

# Recommended Intersection Improvements

## Improvements Part 1 – US 17 Business near Hospital Drive (Phase 2)



### Project Description

#### Ongoing Issues along the Corridor

- Recurring traffic congestion
- Corridor/Intersection safety
- Speeding / aggressive driving and proper pavement marking and signage concerns

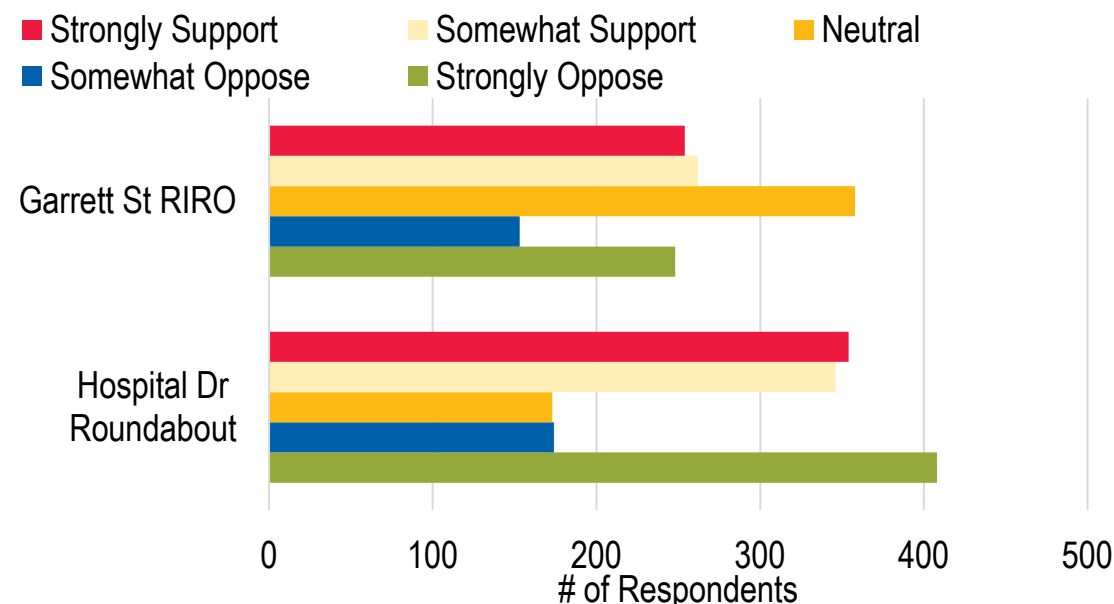
#### Proposed Improvements along US Route 17 Business and Expected Benefits

- Conversion of the Hospital Drive intersection to a hybrid roundabout:
  - Congestion Mitigation**
    - Expected to reduce delays compared to the no-build scenario, especially during Design Year (2050).
  - Safety**
    - Installing a roundabout at Hospital Drive has a CMF value of 0.56; a 44% reduction in all crashes is anticipated.
    - Serves as a transition point for a future roadway reconfiguration, including on-road bike lanes between Hospital Drive and Keith Street.
- Installation of a concrete median and channelizing island at Garrett Street:
  - Closes the southbound left-turn lane at Garrett Street.
  - Restricts movements to right turns only at Garrett Street, reducing crash frequency and severity, and delays for vehicles entering Shirley Avenue from Garrett Street.
- Safety**
  - Under right-in, right-out (RIRO) concept, crashes at the intersection of Garrett Street are anticipated to reduce by 45% (CMF value of 0.55).

### Public Survey Results

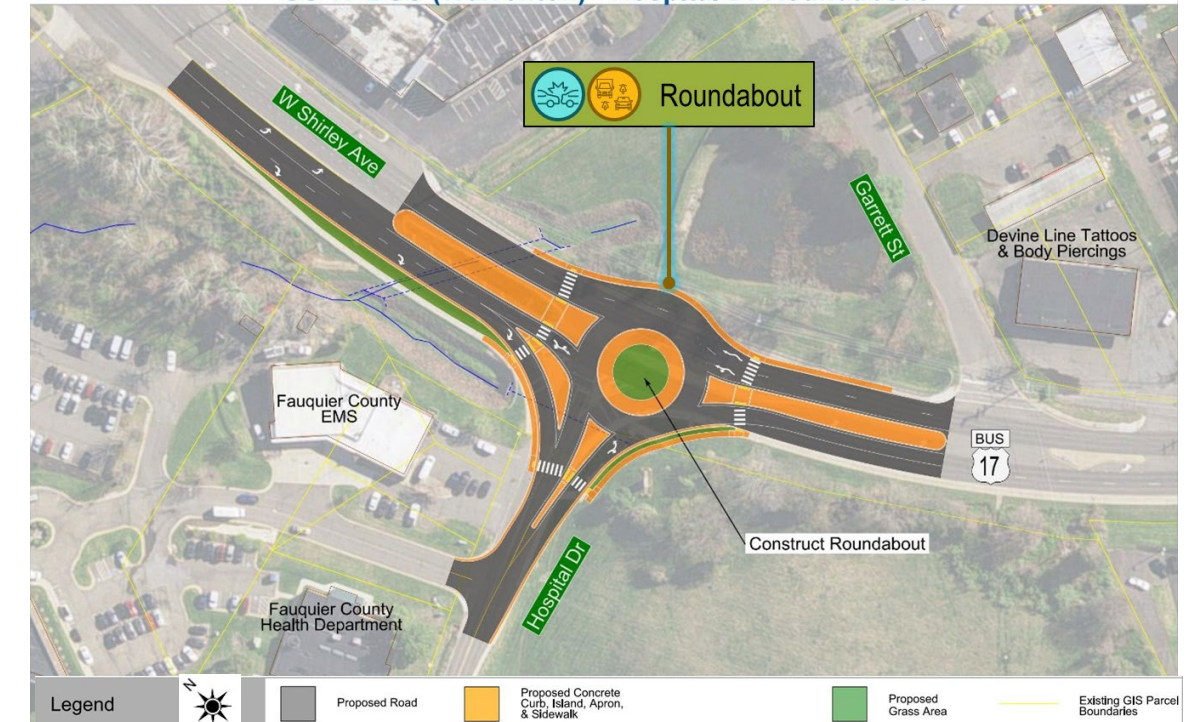
#### Survey Summary

- A public input survey was conducted from February 24<sup>th</sup> through March 8<sup>th</sup>, 2024
- 1,498 respondents participated in the survey.
- Most of the respondents were neutral to the idea of right-in right-out at Garrett Street.
- Hospital Drive roundabout received neutral response; some respondents have not seen congestion or safety problems to warrant roundabout at Hospital Drive.



### Proposed Improvements

#### US 17 BUS (Warrenton) - Hospital Dr Roundabout



#### US 17 BUS (Warrenton) - Garrett St Right In, Right Out





# Recommended Intersection Improvements

## Improvements Part 2 – US 17 Business near Carriage House (Phase 2)

### Project Description

#### Proposed Improvements along US Route 17 Business and Expected Benefits

- Construction of a single-lane roundabout at the intersection with Carriage House Lane:
  - Safety** Includes a right-turn slip lane for southbound traffic onto Carriage House Lane.
  - Installing a roundabout at Carriage House Lane is anticipated to reduce all crashes by 48% reduction.
- Installation of enhanced pavement markings at the fire station entrance on Shirley Avenue:
  - Indicates no stopping in front of the fire station access.
  - Aims to alleviate some confusion among drivers navigating the Carriage House Lane intersection with the existing offset signal pole along the northbound approach.

### VTrans Needs and Cost Estimates

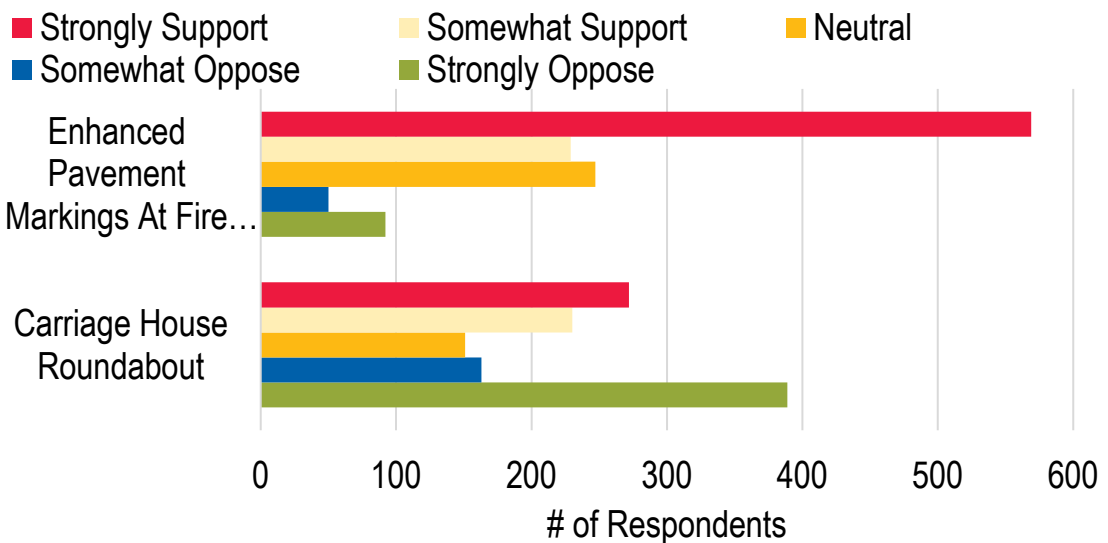
VTRANS	NEEDS
Very High Priority	Congestion Mitigation
High Priority	Safety Improvement

Phase	Carriage House Roundabout	Carriage House Restriping
Preliminary Engineering	\$1,395,000	\$182,000
ROW and Utility Relocation	\$1,181,000	\$0
Construction	\$4,060,000	\$125,000
Total Cost	\$6,636,000	\$307,000

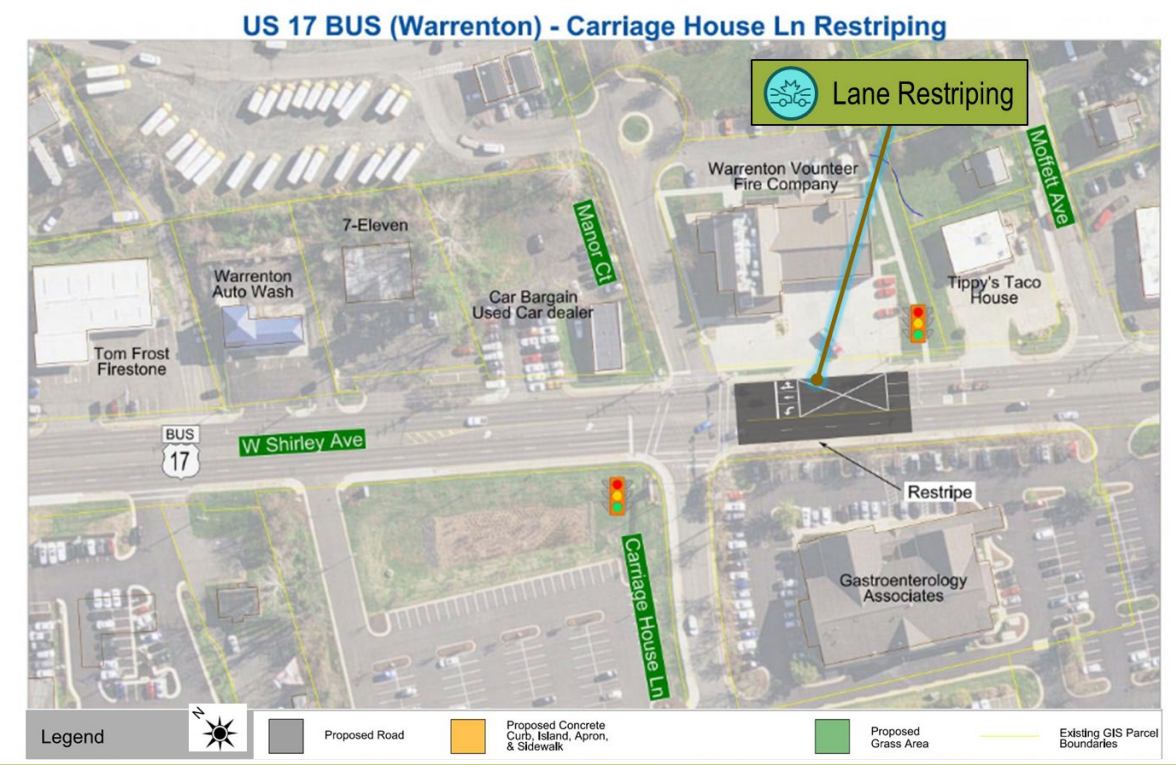
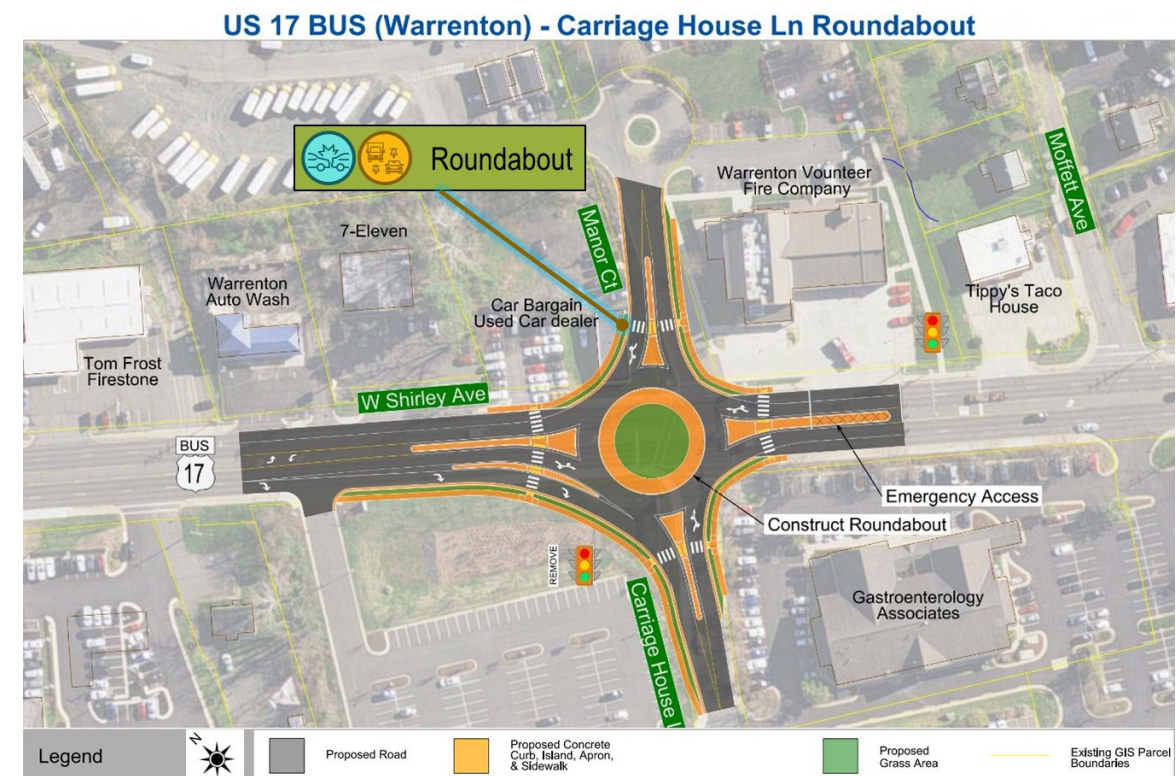
### Public Survey Results

#### Survey Summary

- Carriage House Lane roundabout received a negative response.
- Carriage House Lane restriping received average 3.95 ranking out of 5, indicating respondents were in favor of proposed improvement



### Proposed Improvements





# Recommended Intersection Improvements

## Improvements Part 3 – US 17 Business near Keith Street and Culpeper Street (Phase 2)

### Project Description

#### Ongoing Issues along the Corridor

- Recurring traffic congestion
- Corridor/Intersection safety and pedestrian safety
- Speeding / aggressive driving and proper pavement marking and signage concerns

#### Proposed Improvements along US Route 17 Business and Expected Benefits

- Installation of a channelizing island at Keith Street to restrict movements from Keith Street to right turns only.
- Safety

- Crashes at the intersection of Keith Street are anticipated to reduce by 45% (CMF value of 0.55) under right-in right-out (RIRO).
- Construction of a single-lane roundabout at the intersection with Culpeper Street:
- Congestion Mitigation

- Expected to reduce traffic delays significantly, especially during Design Year (2050)
- Installing a single-lane roundabout at Culpeper Street is anticipated to reduce crashes by 48% reduction in all crashes is anticipated.

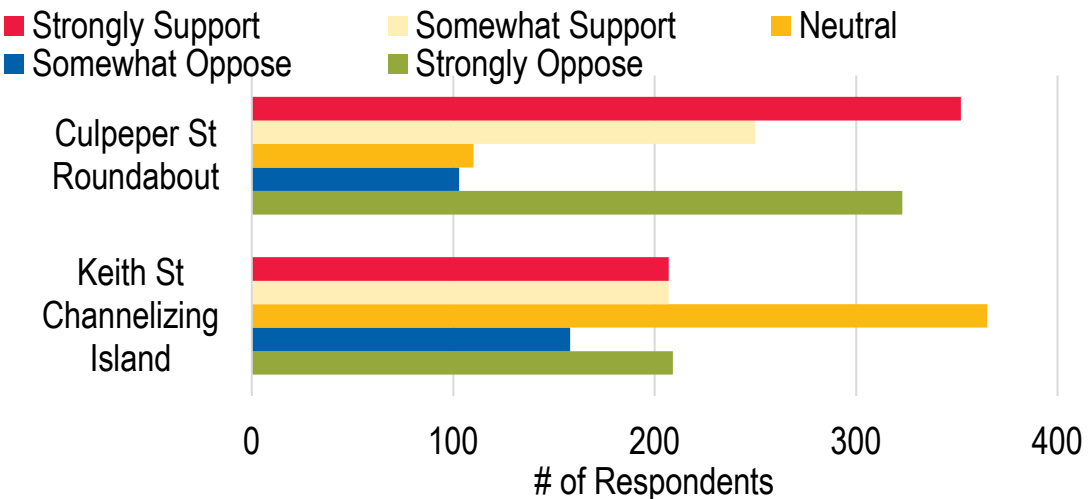
### VTrans Needs and Cost Estimates

VTRANS	NEEDS	Phase	Keith Street Right in Right Out	Culpeper Roundabout
Very High Priority	Congestion Mitigation, Transit Access for Equity Emphasis Areas	Preliminary Engineering	\$254,000	\$1,307,000
		ROW and Utility Relocation	\$0	\$1,165,000
High Priority	Safety Improvement, Transportation Demand Management	Construction	\$212,000	\$3,588,000
		Total Cost	\$466,000	\$6,060,000

### Public Survey Results

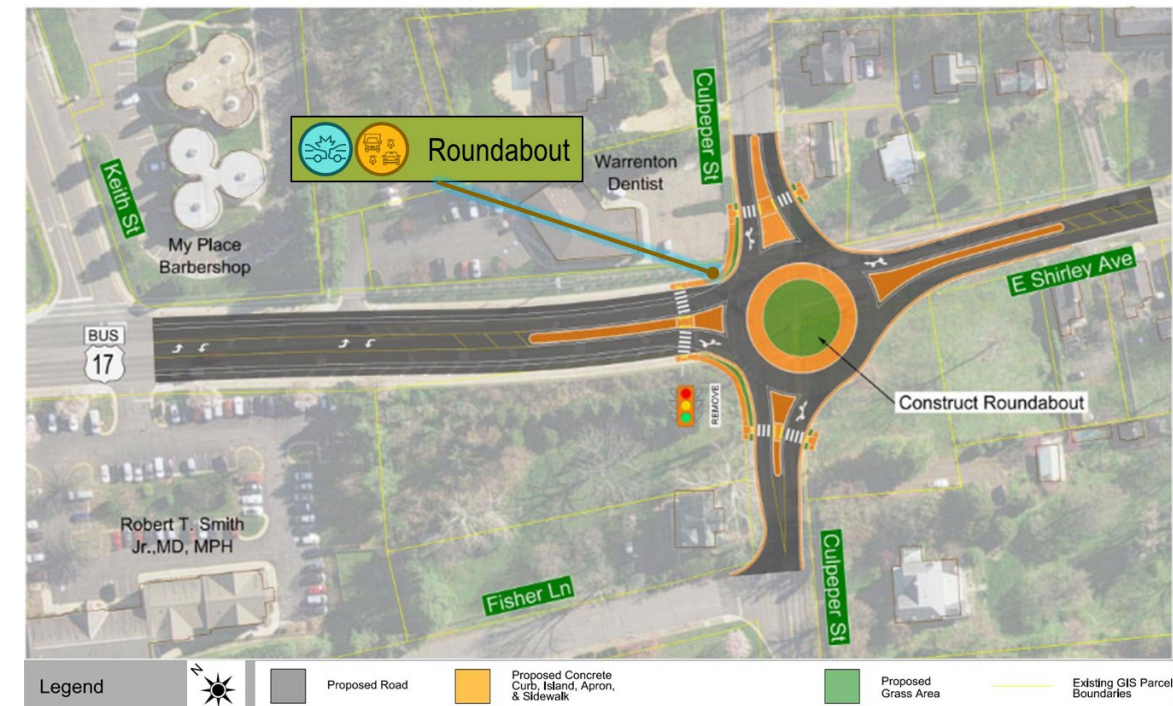
#### Survey Summary

- Amongst all roundabouts, the Culpeper Street roundabout was received the best by respondents.
- Most of the respondents were neutral with the idea of right-in right-out at Keith Street.
- Respondents mentioned they would favor right-in right-outs only if the roundabout at Culpeper Street is built to provide U-turns.



### Proposed Improvements

#### US 17 BUS (Warrenton) - Culpeper St Roundabout



#### US 17 BUS (Warrenton) - Keith St Right-In, Right-Out





# Recommended Intersection Improvements

## Improvements Part 4 – US 17 Business near Madison Street / Elm Street (Phase 2)

### Project Description

#### Ongoing Issues along the Corridor

- Speeding / Aggressive driving
- Corridor/Intersection safety and pedestrian safety
- Recurring traffic congestion

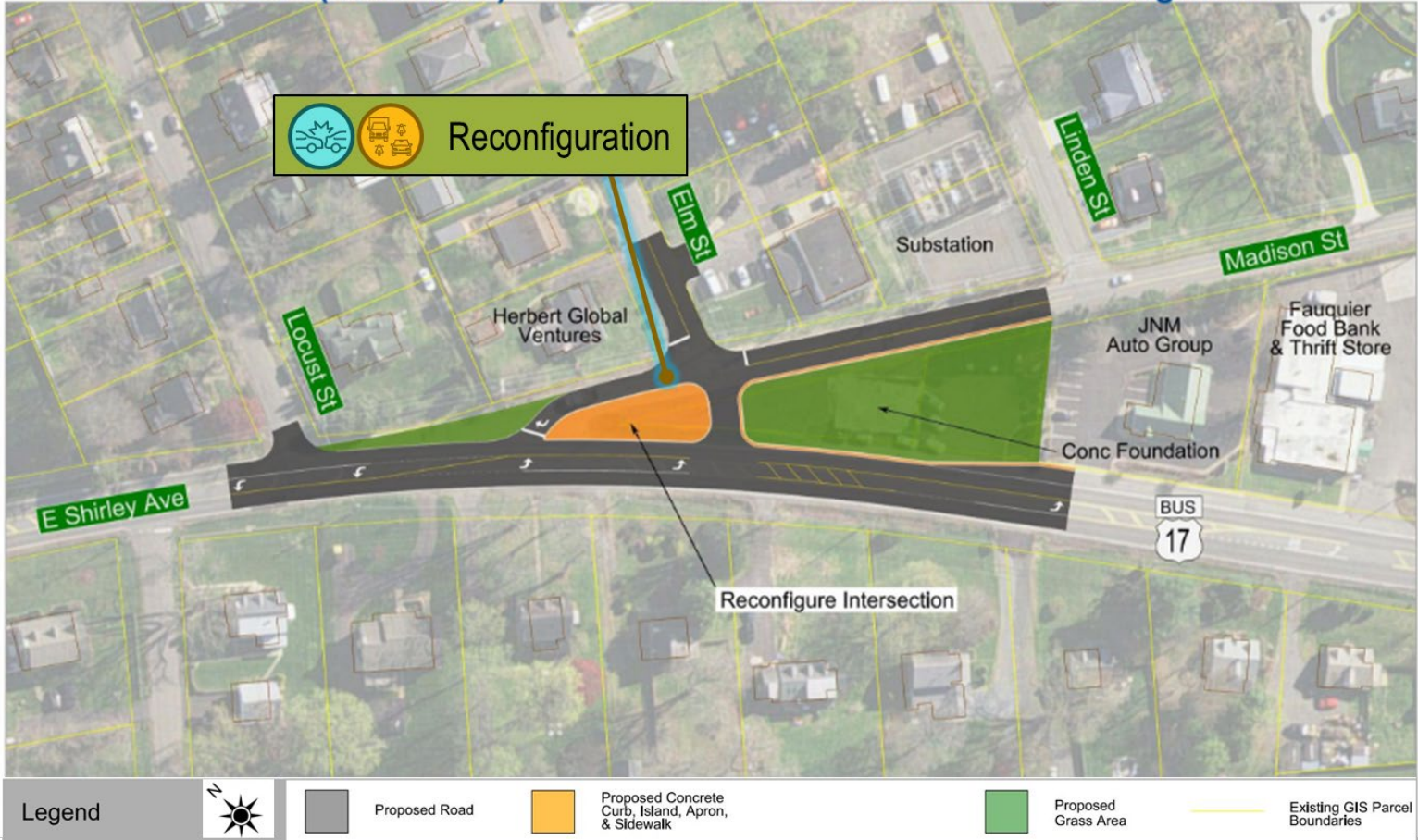
#### Proposed Improvements along US Route 17 Business and Expected Benefits

- Reconfiguration of the intersection of Madison Street at Shirley Avenue:
  - Relocates southbound left-turn and northbound right-turn movements onto Madison Street south of the existing intersection.
  - Adjusts the alignment of Madison Street to improve sight distance for vehicles entering Shirley Avenue.
- Proposed modifications have a CMF value of 0.76; a 24% reduction in all crashes is anticipated.



### Proposed Improvements

#### US 17 BUS (Warrenton) - MadisonSt/Elm St Intersection Reconfiguration



### VTrans Needs and Cost Estimates

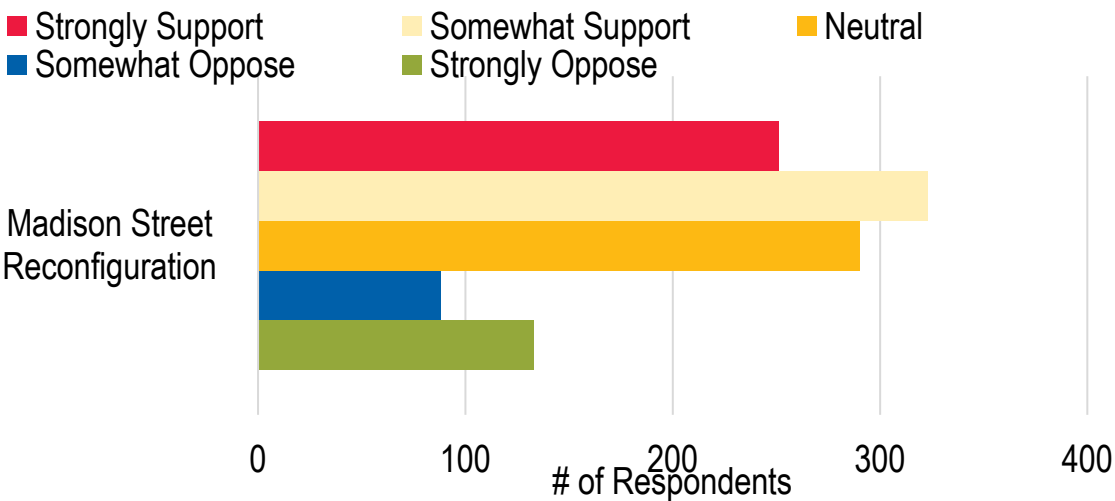
VTRANS	NEEDS
Very High Priority	Congestion Mitigation
High Priority	Safety Improvement, Transportation Demand Management

Phase	Madison Street Reconfiguration
Preliminary Engineering	\$718,000
ROW and Utility Relocation	\$431,000
Construction	\$1,356,000
Total Cost	\$2,505,000

### Public Survey Results

#### Survey Summary

- Majority of the respondent were in favor of Madison St/Elm Street intersection reconfiguration concept.





# Recommended Pedestrian/ Bicyclist Improvements

## US 17 Business Between Culpeper Street and Taylor Middle School (Phase 2)



### Project Description

#### Ongoing Issues along the Corridor

- Pedestrian safety and accessibility
- Lack of pedestrian or bicyclist facilities

#### Proposed Improvements along US Route 17 Business and Expected Benefits

- Construction of pedestrian accommodations along the west side of Shirley Avenue:
  - Bicycle Access** (Bicycle icon): Includes a 5' sidewalk from Culpeper Street to Taylor Middle School.
  - Pedestrian Access** (Pedestrian icon): Builds a 10' shared-use path from the Warrenton Branch Greenway crossing at Taylor Middle School to approximately 870 feet to the south.
  - Safety** (Safety icon): Adds a marked crosswalk at Green Street and upgraded crosswalks with Rectangular Rapid Flashing Beacons near Cleveland Street.
- Pedestrian improvements have a CMF value of 0.12; 88% reduction in pedestrian crashes is anticipated.

### Addressed Vtrans Needs and Cost Estimates

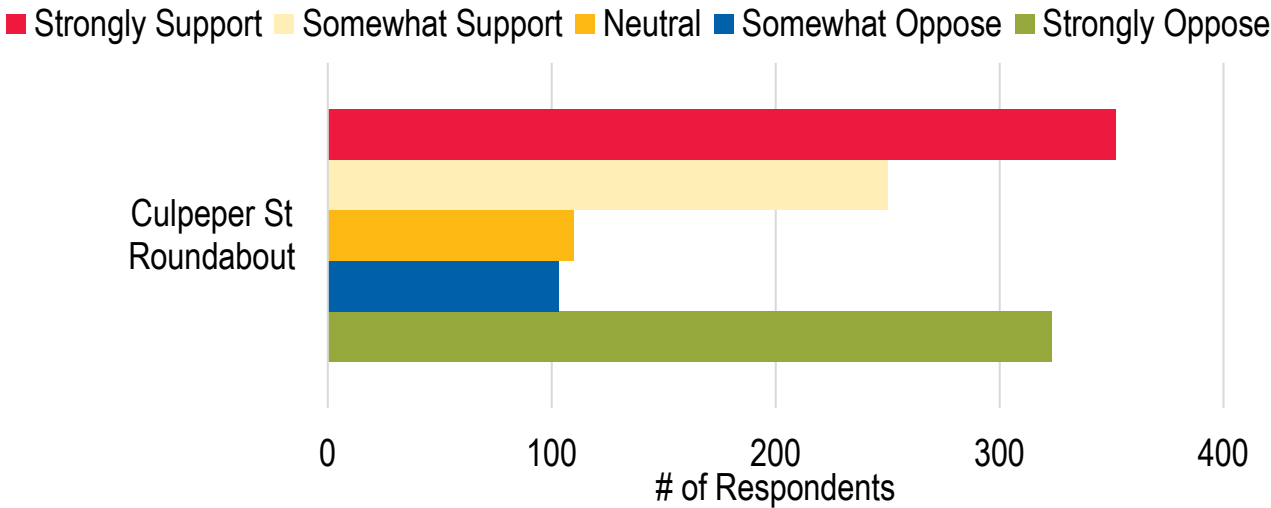
VTRANS	NEEDS
High Priority	Safety Improvement, Bicycle Access,

Phase	Estimated Cost
Preliminary Engineering	\$1,207,000
ROW and Utility Relocation	\$935,000
Construction	\$3,619,000
Total Cost	\$5,761,000

### Public Survey Results

#### Survey Summary

- Community is generally in favor of all pedestrian improvements at intersection and corridor level.
- Pedestrian improvement concept was the one with highest interest during surveys.
- Pedestrian Improvements received average ranking 4 out of 5.



### Proposed Improvements

