# US 29 Corridor Study

October 26, 2021
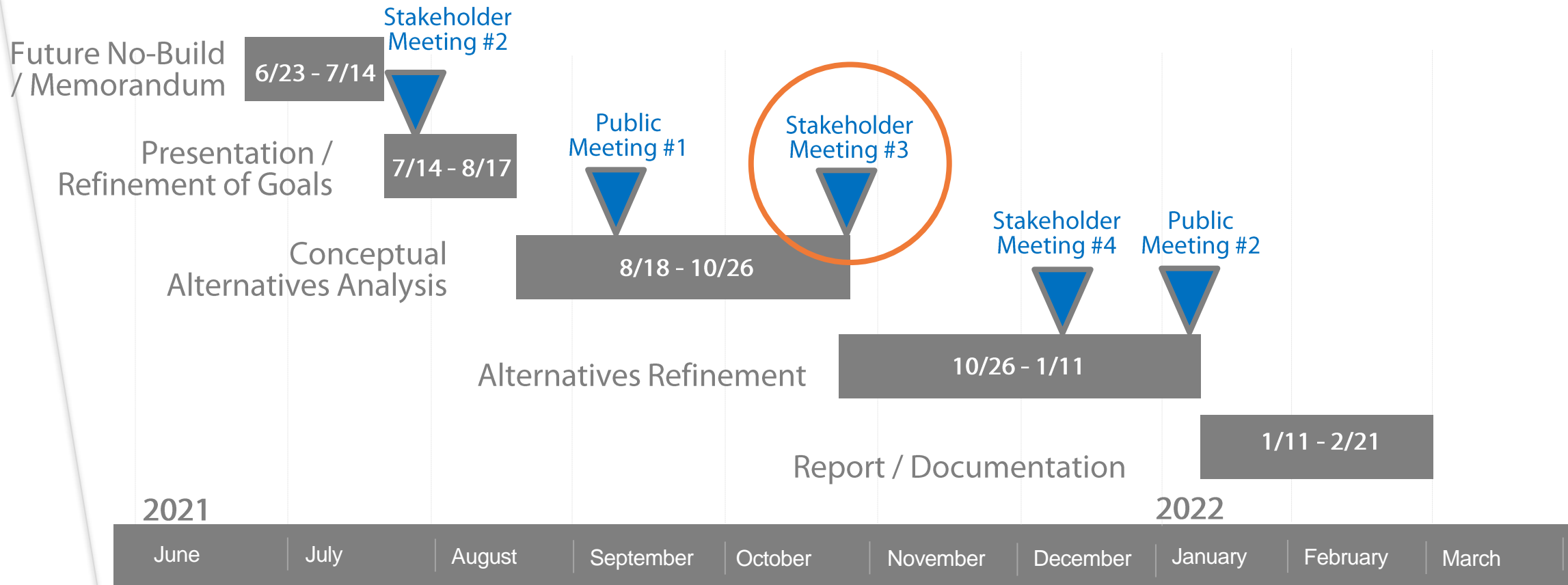
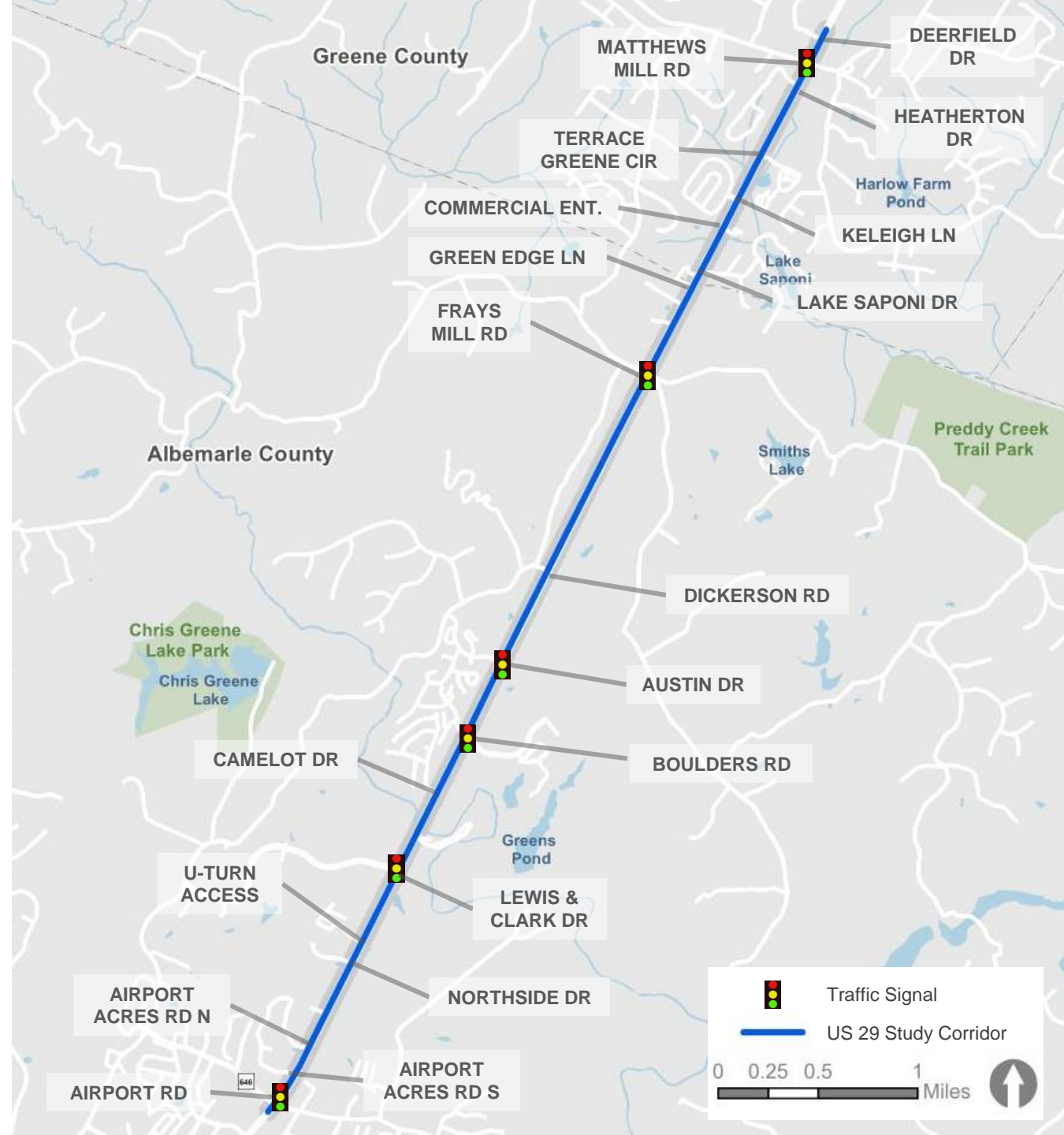# Agenda

- Public Survey Results

- Operational Results

- Alternatives and Recommendations

- Next Steps

# Phase 2 Study Schedule

**Future No-Build / Memorandum** — 6/23 – 7/14

Stakeholder Meeting #2

**Presentation / Refinement of Goals** — 7/14 – 8/17

Public Meeting #1

Stakeholder Meeting #3

**Conceptual Alternatives Analysis** — 8/18 – 10/26

Stakeholder Meeting #4

Public Meeting #2

**Alternatives Refinement** — 10/26 – 1/11

**Report / Documentation** — 1/11 – 2/21

2021

| June | July | August | September | October | November | December | January | February | March |

2022

# Corridor Overview - Existing

# Public Outreach Recap

## Public Meeting

- Held on September 9
- Had a great turnout with engaging Q&A afterwards
- Total number of attendees (TJPDC to provide)
- Presented on:
  - Study Background
  - Corridor Conditions
  - Goals and Objectives
  - Community Input

## Public Survey

- Metroquest survey opened from September 2 – October 1
- Ended up with 373 participants
- Results in following slides

# Who did we reach?

**For those that answered the demographic questions:**

- 96% were age 30 or over
    - 68% were 40 or over
- 85% of respondents were white
- 51% of respondents have a yearly household income over $100,000
- 98% spoke English as their first language
- Majority from Albemarle or Greene Counties (all within VA)

# Survey Results: Relationship to US 29

- While participants could select more than one response, most travel within the Charlottesville region and live or work near US 29.

- We also are familiar with the connectivity US 29 provides in and out of state, evident through the common responses for these uses too.

- Majority of destinations fall into shopping/retail, home, work, and recreation.

**Comments:**

- Route 29 is truly the **most important transportation artery** in our area.

- *I would avoid Rt 29 if I could* and take any backroad available when traveling between Charlottesville and Northern Va. if those options were available. But they are not!

# Survey Results: Transportation Mode

- Over 95% of respondents use a car on US 29.

**Comments:**

- I drive *only because it's not safe* to walk or bike.

- *I wish I did not have to drive everywhere* up and down 29.

- I would walk on 29 between destinations AND from Cville to places within several miles *if we could do so safely*.

- It would be nice to have a *bus system into Charlottesville*.

- I wish I could run or ride a bike but there are *no bike lanes, cross walks or sidewalks* for this purpose.

- Where I live, car is really the *only viable option*.
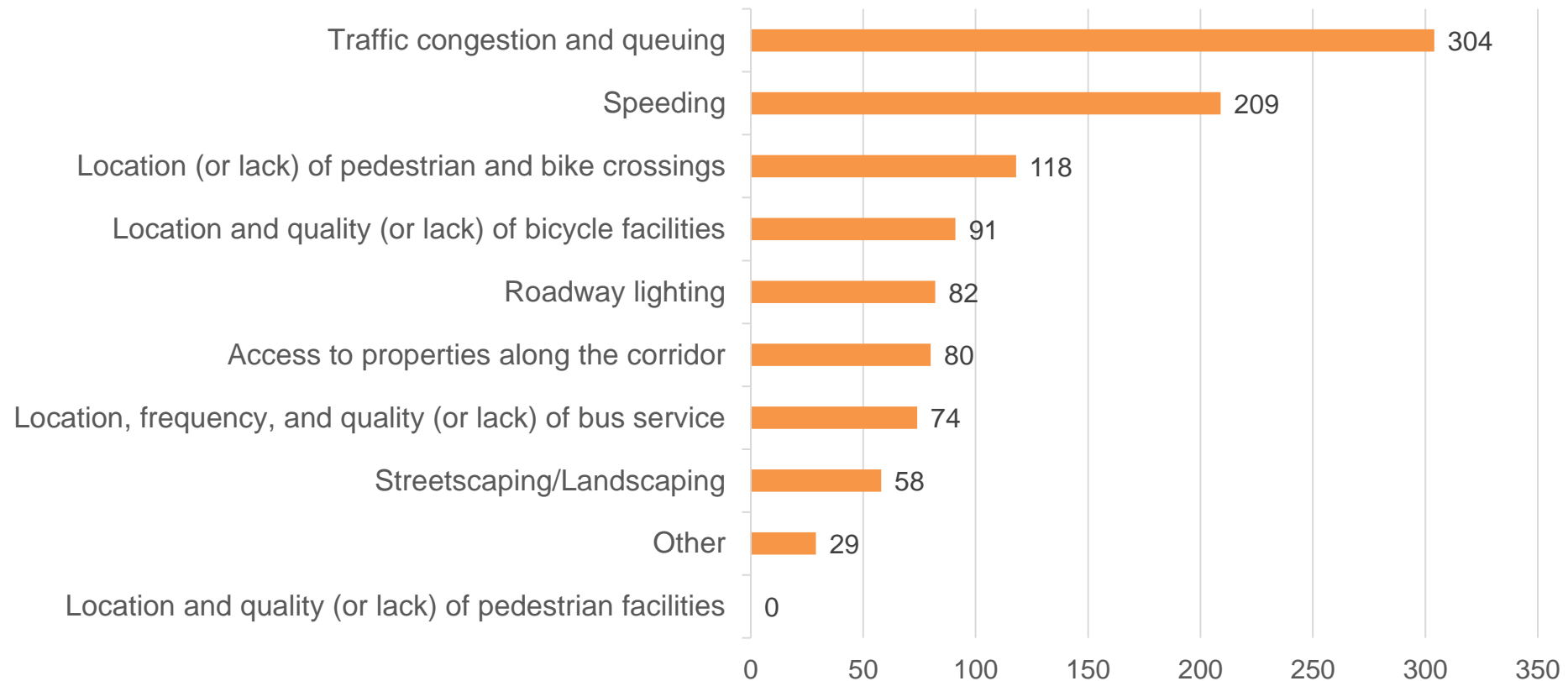
# Survey Results: Goal Ranking

1. Manage Congestion
2. Improve Safety and Comfort
3. Support Future Growth
4. Support Economic Development
5. Increase Multimodal Usability

**Study Goal Prioritization Ranking**
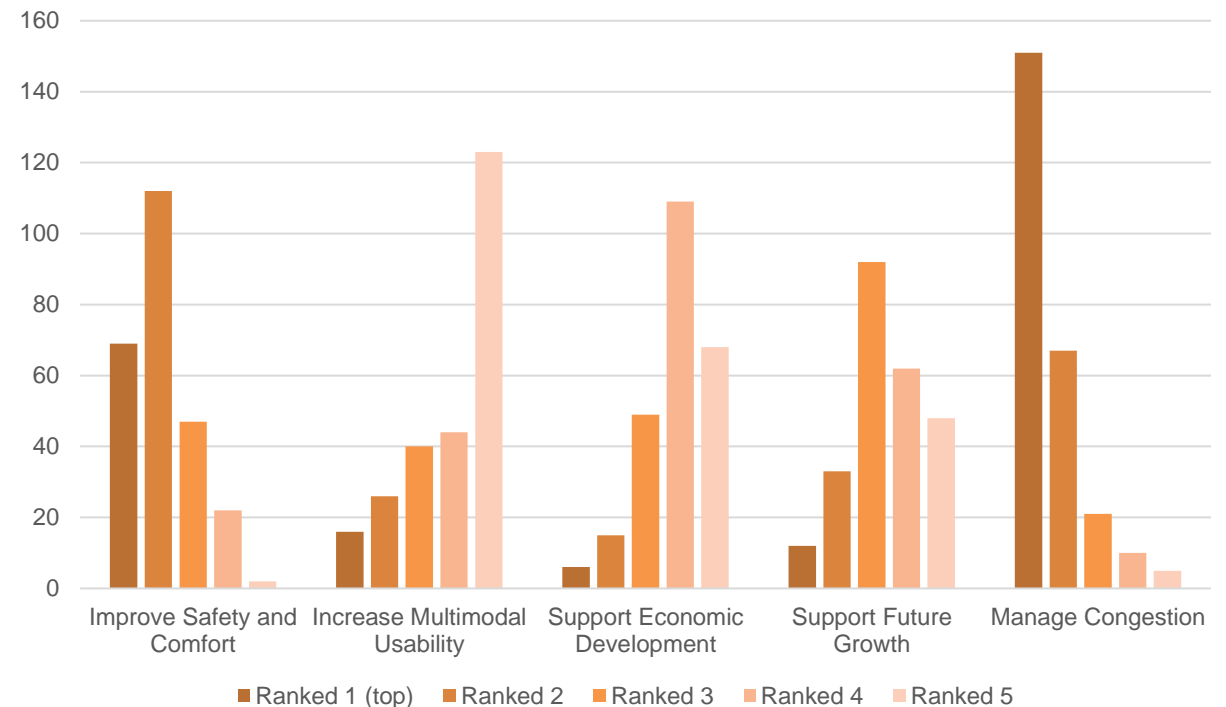
# Survey Results: Transportation Issues

**What transportation problems have you observed along the study corridor?**



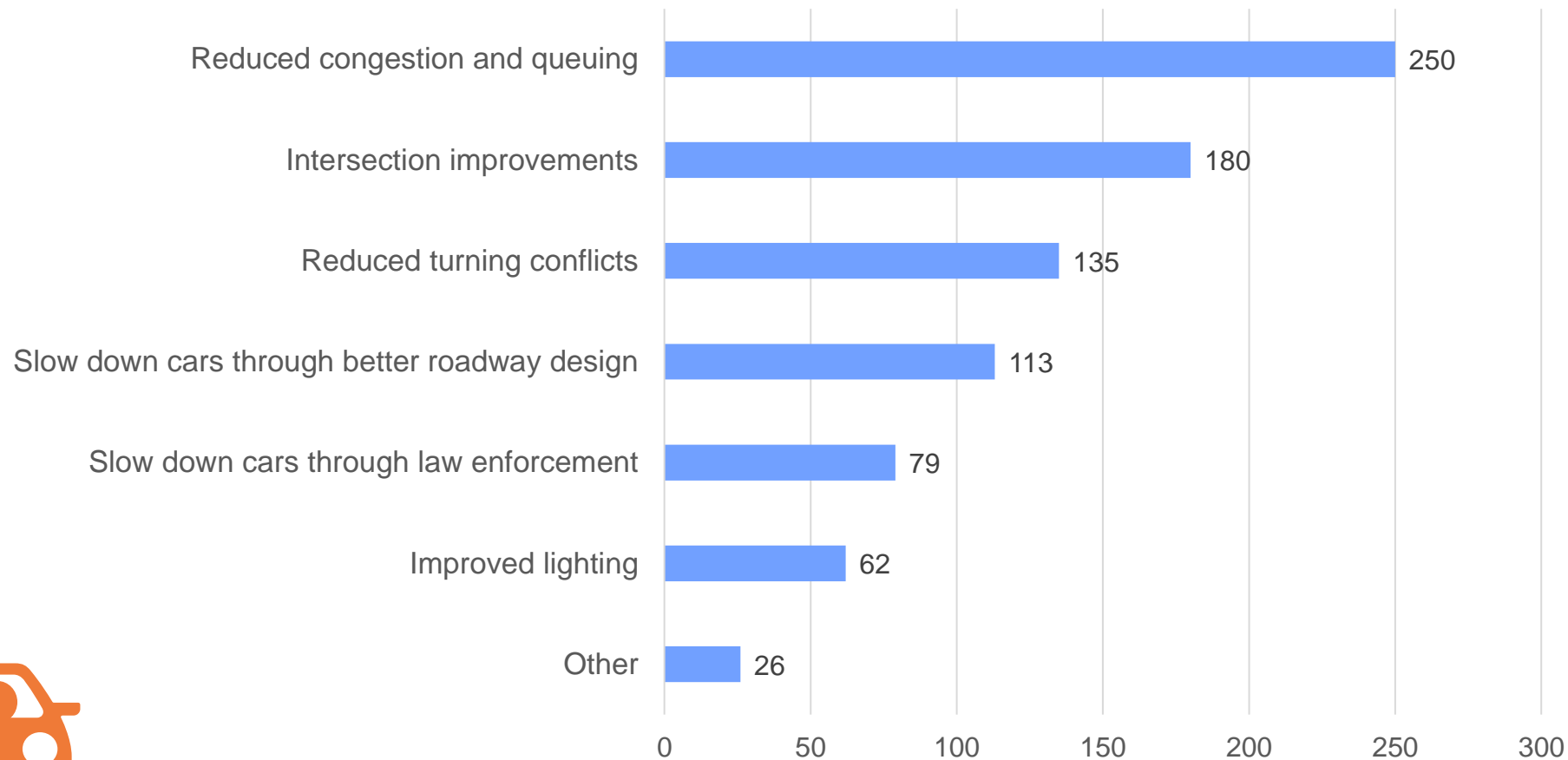| Category | Value |
|---|---|
| Traffic congestion and queuing | 304 |
| Speeding | 209 |
| Location (or lack) of pedestrian and bike crossings | 118 |
| Location and quality (or lack) of bicycle facilities | 91 |
| Roadway lighting | 82 |
| Access to properties along the corridor | 80 |
| Location, frequency, and quality (or lack) of bus service | 74 |
| Streetscaping/Landscaping | 58 |
| Other | 29 |
| Location and quality (or lack) of pedestrian facilities | 0 |

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# Survey Results: Transportation Issues

**Comments:**

- It is frustrating that I get stopped at the same red lights everyday no matter what time of day, how much traffic there is, *I always get stuck at the same 6-8 lights*. 29 N flows much better than 29S .

- I see people walking and biking along and across Rt 29 in that area. It is not safe and *I feel for the people who have no choice but to walk* along or cross that busy road.

- I have observed many accidents along the route. Some caused by people *running red lights* and others caused by *dangerous left turns*.

- All along 29 people *drive way too fast* and blow through intersection light, especially between the Sheetz in Ruckersville and the light between Target and Kohls.

- Median crossovers *sight lines poor due to infrequent mowing*.

- *US 29 is asked to serve ALL the needs*; local, regional, and interstate, resulting in multiple intersections, traffic lights, no sidewalks, no bike lanes, and everybody driving at different speeds and often in the wrong lane.

# Survey Results: Transportation Opportunities

**What transportation investments do you believe would improve driving conditions along the study corridor?**

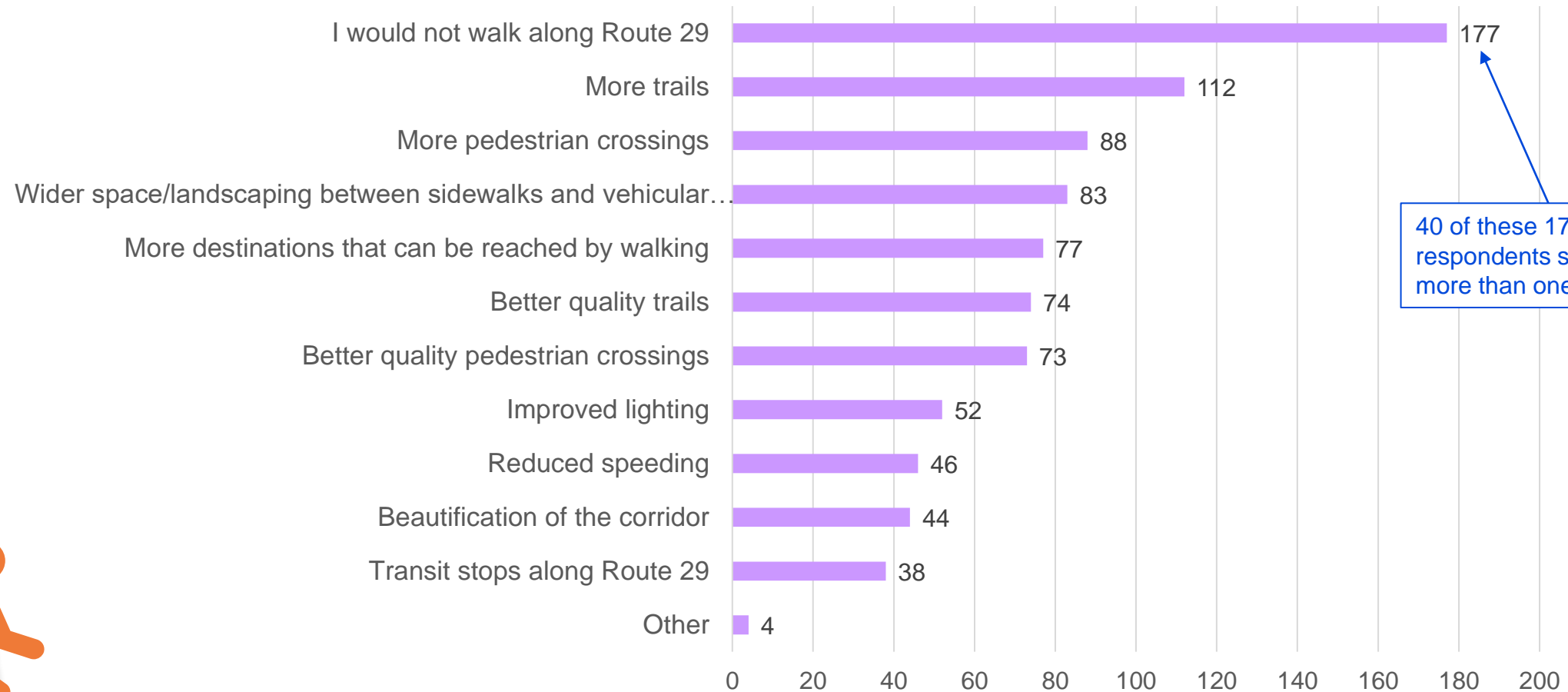| Category | Value |
|----------|-------|
| Reduced congestion and queuing | 250 |
| Intersection improvements | 180 |
| Reduced turning conflicts | 135 |
| Slow down cars through better roadway design | 113 |
| Slow down cars through law enforcement | 79 |
| Improved lighting | 62 |
| Other | 26 |

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# Survey Results: Transportation Opportunities

**What investments would make it more likely for you to bike along the study corridor?**



| Response | Count |
|---|---|
| I would not bike along Route 29 | 189 |
| More off-street bike facilities (i.e. trails, paths) | 117 |
| Better quality off-street bike facilities (i.e. trails, paths) | 73 |
| More destinations that can be reached by biking | 64 |
| More bicycle crossings | 61 |
| Better quality bicycle crossings | 50 |
| Reduced automobile speeding | 41 |
| Improved lighting | 40 |
| Beautification of the corridor | 34 |
| Bicycle parking | 16 |
| Other | 7 |

33 of these 189 respondents selected more than one response

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# Survey Results: Transportation Opportunities

**What investments would make it more likely for you to walk on or near the study corridor?**



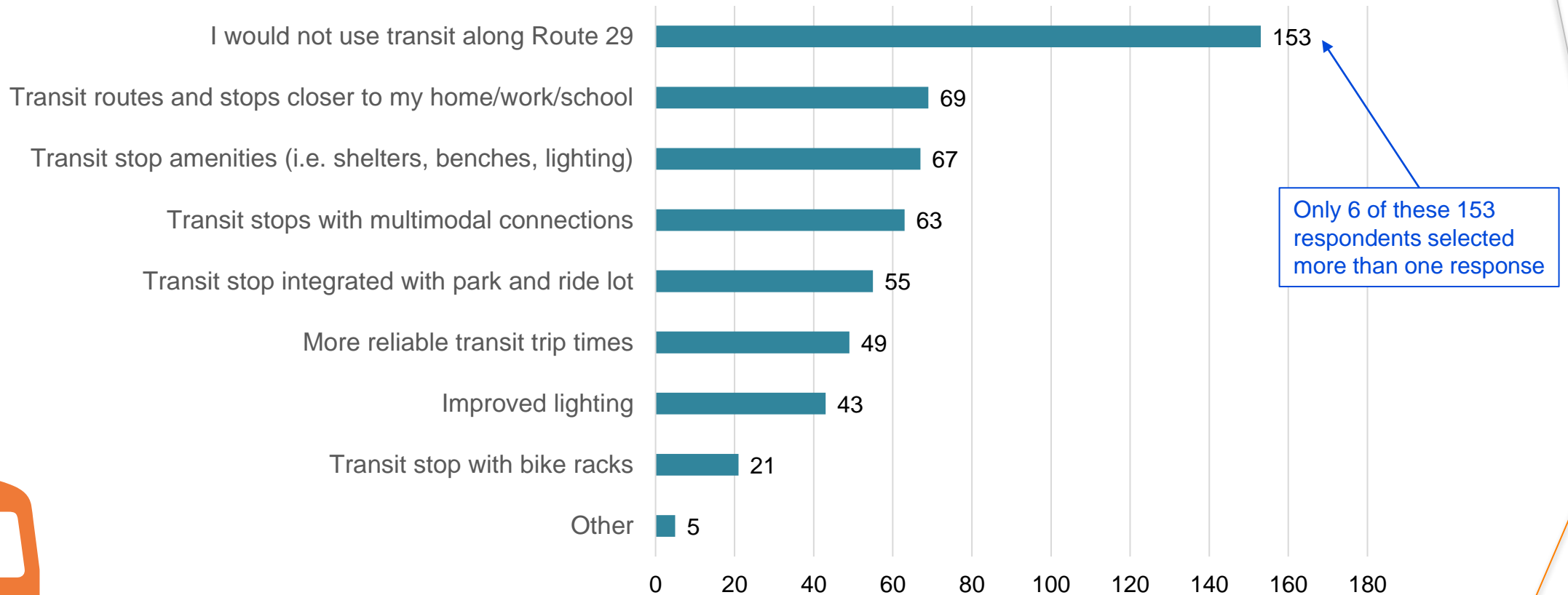| Category | Value |
|---|---|
| I would not walk along Route 29 | 177 |
| More trails | 112 |
| More pedestrian crossings | 88 |
| Wider space/landscaping between sidewalks and vehicular… | 83 |
| More destinations that can be reached by walking | 77 |
| Better quality trails | 74 |
| Better quality pedestrian crossings | 73 |
| Improved lighting | 52 |
| Reduced speeding | 46 |
| Beautification of the corridor | 44 |
| Transit stops along Route 29 | 38 |
| Other | 4 |

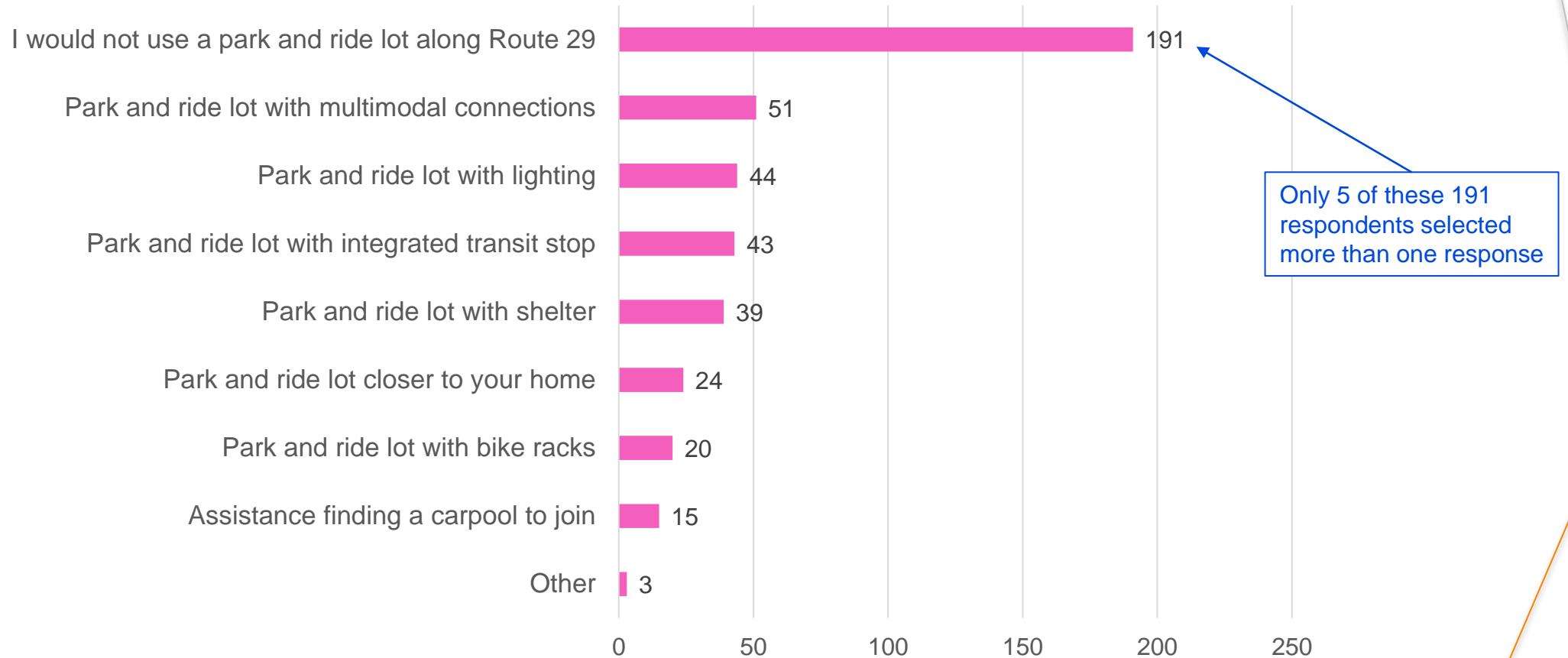40 of these 177 respondents selected more than one response

# Survey Results: Transportation Opportunities

**What transportation investments would make it more likely that you would use transit within the study corridor?**

| Category | Value |
|---|---|
| I would not use transit along Route 29 | 153 |
| Transit routes and stops closer to my home/work/school | 69 |
| Transit stop amenities (i.e. shelters, benches, lighting) | 67 |
| Transit stops with multimodal connections | 63 |
| Transit stop integrated with park and ride lot | 55 |
| More reliable transit trip times | 49 |
| Improved lighting | 43 |
| Transit stop with bike racks | 21 |
| Other | 5 |

Only 6 of these 153 respondents selected more than one response

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# Survey Results: Transportation Opportunities

**What transportation investments would make it more likely that you would share a ride?**

| Category | Value |
|---|---|
| I would not use a park and ride lot along Route 29 | 191 |
| Park and ride lot with multimodal connections | 51 |
| Park and ride lot with lighting | 44 |
| Park and ride lot with integrated transit stop | 43 |
| Park and ride lot with shelter | 39 |
| Park and ride lot closer to your home | 24 |
| Park and ride lot with bike racks | 20 |
| Assistance finding a carpool to join | 15 |
| Other | 3 |

Only 5 of these 191 respondents selected more than one response

# Intersection Alternative Screening

- High Level Analysis – 3 Components
  - Congestion – volume/capacity by movement
  - Pedestrian – accommodation compared to conventional signal
  - Safety – conflict points

**VJuST**
**VDOT Junction Screening Tool**
*Version 1.02*
*June 2018*

**Level of Detail for Transportation Analysis Methods**

Level of Detail →

Screening/ Sketch Level | Travel Demand Modeling | HCM/ Analytical Models | Simulation Models | Traffic Optimization

**VJuST**
**VDOT Junction Screening Tool**

# VJuST Overview

- 29 total intersection configuration types (9 are interchanges)
  - Wide variety: roundabouts, U-Turn options, quadrant, grade separated, and more
  - Intersection types that are not feasible or appropriate for the location should not be considered
- Analysis factors
  - Congestion – critical lane volume method
    - Does not consider timings, geometry, surrounding interactions, or driver behavior
    - Will not replicate detailed calculations from traffic analysis tools
  - Pedestrian – qualitatively compared to conventional signalized intersection
    - Based on pedestrian safety, wayfinding, pedestrian delay
  - Safety – conflict points
    - Weighted crash costs based on the type of conflict point (crossing, merging, diverging)

# VJuST Evaluation

- Scoped to evaluate all 19 intersections in VJuST
  - 12 unsignalized
  - 7 signalized (including no-build assumptions)

| Type | Dir | Congestion<br>Maximum V/C | Pedestrian<br>Accommodation Compared to Conventional | Safety<br>Weighted Total Conflict Points |
|------|-----|---------|------------------|------------------|
| Conventional | - | 0.83 | | 48 |
| Median U-Turn | - | 0.82 | + | 20 |
| Partial Median U-Turn | - | 0.66 | + | 28 |
| Restricted Crossing U-Turn | - | 0.66 | | 20 |
| Thru-Cut | - | 0.82 | | 28 |
| Roundabout | - | 0.92 | | 8 |

Example for Boulders Road AM

# Evaluating Scale and Feasibility

Although we screened all 19 intersections within the study area, it is good to take a step back at the **size** of our corridor, along with the general **feasibility** of specific intersection redesigns at every single intersection (also evaluated systemic/corridor-wide improvements).

# Evaluating <u>Scale</u> Corridor-Wide

- Prioritized intersections based on…
    - Operational issues (based on LOS and capacity)
    - Safety concerns (priority intersections, PSI location, EPDO score over 200)
    - Network screening and high-level analyses
- Narrow down where we want to focus our efforts within the corridor
- Plan for similar multimodal treatments throughout the corridor

# Evaluating Feasibility Corridor-Wide

- Based screening and further operational analyses on the nature and character of US 29:
    - US Highway with…
        - 55 MPH posted speed and minimal existing ped/bike facilities
        - High rear-end crashes at intersections
        - Grade changes
        - Observed red-light running
        - Planned/Potential future development
        - Amenities spread out across miles
- Geometric constraints and unique challenges

# Example: Austin Drive

## Operations + Safety

| Intersection Type | AM | PM |
|---|---|---|
| | v/c (LOS) | v/c (LOS) |
| No-build | 1.00 (C) | 0.98 (B) |
| Signalized RCUT with unsignalized U-turns | SB: 0.85 (B) | SB: 0.40 (A) |
| | NB: 0.21 (A) | NB: 0.88 (A) |
| Roundabout | 0.87 (B) | 0.90 (B) |



Significant grade differential and limited sight lines



Residential Dwy

# Example: Boulders Road

## Operations + Safety

| Intersection Type | AM | PM |
|---|---|---|
| | v/c (LOS) | v/c (LOS) |
| No-build | 0.97 (D) | 1.00 (D) |
| Signalized RCUT with unsignalized U-turns | SB: 0.90 (B) | SB: 0.50 (B) |
| | NB: 0.33 (A) | NB: 0.89 (C) |
| Roundabout | .897 (B) | 0.912 (C) |

Downhill to intersection

Significant grade differential

# Example: Camelot Drive

## Operations + Safety

| Intersection Type | AM | PM |
|---|---|---|
| | v/c (LOS) | v/c (LOS) |
| No-build | 0.76 (F) | 1.16 (F) |
| Roundabout | 0.925 (C) | 0.959 (C) |
| Signalized RCUT with unsignalized U-turns | SB: 0.88 (B) | SB: 0.53 (A) |
| | NB: 0.41 (A) | NB: 0.86 (B) |



Significant grade differential beyond intersection



Commercial Dwy

# Focus Areas

Segments:

- Deerfield Drive and Heatherton Drive

- Dickerson Road and Camelot Drive

Intersections:

- Matthew Mill Road

- Frays Mill Road

- Dickerson Road

- Austin Drive

- Boulders Road

- Camelot Drive

- Lewis & Clark Drive

- Airport Road
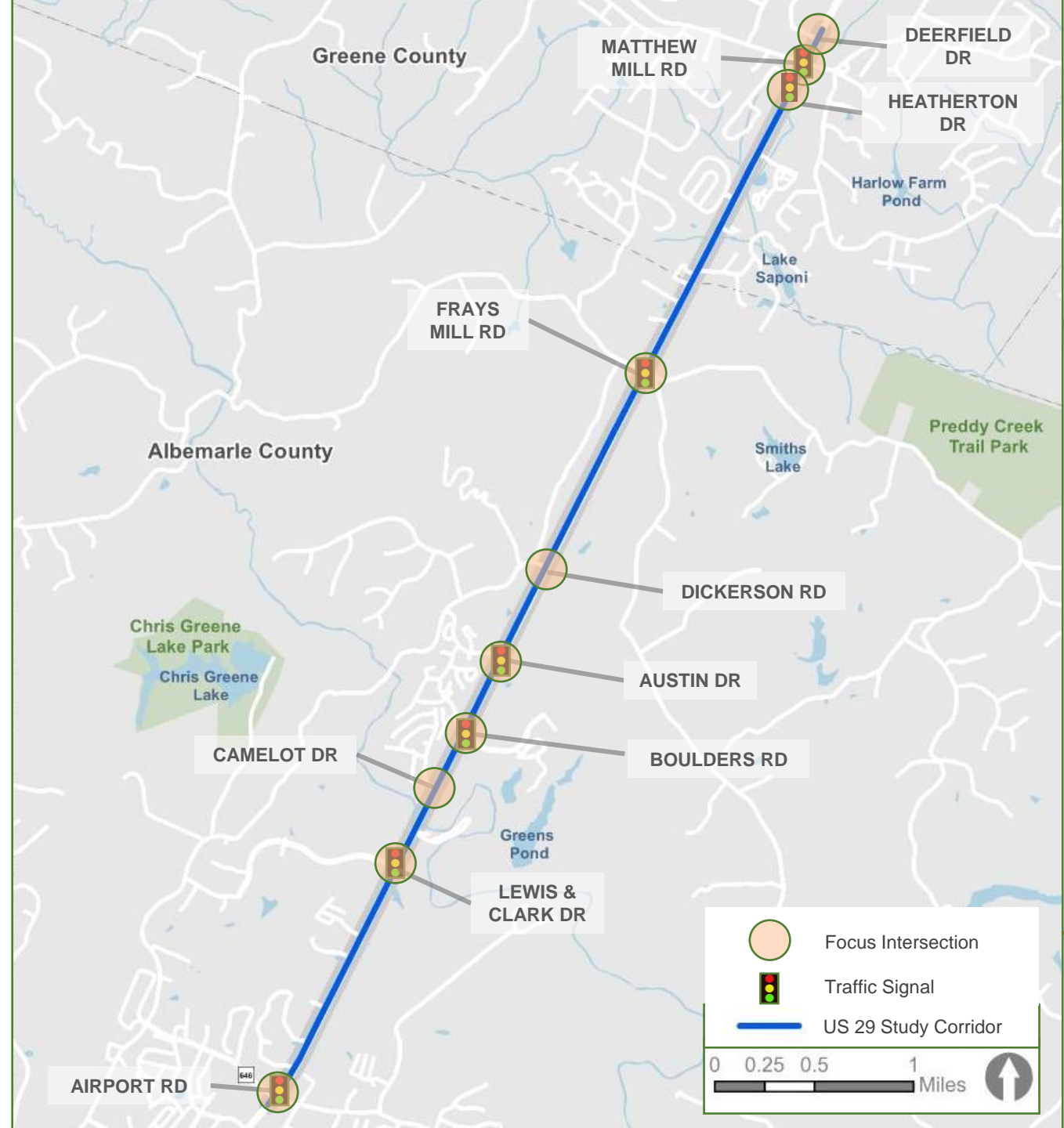
# Preliminary Recommendations

- Intersection Specific:
  - Modified Signal:
    - Lewis and Clark Drive
    - Airport Road
  - RCUT
    - Frays Mill Road
  - Roundabout
    - Matthew Mill Road
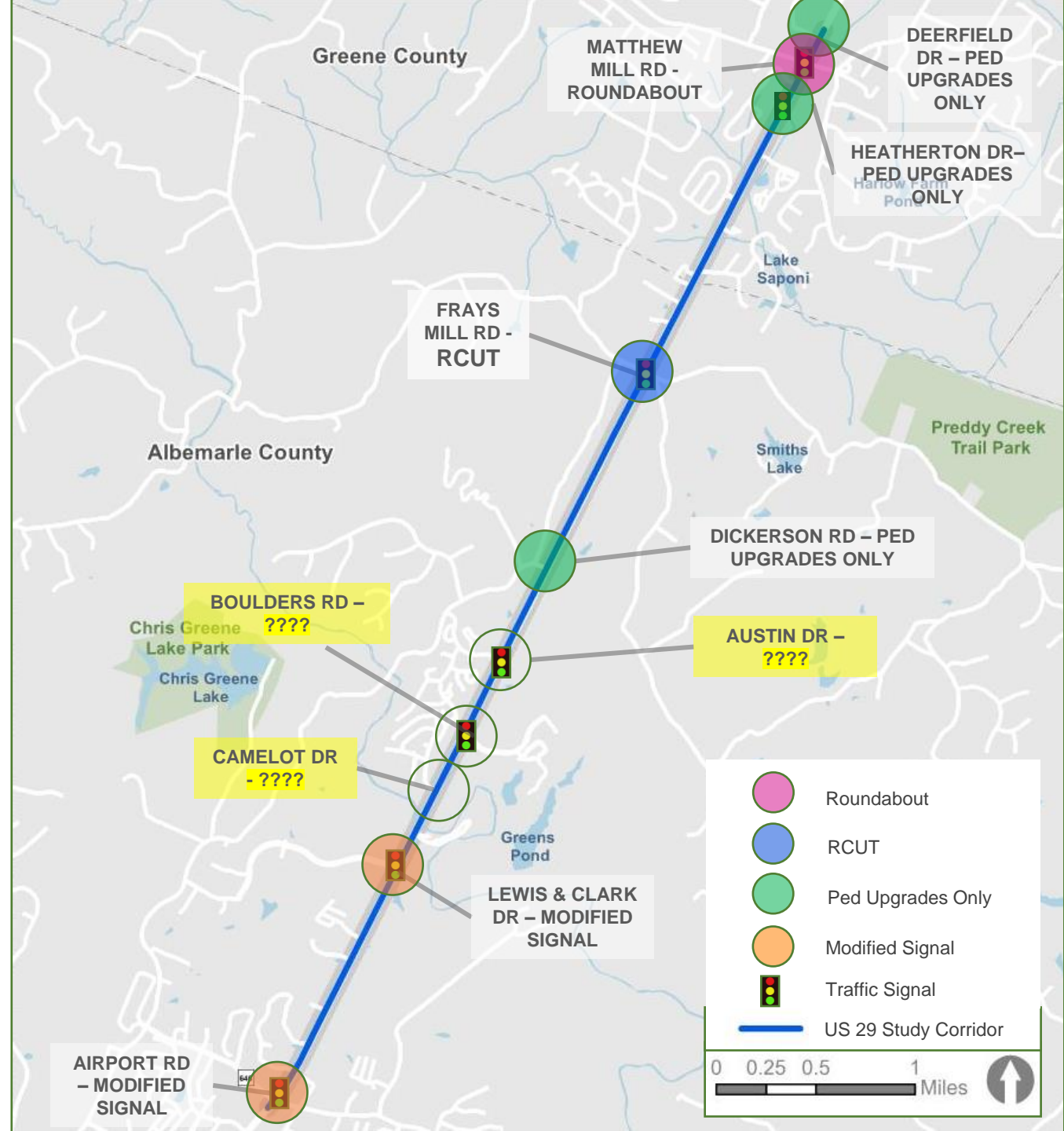
# Preliminary Recommendations

- Corridor-Wide:

  - Shared-use path on west side of US 29

  - Crosswalks on west approaches at all intersections

  - Crosswalks on north approaches at all signalized intersections
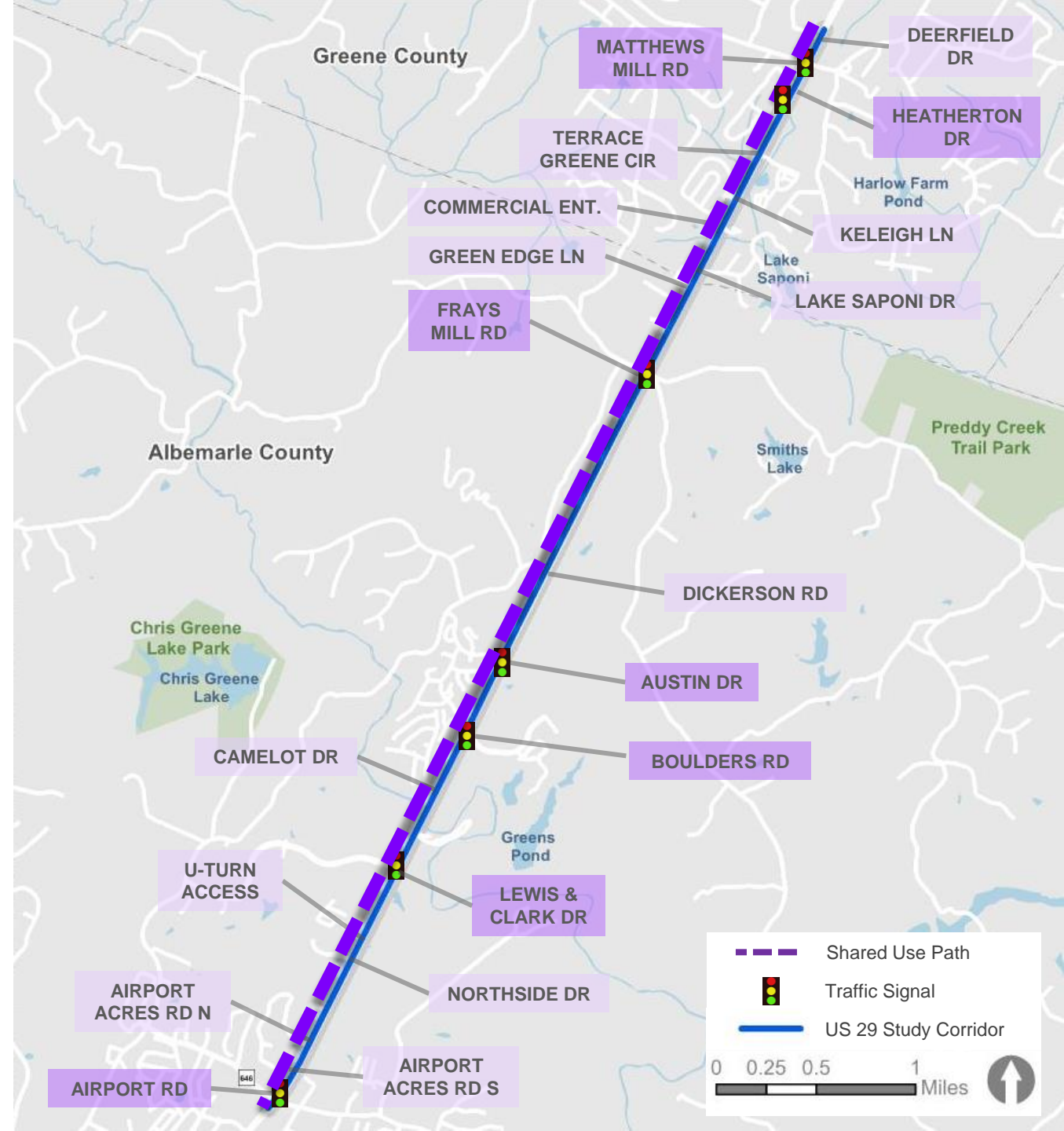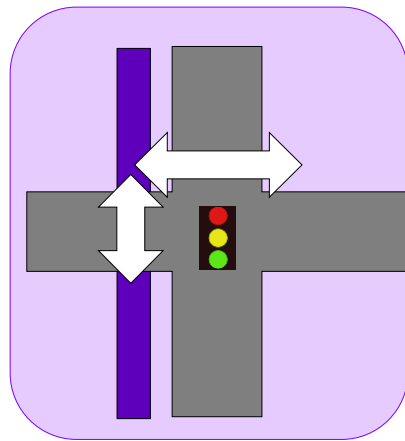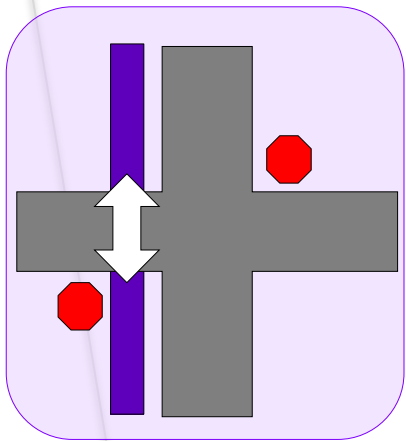
# Next Steps

- **Discuss with you all**
  - Questions, concerns, suggestions, etc.

- Confirm operational results for preferred alternative(s) at each intersection
- Develop concept designs

Thank You!