

PIMA ASSOCIATION OF GOVERNMENTS



REGIONAL **ACTIVE** TRANSPORTATION PLAN



Active Transportation Toolbox
Working Session

October 24, 2024





Agenda

- Introductions
- Active Transportation Toolbox Goals and Draft Outline
- Treatment Types
- Crossing Types
- Traffic Calming Measures
- Quick Build Guidance
- Next Steps



Active Transportation Toolbox Goals and Draft Outline



Working Session

GOAL OF THE ACTIVE TRANSPORTATION TOOLBOX WORKING SESSION:

Define active transportation treatments and their appropriate context, use, and considerations.

Expectations and Considerations

- Provide initial input on treatment types and considerations
- Be cognizant of workshop time constraints and gathering input from all jurisdictions
- **This will not be your last chance to review the materials** – draft versions of the Toolbox will be provided to the TWG for comment



Active Transportation Toolbox Goals

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

Active Transportation Toolbox Outline



Improvement Definition

User Group Impacted

- Pedestrians
- Bicyclists
- Motorists
- Emergency Vehicles

Benefits and Considerations

Cost

- Low Cost
- Medium Cost
- High Cost

Application

- Physical Context
- Speed and Volume
- Functional Classification

References to Local Standards and National Best Practices

Regional Treatment Guidelines

- Geometric Considerations
- Markings
- Signage

Transit Integration

Amenities

- Lighting
- Shade
- Wayfinding
- Technology



On-Street Improvements

On-Street Improvements

Paved
Shoulder

Advisory
Shoulder

Shared
Lane

Protected
Bike Lane

Buffered
Bike Lane

Separated
Bike Lane

Bicycle
Boulevard

Cycle
Track

Legend



Improvement to Keep

















Improvement to Remove



Paved Shoulder


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always

 Sometimes




 Never



Advisory Shoulder

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban		Suburban		Rural	
	SPEED AND VOLUME	High Speed/Volume		Medium Speed/Volume		Low Speed/Volume	
	NETWORK	Principal Arterial		Minor Arterial		Major Collector	

Considerations

Legend

Always

Sometimes




Never



Shared Lane


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban		Suburban		Rural	
	SPEED AND VOLUME	High Speed/Volume		Medium Speed/Volume		Low Speed/Volume	
	NETWORK	Principal Arterial	✓	Minor Arterial	✓	Major Collector	✓
		Collector	✓	Local	✓		

Considerations

Legend

 Always




 Sometimes

 Never

Protected Bike Lane

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban	Suburban	Rural		
	SPEED AND VOLUME	High Speed/Volume	Medium Speed/Volume	Low Speed/Volume		
	NETWORK	Principal Arterial	Minor Arterial	Major Collector	Collector	Local

Considerations

Legend



Always



Sometimes






Never

Buffered Bike Lane

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban	Suburban	Rural		
	SPEED AND VOLUME	High Speed/Volume	Medium Speed/Volume	Low Speed/Volume		
	NETWORK	Principal Arterial	Minor Arterial	Major Collector	Collector	Local

Considerations

Legend



Always



Sometimes






Never

Separated Bike Lane

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban	Suburban	Rural		
	SPEED AND VOLUME	High Speed/Volume	Medium Speed/Volume	Low Speed/Volume		
	NETWORK	Principal Arterial	Minor Arterial	Major Collector	Collector	Local

Legend



Always



Sometimes



Never















Considerations



Bicycle Boulevard


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always

 Sometimes















 Never



Cycle Track


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always

 Sometimes

 Never



Off-Street Improvements

Off-Street Improvements

Shared-
Use Path

Side
Path

Sidewalk

Legend



Improvement to Keep

















Improvement to Remove



Shared-Use Path


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always















 Sometimes

 Never

Side Path

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend















● Always ● Sometimes ● Never



Sidewalk


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always

 Sometimes

 Never



Crossing Improvements

Crossing Improvements – Intersection Treatments

Marked
Crosswalk

Raised
Crosswalk

High
Visibility
Crosswalk

Pedestrian
Refuge

Raised
Intersection

Protected
Intersection

Curb
Extension

Two-Stage
Turn Box

Bike Box

Overpass/
Underpass

Crossbike

Legend



Improvement to Keep

















Improvement to Remove

Marked Crosswalk

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend















● Always ● Sometimes ● Never



Raised Crosswalk


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always















 Sometimes

 Never

High Visibility Crosswalk

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend















 Always  Sometimes  Never



Pedestrian Refuge


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always















 Sometimes

 Never

Raised Intersection

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend



Always



Sometimes

















Never



Protected Intersection


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always

 Sometimes

 Never

Curb Extension

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban	Suburban	Rural		
	SPEED AND VOLUME	High Speed/Volume	Medium Speed/Volume	Low Speed/Volume		
	NETWORK	Principal Arterial	Minor Arterial	Major Collector	Collector	Local

Legend



Always



Sometimes



Never















Considerations



Two-Stage Turn Box


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always




 Sometimes

 Never

Bike Box

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban	Suburban	Rural		
	SPEED AND VOLUME	High Speed/Volume	Medium Speed/Volume	Low Speed/Volume		
	NETWORK	Principal Arterial	Minor Arterial	Major Collector	Collector	Local

Legend



Always



Sometimes



Never















Considerations



Overpass/Underpass


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always

 Sometimes

 Never

Crossing Improvements – Signals and Beacons

HAWK Signal

Bike HAWK
Signal

TOUCAN Signal

PELICAN
Crossing

Circular Rapid
Flashing
Beacon

Rectangular
Rapid Flashing
Beacon

Leading
Pedestrian
Interval

Legend



Improvement to Keep

















Improvement to Remove



HAWK Signal


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always




 Sometimes

 Never

Bike HAWK Signal

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban	Suburban	Rural		
	SPEED AND VOLUME	High Speed/Volume	Medium Speed/Volume	Low Speed/Volume		
	NETWORK	Principal Arterial	Minor Arterial	Major Collector	Collector	Local

Considerations

Legend















 Always  Sometimes  Never



TOUCAN Signal

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

Always

Sometimes




Never



PELICAN Signal


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban		Suburban		Rural	
	SPEED AND VOLUME	High Speed/Volume		Medium Speed/Volume		Low Speed/Volume	
	NETWORK	Principal Arterial	✓	Minor Arterial	✓	Major Collector	✓
		Collector	✓	Local	✓		

Considerations

Legend

 Always















 Sometimes

 Never

Circular Rapid Flashing Beacon

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations















Legend

● Always
 ● Sometimes
 ● Never

Rectangular Rapid Flashing Beacon

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend



Always



Sometimes






Never

Leading Pedestrian Interval

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban	Suburban	Rural		
	SPEED AND VOLUME	High Speed/Volume	Medium Speed/Volume	Low Speed/Volume		
	NETWORK	Principal Arterial	Minor Arterial	Major Collector	Collector	Local

Considerations

Legend















 Always  Sometimes  Never



Crossbike


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always

 Sometimes

 Never



Traffic Calming Measures

Traffic Calming Measures

Neckdown	Chicane	Realigned Intersection	Traffic Circle
Roundabout	Speed Hump	Speed Cushion	Speed Table
	Median Island	Road Diet	

Legend















Improvement to Keep

Improvement to Remove

Neckdown

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend



Always



Sometimes






Never

Chicane

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban	Suburban	Rural		
	SPEED AND VOLUME	High Speed/Volume	Medium Speed/Volume	Low Speed/Volume		
	NETWORK	Principal Arterial	Minor Arterial	Major Collector	Collector	Local

Legend



Always



Sometimes

















Never

Considerations

Realigned Intersection

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend



Always



Sometimes

















Never



Traffic Circle


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always















 Sometimes

 Never

Roundabout

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend















● Always
 ● Sometimes
 ● Never



Speed Hump


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always

 Sometimes















 Never



Speed Cushion


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always

 Sometimes















 Never



Speed Table


Are there existing local standards for this treatment?


Application


	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

 Always




 Sometimes

 Never

Median Island

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban	Suburban	Rural		
	SPEED AND VOLUME	High Speed/Volume	Medium Speed/Volume	Low Speed/Volume		
	NETWORK	Principal Arterial	Minor Arterial	Major Collector	Collector	Local

Considerations

Legend



Always



Sometimes

















Never

Road Diet

Are there existing local standards for this treatment?

Application

	PHYSICAL CONTEXT	Urban 	Suburban 	Rural 		
	SPEED AND VOLUME	High Speed/Volume 	Medium Speed/Volume 	Low Speed/Volume 		
	NETWORK	Principal Arterial 	Minor Arterial 	Major Collector 	Collector 	Local 

Considerations

Legend

● Always ● Sometimes ● Never



Quick Build Guidance

Quick Build Guidance

What is most helpful to you for Quick Build solutions?

- Treatment applicability
- Materials
- Funding mechanisms
- Quick build applications
- Concerns
- Lessons learned



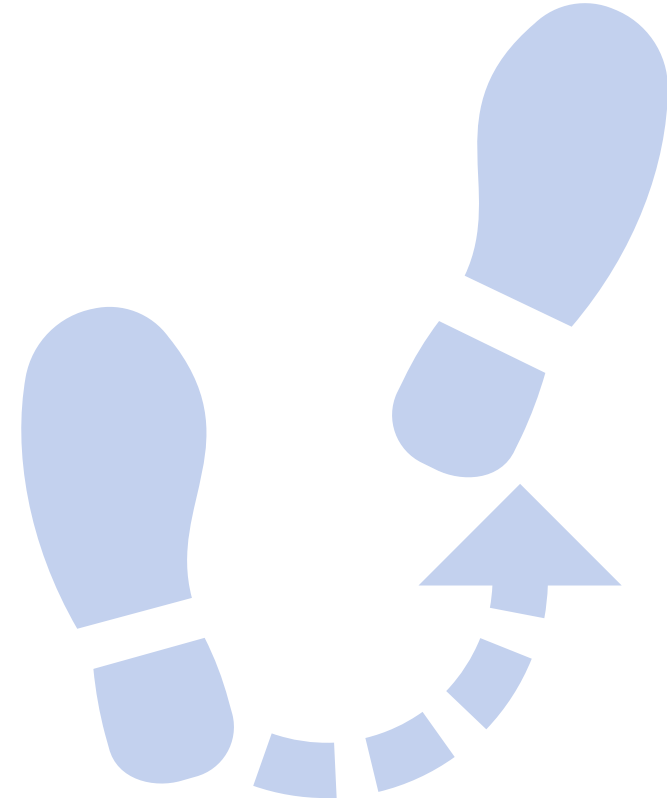


Next Steps



Next Steps

- Develop draft content for the Toolbox (Oct-Dec 2024)
- Final Active Transportation Toolbox (Jan 2025)
- Toolbox may be used during the project development phase and alternatives evaluation to select high-priority project





Thank you!