

APPENDIX A

ACTIVE TRANSPORTATION TOOLBOX



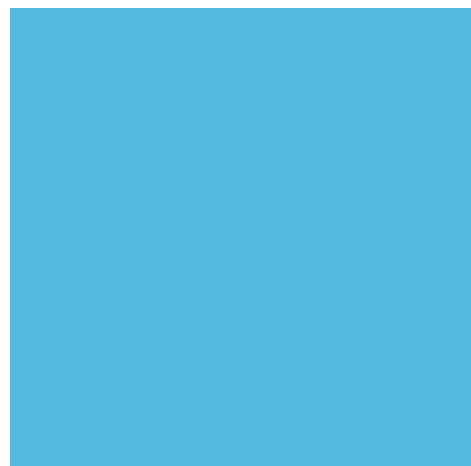
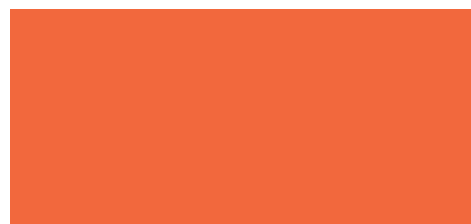
PIMA ASSOCIATION OF GOVERNMENTS



REGIONAL **ACTIVE** TRANSPORTATION PLAN



ACTIVE TRANSPORTATION TOOLBOX



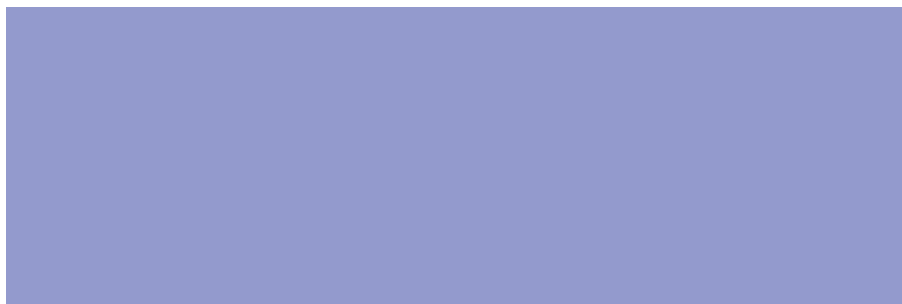
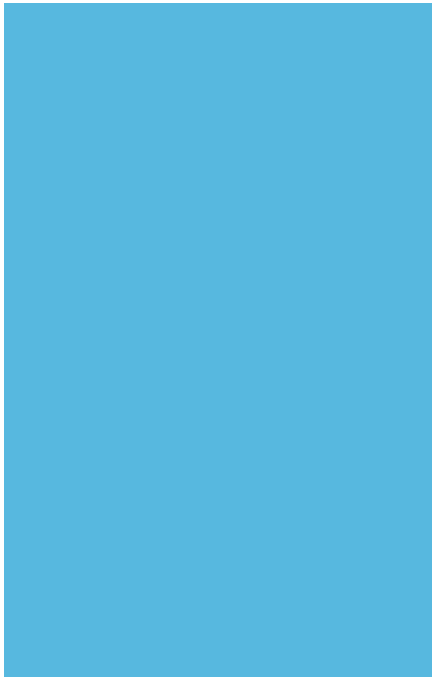
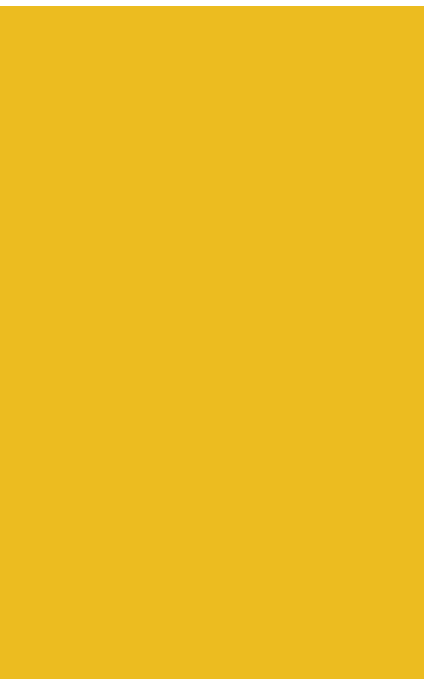
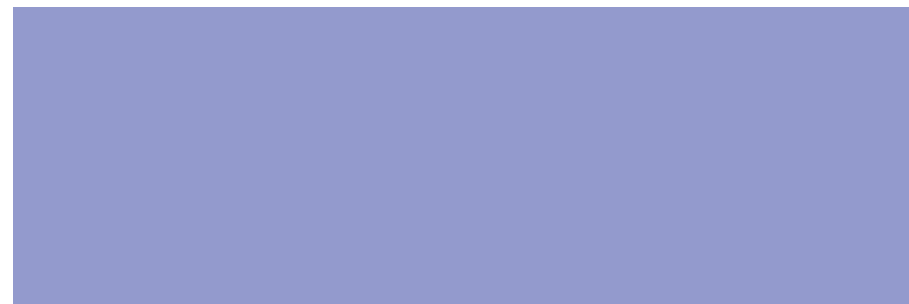
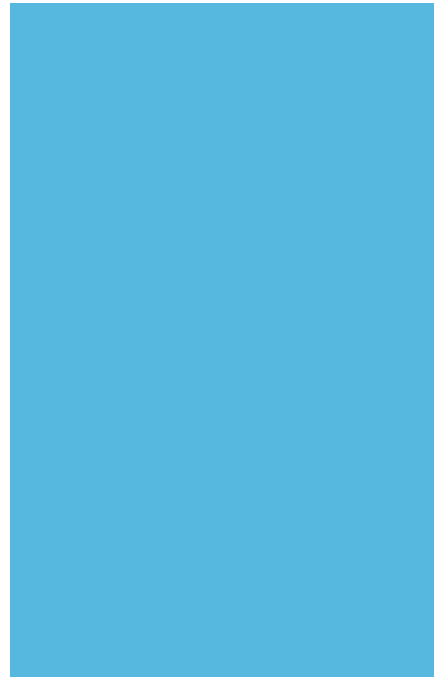


TABLE OF CONTENTS

INTRODUCTION	5
ON-STREET IMPROVEMENTS	9
OFF-STREET IMPROVEMENTS	25
CROSSING IMPROVEMENTS	33
TRAFFIC CALMING MEASURES	49
QUICK BUILD SOLUTIONS	57



INTRODUCTION

Introduction

The Active Transportation Toolbox was developed as part of the PAG Regional Active Transportation Plan (RATP) through an interactive process with PAG staff or PAG member agencies. The Active Transportation Toolbox compiles active transportation treatments for the region and their appropriate contexts and considerations.

To guide the development of the Active Transportation Toolbox, an interactive working session was held with PAG staff and key stakeholders from member agencies. Stakeholders identified active transportation treatments for the region and their appropriate context, use, and considerations.

THE GOALS OF THE ACTIVE TRANSPORTATION TOOLBOX ARE:

- ➔ Identify on-street and off-street active transportation treatments
- ➔ Align treatments with national best practices
- ➔ Develop guidelines for the contexts in which treatments may be used



HOW TO USE THE ACTIVE TRANSPORTATION TOOLBOX

The Active Transportation Toolbox should be used as a resource by member jurisdictions to:

- Understand available active transportation treatments
- Identify the best context-appropriate treatment for the jurisdiction
- Reference existing local standards, national best practices, and regional treatment guidelines
- Promote consistent transitions in active transportation facilities across jurisdictional boundaries in the region

The recommended application for each treatment are based on national best practices and may not be consistent with existing conditions.

Toolbox Overview

The Active Transportation Toolbox identifies preferred treatments within the following treatment types:



ON-STREET IMPROVEMENTS
Pedestrian and bicycle facilities along the roadway in the roadway footprint



OFF-STREET IMPROVEMENTS
Pedestrian and bicycle facilities separated from the roadway with a curb or buffer



CROSSING IMPROVEMENTS
Intersection active transportation treatments and midblock crossings



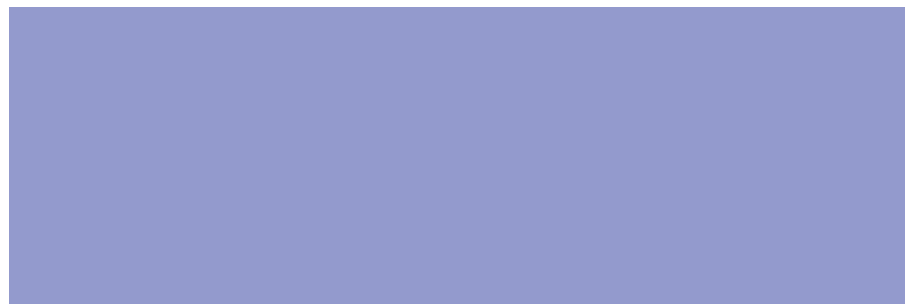
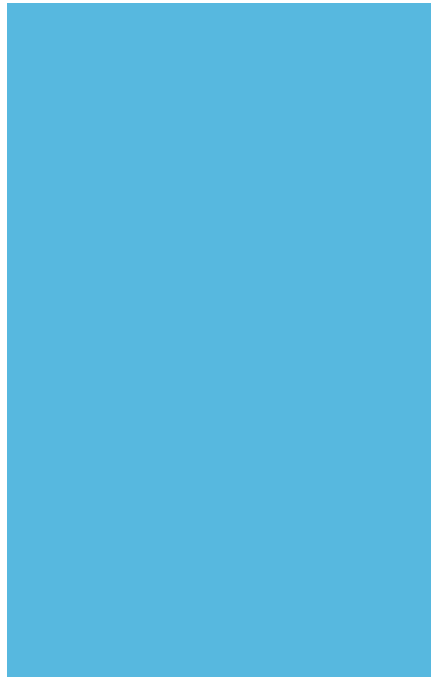
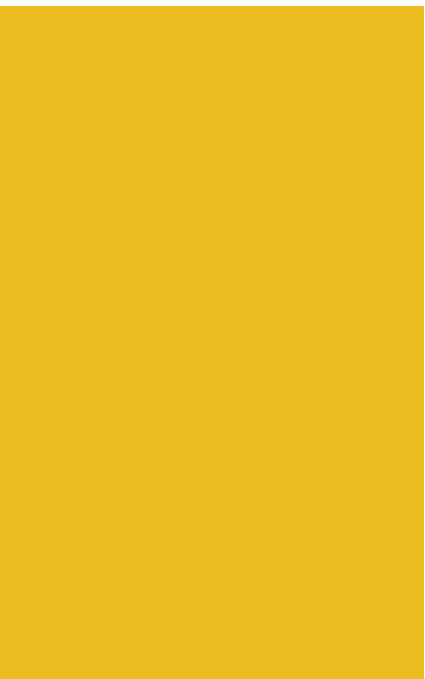
TRAFFIC CALMING MEASURES
Roadway and intersection enhancements to reduce speeding and distracted driving



QUICK-BUILD SOLUTIONS
Affordable, fast, and temporary active transportation treatments

The following information is included for each treatment type and documents key information for implementing the treatment in its appropriate context, including:

Improvement Definition	Cost	Regional Treatment Guidelines
► Explanation of Potential Improvement	► Low, Medium, and High Cost	► Geographic Considerations, Markings, Signage
User Group Impacted	Application	Transit Integration
► Pedestrians, Those Using Personal Mobility Devices, Bicyclists, and Scooters	► Physical Context, Speed and Volume, Functional Classification	► Coordination with Transit Facilities
Benefits and Considerations	References to Local Standards and National Best Practices	Amenity Options
► Advantages and Factors for Implementing Potential Improvement	► Additional National Resources	► Lighting, Shade, Wayfinding, Technology



ON-STREET IMPROVEMENTS

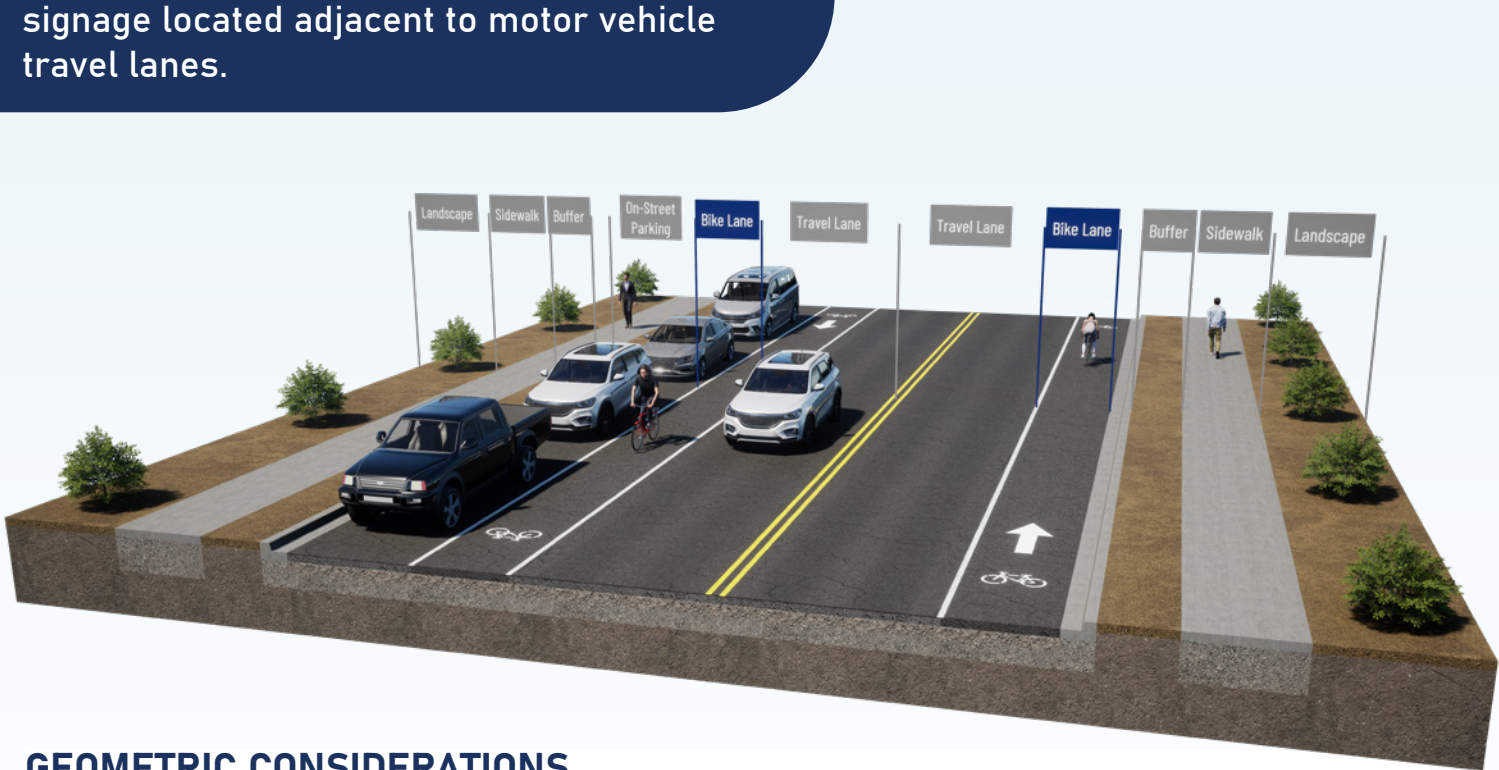


Standard Bike Lane

A standard bike lane is an exclusive space for bicyclists using pavement markings and signage located adjacent to motor vehicle travel lanes.

IMPACTED USERS:



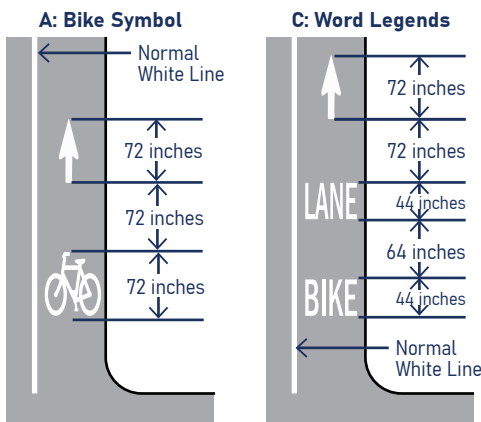


GEOMETRIC CONSIDERATIONS

- Design bike lanes to separate road users and reduce the stress of passing motor vehicles.
- The desirable bike lane width adjacent to a curb face is 5–7 feet (AASHTO).
- The desirable bike lane width adjacent to an edge of pavement is 6–7 feet (AASHTO).
- The minimum recommended distance between a bike lane and adjacent on-street parking is 5 feet to protect bicyclists from suddenly opened car doors (AASHTO).
- Bike lanes with a width of 7 feet or greater should include a buffer or other form of separation to distinguish them from auxiliary travel lanes or vehicle parking areas.

MARKINGS

Longitudinal pavement markings and bicycle lane symbol or word markings shall be used to define bicycle lanes (MUTCD 9E-1).



SIGNAGE

An optional “Bike Lane” sign (MUTCD R3-17) may be located prior to the beginning of a marked bike lane to designate that portion of the street for use by bicyclists (NACTO).



An optional “No Parking Bike Lane” sign (MUTCD R7-9) may be used if parked vehicles frequently block the bike lane (NACTO).



✓ BENEFITS AND CONSIDERATIONS

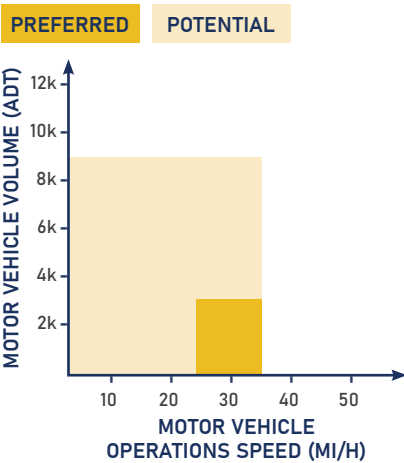
Increases bicyclist comfort and confidence on busy streets	✓
Creates separation between bicyclists and motor vehicles	✓
Increases predictability of bicyclist and motor vehicle positioning and interaction	✓
Increases total capacities of streets carrying bicycle and motor vehicle traffic	✓
Visually reminds motorists of space for bicyclists	✓
Most helpful on streets with < 3,000 motor vehicle average daily traffic	🔍
Green pavement may be used to enhance visibility of a bike lane	🔍
Gutter seams, drainage inlets, and utility covers should be flush with the ground and oriented to prevent conflict with bicycle tires	🔍
May be best suited for more confident bicyclists, especially on higher speed roadways	🔍
Bike lanes wider than 7 feet may be mistaken for vehicular travel lanes or parking lanes; consider buffered or separated bike lanes in such cases.	🔍

APPLICATION

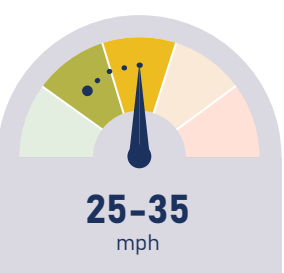
Land Use

URBAN	SUBURBAN	RURAL
Sometimes	Sometimes	Sometimes

Speed and Volume



Vehicle Speed



Cost



LOCAL STANDARDS

- [Pima County/City of Tucson Signing and Pavement Marking Manual \(2020\)](#)
- [City of Tucson Street Design Guide \(2021\)](#)

REGIONAL TREATMENT GUIDELINES

- 6 to 10-foot-wide paved facility adjacent to travel lanes.
- Striping and signing along roadway sections and at intersections to identify proper bicycle/vehicle interactions.
- Potential use of green pavement in special situations.

NATIONAL RESOURCES

- [NACTO Urban Bikeway Design Guide](#)
- [MUTCD 11th Edition](#)
- [FHWA Proven Safety Countermeasures](#)
- [AASHTO](#)
- [ADA](#)

TRANSIT INTEGRATION

In the event of bus pullout locations:

- Bicycle traffic is directed straight, to the left of the bus pullout zone, while buses transition across the bicycle lane to the right.
- Conflict-zone markings (skip dash markings) should be used to position the bicycle lane to the left of the bus pullout zone.
- Bus pullout lane must be wide enough to ensure buses do not extend into the bicycle lane.

AMENITY OPTIONS

- Wayfinding signage

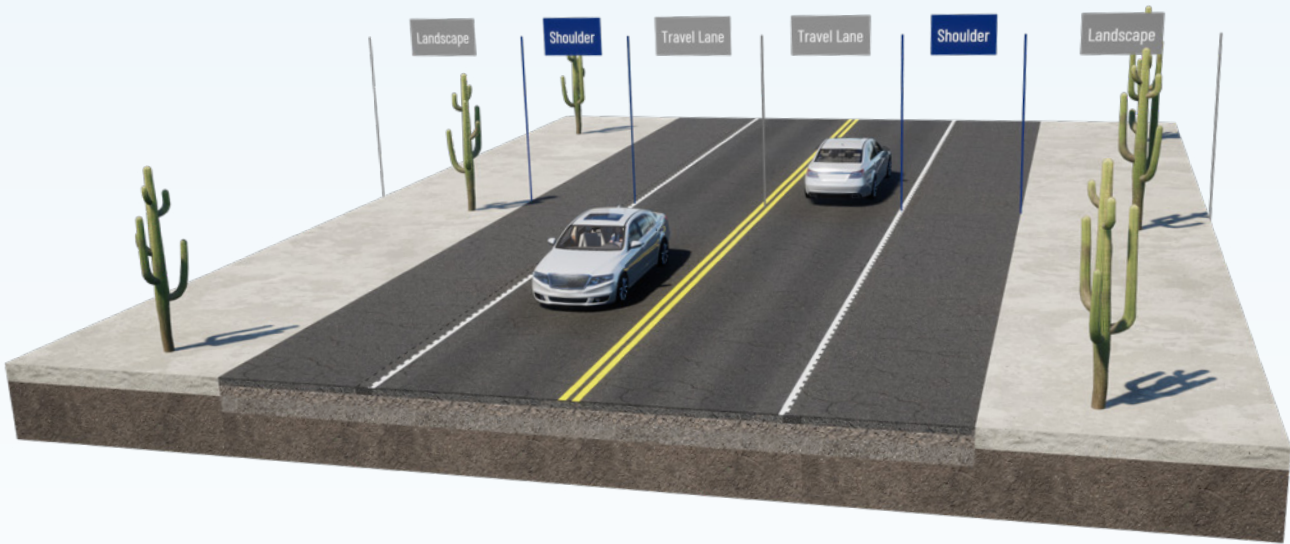
Paved Shoulder

A paved shoulder on the edge of the roadway serves as a space for bicyclists and pedestrians to travel where bike lanes and sidewalks are not provided.

IMPACTED
USERS:



Rural Paved Shoulder



GEOMETRIC CONSIDERATIONS

Roadway Classification	Volume	Speed (mph)	Minimum Width (feet)
Minor Collector	1,100 - 6,300	35	5
Major Collector	1,100 - 6,300	45	6.5
Minor Arterial	3,000 - 14,000	55	7
Principal Arterial	7,000 - 27,000	65	8

- Per NCHRP Synthesis 490, 2016:
- Rumble strips are an FHWA Proven Safety Countermeasure for reducing roadway departure crashes. If rumble strips are desired, provide gaps in the rumble strip pattern to allow access into and out of the paved shoulder area by bicyclists.

Volumes per FHWA Highway Functional Classification Concepts, Criteria and Procedures 2023 Edition

MARKINGS

- On paved shoulders designed for bicyclists, the edge should be clearly delineated. Options include:
- 4-inch white line
 - 8-inch white line
 - A narrow buffer space consisting of two 6-inch white lines separated by 18 inches

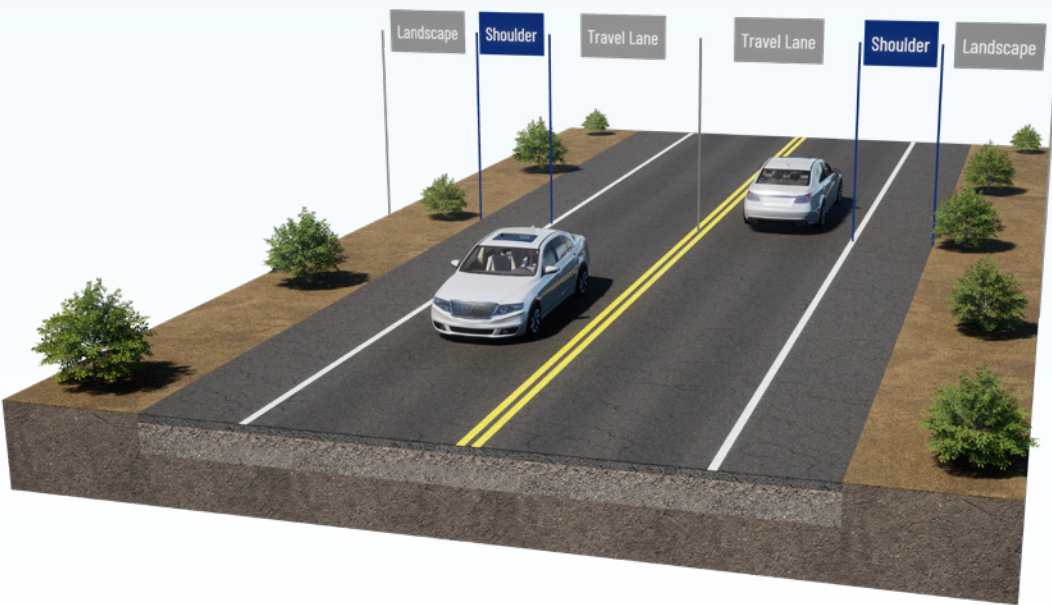
SIGNAGE

Appropriate striping and signing along roadway sections and at intersections to identify property bicycle/vehicle interactions.

BENEFITS AND CONSIDERATIONS

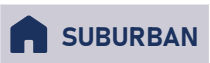
Provides roadway space for all users (bicyclists, pedestrians, motor vehicles)	✓
Improved pedestrian experience when sidewalks are not provided	✓
Improved bicyclist experience on roadway with higher speed and volume	✓
Requires a wider roadway to provide shoulder space	🔍

Urban Paved Shoulder

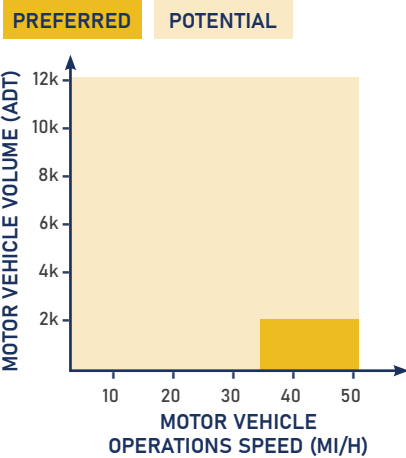


APPLICATION

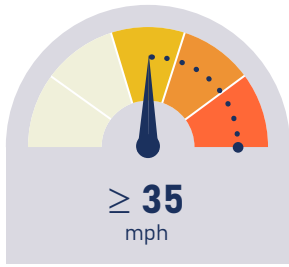
Land Use

 URBAN	 SUBURBAN	 RURAL
Rarely	Sometimes	Always

Speed and Volume



Vehicle Speed



Cost

\$
\$\$
\$\$\$

LOCAL STANDARDS

- Pima County Roadway Design Manual Chapter 2.6 Bicycle, Pedestrian and Transit Facilities

REGIONAL TREATMENT GUIDELINES

- Preferred width
- Urban – 6 feet
 - Rural Paved Road – 10 feet

NATIONAL RESOURCES

- NACTO Urban Bikeway Design Guide
- MUTCD 11th Edition
- AASHTO
- ADA

TRANSIT INTEGRATION

- In the event of bus pullout locations:
- Bicycle traffic is directed straight, to the left of the bus pullout zone, while buses transition across the bicycle lane to the right.
 - Conflict-zone markings (skip dash markings) should be used to position the bicycle lane to the left of the bus pullout zone.
 - Bus pullout lane must be wide enough to ensure buses do not extend into the bicycle lane.

AMENITY OPTIONS

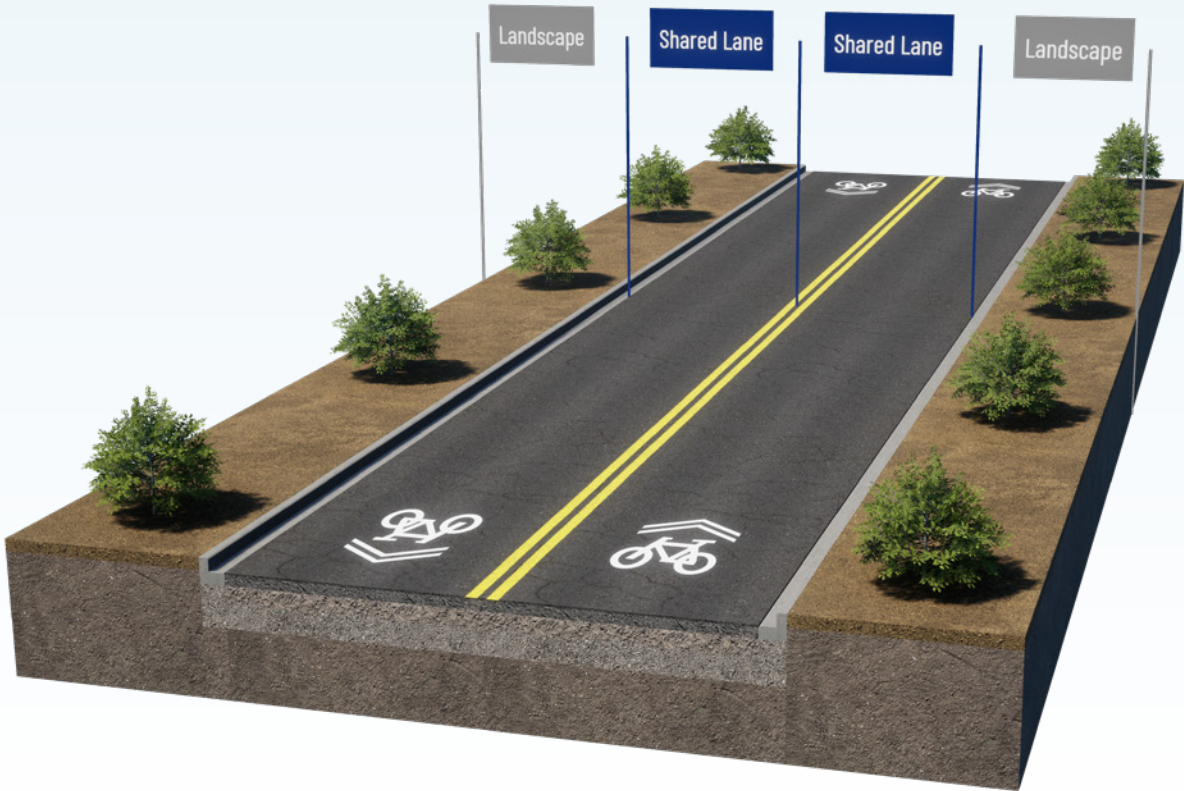
- None

Shared Lane

A shared lane has road markings used to indicate that bicyclists and motorists share the travel lane.

IMPACTED
USERS:

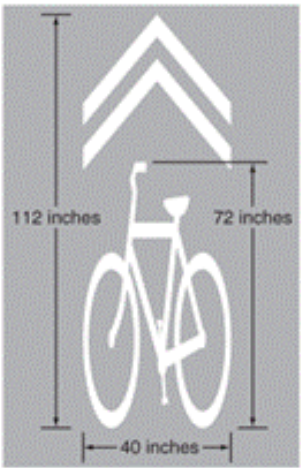




MARKINGS

Shared lane markings, otherwise known as 'sharrows', should be placed in the center of the travel lane to define the street as a shared lane.

New MUTCD guidance is currently being developed in the Standard Highway Signs publication.



MUTCD Figure 9C-9

SIGNAGE

An optional "Bike Route" sign (MUTCD D11-1) may be located prior to the beginning of a shared lane to indicate that bicyclists and motorists share travel lane and guide cyclists on a lower stress route.



BENEFITS AND CONSIDERATIONS

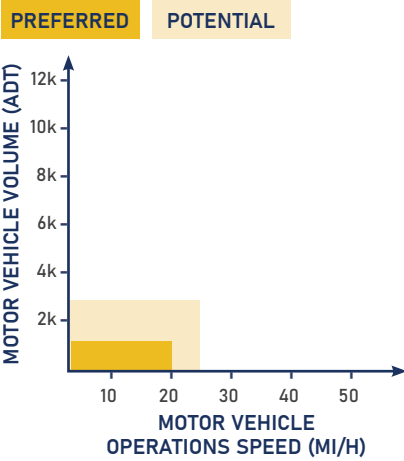
Encourages bicyclists to position themselves safely in lanes too narrow for a motor vehicles and bicycle to travel side by side	✓
Alerts motor vehicle drivers of the potential presence of bicyclists	✓
Doesn't require additional right-of-way	✓
Reduces the incidence of bicyclists riding on the sidewalk	✓
Use only where speed differential between motor vehicles and bicyclists is very low	

APPLICATION

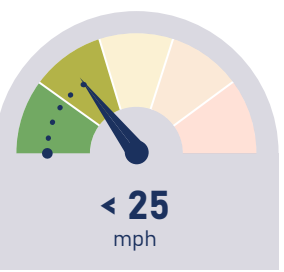
Land Use

 URBAN	 SUBURBAN	 RURAL
Sometimes	Sometimes	Rarely

Speed and Volume



Vehicle Speed



Cost

\$	\$\$	\$\$\$
----	------	--------

LOCAL STANDARDS

- City of Tucson Street Design Guide (2021)

REGIONAL TREATMENT GUIDELINES

- Frequent, visible placement of markings is essential.
- Shared lane markings should be placed in the center of the lane between wheel treads to minimize wear.

NATIONAL RESOURCES

- NACTO Urban Bikeway Design Guide
- MUTCD 11th Edition
- AASHTO
- ADA

TRANSIT INTEGRATION

Shared lanes should not be utilized along major transit routes.

AMENITY OPTIONS

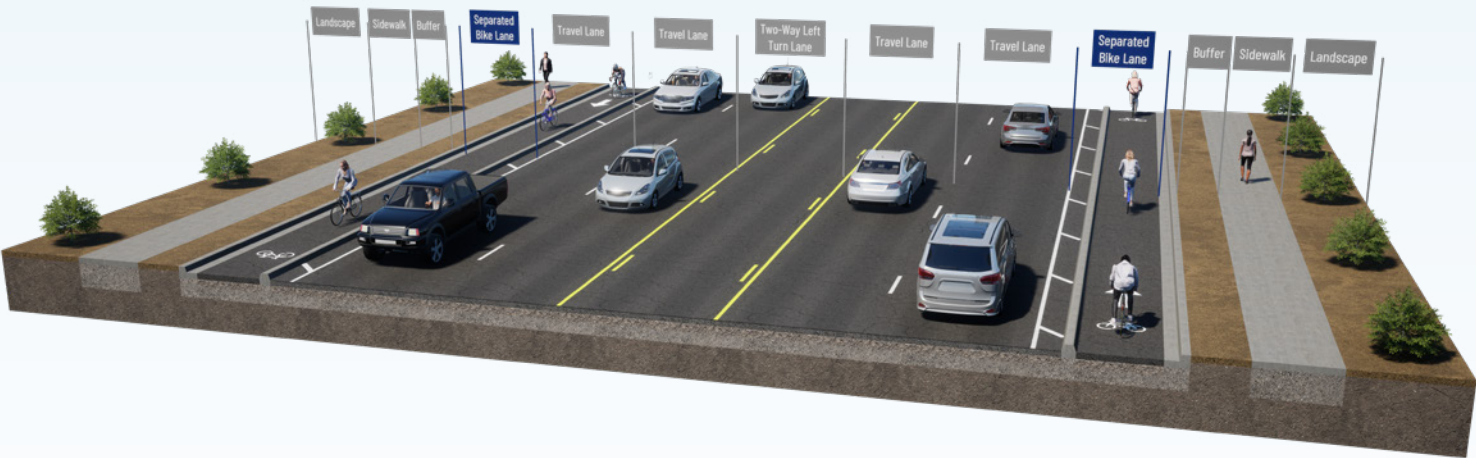
- Wayfinding signage

Separated Bike Lane

A separated bike lane is a bicycle facility adjacent to the roadway that uses a variety of methods to provide physical separation through the use of vertical objects between the vehicular and bicycle lanes.

IMPACTED
USERS:



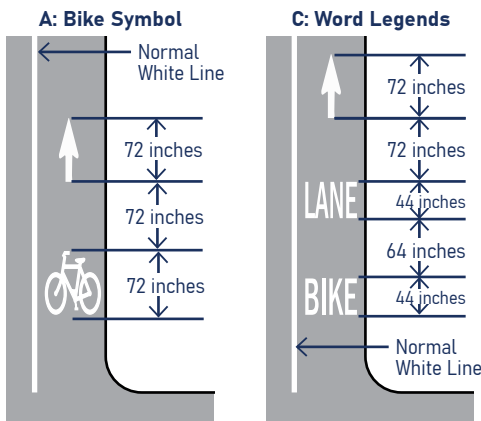


GEOMETRIC CONSIDERATIONS

- The desirable separated bike lane width is 6–8 feet (AASHTO).
- The minimum separated bike lane width is 4 feet (AASHTO).
- The preferred width of the median or curb separating the bike lane from motor vehicle traffic is 6 feet; the minimum practical width is 2 feet (AASHTO).
- A variety of physical protection measures may be used such as tubular markers, parked cars, movable planters, raised curb, etc.

MARKINGS

Longitudinal pavement markings and bicycle lane symbol or word markings shall be used to define bicycle lanes (MUTCD 9E-1).



SIGNAGE

An optional “Bike Lane” sign (MUTCD R3-17) may be located prior to the beginning of a separated bike lane to designate that portion of the street for use by bicyclists (NACTO).



BENEFITS AND CONSIDERATIONS

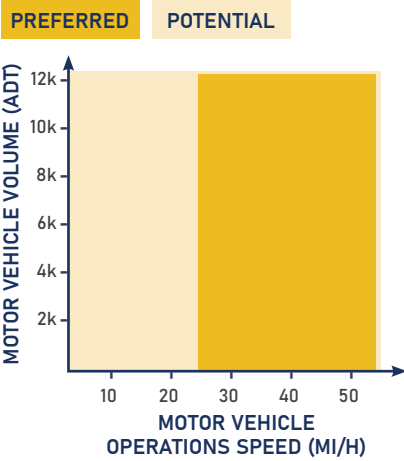
Dedicates and protects space for bicyclists by improving perceived comfort and safety	✓
Eliminates risk of collisions with over-taking motor vehicles	✓
Reduces risk of “dooring”	✓
Low implementation cost when using existing pavement and drainage	✓
More attractive to a wide range of bicyclists at all skill levels	✓
Most helpful on streets with few conflicts such as driveways or cross-streets	🔍
More feasible on streets with extra right-of-way	🔍
Most helpful on streets with high motor vehicle volumes and speeds	🔍
Most helpful on streets with high bicycle volumes	🔍

APPLICATION

Land Use

URBAN	SUBURBAN	RURAL
Always	Sometimes	Sometimes

Speed and Volume



Vehicle Speed



Cost



LOCAL STANDARDS

- [City of Tucson Street Design Guide \(2021\)](#)

REGIONAL TREATMENT GUIDELINES

- Separated bike lanes should be maintained to be free of potholes, broken glass, and other debris.
- Gutter seams, drainage inlets, and utility covers should be configured so as not to impede bicycle travel and to facilitate stormwater run-off.
- Sidewalk curbs and furnishings should be used to prevent pedestrian use of the cycle zone.
- Two-stage turn boxes should be provided to assist in making turns from the separated bike lane facility.

NATIONAL RESOURCES

- [NACTO Urban Bikeway Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

TRANSIT INTEGRATION

- Consider wrapping the separated bike lane behind the transit stop zone to reduce conflicts between bicyclists and transit vehicles. Extra consideration may be needed to manage bicycle and pedestrian interactions.

AMENITY OPTIONS

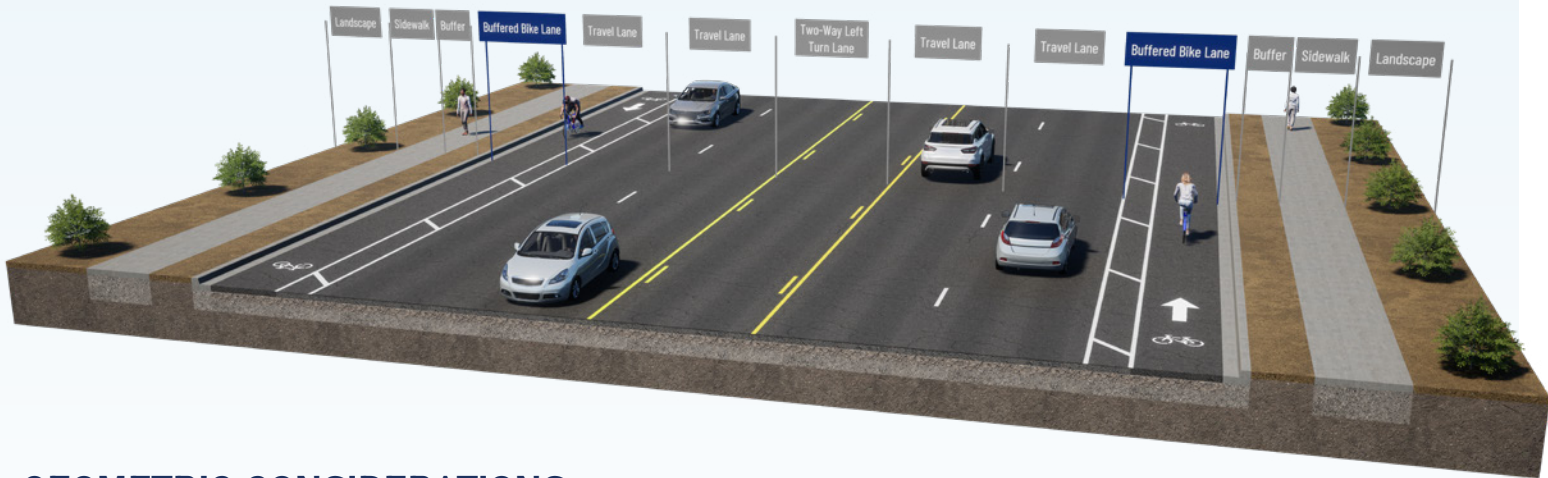
- Wayfinding signage
- Bike counters

Buffered Bike Lane

A buffered bike lane is a conventional bike lane paired with a designated space separating the bicycle lane from the adjacent motor vehicle travel lane.

IMPACTED
USERS:





GEOMETRIC CONSIDERATIONS

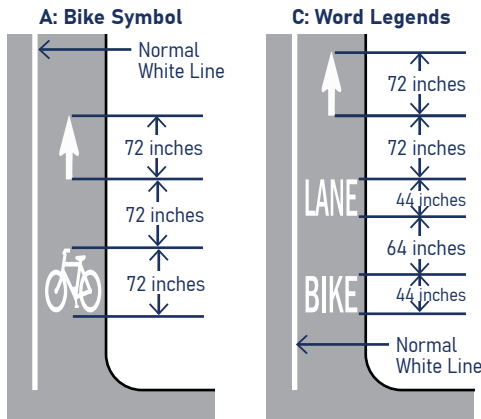
- Buffer should be a should be between 2 - 4 feet wide (AASHTO).
- If used, interior diagonal cross hatching should consist of 4" lines angled at 30 to 45 degrees and striped at intervals of 10 to 40 feet (NACTO).
- Where there is street parking and sufficient room exists, a buffer (3 ft. preferred) should be striped in between the parking lane and bike lane in addition to the buffer between the bike lane and the motor vehicle travel lane. Where space constraints make a double-buffered lane unfeasible, placement of the buffer may be determined based on parking utilization and turnover.

MARKINGS

Where there is street parking and sufficient room exists, a buffer (3 ft. preferred) should be striped in between the parking lane and bike lane in addition to the buffer between the bike lane and the motor vehicle travel lane

Longitudinal pavement markings and bicycle lane symbol or word markings shall be used to define bicycle lanes (MUTCD 9E-1).

Per MUTCD, buffers greater than 3 feet wide shall have chevrons or diagonal markings; 2-3 foot buffers shall have chevrons or diagonal markings.



SIGNAGE

An optional "Bike Lane" sign (MUTCD R3-17) may be located prior to the beginning of a buffered bike lane to designate that portion of the street for use by bicyclists (NACTO).



An optional "No Parking Bike Lane" sign (MUTCD R7-9/R7-9a) may be used if parked vehicles frequently block the buffered bike lane (NACTO).



✓ BENEFITS AND CONSIDERATIONS

- Provides greater separation between motor vehicles and bicyclists than a standard bike lane

✓
- Provides space for bicyclists to pass another bicyclist without entering motor vehicle travel lane

✓
- May be used anywhere a standard bicycle lane is considered if sufficient right-of-way exists


- May be used on streets with higher motor vehicle volumes and speeds

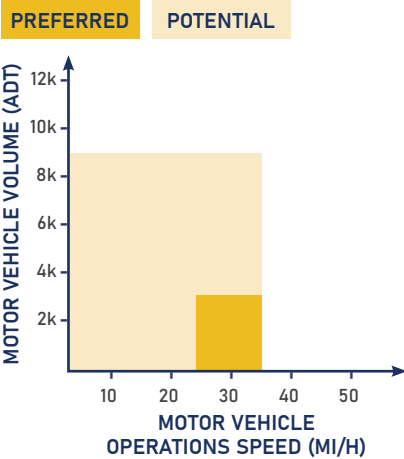


APPLICATION

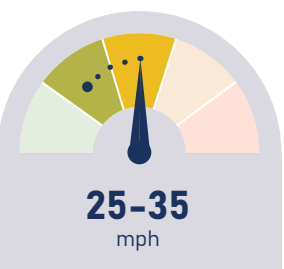
Land Use

URBAN	SUBURBAN	RURAL
Always	Always	Sometimes

Speed and Volume



Vehicle Speed



Cost



LOCAL STANDARDS

- [City of Tucson Street Design Guide \(2021\)](#)

REGIONAL TREATMENT GUIDELINES

- Striping and signing along roadway sections and at intersections to identify proper bicycle/vehicle interactions.
- Potential use of green pavement in special situations.

NATIONAL RESOURCES

- [NACTO Urban Bikeway Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

TRANSIT INTEGRATION

In the event of bus pullout locations:

- Bicycle traffic is directed straight, to the left of the bus pullout zone, while buses transition across the bicycle lane to the right.
- Conflict-zone markings (skip dash markings) should be used to position the bicycle lane to the left of the bus pullout zone.
- Bus pullout lane must be wide enough to ensure buses do not extend into the bicycle lane.

AMENITY OPTIONS

- Wayfinding signage
- Bike counters

Bicycle Boulevard

A bicycle boulevard is a local street designated and designed to give bicycle travel priority. A bicycle boulevard uses signs, pavement markings, and traffic calming measures to discourage through trips by motor vehicles and slow traffic.

IMPACTED
USERS:



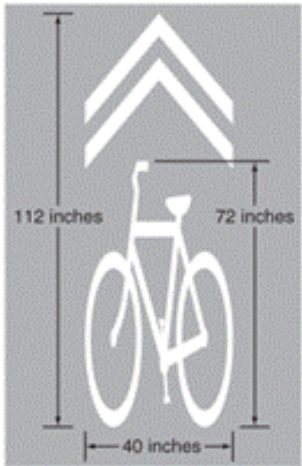
GEOMETRIC CONSIDERATIONS

- Bicycle boulevards combine road markings, traffic calming measures, and crossing improvements across major roadways to enhance the comfort and efficiency of bicyclists traveling along the route.

MARKINGS

Shared lane markings may be placed in the center of the travel lane to define the street as a shared lane.

New MUTCD guidance is currently being developed in the Standard Highway Signs publication.



MUTCD Figure 9C-9

SIGNAGE

The City of Tucson Bicycle Boulevard Master Plan recommends modified street signs and wayfinding signs to increase visibility and familiarity with bicycle priority streets.



✓ BENEFITS AND CONSIDERATIONS

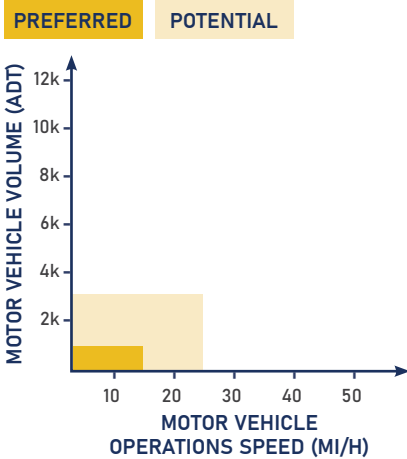
Reduces motor vehicle volumes and speeds	✓
Improves bicyclist comfort on a corridor	✓
Reduces crash volume and severity of motor vehicle with bicyclists	✓
Cost-effective use of existing local roadways to make connections to other bicycle facilities	✓
Requires continuous and connected right-of-way or access easements between intersections with major streets	🔍

APPLICATION

Land Use

URBAN	SUBURBAN	RURAL
Always	Sometimes	Sometimes

Speed and Volume



Vehicle Speed



Cost



LOCAL STANDARDS

- [City of Tucson Street Design Guide \(2021\)](#)
- [City of Tucson Bicycle Boulevard Master Plan](#)

REGIONAL TREATMENT GUIDELINES

- Utilize roadway designs to slow motor vehicle speeds
- Create safe and convenient roadway crossing opportunities for bicyclists and pedestrians
- Utilize local rainwater harvesting practices that incorporate vegetation and public art into traffic calming measures to enhance the corridor

NATIONAL RESOURCES

- [NACTO Urban Bikeway Design Guide](#)
- [FHWA Proven Safety Countermeasures](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

TRANSIT INTEGRATION

Bicycle boulevards should not be utilized along transit routes.

AMENITY OPTIONS

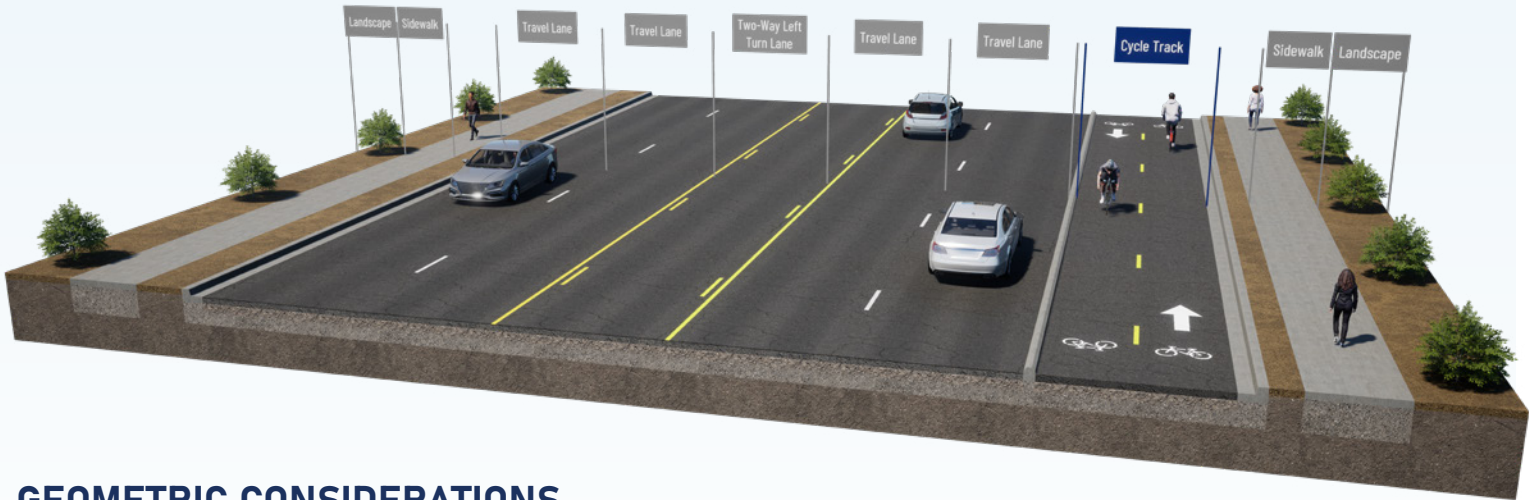
- Wayfinding signage
- Bicycle boulevard naming/branding

Cycle Track

A cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane allowing bicycle movement in both directions.

IMPACTED
USERS:



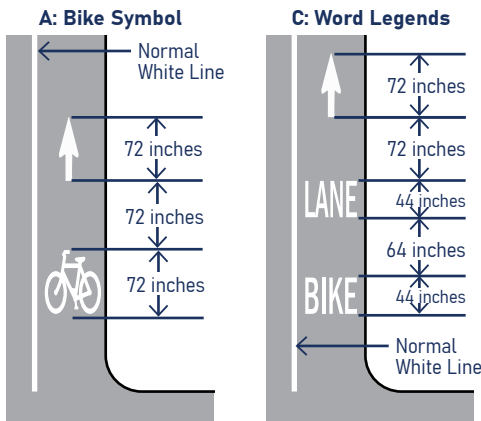


GEOMETRIC CONSIDERATIONS

- Preferred travel surface width is 13 feet. Minimum width is 8 feet (NACTO).
- When protected by a parking lane, 3 feet is the preferred width for a parking buffer.

MARKINGS

Longitudinal pavement markings and bicycle lane symbol or word markings shall be used to define bicycle lanes (MUTCD 9E-1).



SIGNAGE

A “DO NOT ENTER” sign (MUTCD R5-1) with “EXCEPT BIKES” plaque (R3-7bP) may be posted along the facility.

If on a one-way street, a “ONE WAY” sign (MUTCD R6-1, R6-2) with “EXCEPT BIKES” plaque (R3-7bP) may be posted along the facility and at intersecting streets.

Intersection traffic controls along the street may be installed and oriented toward bicyclists.



BENEFITS AND CONSIDERATIONS

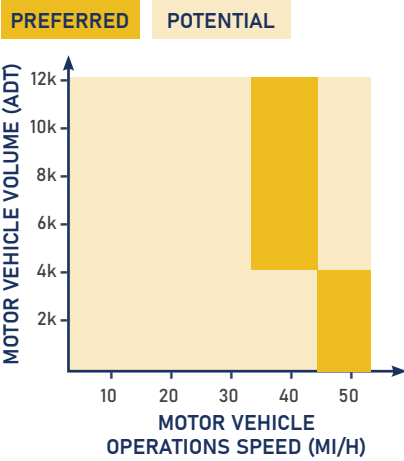
Provides two-way bicycle traffic on one side of the road	✓
Dedicates and protects space for bicyclists by improving perceived comfort and safety	✓
Eliminates risk of collisions with over-taking vehicles	✓
Reduces risk of “dooring”	✓
Low implementation cost when using existing pavement and drainage	✓
More attractive to a wide range of bicyclists at all skill levels	✓
Provides enhanced protection for bicyclists on streets with high motor vehicle volumes and speeds	✓
Best used on streets with few conflicts such as driveways or cross-streets on one side of the street	🔍
Best used on streets with extra right-of-way on one side	🔍
Best used on streets with high bicycle volumes	🔍
Utilize two-stage turn boxes at intersections for bicyclists turning left	🔍
Physical separation may be achieved using parked cars, curb, planters, etc.	🔍
Commonly used when limited ROW prevents the use of separated bike lanes	🔍

APPLICATION

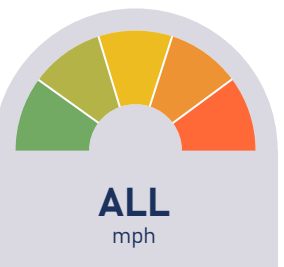
Land Use

URBAN	SUBURBAN	RURAL
Sometimes	Sometimes	Rarely

Speed and Volume



Vehicle Speed



Cost



LOCAL STANDARDS

- City of Tucson Street Design Guide (2021)

REGIONAL TREATMENT GUIDELINES

- A dashed line may be used to separate two-way bicycle traffic and to help differentiate between adjacent pedestrian space.
- Potential use of green pavement in special situations.

NATIONAL RESOURCES

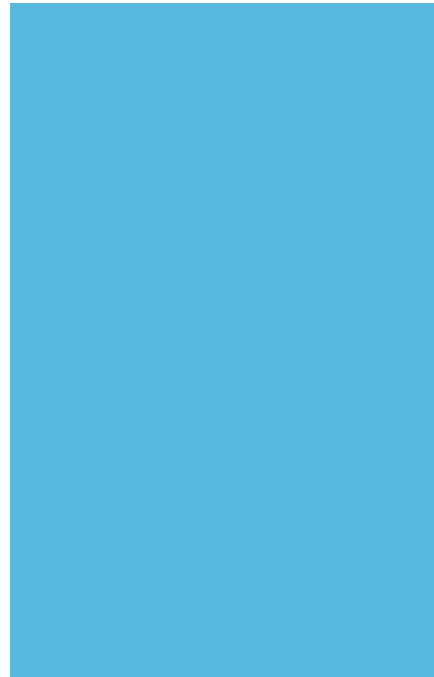
- NACTO Urban Bikeway Design Guide
- AASHTO
- MUTCD 11th Edition
- ADA

TRANSIT INTEGRATION

- Consider wrapping the cycle track behind the transit stop zone to reduce conflicts with transit vehicles and passengers.
- A raised median, bus bulb, or curb extension may be configured in the cycle track buffer area to accommodate transit stops.

AMENITY OPTIONS

- Wayfinding signage
- Bike counters



OFF-STREET IMPROVEMENTS

Sidewalk

A sidewalk is the paved portion of a street right-of-way, beyond the curb or edge of roadway pavement, which is intended for use by pedestrians.

IMPACTED
USERS:



GEOMETRIC CONSIDERATIONS

Design sidewalks to separate pedestrians from other road users.

- The minimum sidewalk width is 5 feet if set back from the curb (FHWA).
- The minimum sidewalk width is 6 feet if set back from the curb face (FHWA).

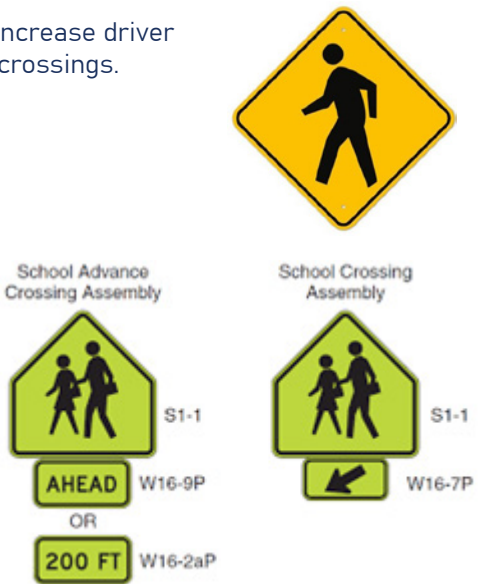
MARKINGS

No markings are required for sidewalks.

SIGNAGE

MUTCD W11-2 sign may be used to increase driver awareness of potential pedestrian crossings.

MUTCD S1-1, potentially paired with other signs (W16-9P, W16-2aP, W16-7P), may be used to increase driver awareness of school zone.



BENEFITS AND CONSIDERATIONS

Provides a dedicated space for pedestrians to safely travel



Reduces “walking along roadway” crashes



May not support a rural character when combined with curb and gutter



Requires a moderate roadway right-of-way

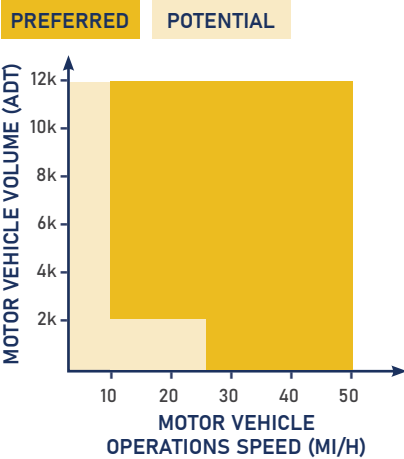


APPLICATION

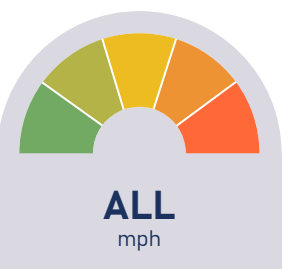
Land Use

URBAN	SUBURBAN	RURAL
Always	Always	Sometimes

Speed and Volume



Vehicle Speed



Cost



LOCAL STANDARDS

- [Pima County Roadway Design Manual Chapter 2.6 Bicycle, Pedestrian and Transit Facilities](#)
- [City of Tucson Street Design Guide \(2021\)](#)

REGIONAL TREATMENT GUIDELINES

- The recommended sidewalk width is 5 feet but may be increased to accommodate special conditions.
- When the sidewalk is designed to be flush with the back of the raised curb, the standard width is 6 feet.

NATIONAL RESOURCES

- [NACTO Urban Bikeway Design Guide](#)
- [FHWA Proven Safety Countermeasures](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)
- [ADOT Traffic Safety Guidelines for School Areas](#)
- [PROWAG](#)

TRANSIT INTEGRATION

Sidewalks should connect pedestrians directly to transit stops.

AMENITY OPTIONS

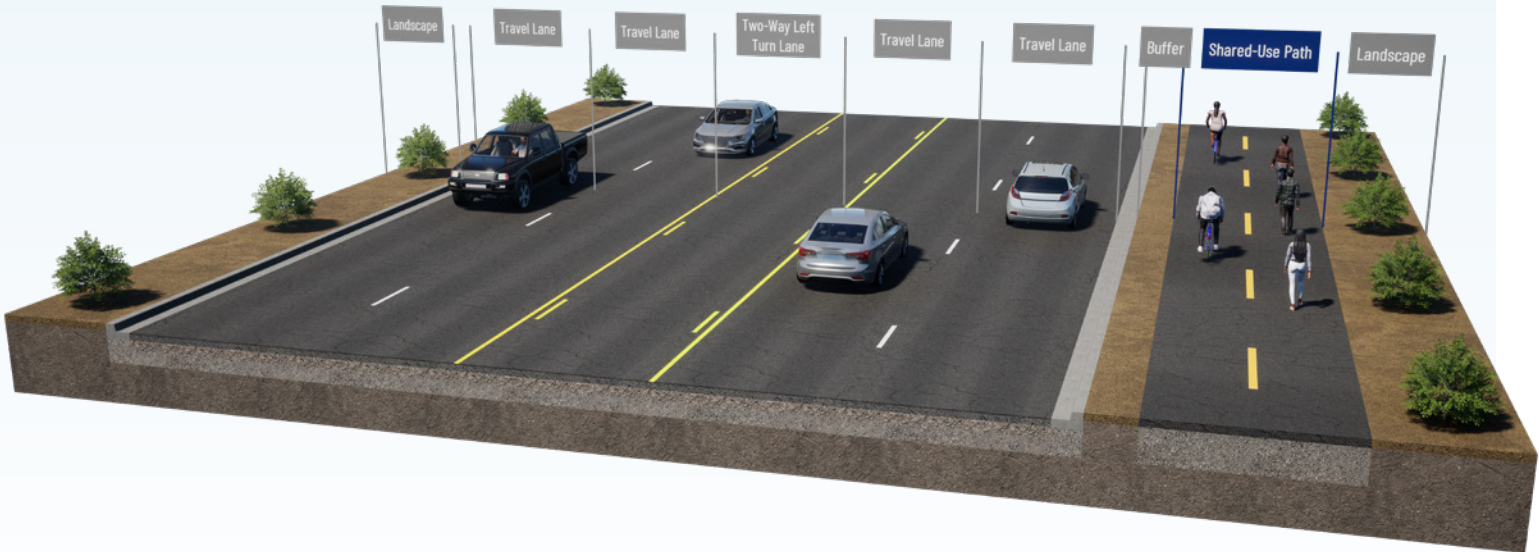
- A furnishing zone of 4-6 feet may be placed between the street and sidewalk to create a buffer between pedestrians and motor vehicles while providing space for mailboxes, signs, street lighting, and other utilities
- Landscaping
- Public art, shading, and seating are encouraged at various locations along the sidewalk

Shared-Use Path

A shared pathway for bicycles and pedestrians that is physically separated from motorized vehicular traffic by an open space or barrier.

IMPACTED
USERS:





GEOMETRIC CONSIDERATIONS

- The desired shared-use path width is 12–14 feet (AASHTO).
- The minimum shared-use path width is 10 feet (AASHTO).
- A desired graded area of 3 feet with a maximum 1:6 slope should be maintained on both sides of the shared-use path (FHWA).
- A minimum graded area of 2 feet with a maximum 1:6 slope should be maintained on both sides of the shared-use path (FHWA).

MARKINGS

In most circumstances, center line markings are not needed, but may be used in the following situations:

- When striping is required, use a 4-inch broken yellow center line stripe.
- Solid center lines may be provided on blind corners and on approaches to roadway crossings.

SIGNAGE

Bikes Yield to Peds (MUTCD R9-6) signs may be used to clarify yielding rules on shared-use paths.



Bicycle and Pedestrian Crossing (MUTCD W11-15) signs may be used at all roadway crossings.



✓ BENEFITS AND CONSIDERATIONS

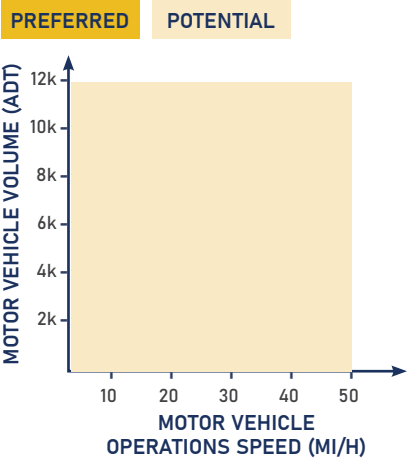
Provides access for all users to areas primarily served by high-speed roads	✓
Used as a system of off-road transportation routes	✓
More attractive to a wide range of bicyclists at all skill levels	✓
Shared-use paths fall under ADA accessibility requirement	
Conflicts exist between bicyclists and pedestrians on the path traveling at different speeds	
May require a lot of right-of-way	

APPLICATION

Land Use

 URBAN	 SUBURBAN	 RURAL
Sometimes	Sometimes	Always

Speed and Volume



Vehicle Speed



Cost



LOCAL STANDARDS

- [Pima Regional Trail System Master Plan](#)
- [Pima County Roadway Design Manual Chapter 2.6 Bicycle, Pedestrian, and Transit Facilities](#)
- [City of Tucson Street Design Guide \(2021\) Chapter 3](#)

REGIONAL TREATMENT GUIDELINES

Per the Pima Regional Trail System Master Plan:

- 12-foot-wide paved shared-use path
- 4 feet unpaved on one side
- 2 feet soft/mowed on side opposite unpaved

NATIONAL RESOURCES

- [NACTO Urban Bikeway Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

AMENITY OPTIONS

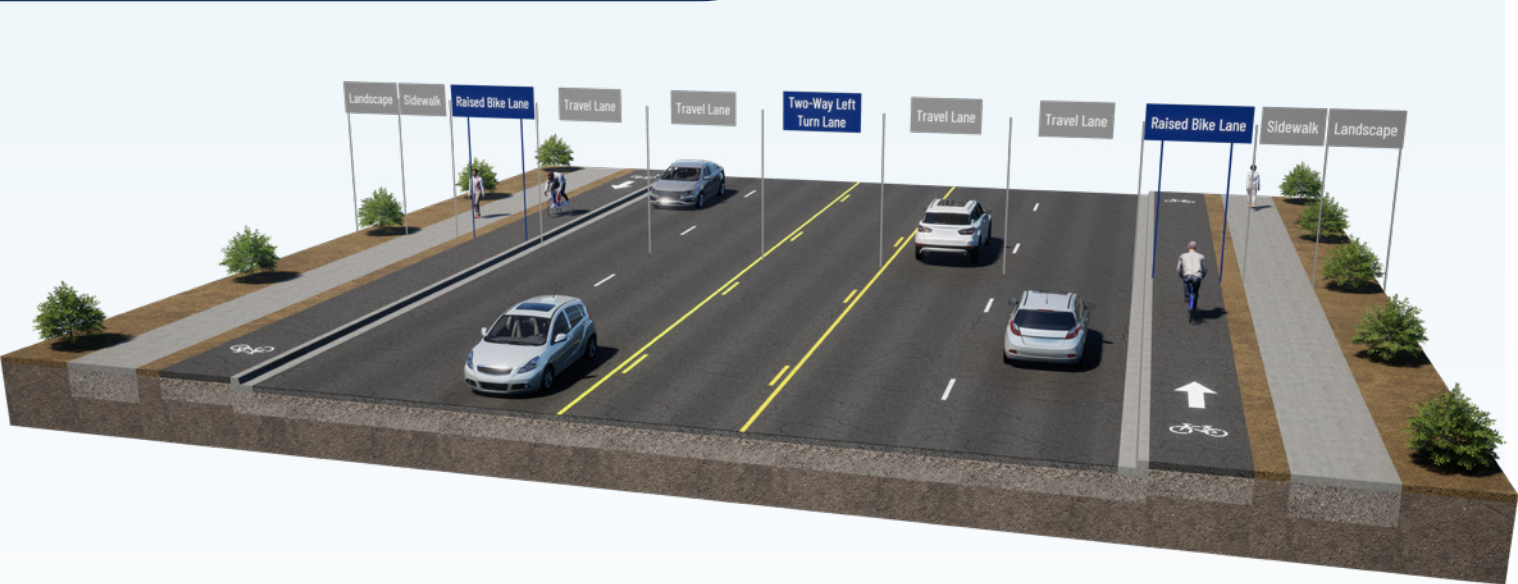
- Refer to Crossing Improvements section for guidance on appropriate crossing facilities. A rectangular rapid flashing beacon (RRFB) may be considered at arterial roadway crossings to increase visibility, however a HAWK or Pedestrian Hybrid Beacon crossing is recommended which provides a significantly higher level of driver compliance.
- Public art, shading, and seating are encouraged at various locations along the shared-use path
- Bike counters

Raised Bike Lane

A raised bike lane is a bicycle facility that is vertically separated from motor vehicle traffic.

IMPACTED
USERS:



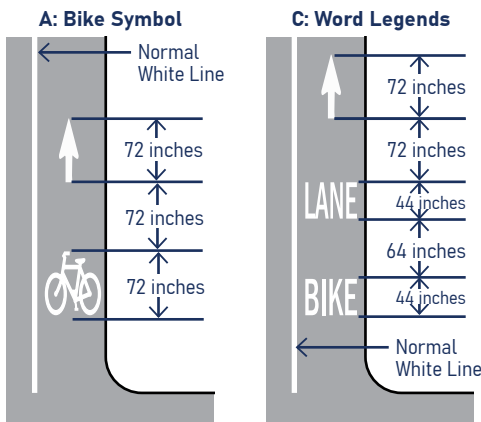


GEOMETRIC CONSIDERATIONS

- Preferred travel surface width is 6.5 – 8 feet. Minimum width is 5 feet (AASHTO).
- Vertical separation between the roadway and the raised bike lane should be between 1 and 6 inches (AASHTO).
- Vertical separation between the raised bike lane and the sidewalk should be between zero and 5 inches (AASHTO).
- If used, a mountable curb should have a 4:1 slope edge without any seams or lips to interfere with bike tires to allow for safe entry/exit of the roadway (AASHTO).

MARKINGS

Longitudinal pavement markings and bicycle lane symbol or word markings shall be used to define bicycle lanes (MUTCD 9E-1).



SIGNAGE

An optional “Bike Lane” sign (MUTCD R3-17) may be located prior to the beginning of a marked bike lane to designate that portion of the street for use by bicyclists (NACTO).



An optional “No Parking Bike Lane” sign (MUTCD R7-9/R7-9a) may be used if parked vehicles frequently block the bike lane (NACTO).



BENEFITS AND CONSIDERATIONS

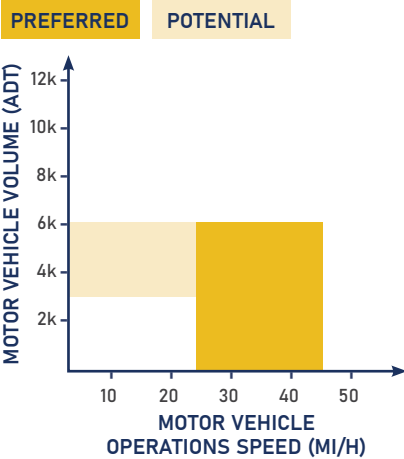
Dedicates and protects space for bicyclists to improve perceived comfort and safety	✓
More attractive to a wide range of bicyclists at all skill levels	✓
Encourages bicyclists to ride in the bikeway rather than the sidewalk	✓
Can visually reduce the width of the street	✓
Minimizes maintenance costs due to limited motor vehicle wear	✓
With new roadway construction a raised bike lane can be less expensive to construct than a wide or buffered bike lane	✓
May be at the level of the adjacent sidewalk or set at an intermediate level between the roadway and sidewalk	🔍
May be paired with a furnishing zone between the motor vehicle travel lane and the raised bike lane	🔍
Best used on streets with few driveways and cross streets	🔍
May be used on streets with many curves where motor vehicles may encroach into bike lane	🔍
On streets with high motor vehicle volumes and speeds	🔍

APPLICATION

Land Use

URBAN	SUBURBAN	RURAL
Always	Sometimes	Rarely

Speed and Volume



Vehicle Speed



Cost



LOCAL STANDARDS

- [City of Tucson Street Design Guide \(2021\)](#)

REGIONAL TREATMENT GUIDELINES

- If configured at a height flush with the sidewalk, green pavement, pavement markings, textured surfaces, landscaping, or other furnishings should be used to discourage pedestrian use of the cycle zone.

NATIONAL RESOURCES

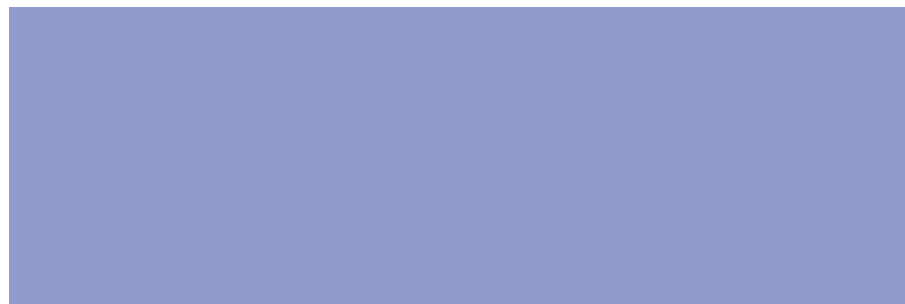
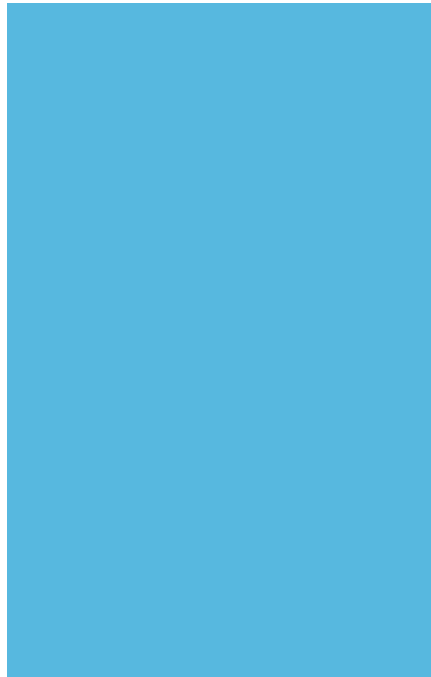
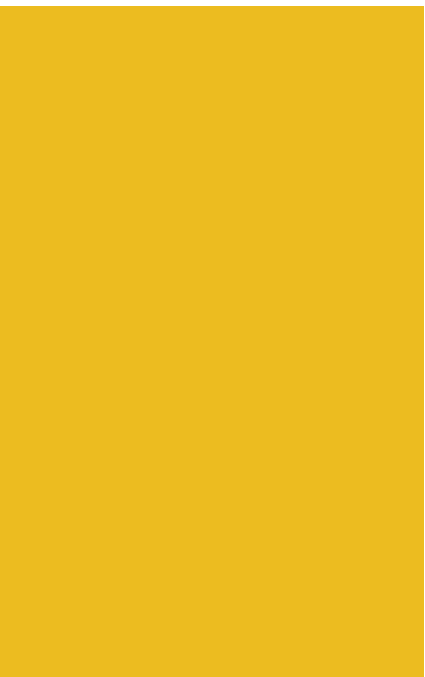
- [NACTO Urban Bikeway Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

TRANSIT INTEGRATION

Consider wrapping the raised bike lane behind the transit stop zone to reduce conflicts with transit vehicles and passengers.

AMENITY OPTIONS

- Wayfinding signage
- Bike counters



CROSSING IMPROVEMENTS

Marked Crosswalk

IMPACTED
USERS:



A marked crosswalk is a location dedicated for pedestrians to cross the street.



APPLICATION

Land Use

 URBAN

Always

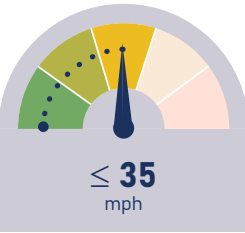
 SUBURBAN

Always

 RURAL

Always

Vehicle Speed



≤ 35
mph

Cost

\$

\$\$

\$\$\$

✓ BENEFITS AND CONSIDERATIONS

Channelizes pedestrians to a single crossing location	✓
Advises motor vehicle drivers where to anticipate pedestrians crossing the road	✓
Intersection crossings should be kept as narrow as possible	🔍
Accessible curb ramps are required by the ADA at all crosswalks	🔍
Insufficient pedestrian protection on roadways of 4 lanes or greater with an ADT of 12,000 or greater	🔍
Visibility concerns can be addressed with High-Visibility Crosswalks per FHWA Proven Safety Countermeasures	🔍

LOCAL STANDARDS

- [Pima County/City of Tucson Signing and Pavement Marking Manual \(2020\)](#)
- [ARS School Zones](#)

NATIONAL RESOURCES

- [NACTO Urban Street Design Guide](#)
- [FHWA Proven Safety Countermeasures](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)
- [FHWA Guide for Selecting Countermeasures at Uncontrolled Pedestrian Locations](#)

Raised Crosswalk

IMPACTED
USERS:



A raised crosswalk is a ramped speed table spanning the entire width of the roadway, often placed at midblock crossing locations. The crosswalk is marked with paint and/or special paving materials.



APPLICATION

Land Use

 URBAN

Sometimes

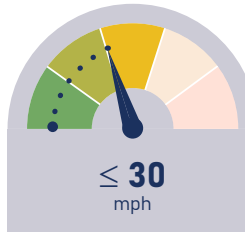
 SUBURBAN

Sometimes

 RURAL

Rarely

Vehicle Speed



≤ 30
mph

Cost

\$

\$\$

\$\$\$

✓ BENEFITS AND CONSIDERATIONS

Reinforces slow speeds for motor vehicles encouraging drivers to yield to pedestrians	✓
Allows pedestrians to cross the street at grade with the sidewalk	✓
Should be used in conjunction with crosswalk visibility enhancements	🔍
Special attention should be given to drainage	🔍
Typically installed on 2-lane or 3-lane roads with ADT under 9,000	🔍
Multiple raised crosswalks on one route may disrupt transit, maintenance, or emergency service vehicles	🔍
May create challenges for street sweepers and pavement maintenance	🔍

LOCAL STANDARDS

- [Pima County/City of Tucson Signing and Pavement Marking Manual \(2020\)](#)
- [ARS School Zones](#)

NATIONAL RESOURCES

- [NACTO Urban Street Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)
- [FHWA Guide for Selecting Countermeasures at Uncontrolled Pedestrian Locations](#)

Pedestrian Refuge Island

A pedestrian refuge island is a space in the center of the road where a vulnerable road user can safely wait, separated from motor vehicle travel lanes, while crossing the street in two stages.

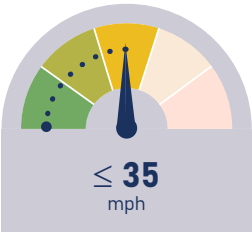


APPLICATION

Land Use

	URBAN
	Always
	SUBURBAN
	Always
	RURAL
	Sometimes

Vehicle Speed



Cost



✓ BENEFITS AND CONSIDERATIONS

Reduction in pedestrian crashes	✓
Pedestrians may cross the street in two stages	✓
Preferred 8 feet wide for pedestrian comfort (minimum 6 feet wide)	
Should be illuminated or highlighted with street lights, signs, and/or reflectors to ensure they are visible to motorists	
Can be used in conjunction with other crossing improvements such as marked crosswalks, RRFBs, HAWKs, and raised crosswalks	

LOCAL STANDARDS

- [ARS School Zones](#)

NATIONAL RESOURCES

- [ITE Traffic Calming Measures](#)
- [AASHTO](#)
- [ADA](#)
- [FHWA Guide for Selecting Countermeasures at Uncontrolled Pedestrian Locations](#)

Protected Intersection

IMPACTED USERS:    

A protected intersection is an intersection with the bikeway set back from the parallel motor vehicle traffic giving bicyclists a dedicated path through the intersection.



APPLICATION

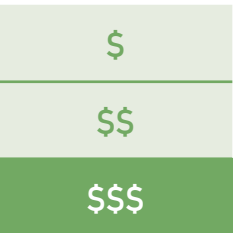
Land Use

	URBAN
	Sometimes
	SUBURBAN
	Sometimes
	RURAL
	Rarely

Vehicle Speed



Cost



✓ BENEFITS AND CONSIDERATIONS

Provides separated space for bicyclists to cross the intersection	✓
Reduces the distance and time for a bicyclist to cross the intersection	✓
Reduces motor vehicle turn speeds	✓
Improves driver visibility of bicyclists	✓
Transitions from standard bike lanes should start far in advance of the intersection	
Standard separated bike lane widths should be used in the protected intersection	
Provide a queuing space for bicyclists	
May increase difficulties for visually impaired pedestrians	
May require special street sweeping practices	

NATIONAL RESOURCES

- [NACTO Urban Street Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

Raised Intersection

IMPACTED
USERS:



A raised intersection is an intersection that is elevated to the level of the sidewalk to ensure that drivers cross slowly.



National Association of City of Transportation Officials

APPLICATION

Land Use

	URBAN
Sometimes	
	SUBURBAN
Sometimes	
	RURAL
Rarely	

Vehicle Speed



Cost

\$

\$\$

\$\$\$

✓ BENEFITS AND CONSIDERATIONS

Reinforces slow speeds for motor vehicles encouraging drivers to yield to pedestrians	✓
Allows pedestrians to cross the street at grade with the sidewalk	✓
Often used with crosswalk visibility enhancements	
Special attention should be given to drainage	
Do not use if sight distance is limited or street is steep	
Multiple raised intersections on one route may disrupt bus or emergency service vehicles	
May create maintenance challenges for sweepers and pavement maintenance vehicles	

NATIONAL RESOURCES

- [NACTO Urban Street Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

Bike Box

IMPACTED
USERS:



A bike box is a designated area in advance of a crosswalk at a signalized intersection that provides bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase.



University and Park Ave

APPLICATION

Land Use

	URBAN
Sometimes	
	SUBURBAN
Rarely	
	RURAL
Rarely	

Vehicle Speed



Cost

\$

\$\$

\$\$\$

✓ BENEFITS AND CONSIDERATIONS

Increases visibility of bicyclists	✓
Reduces signal delays for bicyclists	✓
Facilitates bicyclist left turn positioning at intersections during red signal indication	✓
Helps prevent "right-hook" conflicts with turning motor vehicles	✓
Groups bicyclists together to quickly clear an intersection	✓
Utilize where there is a desire to better accommodate left turning bicycle traffic	
A "No Turn on Red" sign should be installed to prevent motor vehicles from entering the queuing area	
Green paving inside the queuing area should be used to increase visibility	

NATIONAL RESOURCES

- [NACTO Bikeway Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

Two-Stage Turn Box

IMPACTED
USERS:



A Two-Stage Turn Box is a designated place for cyclists that have made a through movement at a signalized intersection to rotate their bikes 90-degrees and wait for the subsequent through movement, thereby formalizing a two-stage left-turn.



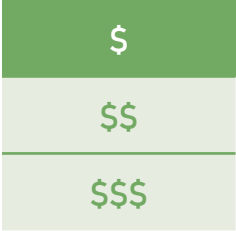
APPLICATION

Land Use

	URBAN
Sometimes	
	SUBURBAN
Sometimes	
	RURAL
Rarely	

Vehicle Speed

Cost



✓ BENEFITS AND CONSIDERATIONS

Improves bicyclist ability to safely and comfortably make left turns	✓
Provides a formal queuing space for bicyclists making a two-stage turn	✓
Reduces turning conflicts between bicyclists and motor vehicles	✓
Prevents conflicts arising from bicyclists queuing in a bike lane or crosswalk	✓
Separates turning bicyclists from through bicyclists	✓
The queuing box should be placed in a protected area, typically within an on-street parking lane or between the bicycle lane and the pedestrian crossing	
A "No Turn on Red" sign should be installed if right-turning motor vehicles enter the queuing area	
Green paving inside the queuing area should be used to increase visibility	
Good to pair with cycle tracks, raised bike lanes, and separated bike lanes	

NATIONAL RESOURCES

- [NACTO Bikeway Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

Overpass

IMPACTED
USERS:



An overpass is a structure that allows for pedestrians and bicyclists to travel above the flow of motor vehicle traffic.



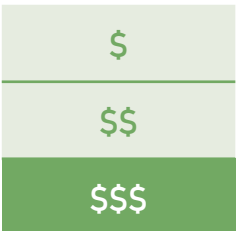
APPLICATION

Land Use

	URBAN
Sometimes	
	SUBURBAN
Sometimes	
	RURAL
Rarely	

Vehicle Speed

Cost



✓ BENEFITS AND CONSIDERATIONS

Provides complete separation of pedestrians/ bicyclists from motor vehicle traffic	✓
Provides crossings where no other facilities are available	✓
Most appropriate over busy, high-speed roadways	
Pedestrians will not use if there is a more direct route available	
Lighting, vandalism, and security are major concerns	
Needs to meet ADA standards so space for overpass may be challenging to achieve	

NATIONAL RESOURCES

- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

Tunnel

IMPACTED
USERS:



A tunnel is a structure that allows for pedestrians and bicyclists to travel below the flow of motor vehicle traffic.



✓ BENEFITS AND CONSIDERATIONS

Provides complete separation of pedestrians/ bicyclists from motor vehicle traffic	✓
Provides crossings where no other facilities are available	✓
Pedestrians will not use if there is a more direct route available	🔍
Lighting, vandalism, and security are major concerns	🔍
Needs to meet ADA standards so space for tunnel may be challenging to achieve	🔍
Separation of bicyclists and pedestrians may be necessary	🔍

APPLICATION

Land Use

URBAN
Sometimes
SUBURBAN
Sometimes
RURAL
Rarely

Vehicle Speed



Cost

\$
\$\$
\$\$\$

NATIONAL RESOURCES

- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

PELICAN Crossing

IMPACTED
USERS:



The PEdestrian LIght Control ActivationN (PELICAN) is a pedestrian-actuated two-stage crossing that incorporates the median island as a pedestrian refuge between the two crossing stages. The PELICAN is used mid-block on major streets. The PELICAN uses standard Red-Yellow-Green signal for motorists that remains green unless activated by a pedestrian.

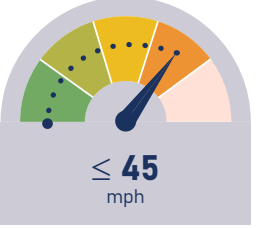


APPLICATION

Land Use

URBAN
Sometimes
SUBURBAN
Sometimes
RURAL
Rarely

Vehicle Speed



Cost

\$
\$\$
\$\$\$

✓ BENEFITS AND CONSIDERATIONS

Minimizes the potential for stops, delays, and crashes	✓
Not used for intersections	🔍
Used mid-block on major streets	🔍

NATIONAL RESOURCES

- [FHWA Report](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

TOUCAN Signal

IMPACTED
USERS:



The TwO groUps CAN cross (TOUCAN) system is used at locations of heavy bicycle and pedestrian crossing activity, like Bike Boulevards. Motorists on the street that is being crossed see a standard Red-Yellow-Green signal. Motorized traffic on the the crossing street is not allowed to proceed through these signals, and are forced to turn right, decreasing the number of cars on the neighborhood street.



APPLICATION

Land Use

 URBAN
Sometimes
 SUBURBAN
Rarely
 RURAL
Rarely

Vehicle Speed



Cost

\$
\$\$
\$\$\$

✓ BENEFITS AND CONSIDERATIONS

Provides traffic calming for neighborhood streets	✓
Bicyclists see a bicycle signal face	✓
Pedestrians get a standard WALK indication	✓
Bicyclists and pedestrians have separate crossing areas	✓

LOCAL STANDARDS

- [City of Tucson Bicycle Boulevard Master Plan](#)

NATIONAL RESOURCES

- [NACTO Bikeway Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)

Pedestrian Hybrid Beacon

IMPACTED
USERS:



A pedestrian hybrid beacon, otherwise known as a High intensity Activated crossWalk (HAWK), is a pedestrian traffic control device designed to help pedestrians safely cross higher-speed roadways at midblock crossings and uncontrolled intersections.



APPLICATION

Land Use

 URBAN
Sometimes
 SUBURBAN
Sometimes
 RURAL
Sometimes

Vehicle Speed



Cost

\$
\$\$
\$\$\$

✓ BENEFITS AND CONSIDERATIONS

May be used at mid-block locations or intersections	✓
Associated with very high driver compliance	✓
Stop lines and marked crosswalks are required	
FHWA Proven Safety Countermeasure	
The BikeHAWK is an adaptation for bicycle users	

LOCAL STANDARDS

- [City of Tucson Bicycle Boulevard Master Plan](#)
- [ADOT Traffic Safety Guidelines for School Areas](#)
- [Pima County/City of Tucson Signing and Pavement Marking Manual \(2020\)](#)
- [ARS School Zones](#)

NATIONAL RESOURCES

- [FHWA Proven Safety Countermeasures](#)
- [NACTO Bikeway Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)
- [FHWA Guide for Selecting Countermeasures at Uncontrolled Pedestrian Locations](#)
- [Journal of Traffic Control Device Research](#)

Rectangular Rapid Flashing Beacon (RRFB)

IMPACTED
USERS:



An RRFB is a pedestrian-activated yellow flashing beacon used at marked crosswalks to enhance the conspicuity of vulnerable users crossing the road.



APPLICATION

Land Use

URBAN
Always
SUBURBAN
Always
RURAL
Sometimes

Vehicle Speed



Cost

\$
\$\$
\$\$\$

✓ BENEFITS AND CONSIDERATIONS

Increases visibility of pedestrians at a marked crosswalk	✓
FHWA Proven Safety Countermeasure	
A beacon should be placed on each side of the marked crosswalk	
Over-use of RRFB treatment may diminish their effectiveness and provide a false sense of security to users	
Consider alternative facilities for locations with high bicyclist volumes	
Total travel lanes impact the appropriateness of an RRFB and may need to be supplemented by another facility, such as a Pedestrian Refuge Island	

LOCAL STANDARDS

- [ARS School Zones](#)

NATIONAL RESOURCES

- [FHWA Proven Safety Countermeasures](#)
- [NACTO Bikeway Design Guide](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)
- [FHWA Guide for Selecting Countermeasures at Uncontrolled Pedestrian Locations](#)
- [FHWA STEP Program](#)

Leading Pedestrian Interval

IMPACTED
USERS:



Leading pedestrian interval is signal timing that gives pedestrians the opportunity to enter the crosswalk at a signalized intersection 3-7 seconds before vehicles in the adjacent travel lane are given a green indication.

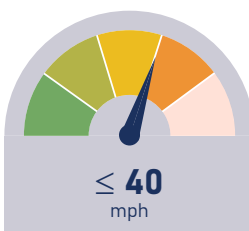


APPLICATION

Land Use

URBAN
Always
SUBURBAN
Always
RURAL
Always

Vehicle Speed



Cost

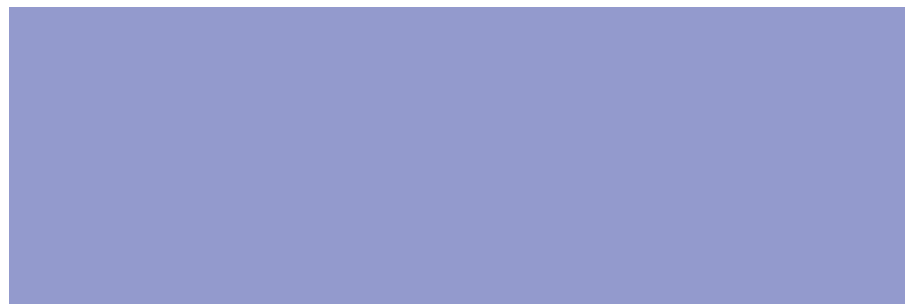
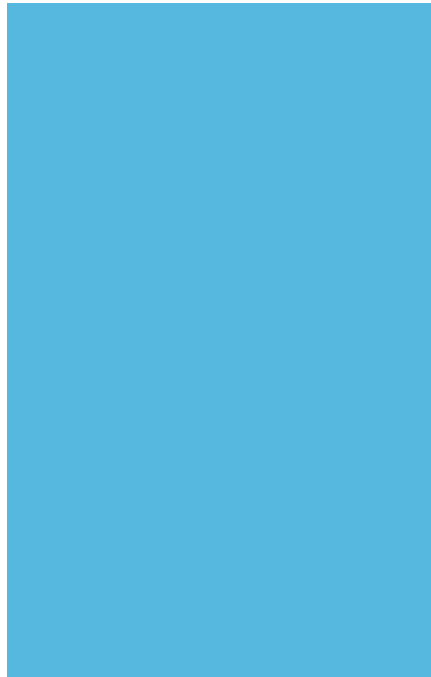
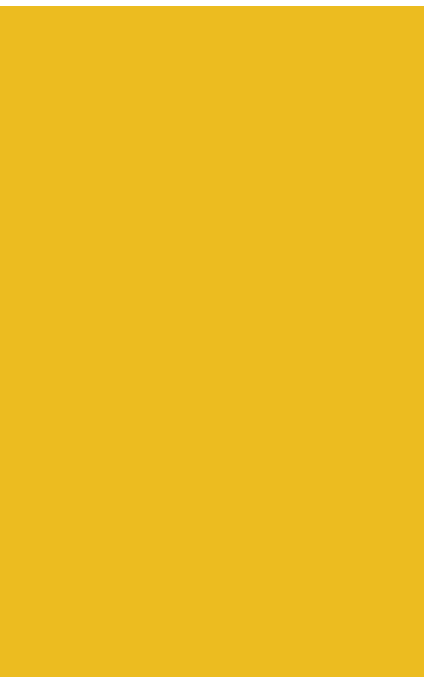
\$
\$\$
\$\$\$

✓ BENEFITS AND CONSIDERATIONS

Increases visibility of crossing pedestrians	✓
Reduces conflicts between pedestrians and vehicles	✓
Increases likelihood of motorists yielding to pedestrians	✓
Enhanced safety for pedestrians who may be slower to enter the intersection	✓
FHWA Proven Safety Countermeasure	
Should be used at intersections with high turning volumes	

NATIONAL RESOURCES

- [FHWA Proven Safety Countermeasures](#)
- [FHWA's Handbook for Designing Roadways for the Aging Population](#)
- [MUTCD 11th Edition](#)
- [AASHTO](#)
- [ADA](#)



TRAFFIC CALMING MEASURES



Curb Extension

A curb extension is a sidewalk or curb that extends into a parking or travel lane to make the street narrower.

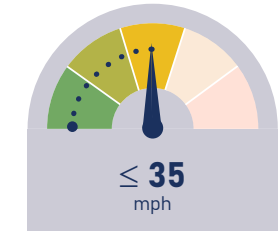


APPLICATION

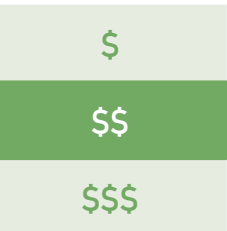
Land Use



Vehicle Speed



Cost



✓ BENEFITS AND CONSIDERATIONS

Increases visibility of pedestrians	✓
Reduces speed of turning motor vehicles	✓
Encourages pedestrians to cross at designated locations	✓
Prevents motor vehicles from parking at corners	✓
Increases pedestrians ability to see approaching traffic by putting them out further into the street	🔍
Midblock extensions can provide an opportunity for a midblock pedestrian crossing	🔍
Can be used to place landscaping and street furniture along the roadway	🔍
Other active facilities, including bike lanes, lighting, and ADA facilities, required extra consideration when implementing Curb Extensions	🔍

NATIONAL RESOURCES

- [NACTO Urban Street Design Guide](#)
- [FHWA Traffic Calming ePrimer](#)
- [AASHTO](#)
- [ADA](#)

Chicane

A chicane is a series of alternating curves or lane shifts that are located in apposition to force a motorist to steer back and forth out of a straight travel path.

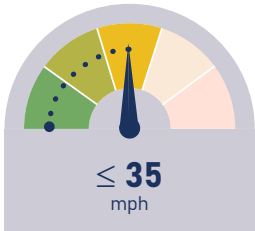


APPLICATION

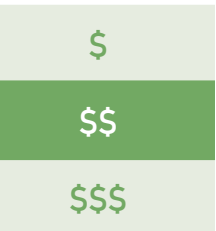
Land Use



Vehicle Speed



Cost



✓ BENEFITS AND CONSIDERATIONS

Slows motor vehicle speeds through forced turns	✓
Adds more potential green space to a street	✓
Increases the ability of pedestrians to see approaching traffic	✓
Slows traffic by visually narrowing the street	✓
May affect street sweeping	🔍
May reduce on-street parking	🔍
May include a space to the right for bicycles to bypass the chicane	🔍
May be appropriate if traffic volume is relatively low	🔍
May reduce space for bicyclists to operate	🔍
Appropriate lighting and visibility enhancements must be incorporated	🔍

NATIONAL RESOURCES

- [NACTO Urban Street Design Guide](#)
- [FHWA Traffic Calming ePrimer](#)
- [AASHTO](#)
- [ADA](#)



Traffic Circle

A traffic circle is a raised island, placed within an unsignalized intersection, around which traffic circulates.



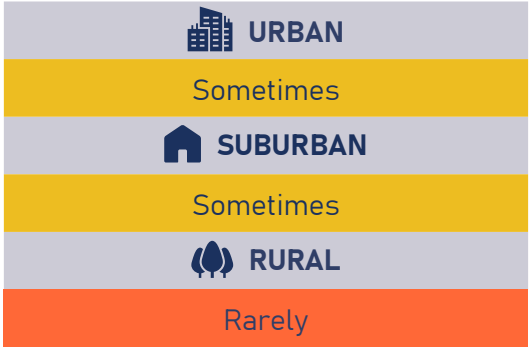
Treat Ave and 1st St

✓ BENEFITS AND CONSIDERATIONS

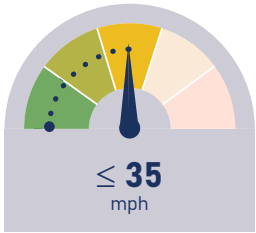
Creates horizontal deflection to slow motor vehicles	✓
Reduces the number of conflict points at intersections	✓
Reduces crash severity for all users	✓
May increase sideswipe crashes and fixed-object crashes	🔍
Appropriate at intersections of local streets	🔍
Can be used with all-way STOP control, all-way YIELD control, or two-way STOP control	🔍

APPLICATION

Land Use



Vehicle Speed



Cost



LOCAL STANDARDS

- [Pima County/City of Tucson Signing and Pavement Marking Manual \(2020\)](#)

NATIONAL RESOURCES

- [NACTO Urban Street Design Guide](#)
- [FHWA Traffic Calming e Primer](#)
- [AASHTO](#)
- [ADA](#)

Speed Hump

A speed hump is an elongated mound in the roadway pavement surface extending across the travel way at a right angle to the traffic flow.



7th St and Forgeus Ave

✓ BENEFITS AND CONSIDERATIONS

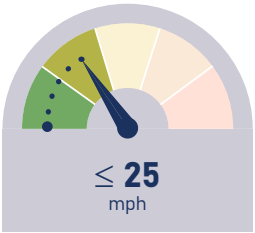
Do not place near intersections	🔍
Appropriate for local streets with low ADT	🔍
Not appropriate for primary emergency vehicle or transit routes	🔍
Increases discomfort for bicyclists along the route	🔍
May cause issues with drainage	🔍
Should be accompanied with a sign warning drivers (MUTCD W17-1)	🔍

APPLICATION

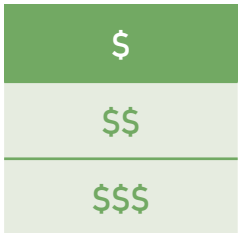
Land Use



Vehicle Speed



Cost



NATIONAL RESOURCES

- [FHWA Traffic Calming ePrimer](#)
- [AASHTO](#)
- [ADA](#)



Speed Cushion

A speed cushion is two or more raised areas placed laterally across a roadway.



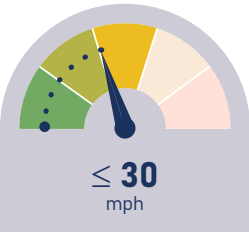
National Association of City of Transportation Officials

APPLICATION

Land Use

	URBAN
Sometimes	
	SUBURBAN
Always	
	RURAL
Rarely	

Vehicle Speed



Cost

\$
\$\$
\$\$\$

✓ BENEFITS AND CONSIDERATIONS

Allows emergency and transit vehicles to pass through unaffected	✓
Generally appropriate for local streets with low ADT	🔍
Do not place near intersections	🔍

NATIONAL RESOURCES

- [FHWA Traffic Calming ePrimer](#)
- [AASHTO](#)
- [ADA](#)

Speed Table

A speed table is a raised area placed across the roadway with a flat top long enough to accommodate the entire wheel base of most passenger cars. This helps reduce vehicular speeds.



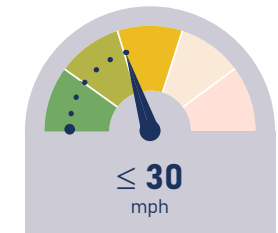
National Association of City of Transportation Officials

APPLICATION

Land Use

	URBAN
Sometimes	
	SUBURBAN
Sometimes	
	RURAL
Sometimes	

Vehicle Speed



Cost

\$
\$\$
\$\$\$

✓ BENEFITS AND CONSIDERATIONS

May be designed as a raised crosswalk if it coincides with a midblock crossing	✓
Should be accompanied with a sign warning drivers (MUTCD W17-1)	🔍
Slopes should not exceed 1:10 or be less steep than 1:25	🔍
Do not place near intersections	🔍
Not appropriate for primary emergency vehicle routes	🔍

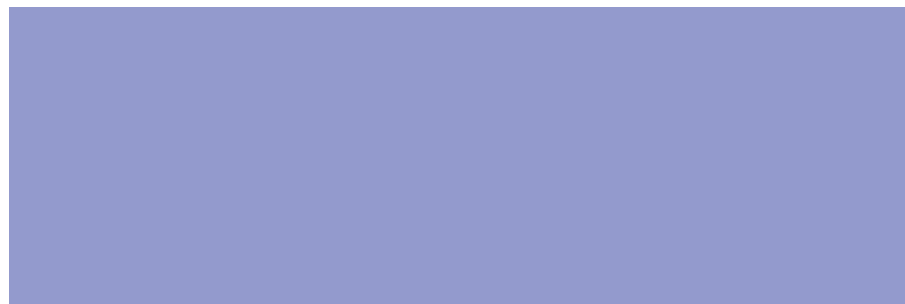
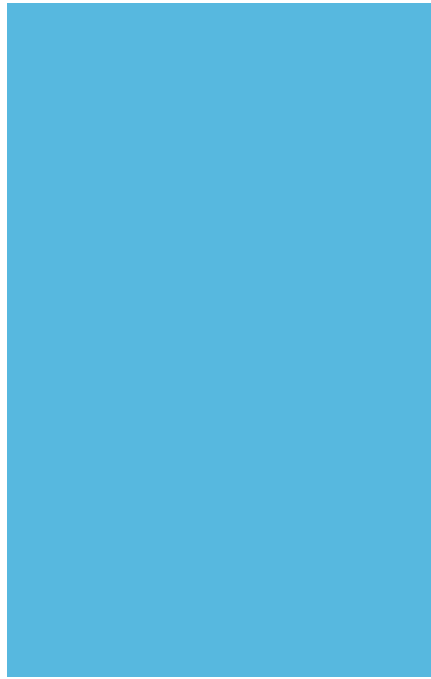
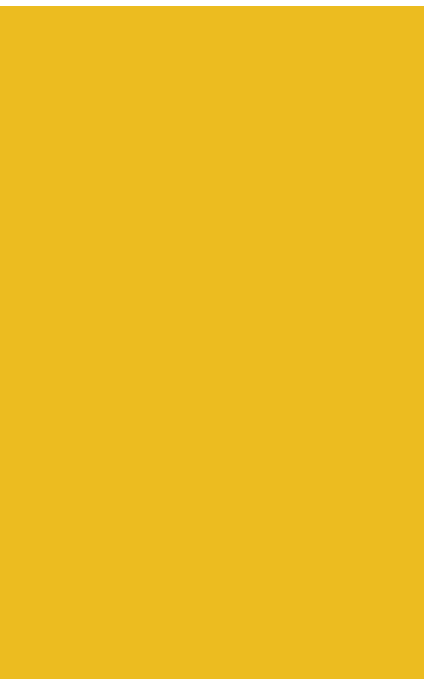
LOCAL STANDARDS

- [Pima County/City of Tucson Signing and Pavement Marking Manual \(2020\)](#)

NATIONAL RESOURCES

- [FHWA Traffic Calming ePrimer](#)
- [AASHTO](#)
- [ADA](#)





QUICK-BUILD SOLUTIONS



Quick-Build Solutions

According to Smart Growth America, quick-build demonstration projects are temporary installations to test new street design improvements that improve safety and accessibility. However, these treatments can be used more permanently if they are regularly maintained and the public continues to show support.

BENEFITS

- May improve safety overnight on dangerous corridors or intersections. Cheaply tests specific designs, interventions, and materials
- Gathers valuable feedback on designs
- Encourages the use of other transportation modes or different travel patterns
- Cheaply tests specific designs, interventions, and materials



MATERIALS

Low Investment

TRAFFIC CONES OR TYPE I/II BARRICADES

Potential Uses:

- Traffic Circles
- Curb Extensions
- Median Islands
- Separated Bike Lanes

FREESTANDING DELINEATORS

Potential Uses:

- Traffic Circles
- Curb Extensions
- Median Islands
- Separated Bike Lanes

Medium Investment

PLANTERS

Potential Uses:

- Traffic Circles
- Curb Extensions
- Median Islands
- Separated Bike Lanes

FLEXIBLE DELINEATOR POSTS

Potential Uses:

- Traffic Circles
- Curb Extensions
- Median Islands
- Separated Bike Lanes

K-71 DELINEATOR POSTS

Potential Uses:

- Traffic Circles
- Curb Extensions
- Median Islands
- Separated Bike Lanes

PLASTIC BARRIERS

Potential Uses:

- Separated Bike Lanes



PIMA ASSOCIATION OF GOVERNMENTS



REGIONAL ACTIVE
TRANSPORTATION PLAN

APPENDIX B

RECOMMENDED PROJECT DETAILS



Project ID	Name	Road	From	To	Geographic Area	Description	Lead Agency	Cost
1	Continental Rd Active Transportation Improvements	Continental Rd	Green Valley Performing Arts and Learning Center	Nogales Hwy	Far South	Install shared-use path on west side of Continental Rd from Abrego Dr to Nogales Hwy, install shared-use path bridge at bridge east of Abrego Dr	Pima County; Sahuarita	\$ 19,200,000
2	La Cañada Dr Shared-Use Path	La Cañada Dr	Sahuarita Rd	Continental Rd	Far South	Upgrade sidewalk on east side of La Cañada Dr with shared-use path from Sahuarita Rd to Continental Rd. Shared-use path bridge needed at Duval Rd, south of Nopal, south of 555 N. La Cañada, south of Apero Dr, and north of Vista Hermosa Dr. Install pedestrian refuge island with marked crosswalk, lighting, and reflectors on La Cañada between Via Alamos and San Ignacio.	Pima County; Sahuarita	\$ 12,000,000
3	Esperanza Blvd Separated Bike Lanes	Esperanza Blvd	La Cañada Dr	Abrego Dr	Far South	Upgrade existing bike lanes to separated bike lanes on Esperanza Blvd from La Cañada Dr to Abrego Dr. Potential for access management applied to both sides of Esperanza Blvd.	Pima County	\$ 1,200,000
4	Duval Mine Rd/Nogales Hwy Separated Bike Lanes	Duval Mine Rd/Nogales Hwy	La Cañada Dr	Sahuarita Rd	Far South	Upgrade existing bike lanes to separated bike lanes on Duval Mine Rd/Nogales Hwy from La Cañada Dr to Sahuarita Rd.	Sahuarita	\$ 15,000,000
5	Abrego Dr Shared-Use Path	Abrego Dr	Nogales Hwy	Paseo de Golf	Far South	Install shared-use path on the east side of Abrego Dr from north of Paseo de Golf to Duval Mine Rd/Nogales Hwy.	Pima County; Sahuarita	\$ 1,400,000
6	Sahuarita Rd Active Transportation Improvements	Sahuarita Rd	La Cañada Dr	Nogales Hwy	Far South	Install shared-use path on south side of Sahuarita Rd from La Cañada Dr to southbound ramps. Realign vehicle lanes slightly north from southbound ramps to northbound ramps and install shared-use path on the south side of the roadway. Continue shared-use path to Rancho Sahuarita Blvd. Install separated bike lanes on Sahuarita Blvd from Rancho Sahuarita Rd to Nogales Hwy.	Sahuarita	\$ 5,400,000
8	Sahuarita Rd Separated Bike Lanes	Sahuarita Rd	Nogales Hwy	Sahuarita Acres Rd	Far South	Install separated bike lanes on Sahuarita Rd from Nogales Hwy to Sahuarita Acres Rd.	Sahuarita	\$ 5,800,000
10	Pima Mine Rd Shoulder Widening	Pima Mine Rd	I-19	Nogales Hwy	Far South	Widen shoulder on both sides of Pima Mine Rd to 7'. Extend shared-use path on the north side of Pima Mine Rd from Rancho Sahuarita Blvd to Nogales Hwy. Improve crossing at Pima Mine Rd and Nogales Hwy.	Sahuarita	\$ 1,600,000
11	Nogales Highway Shoulder Widening	Nogales Hwy	Pima Mine Rd	400' South of Pima Mine Rd	Far South	Widen shoulder to 7' on both sides of Nogales Highway from Pima Mine Rd to 400' south of Pima Mine Rd.	Sahuarita	\$ 100,000
18	Valencia Rd Separated Bike Lanes	Valencia Rd	Casino Del Sol	Midvale Park Rd	Southwest	Install separated bike lanes on Valencia Rd from Casino Del Sol to Midvale Park Rd.	Pima County; Tucson; San Xavier Indian Reservation	\$ 15,600,000
19	Cardinal Ave Active Transportation Improvements	Cardinal Ave	Irvington Rd	Los Reales Rd	Southwest	Install sidewalk and 6' paved shoulder on the west side and install shared-use path on the east side of Cardinal Ave.	Pima County	\$ 5,800,000
21	Valencia Rd Active Transportation Improvements	Valencia Rd	Midvale Park Rd	12th Ave	Southwest	Upgrade sidewalk/bike lane on north side of Valencia with shared-use path and buffer. Widen and add buffer to sidewalk on south side of Valencia.	Tucson	\$ 2,100,000
22	Valencia Rd Active Transportation Improvements	Valencia Rd	12th Ave	Nogales Hwy	South	Upgrade sidewalk/bike lane on north side of Valencia with shared-use path and buffer from 12th Ave to Fiesta Ave. Widen sidewalks and add buffer on both sides of Valencia from Fiesta Ave to Nogales Hwy.	Tucson	\$ 1,100,000
23	Nogales Highway Shared-Use Path	Nogales Hwy	Valencia Rd	Aerospace Pkwy	South	Install shared-use path on both sides of Nogales Hwy from Valencia Rd to Aerospace Pkwy.	ADOT	\$ 6,600,000
24	Valencia Rd Shared-Use Path	Valencia Rd	Nogales Hwy	Tucson Blvd	South	Upgrade sidewalk/bike lanes with shared-use paths on both sides of Valencia Rd from Nogales Hwy to Tucson Blvd.	Tucson	\$ 3,500,000
28	Valencia Rd Active Transportation Improvements	Valencia Rd	Tucson Blvd	Palo Verde Rd	South	Upgrade sidewalk/bike lane on south side of Valencia with shared-use path from Tucson Blvd to Palo Verde Rd. Remove entire westbound bicycle lane and widen sidewalk on north side from Tucson Blvd to HAWK at Hemisphere Ln.	Tucson	\$ 2,200,000
35	Midvale Park Trail Connectivity Enhancements	Midvale Park Path	Irvington Rd	Valencia Rd	Southwest	Add shared-use path on north side of Drexel Rd from Midvale Park Dr east to path. Add paved connection on Bufkin Dr from Midvale Park to path. Add wayfinding at Midvale Park Rd/Bufkin Dr and Midvale Park Rd/Drexel Rd. Install shared-use path connection from Midvale Park Rd to The Loop along Newcastle Ct. Finish trail connection at Bagpipe Dr. Add wayfinding signage for The Loop at Midvale Park/Newcastle and River Run/Bagpipe intersections.	Tucson	\$ 800,000
36	Drexel Rd Shared-Use Path	Drexel Rd	Cardinal Ave	Midvale Park Rd	Southwest	Add shared-use path to the south side of Drexel Rd from Cardinal Ave to Midvale Park Rd.	Pima County; Tucson	\$ 1,900,000
42	Campbell Ave Shared-Use Path	Campbell Ave	Irvington Rd	Valencia Rd	South	Add shared-use path on both sides of Campbell Ave from Irvington Rd to Valencia Rd. Add raised crosswalk near Calle Gran Desierto Dr.	Tucson	\$ 4,500,000
46	Palo Verde Rd Shared-Use Path	Palo Verde Rd	Irvington Rd	Valencia Rd	South	Add shared-use path to the north side of Irvington Rd from The Loop (just west of Outlet Center Dr) to Palo Verde Rd. Add shared-use path on both sides of Palo Verde Rd from The Loop to south of Mossman Rd. Add HAWK south of Mossman Rd. Add shared-use path on east side of Palo Verde Rd from south of Mossman Rd to Valencia Rd.	Pima County; Tucson	\$ 3,800,000
49	Mission Rd Wash Shared-Use Path	Mission Rd Wash	Irvington Rd	Drexel Rd	Southwest	Install shared-use path along wash east of Mission Rd from Irvington Rd to Drexel Rd. Add marked crosswalks at Drexel Rd and Irvington Rd.	Tucson	\$ 900,000
50	Irvington Rd Shared-Use Path	Irvington Rd	Ajo Way	12th Ave	Southwest	Widen shoulder to continue buffered bike lanes on Sunset Blvd from Ajo Way to Irvington Rd. Add marked crosswalks on north and east legs. Shared-use path on both sides of Irvington Rd from Sunset Blvd to 12th Ave with connection to The Loop. Add marked crossing at Winston Reynolds-Manzanita Park with shared-use path connection to the park. Reduce median width to accommodate needed buffer for shared-use path facilities.	Pima County; Tucson	\$ 14,000,000
53	12th Ave Complete Street	12th Ave	Irvington Rd	Valencia Rd	South	Upgrade sidewalk to shared-use path on west side of 12th Ave from Irvington Rd to Valencia Rd with connection to Mission Manor Park. Widen sidewalk on east side of 12th Ave from Irvington Rd to Valencia Rd. Add buffered bike lane to east side of 12th Ave from Drexel Rd to Valencia Rd.	Tucson	\$ 3,500,000

Project ID	Name	Road	From	To	Geographic Area	Description	Lead Agency	Cost
55	Irvington Rd Shared-Use Path	Irvington Rd	12th Ave	Campbell Ave	South	Add shared-use path to both sides of Irvington Rd from 12th Ave to Campbell Ave. Add Pedestrian Hybrid Beacon crossing at 1st Ave.	Tucson	\$ 4,900,000
77	Ajo Way Shared-Use Path	Ajo Way	Camino Verde	12th Ave	Southwest	Add shared-use path on the north side of Ajo Hwy from Camino Verde to Sunset Blvd. Add shared-use path to both sides of Ajo Way from Sunset Blvd to Kostka Ave. Add shared-use path to the north side of Ajo Way from Kostka Ave to 12th Ave. Add pedestrian refuge island, marked crosswalk, lighting, and reflectors on west leg of Ajo Hwy/Camino Verde intersection. Add Pedestrian Hybrid Beacon at Ajo Way/Kostka Ave. Add marked crosswalks to all legs of Ajo Way and Kinney Rd.	ADOT	\$ 15,300,000
79	Irvington Pl Shared-Use Path Connection	Irvington Pl	Mission Rd	The Loop	Southwest	Add shared-use path along both sides of Irvington Pl from Mission Rd to The Loop with wayfinding signage at Mission Rd/Irvington Pl. Add shared-use path along Mission Rd Wash from The Loop to Irvington Rd.	Tucson	\$ 1,800,000
83	Ajo Way Active Transportation Improvements	Ajo Way	12th Ave	6th Ave	South	Add shared use path to the north side of Ajo Way and widen sidewalk and add a buffer to the south side of Ajo Way from 12th Ave to 6th Ave.	Tucson	\$ 900,000
84	6th Ave Active Transportation Improvements	6th Ave	Ajo Way	Irvington Rd	South	Replace bike lanes with buffer for sidewalk on 6th Ave from Ajo Way to Irvington Rd. Add additional wayfinding for bike boulevards on Pennsylvania Dr and 8th Ave. Upgrade bike boulevards to standard as needed.	ADOT	\$ 1,100,000
85	Park Ave Active Transportation Improvements	Park Ave	I-10 Westbound Ramps	Irvington Rd	South	Upgrade sidewalk on the east side of Park Ave with shared-use path from existing shared-use path to I-10 westbound ramps. upgrade sidewalk on the west side of Park Ave with shared-use path from I-10 westbound ramps to Irvington. Upgrade crossing on the north leg of Park Ave/I-10 westbound ramps intersection. Widen sidewalk and improve buffer on the east side Park Ave from Ajo Way to Irvington Rd.	Tucson	\$ 2,300,000
89	Palo Verde Rd Shared-Use Path Extension	Palo Verde Rd	Irvington Rd	Ajo Way	Urban Core	Install shared-use path on east side of Palo Verde Rd from Irvington Rd to Ajo Way.	Pima County	\$ 1,100,000
93	Palo Verde Shared-Use Path	Palo Verde Rd	Ajo Way	36th St	Urban Core	Extend shared-use path to on the west side of Palo Verde Rd from 36th St to Ajo Way. Add marked crosswalk on Palo Varde Rd at 44th St and Veterans St. Add marked crosswalks and crossing improvements at Ajo Way/Palo Verde Rd intersection.	Pima County	\$ 900,000
97	6th Ave Shared-Use Path	6th Ave	36th St	44th St	South	Upgrade sidewalk on the east side of 6th Ave with shared-use path from 36th St to 44th St. Extend existing shared-use path from El Paso & Southwestern Greenway on the south side of 36th St from 6th Ave to Park Ave.	Tucson	\$ 1,400,000
112	29th St Bicycle Boulevard Upgrades and Extension	29th St	Pantano Rd	Harrison Rd	East	Extension of existing bicycle boulevard on 29th St from Pantano Road to Camino Seco, install shared lane markings 6' sidewalk on both sides of 29th St from Pantano Rd to Harrison Rd	Tucson	\$ 1,600,000
114	29th St Bicycle Boulevard Upgrades	29th St	Harrison Rd	Old Spanish Trl	East	Widen sidewalks to 6' on 29th St from Harrison Rd to Old Spanish Trl	Tucson	\$ 700,000
119	Houghton Rd Shared-Use Path Extension	Houghton Rd	Golf Links Rd	Via Alta Mira	East	Install shared-use path on east side of Houghton Rd from Golf Links Rd to Via Alta Mia	Tucson	\$ 800,000
121	29th St Active Transportation Improvements	29th St	Mission Rd	6th Ave	Southwest	Upgrade the sidewalk on the south side of 29th St with a shared-use path and widen sidewalk on north side of 29th St.	Tucson	\$ 2,700,000
122	Mission Rd Active Transportation Improvements	Mission Rd	29th St	Ajo Way	Southwest	Upgrade sidewalk on the west side of Mission Rd with shared-use path from 29th St to Ajo Way. Upgrade marked crosswalk at Veterans Pl to Pedestrian Hybrid Beacon. Widen sidewalk on the east side of Mission Rd from 29th St to Veterans Pl.	Tucson	\$ 3,100,000
123	Mission Rd Active Transportation Improvements	Mission Rd	Congress St	29th St	Southwest	Upgrade sidewalk on the west side of Mission Rd with shared-use path from Starr Pass Blvd to 29th St. upgrade sidewalk and bike lane with shared-use path on the west side of Grande Ave from Congress St to Mission Rd. upgrade sidewalk and bike lane on the north side of Cushing St with shared-use path from Spruce St to The Loop (east of Linda Ave). Add marked crosswalk on Grande Ave at Spruce St. Add wayfinding signage for shared-use path connections.	Tucson	\$ 2,200,000
128	Starr Pass Blvd Active Transportation Improvements	Starr Pass Blvd	Mission Rd	8th Ave	Southwest	Add marked crosswalk on the east leg of Starr Pass Blvd/Mission Rd intersection. Upgrade facilities on both sides of Starr Pass Blvd from Santa Cruz Ln to Pedestrian Hybrid Beacon west of Osborne Ave.	Tucson	\$ 1,100,000
129	18th St Bicycle Boulevard Upgrades	18th St	I-10 Frontage Rd	6th Ave	Urban Core	Install 6' sidewalk and shared-lane markings on both sides of 18th St from I-10 Frontage Rd to 6th Ave, install bike box at 18th St/6th Ave intersection.	Tucson	\$ 700,000
130	8th Ave Bicycle Boulevard Upgrades	8th Ave	36th St	18th St	Urban Core	Install and upgrade 6' sidewalks and shared lane markings on both sides of 8th Ave from 36th St to 18th St, install marked crosswalk at The Loop and 8th Ave. Install traffic circles at 19th St, 21st St, and 20th St	Tucson	\$ 1,600,000
137	Palo Verde Ave/Layton Pl Bicycle Boulevard Upgrades and shared-use path Connection	Palo Verde Ave	22nd Ave	Aviation Pkwy	Urban Core	Install and upgrade to 6' sidewalks and shared lane markings on both sides of Palo Verde Ave from 22nd St to dead end (South of Hemlock Stravenue), pave trail connecting Palo Verde Ave to Layton Pl, Install 6' sidewalks and shared lane markings on Layton Pl from dead end/new trail connection to Aviation Pkwy access trail. Install traffic circle at Palo Verde Ave and Sylvane St and at Palo Verde Ave and 28th St.	Pima County; Tucson	\$ 1,200,000
141	22nd St Shared-Use Path	22nd St	Kolb Rd	Old Spanish Trl	East	Install shared-use path on north side and widen sidewalk to 6' on south side of 22nd St from Kolb Rd to Old Spanish Trl. Install pedestrian hybrid beacon west of Brush Canyon Dr	Tucson	\$ 5,800,000

Project ID	Name	Road	From	To	Geographic Area	Description	Lead Agency	Cost
142	Pantano Rd Loop Enhancements	Pantano Rd	Golf Links Rd	Broadway Blvd	East	Widen sidewalk to 6' on both sides of Pantano Rd from Broadway Blvd to Golf Links Rd, install wayfinding signage for The Loop at The Loop parking lot and at Broadway Blvd, add paved trail connection to Pantano Rd at Sarnoff Rd, install Pedestrian Hybrid Beacon at Sarnoff Rd, widen paved trail connection at 29th St to 12', install Pedestrian Hybrid Beacon at 29th St, add wayfinding signage and widen trail connection to 12' just north of Golf Links Rd, install paved trail connection on Kenyon Dr, pave existing trail connection, install paved trail connection on Pantano Pkwy, install Pedestrian Hybrid Beacon at Pantano Pkwy	Tucson	\$ 5,300,000
148	Old Spanish Trl Shared-Use Path Upgrades	Old Spanish Trl	Houghton Rd	Broadway Blvd	East	Install shared-use path on east side and install 6' sidewalk on west side of Old Spanish Trl from Houghton Rd to Broadway Blvd, install Pedestrian Hybrid Beacon at Desert Vista Dr, install marked crosswalk at Gollob Rd, install two-stage turn box at 22nd St	Tucson	\$ 5,600,000
160	8th Ave Bicycle Boulevard Upgrades	8th Ave	18th St	Broadway Blvd	Urban Core	Widen or install sidewalk to 6' on both sides of 8th Ave from 18th St to Cushing St and add shared lane markings, install buffered bike lane on Church Ave from Cushing St to Broadway Blvd.	Tucson	\$ 400,000
167	Congress St Active Transportation Improvements	Congress St	Silverbell Rd	Stone Ave	Urban Core	Install shared-use path on south side and widen sidewalk to 6' on north side of Congress St from Silverbell Rd to The Loop, install shared-use path on south side of Cushing St from I-10 Frontage Rd to Stone Ave, extend cycle track on east side of Stone Ave from Ochoa St to Cushing St	Tucson	\$ 1,400,000
171	Congress St Separated Bike Lanes	Congress St	Stone Ave	6th Ave	Urban Core	Remove on-street parking on the north side of Congress St and add a single westbound separated bike lane.	Tucson	\$ 200,000
172	6th Ave Cycle Track	6th Ave	Congress St	Broadway Blvd	Urban Core	Remove on-street parking on the east side of 6th Ave and add a cycle track.	Tucson	\$ 100,000
174	Alvernon Way Active Transportation Improvements	Alvernon Way	Broadway Blvd	22nd St	Urban Core	Upgrade sidewalk on the north side of Broadway Blvd with shared-use path from Camino Del Norte Dr to Alvernon Way. Upgrade active crossing on west leg of Broadway Blvd/Alvernon Way intersection. Upgrade shared-use path and buffer and remove bike lane on the west side of Alvernon Way from Broadway Blvd to 22nd St. Widen sidewalk and buffer and install separated bike lane on the east side of Alvernon Way from Broadway Blvd to 22nd St. Add pedestrian hybrid beacon on Alvernon Way at Paseo Dorado.	Tucson	\$ 2,300,000
178	Broadway Blvd Shared-Use Path	Broadway Blvd	Kolb Rd	Camino Seco	East	Install shared-use path on north side and widen sidewalk to 6' on south side of Broadway Blvd from Kolb Rd to Old Spanish Trl, widen sidewalk to 6' on both sides of Broadway Blvd from Old Spanish Trl and Camino Seco, implement access management, install Pedestrian Hybrid Beacon at Maguire Ave	Tucson	\$ 3,700,000
186	Vicksburg St/5th St Bicycle Boulevard Upgrades	Vicksburg St	Sarnoff Dr	Houghton Rd	East	Install shared lane markings and 6' sidewalk on both sides of Vicksburg St/5th St from Sarnoff Dr to Harrison Rd, Harrison Rd to Bonanza Ave, Bonanza Ave from 5th St to Lorian St, Lorian St from Bonansa Ave to Constitution Dr, Constitution Dr from Lorian Dr to 5th St, 5th St from Constitution Dr to Houghton Rd, install Pedestrian Hybrid Beacon at Houghton Rd/5th St and at Vicksburg St/Camino Seco, install traffic circle at 7th St/Dawn Ave, install traffic circle at Gollob Rd/7th St.	Tucson	\$ 4,500,000
197	Granada Ave Active Transportation Improvements	Granda Ave	Saint Mary's Rd	Congress St	Urban Core	Upgrade sidewalk and bike lane on west side of Granada Ave with a shared-use path from Saint Mary's Rd to Congress St. Widen sidewalk and buffer on east side of Granada Ave from Saint Mary's to Congress St.	Tucson	\$ 800,000
204	Stone Ave Bicycle Connectivity Enhancements	Toole Ave	Church Ave	6th Ave	Urban Core	Upgrade sidewalk on north side of Franklin St with a cycle track from Church Ave to Stone Ave. Improve crossing of north and east legs of Stone Ave/Franklin St intersection. Continue cycle track on the north side of Toole Ave from Stone Ave to 6th Ave.	Tucson	\$ 2,100,000
206	Silverbell Rd Active Transportation Improvements	Silverbell Rd	Saint Mary's Rd	Congress St	Southwest	Extend buffered bike lanes from marked crosswalk at Safeway north to Saint Mary's Rd. Widen sidewalk on east side of Silverbell Rd from Saint Mary's to Congress St.	Tucson	\$ 400,000
211	El Camino Del Norte Bicycle Boulevard	El Camino Del Norte	Broadway Blvd	5th St	Urban Core	Install 6' sidewalks on both sides of El Camino Del Norte and shared lane markings on El Camino Del Norte from Boardway Blvd to 5th St, install traffic circle at Calle Fernando, install marked crosswalk east of Dodge Blvd on 5th St, install PBH east of El Camino Del Norte on Broadway Blvd.	Tucson	\$ 1,100,000
214	Saint Mary's Rd Active Transportation Improvements	Saint Mary's Rd	Silverbell Rd	Granada Ave	Southwest	Upgrade facilities on the north side with a shared-use path and widen sidewalk with buffer on the south of Saint Mary's Rd from Silverbell Rd to Granada Ave.	Tucson	\$ 2,100,000
219	Silverbell Rd Active Transportation Improvements	Silverbell Rd	Speedway Blvd	Saint Mary's Rd	Southwest	Upgrade facilities on the west side with a shared-use path and widen sidewalk with buffer on the east side of Silverbell Rd from Speedway Blvd to Saint Mary's Rd.	Tucson	\$ 900,000
222	Speedway Blvd Active Transportation Improvements	Speedway Blvd	Silverbell Rd	Euclid Ave	Southwest	Widen sidewalk on north side and upgrade sidewalk on south side of Speedway Blvd with a shared-use path from Silverbell to Rio Dr. Add shared use path connection from Rio Dr marked crossing to new Ontario Dr bike boulevard. Widen sidewalks on both sides of Speedway Blvd from Rio Dr to Riverside Dr. Add Pedestrian Hybrid Beacon at Speedway Blvd/Riverside Dr. Add shared-use path to north side of Speedway Blvd from Riverside Dr to Main Ave. upgrade sidewalk and bike lane on north side of Speedway Blvd with shared-use path from Main Ave to Euclid Ave. Widen sidewalk and add buffer on the south side of Speedway Blvd from Main Ave to Euclid Ave. Improve active crossing at 4th Ave.	Tucson	\$ 4,200,000

Project ID	Name	Road	From	To	Geographic Area	Description	Lead Agency	Cost
223	Stone Ave Active Transportation Improvements	Stone Ave	Drachman St	6th St	Urban Core	Upgrade 9th and 10th Avenue from Speedway Blvd to 6th St to bicycle boulevards. Add marked crosswalk on 6th St at 9th Ave. Add wayfinding for bike boulevard on 9th/10th Ave. upgrade sidewalk and bike lane on west side of Stone Ave with a shared-use path from Drachman St to 6th St. Widen sidewalk and add buffer on east side of Stone from Drachman St to 6th St. Improve active crossing on west leg of Speedway Blvd/Stone Ave intersection.	Tucson	\$ 1,300,000
228	Speedway Blvd Active Transportation Improvements	Speedway Blvd	Euclid Ave	Campbell Ave	Urban Core	Upgrade sidewalk and bike facilities on the east side of Euclid Ave with cycle track from Helen St to 1st St. Add wayfinding signage. Create a bicycle boulevard on 1st St from Euclid Ave to Park Ave. Add a pedestrian hybrid beacon to Euclid Ave at 1st St. Add bicycle boulevard on Helen St from Euclid Ave to Warren Ave to connect existing shared-use path on Warren Ave. Extend shared-use path on Mabel St from Warren Ave to Campbell Ave. Widen sidewalk and add buffer to both sides of Speedway Blvd from Euclid Ave to Campbell Ave.	Tucson	\$ 2,400,000
231	Speedway Blvd Active Transportation Connectivity Improvements	Speedway Blvd	Campbell Ave	Alvernon Way	Urban Core	Widen sidewalk and add buffer in place of existing bike lanes on Speedway Blvd from Campbell Ave to Alvernon Way. Add bicycle boulevard on Plummer Ave from Drachman St to Speedway Blvd, on Drachman St/Fairmont St from Campbell Ave to Alvernon Way, and on Wilson Ave from Speedway Blvd to 3rd St to connect to existing bicycle boulevards. Add wayfinding signage. Add pedestrian hybrid beacon on Country Club Rd at Fairmont St.	Tucson	\$ 2,800,000
234	Dodge Blvd Bicycle Boulevard Upgrades	Palo Verde Blvd	Grant Rd	5th St	Urban Core	Install 6' sidewalk on both sides of Dodge Blvd from 5th St to Speedway Blvd, add shared lane markings along the corridor. Install 6' sidewalk on both sides of Palo Verde Ave from Grant Rd to Fort Lowell Rd, add shared lane markings along the corridor, install sidewalk and shared lane markings on Bellevue St from Palo Verde Ave to Dodge Blvd, install sidewalk and shared lane markings on Dodge Blvd from Bellevue St to Speedway Blvd.	Tucson	\$ 2,100,000
236	Speedway Blvd Active Transportation Connectivity Improvements	Speedway Blvd	Wilmot Rd	Houghton Rd	Urban Core	Upgrade sidewalk and bike lane on the south side of Speedway Blvd with a shared-use path from Wilmot Rd to Houghton Rd. Widen sidewalk and add buffer on the north side of Speedway Blvd from Wilmot Rd to Camino Seco. Upgrade sidewalk on the east side of Wilmot Rd with shared-use path from Fairmount St to Rosewood St. Improve active crossing across Wilmot Rd at Fairmount St. Install Pedestrian Hybrid Beacon at Button Willow Rd	Tucson	\$ 8,200,000
238	Pantano Rd Sidewalk Enhancements	Pantano Rd	Broadway Blvd	Speedway Blvd	East	Widen sidewalk to 6' on both sides of Pantano Rd from Broadway Blvd to Speedway Blvd, Upgrade 5th St bike boulevard from Pantano Rd to new trail to add shared lane markings and widen sidewalk to 6' on both sides of 5th St, install traffic circle at Kent Dr and 5th St	Tucson	\$ 1,700,000
240	New Trail West of Sarnoff Dr	West of Sarnoff Dr	Broadway Blvd	Speedway Blvd	East	Install shared-use path in drainage corridor west of Sarnoff Dr, install paved trail connection north of Gettysburg Pl on Sarnoff Dr, install paved trail connection to 5th St, install paved connection to north of Balfour Dr on Sarnoff Dr, install paved connection to Kent Dr and Sarnoff Rd west of Joseph W Magee Middle School.	Tucson	\$ 1,500,000
241	Speedway Blvd Active Transportation Connectivity Improvements	Speedway Blvd	Alvernon Way	Wilmot Rd	Urban Core	Add pedestrian hybrid beacon on Fairmount St at Alvernon Way, Swan Rd, and Craycroft St and on Speedway Blvd at Sahuara Ave. Widen sidewalks and add buffers to both sides of Speedway Blvd from Alvernon Way to Wilmot Rd. Add bicycle boulevard on Fairmont St from Alvernon Way to Wilmot Rd.	Tucson	\$ 4,000,000
249	Houghton Rd Shared-Use Path Extension	Houghton Rd	5th St	Tanque Verde Rd	East	Extend shared-use path on the east side of Houghton Rd from 5th St to Tanque Verde Rd	Pima County; Tucson	\$ 1,700,000
259	Craycroft Rd Active Transportation Connectivity Enhancements	Craycroft Rd	Grant Rd	Speedway Blvd	Urban Core	Upgrade bike lanes with widened sidewalk and buffer on both sides of Craycroft Rd from Grant Rd to Speedway Blvd. Add wayfinding signage for new bicycle boulevard on Beverly St from Grant Rd to Speedway Blvd. Add pedestrian hybrid beacon with pedestrian refuge island on Grant Rd at Wyatt Dr.	Tucson	\$ 1,700,000
266	Stone Ave Active Transportation Connectivity Improvements	Stone Ave	Grant Rd	Drachman St	Urban Core	Upgrade sidewalk and bike lanes on the north side of Drachman St with shared-use path from 10th Ave to Stone Ave. Add wayfinding signage at Stone Ave/Drachman St intersection for new bicycle boulevard on existing bike route on 9th Ave. Widen sidewalk and add buffer on both sides of Stone Ave from Grant to Drachman St. Add pedestrian hybrid beacon on Stone Ave at Lester St.	Tucson	\$ 1,600,000
267	Grant Rd Active Transportation Connectivity Improvements	Grant Rd	Oracle Rd	Stone Ave	Urban Core	Upgrade bike lanes with widened sidewalk and buffer on both sides of Grant Rd from Oracle Rd to Stone Ave. Add wayfinding signage for new bicycle boulevards on existing bike route on Kelson St and Ventura St/Seneca St. Add pedestrian hybrid beacon on Stone Ave at Rillito St. Add bike boulevard on Rillito St from 9th Ave to 6th Ave.	Tucson	\$ 900,000
269	Silverbell Rd Active Transportation Improvements	Silverbell Rd	Grant Rd	Speedway Blvd	Southwest	Add buffered bike lanes and widen sidewalks on both sides of Silverbell Rd from Grant Rd to Speedway Blvd.	Tucson	\$ 1,500,000

Project ID	Name	Road	From	To	Geographic Area	Description	Lead Agency	Cost
270	Grant Rd Active Transportation Connectivity Improvements	Grant Rd	Silverbell Rd	Oracle Rd	Urban Core	Upgrade sidewalk and bike lane on the north side of Grant Rd with shared-use path from Silverbell Rd to 15th Ave. Add pedestrian hybrid beacon on Grant Rd at The Loop and QT. Add wayfinding signage for new bike boulevards on existing bike routes on Kelso St and Rillito St. Add bike boulevard on Rillito St from 15th Ave to 9th Ave. Add pedestrian hybrid beacon on Oracle Rd at Rillito St. Widen sidewalks and add buffers on both sides of Grant Rd from 15th Ave to Oracle Rd.	Tucson	\$ 4,000,000
276	Country Club Rd Active Transportation Connectivity Improvements	Country Club Rd	Grant Rd	Speedway Blvd	Urban Core	Reduce vehicle lane widths and widen sidewalks and add buffer on both sides of Country Club Rd from Grant Rd to Speedway Blvd. Add a raised crosswalk across Country Club Rd at Adams St. Add wayfinding signage at Drachman St and Waverly St for bicycle boulevard on Treat Ave.	Tucson	\$ 1,200,000
277	Grant Rd Active Transportation Connectivity Improvements	Grant Rd	Country Club	Swan Rd	Urban Core	Upgrade bike lanes with widened sidewalk and buffer on both sides of Grant Rd from Country Club Rd to Swan Rd. Add wayfinding signage for existing bicycle boulevard on Flower St and new bicycle boulevard on Seneca St. Add pedestrian hybrid beacon on Alvernon Way at Justin Ln/Seneca St. Add bicycle boulevard on Bell Ave from Seneca St to Linden St and on Linden St from Bell Ave to Swan Rd and on San Carlos Pl from Flower St to Swan Rd.	Tucson	\$ 2,800,000
281	Grant Rd Active Transportation Connectivity Improvements	Grant Rd	Swan Rd	Craycroft Rd	Urban Core	Upgrade sidewalk on the east side of Swan Rd with shared-use path from San Carlos Pl to Linden St. Add wayfinding signage for bicycle boulevard on Seneca St. Add pedestrian hybrid beacon on Swan Rd at San Carlos Pl and at Linden St. upgrade sidewalk on the north side of Grant Rd with shared-use path from Swan Rd to Craycroft Rd. Widen sidewalk and buffer on the south side of Grant Rd from Swan Rd to Craycroft Rd.	Tucson	\$ 3,300,000
287	Grady Ave/Camino Pio Decimo Bicycle Boulevard Upgrades	Grady Ave/Camino Pio Decimo	Speedway Blvd	Tanque Verde Rd	East	Widen sidewalk to 6' and install shared lane markings on Grady Rd from Speedway to Pima St, Pima St from Grady Rd to Camino Pio Decimo, Camino Pio Decimo from Pima St to Tanque Verde Rd, install Pedestrian Hybrid Beacon on Speedway Blvd at Grady Rd	Tucson	\$ 1,900,000
290	Udall Park Shared-Use Path	Tanque Verde Rd	Sabino Canyon Rd	Camino Pio Decimo	East	Install shared-use path on the southside of Tanque Verde Rd from Sabino Canyon Rd to Camino Pio Decimo.	Tucson	\$ 700,000
294	Tanque Verde Active Transportation Improvements	Tanque Verde Rd	Camino Pio Decimo	Catalina Hwy	North	Install bicycle boulevard on Dos Hombres from Tanque Verde Rd to Desert Arbors St and on Desert Arbors St with shared lane markings and 6' sidewalk on both sides, install trail between Desert Arbors St and Camino Perdido from west of Ave Empalme connecting to Tanque Verde Rd west of the Tanque Verde Creek bridge, install path entrances west of Tanque Verde Rd and east underneath the bridge, install 6' sidewalk and separated bike lane on both sides of Tanque Verde from the Tanque Verde Creek bridge to Catalina Hwy.	Tucson	\$ 6,600,000
300	SR 86 Shared-Use Path	SR 86	Sahuaro St	Ball Rd	Far West	Install a shared-use path on the west side of SR 86 from SR 85 to Ball Rd. Install marked crosswalk at SR 85 and SR 86. Install a shared-use path on the west side of SR 85 from SR 86 to Sahuaro St.	ADOT	\$ 900,000
301	Fort Lowell Rd Active Transportation Improvements	Fort Lowell Rd	Oracle Rd	Stone Ave	Urban Core	Add sidewalks and buffer to both sides of Fort Lowell Rd from Oracle Rd to Stone Ave. Add wayfinding signage for new bicycle boulevards on existing bike routes on Blacklidge Dr and Balboa Ave.	Tucson	\$ 400,000
302	Stone Ave Active Transportation Connectivity Improvements	Stone Ave	River Rd	Grant Rd	Urban Core	Upgrade sidewalk and bike lane on the west side of Stone Ave with a shared-use path from River Rd to Blacklidge Dr. Widen sidewalk and buffer on the east side of Stone Ave from River Rd to Blacklidge Dr. Add wayfinding signage for new bicycle boulevard on existing bike route on Castro Ave. Widen sidewalk and add buffer on both sides of Stone Ave from Blacklidge Dr to Grant Rd. Install raised crosswalk on the south leg of Stone Ave/Yavapai Rd intersection. upgrade the sidewalk and bike lane on the north side of Wetmore Rd with a shared-use path from Oracle Rd to Stone Ave. Widen sidewalk and buffer on the south side of Wetmore Rd from Oracle Rd to Stone Ave. Improve sidewalk connection from Wetmore Rd to Tucson Mall. Add pedestrian hybrid beacon on Stone Ave at Pastime Rd.	Tucson	\$ 6,400,000
309	Palo Verde Ave Bicycle Boulevard Upgrades	Palo Verde Ave	Grant Rd	Fort Lowell Rd	Urban Core	Install 6' sidewalk on both sides of Palo Verde Ave from Grant Rd to Fort Lowell Rd, add shared lane markings along the corridor.	Tucson	\$ 1,100,000
319	Prince Rd Active Transportation Connectivity Improvements	Prince Rd	Stone Ave	Country Club Rd	Urban Core	Widen sidewalks and buffers on both sides of Prince Rd from Stone Ave to Campbell Ave. Add wayfinding signage for new bicycle boulevards on existing bike routes on Yavapai Rd, Pastime Rd, and Graybill Dr/Greenlee Rd, as well as at Tucson Blvd, Cactus Blvd, and Country Club Rd. Add pedestrian hybrid beacon on Prince Rd at Los Altos Ave. Extend and improve bicycle boulevard on Greenlee Rd. Add shared-use path from Greenlee Rd to Campbell Ave. Add pedestrian hybrid beacon on Campbell Ave at Greenlee Rd. Install shared-use path on the east side of Campbell Ave from Greenlee Rd to Prince Rd. Upgrade crossings on south and east leg of Prince/Campbell intersection. Install shared-use path on the north side of Prince Rd from Campbell Ave to Country Club Rd/Loop entrance at Rillito River. Upgrade crossings on north and east leg of Prince/Country Club intersection. Add shared-use path connection on Cactus Blvd from Prince Rd to shared-use path connection north of Star Park Dr and on Tucson Blvd from Prince Rd to shared-use path connection north of Roger Rd.	Tucson	\$ 5,100,000

Project ID	Name	Road	From	To	Geographic Area	Description	Lead Agency	Cost
322	Sabino Canyon Rd Shared-Use Path	Sabino Canyon Rd	Tanque Verde Rd	River Rd	North	Install shared-use path on both sides of Sabino Canyon Rd from Tanque Verde Rd to River Rd, install shared-use path and buffer on both side of bridge over Rillito River	Pima County	\$ 10,800,000
323	Craycroft Rd Active Transportation Improvements	Craycroft Rd	Grant Rd	River Rd	North	Install and widen sidewalk to 6' and install separated bike lanes on both sides of Craycroft Rd from Grant Rd to northern Loop connection, install sidewalk bridge over Rillito River, install shared-use path on west side of Craycroft Rd from northern Loop connection to River Rd, install Pedestrian Hybrid Beacon at northern loop connection on Craycroft Rd.	Tucson	\$ 9,000,000
324	Dodge Blvd Active Transportation Improvements	Dodge Blvd	Alvernon Way	Fort Lowell Rd	North	Install raised crosswalk on Dodge Blvd at The Loop. upgrade both bike lanes and sidewalk on Dodge Blvd with shared-use path on the east side of Dodge Blvd from The Loop crossing to Fort Lowell Rd. upgrade buffered bike lane and sidewalk on the south side of Fort Lowell Rd with shared-use path from Palo Verde Ave to Dodge Blvd.	Pima County; Tucson	\$ 800,000
325	River Rd Shared-Use Path	River Rd	Swan Rd	Sabino Canyon Rd	North	Install shared-use path on north side of River Rd from Swan Rd to Sabino Canyon Rd, install shared-use path bridge east of Flagstaff Pl. Widen/install 6' sidewalk on south side of River Rd from Swan Rd to Calle Rosario. Install shared-use path on the south side of River Rd from Calle Rosario to Sabino Canyon Rd and install a marked crosswalk with lighting on River Rd at Calle Rosario.	Pima County	\$ 8,600,000
327	Catalina Hwy Shared-Use Path	Catalina Hwy	Tanque Verde Rd	Houghton Rd	North	Install shared-use path on both sides of Catalina Hwy from Tanque Verde Rd to Houghton Rd, install Pedestrian Hybrid Beacon north of Casitas Catalina	Pima County; Tucson	\$ 5,200,000
328	Houghton Rd Shoulder Improvements	Houghton Rd	Tanque Verde Rd	Snyder Rd	North	Install 6.5 ft paved shoulder on Houghton Rd from Tanque Verde Rd to Snyder Rd	Pima County; Tucson	\$ 2,800,000
330	Sabino Canyon Rd Shared-Use Path	Sabino Canyon Rd	River Rd	Kolb Rd	North	Install shared-use path on east side of Sabino Canyon Rd from River Rd to Sabino Canyon Rd, install marked crosswalk at Old Sabino Canyon Rd	Pima County	\$ 700,000
331	River Road Loop Connection	River Rd	Oracle Rd	Swan Rd	North	Install Pedestrian Hybrid Beacon at George Mehl Family Foothills Park, install paved trail connection in park to connect to The Loop, pave existing trail on Alvernon Way from The Loop to Dodge Blvd. Install wayfinding signage on Campbell Avenue at Loop entrance, install wayfinding signage in St. Phillips Plaza, install wayfinding signage at existing trail connection, install wayfinding signage at Loop entrance near Catalina Foothills Estates, upgrade existing sidewalk at Brandi Fenton Memorial Park to shared-use path from The Loop to River Rd. Install wayfinding signage on Campbell Avenue at Loop entrance, install wayfinding signage in St. Phillips Plaza, install wayfinding signage at existing trail connection, install wayfinding signage at Loop entrance near Catalina Foothills Estates, upgrade existing sidewalk at Brandi Fenton Memorial Park to shared-use path from The Loop to River Rd. Install wayfinding signage and install paved trail connection from The Loop to River Rd at the Post Office, install wayfinding signage at The Loop entrance on Stone Ave, install wayfinding signage at The Loop connection and Campbell Rd. Install wayfinding signage at Loop connections on Stone Ave and 1st Ave, Install paved shared-use path on drainage path from The Loop to River Rd and 1st Ave, install 6' sidewalk on south side of River Rd from Stone Ave to new shared-use path.	Pima County; Tucson	\$ 4,300,000
336	Wetmore Rd Active Transportation Improvements	Wetmore Rd	Flowing Wells Rd	Oracle Rd	Urban Core	Upgrade the sidewalk and bike lane on the north side of Wetmore Rd with a shared-use path from Flowing Wells Rd to Oracle Rd. Widen sidewalk and buffer on the south side of Wetmore Rd from Flowing Wells Rd to Oracle Rd.	Pima County; Tucson	\$ 2,100,000
337	Wetmore Rd Active Transportation Improvements	Wetmore Rd	Stone Ave	1st Ave	Urban Core	Upgrade sidewalk and bike lane on the west side of 1st Ave with shared-use path from The Loop (north) to Wetmore Rd. Widen the sidewalk and buffer on the east side of 1st Ave from The Loop to Wetmore Rd. upgrade the sidewalk and bike lane on the north side of Wetmore Rd with a shared-use path from Stone Ave to 1st Ave. Widen sidewalk and buffer on the south side of Wetmore Rd from Stone Ave to 1st Ave.	Tucson	\$ 1,100,000
339	Mountain Ave Loop Connection	Mountain Ave	Fort Lowell Rd	River Rd	North	Install separated bike lane and 6' sidewalk on both sides of Mountain Ave from Fort Lowell Rd to Limberlost Dr, pave new shared-use path on east side of Limberlost Dr, connect to The Loop bridge	Tucson	\$ 5,500,000
341	Silverbell Rd Shared-Use Path Connectivity Enhancements	Silverbell Rd	Goret Rd	The Loop	West	Add shared-use path to the east side of Silverbell Rd from Burlwood Way to Grant Rd. Install shared-use path on the south side of Goret Rd in place of the existing sidewalk and bike lane from Silverbell Rd to The Loop. Add wayfinding signage at Silverbell Rd/Goret Rd intersection. Add a marked crosswalk at El Camino Del Cerro and The Loop.	Tucson	\$ 1,700,000
344	Pomona Ave Reconstruction	Pomona Ave	Ruthrauff Rd	The Loop	Northwest	Reconstruct roadway and install bike lane and sidewalk on Pomona Ave from Ruthrauff Rd to The Loop (south), install pedestrian bridge over Rillito River to connect northern and southern portions of The Loop.	Pima County; Tucson	\$ 8,100,000
347	Sabino Canyon Rd Shared-Use Path	Sabino Canyon Rd	Kolb Rd	Rudasill Rd	North	Install shared-use path on both sides of Sabino Canyon Rd from Kolb Rd to Rudasill Rd, install marked crosswalk north of Ocotillo Dr and Sunrise Dr.	Pima County	\$ 6,100,000

Project ID	Name	Road	From	To	Geographic Area	Description	Lead Agency	Cost
353	The Loop Wayfinding Signage Enhancements	The Loop	Orange Grove Rd	Oracle Rd	Northwest	Install wayfinding signage and pave loop connections at the Trader Joes parking lot, community park, Flowing Wells Rd, and trail on Edgewater Dr, install Pedestrian Hybrid Beacon at Ocean Av, install paved trail along utility corridor leading to community, install Pedestrian Hybrid Beacon across Oracle Rd and add a trail connection to neighborhood. Install wayfinding signage at La Cholla Rd, install signage and pave trail to medical offices, install signage and pave trail at 5320 N La Cholla Blvd parking lot, install signage and pave trail to River Rd just south of Waterleaf Dr, install signage and pave trail to The Loop parking lot, install signage at Flowing Wells Rd, install Pedestrian Hybrid Beacon at River Fringe Rd. Install wayfinding signage at La Cholla Blvd, Circle K parking lot, e of Camino De la Tierra, install Pedestrian Hybrid Beacon on Camino De La Tierra, install signage and pavement improvements E of Camino De la Tierra, install shared-use path on west side of River Rd from Orange Grove Rd to The Loop parking lot.	Pima County; Tucson	\$ 3,000,000
356	Swan Rd Shared-Use Path	Swan Rd	River Rd	Skyline Dr	North	Install shared-use path on the west side and install or widen sidewalk to 6' on the east side of Swan Rd from River Rd to Skyline Drive	Pima County	\$ 5,000,000
357	Ina Rd Shared-Use Path	Ina Rd	Oracle Rd	Sabino Canyon Rd	North	Install shared-use path on the north side and 6' sidewalk on south side of Ina Rd/Skyline Dr/Sunrise Dr from Oracle Rd to Craycroft Rd. Install shared-use path on both sides of Sunrise Dr from Craycroft Rd to Sabino Canyon Rd. Install shared-use path on the north side and 6' sidewalk on the south side of Skyline Dr from Sunrise Dr/Skyline Dr to Swan Rd. Improve crossings on Skyline Dr at Campbell Ave and on Sunrise Dr at Campo Abierto with wayfinding signage at Sunrise Dr/Skyline Dr intersection. Install Pedestrian Hybrid Beacon on Sunrise Dr at Camino Arenosa. Install marked crosswalk on Sunrise Dr at Via Umbrosa.	Pima County	\$ 22,200,000
367	La Cholla Blvd Shared-Use Path	La Cholla Blvd	River Rd	Ina Rd	Northwest	Install shared-use path on both sides of La Cholla Blvd from River Rd to Ina Rd	Pima County	\$ 4,900,000
369	1st Ave Active Transportation Improvements	1st Ave	South of River Rd	Ina Rd	North	Install shared-use path on the west side and widen sidewalk to 6' on east side of 1st Ave from Rillito Park to Ina Rd	Pima County	\$ 5,100,000
376	Ina Rd Shared-Use Path	Ina Rd	Wade Rd	Oracle Rd	West	Add shared-use path to both sides of Ina Rd from Wade Rd to Oracle Rd. Install shared-use path bridge connecting The Loop. Upgrade bike lanes and sidewalks on I-10 overpass and bridge over wash (east of Meredith Blvd) to shared-use paths.	Pima County; Marana	\$ 31,400,000
377	Silverbell Rd Shared-Use Path	Silverbell Rd	Twin Peaks Rd	El Camino Del Cerro	West	Add shared-use path to the east side of Silverbell Rd from El Camino Del Cerro to Ina Rd. Add/upgrade a shared-use path to the east side and widen sidewalk, buffer, and shoulder on west side of Silverbell Rd from Ina Rd to Twin Peaks Rd. Add shared-use path on south side of Mamie Kai Dr from Silverbell Rd to The Loop through Crossroads District Park. Add shared-use path connection from Silverbell to The Loop west of Coachline Blvd.	Pima County; Marana	\$ 14,900,000
382	Thornydale Rd Shared-Use Path	Thornydale Rd	Orange Grove Rd	Tangerine Rd	Northwest	Install shared-use path on east side of Thornydale Rd from Orange Grove to Overton Rd, install shared-use path bridge over The Loop, pave connection to The Loop. Pave trail on west side of Thornydale Rd from Cortaro Farms Rd to Overton Rd, and install marked crosswalk at trail entrance. Install paved shoulder on both sides of Thornydale Rd from Pecos Way to Tangerine Rd, install shared-use path on the east side of Thornydale Rd from Overton Rd to Pecos Way. Add shared-use path connections on the south side of Hardy Dr from Thornydale Dr to the Tortolita Middle School Access and into Arthur Pack Regional Park near Freer Dr. Add pedestrian hybrid beacons at Argo St, Sumter St, and Arthur Pack Regional Park. Improve the crossing at Hardy Dr/Thornydale Dr.	Pima County; Tucson	\$ 17,200,000
400	Paseo Del Norte Active Transportation Improvements	Paseo Del Norte	Ina Rd	Magee Rd	Northwest	Install 6' sidewalk and buffered bike lanes on both sides of Paseo Del Norte from Ina Rd to Magee Rd	Pima County	\$ 1,300,000
404	Cortaro Farms Rd Active Transportation Improvements	Cortaro Farms Rd	Silverbell Rd	Shannon Rd	Northwest	Install 8' separated bike lane and widen sidewalk to 6' on south side and install shared-use path on the north side of Cortaro Farms Rd from I-10 to Shannon Rd. Upgrade existing sidewalk with shared-use path to the north side of Cortaro Rd from Silverbell Rd to I-10 Frontage Rd. Widen sidewalk and buffer on south side of Cortaro Rd from Silverbell Rd to I-10 Frontage Rd. Upgrade crossings at Cortaro/I-10 interchange.	Pima County; Marana	\$ 12,600,000

Project ID	Name	Road	From	To	Geographic Area	Description	Lead Agency	Cost
408	Northern Ave Active Transportation Improvements	Northern Ave	Magee Rd	Hardy Rd	Northwest	Install separated bike lane and 6' sidewalk on Northern Ave from Magee Rd to Hardy Rd.	Oro Valley	\$ 4,100,000
409	Overton Rd Active Transportation Improvements	Overton Rd	Thornydale Rd	Oracle Rd	Northwest	Install a 8' separated bike lane and 6' sidewalk on north side and install shared-use path on south side of Overton Rd from Thornydale Rd to La Cañada Dr. Install separated bike lane and 6' sidewalk on north side and install shared-use path on south side of Hardy Rd from La Cañada Dr to Oracle Rd	Pima County	\$ 15,000,000
413	Taladro St Active Transportation Improvements	Taladro St	Rocalla Ave	Elota Ave	Far West	Widen sidewalks and add a buffer on both sides of Taladro St from Lomita Ave to Pajaro St. Add shared-use path on Plaza St from Pajaro St to Taladro St.	ADOT; Pima County	\$ 200,000
415	Shannon Rd Shared-Use Path	Shannon Rd	Cortaro Farms Rd	Big Star Trl	Northwest	Install shared-use path on the west side of Shannon Rd from Cortaro Farms Rd to Big Star Trl.	Pima County	\$ 4,900,000
421	Yermo Ave Active Transportation Improvements	Yermo Ave	North St	Rocalla Ave	Far West	Add a shared-use path on the east side of Yermo Ave from Malacate St to Pajaro St. Add a Pedestrian Hybrid Beacon across Yermo Ave at Pajaro St intersection. upgrade the sidewalk on the north side of Solana Ave with a shared-use path. Add shared-use path to the east side of 2nd Ave from North St to Sahuaro St. Add Pedestrian Hybrid Beacon across 2nd Ave at 4th St and marked crossing at North St.	ADOT	\$ 2,400,000
429	Oracle Rd Shared-Use Path	Oracle Rd	Hardy Rd	1st Ave	Northwest	Install shared-use path on the east side of Oracle Rd from Hardy Rd to 1st Ave, install Pedestrian Hybrid Beacon at Horizon Cir, install Pedestrian Hybrid Beacon at Rock Ridge Apartment complex. Extend shared-use path on south side of 1st Ave from Canyon Del Oro River Park bridge to Oracle Rd, install shared-use path bridge at Canyon Del Oro River Park bridge	ADOT; Oro Valley	\$ 15,500,000
430	Sandario Rd Shoulder Widening	Sandario Rd	Avra Valley Rd	Rudasill Rd	West	Add paved shoulder of at least 6.5' to both sides of Sandario Rd from Avra Valley Rd to Rudasill Rd	Pima County; Marana	\$ 5,600,000
431	Avra Valley Rd Shoulder Widening	Avra Valley Rd	Sandario Rd	I-10	West	Add paved shoulder of at least 7' to both sides of Avra Valley Rd from Sandario Rd to I-10.	Pima County; Marana	\$ 5,100,000
501	Pasqua Yaqui Tribe Priority Project 1	Camino De Oeste	Valencia Rd	Calle Torim	Southwest	Fill sidewalk gaps on west side and install shared-use path on the east side of Camino De Oeste from Valencia Rd to Calle Torim. Add marked crosswalks at Jeffery Rd.	Pima County; Pasqua Yaqui Tribe	\$ 2,500,000
502	Pasqua Yaqui Tribe Priority Project 2	Ignacio M Baumea	Los Reales Rd	Calle Torim	Southwest	Install/upgrade to shared-use path on the west side of Ignacio M Baumea from Los Reales Rd to Calle Torim. Add marked crosswalk at Calle Tetakusim and Los Reales Rd.	Pima County; Pasqua Yaqui Tribe	\$ 600,000