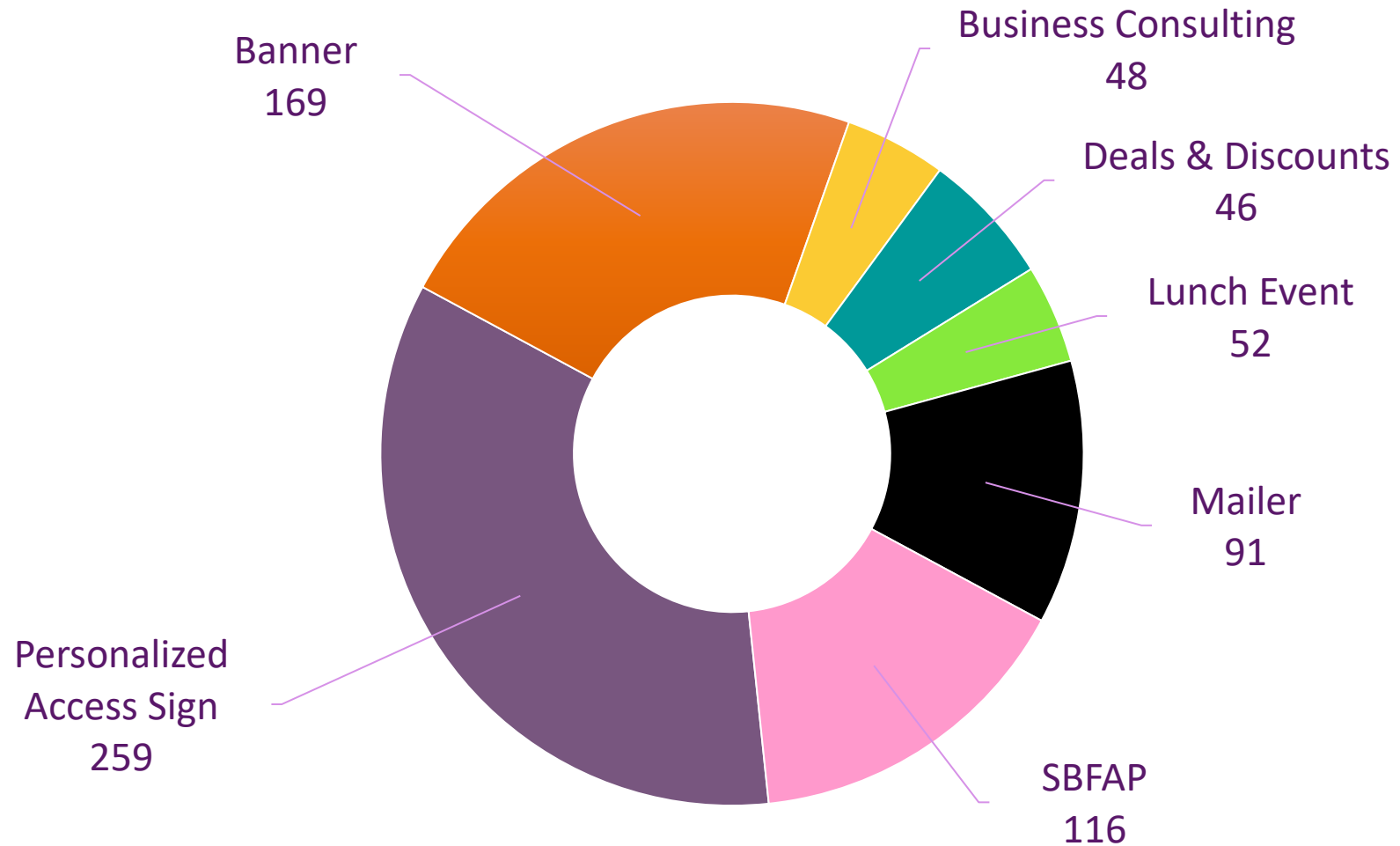
April 27, 2023



SCE/DH Participation

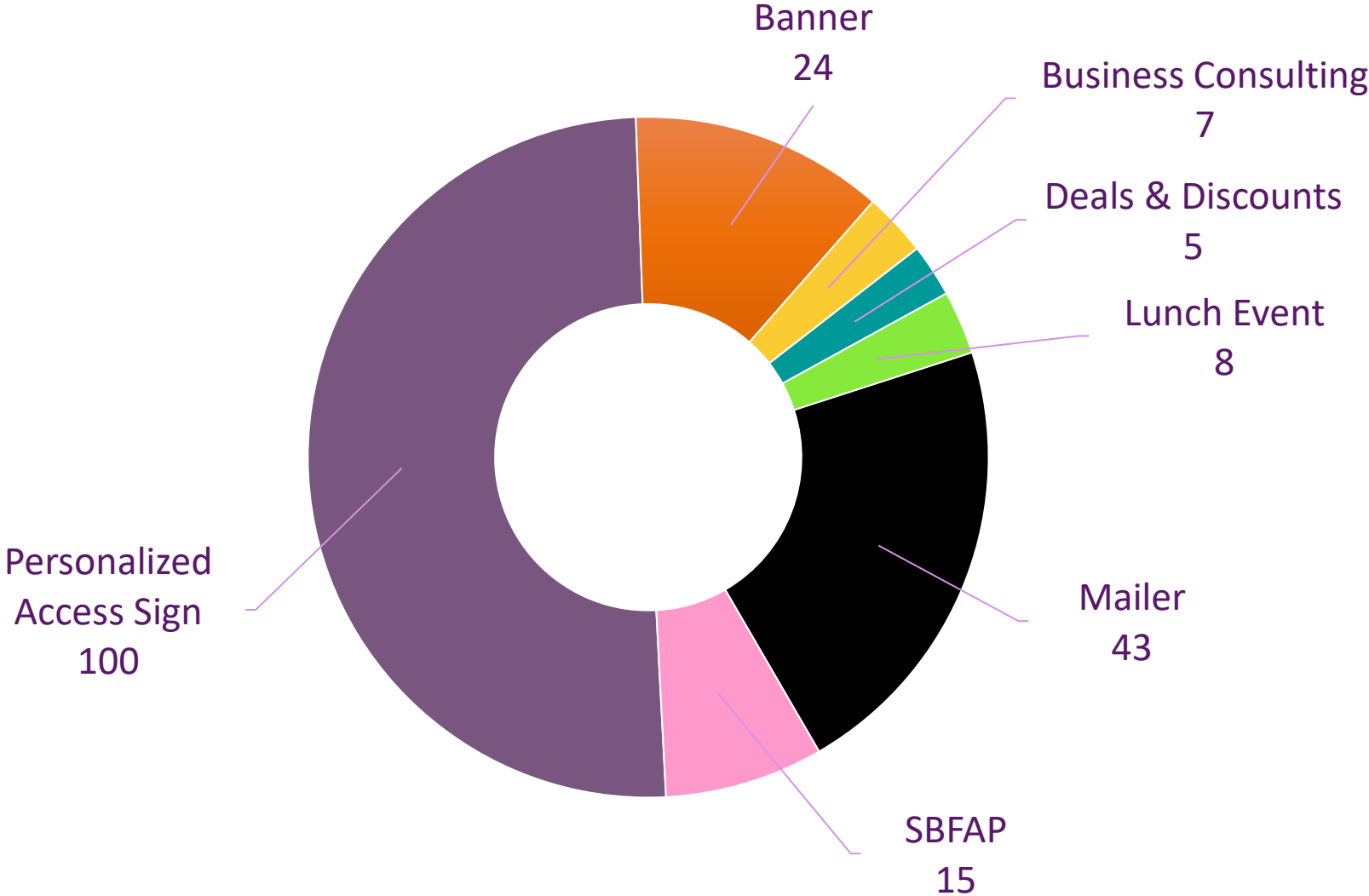
315

78%



NWEI Participation

133
81%



Direct Financial Assistance Year 2

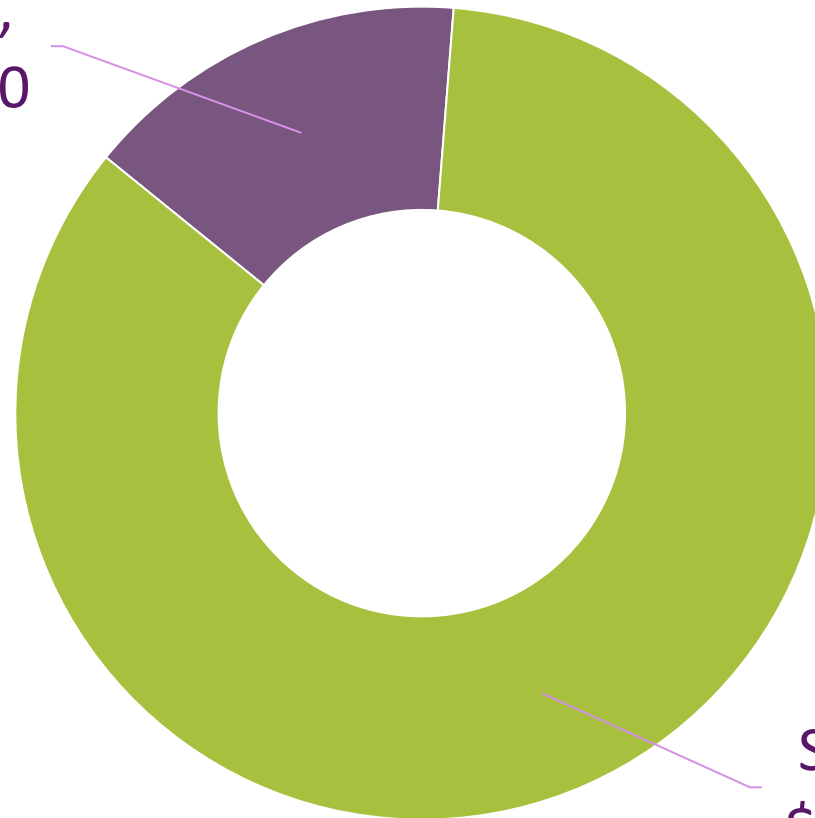
69

businesses funded

\$389,184

funds distributed

NWEII,
\$60,000



SCE/DH,
\$329,184

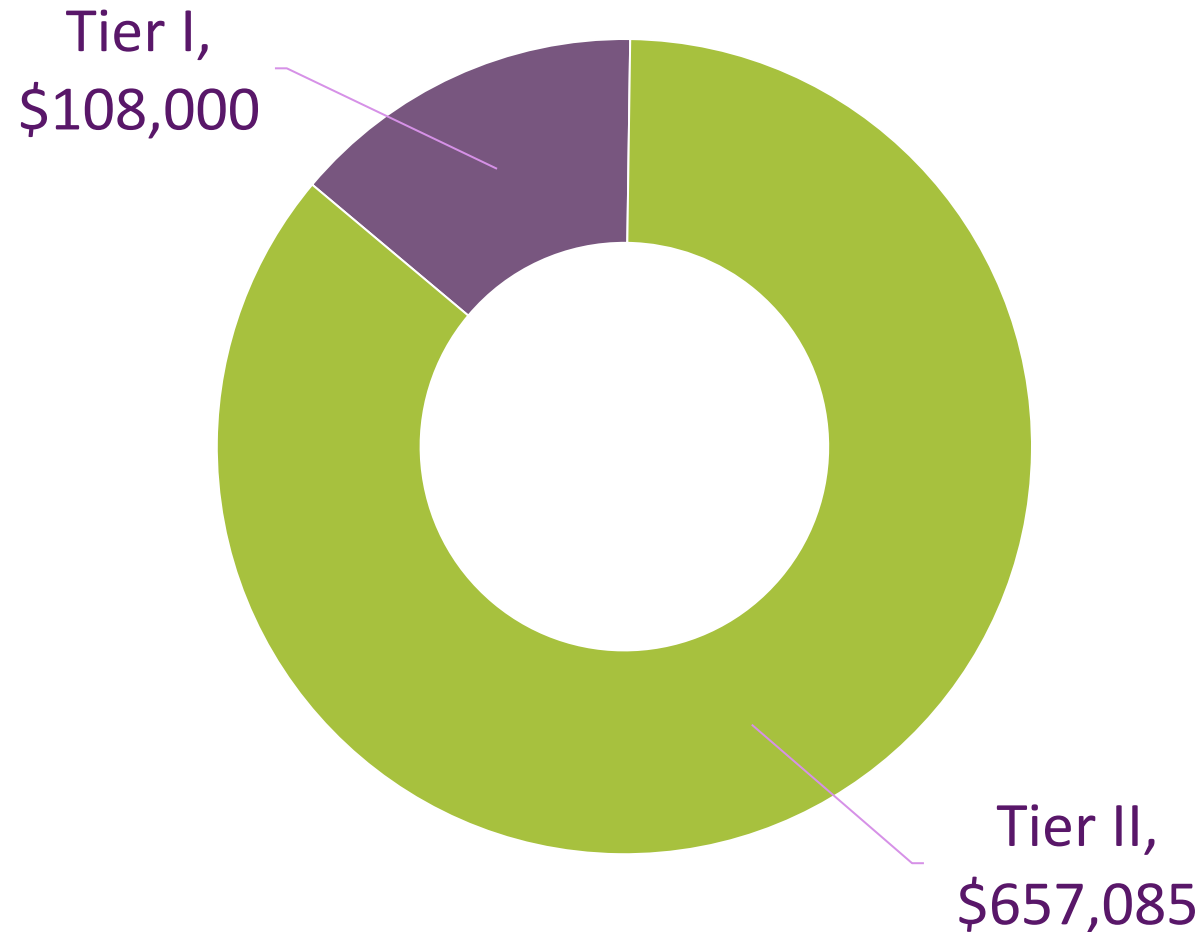
Direct Financial Assistance Inception to Date

131

grants distributed

\$765,085

funds distributed



SBFAP Impact

"It [the grant funding] was greatly appreciated. I used it to pay my rent and it was a real lifesaver. Martin from Prestamos came to my business and helped me process my application. Any business that is eligible should apply for this free money. It really helps us small businesses."

– *Samson Davis, owner,
Sam's Barber Shop and
Styling School*



Super Bowl LVII

- New Times ½ page ad
- Email to businesses with “prep tips”
- Flyer for businesses
- New Deals & Discounts program
- Promotion through:
 - Media buy (Facebook and Instagram ads)
 - Social media channels
 - Agency newsletters
 - Valley Metro’s Super Bowl printed pocket guide (quantity = 50,000)
 - Valley Metro’s Super Bowl webpage



Friends of Transit Events

"I felt it went well and we had fun with it. We saw an increase in traffic and sales for the day. It is definitely something I would do again."

– *Steve Cacciatore, Subway*

"Thank you so much for giving us the business. I really appreciate you."

– *Albert Bahram, owner, Crazy Jim's*



January: Poncho's



February: Subway



March: Crazy Jim's

Thank You!



CITIZENS TRANSPORTATION COMMISSION REPORT

TO: Mario Paniagua
Deputy City Manager

FROM: Markus Coleman
Light Rail Administrator

SUBJECT: Economic Indicator Data for South Central Extension and Northwest
Extension Phase II Business Corridors – Quarterly Update

This report provides a quarterly update on the key economic indicator data for the business corridors located within the South Central Extension/Downtown Hub (SCE/DH) and Northwest Extension Phase II (NWEII) project areas, as well as key regional, state, and national benchmarks.

THE ISSUE

Data on Business and Economic Impact within the Corridors

Although an unemployment rate for each corridor cannot be obtained, the regional unemployment numbers are a reasonable indicator of the economic conditions faced by residents and businesses within the corridors. As of December 2022, the unemployment rate for the city of Phoenix stood at 2.7%. This is a significant improvement from the 13.9% unemployment rate in April 2020 at the beginning of the COVID-19 Pandemic. The City's unemployment rate is equal to the rate for the Phoenix Metro MSA (2.7%) and compares favorably to the rates from the same month for Arizona (4.0%) and the U.S. National Unemployment Rate (3.5%). No large-scale layoffs in either corridor, as tracked via Arizona DES WARN Notices, have been filed since 2021.

For indicators more specific to the SCE/DH and NWEII project areas, an updated census of businesses was performed in December 2022 and February 2023 for each corridor. A table of the findings, since the previous report to the CTC in September 2022, is included below:

SCE-DH

	Previous Quarter Total Businesses	Currently Open	Permanently Closed	Temporarily Closed*	New	Moved	Closure Rate	New Total
Aug 2022	366	362	2	1	0	1	0.55%	363
Nov 2022	363	356	7	1	5	1	2.20%	362
Feb 2023	362	361	1	0	5	0	0.28%	366

NWE-Phase 2

	Previous Quarter Total Businesses	Currently Open	Permanently Closed	Temporarily Closed*	New	Moved	Closure Rate	New Total
Aug 2022	55	55	0	0	0	0	0.00%	55
Nov 2022	55	52	2	0	0	1	3.70%	52
Feb 2023	52	51	0	1	4	0	1.92%	56

*Temporarily Closed are still counted as existing businesses

The latest reporting period saw encouraging news as the number of new businesses exceeded the number of closed businesses for both corridors. This is the first net gain for both corridors in the same quarter since tracking commenced in July 2020. The result is a net increase of total businesses within each corridor.

RECOMMENDATION

This item is for information only.

CITIZENS TRANSPORTATION COMMISSION

TO: Alan Stephenson
Deputy City Manager

FROM: Kini L.E. Knudson
Street Transportation Director

SUBJECT: ACCELERATED PAVEMENT MAINTENANCE PROGRAM UPDATE

This report provides an update to the Citizen Transportation Commission (CTC) on the status and progress of the Street Transportation Department's recent pavement maintenance efforts and future plans, specifically concerning the Transportation 2050 five-year \$200 million Accelerated Pavement Maintenance Program (APMP), the \$18 million Residential Overlay Project, the Cool Pavement Program, and the proposed General Obligation Bond Program.

INTRODUCTION

On Aug. 25, 2015, City of Phoenix voters approved the passage of Proposition 104 / Transportation 2050 (T2050), which provides a 0.3 percent increase in the transaction privilege and use tax rate to fund Citywide transportation projects, including the construction and maintenance of City streets. Collection of T2050 sales tax began on January 1, 2016. The Street Transportation Department (Streets) receives 13.8 percent of annual T2050 revenues to support the construction and maintenance of City streets, improve mobility opportunities, and enhance technology on Phoenix's major street network.

On Oct. 3, 2018, the Council provided unanimous direction to Streets staff to develop a plan that advanced \$200 million in Streets T2050 funding over five years to accelerate pavement maintenance on arterial and major collector streets. The Council subsequently approved the Accelerated Pavement Maintenance Program (APMP), which focused on the acceleration of planned asphalt mill and overlay projects on arterial and major collector streets beginning in Fiscal Year (FY) 2018-19 and wrapping in FY 2022-23.

To leverage the T2050-funded acceleration of arterial and major collector street paving projects, Streets also advanced planned asphalt mill and overlay projects on local and minor collector streets, using Arizona Highway User Revenue Funds (HURF). The HURF acceleration condensed five years (FY2018-23) of planned overlay projects into two years (FYs 2020-23). The state of Arizona collects taxes on motor fuels at the rate of 18 cents per gallon (unchanged since 1991) and gathers a variety of fees and charges related to the registration and operation of motor vehicles in the state. These revenues are deposited in the State's HURF fund and are then distributed to the cities, towns, and counties and to the State Highway Fund. HURF is Streets' primary source of revenue for street construction, maintenance, improvements, and other street transportation-related expenses.

On Sep. 7, 2021, the Council unanimously approved the allocation of HURF revenues to fund the \$18 million Residential Overlay Project, which advanced asphalt mill and

overlay pavement projects for the City’s local and residential streets over two fiscal years (FYs 2022-23).

On Jun. 7, 2022, the Council approved moving forward with a proposed General Obligation (GO) Bond program of \$500 million to help fund critical infrastructure and rehabilitation needs of the City, including streets. On Dec. 13, 2022, the Council approved the Recommendations presented by a citizen’s GO Bond Committee that evaluated and prioritized proposed projects for the Bond Program. Within the proposed \$500 million GO Bond Program, \$22 million would be allocated to fund asphalt mill and overlay pavement projects for the City’s local and residential streets. Voters will decide the outcome of the GO Bond Program at a Special Bond Election on November 7, 2023.

Phoenix’s Street Network

Phoenix has a comprehensive roadway network of nearly 5,000 miles of public streets. The network is made up of arterial, collector, and local streets. Arterials are major streets, which are typically the major north/south and east/west transportation corridors spaced at each mile. Collectors are important mid-level transportation corridors, which are generally on the 1/2-mile north/south and east/west streets between the arterial streets. Local streets are typically in residential areas and provide connectivity between the collectors and arterials for local traffic. The local street network is grouped into Quarter Sections (QS) which are typically bound by arterial/collector streets. Pavement maintenance projects on arterial and major collector streets are primarily funded by T2050, while pavement maintenance projects on minor collector and local streets are funded primarily by HURF.

Proposed Five-Year Capital Improvement Program (CIP)

Streets’ Proposed Five-Year CIP includes a comprehensive pavement maintenance program, improvements to existing streets for mobility and safety issues, technology upgrades to signals, new street and drainage infrastructure, and expanding roadways. It lists all planned and funded capital improvements proposed to be undertaken through June 30, 2028.

Streets’ Proposed Five-Year CIP includes \$350.4 million in pavement maintenance projects for Phoenix’s nearly 5,000 miles of streets. Of this total, \$175.6 million will be allocated to asphalt mill and overlay projects, while the remaining will be utilized for other pavement maintenance treatments. These projects are funded through a combination of HURF and T2050 funds. Table 1 below provides more detail about the funding of Streets’ Pavement Maintenance Program by year, fund source, and pavement treatment type.

Table 1. Pavement Maintenance Funding by Fiscal Year

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
HURF Mill & Overlay	\$18.2M	\$18.8M	\$18.8M	\$18.8M	\$18.8M	\$93.4M
T2050 Mill & Overlay	\$15.4M	\$15.4M	\$16.4M	\$17.4M	\$17.4M	\$82.2M
Mill & Overlay Subtotal	\$33.6M	\$34.2M	\$35.2M	\$36.2M	\$36.2M	\$175.6M
HURF Other Pavement Maintenance	\$23.5M	\$24.6M	\$24.6M	\$24.6M	\$30.8M	\$128.1M
T2050 Other Pavement Maintenance	\$9.4M	\$9.4M	\$9.4M	\$9.4M	\$9.4M	\$46.8M
Other Pavement Maintenance Subtotal	\$32.8M	\$34.0M	\$34.0M	\$34.0M	\$40.1M	\$174.9M

<i>Pavement Maintenance Total</i>	<i>\$66.4M</i>	<i>\$68.2M</i>	<i>\$69.2M</i>	<i>\$70.2M</i>	<i>\$76.4M</i>	<i>\$350.4M</i>
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UPDATES

\$200 Million Accelerated Pavement Maintenance Program (APMP)

With Council's direction, Streets staff undertook a variety of tasks to successfully accomplish the APMP program. Staff conducted extensive community outreach to collect input from the public on what streets were most in need of being included in the APMP. Streets staff also focused a significant amount of time coordinating with the City's utility partners and right-of-way stakeholders.

As Streets moved into implementation of the APMP, the extensive coordination with industry and education partners, along with other City departments, utility companies, and right-of-way stakeholders allowed Streets to complete the APMP ahead of schedule.

Streets initially estimated and communicated that the five-year \$200 million APMP would provide asphalt mill and overlay treatments on **630 miles** of City streets. However, upon completion of the APMP, Streets was able to surpass this goal by paving **656 miles** of City streets with asphalt mill & overlay treatments. Of the 656 miles of paving, 223 miles were on major streets (arterials and major collectors) and 433 miles of these were on local streets (residential and minor collectors).

An interactive pavement maintenance dashboard tool was created to provide comprehensive and updated information to the public about the APMP. The easy-to-use tool can be used by residents, businesses, elected officials, City staff, utility companies, and developers.

The APMP is an award-winning program, garnering both team and individual City of Phoenix Employee Excellence Awards, as well as an Award for Exemplary Systems in Government from the Urban and Regional Information Systems Association in 2021 for the creation and implementation of the public pavement maintenance dashboard.

\$18 MILLION RESIDENTIAL OVERLAY PROJECT

The focus of the APMP was on arterial and major street paving projects, with an initial and short-term advancement of local and minor street paving projects. Streets frequently receives constituent requests for more paving of residential streets.

To address these requests Streets staff requested, and Council unanimously approved, the allocation of \$18 million in HURF revenues to accelerate paving of local and residential streets. This funding equates to paving 18 residential street quarter-sections. The funding was split between two fiscal years (FY2022 and FY2023) and included 9 residential neighborhoods (quarter-sections) in each year for a total of 18 residential neighborhoods (quarter-sections).

Streets staff utilized the City's Pavement Management System to identify residential quarter section options and then worked with the Mayor and each Council member for the final selections to receive asphalt mill and overlay treatments.

The paving of all 18 residential neighborhoods included in this project have been completed, with the last two residential neighborhoods paved in April 2023.

COOL PAVEMENT PROGRAM

Another key innovation that Streets has engaged in over the past few years is the Cool Pavement program. As the City has been working on projects to improve sustainability and livability, Streets initiated the Cool Pavement Pilot Program in 2020. This innovative seal coat pavement treatment was intended to lower street temperatures and address Phoenix's increasing urban heat island impact, while extending the life of the pavement, reducing the daytime heating of the pavement, thereby leading to cooler night-time temperatures around the treated areas. An evaluation study between Streets and Arizona State University (ASU) was carried out to evaluate the impacts of cool pavement treatments, and based on encouraging results, Streets initiated a second phase of the Cool Pavement Program, effectively removing its "Pilot" designation.

As part of the initial phase of the Pilot program, ten residential street quarter sections including Esteban Park were treated with cool pavement between 2020 and 2021, and one location was treated in 2022 to test a different color with an improved formulation. The second phase of cool pavement was installed in 2022 and included nine quarter sections across the city treated with cool pavement sealant. To date, 73 miles of City streets have been treated with cool pavement.

Over the next few months, Streets will initiate the third phase of the Program, with the application of cool pavement treatment to eleven more neighborhoods. With 38 miles included in this phase, the City will surpass 100 miles of City streets with cool pavement.

GENERAL OBLIGATION BOND PROGRAM

Within the proposed \$500 million General Obligation (GO) Bond Program, there is \$22 million in funding allocated for residential street asphalt mill and overlay projects. If approved, Streets would utilize this funding to pave 22 residential neighborhoods (quarter-sections).

The goal of the proposed GO Bond Funded Pavement Maintenance Project is to provide additional funding for neighborhood street mill and overlay projects to reduce deferred maintenance and degradation of residential streets, help preserve neighborhood character and quality, and maintain safer and quieter roads while reducing the wear and tear of vehicles. The GO Bond Funded Pavement Maintenance Project would provide funding in addition to the residential street asphalt mill and overlay projects already programmed in Streets' Proposed Five-Year CIP.

Specific projects have not been selected yet, but it is anticipated that the 22 neighborhoods would be paved in the first three years of the five-year bond program.

RECOMMENDATION

This item is for information only.

CITIZENS TRANSPORTATION COMMISSION REPORT

TO: Chair Mellor and members of the Commission

FROM: Jesús Sapien
Public Transit Director

Kini Knudson
Street Transportation Director

SUBJECT: TRANSPORTATION 2050 FINANCIAL UPDATE

This report provides a financial update on Transportation 2050 (T2050), passed by voters on Aug. 25, 2015. Included in this report is a summary of the sales tax revenue collections and the use of those revenues for projects within the plan.

THE ISSUE

T2050 is a 35-year multi-modal transportation plan that includes street improvements, bus and paratransit service enhancements, and light rail expansion. These broad categories are broken down into specific plan elements, and within these elements are specific projects planned to be implemented over the course of the 35-year plan.

OTHER INFORMATION

The sales tax revenues are being used in both the Public Transit and Street Transportation Departments' budgets to implement projects in the T2050 plan. The T2050 sales tax became effective Jan. 1, 2016, and with the one-month lag in sales tax reporting and collections, there have been seven years and two months of revenue collected by the City through March 2023.

Figure 1 below provides estimated and actual sales tax from inception of the sales tax through March 31, 2023. Estimates are based on a consistent annual growth rate. Some months and years will see a higher or lower return; however, the differences are anticipated to balance over time.

Figure 2 shows a year over year monthly comparison of T2050 sales tax revenues and the percentage change compared to the same month of the prior year. With preliminary March 2023 sales tax figures, revenues were 4.8% higher than March 2022. The March 2023 preliminary sales tax figure presented is based upon the Budget & Research (B&R) Department's budgeted revenue estimate for the month increased by the percentage of year-to-date actual revenue collected over prior year-to-date collections. For example, the B&R revenue estimate of \$25.84M is increased by 11.3% to \$28.8M, which is used as the preliminary sales tax figure in this report. This estimate is also used with figures 1, 3, 6 and 7.

Figure 3 is a comparison of fiscal year-to-date T2050 sales tax revenues for the past three fiscal years and the current fiscal year. With the preliminary March 2023 amount, fiscal year-to-date sales tax revenues through March 2023 were 10.5% higher than the same period last fiscal year.

Figure 4 shows a year over year monthly comparison of total Public Transit fare revenues for the past year. Preliminary March 2023 fare revenues were 23.1% higher than March 2022. The fare revenues for this month are higher than usual due to a timing issue with farebox cash deposits offsetting the previous month's lower than usual revenues.

Figure 5 is a fiscal year-to-date comparison of total Public Transit fare revenues with the prior three fiscal years. Through March 2023, fiscal year-to-date preliminary fare revenues were 60.1% higher than the same period last fiscal year. The return to front door boarding on buses and onboard farebox sales resumed on October 11, 2021.

Figure 6 shows a year over year monthly comparison of combined T2050 sales tax and total Public Transit fare revenues for the past year. With the preliminary March 2023 sales tax amount, the combined T2050 sales tax and preliminary fare revenues for the month are 5.8% higher than March 2022.

Figure 7 is a fiscal year-to-date comparison of combined T2050 sales tax and total Public Transit fare revenues with the prior three fiscal years. With the preliminary March 2023 sales tax amount, combined sales tax and total fare revenues through March 2023 were 12.4% higher than the same period last fiscal year.

**Figure 1 - Transportation 2050 Sales Tax Revenues Through March 31, 2023
(millions)**



**Figure 2 - Monthly Transportation 2050 Sales Tax Revenues Comparison
(millions)**

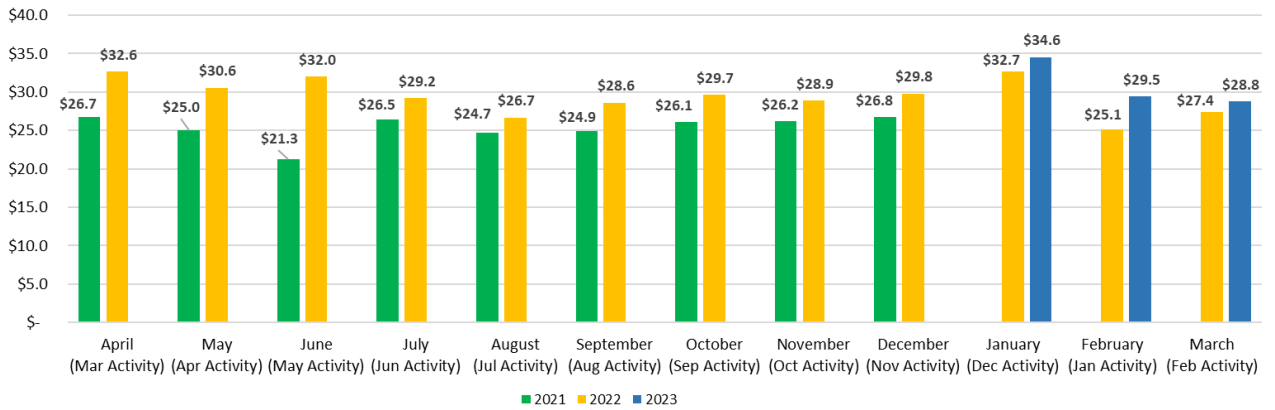


Figure 3 - Fiscal Year-to-Date Transportation 2050 Sales Tax Revenues Comparison through March (millions)

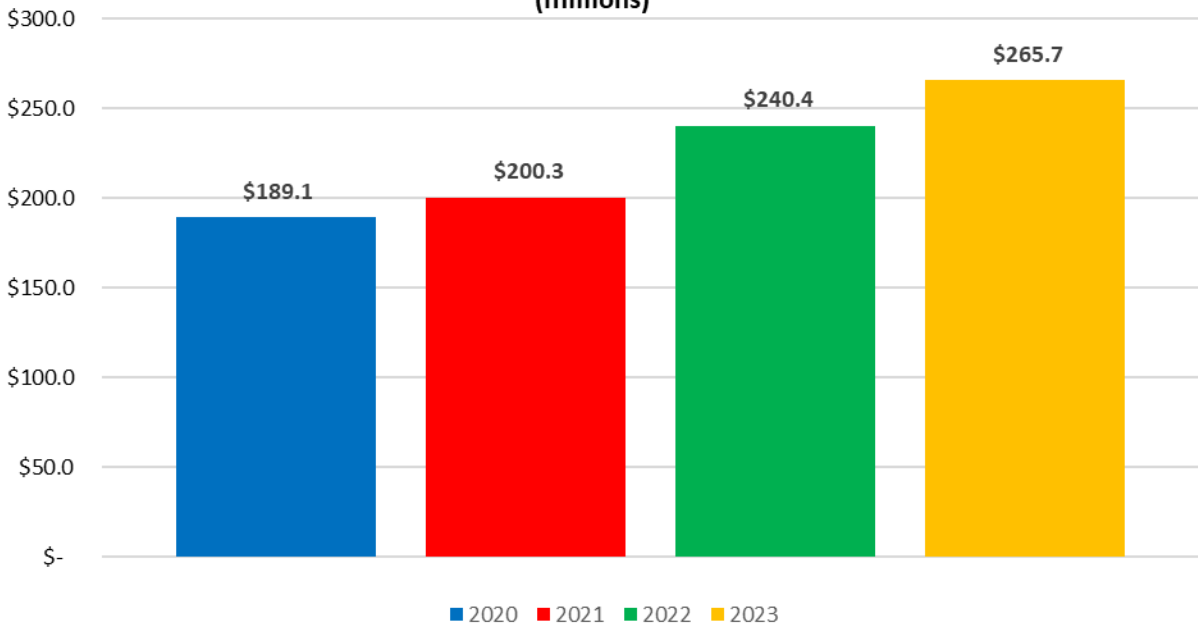
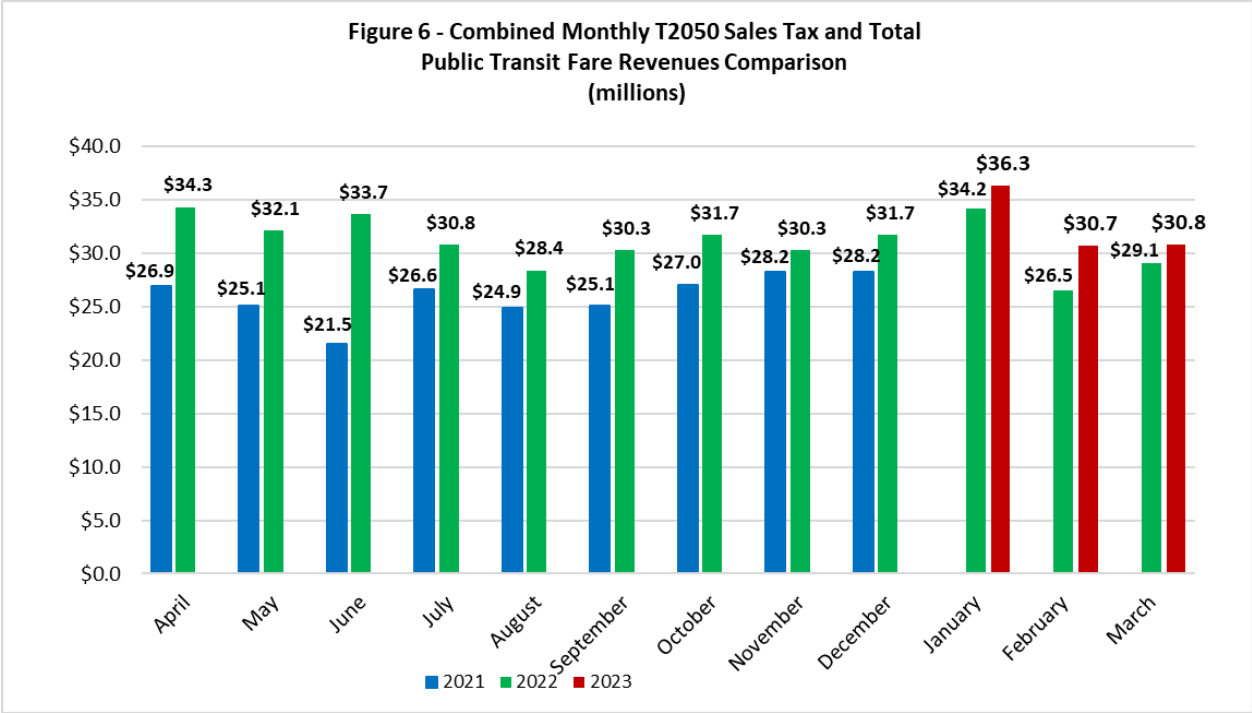
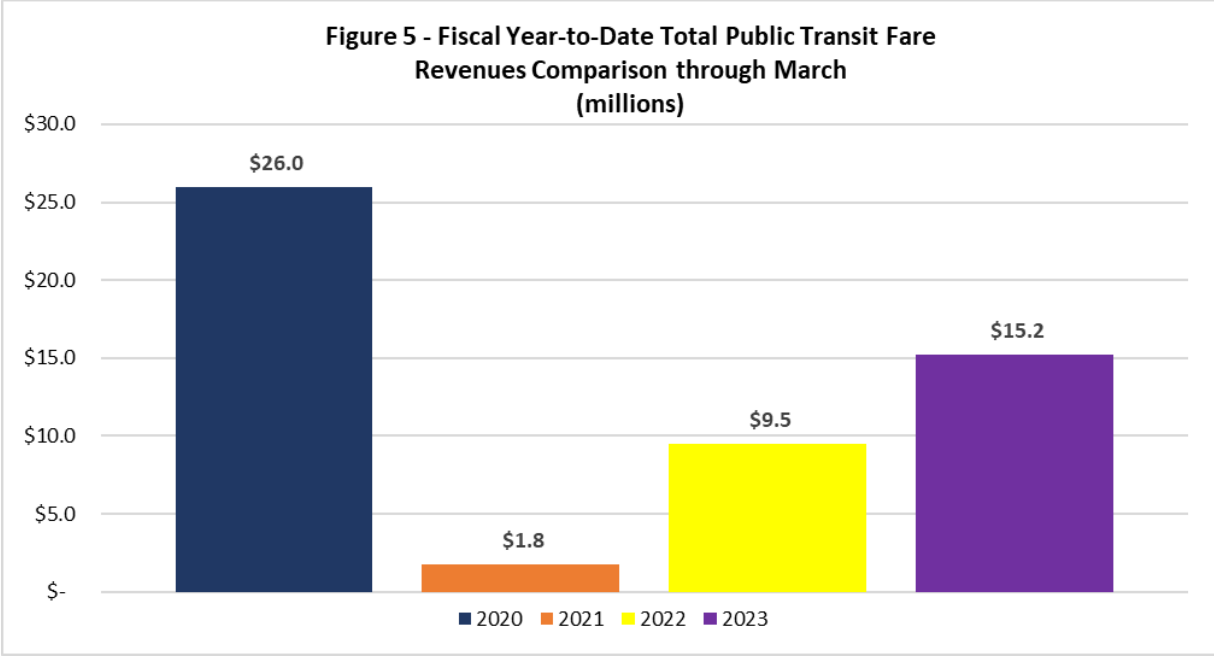
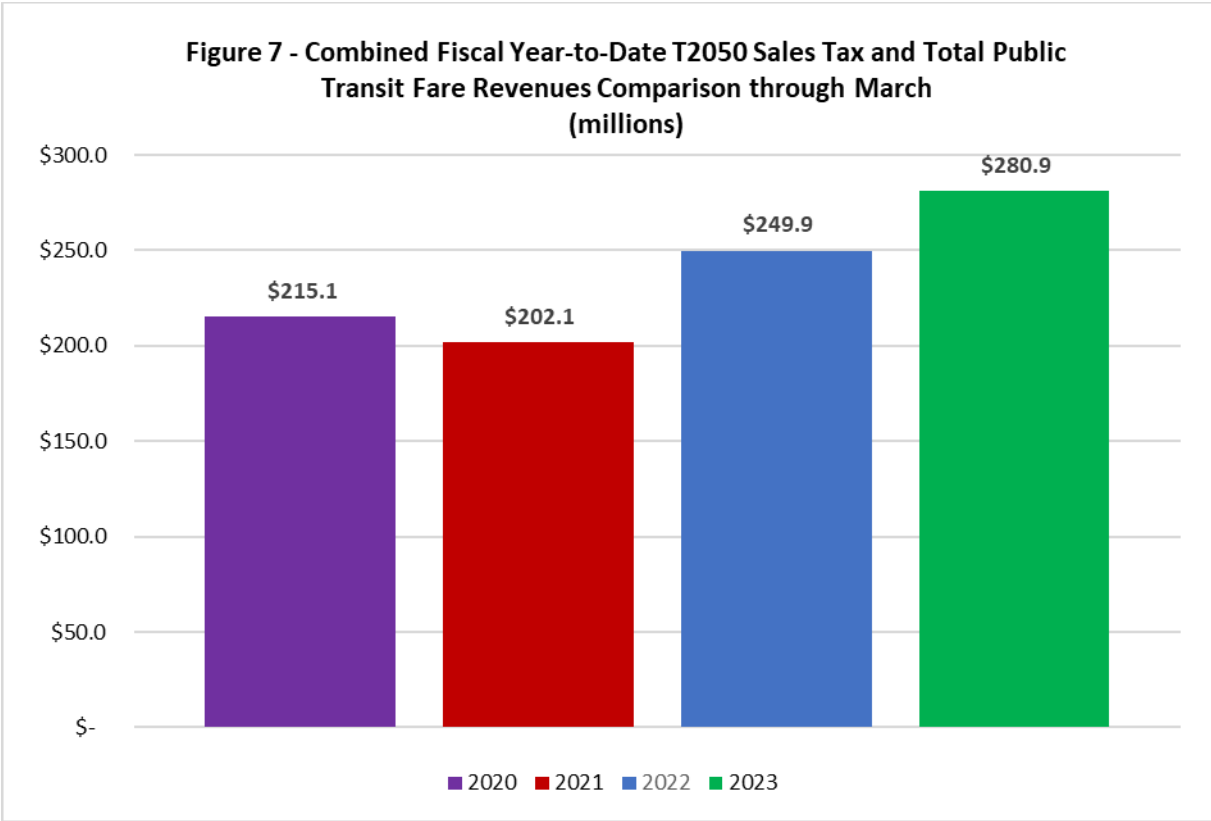


Figure 4 - Monthly Total Public Transit Fare Revenues Comparison (millions)







The attached table (Attachment A) shows fiscal year 2022-2023 T2050 sales tax revenue collections and T2050 expenditures through March 31, 2023.

RECOMMENDATION

This report is for information only.

Attachment A

T2050 SALES TAX REVENUES:

Through FY 2021-22	\$ 1,618,970,404
July 2022 -March 2023	265,711,807
TOTAL	<u>1,884,682,211</u>

EXPENDITURES:

Project	FY 2022-23 Total Expenditures	FY 2022-23 T2050 Expenditures	FY 2022-23 Other (1) Expenditures	FY 2022-23 Total Commit	FY 2022-23 T2050 Commit	FY 2022-23 Other (1) Commit	FY 2022-23 Total Actual + Commit	FY 2022-23 T2050 Actual+ Commit	FY 2022-23 Current Year Other (1) Actual + Commit
Transit Ops and Administration	171,447,734	126,897,156	44,550,578	93,779,018	88,954,684	4,824,334	265,226,752	215,851,840	49,374,912
Bus Purchases	10,700,164	10,667	10,689,497	11,171,786	312,314	10,859,472	21,871,951	322,982	21,548,969
DAR Vehicle Purchases	458,832	0	458,832	3,524,675	0	3,524,675	3,983,507	0	3,983,507
Bus Stop Improvements	1,965,393	1,812,441	152,952	716,783	716,783	0	2,682,176	2,529,224	152,952
South Facility Upgrades	0	0	0	0	0	0	0	0	0
Bus Pullouts	139,517	139,517	0	0	0	0	139,517	139,517	0
Transit Technology	8,455,793	2,069,625	6,386,168	1,173,705	337,811	835,894	9,629,498	2,407,436	7,222,063
South Central LRT	8,436,787	8,435,435	1,351	1,950	1,950	0	8,438,737	8,437,385	1,351
Capital/I-10 West LRT	75,932	41,323	34,610	0	0	0	75,932	41,323	34,610
Northwest Extension LRT Phase II	4,086,360	4,045,271	41,089	9,888	9,888	0	4,096,248	4,055,159	41,089
McDowell & Central LRT Crosswalk	0	0	0	0	0	0	0	0	0
Bus Rapid Transit	1,040,413	1,040,413	0	3,608,061	3,608,061	0	4,648,473	4,648,473	0
Other Transit Capital	2,408,456	2,146,501	261,956	1,711,032	1,278,192	432,840	4,119,488	3,424,693	694,796
Project/Construction Mgmt	965,372	965,372	0	1,038,110	1,038,110	0	2,003,482	2,003,482	0
T2050 Cement Repair	1,186,747	1,186,747	0	0	0	0	1,186,747	1,186,747	0
T2050 Crack Seal	67,385	67,385	0	80,789	80,789	0	148,174	148,174	0
T2050 Major Street Overlay	34,689,461	34,689,461	0	5,230,784	5,230,784	0	39,920,245	39,920,245	0
T2050 Arterial TRMSS	1,521	1,521	0	0	0	0	1,521	1,521	0
T2050 Arterial Micro Surfacing	0	0	0	0	0	0	0	0	0
T2050 Arterial Microseal	168,641	168,641	0	2,473,609	2,473,609	0	2,642,249	2,642,249	0
Major Streets Project Assessments	0	0	0	0	0	0	0	0	0
Major Street Transportation Projects	9,315,533	9,315,533	0	363,184	363,184	0	9,678,717	9,678,717	0
Traffic Signal Pole Painting	284,456	284,456	0	0	0	0	284,456	284,456	0
Left Turn Arrows & HAWK	2,851,317	2,851,317	0	1,055,486	1,055,486	0	3,906,803	3,906,803	0
Illuminated Street Name Signs	0	0	0	0	0	0	0	0	0
Pedestrian and Bicycle	974,711	974,711	0	602,436	602,436	0	1,577,148	1,577,148	0
TOTAL	259,720,527	197,143,493	62,577,033	126,541,295	106,064,079	20,477,215	386,261,821	303,207,573	83,054,249

(1) Other (non-T2050) sources include transit fares, federal, regional, AZ Lottery, and 302 building revenues.

CITIZENS TRANSPORTATION COMMISSION

TO: Mario Paniagua
Deputy City Manager

Jesús Sapien
Public Transit Director

FROM: Kini Knudson
Street Transportation Director

Markus Coleman
Light Rail Administrator

SUBJECT: **Upcoming T2050 Public Meetings/Events**

This report provides a list of upcoming T2050 related public meetings by the Public Transit and Street Transportation departments, and Valley Metro.

This item is for information only.

October 2023 Proposed Service Changes

- Public input is open from May 8-June 9, with a public hearing scheduled for May 24. For more information about the proposed service changes please visit the [Valley Metro service changes webpage](#) once the outreach period opens May 8.

Recommendation

This item is for information only