

Appendix E-3 | MetroQuest Survey Results Summary

1 Overview

The intent of the US 360 MetroQuest survey was to collect feedback on existing traffic and safety issues along US 360 from Winterpock Road (Route 621) in Chesterfield County to Holly Farms Road (Route 307) in Amelia County. The survey launched on April 21, 2020 and closed on May 18, 2020. It was promoted on the VDOT website and social media across 13 zip codes that surrounded the study corridor, as shown in Figure 1.

FIGURE 1: SURVEY TARGET ZIP CODE MAP

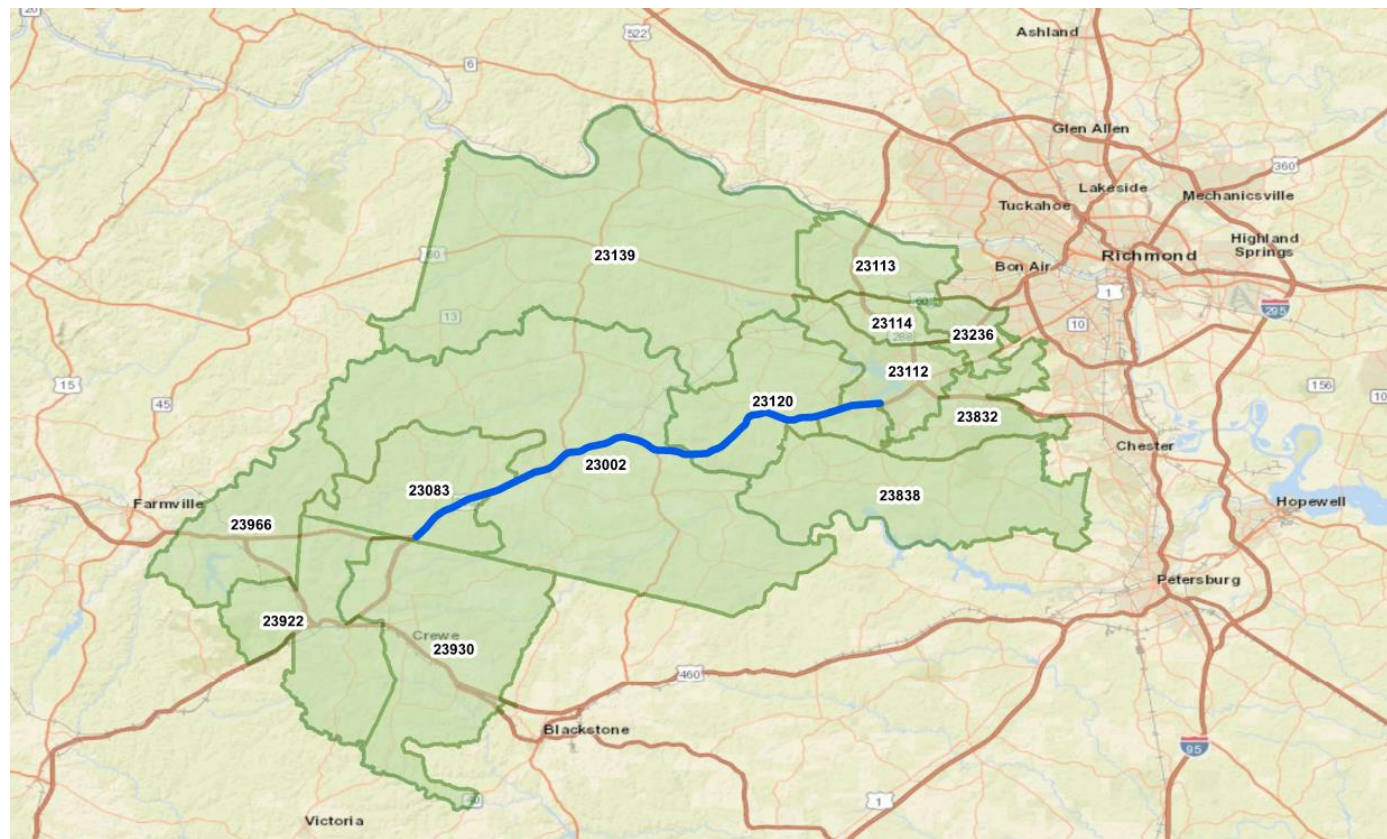


Figure 2 displays the five screens that were included in the survey. Results from each engagement screen are summarized in this document.

FIGURE 2: METROQUEST SURVEY SCREEN GUIDE

1 US 360 Arterial Management Plan
WELCOME
US 360 Arterial Management Plan
This study will consider potential operational and safety improvements along approximately thirty miles of US 360 from Winterpock Road (Route 621) in Chesterfield County to Holly Farms Road (Route 307) in Amelia County.
View study area map
Begin

2 How Do You Travel?
TRAVELER SURVEY
Frequency and Purpose
Congestion
Mobility and Accessibility
Mode Choice
Safety
Frequency and Purpose
How often do you travel along US 360 from Winterpock Road in Chesterfield County to Holly Farms Road in Amelia County?
Daily
A few times per week
A few times per month
A few times per year
Where do your trips within the corridor take you? (Mark all that apply)
 Access to Route 288
 Home
 Work
 School
 Shopping, Dining, and Entertainment
 Other
Next

3 Issues and Opportunities
MARK THE MAP!
Drag and drop markers on the map.
Congestion
Mobility
Multimodal
Safety
Other Issues
Google

4 Potential Improvements
LEARN MORE
Intersections
Access Management
Safety
Rate this improvement:
★ ★ ★ ★ ★
Optional Comment
Intersections
Intersection improvements can alleviate congestion and improve mobility and safety for vehicles, pedestrians, and bicyclists. Improvements may be conventional, such as adding additional turn lanes or improving signal coordination. Where conventional designs are insufficient for resolving congestion and safety issues, innovative intersections may be considered to reduce delay, increase efficiency, and provide safer travel for road users.
More about this

5 Thank You
WRAP UP
Final Questions (Optional)
Do you live near the corridor?
Select...
Do you work near the corridor?
Select...
Home zip code
Type...
Typical destination zip code
Type...
How did you find out about this survey? Mark all that apply
 VDOT project website Other website
 Public meeting Family, friend, or colleague
 Facebook Twitter Instagram
 Other social media Television Radio
 Newspaper Other
Sign-up for updates. Provide an email address
Type...
Submit Final Questions
Skip
Additional Information
Thank you for your time and input. For additional information contact:
Chris Detmer, VDOT Highway Programs Manager
chris.detmer@vdot.virginia.gov
ARTERIAL PRESERVATION PROGRAM
VDOT

2 Participant Demographics

MetroQuest defines a participant as a person who submits survey feedback. Although over 2,500 people visited the site during the four-week period, only 959 visitors submitted responses and are considered participants. Participants indicated they heard of the survey through Facebook (85%); family, friends, or colleagues (6%); the VDOT website (3%); and other websites and social media (6%).

Figure 3 and **Figure 4** summarize participants' home location. Most participants (48%) live and work within five miles of the study corridor.

Figure 5 and **Figure 6** summarizes participants' typical destinations and work locations in relation to the study corridor. Most participants work within five miles of the study area. Frequent destinations are located within or northeast of the study corridor, near Midlothian. Locations greater than 50 miles from the study area are not shown.

FIGURE 3: PARTICIPANT HOME ZIP CODES

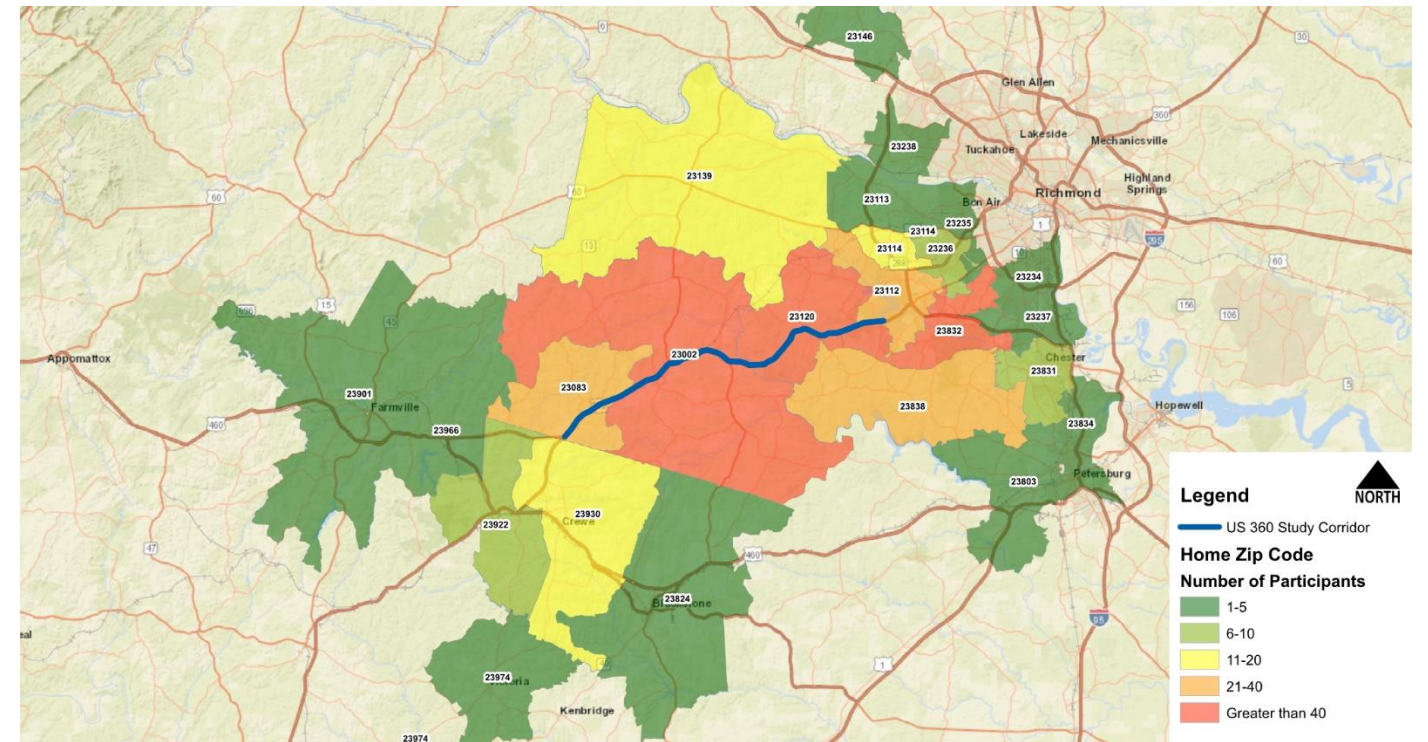


FIGURE 4: PARTICIPANT HOME LOCATION

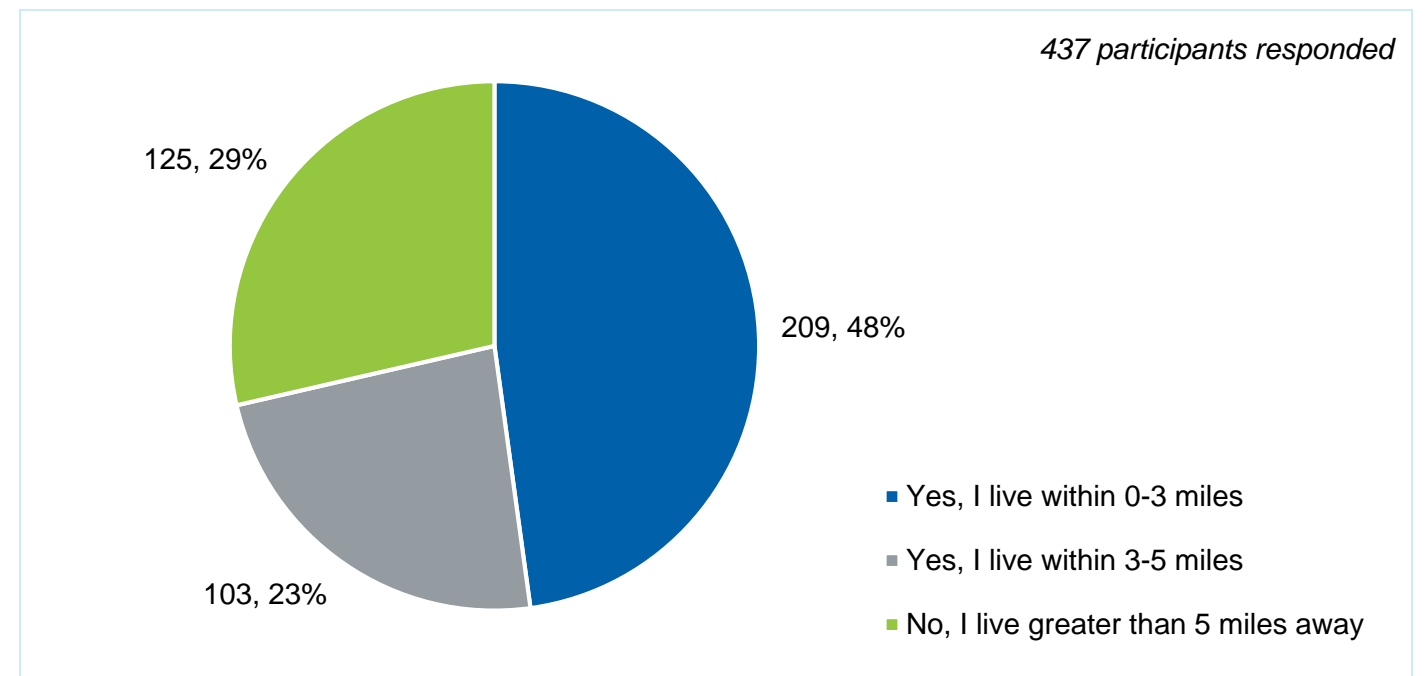


FIGURE 5: PARTICIPANT DESTINATION ZIP CODES

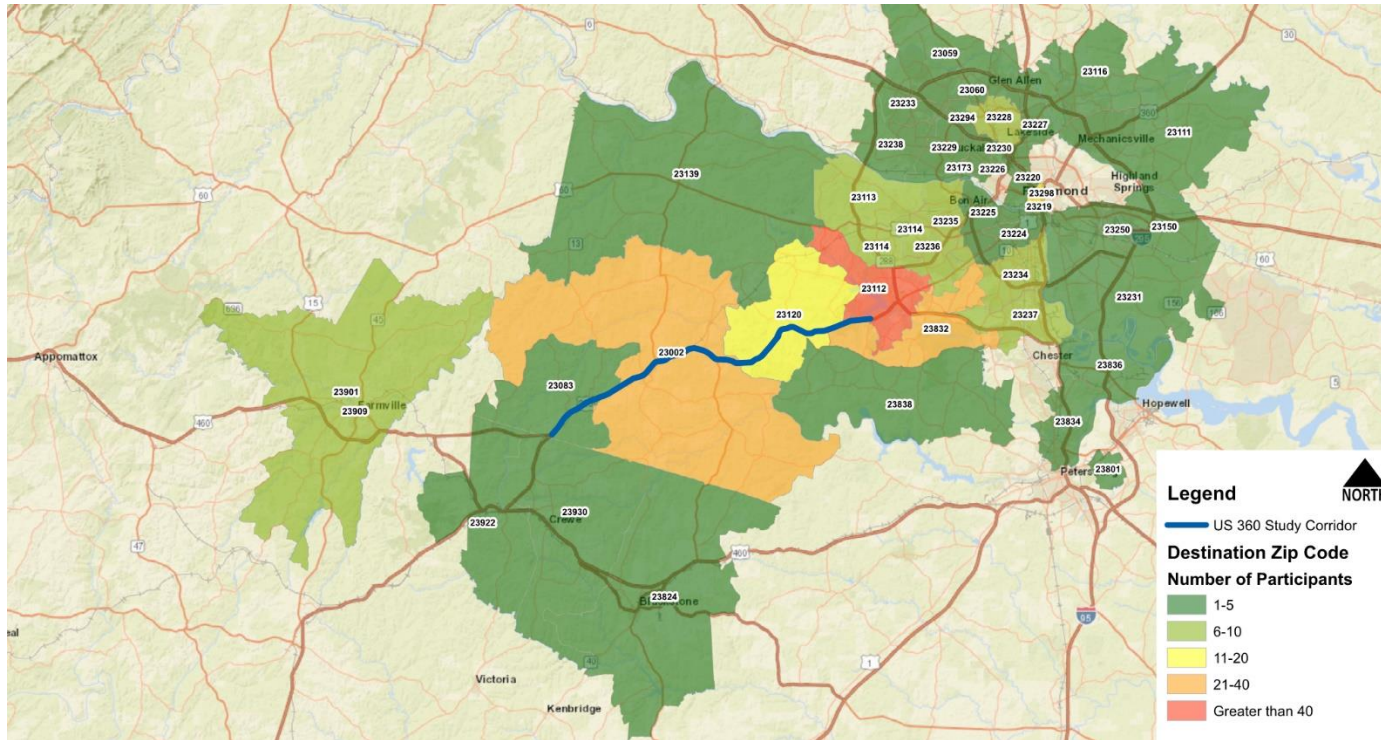
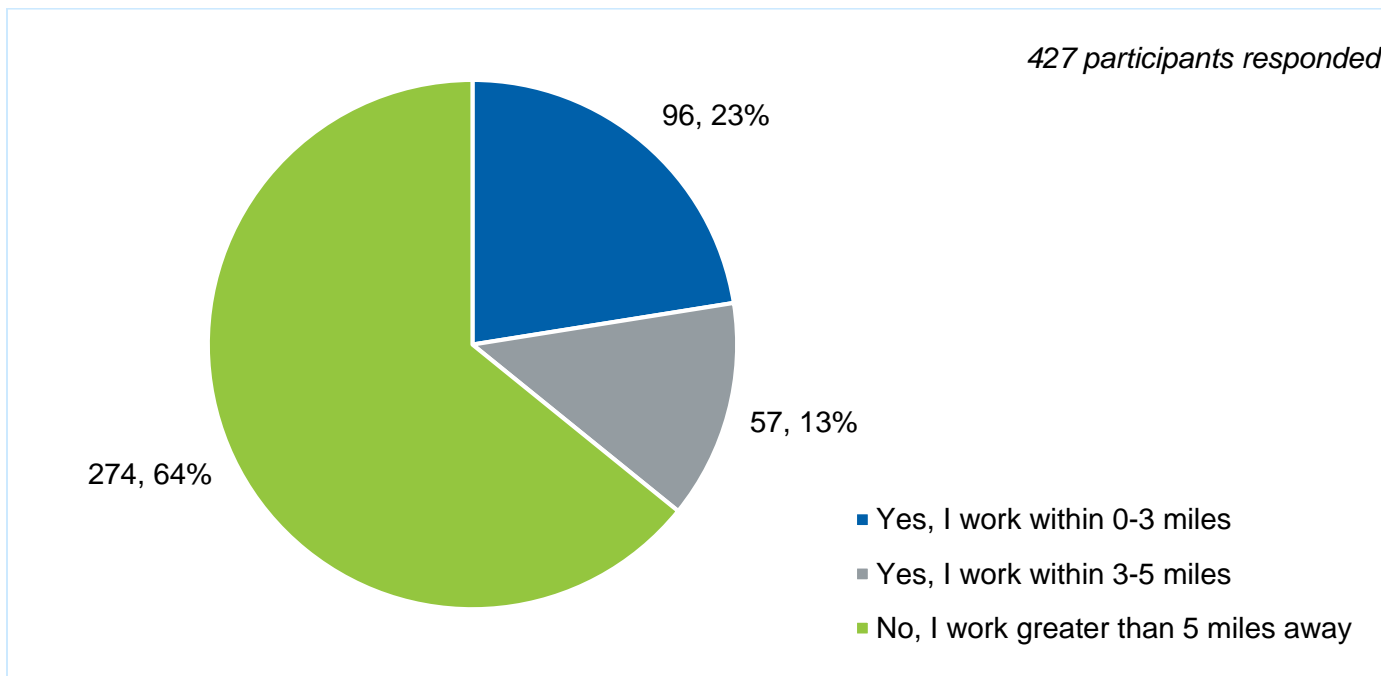


FIGURE 6: PARTICIPANT WORK LOCATION



3 Traveler Survey

The traveler survey asked a set of survey questions to understand participants' travel patterns. The questions were organized according to the following topics:

- Frequency and Purpose
- Congestion
- Mobility and Accessibility
- Mode Choice
- Safety

3.1 Frequency and Purpose

Figure 7 and Figure 8 summarize the frequency and purpose of trips within the study corridor, respectively. 64% of participants travel within the study corridor daily for shopping, dining, and entertainment. Other common purposes include travel to access Route 288 (59%), travel to/from work (48%), and travel to/from home (53%). Of the participants that travel within the study corridor less frequently, most trips are for access to Route 288 and shopping, dining, and entertaining.

3.2 Congestion

Figure 9 and Figure 10 show participants experience with the direction and frequency of congestion within the study corridor, respectively. Respondents state that congestion is most typically experienced during the week in both directions. Participants experience the least congestion on Sundays. 93 participants (10%) responded they do not experience any congestion.

3.3 Mobility and Accessibility

Table 1 summarizes mobility and accessibility issues participants typically experience within the study corridor. Of the 728 participants that responded to this question, more than half indicated they experience frequent congestion and long delays. 88 participants (11%) indicated they do not experience any mobility or accessibility issues.

3.4 Mode Choice

Table 2 summarizes the types of travel modes used within the corridor. All 782 participants who responded to this question indicated they use a personal vehicle to travel within the study corridor. Although participants had the option to select more than one mode, 89% of participants indicated they travel solely by personal vehicle.

Figure 11 and Figure 12 summarize the facilities and services needed within the corridor. The percent of participants who indicated a non-vehicular mode of travel (e.g., biking, walking) indicated higher needs for shared use paths and bicycle lanes. Truck or commercial vehicle drivers indicated the highest need for transit service, park and ride lots, and other facilities and services.

3.5 Safety

Table 3 summarizes safety issues participants typically experience within the study corridor. Figure 13 summarizes the frequency of safety issues. Safety issues are most typically observed during the week.

FIGURE 7: FREQUENCY OF TRIPS WITHIN THE STUDY CORRIDOR

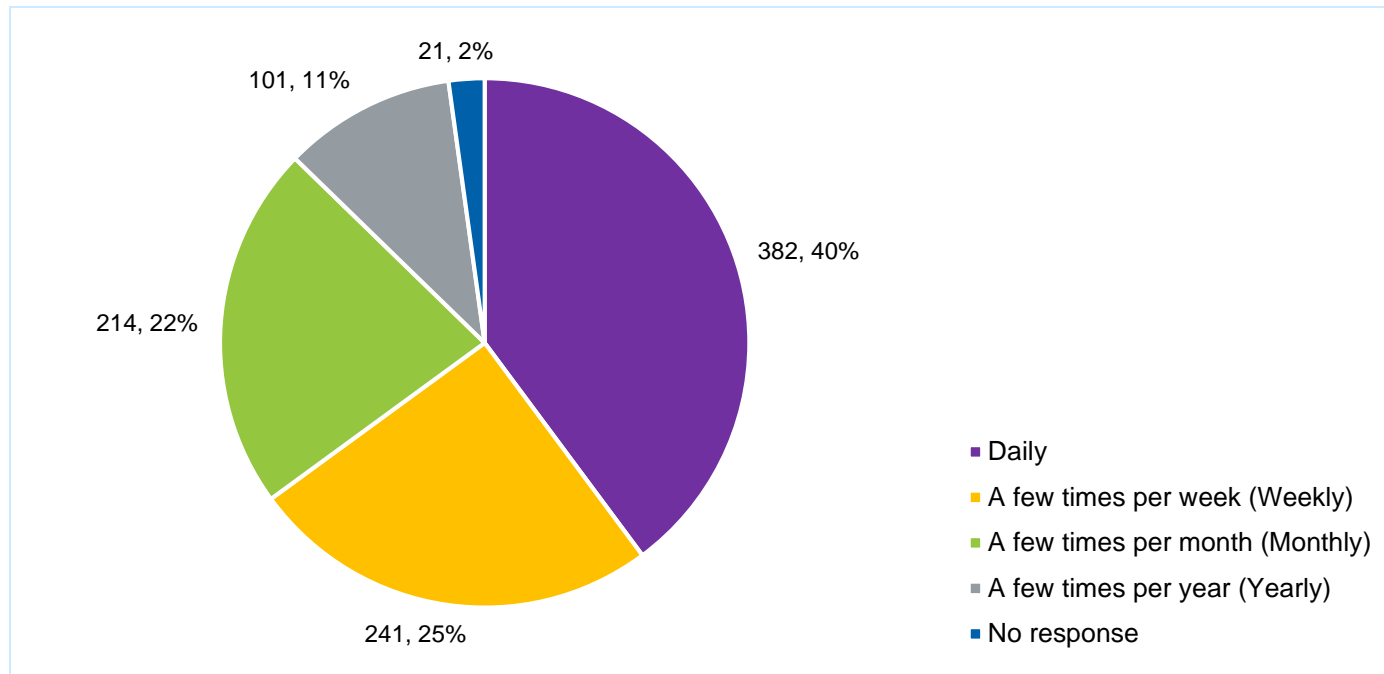


FIGURE 9: DIRECTION OF CONGESTION WITHIN THE STUDY CORRIDOR

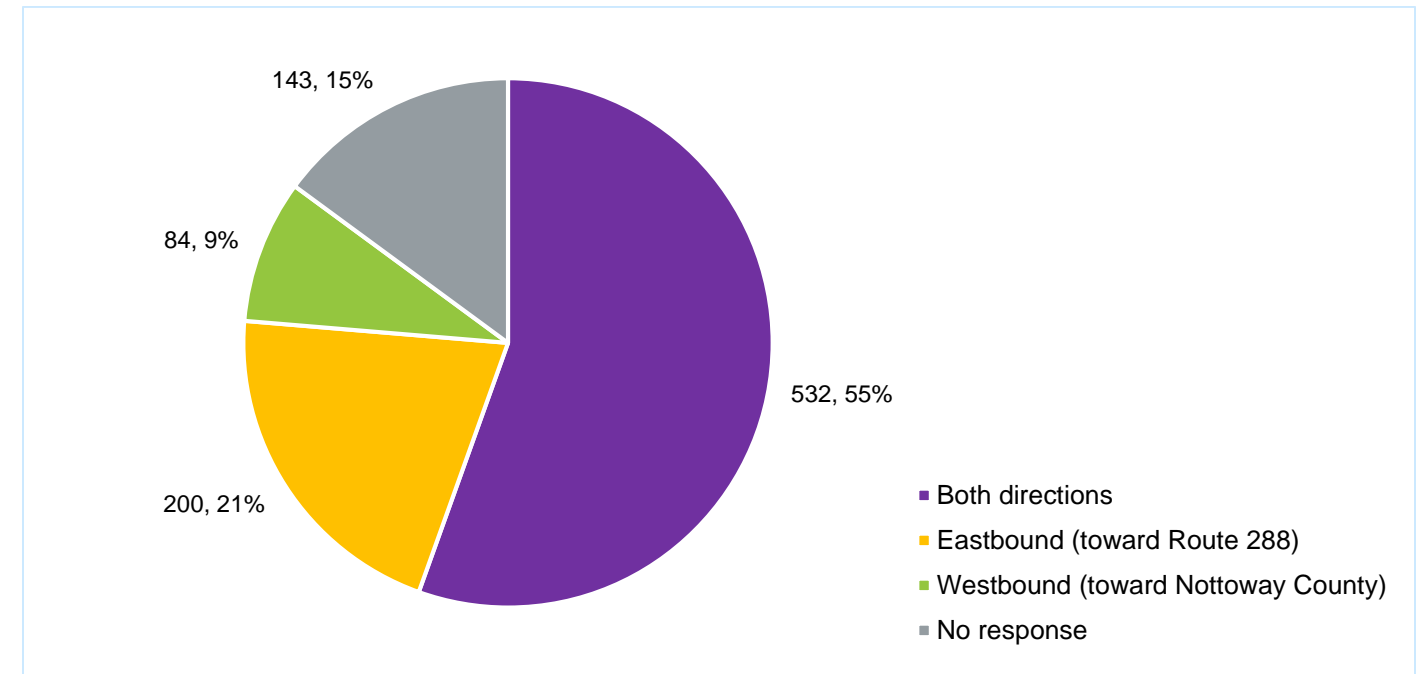


FIGURE 8: PURPOSE OF TRIPS WITHIN THE STUDY CORRIDOR

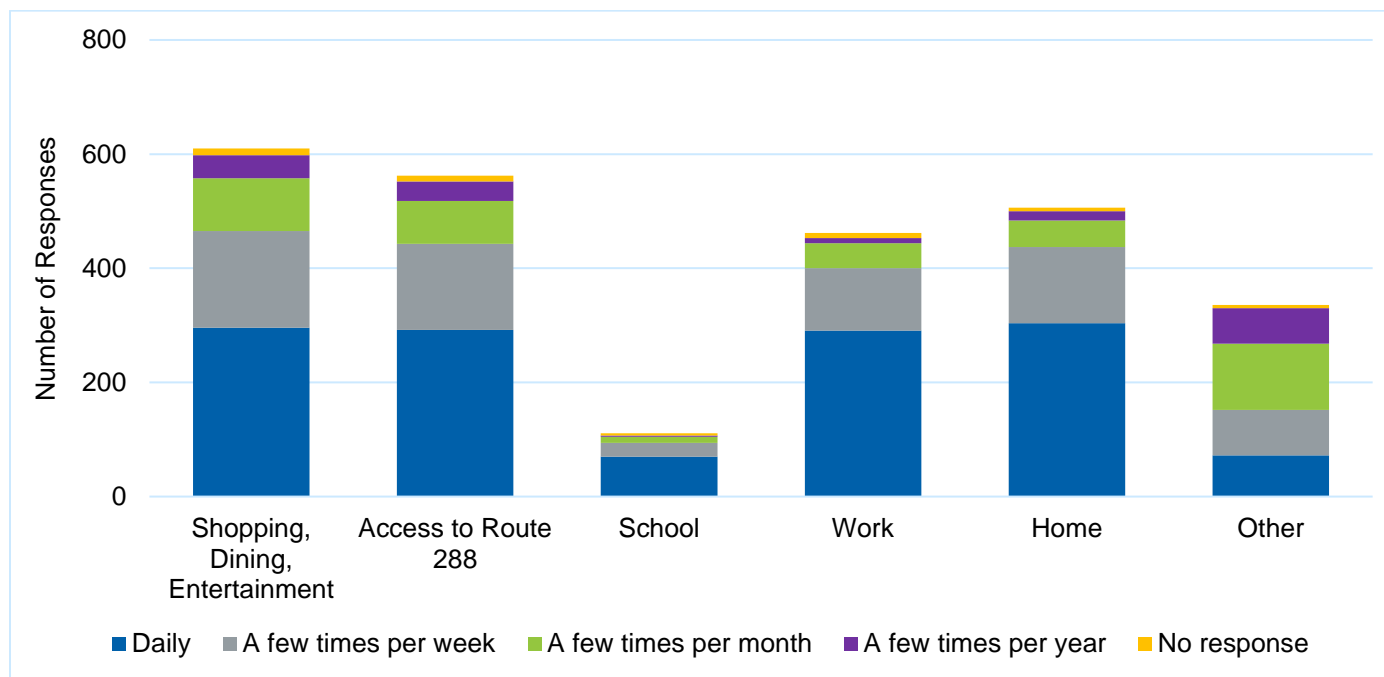


FIGURE 10: CONGESTION WITHIN THE STUDY CORRIDOR

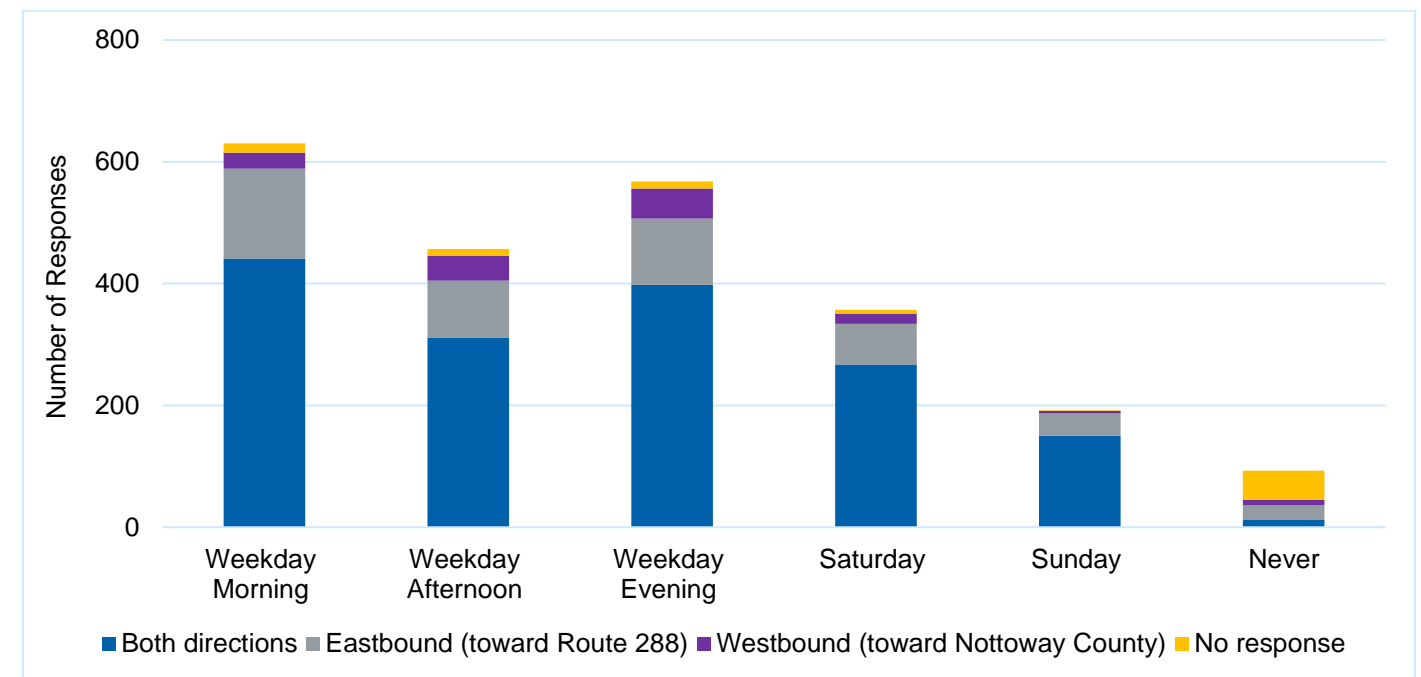


TABLE 1: MOBILITY AND ACCESSIBILITY ISSUES WITHIN THE STUDY CORRIDOR

Mobility or Accessibility Issue	Number of Responses ¹
Frequent congestion and long delays	467 (58%)
Unreliable travel times	266 (33%)
Frequent accidents restricting travel lanes	249 (31%)
Lack of turn lanes	235 (29%)
Difficulty making left turns	205 (26%)
Difficulty crossing US 360	182 (23%)
Difficulty walking along US 360	98 (12%)
Difficulty riding a bicycle along US 360	96 (12%)
Too many entrances/exits/driveways	93 (12%)
None	88 (11%)
Vehicles blocking entrances/exits/driveways	74 (9%)
Other	56 (7%)
Lack of medians	38 (5%)
Too few entrances/exits/driveways	34 (4%)

¹ 801 participants responded to this question.

TABLE 2: MODE CHOICE

Mode	Number of Responses ¹
Personal Vehicle	78 (100%)
Truck or Commercial Vehicle	95 (12%)
Biking	22 (3%)
Taxi, Uber, or Lyft	17 (2%)
Walking	17 (2%)
Other	11 (1%)
Carpool or Vanpool	less than 1% (5)

¹ 782 participants responded to this question.

FIGURE 11: FACILITIES AND SERVICES NEEDED WITHIN THE CORRIDOR

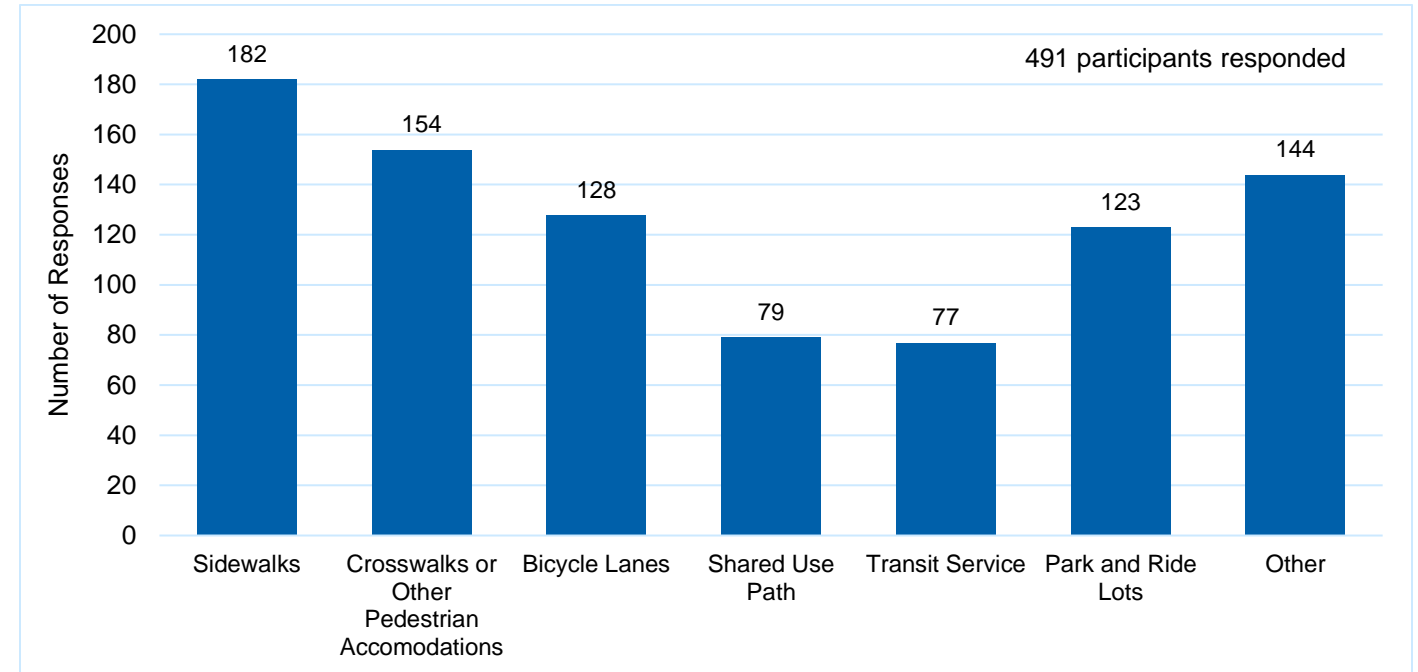


FIGURE 12: FACILITIES AND SERVICES NEEDED WITHIN THE CORRIDOR, BY MODE CHOICE

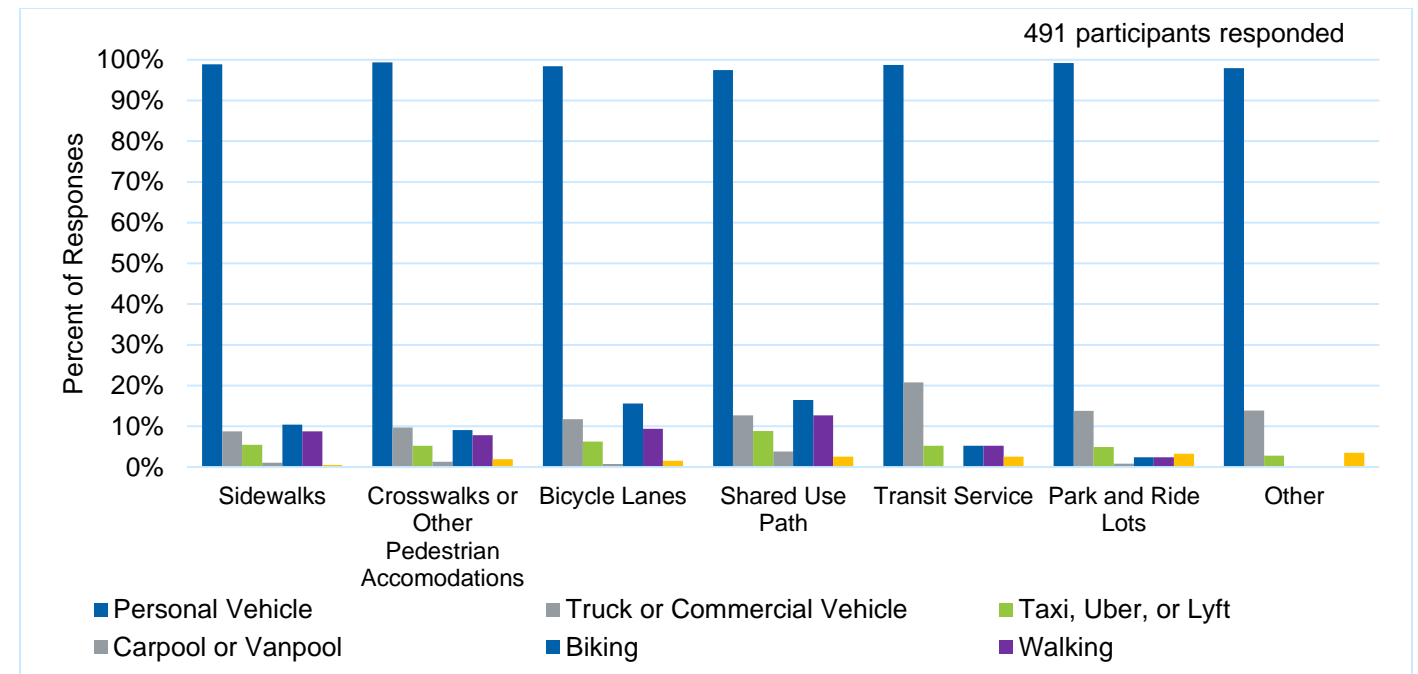
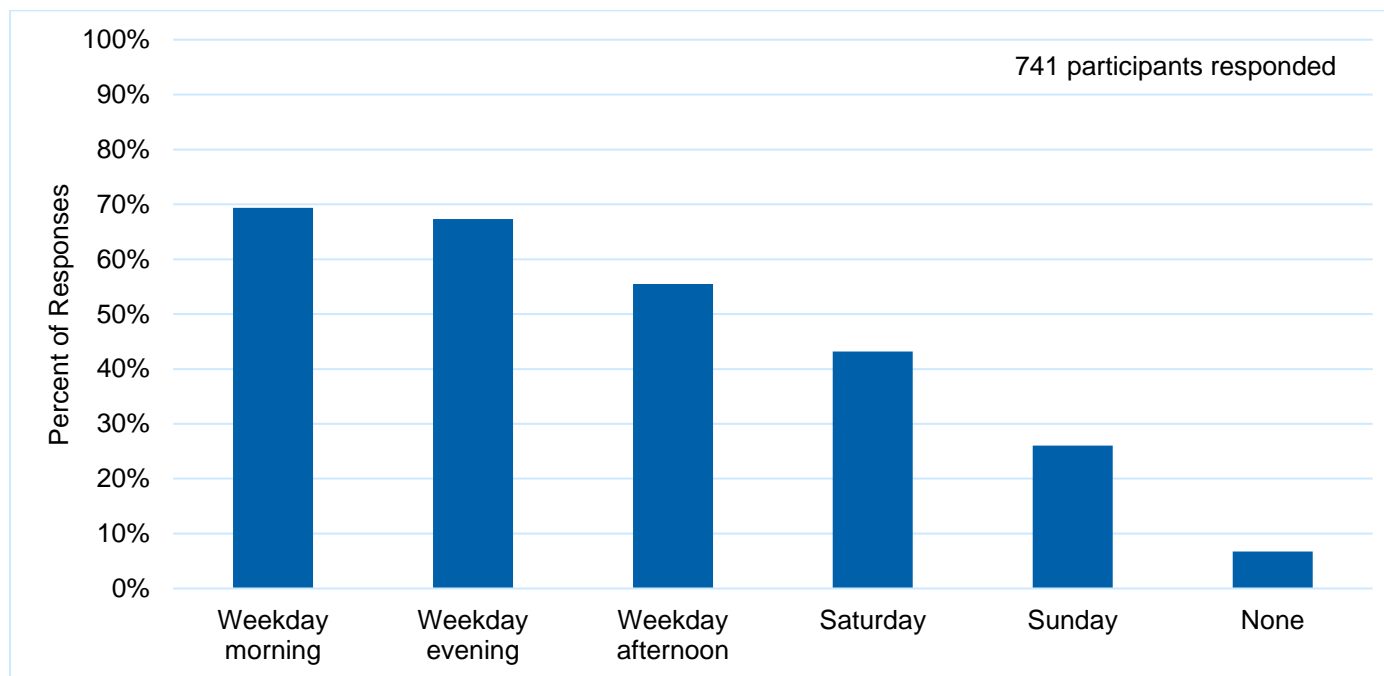


TABLE 3: SAFETY ISSUES WITHIN THE STUDY CORRIDOR

Safety Issue	Number of Responses ¹
Sudden stops from congestion	522 (68%)
Speeding	436 (57%)
Aggressive or distracted driving	434 (57%)
High number of weaving and merging crashes	412 (54%)
Vehicles running red lights	223 (29%)
Road maintenance	103 (13%)
Limited sight distance	91 (12%)
Roadside hazards	89 (12%)
Lack of pedestrian amenities	86 (11%)
Lack of bicycle amenities	77 (10%)
Inadequate pavement markings	71 (9%)
Inadequate signage	56 (7%)
Other	32 (4%)
None	35 (5%)

¹ 763 participants responded to this question

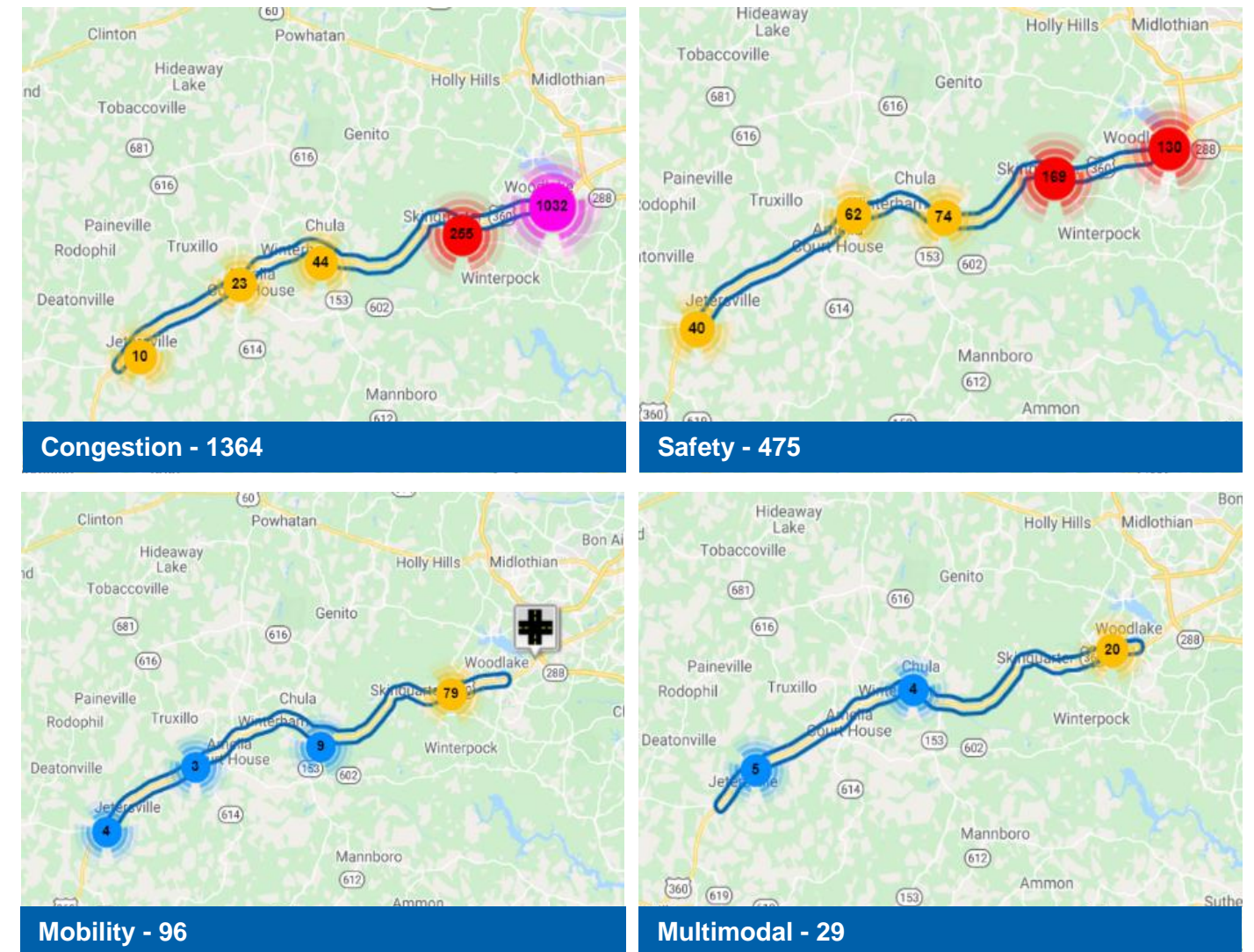
FIGURE 13: FREQUENCY OF SAFETY ISSUES WITHIN THE STUDY CORRIDOR



4 Mark the Map!

Participants indicated traffic and safety issues on a map using individual map markers. Figure 14 shows the distribution of map markers for each category. Most markers were concentrated east of Skinquarter Road. Other issues, which included 61 markers, were indicated under a separate category. Feedback from the “Other Issues” category has been reclassified as congestion, safety, mobility, or multimodal for summary purposes.

FIGURE 14: MAP MARKERS



4.1 Congestion

Figure 15 and Figure 16 summarize the frequency and direction of congestion indicated by congestion markers, respectively. Participants indicated most congestion toward the east end of the corridor, between Otterdale Road and Winterpock Road. Approximately half of participants indicated congestion occurs all the time in both directions.

Participants noted the following congestion issues:

Congestion at Signalized Intersections

- A dedicated left-turn lane is needed for the northbound approach at Winterpock Road.
- Traffic progression between Winterpock Road and Woodlake Village Parkway is poor.
- The new traffic signal timings have caused greater delay at Fox Club Parkway / Hampton Park Drive.
- Traffic sits through three cycles at Otterdale Road.
- Traffic signals are needed at Redfield Drive, Amelia Avenue, and Superior Way.

Congestion at Unsignalized Intersections

- Vehicles slow down near Beaver Bridge Road because motorists are unable to see around the curve.
- The queue to turn right into Grange Hall Elementary School backs up onto US 360.
- Eastbound vehicles near the Goodes Bridge Road (unsignalized) intersection typically speed in the morning. This section is 60 mph.

4.2 Safety

Figure 17 and Figure 18 summarize the frequency and direction of safety issues, respectively. Participants indicated most safety issues east of Skinquarter Road. Participants noted the following safety issues:

Safety Issues at Signalized Intersections

- Motorists are unfamiliar with the flashing yellow arrows at the Chula Road and Beaver Bridge Road (signalized) intersections.
- A traffic signal is needed at the following locations:
 - Goodes Bridge Road (unsignalized), to alleviate congestion and allow students to cross.
 - Military Road
 - Maplewood Road
 - Superior Way
 - Holly Farms Road
- The westbound queue at Fox Club Parkway backs beyond the hill, which causes visibility issues for vehicles approaching the intersection.

Safety Issues at Unsignalized Intersections

- There is inadequate median storage at the Maplewood Road crossover.
- The following turn lanes are too short to accommodate trucks and commercial vehicles:
 - Westbound left-turn at Amelia Avenue
 - Westbound left-turn at Grub Hill Church Road (Route 609)
 - Skinquarter Road right-turn lane

- Westbound left-turn lane at Jetersville Road
- Eastbound ramp at US 360 Business
- Chesterfield County does not have wrong-way signs at median openings.
- Vehicles do not stop or yield within median openings.
- Vehicles do not comply with the stop sign at Military Road.
- Pavement markings near Military Road are difficult to see during inclement weather.
- A westbound right-turn lane at Beaver Bridge Road is desired.

Sight Distance and Horizontal Curves

- Sight distance is limited at the following locations:
 - Northbound left-turn at Beaver Bridge Road
 - Northbound left-turn at Winchester Drive
 - Eastbound and westbound through at Amelia County / Chesterfield County line
 - Eastbound left-turn at crossover west of Superior Way
 - Southbound left-turn at Cheathams Road
 - Pridesville Road
 - Cosby Road
 - Fox Club Parkway / Hampton Park Drive
- There is no shoulder east of Sappony Road.
- The curve radius east and west of Skinquarter Road presents a challenge to vehicles.
- The position of the sun causes visibility issues at the following intersections:
 - Hancock Village Drive during the day
 - Otterdale Road at sunset
 - Military Road at sunset
 - Holly Farms Road at sunset

Signing and Pavement Markings

- The pavement between Winterpock Road and Otterdale Road is in poor condition.

Speeding

- Vehicles speed near the retail development adjacent to Goodes Bridge Road (signalized). This section is 60 mph.
- Vehicles do not slow down in the school zone near Grange Hall Elementary School.

4.3 Mobility

Figure 19 and Figure 20 summarize the type and frequency of mobility issues, respectively. Participants indicated mobility issues are mostly experienced all the time or during weekday mornings and are typically caused by frequent congestion and long delays. Participants also specified having difficulty making left turns and indicated a lack of turn lanes. The following issues were also noted:

- Signal timing at Magnolia Green Parkway could be improved.
- Motorists experience inconsistent travel times between Winterpock Road and Woodlake Village Parkway

- Many northbound vehicles use Ashbrooke Parkway to connect to US 360 instead of Winterpock Road.

4.4 Multimodal

Figure 21 summarizes the type of multimodal issues within the study corridor. Participants indicated multimodal issues occur all the time.

The following multimodal issues were also noted:

- Pedestrians have difficulty crossing at the following locations:
 - Hampton Farms Drive near Cosby High School
 - Otterdale Road, to access Publix and new retail development
 - Hancock Village Drive
 - Spring Run Road, near Lowes
- Bicycles have difficulty crossing US 360 at the following locations:
 - Ashlake Village Parkway
 - Woodlake Village Parkway
 - Otterdale Road
- Sidewalks and bike lanes are needed at the following locations:
 - Otterdale Road.
 - West of Woodlake Commons Loop to connect to Cosby Road
- Bicyclists typically cross US 360 at Magnolia Green Parkway.
- A trail along the railroad is desired.

FIGURE 15: MARK THE MAP! FREQUENCY OF CONGESTION

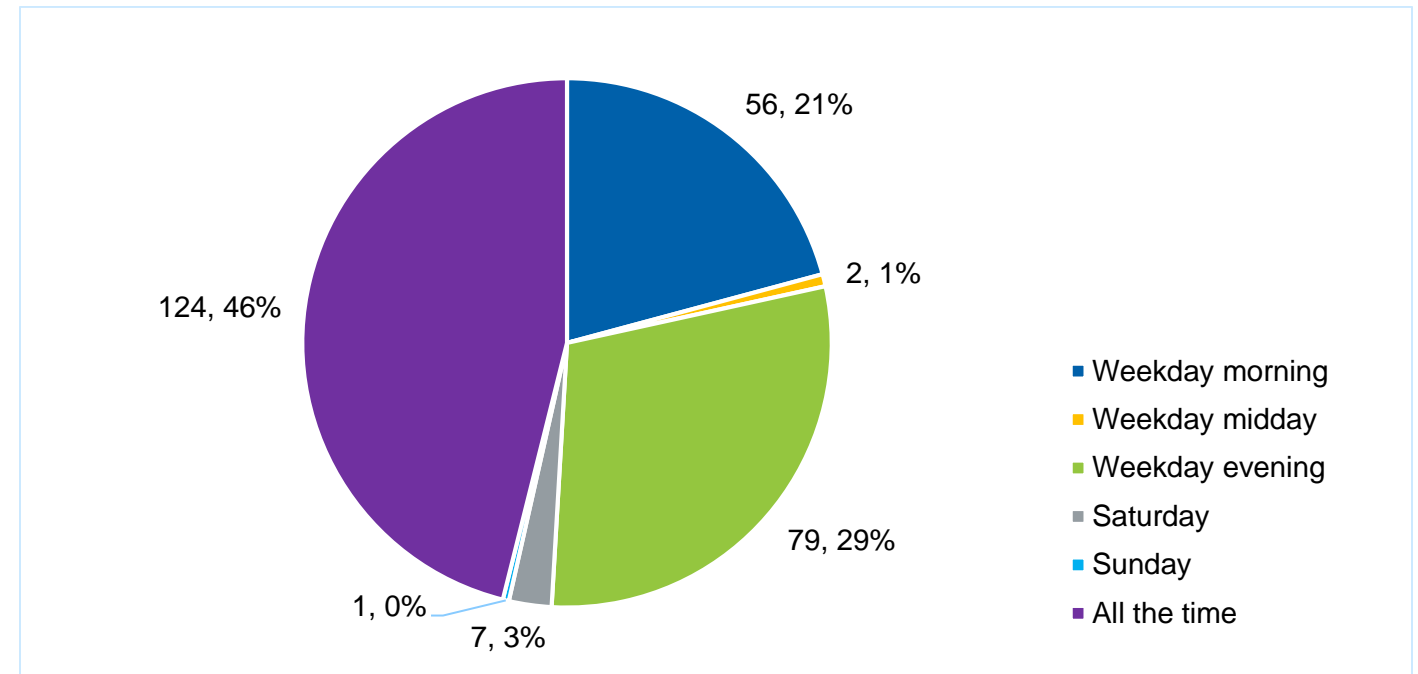


FIGURE 16: MARK THE MAP! DIRECTION OF CONGESTION

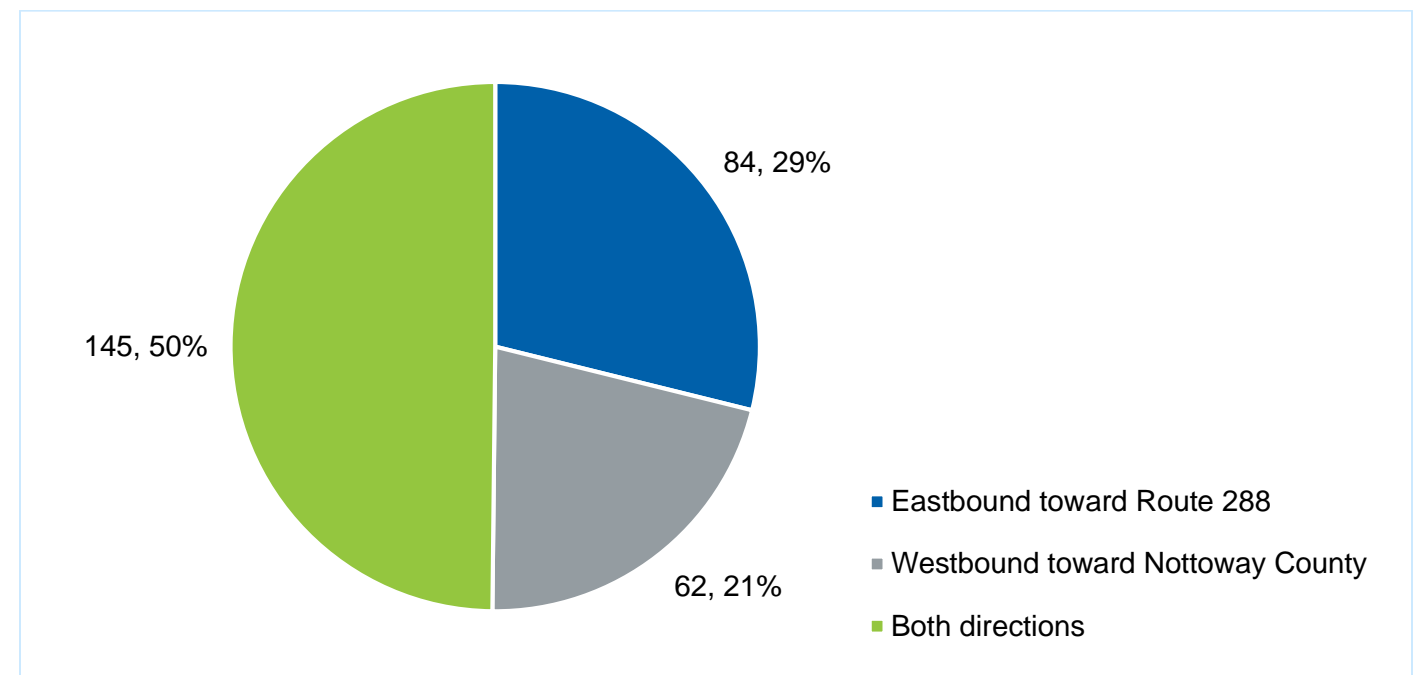


FIGURE 17: MARK THE MAP! FREQUENCY OF SAFETY ISSUES

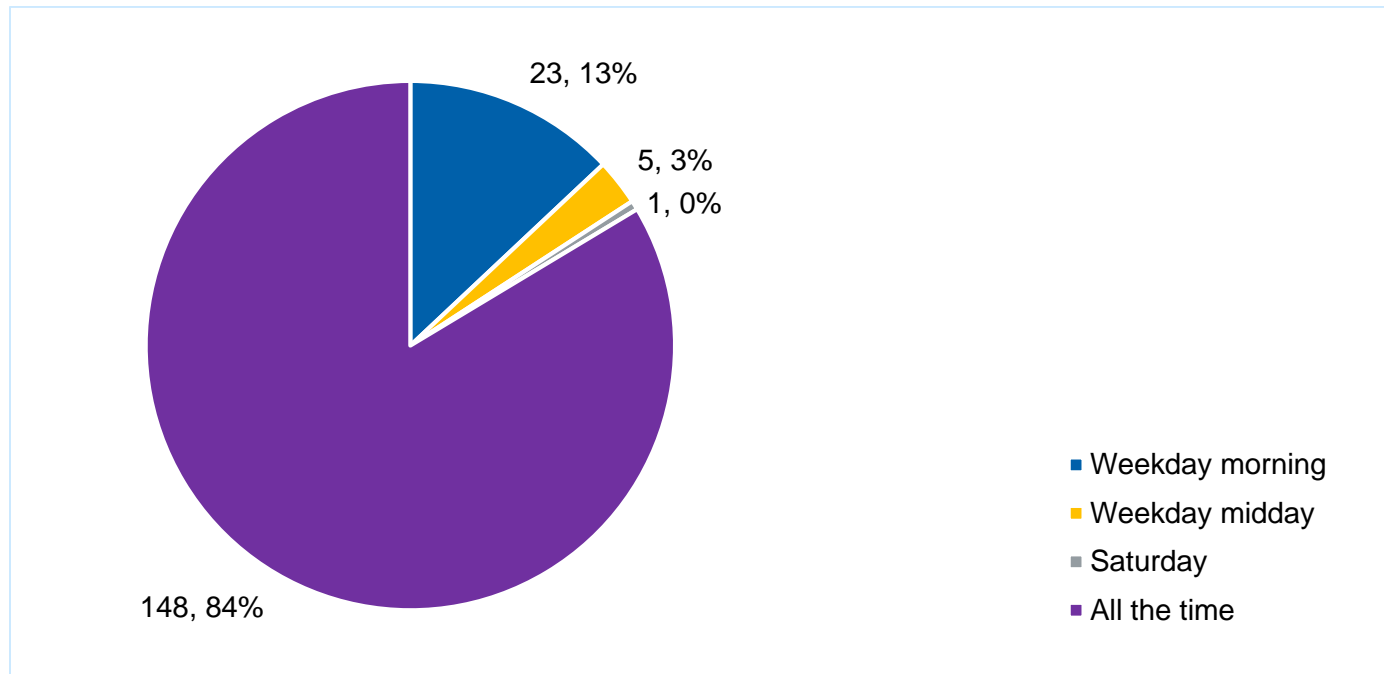


FIGURE 19: MARK THE MAP! MOBILITY ISSUES AND CONCERNS

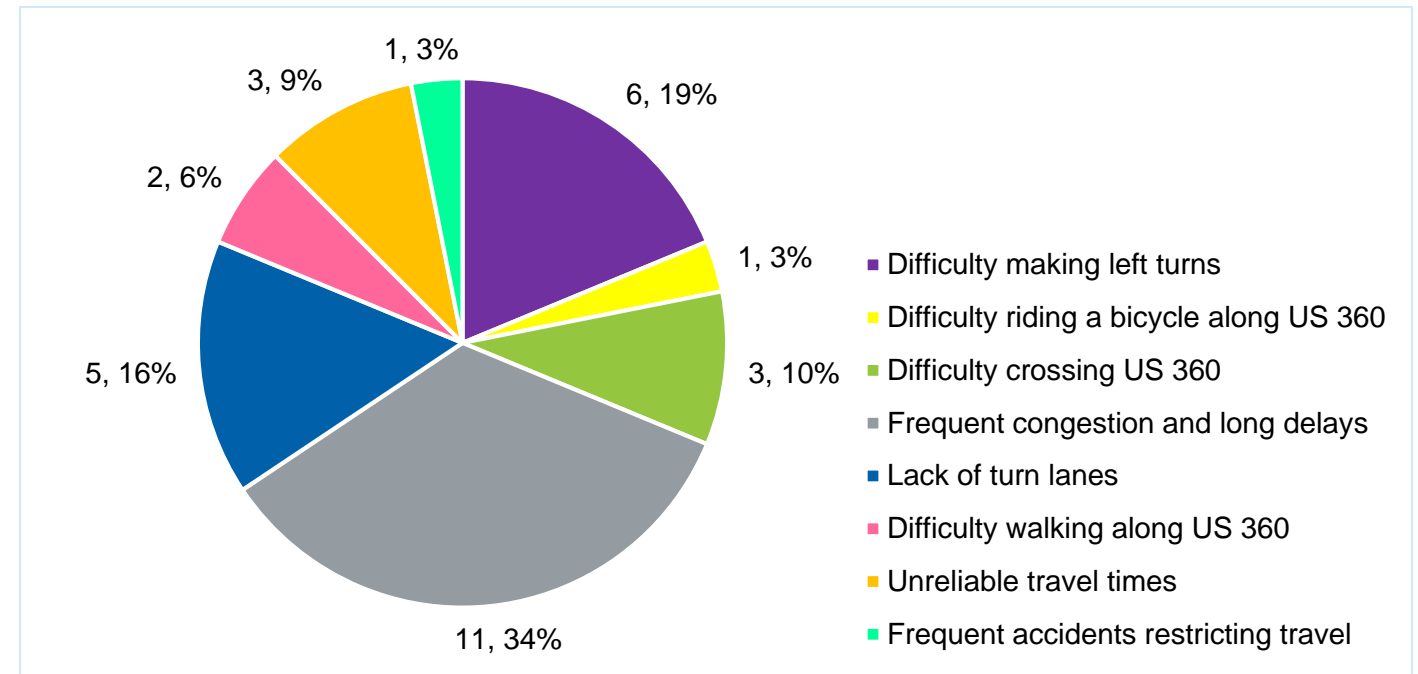


FIGURE 18: MARK THE MAP! SAFETY ISSUES AND CONCERNS

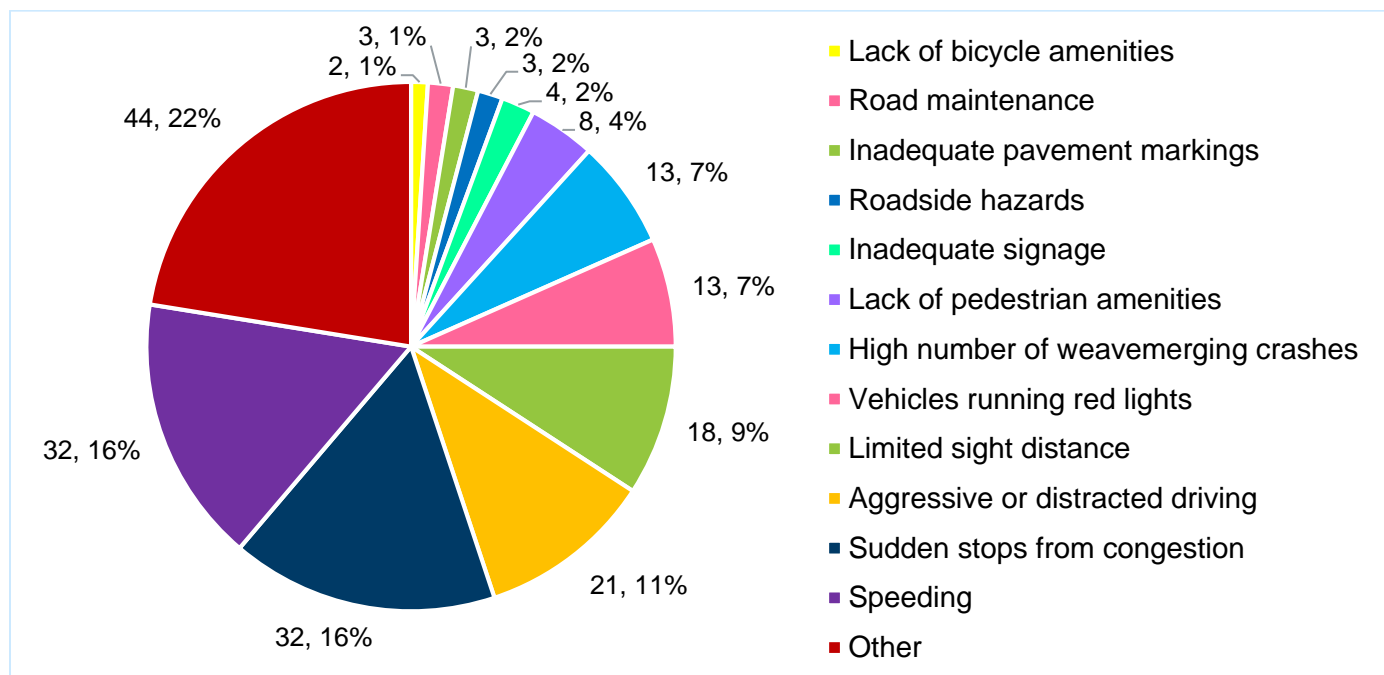


FIGURE 20: MARK THE MAP! FREQUENCY OF MOBILITY ISSUES

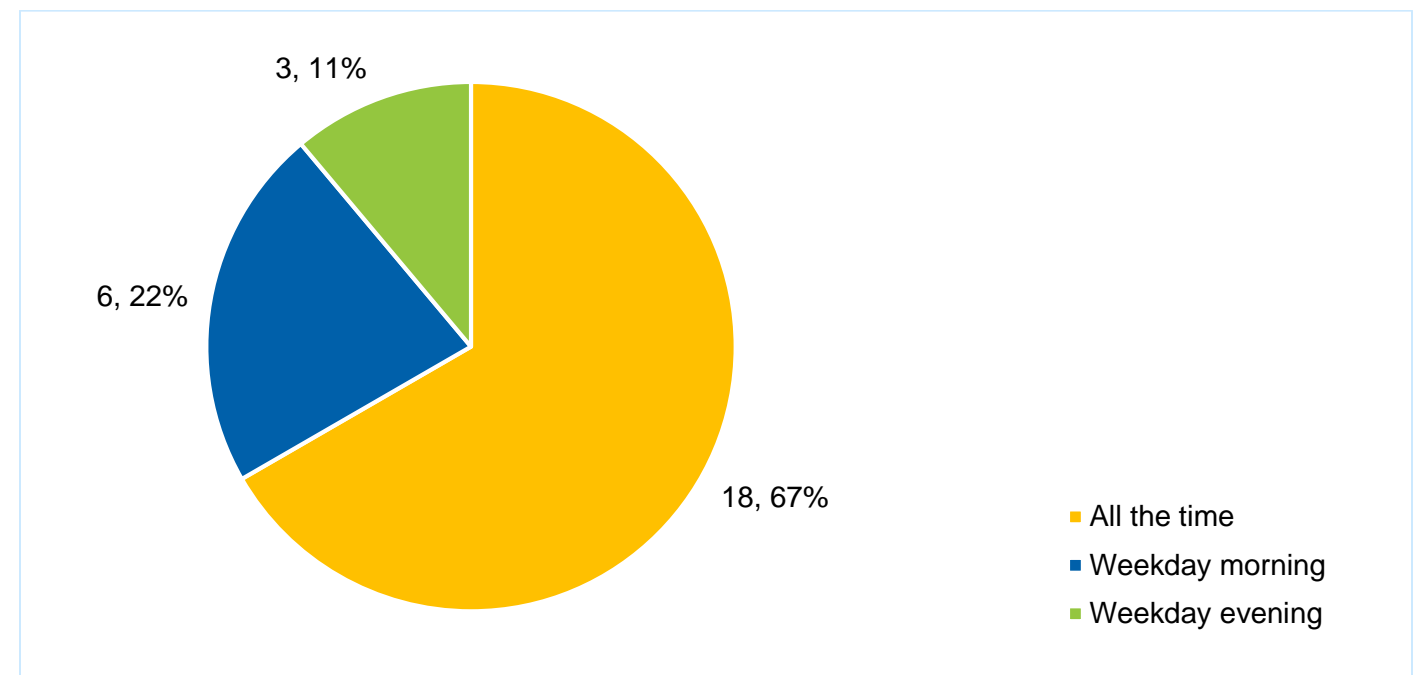
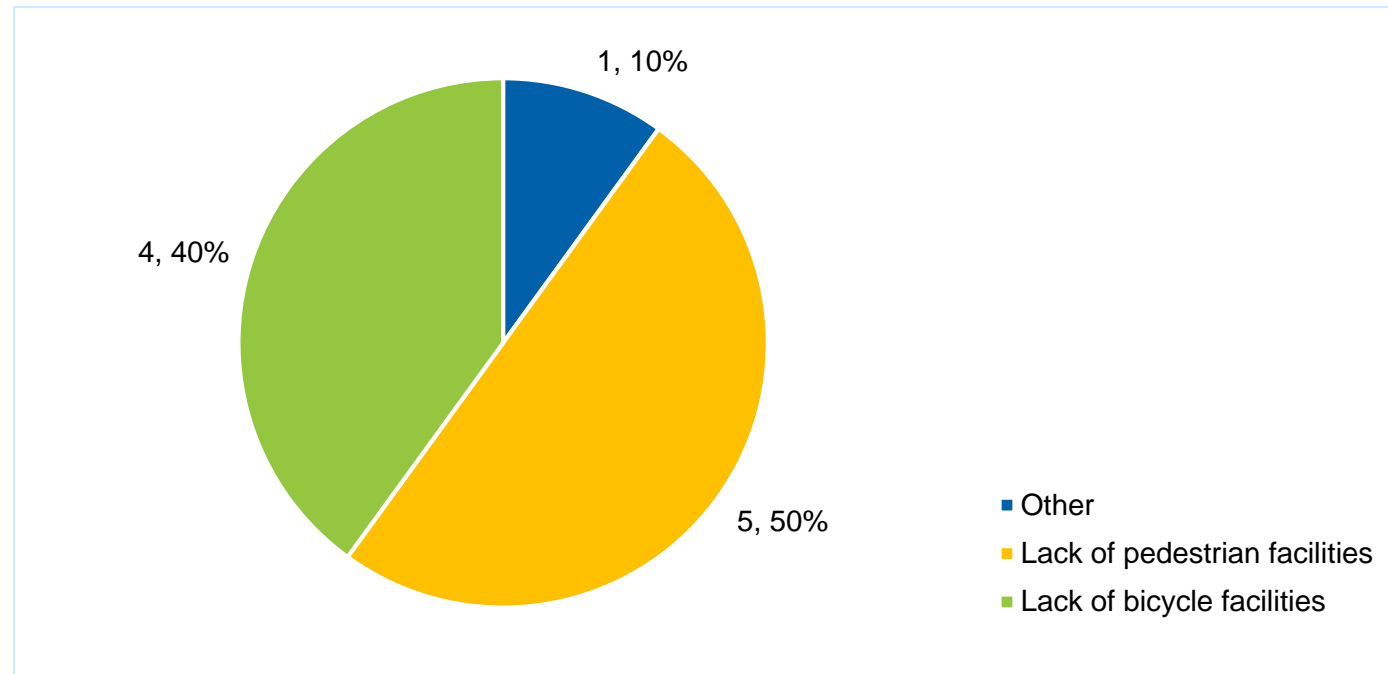


FIGURE 21: MARK THE MAP! MULTIMODAL ISSUES



5 Learn More (Potential Improvement Ranking)

The *Learn More* screen provided participants with information on potential intersection, access management, and safety improvements, and asked participants to rate each improvement on a scale of 1-5 stars. The improvements were defined as follows:

- **Intersections:** Intersection improvements can alleviate congestion and improve mobility and safety for vehicles, pedestrians, and bicyclists. Improvements may be conventional, such as adding additional turn lanes or improving signal coordination. Where conventional designs are insufficient for resolving congestion and safety issues, innovative intersections may be considered to reduce delay, increase efficiency, and provide safer travel for road users.
- **Access Management:** Access management focuses on the location, spacing, and design of entrances, street intersections, median openings, and traffic signals. Better management of access to the highway can improve operations and safety within a corridor. Example access management improvements include shared entrances, partial-access driveways, and raised medians.
- **Safety:** Systemic safety improvements are lower-cost/high-benefit safety countermeasures that address a particular crash type, such as lane departure crashes. These improvements improve sight distance, driver awareness, compliance with traffic control devices and more. Example systemic safety improvements include enhanced signage and pavement markings at median crossovers, enhanced delineation treatments, and rumble strips.

Figure 22 and Figure 23 summarize the ratings for each potential improvement. Although more participants rated the intersections category than access management and safety, the average rating

[equal to 3.7] was consistent across the three categories. Based on the percent of favorable responses for each improvement [defined as rating 3 or higher], the potential improvements are ranked as follows:

1. Access Management (86% favorable)
2. Intersections (85% favorable)
3. Safety (84% favorable)

FIGURE 22: LEARN MORE POTENTIAL IMPROVEMENT RATING, NUMBER OF RESPONSES

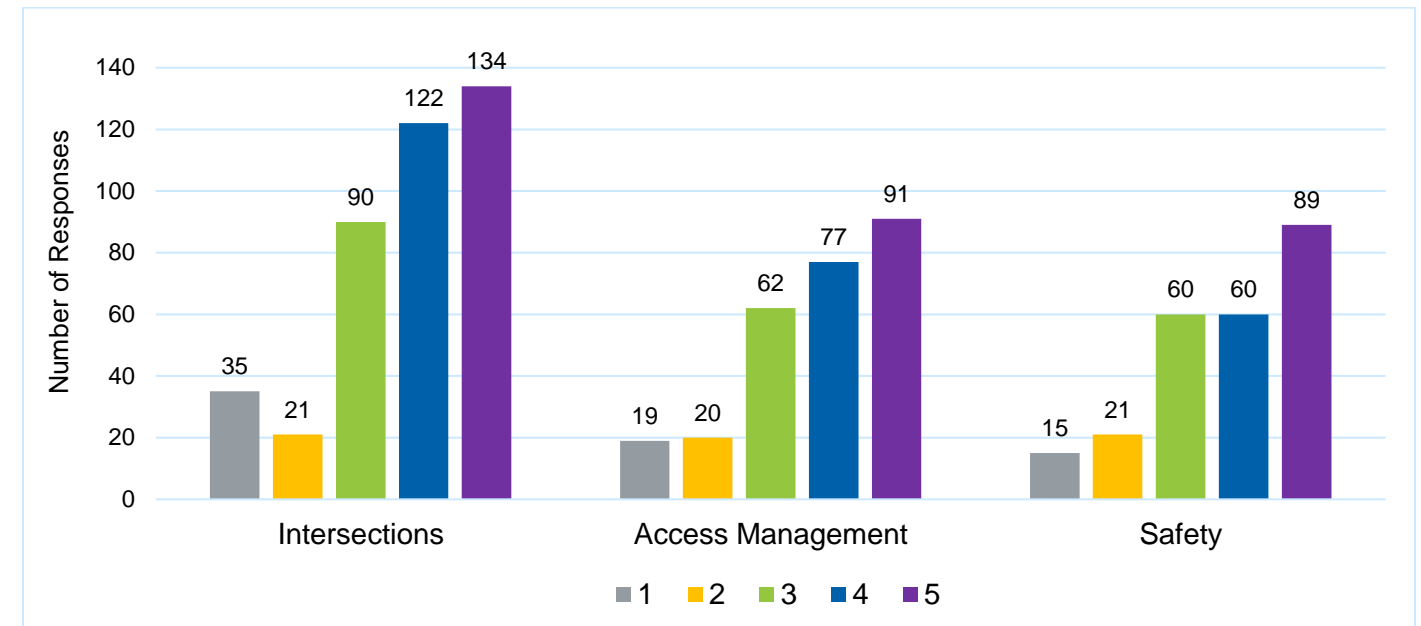


FIGURE 23: LEARN MORE POTENTIAL IMPROVEMENT RATING, PERCENT OF RESPONSES

