

# Harrisburg Master Transportation Plan (MTP)

**Plan Presentation** 

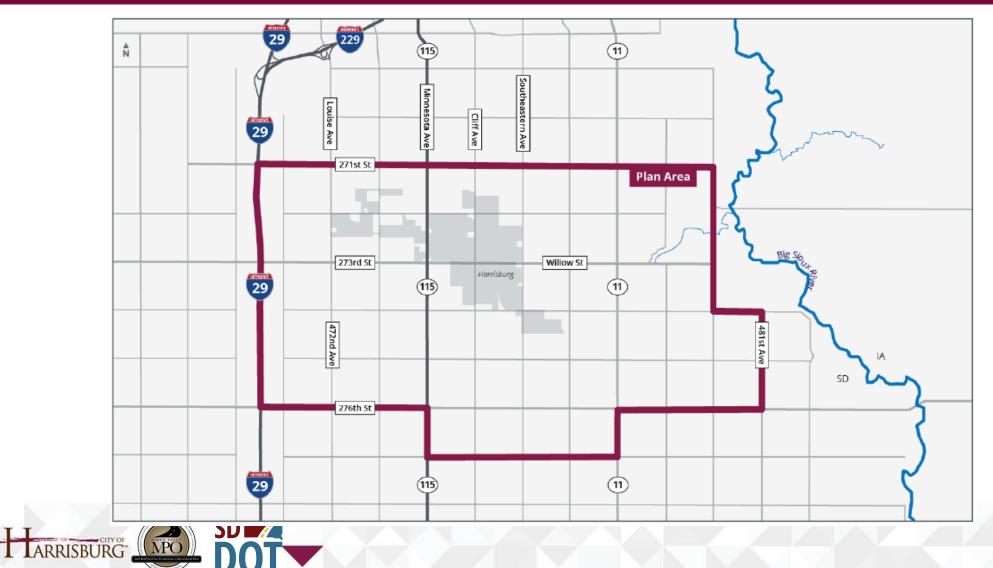


# **Master Transportation Plan Process**

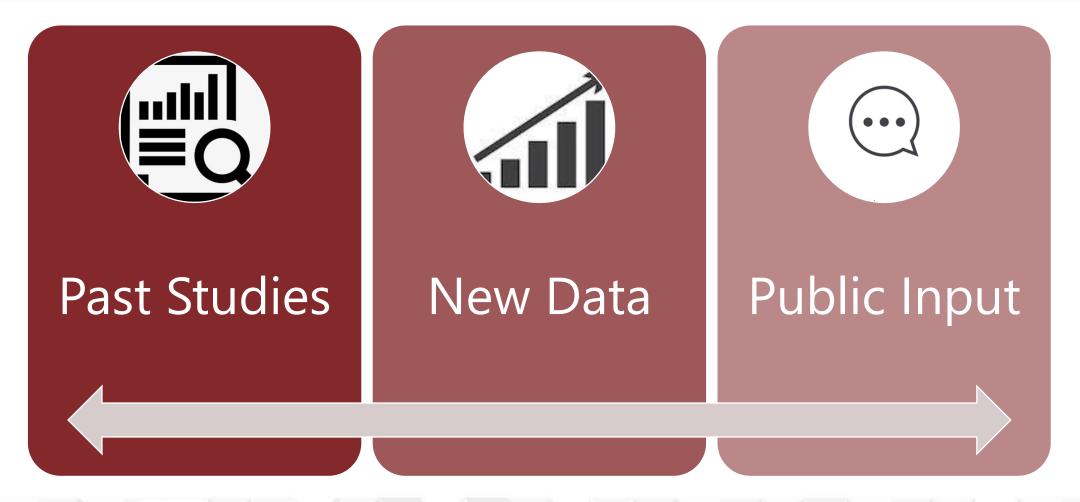














#### Public / Stakeholder Input





#### Public Input – November 2021

- Public Open House
- Emphasis areas:
  - Safety is Important
  - Identify Strategies for Less Congestion
  - Pave Gravel Roads
  - Add More Bicycle and Pedestrian Connections
  - Maintain Current System





#### Plan Goal Priorities Public and Stakeholder Feedback

Provide a Safe Transportation System

Minimize Travel Congestion

Solution Stress Improve Pedestrian and Bicycle Connections

System

Maintain the Current Street

6

Harrisburg (MPO)

### Public Survey: Nov-Dec 2021

- 433 responses
- Asked for Public Input on Goals and Needs
- Top 3 Goals
  - Efficiency and Reliability
  - Safety
  - Economic
- Top 3 Issues

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- Improve traffic flow on area streets during rush hour
- Ease of travelling to work, school, shopping, and recreational areas in Harrisburg
- Adding/improving sidewalks and pedestrian crossings



### Public Input – March 2022

- Public Open House
- 35 Attendees

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- Feedback Received:
  - Short-Term Improvements Needed to Cliff and Willow
  - Pave Gravel Roads
  - Safety for Vehicles and Pedestrians / Bicyclists are Important



#### **Baseline Conditions Overview**

Traffic Operations (Congestion) – Today and 2045



Traffic Safety



Bicycle and Pedestrian Connections





#### Daily Traffic Volumes (Today and 2045) and Future Congestion



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## Traffic Crashes, 2016 - 2020



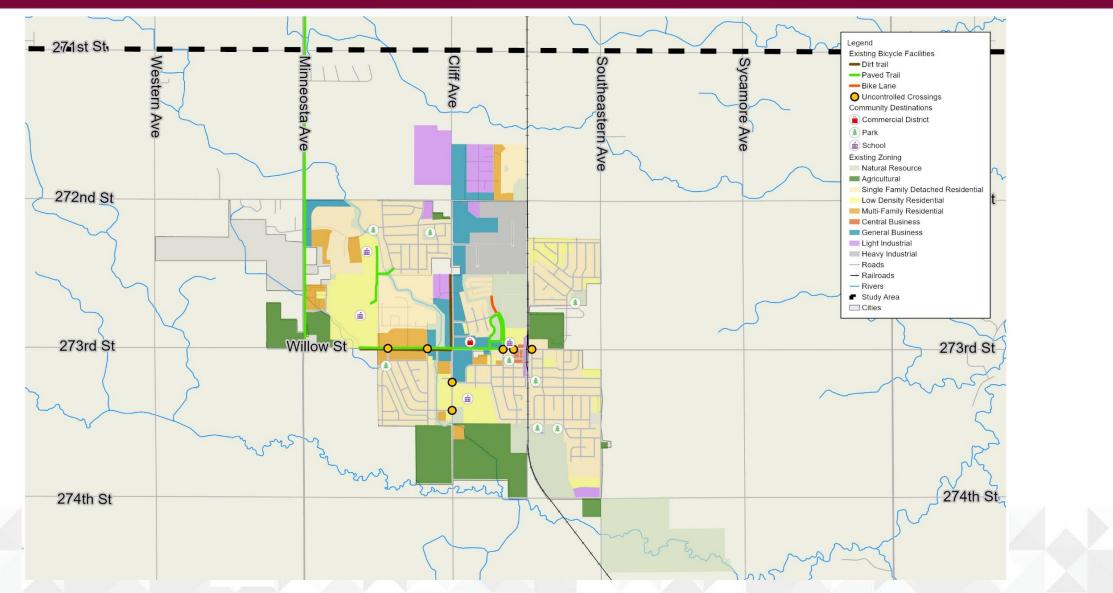
#### LEGEND



 Top Crash Frequency Intersections

Rank	Intersection	Crash Frequency
1	Highway 115 / 271st Street	31
2	Cliff Avenue / 271st Street	28
3	472 <sup>nd</sup> Avenue / 271st Street	18
3	Highway 11 / 273rd Street	18
5	Highway 115 / 276th Street	17
6	Cliff Avenue / Willow Street	14
7	472 <sup>nd</sup> Avenue / 273rd Street	11
7	Highway 11 / 271st Street	11
9	Highway 115 / 272nd Street	10
10	471 <sup>st</sup> Avenue / 271st Street	9

#### **Existing Bicycle and Pedestrian Facilities**



#### Example Origin-Destination Data: Willow St I-29 Interchange



#### **Future Conditions - Growth**

23,911 25,000 20,000 15,000 9,512 8.925 8,361 10,000 3,566 3.071 5,000 0 Population Employment Households ■ 2018 ■ 2045

Harrisburg Community Growth

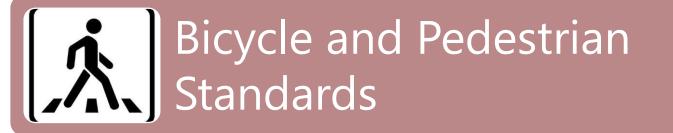
Population + 168%
Households + 172%
Employment + 167%



#### **Standards Development Overview**









#### **Urban vs. Rural Cross Sections**

#### **Urban Cross Section**

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- Curb and gutter with storm sewers for drainage
- Parking and pedestrian access from street to adjacent housing and businesses
- Typically requires less public right-of-way than rural roads

#### s Section Rural Cross Section



- Ditches to manage drainage
- Pedestrian facilities, housing, and businesses set back beyond ditches
- Typically requires more public right-ofway than urban streets

#### **3-Lane Rural Cross Section**



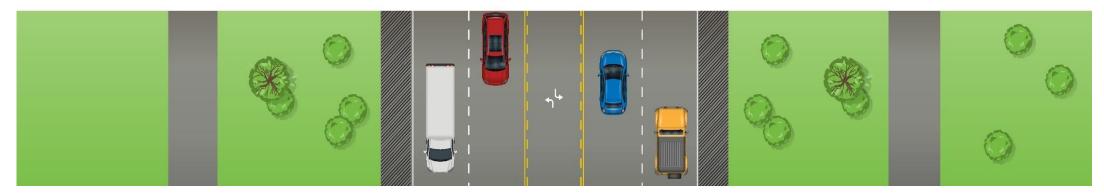




Example Right-of-Way: 160' Expandable to 5-lanes 40'+ greenspace separation between pedestrian way and roadway

#### **5-Lane Rural Cross Section**







Example Right-of-Way: 160' 30' greenspace separation between pedestrian way and roadway Sidepath or sidewalk elements will vary by location

# **4-Lane Divided Rural Cross Section**







Example Right-of-Way: 160' 30' greenspace separation between pedestrian way and roadway Sidepath or sidewalk elements will vary by location

## **3-Lane Urban Cross Section**







Example Right-of-Way: 100' Expandable to 5-lanes Pedestrian space closer to street

# **5-Lane Urban Cross Section**







Example Right-of-Way: 100' Pedestrian space closer to street

#### **4-Lane Divided Urban Cross Section**







Example Right-of-Way: 100' Pedestrian space closer to street

#### 3-Lane Cross Section (Downtown – 100')





Example Right-of-Way: 100'
Provides for on-street parking (or bike lanes if desired)
Pedestrian space closer to street
Easy Access from Street to Adjacent Land Development

#### 3-Lane Cross Section (Downtown – 80')

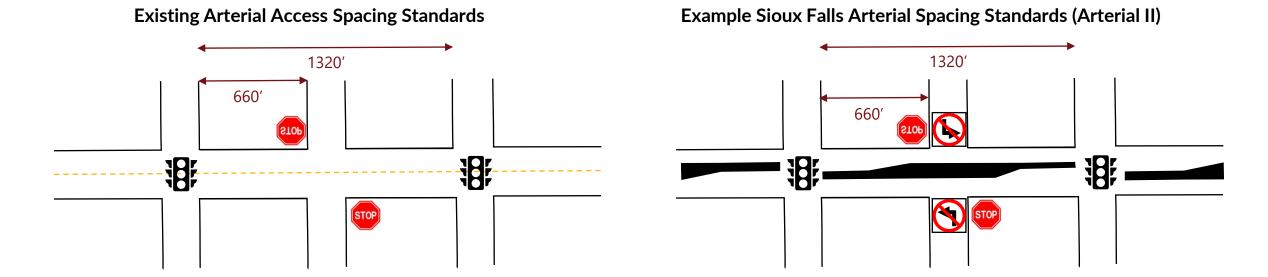




Example Right-of-Way: 80'
Provides for on-street parking (or bike lanes if desired)
Pedestrian space closer to street
Easy Access from Street to Adjacent Land Development

# **Access Standards**

#### As Harrisburg grows and streets are improved, update access management standards





#### **Bicycle and Pedestrian Standards Overview**







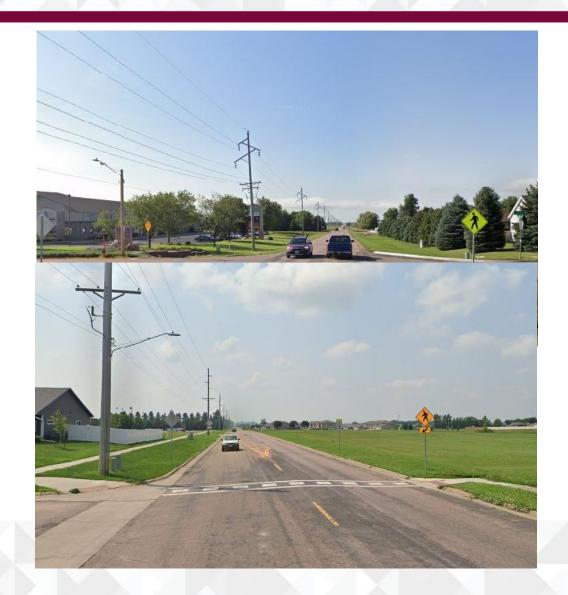


## Mid-Block Crossings

- Found at locations with high pedestrian activity (parks and schools)
- Common elements include
  - Crosswalk markings
  - Signage

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- Pedestrian signals
- Curb extensions



#### **Rectangular Rapid Flashing Beacons (RRFB)**

- Pedestrian activated device for enhancing crossing visibility
  - Triggers flashing LED lights to indicate pedestrian is crossing
- Recommended for mid-block and uncontrolled crossings
- Common elements include:
  - Crosswalk markings
  - Signal
  - Signage





Source: Delaware Center for Transportation

#### **Concrete Median Islands with Refuge**

- Crossing area for pedestrians on high volume roads
- Suitable for mid-block crossings, roads with 4 or more lanes
  - Also suitable for 2-, 3-lane roads with high traffic volumes
- Common elements include:
  - Crosswalk markings
  - Median
  - Pedestrian signals
  - Signage





Source: Broward MPO

# Implementation Example

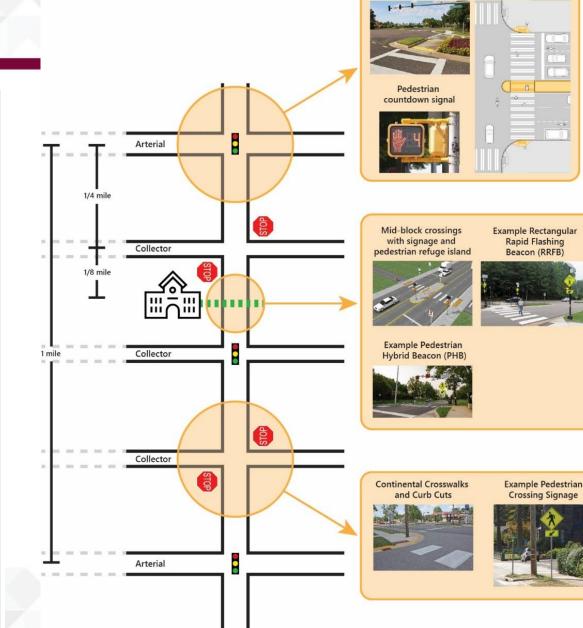
#### FHWA Guide for Pedestrian Improvements at Uncontrolled Crossings

	_		_	_		_	_	_	_	_		_	-	_	_	_	_		_		_			_		_	
		Posted Speed Limit and AADT																									
	Vehicle AADT <9,000							Vehicle AADT 9,000-15,000									Vehicle AADT >15,000										
Roadway Configuration		≤30 mph 3			35 mph			≥40 mph		≤30 mph		35 mph		ph	≥40 mph			≤30 mph			35 mph		bh	≥40 mph			
	0	2		0			1			0			0			1			0			1			1		
2 lanes (1 lane in each direction)	4	5	6		5	6		5	6	4	5	6		5	6		5	6	4	5	6		5	6		5	6
(Thate in each anechony				7		9	0		0				7		9	0		0	7		9	7		9			0
	0	2	3	0		8	1		8	1		3	1		8	1		6	1		8	1		6	1		6
3 lanes with raised median (1 lane in each direction)	4	5			5			5		4	5			5			5		4	5			5			5	
(Trane in each direction)				7		9	0		0	7		9	0		0	0		0	7		9	0		0			0
3 lanes w/o raised median	0	2	3	0		8	1		8	1		3	1		8	1		8	1		8	1		6	1		8
(1 lane in each direction with a	4	5	6		5	6		5	6	4	5	6		5	6		5	6	4	5	6		5	6	5	6	
two-way left-turn lane)	7		9	7		9			0	7		9	0		0			0	7		9			0			0
	0		8	0		8	1		8	1		8	1		8	1		8	1		8	1		6	1		6
4+ lanes with raised median (2 or more lanes in each direction)		5			5			5			5			5			5			5			5			5	
(2 of more fulles in each direction)	7	8	9	7	8	9		8	0	7	8	9	0	8	0		8	0	0	8	0		8	0		8	0
			8	1		8	1		8	1		8	1		8	1		8	1		8	1		6	1		8
4+ lanes w/o raised median (2 or more lanes in each direction)		5	6		5	6		5	6		5	0		5	6		5	6		5	6		5	0		5	6
(2 or more lanes in each direction)	7	8	9	7	8	9		8	0	7	8	9	0	8	0		8	0	0	8	0		8	0		8	0

- Given the set of conditions in a cell.
- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- O Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.\*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

- High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
- 2 Raised crosswalk
- 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
- 4 In-Street Pedestrian Crossing sign
- 5 Curb extension
- 6 Pedestrian refuge island
- Rectangular Rapid-Flashing Beacon (RRFB)\*\* 7
- 8 Road Diet
- 9 Pedestrian Hybrid Beacon (PHB)\*\*

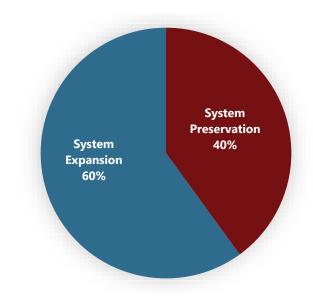


Crosswalks with **Example pedestrian** pedestrian refuge islands/medians

refuge medians

# **Funding Projections**

Revenue Source	Short-term (2026 – 2030)	Mid-term (2031 – 2037)	Long-term (2038 – 2045)	Total	
General Fund	\$5,500,000	\$9,500,000	\$14,000,000	\$29,000,000	
Arterial Street Fees	\$1,700,000	\$2,900,000	\$4,200,000	\$8,800,000	
Maintenance Revenues	\$4,400,000	\$7,700,000	\$11,300,000	\$23,400,000	
STP Funds	\$1,400,000	\$2,500,000	\$4,000,000	\$7,900,000	
TAP Funds	\$300,000	\$600,000	\$1,000,000	\$1,900,000	
Total	\$13,300,000	\$23,200,000	\$34,500,000	<mark>\$71,000,000</mark>	

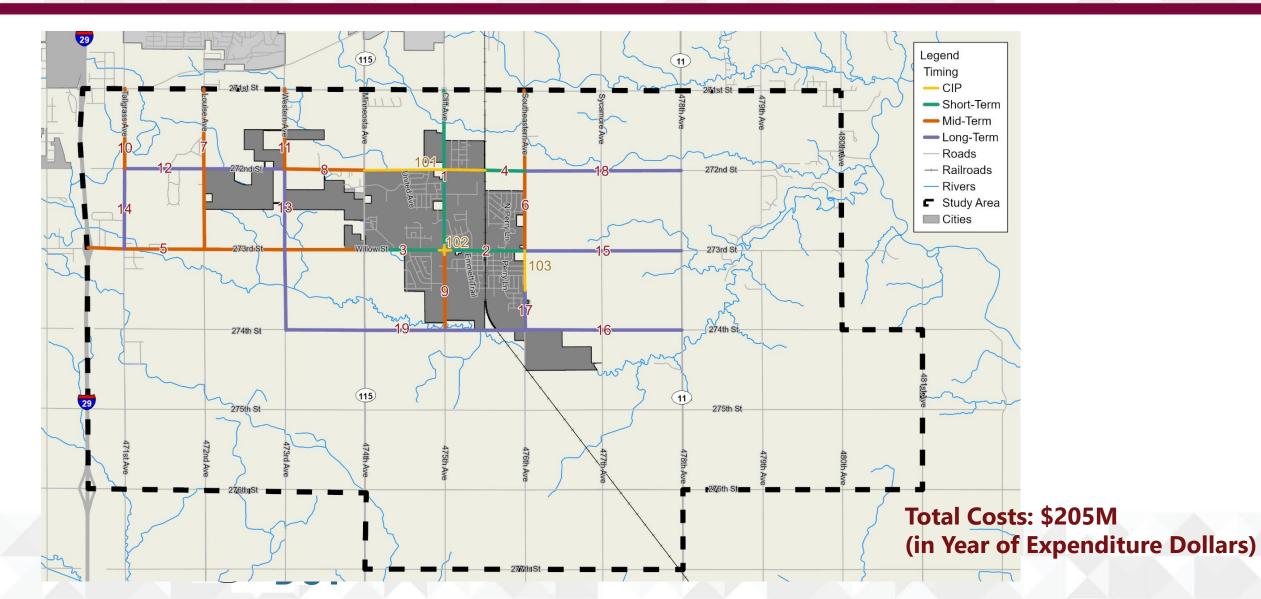


#### Total Transportation Budget: \$71M (in Year of Expenditure Dollars)

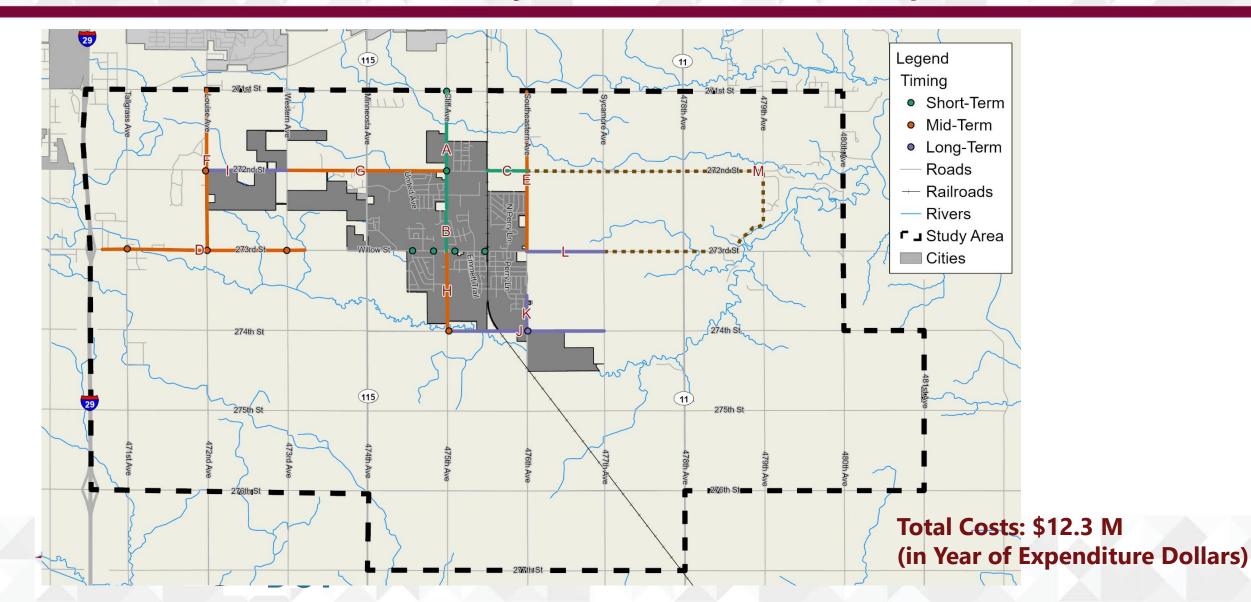


System Preservation	System Expansion	Total				
\$5,320,000	\$7,980,000	\$13,300,000				
\$9,280,000	\$13,920,000	\$23,200,000				
\$13,800,000	\$20,700,000	\$34,500,000				
\$28,400,000	\$42,600,000	<mark>\$71,000,000</mark>				
	Preservation           \$5,320,000           \$9,280,000           \$13,800,000	Preservation         Expansion           \$5,320,000         \$7,980,000           \$9,280,000         \$13,920,000           \$13,800,000         \$20,700,000				

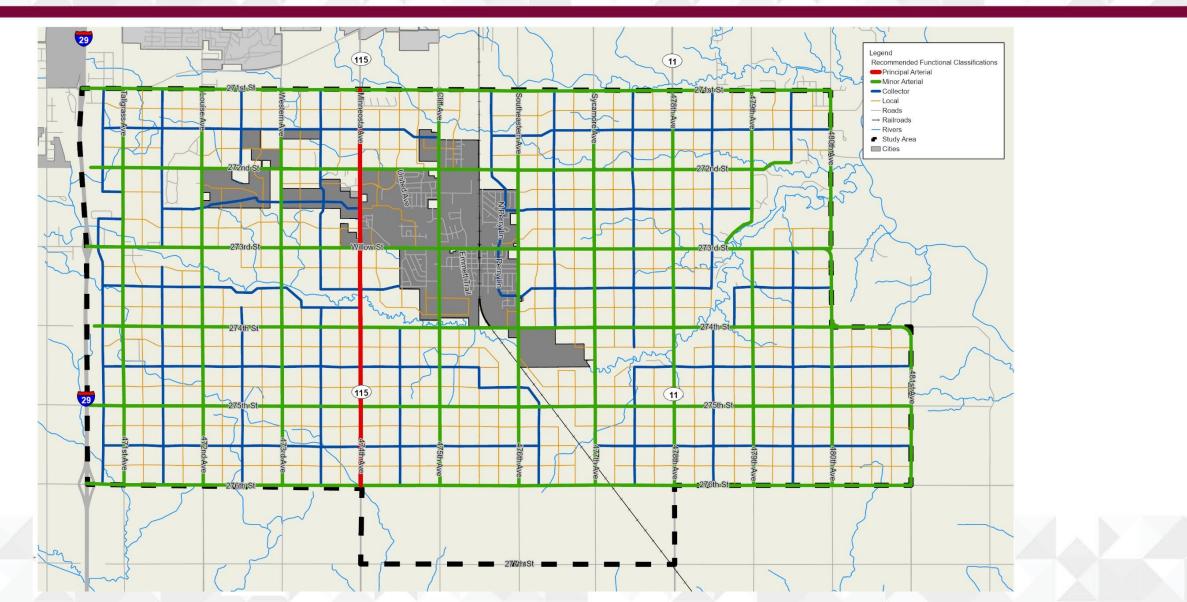
#### **2045 Recommended Street Network Improvements**



#### **2045 Recommended Bicycle and Pedestrian Improvements**



#### **Future Planned Master Street Network**



#### Thank You

Questions?



