# MONTGOMERY COUNTY PEDESTRIAN SURVEY


February 2020

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# PROJECT OVERVIEW

Montgomery County recently embarked upon an intensive, long-term process to develop and implement a Pedestrian Master Plan to improve pedestrian safety and comfort across all its roadways. The Pedestrian Plan will identify existing walking conditions and areas where improvements should be prioritized, in addition to providing policy, design, and programming recommendations. As part of the public engagement component of the Pedestrian Plan, Montgomery Planning conducted this pedestrian survey to ensure all residents and stakeholders' perspectives are included in the planning process. Specifically, this survey supports Pedestrian Plan development by helping the project team better understand pedestrian travel attitudes and behaviors and will serve as a benchmark for future surveys to analyze trends over time.

The pedestrian survey was fielded in October and November 2020. The research team used address-based sampling, sending postcard invitations to 60,000 homes in Montgomery County. With a goal of 1,200 survey completions across three geographic regions of the county, the team received 2,438 valid survey completions for a response rate of 4.1%. This report details the survey methodology and analysis conducted for Montgomery Planning as part of this project. Additionally, the final survey dataset was provided to the Planning Department as a deliverable for this work.

# 1.0 ANALYSIS

The descriptive analysis of the survey data presented in this section was performed on the final weighted dataset of 2,438 responses. The analysis is divided into six sections:

- Walking or rolling trip characteristics;
- Pedestrian laws and safety;
- Satisfaction and importance;
- COVID-19 impacts and;
- Demographics

## 1.1 TRIP CHARACTERISTICS

The survey asked respondents to provide information about their walking or rolling trips within Montgomery County in the past month. For the purposes of this survey, a walking or rolling trip was defined as a one-way trip of at least five minutes long which started or ended in Montgomery County. Analyses are segmented by the three study geographies: urban, transit corridor, and exurban or rural.

Figure 1 shows that 98% of respondents took a walking or rolling trip within the past month. Most respondents (91%) had walked or rolled for exercise or outdoor recreation. More respondents from the urban geography walked or rolled for non-recreation trip purposes than respondents from other geographies. A majority of respondents from the urban geography made at least one walking or rolling trip for grocery or food shopping or for personal business, such as running errands.

**FIGURE 1: WALK TRIP PURPOSES IN THE PAST MONTH BY GEOGRAPHY**

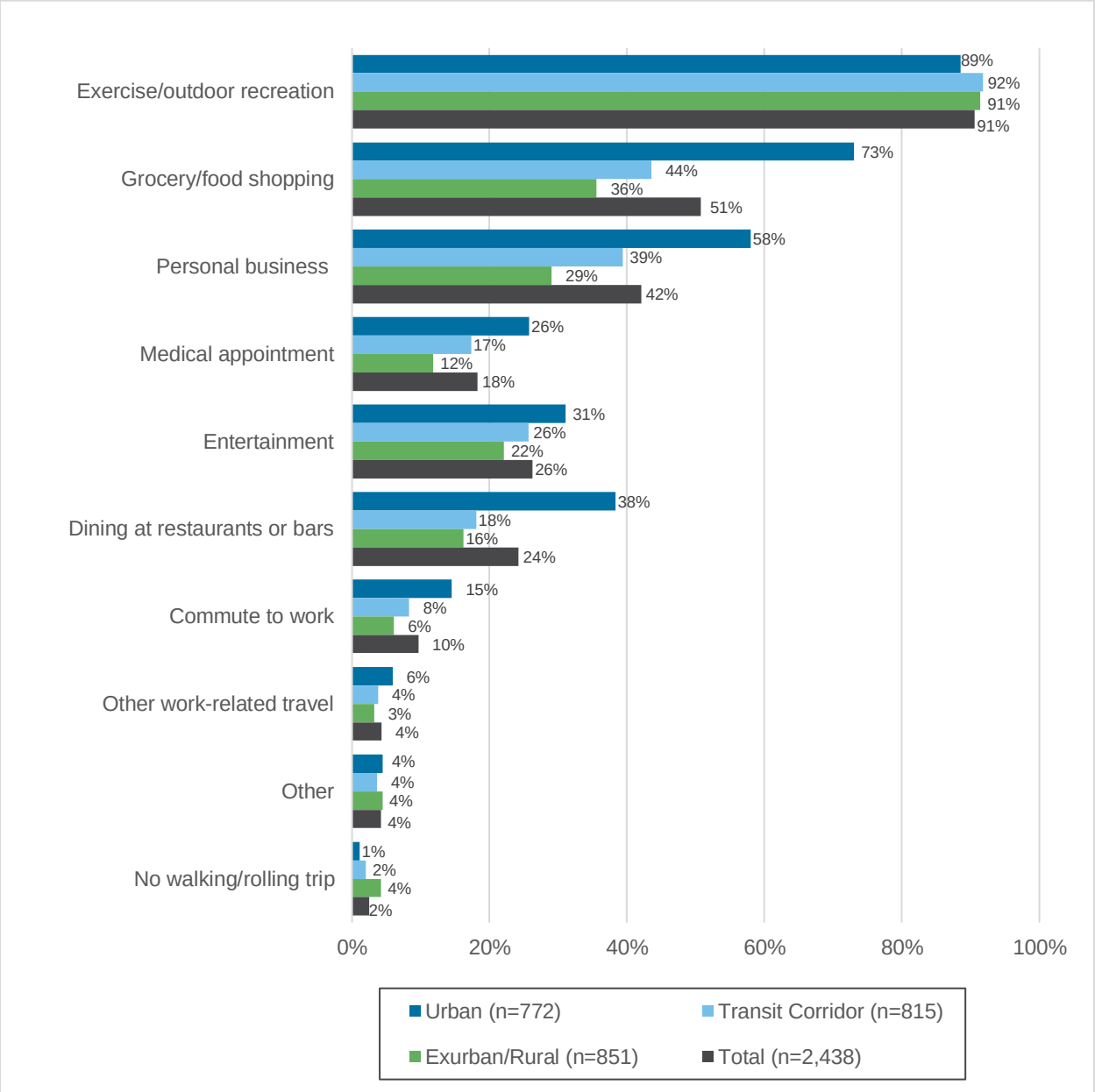



Figure 2 shows walk or roll trip purpose by race. A higher percentage of BIPOC respondents make walk or roll trips to go grocery or food shopping, to commute to work, and for other work-related travel.

**FIGURE 2: WALK TRIP PURPOSE BY RACE**

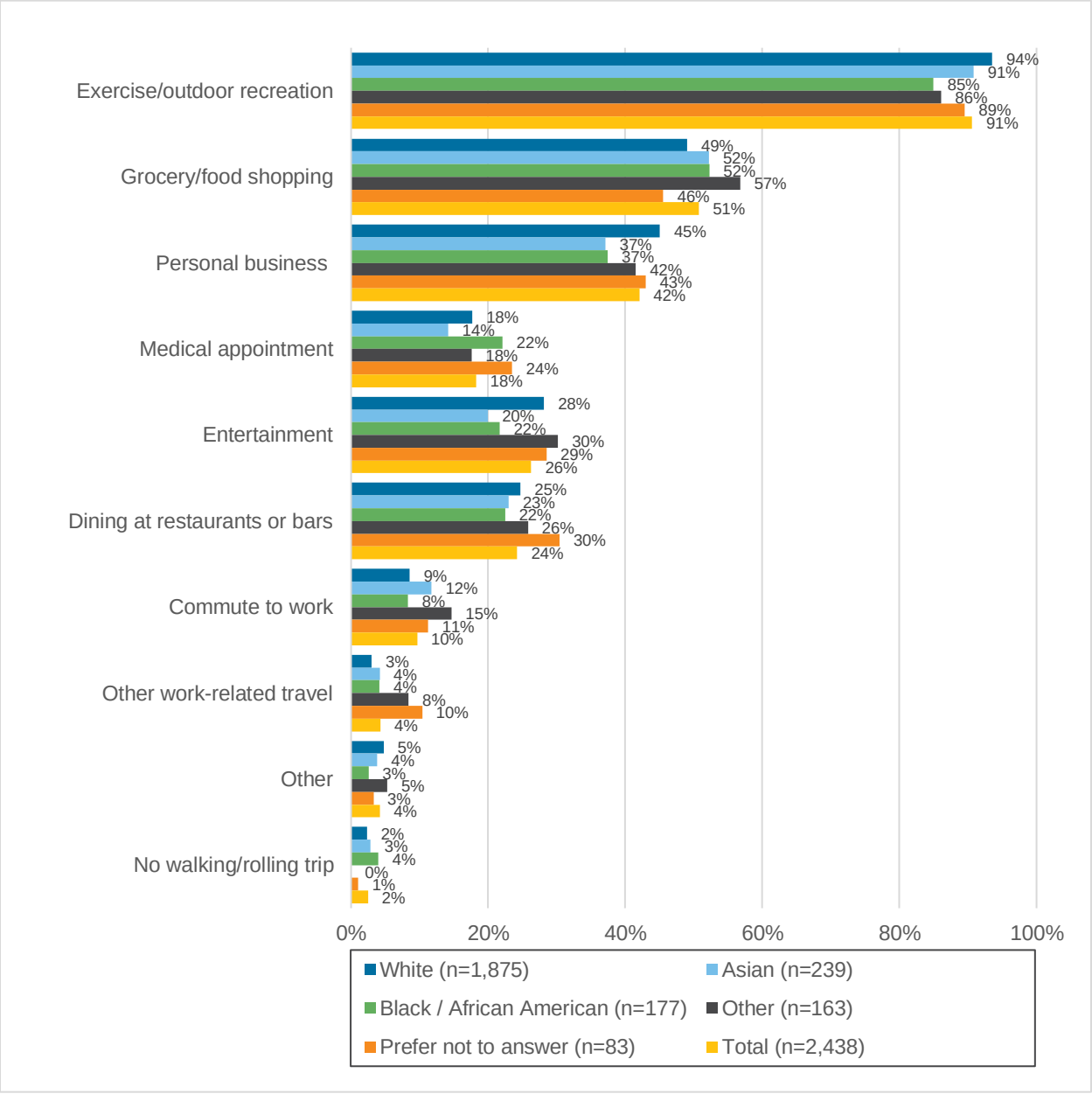



Figure 3 illustrates walk or roll purpose by Hispanic, Spanish or Latino origin. Respondents of Hispanic, Spanish or Latino origin take more of a variety of walking or rolling trips than the rest of the sample.

**FIGURE 3: WALK PURPOSE BY HISPANIC, SPANISH, OR LATINO ORIGIN**

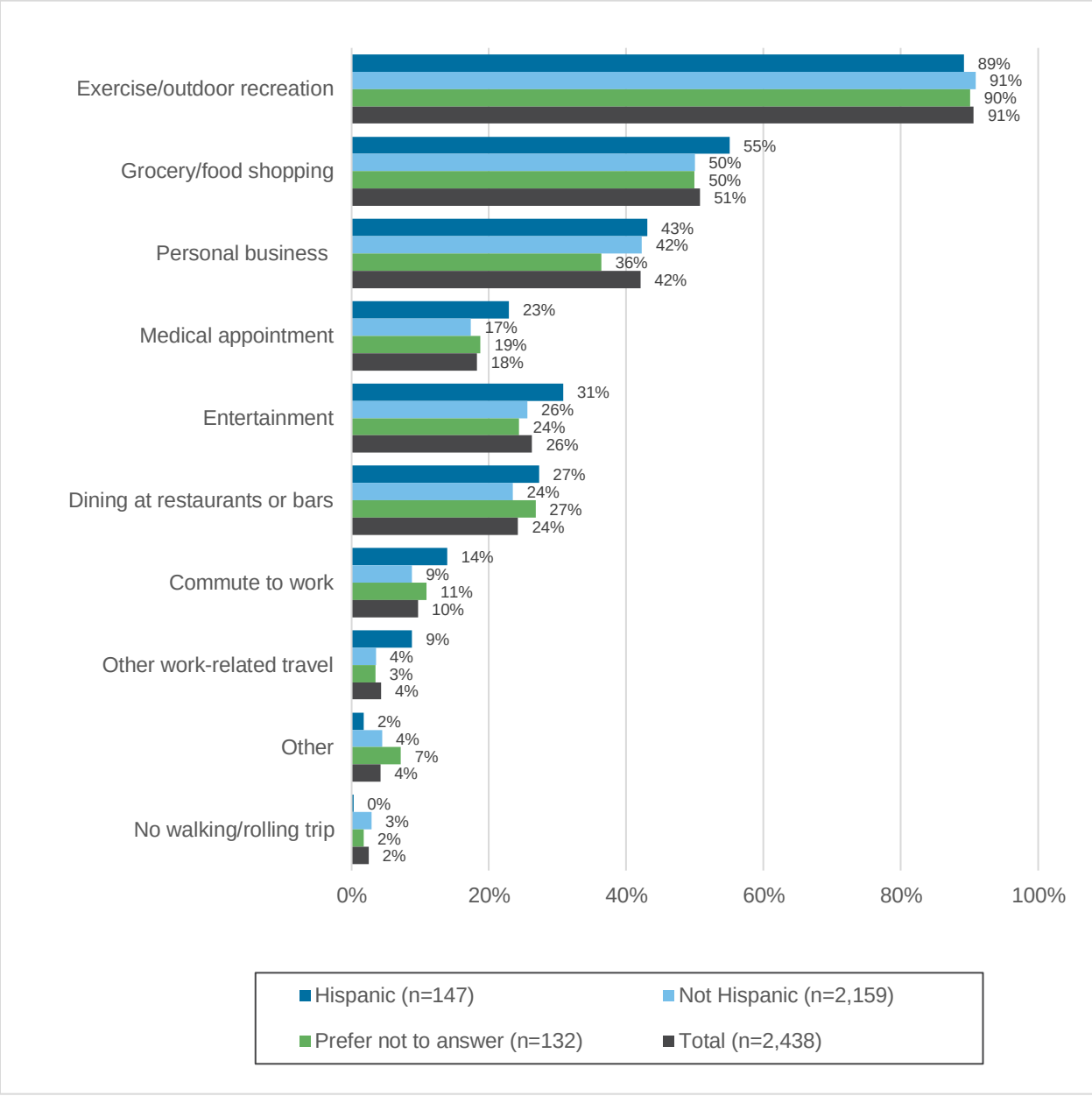



Figure 4 show the distribution of walk or trip purpose by household income. A smaller percentage of respondents who reported a household income of less than $50,000 take exercise or outdoor recreation trips, trips for personal business and trips to go to restaurants or bars when compared to respondents who reported a household income of $50,000 or more. However, a larger percentage of respondent who reported a household income of less than

$50,000 take walking or rolling trips for grocery or food shopping, to medical appointments, and for entertainment and for work-related travel.

**FIGURE 4: WALK PURPOSE BY HOUSEHOLD INCOME**

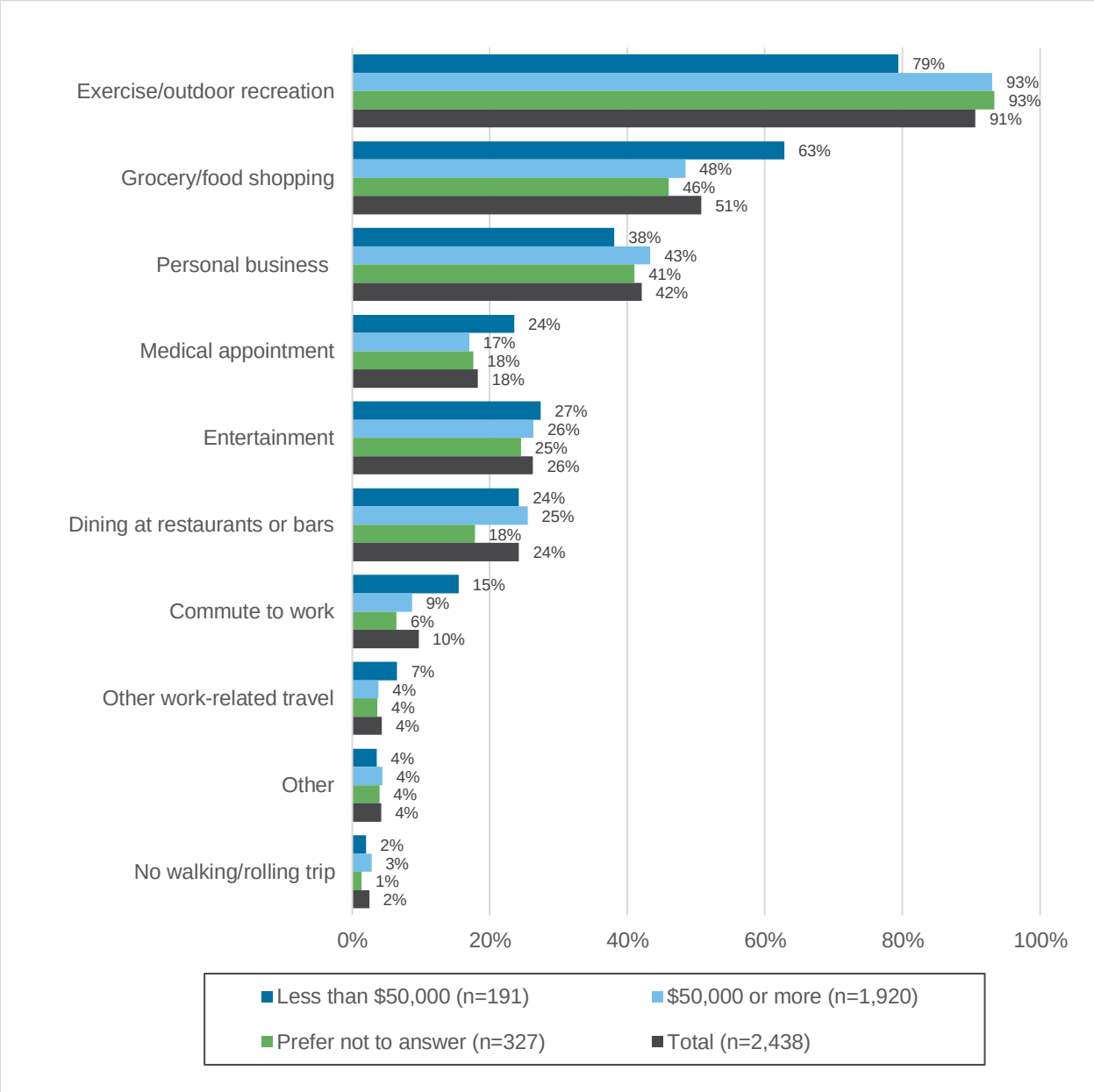
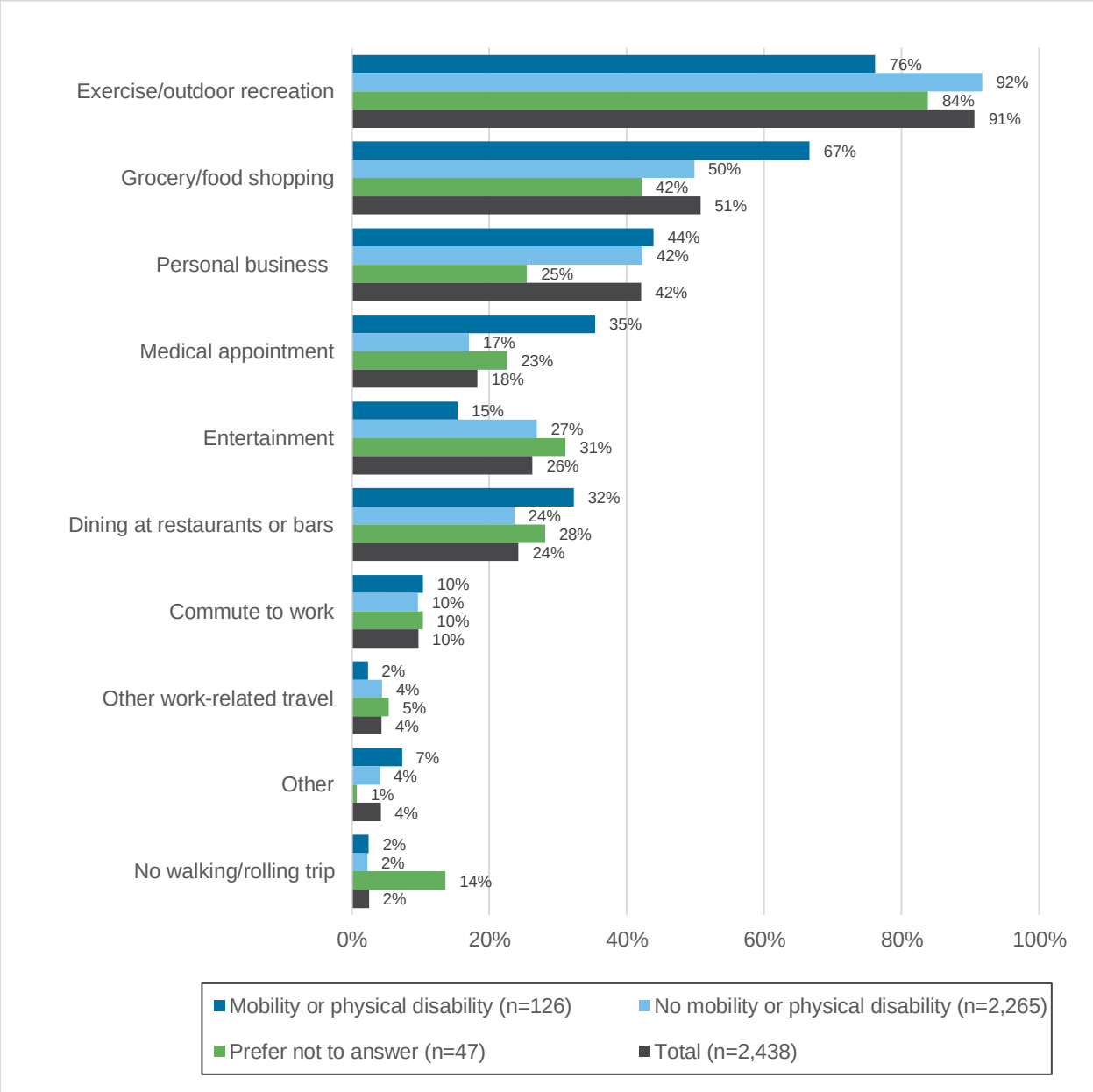



Figure 5 shows walk or roll purpose by disability. A higher percentage of respondents who reported having a disability take walk or roll trips for necessities such as food shopping, personal business, and medical appointments when compared to respondents who reported not having a disability.

**FIGURE 5: WALK PURPOSE BY DISABILITY**




The frequency of trips by trip purpose is shown in Figure 6. Exercise or outdoor recreation followed by commute to work are two most frequently walking or rolling trip types made in Montgomery County.

**FIGURE 6: FREQUENCY OF TRIPS IN THE PAST MONTH**

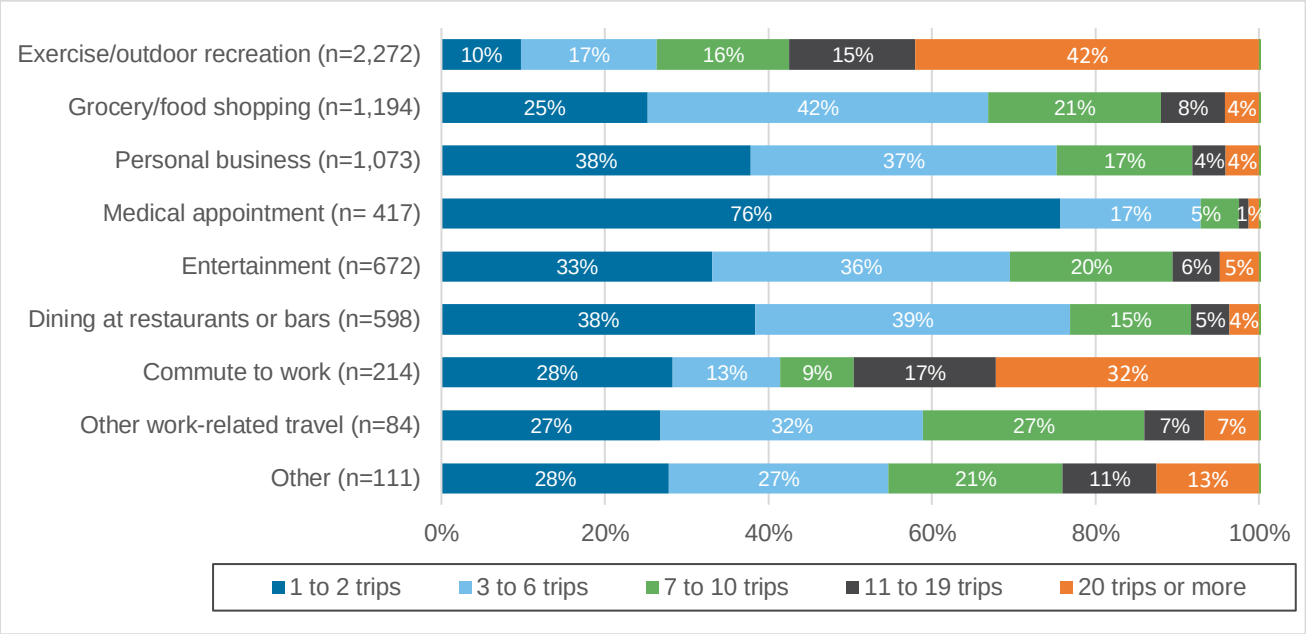



Figure 7 shows the distribution of the frequency of walking or rolling trips for respondents in the urban geography. Over half of respondents who reported a commute to work walking trip in the urban geography made 11 or more trips to commute to work in the past month.

**FIGURE 7: URBAN GEOGRAPHY FREQUENCY OF TRIPS IN THE PAST MONTH**

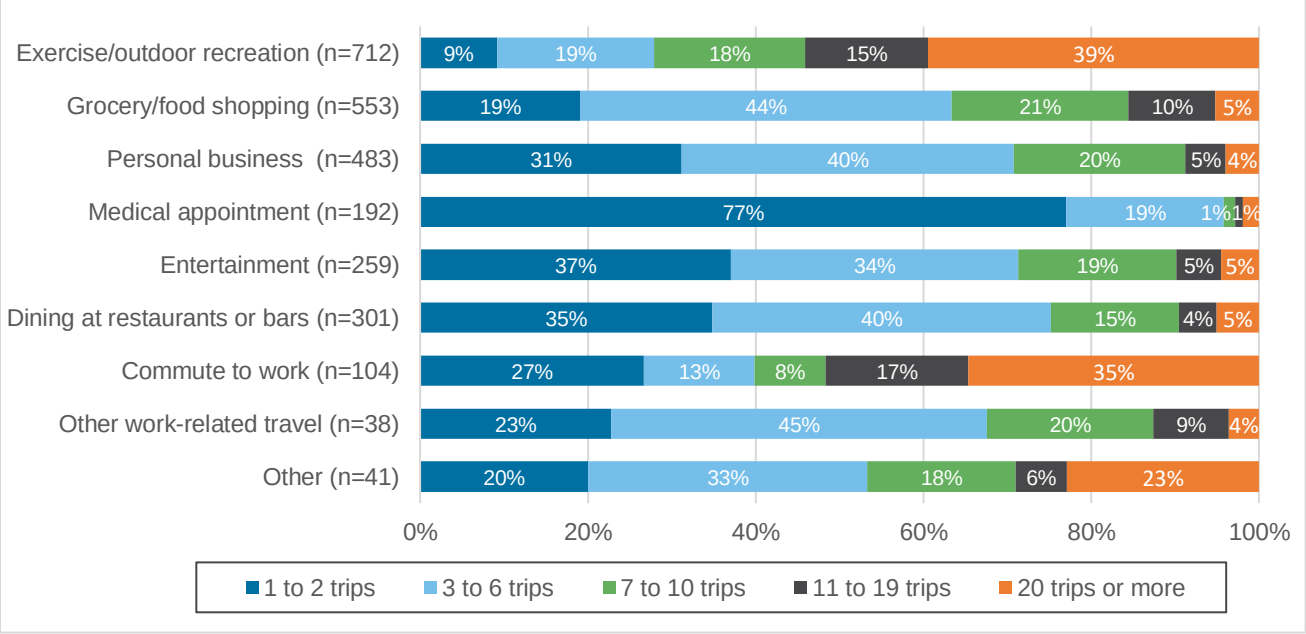


Figure 8 illustrates the frequency of trips for respondents in the transit corridor geography. Similar to urban respondents, over half of respondents who reported a walk trip for exercise or outdoor recreation in the transit corridor geography made 11 or more trips for exercise or recreation in the past month.

**FIGURE 8: TRANSIT CORRIDOR GEOGRAPHY FREQUENCY OF TRIPS IN THE PAST MONTH**

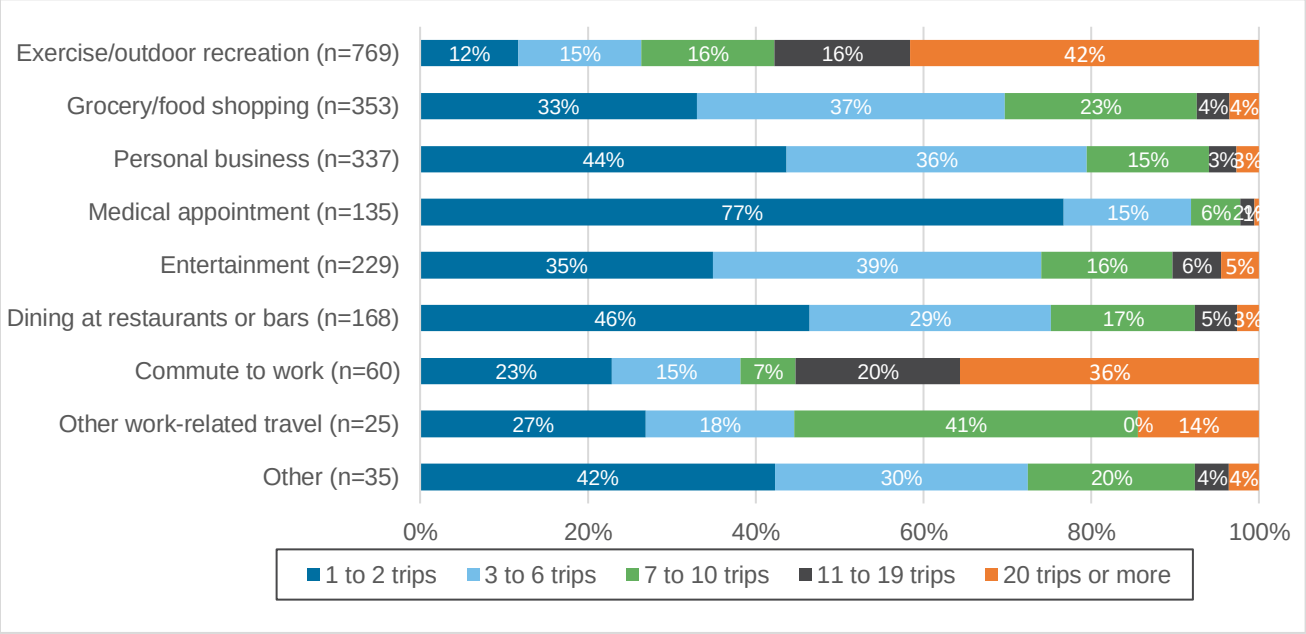



Figure 9 shows the frequency of trips for respondents in the exurban or rural geography. Sixty percent of respondents who reported a walk trip for exercise or outdoor recreation in the exurban or rural geography made 11 or more trips for exercise or recreation; however, unlike in the urban and transit corridor geography only 37% of respondents who reported a work commute trip made a walking or rolling trip to commute to work in the past month.

**FIGURE 9: RURAL/EXURBAN GEOGRAPHY FREQUENCY OF TRIPS IN THE PAST MONTH**

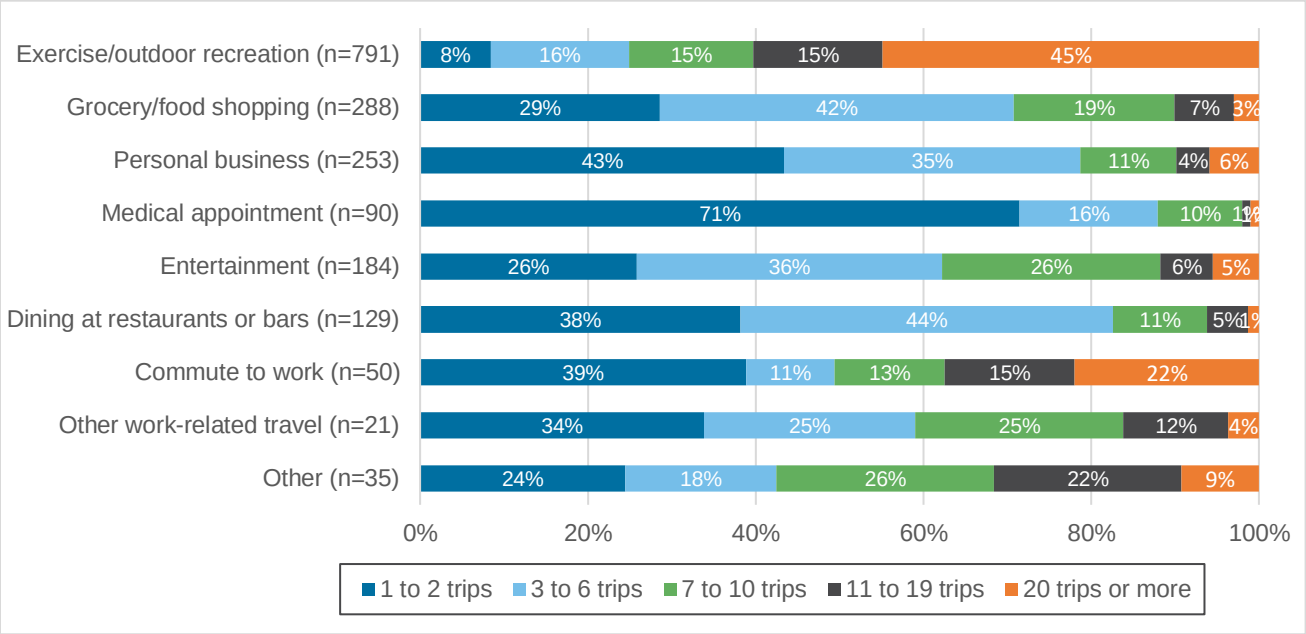



Figure 10 shows the length of time walking or rolling trips for each trip purpose. Respondents take longer exercise or outdoor recreation walking or rolling trips than for other trip purposes, as 86% of exercise or outdoor recreation trips are longer than 20 minutes.

**FIGURE 10: DURATION OF WALKING TRIPS**

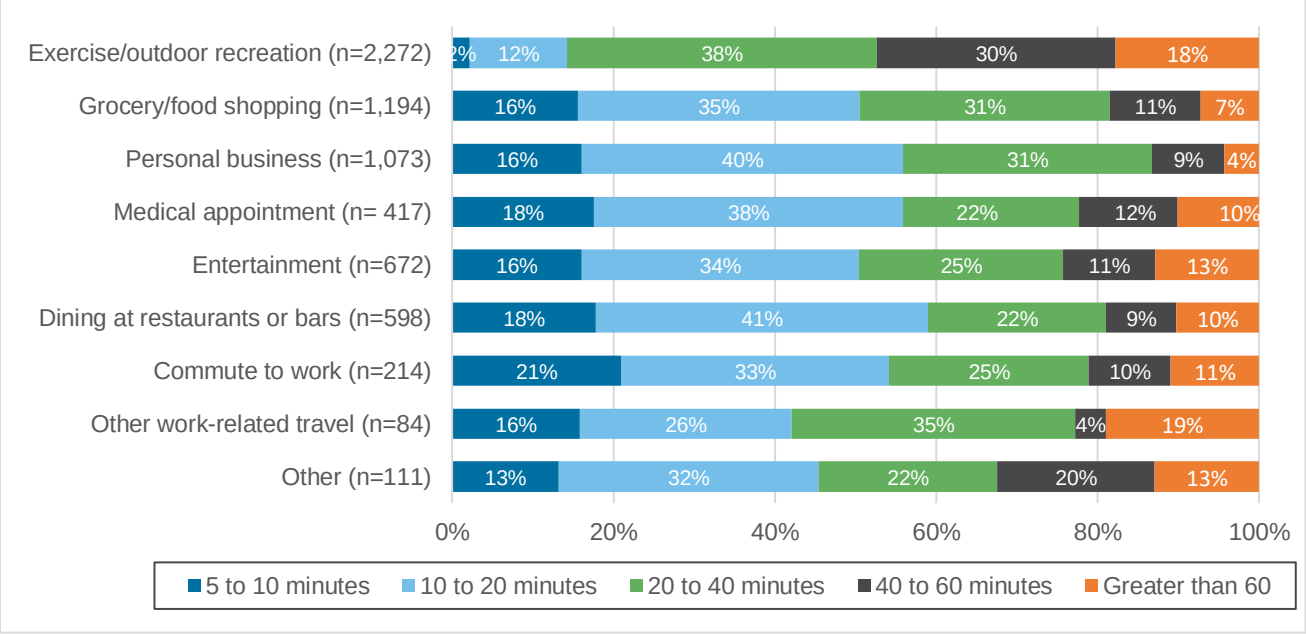


Figure 11 illustrates the typical length of trips by purpose for respondents in the urban geography. The majority of trips, except for those made for exercise/outdoor recreation, are less than 20 minutes long.

**FIGURE 11: URBAN GEOGRAPHY DURATION OF WALKING TRIPS**

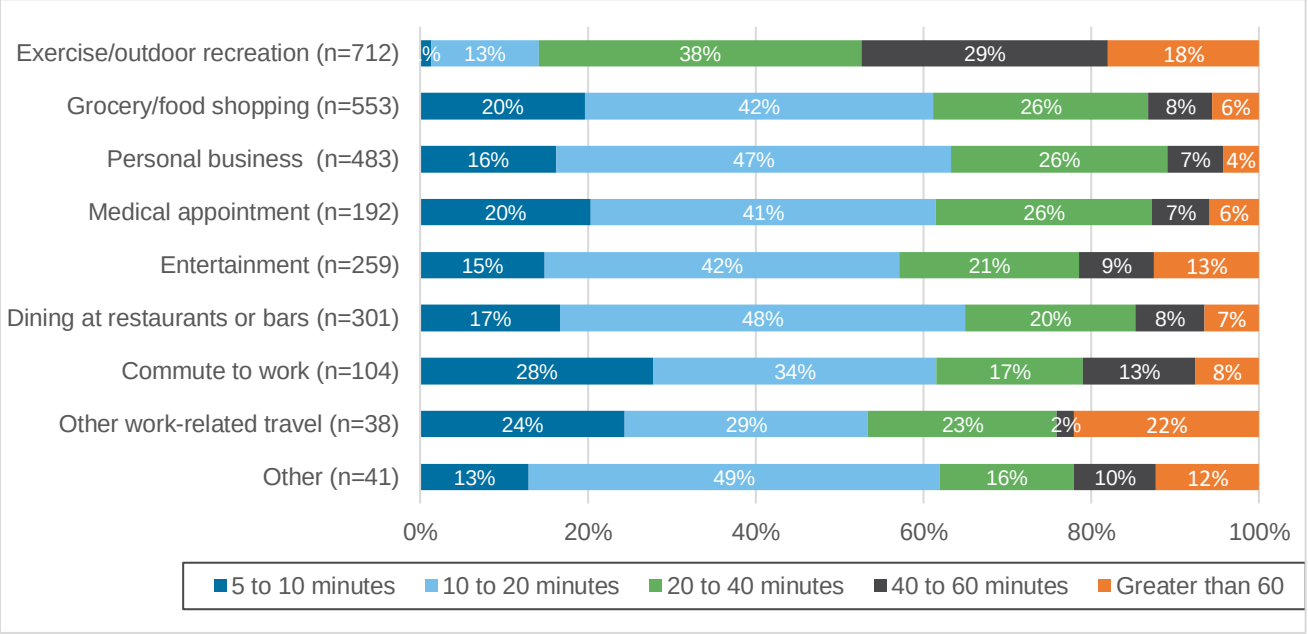



Figure 12 shows the length of trips for respondents in the transit corridor geography. Respondents in the transit corridor geography take longer trips than respondents in the urban geography, the majority of trips for respondents in the transit corridor geography take 40 minutes or less.

**FIGURE 12: TRANSIT CORRIDOR GEOGRAPHY DURATION OF WALKING TRIPS**

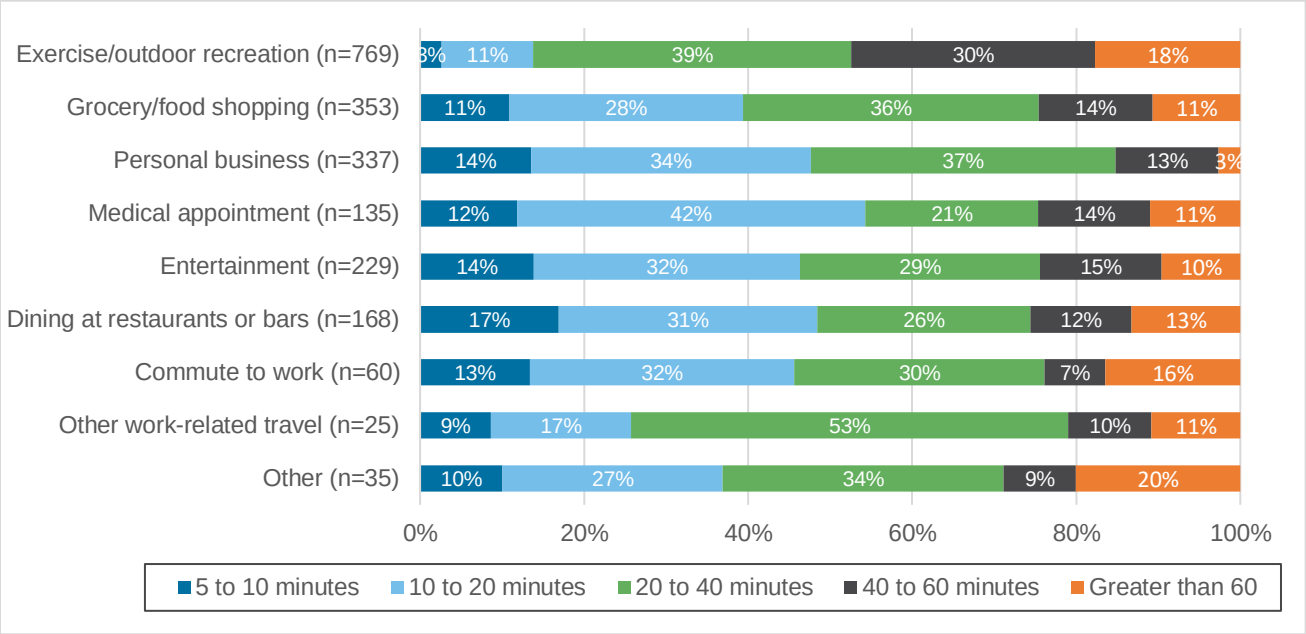



Figure 13 illustrates the length of trips for respondents in the exurban or rural geography. Similar to the transit geography, respondents who live in exurban or rural geography take longer trips than respondents in the urban geography, as the majority of one-way trips for respondents in the exurban or rural geography take 40 minutes or less.

**FIGURE 13: EXURBAN/RURAL GEOGRAPHY LENGTH OF WALKING TRIPS**

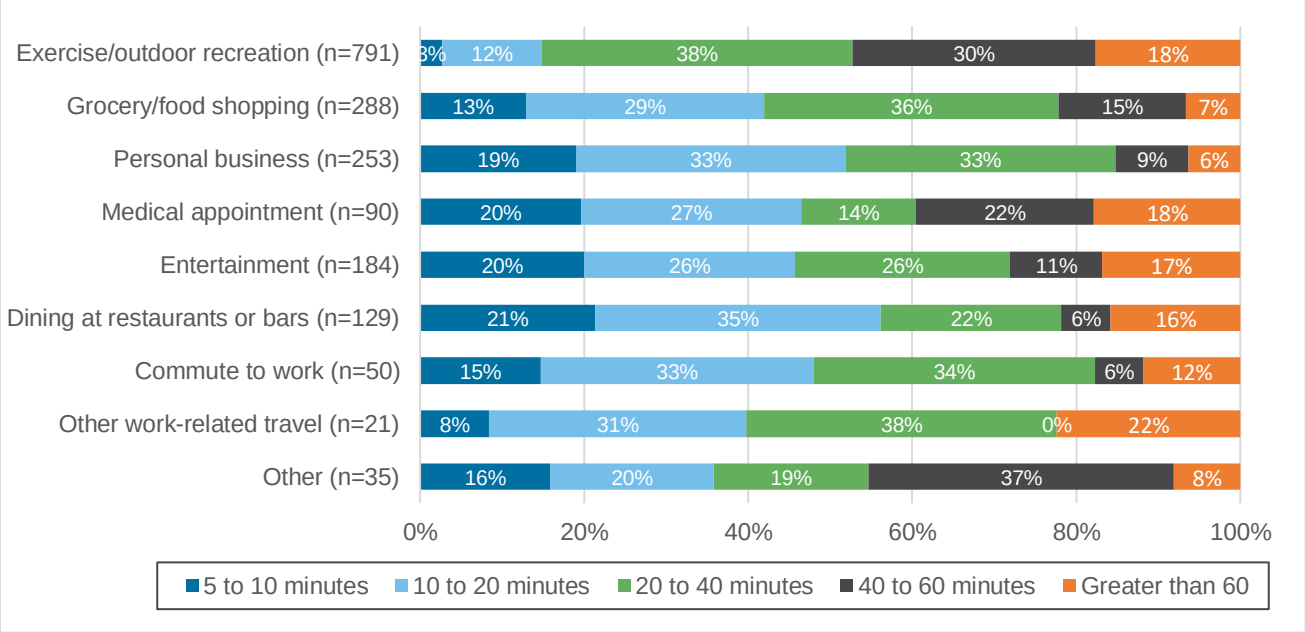


Table 1 shows walk/roll time of day by trip purpose. The majority of trips for grocery or food shopping, personal business, and medical appointments are made on weekdays from 9am to 3pm. Work commute and other work-related trips are mostly made on weekdays between 6am and 7pm. Social trips for entertainment or to go to restaurants or bars are mostly on weekday evenings between 3pm and 7pm or on the weekends.

**TABLE 1: WALK TIME OF DAY**

| | Exercise/ recreation | Grocery/ food shopping | Personal business | Medical appt | Entertainment (visit friends or relatives) | Restaurants or bars | Commute to work | Other work-related reasons | Other purpose |
|---|---|---|---|---|---|---|---|---|---|
| **Weekdays 6am to 9am** | 28% | 8% | 5% | 10% | 4% | 2% | 68% | 17% | 23% |
| **Weekdays 9am to 3pm** | 44% | 49% | 64% | 83% | 26% | 20% | 38% | 59% | 46% |
| **Weekdays 3pm to 7pm** | 58% | 46% | 43% | 18% | 58% | 57% | 52% | 39% | 51% |
| **Weekdays 7pm to 10pm** | 19% | 15% | 8% | 3% | 31% | 42% | 12% | 13% | 15% |
| **Weekdays 10pm to 6am** | 3% | 1% | 1% | 1% | 5% | 4% | 4% | 2% | 3% |
| **Weekends 6am to 7pm** | 67% | 48% | 37% | 8% | 51% | 42% | 17% | 24% | 41% |
| **Weekends 7pm to 6am** | 13% | 7% | 2% | 1% | 20% | 30% | 3% | 1% | 12% |
| **Total Cases** | **2,272** | **1,194** | **1,073** | **417** | **672** | **598** | **214** | **84** | **111** |

Table 2 shows walk/roll time of day by trip purpose for the urban geography. Walk time of day for the urban geography is very similar to the overall sample, however a higher percentage of urban geography respondents take trips for

entertainment or to go to restaurants or bars on the weekends especially between 7pm and 6am, when compared to the other geographies.

**TABLE 2: URBAN GEOGRAPHY WALK TIME OF DAY**

| | Exercise/ recreation | Grocery/ food shopping | Personal business | Medical appt | Entertainment (visit friends or relatives) | Restaurants or bars | Commute to work | Other work-related reasons | Other purpose |
|---|---|---|---|---|---|---|---|---|---|
| **Weekdays 6am to 9am** | 28% | 9% | 7% | 12% | 3% | 0% | 68% | 15% | 31% |
| **Weekdays 9am to 3pm** | 39% | 46% | 60% | 81% | 21% | 20% | 35% | 56% | 44% |
| **Weekdays 3pm to 7pm** | 60% | 52% | 48% | 21% | 57% | 56% | 56% | 35% | 54% |
| **Weekdays 7pm to 10pm** | 22% | 19% | 10% | 3% | 34% | 44% | 19% | 16% | 15% |
| **Weekdays 10pm to 6am** | 3% | 2% | 1% | 1% | 9% | 4% | 3% | 5% | 4% |
| **Weekends 6am to 7pm** | 67% | 51% | 39% | 7% | 51% | 44% | 11% | 25% | 44% |
| **Weekends 7pm to 6am** | 13% | 10% | 3% | 1% | 26% | 33% | 4% | 3% | 12% |
| **Total Cases** | **712** | **553** | **483** | **192** | **259** | **301** | **104** | **38** | **41** |

Table 3 shows walk/roll time of day by trip purpose for the transit corridor geography. Respondents in the transit corridor geography have the highest percentage (35%) of trips made for other work-related reasons on the weekend between 6am and 7pm.

**TABLE 3: TRANSIT CORRIDOR GEOGRAPHY WALK TIME OF DAY**

| | Exercise/ recreation | Grocery/ food shopping | Personal business | Medical appt | Entertainment (visit friends or relatives) | Restaurants or bars | Commute to work | Other work-related reasons | Other purpose |
|---|---|---|---|---|---|---|---|---|---|
| **Weekdays 6am to 9am** | 28% | 7% | 2% | 11% | 2% | 2% | 73% | 24% | 6% |
| **Weekdays 9am to 3pm** | 44% | 50% | 70% | 82% | 31% | 19% | 47% | 67% | 60% |
| **Weekdays 3pm to 7pm** | 57% | 40% | 37% | 14% | 59% | 53% | 59% | 53% | 48% |
| **Weekdays 7pm to 10pm** | 18% | 11% | 6% | 0% | 32% | 33% | 8% | 4% | 9% |
| **Weekdays 10pm to 6am** | 4% | 1% | 0% | 1% | 0% | 2% | 5% | 0% | 0% |
| **Weekends 6am to 7pm** | 64% | 46% | 38% | 12% | 46% | 40% | 21% | 35% | 34% |
| **Weekends 7pm to 6am** | 12% | 5% | 2% | 2% | 15% | 26% | 3% | 0% | 7% |
| **Total Cases** | **769** | **353** | **337** | **135** | **229** | **168** | **60** | **25** | **35** |

Table 4 shows walk/roll time of day by trip purpose for the exurban or rural geography. Respondents in the exurban or rural geography went to restaurants or bars and on trips for entertainment less on the weekends when compared to respondents in the urban geography and transit corridor geography.

**TABLE 4: EXURBAN OR RURAL GEOGRAPHY WALK TIME OF DAY**

| | Exercise/ recreation | Grocery/ food shopping | Personal business | Medical appt | Entertainment (visit friends or relatives) | Restaurants or bars | Commute to work | Other work-related reasons | Other purpose |
|---|---|---|---|---|---|---|---|---|---|
| **Weekdays 6am to 9am** | 28% | 9% | 5% | 4% | 8% | 8% | 61% | 13% | 29% |
| **Weekdays 9am to 3pm** | 49% | 52% | 64% | 90% | 28% | 19% | 36% | 58% | 37% |
| **Weekdays 3pm to 7pm** | 58% | 41% | 39% | 15% | 60% | 62% | 34% | 30% | 50% |
| **Weekdays 7pm to 10pm** | 18% | 10% | 6% | 6% | 27% | 45% | 4% | 18% | 21% |
| **Weekdays 10pm to 6am** | 2% | 1% | 1% | 0% | 4% | 7% | 2% | 0% | 4% |
| **Weekends 6am to 7pm** | 70% | 47% | 34% | 2% | 56% | 38% | 25% | 11% | 42% |
| **Weekends 7pm to 6am** | 13% | 3% | 2% | 0% | 15% | 26% | 2% | 0% | 16% |
| **Total Cases** | **791** | **288** | **253** | **90** | **184** | **129** | **50** | **21** | **35** |

Figure 14 illustrates walk or roll time of day and day of week by trip purpose. The majority of trips are made between 9am and 7pm on weekdays and 6am to 7pm on weekends. This chart visually conveys some of the intuitive results detailed above regarding differing timing of work trips, errands, and more social trips.

**FIGURE 14: WALK TIME OF DAY BY TRIP PURPOSE**

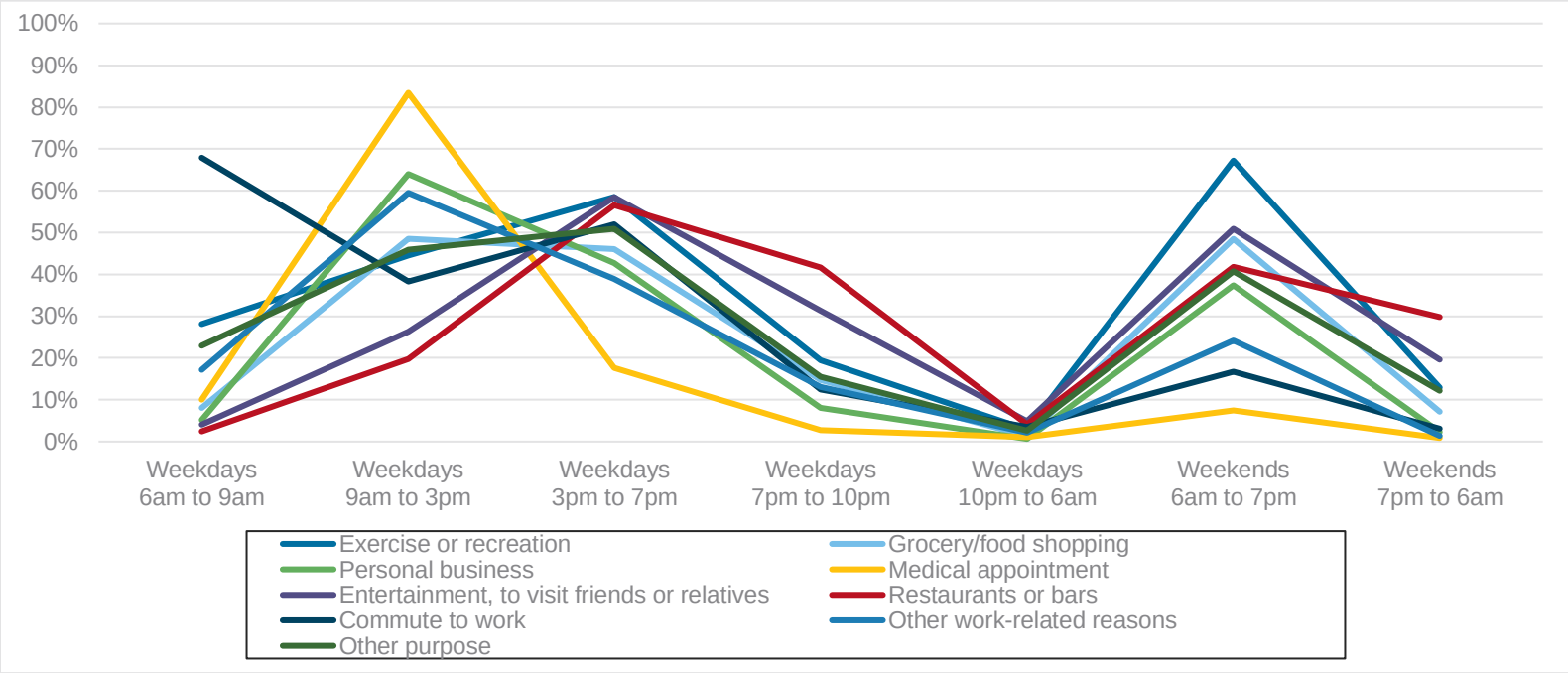
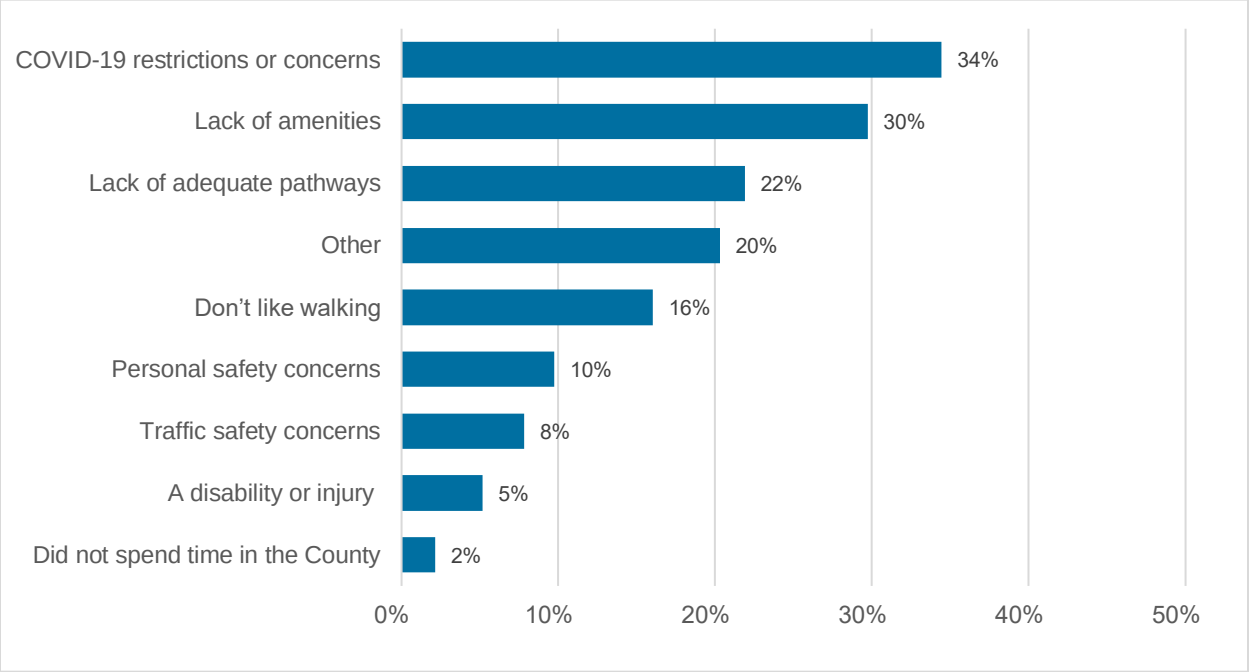


Figure 15 illustrates the reasons why 2% of all respondents did not make any walking or rolling trips in the past month. Thirty-four percent of respondents who did not take a walk trip within the past month cited COVID-19 restrictions and concerns and 30% of respondents cited a lack of amenities (such as shopping, school, park, etc.) within a comfortable walking distance.

**FIGURE 15: REASON FOR NO WALKING TRIPS**



## 1.2 PEDESTRIAN LAWS AND SAFETY

The next section of questions asked respondents about their knowledge of pedestrian laws, their perceptions of safety while walking or rolling, and their past experience with harassment or violence while walking or rolling. These charts are segmented by the three project geographies.

Figure 16 illustrates the percentage of respondents who correctly answered each true/false statement. The majority of respondents chose true for the statement “pedestrian must only cross the street in marked crosswalks;” however, the correct answer was false because pedestrians are allowed to cross the road at unmarked crosswalks. Similarly, about two-thirds of respondents incorrectly answered the statement “if there are two intersections in close proximity and one has a signal and the other doesn’t, pedestrians must cross the street at the intersection with a signal,” which is false because a pedestrian is allowed to cross the street at either intersection. There was limited difference in correct answers observed across geography.

**FIGURE 16: PEDESTRIAN LAWS CORRECTLY ANSWERED BY GEOGRAPHY**

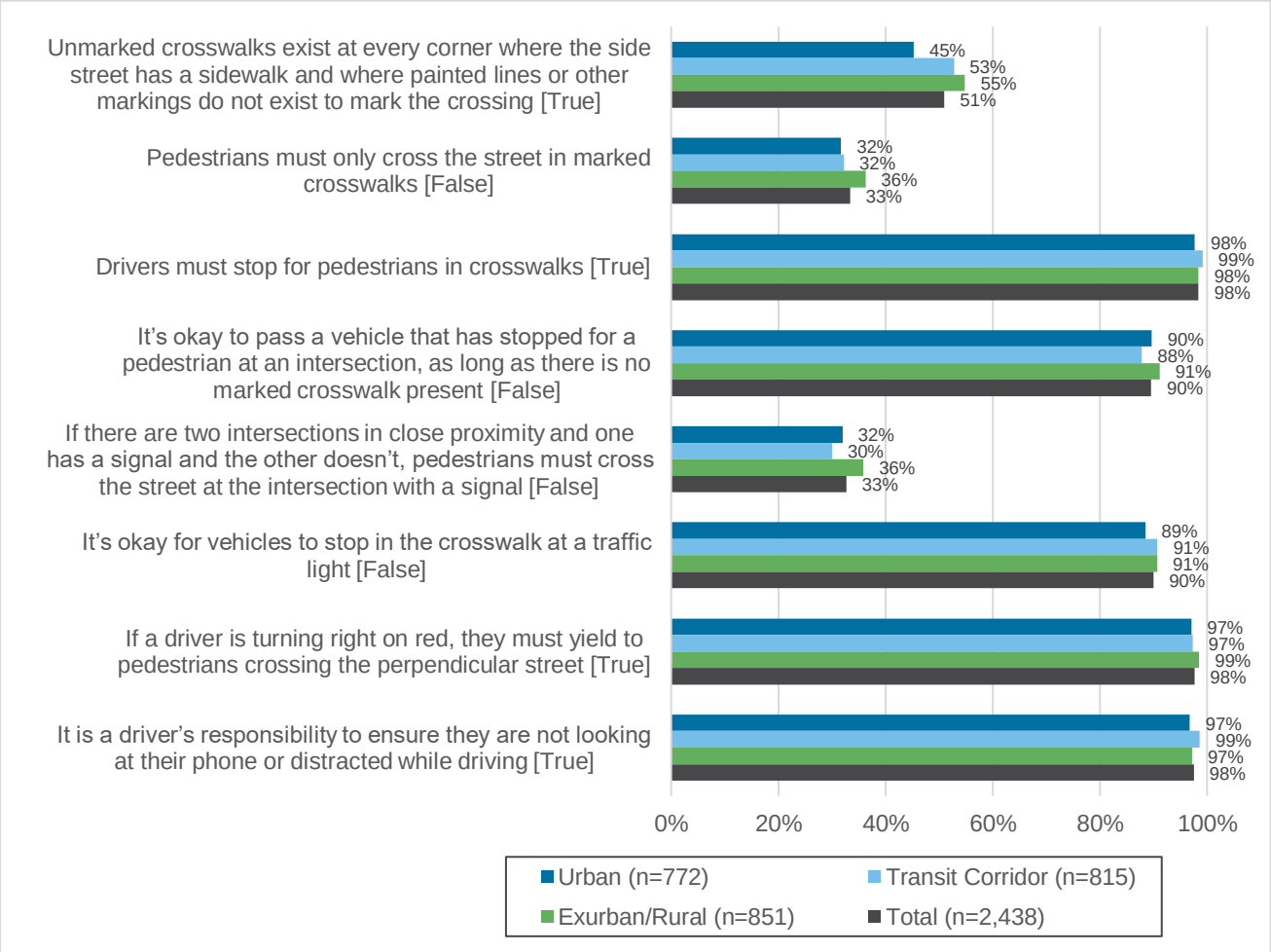


Figure 17 shows the percentage of respondents who correctly answered each true/false statement by race. White respondents were slightly more likely to answer correctly than other respondents on certain questions while on other questions there was little difference observed across race.

**FIGURE 17: PEDESTRIAN LAWS CORRECTLY ANSWERED BY RACE**

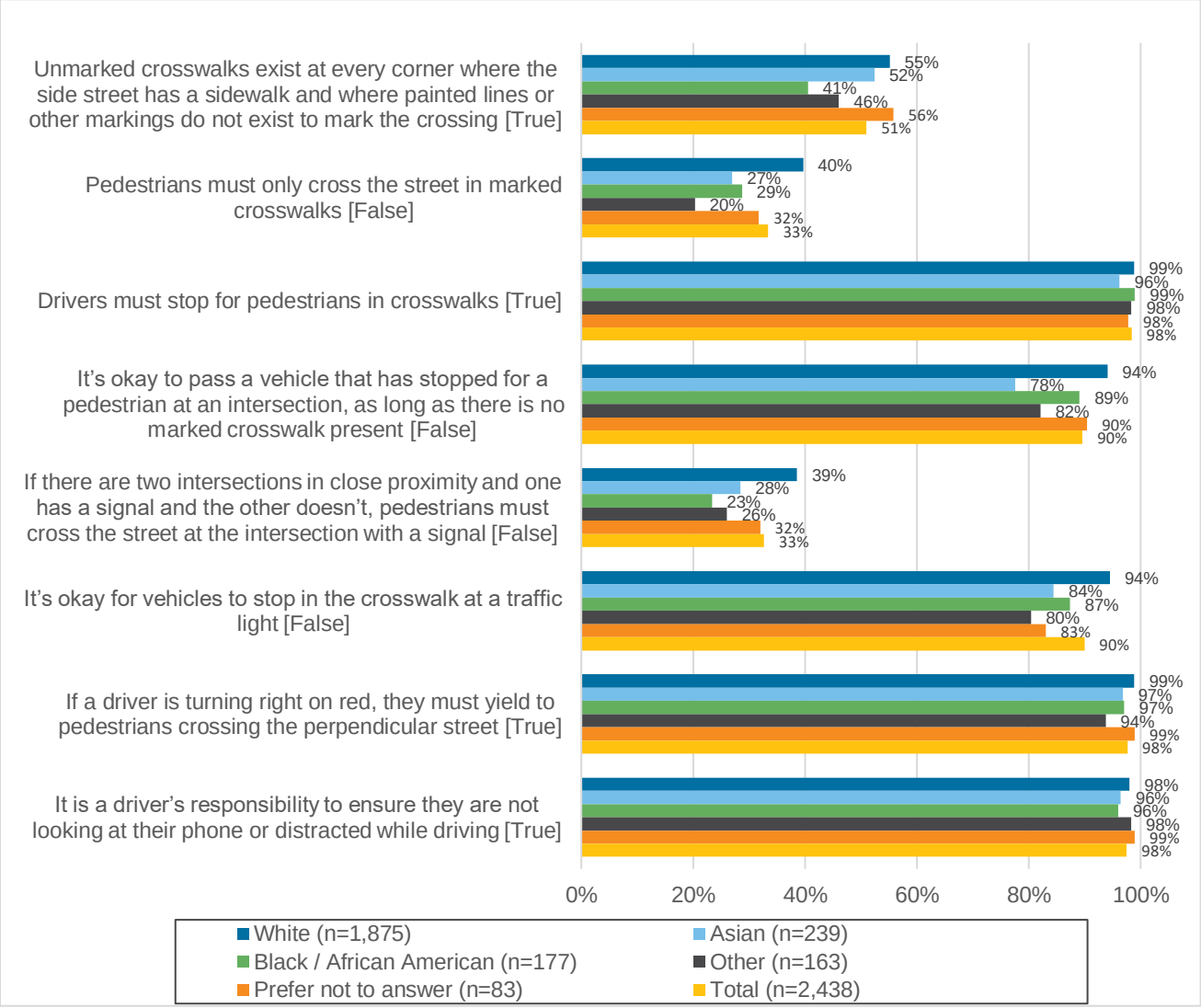
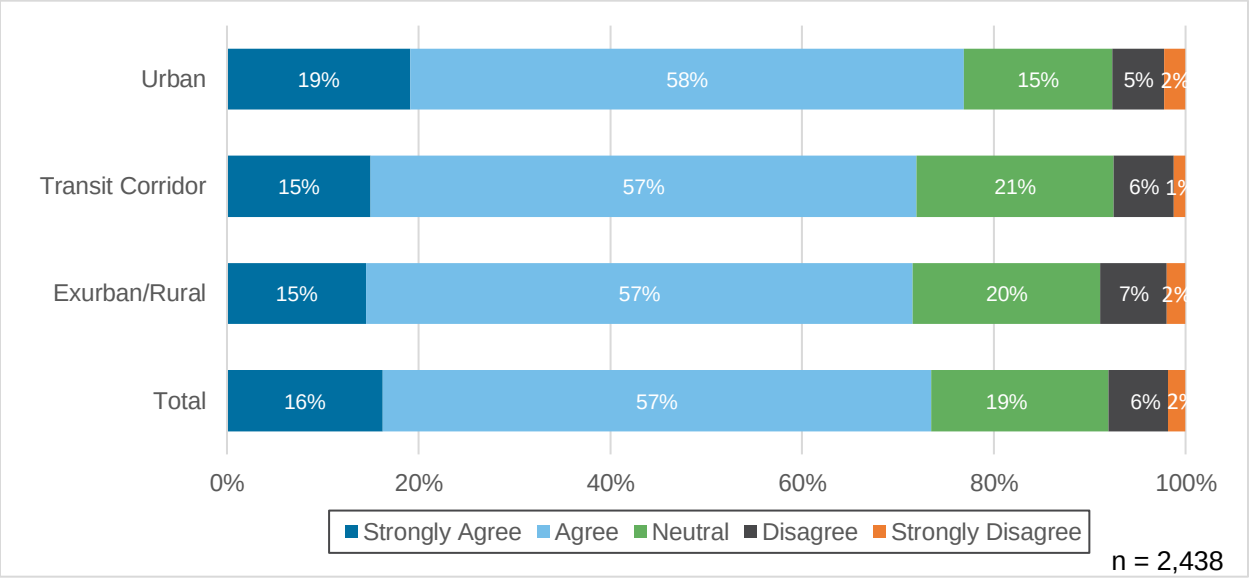



Figure 18 to Figure 26 illustrate respondent's agreement with statements about safety while walking or rolling in Montgomery County. As shown in Figure 18, 73% of respondents agree (or strongly agree) that they feel safe while walking or rolling in Montgomery County.

**FIGURE 18: I FEEL SAFE WHILE WALKING OR ROLLING IN PUBLIC SPACES BY GEOGRAPHY**




As shown in Figure 19, BIPOC respondents do not feel as safe as white respondents while walking or rolling in Montgomery County.

**FIGURE 19: I FEEL SAFE WHILE WALKING OR ROLLING IN PUBLIC SPACES BY RACE**

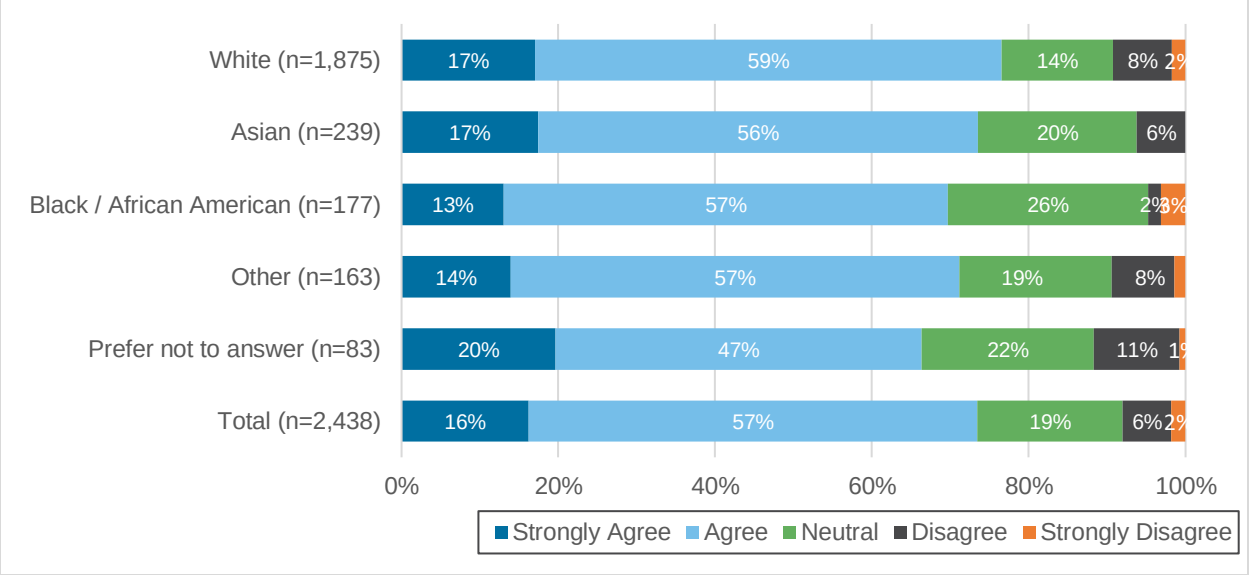



Figure 20 shows that only 66% of Hispanic respondents agree that they feel safe while walking or rolling in Montgomery County; whereas, 75% of non-Hispanic respondents reported feeling safe while walking or rolling in Montgomery County.

**FIGURE 20: I FEEL SAFE WHILE WALKING OR ROLLING IN PUBLIC SPACES BY HISPANIC, SPANISH, OR LATINO ORIGIN**

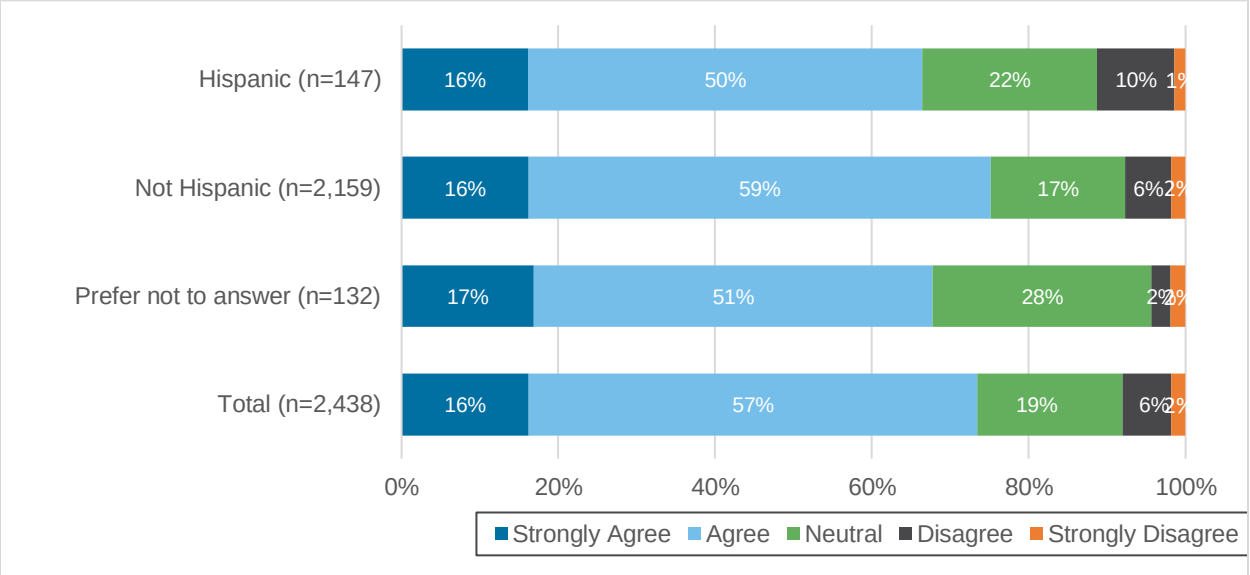
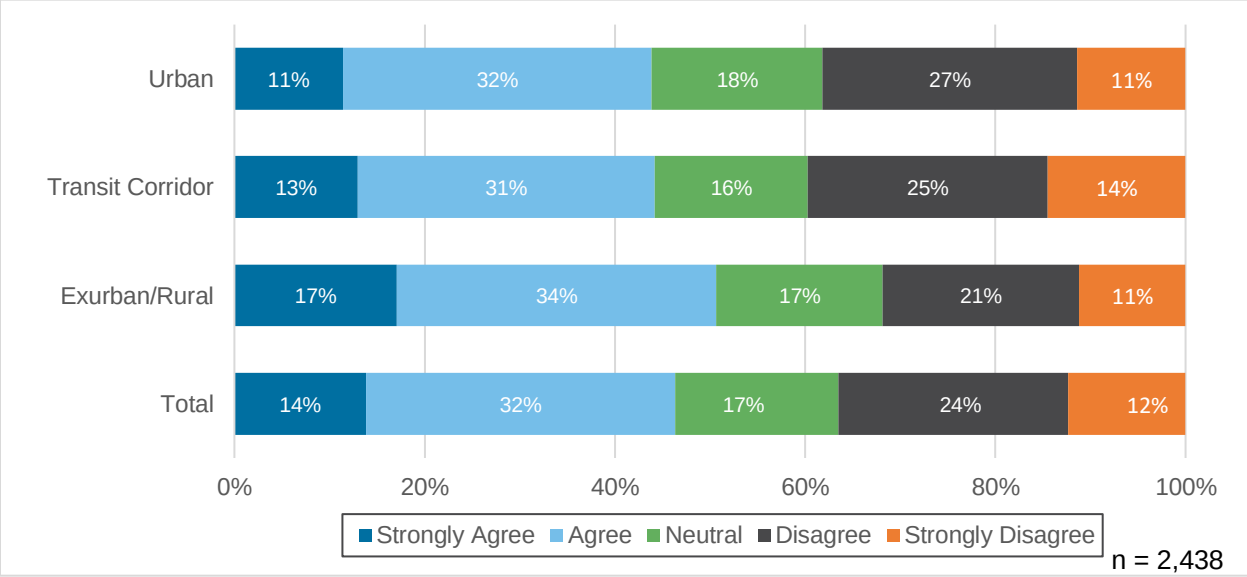



Figure 21 shows that approximately one third of respondents are concerned with the amount of crime in their neighborhood. A higher percentage of respondents reported being concerned about crime in the urban and transit corridor geographies.

**FIGURE 21: AMOUNT OF CRIME IN MY NEIGHBORHOOD IS NOT CONCERNING BY GEOGRAPHY**




As seen in Figure 22, only 37% of Black or African American respondents agree with the statement that the amount of crime in my neighborhood is not concerning.

**FIGURE 22: AMOUNT OF CRIME IN MY NEIGHBORHOOD IS NOT CONCERNING BY RACE**

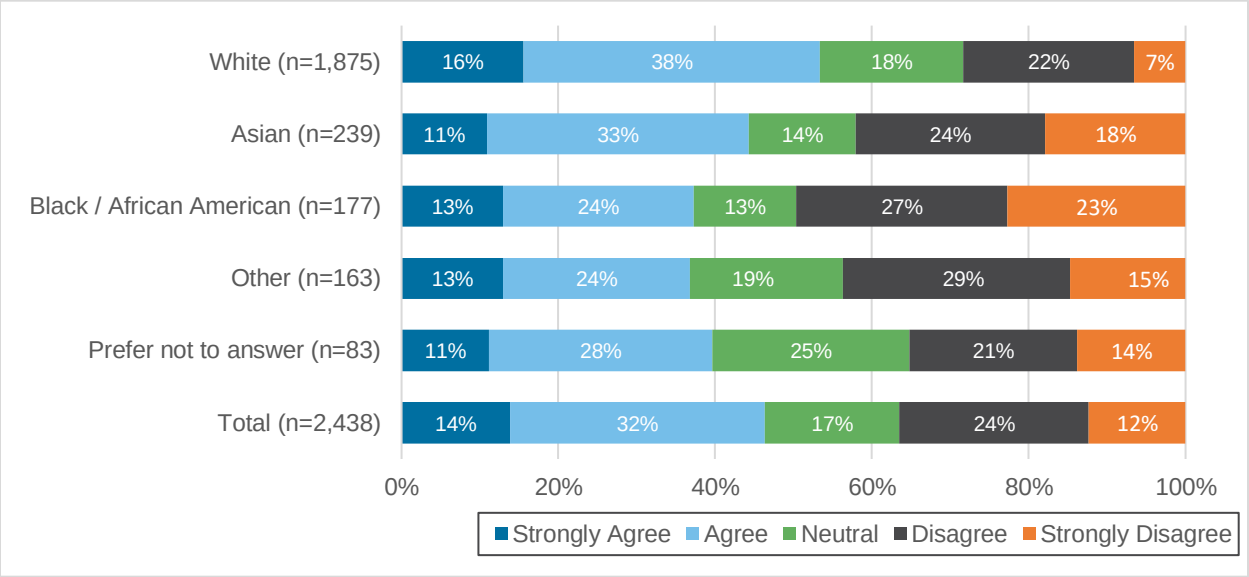



Figure 23 shows that respondents of Hispanic, Spanish or Latino origin are more concerned about the amount of crime in their neighborhood than non-Hispanic respondents.

**FIGURE 23: AMOUNT OF CRIME IN MY NEIGHBORHOOD IS NOT CONCERNING BY HISPANIC, SPANISH, OR LATINO ORIGIN**

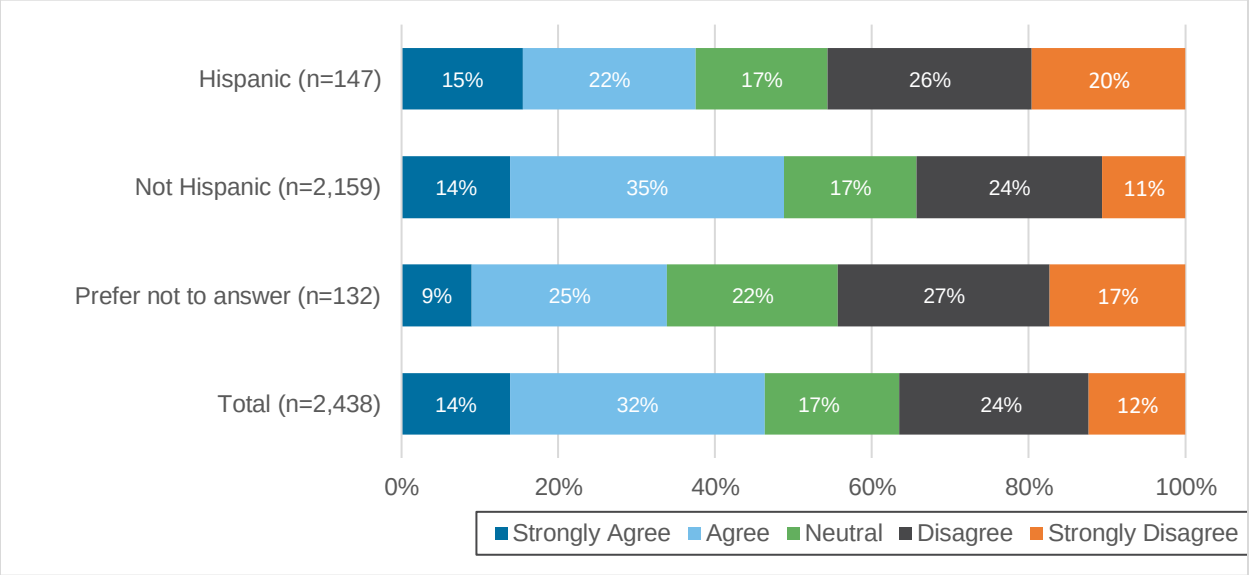



Figure 24 illustrates that 57% of respondents agree that they feel more comfortable when they see police in public spaces.

**FIGURE 24: I FEEL MORE COMFORTABLE WHEN I SEE POLICE IN PUBLIC SPACES BY GEOGRAPHY**

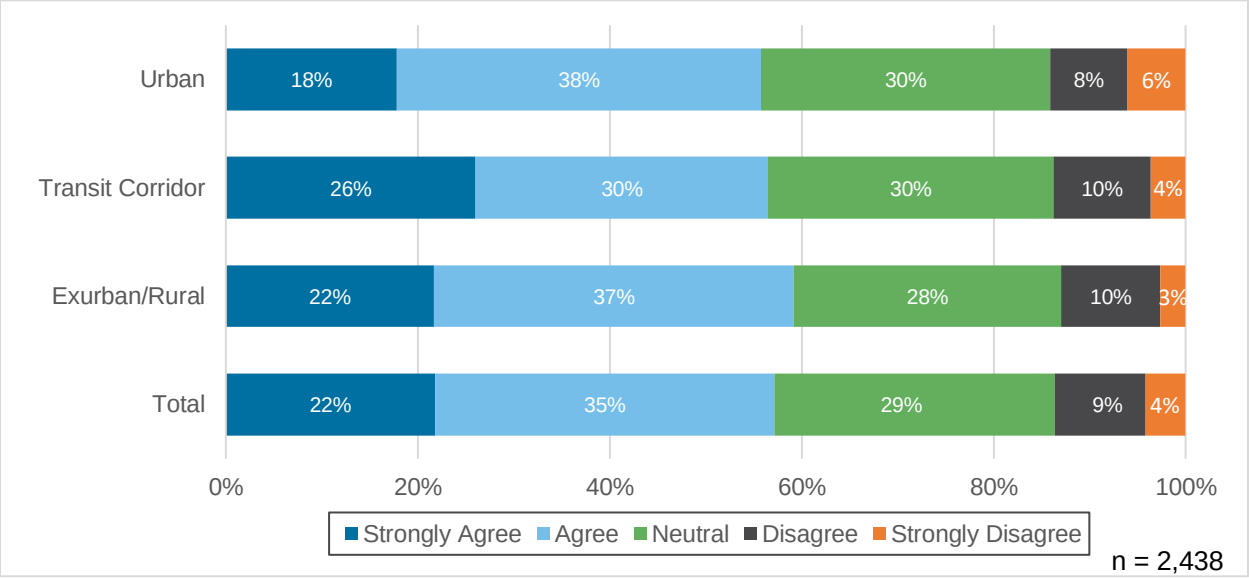
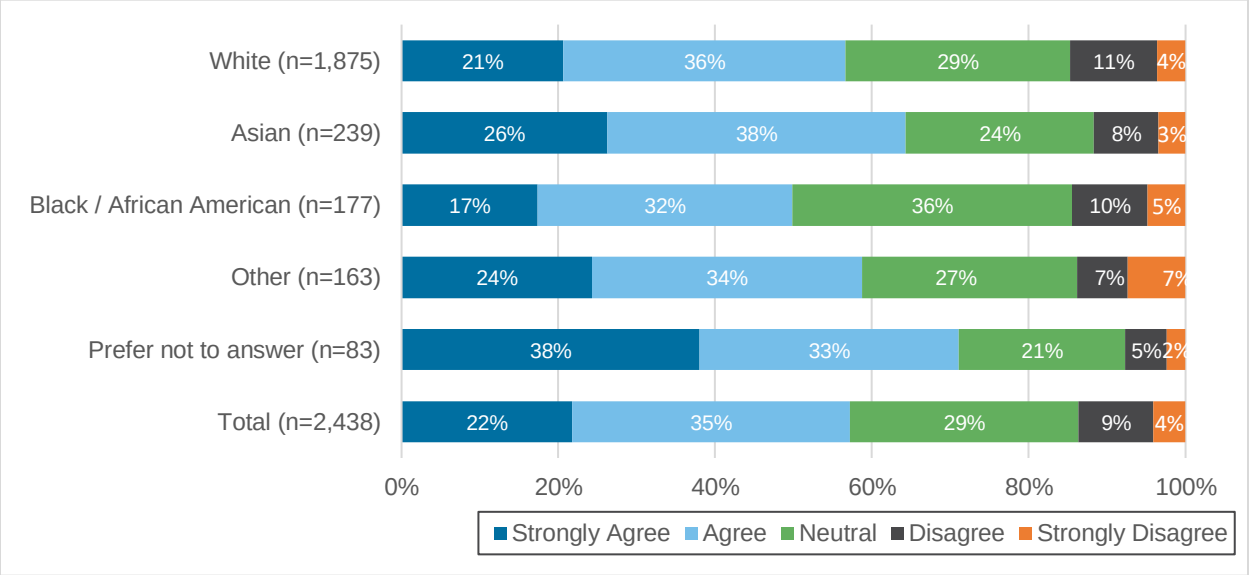



Figure 25 shows that the fewer Black or African American respondents indicate feeling comfortable seeing police in public spaces than white respondents do.

**FIGURE 25: I FEEL MORE COMFORTABLE WHEN I SEE POLICE IN PUBLIC SPACES BY RACE**




As shown in Figure 26, respondents of Hispanic, Spanish or Latino origin feel more comfortable when they see police in public spaces, compared to non-Hispanic, Spanish or Latino respondents.

**FIGURE 26: I FEEL MORE COMFORTABLE WHEN I SEE POLICE IN PUBLIC SPACES BY HISPANIC, SPANISH, OR LATINO ORIGIN**

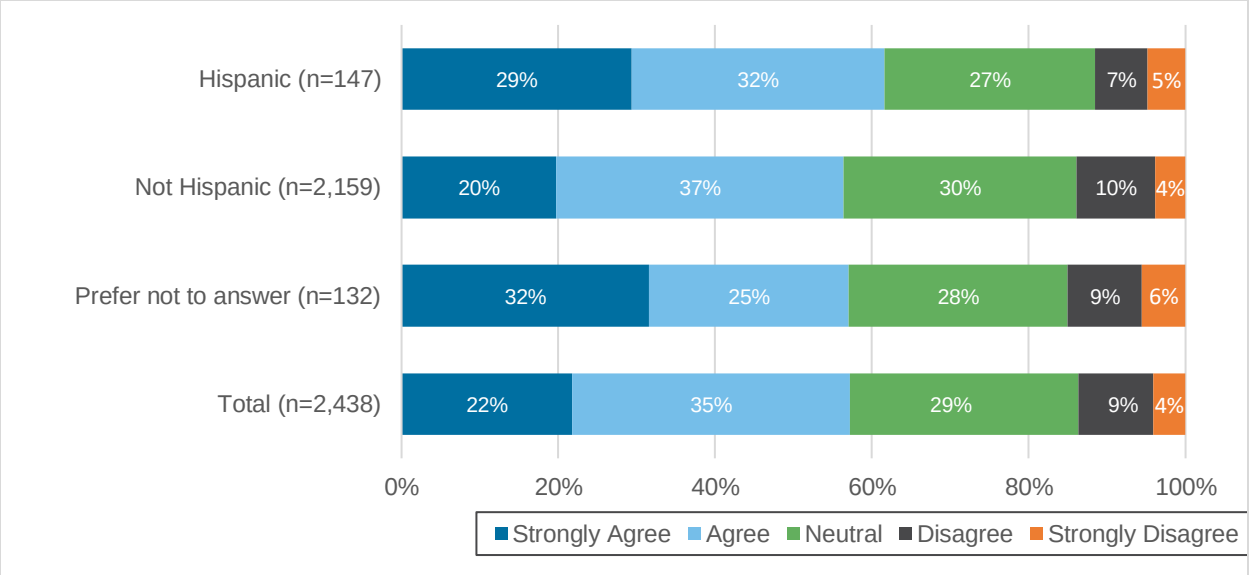



Figure 27 highlights that 74% of respondents have not seen or experienced violence while walking or rolling in Montgomery County. Respondents from the urban geography were more likely to report seeing or experiencing harassment or violence than respondents from the transit corridor geography and the exurban or rural geography. There were no significant findings in an analysis of harassment or violence by gender.

**FIGURE 27: HARASSMENT OR VIOLENCE WHILE WALKING BY GEOGRAPHY**

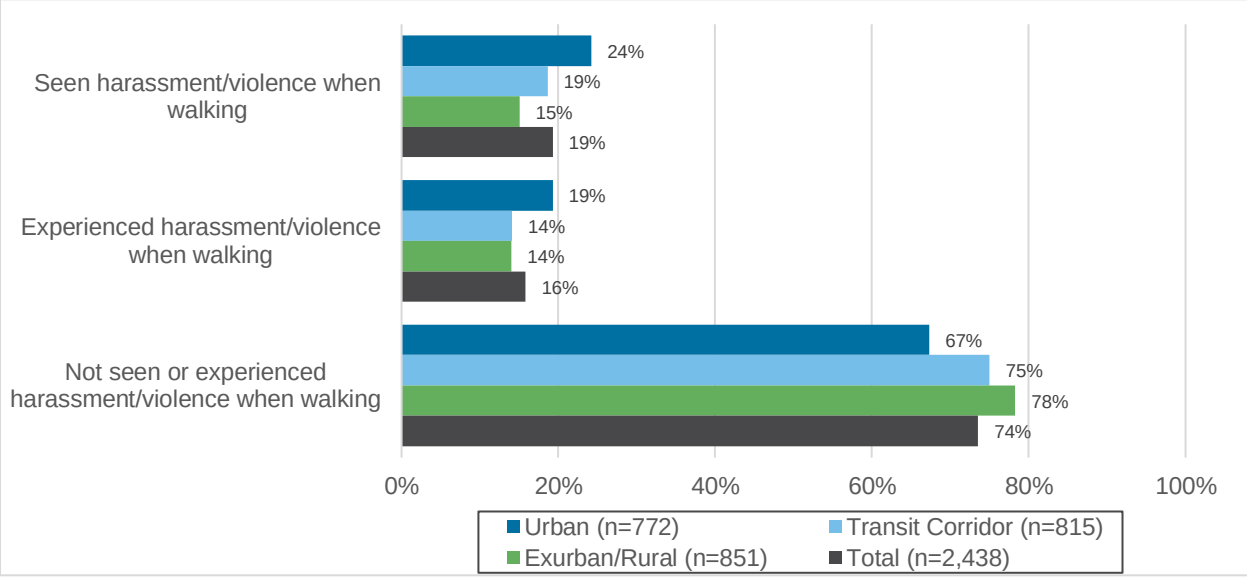
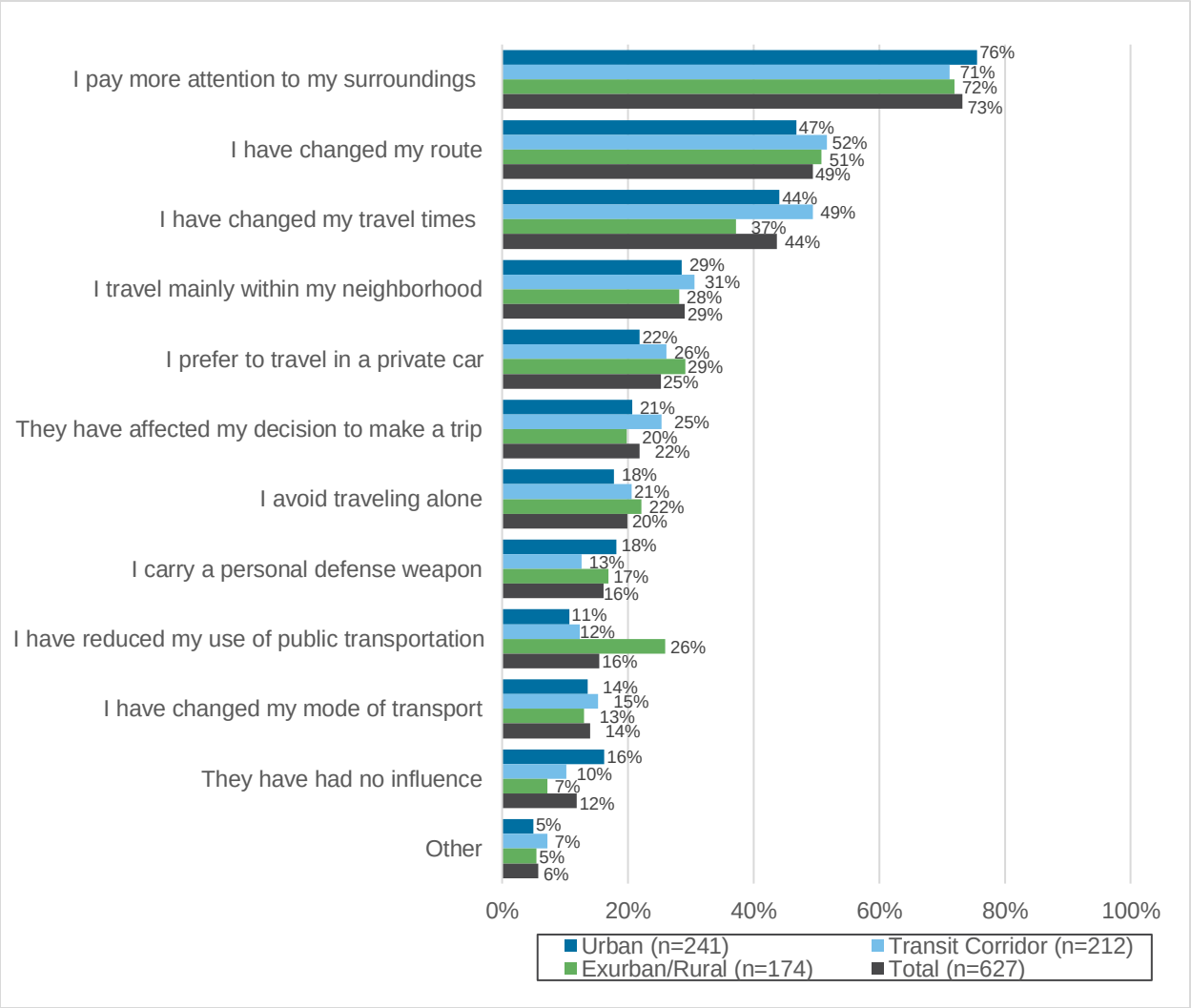


Figure 28 shows the influence on the 627 respondents who had seen or experienced harassment or violence while walking or rolling. The top three impacts reported by respondents were paying more attention to surroundings and other people, changing a route or avoiding certain streets, and changing their travel times or avoiding walking at night.

**FIGURE 28: INFLUENCE OF SEEING OR EXPERIENCING HARASSMENT OR VIOLENCE BY GEOGRAPHY**



## 1.3 SATISFACTION AND IMPORTANCE

The next section of the survey asked respondents about their satisfaction with and the importance of different elements of walking or rolling in Montgomery county. These charts are segmented by the three project geographies.

As shown in Figure 29, 52% of respondents are satisfied with their overall pedestrian experience in Montgomery County, with respondents in the urban geography being the most satisfied (60%) and the exurban or rural geography being the least satisfied (46%).

**FIGURE 29: SATISFACTION WITH OVERALL PEDESTRIAN EXPERIENCE BY GEOGRAPHY**

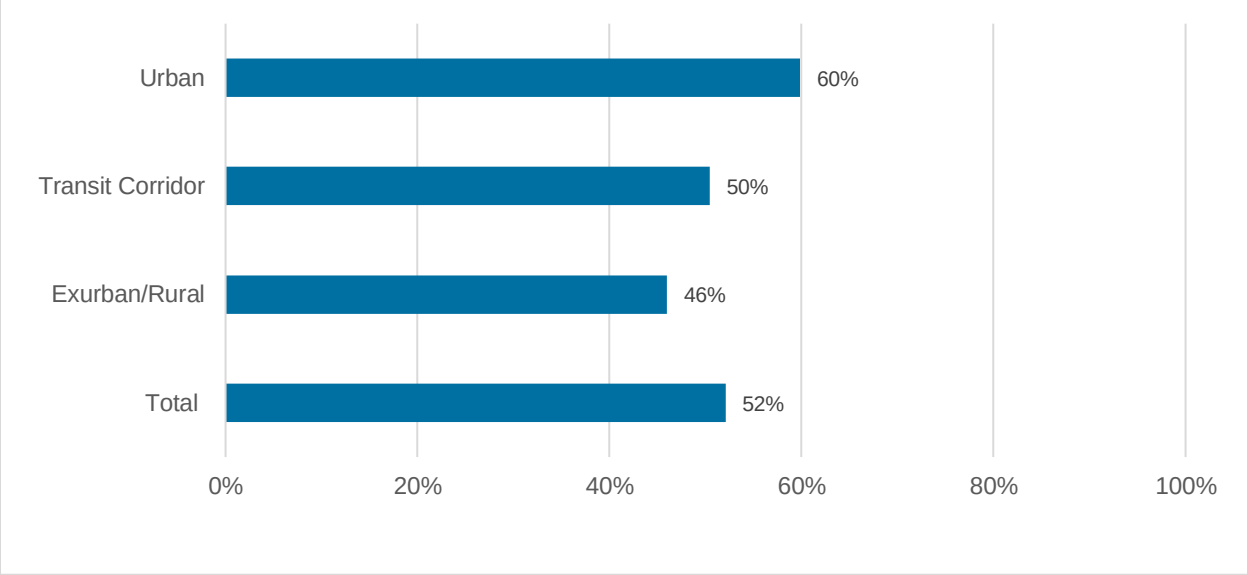



Figure 30 illustrates overall pedestrian satisfaction by race. Overall satisfaction is consistent between different races in Montgomery County.

**FIGURE 30: OVERALL SATISFACTION BY RACE**

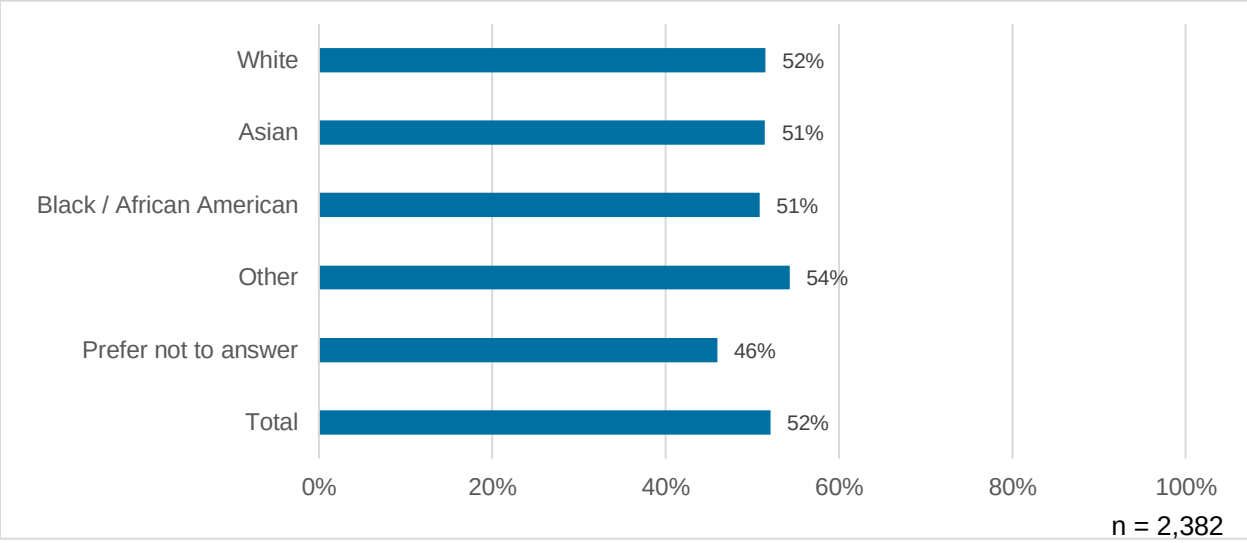



Figure 31 shows overall satisfaction with the pedestrian experience for Hispanic, Spanish or Latino respondents. Fifty-five percent of Hispanic, Spanish or Latino respondents are satisfied with the overall pedestrian experience.

**FIGURE 31:OVERALL SATISFACTION BY HISPANIC, SPANISH, OR LATINO ORIGIN**

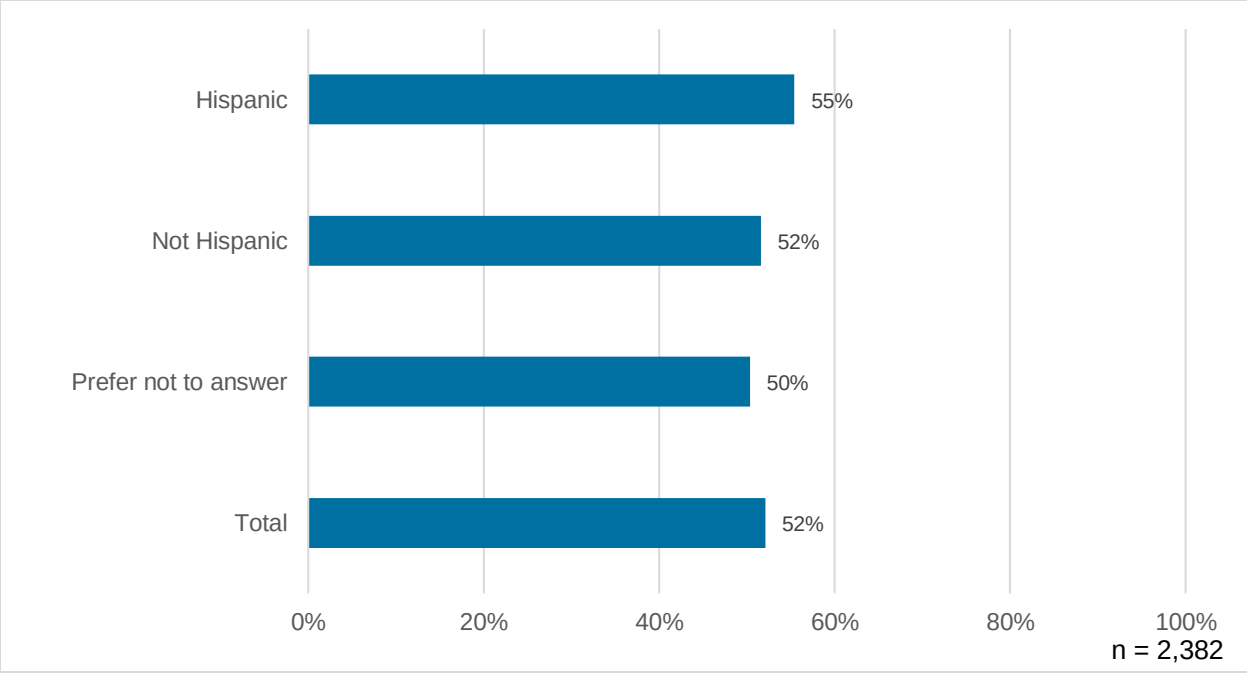


Figure 32 shows satisfaction for overall pedestrian experience by income. Overall pedestrian satisfaction varies little among different income groups.

**FIGURE 32: OVERALL SATISFACTION BY HOUSEHOLD INCOME**

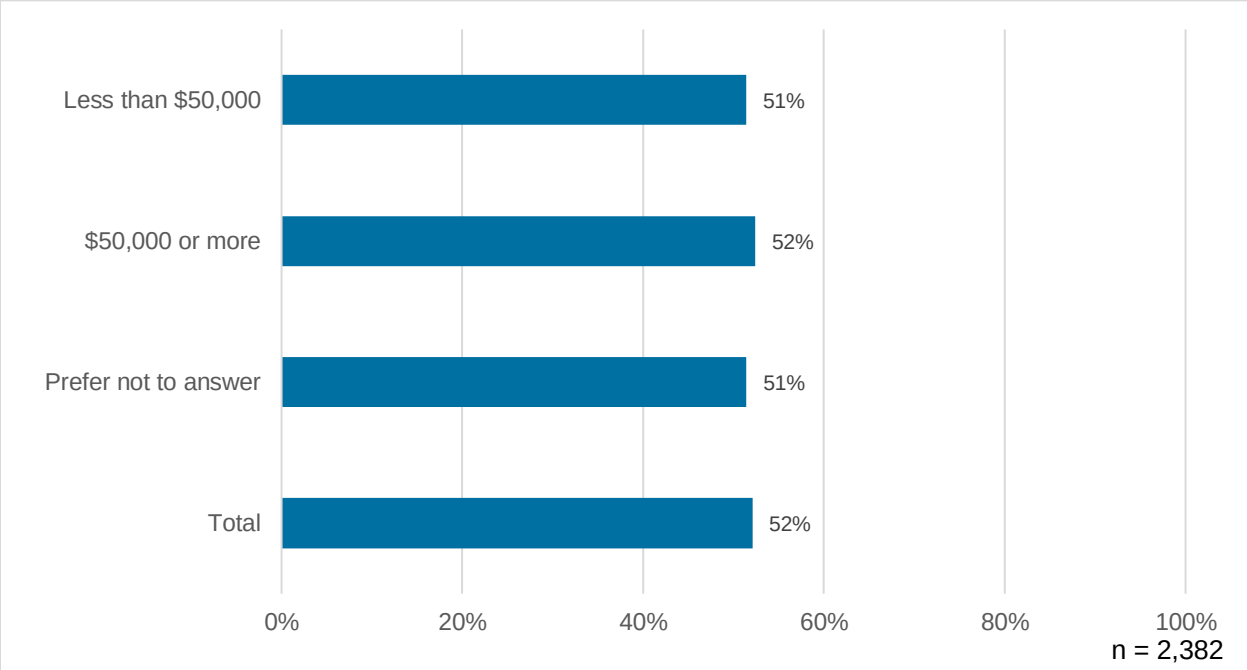



Figure 33 shows overall satisfaction with the pedestrian experience in Montgomery County for those who reported having a disability. Forty-three percent of respondents with a disability are satisfied with the pedestrian experience in Montgomery County, about ten percentage points less than respondents without disabilities.

**FIGURE 33: OVERALL SATISFACTION BY DISABILITY**

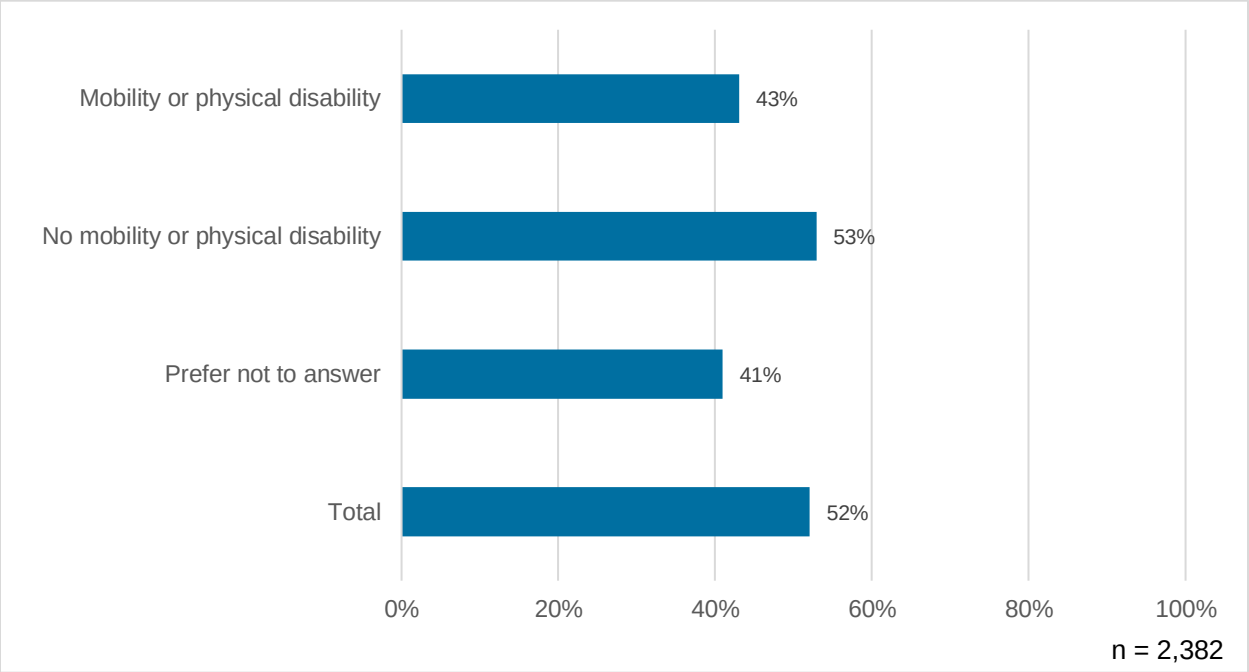



Table 5 lists the five statements shown to respondents with the highest satisfaction. The majority (52%) of respondents are satisfied with personal safety while walking.

**TABLE 5: TOP 5 SATISFACTION**

| Statement | Satisfaction Percentage |
|---|---|
| Personal safety while walking | 52% |
| Distance to cross the street | 49% |
| Time to cross the street at pedestrian signals | 47% |
| Number of marked crosswalks | 46% |
| Pedestrian signage | 46% |

Table 6 lists the five statements shown to respondents with the lowest satisfaction. Respondents are least satisfied with the speed of moving cars along sidewalks and paths.

**TABLE 6: BOTTOM 5 SATISFACTION**

| Statement | Satisfaction Percentage |
|---|---|
| Overhead lighting at crossings | 31% |
| Distance between sidewalks and cars | 31% |
| Snow removal | 28% |
| Number of vehicles cutting across the crosswalk | 22% |
| Speed of moving cars along sidewalks and paths | 21% |

Figure 34 illustrates the percentage of respondents that are very satisfied or satisfied with each of a series of statements relating to the pedestrian experience of walking or rolling in Montgomery County.

Urban geography respondents are most satisfied with the walking or rolling access to retail, restaurants, parks, etc.; personal safety while walking or rolling; and the amount of sidewalks on their pedestrian route. Those in the urban geography are least satisfied with the number of vehicles cutting across the sidewalk, the speed of moving cars along the sidewalk, and snow removal.

Transit corridor geography respondents are most satisfied with the time to cross the street at pedestrian signals, personal safety while walking or rolling, and the distance to cross the street. Those in the transit corridor geography are least satisfied with the speed of moving cars along the sidewalk, the number of vehicles cutting across the sidewalk, and overhead lighting at locations where I cross the street at night.

Exurban or rural geography respondents are most satisfied with personal safety while walking or rolling, the distance to cross the street, and the wait time for a pedestrian walk signal. Those in the exurban or rural geography are least satisfied with the speed of moving cars along the sidewalk, the number of vehicles cutting across the sidewalk, and snow removal.

**FIGURE 34: SATISFACTION BY GEOGRAPHY**

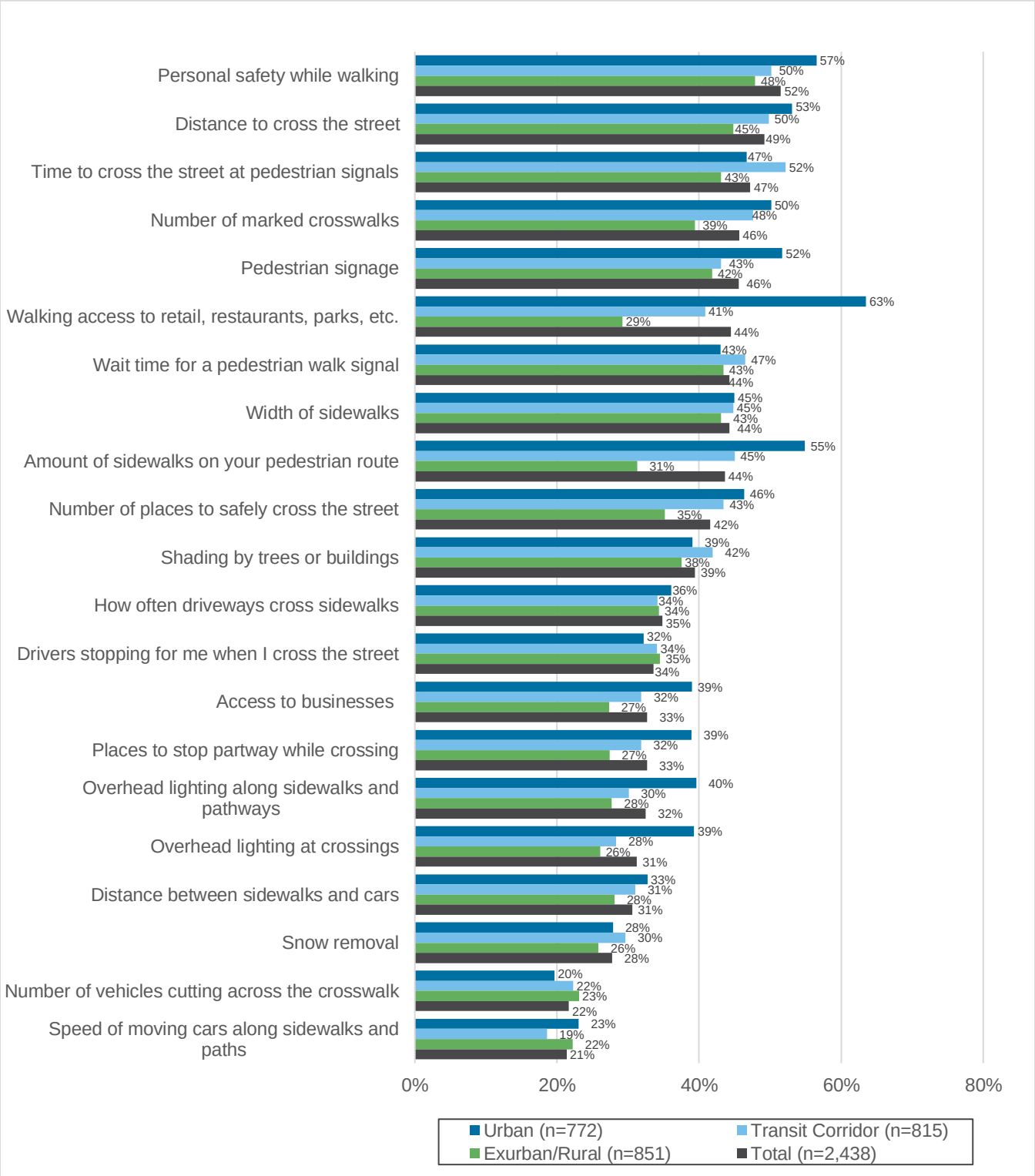


Figure 35 illustrates the percentage of respondents that are very satisfied or satisfied with each of the statements relating to the pedestrian experience of walking or rolling in Montgomery County.

White respondents were most satisfied with their personal safety while walking, the distance to cross the street and the time to cross the street at pedestrian signals. White respondents were least satisfied with the distance between sidewalks and cars on busy streets, speed of moving cars along sidewalks and paths, and number of vehicles cutting across the sidewalk.

Black or African American respondents were most satisfied with the amount of sidewalks on their pedestrian route, personal safety while walking, and wait time for a pedestrian walk signal. Black or African American respondents were least satisfied with snow removal, number of vehicles cutting across the sidewalk and the speed of moving cars along sidewalks and paths.

Asian respondents were most satisfied with personal safety while walking, width of sidewalks and the distance to cross the street. Asian respondents were least satisfied with the overhead lighting at location where I cross the street, number of vehicles cutting across the sidewalk and the speed of moving cars along sidewalks and paths.

**FIGURE 35: SATISFACTION BY RACE**

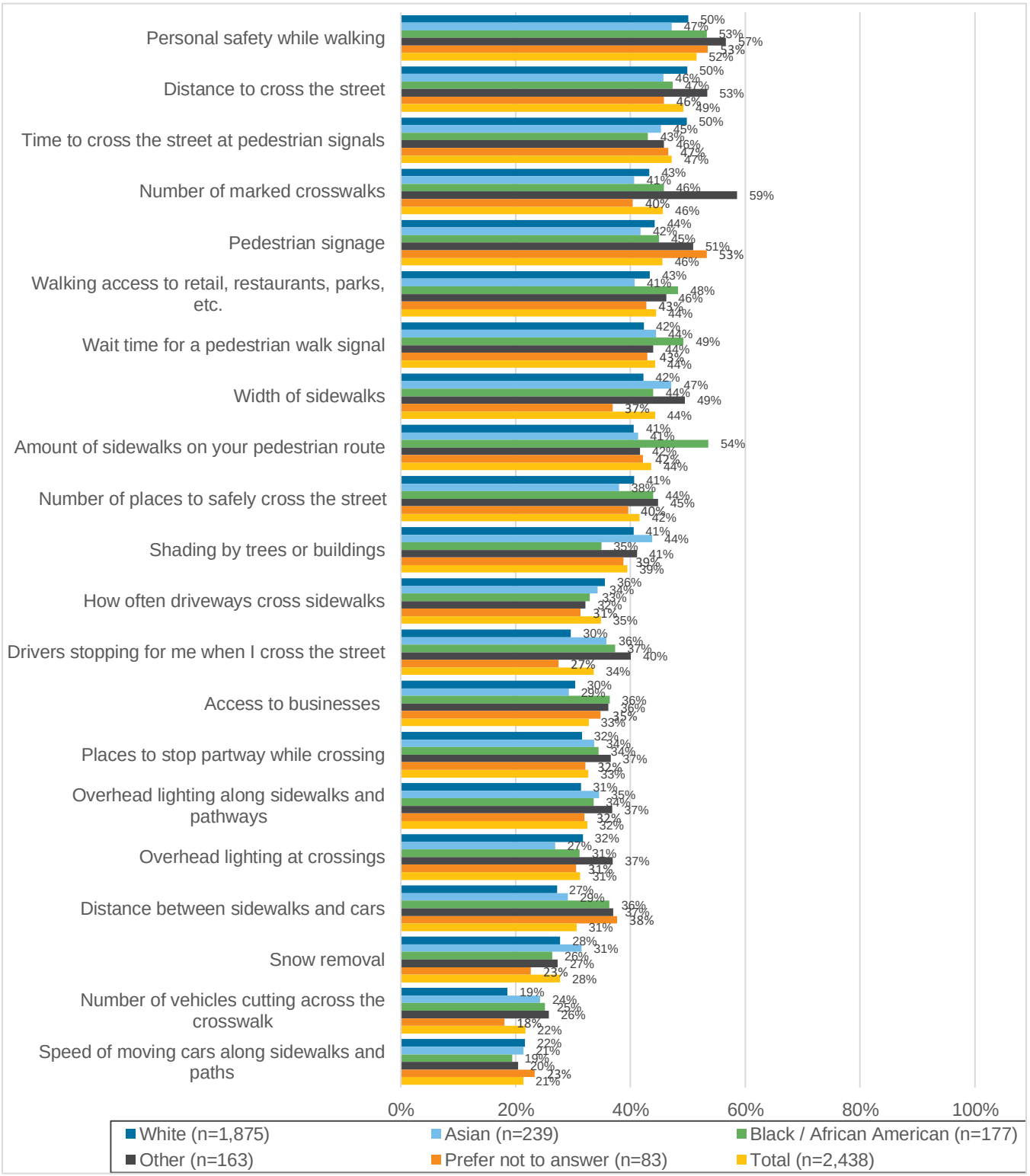


Figure 36 shows the percentage of respondents that are very satisfied or satisfied with each of the statements relating to the pedestrian experience of walking or rolling in Montgomery County.

Hispanic, Spanish or Latino respondents were more satisfied with the majority of the statements when compared to the rest of the sample. Hispanic, Spanish or Latino respondents were most satisfied with their personal safety while walking, the distance to cross the street, and pedestrian signage. Hispanic, Spanish or Latino respondents were least satisfied with the number of vehicles cutting across the sidewalk, speed of moving cars along sidewalks, and snow removal.

**FIGURE 36: SATISFACTION BY HISPANIC, SPANISH, OR LATINO ORIGIN**

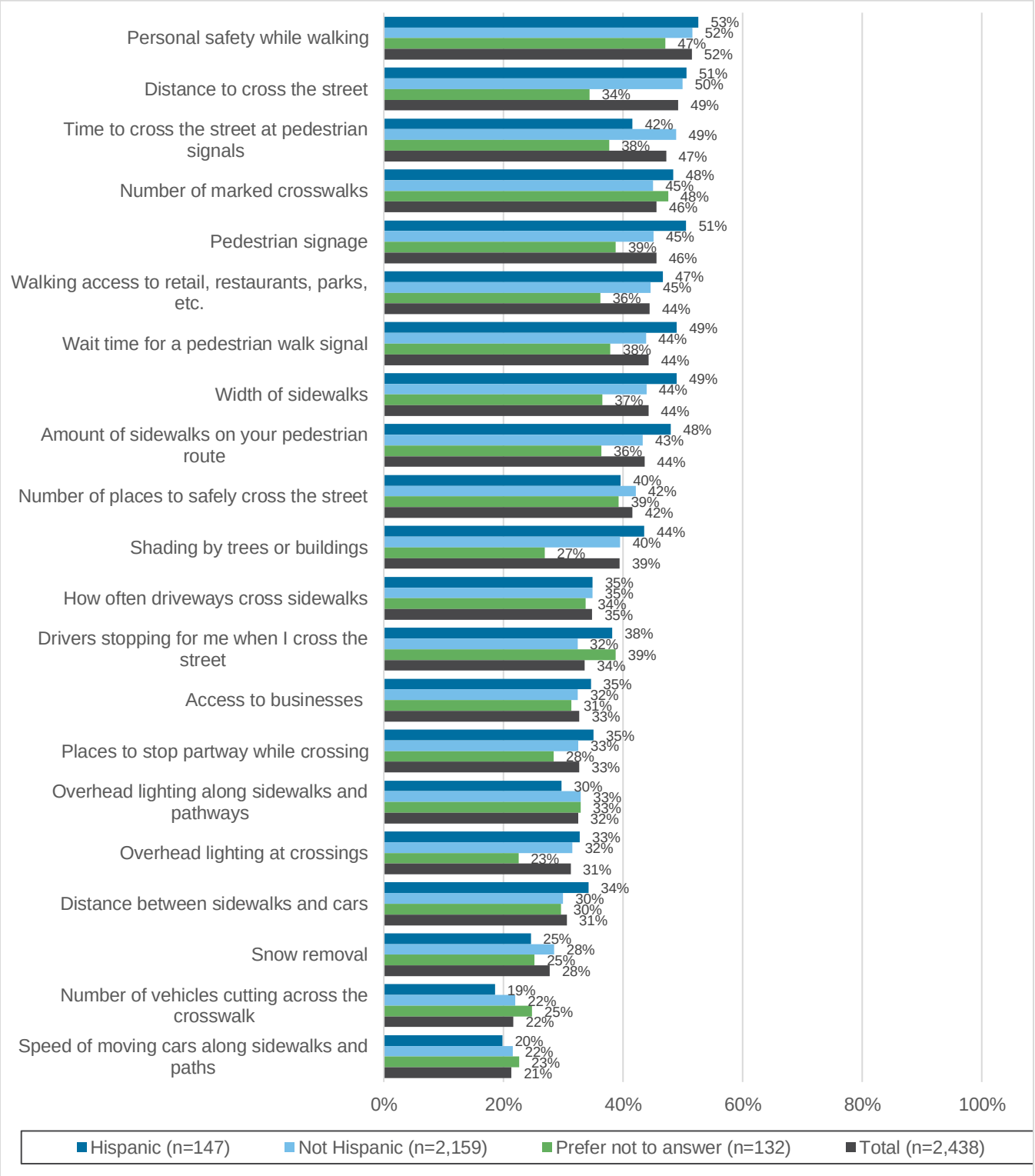


Figure 37 shows the percentage of respondents that are very satisfied or satisfied with each of the statements relating to the pedestrian experience of walking or rolling in Montgomery County.

Respondents who reported a household income of less than $50,000 were most satisfied with the number of marked crosswalks, walking access to retail, restaurants, parks, etc., and the amount of sidewalks on their pedestrian route. These respondents were least satisfied with the speed of moving cars along sidewalks and paths, number of vehicles cutting across the crosswalk while using it, and snow removal.

Respondents who reported a household income of $50,000 or more were most satisfied with personal safety, distance to cross the street, and time to cross the street at pedestrian signals. These respondents were least satisfied with the number of vehicles cutting across the crosswalk while using it, the speed of moving cars along sidewalks and paths, and snow removal.

**FIGURE 37: SATISFACTION BY HOUSEHOLD INCOME**

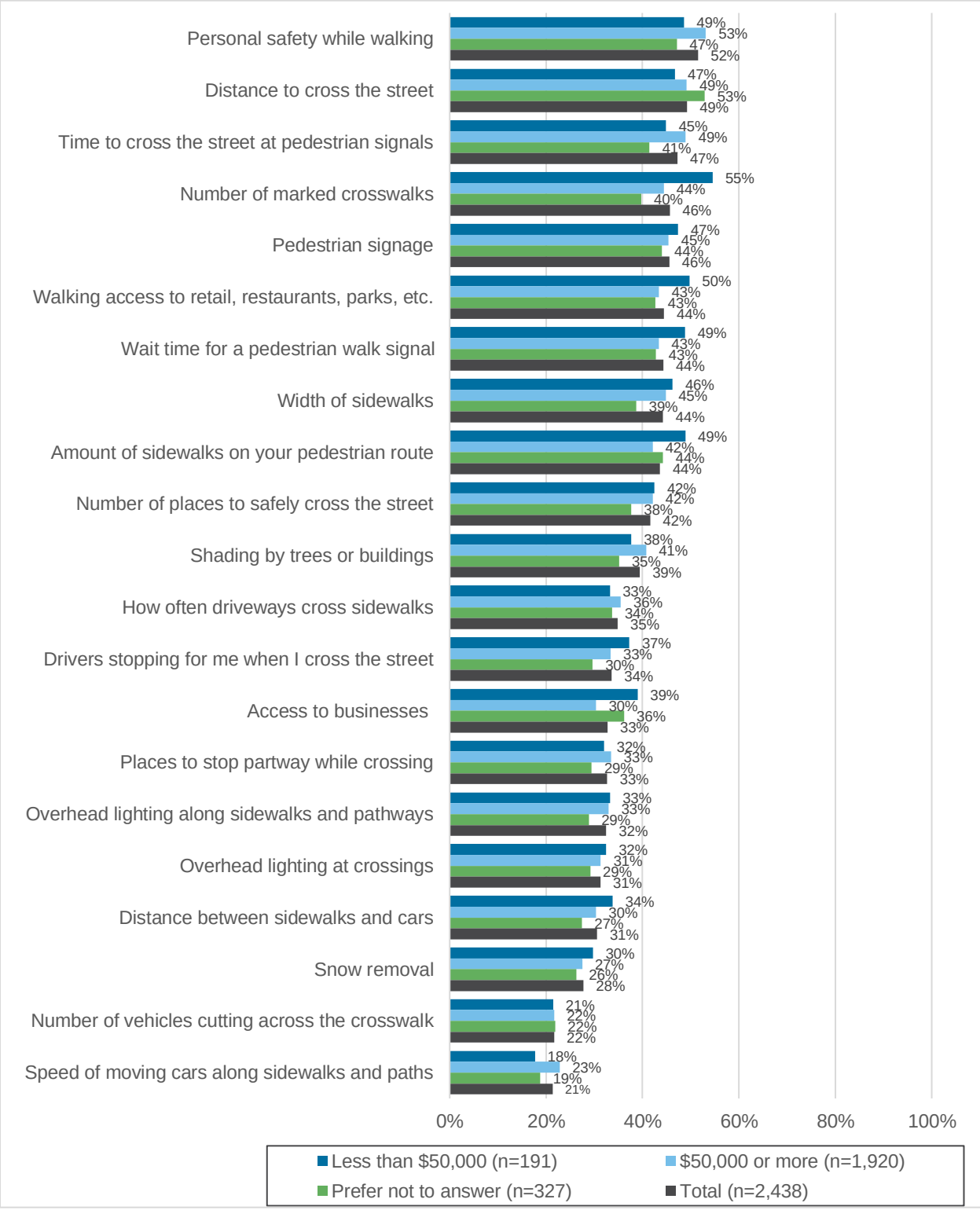
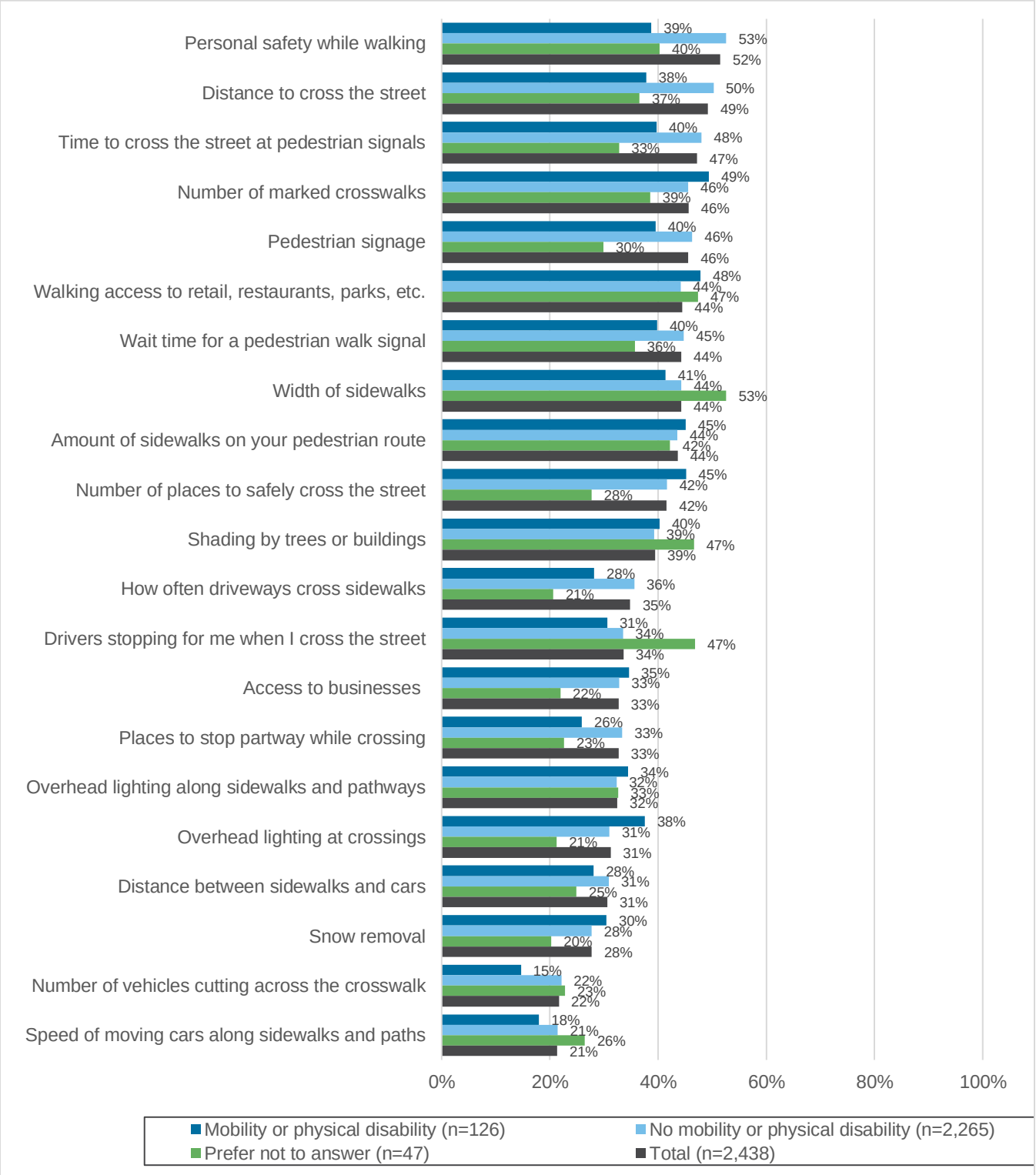


Figure 38 shows the percentage of respondents that are very satisfied or satisfied with each of the statements relating to the pedestrian experience of walking or rolling in Montgomery County.

Respondents who reported having a disability were most satisfied with the number of marked crosswalks, walking access to retail, restaurants, parks, etc., and the number of places to safely cross the street. Respondents who reported having a disability were least satisfied with the number of vehicles cutting across the crosswalk while using it, the speed of moving cars along sidewalks and paths, and the number of places to stop partway while crossing wider streets.

Only 39% of respondents who reported having a disability are satisfied with personal safety while walking or rolling, whereas, 53% of respondents who reported not having a disability are satisfied with their personal safety while walking.

**FIGURE 38: SATISFACTION BY DISABILITY**



The following tables and figures use the averaged MaxDiff utilities to rank the importance of each characteristic associated with the walking or rolling experience in Montgomery County. Values are presented as normalized utility between zero and one hundred.

Table 7 lists the five statements shown to respondents with the highest averaged importance score. New sidewalks along my pedestrian route is the most important aspect for survey respondents.

**TABLE 7: TOP 5 IMPORTANCE**

| Statement | Avg. Importance Score |
|---|---|
| New sidewalks along my pedestrian routes | 73 |
| I feel safer while walking | 66 |
| Drivers more consistently stop for me | 64 |
| More places for me to safely cross streets | 64 |
| Walk on sidewalks that are further away from cars | 62 |

Table 10 lists the five statements shown to respondents with the lowest averaged importance score. Fewer driveways crossing sidewalks is the least important statement for survey respondents.

**TABLE 8: BOTTOM 5 IMPORTANCE**

| Statement | Avg. Importance Score |
|---|---|
| I have a shorter wait for a pedestrian walk signal | 34 |
| Shorter distance for me to cross the street | 33 |
| Access more businesses w/o walking through parking lots | 30 |
| More clear directional signage | 27 |
| Fewer driveways crossing sidewalks | 25 |

Figure 39 shows that respondents in the urban and transit corridor geographies value drivers more consistently stopping for them while crossing the street, new sidewalks along their pedestrian routes where there are not sidewalks, and feeling safer while walking.

Respondents in the exurban or rural geography also value new sidewalks along their pedestrian routes where there are not sidewalks now and feeling safer while walking; respondents in that geography placed significantly more value on those new sidewalks where there currently are none compared to respondents in the other geographies.

Respondents from all geographies ranked fewer driveways crossing sidewalks and pathways they use, more clear directional signage to guide their pedestrian trip, and access to more businesses without walking through parking lots the least important factors.

**FIGURE 39: IMPORTANCE BY GEOGRAPHY**

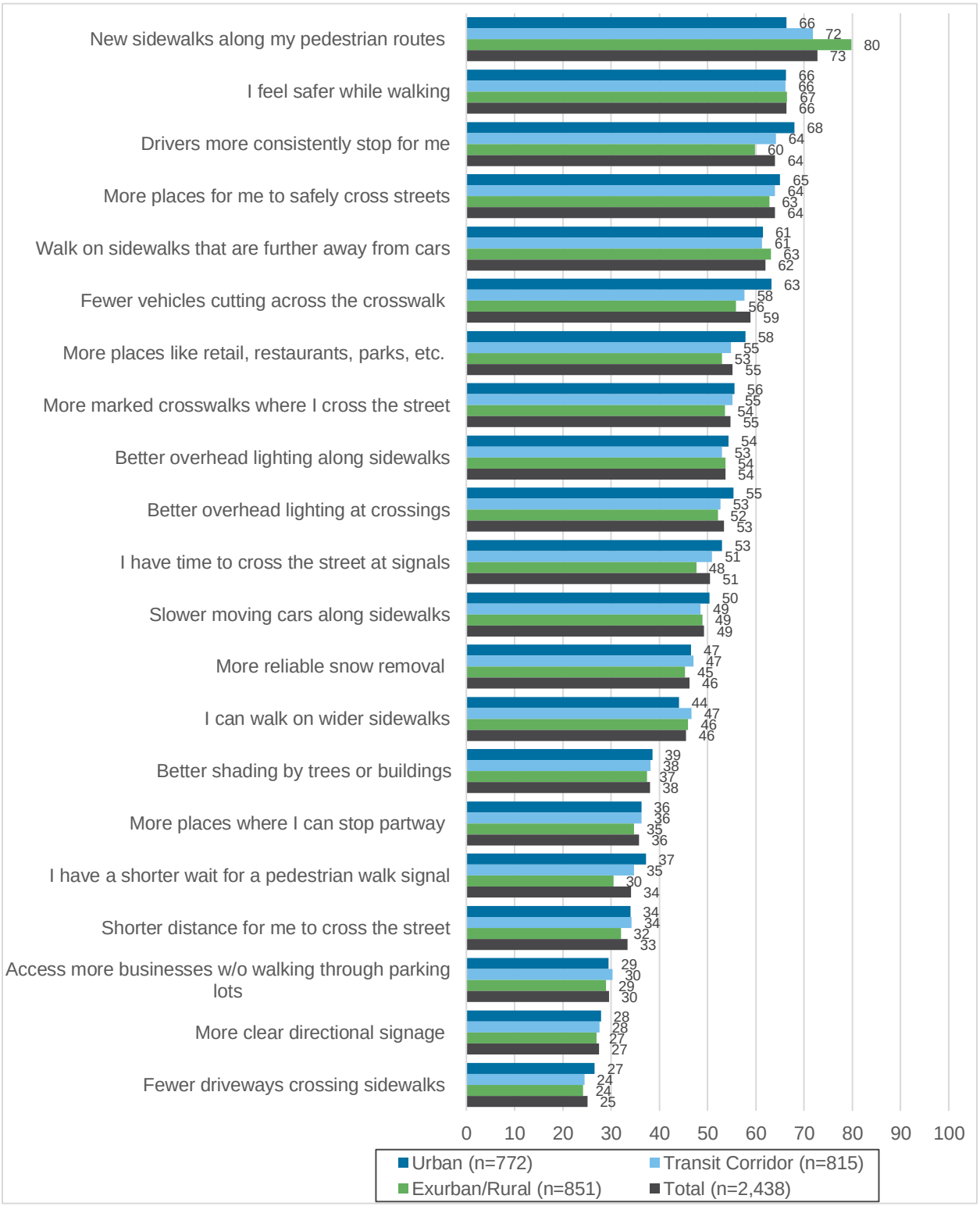


Figure 40 shows the MaxDiff averaged utilities for each the statements relating to the pedestrian experience of walking or rolling in Montgomery County.

White respondents prioritize new sidewalks, drivers more consistently stopping while crossing the street and feeling safer while walking. More clear directional signage, fewer driveway crossings, and access to buildings without walking through parking lots were the least important factors for white respondents.

Black or African American respondents value feeling safer while walking, new sidewalks, and more places to safely cross the street. Fewer driveway crossings, better shading by trees or buildings, and access to buildings without walking through parking lots were the least important factors for black or African American respondents.

Asian respondents reported that new sidewalks, feeling safer while walking, and more places to safely cross the street were the most important factors. More clear directional signage, fewer driveway crossings, and access to buildings without walking through parking lots were the least important factors for white respondents.

**FIGURE 40: IMPORTANCE BY RACE**

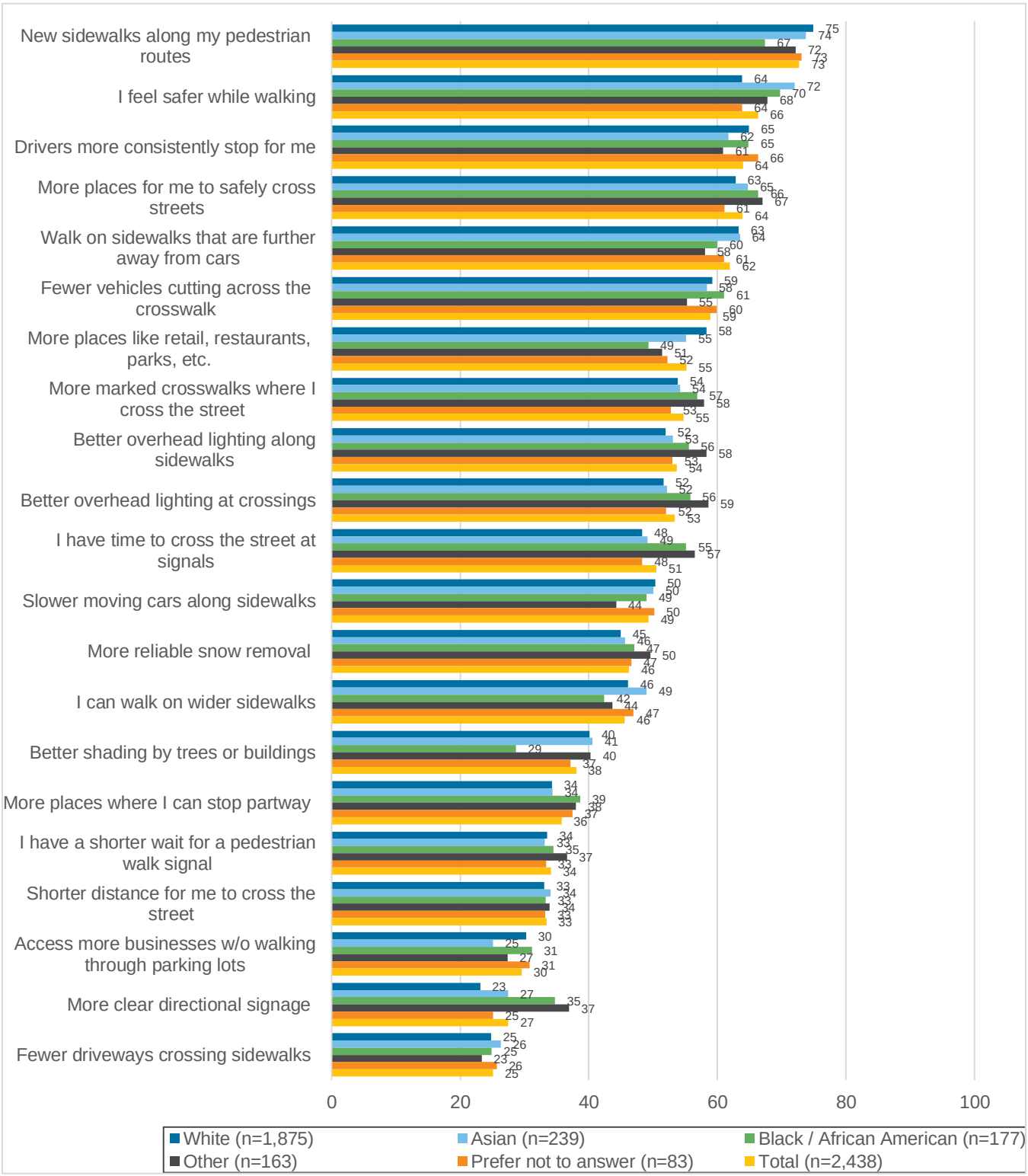


Figure 41 shows the MaxDiff averaged utilities for each the statements relating to the pedestrian experience of walking or rolling in Montgomery County for Hispanic, Spanish, or Latino respondents.

Hispanic, Spanish or Latino respondents prioritize feeling safer while walking, new sidewalks, and more places to safely cross streets. Fewer driveway crossings, access to buildings without walking through parking lots, and shorter distance to cross the street were the least important factors for Hispanic, Spanish or Latino respondents.

**FIGURE 41: IMPORTANCE BY HISPANIC, SPANISH, OR LATINO ORIGIN**

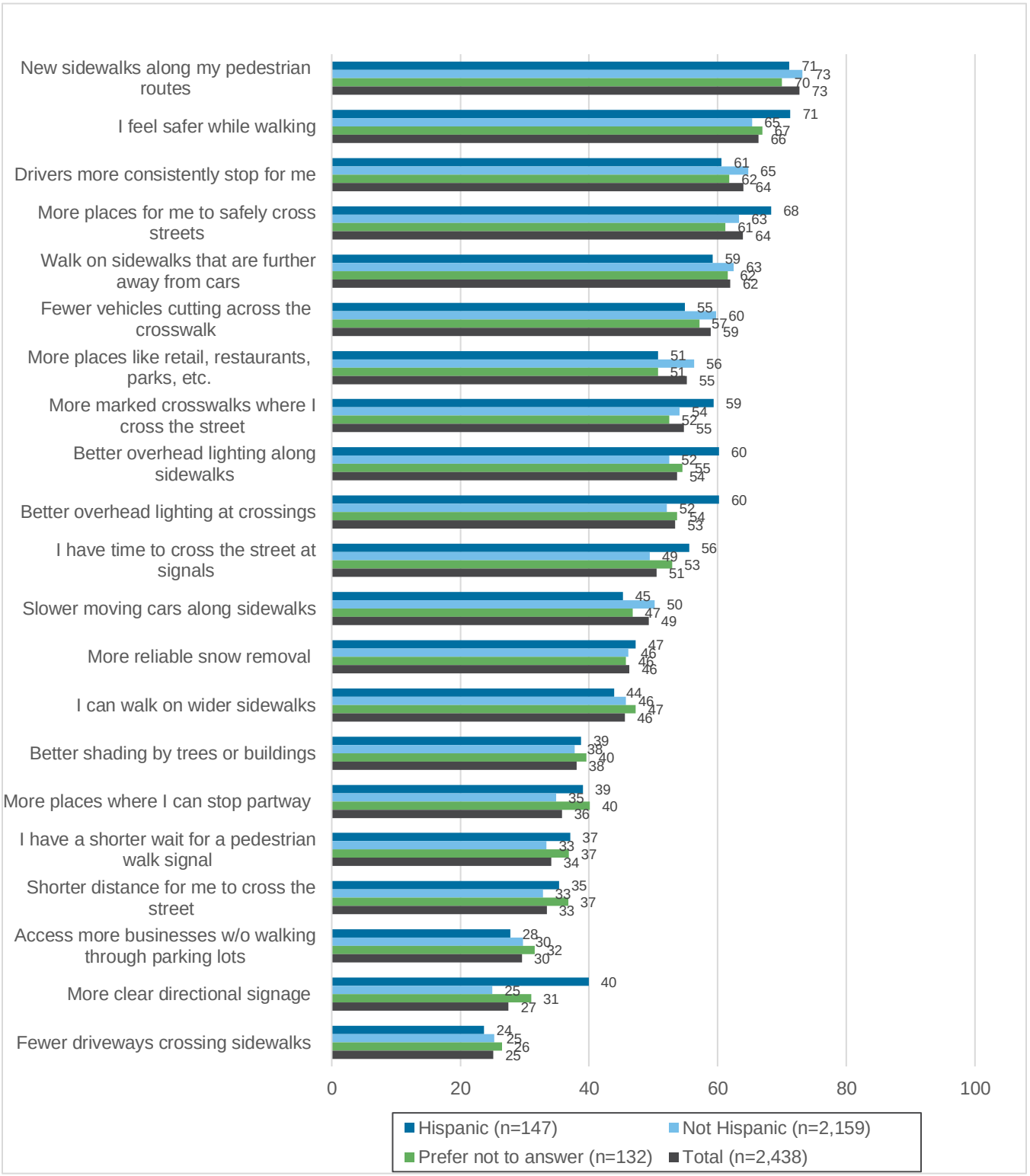


Figure 42 shows the MaxDiff averaged utilities for each of the statements relating to the pedestrian experience of walking or rolling in Montgomery County.

Respondents who reported a household income of $50,000 or less prioritize feeling safer while walking, more places to safely cross streets, and new sidewalks. Fewer driveway crossings, access to buildings without walking through parking lots, and better shading by trees or buildings were least important among respondents who reported a household income of $50,000 or less.

Respondents who reported a household income of $50,000 or more prioritize new sidewalks, feeling safer while walking, and more places to safely cross streets. Fewer driveway crossings, more clear directional signage, and access to buildings without walking through parking lots were least important among respondents who reported a household income of $50,000 or more.

**FIGURE 42:IMPORTANCE BY HOUSEHOLD INCOME**

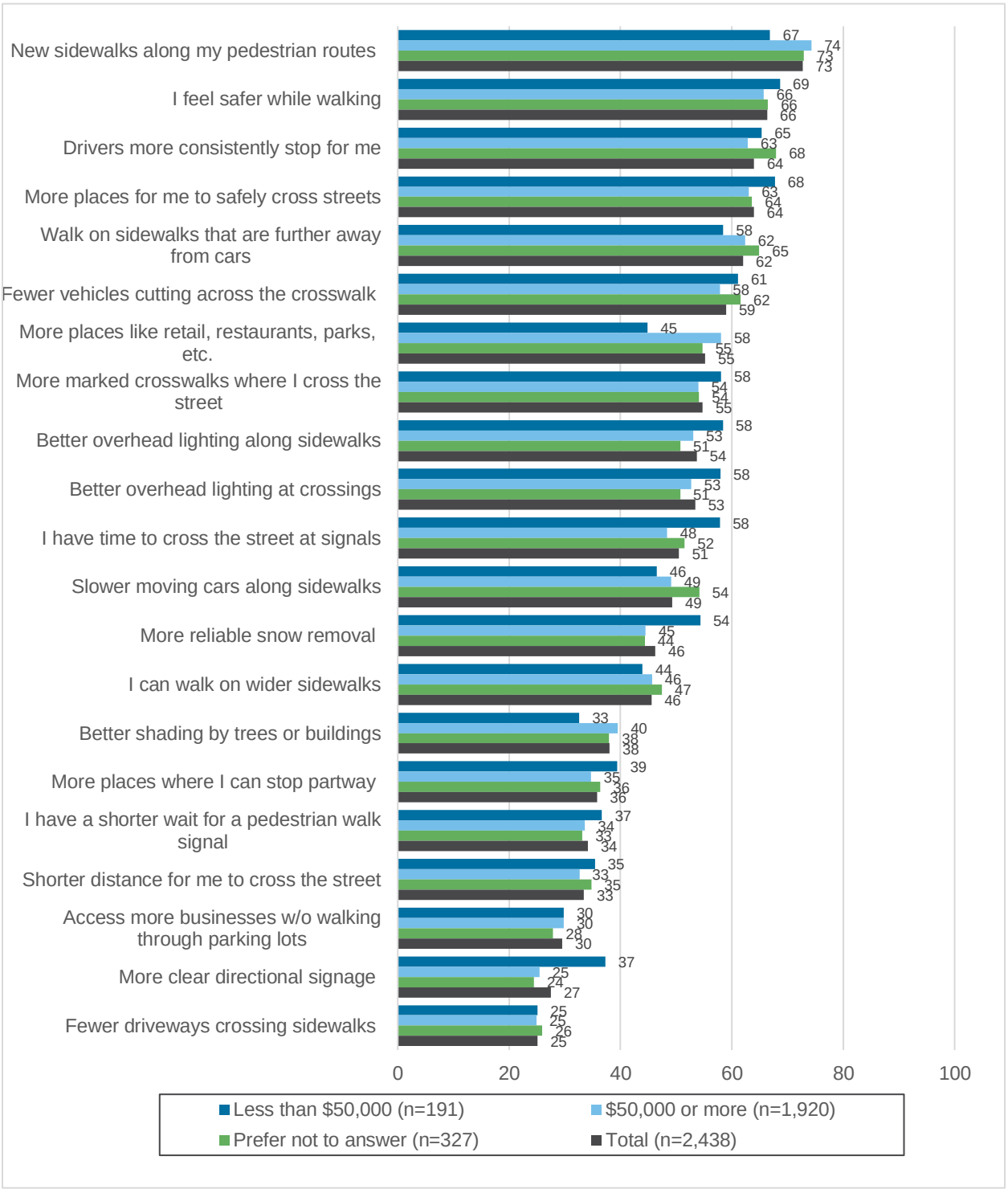


Figure 43 shows the MaxDiff averaged utilities for each the statements relating to the pedestrian experience of walking or rolling in Montgomery County.

Respondents who reported having a disability prioritize drivers more consistently stopping, more places to safely cross the street, and feeling safer while walking. Fewer driveway crossings, more directional signage and better shading by trees or buildings were least important among respondents who reported having a disability.

**FIGURE 43: IMPORTANCE BY DISABILITY**

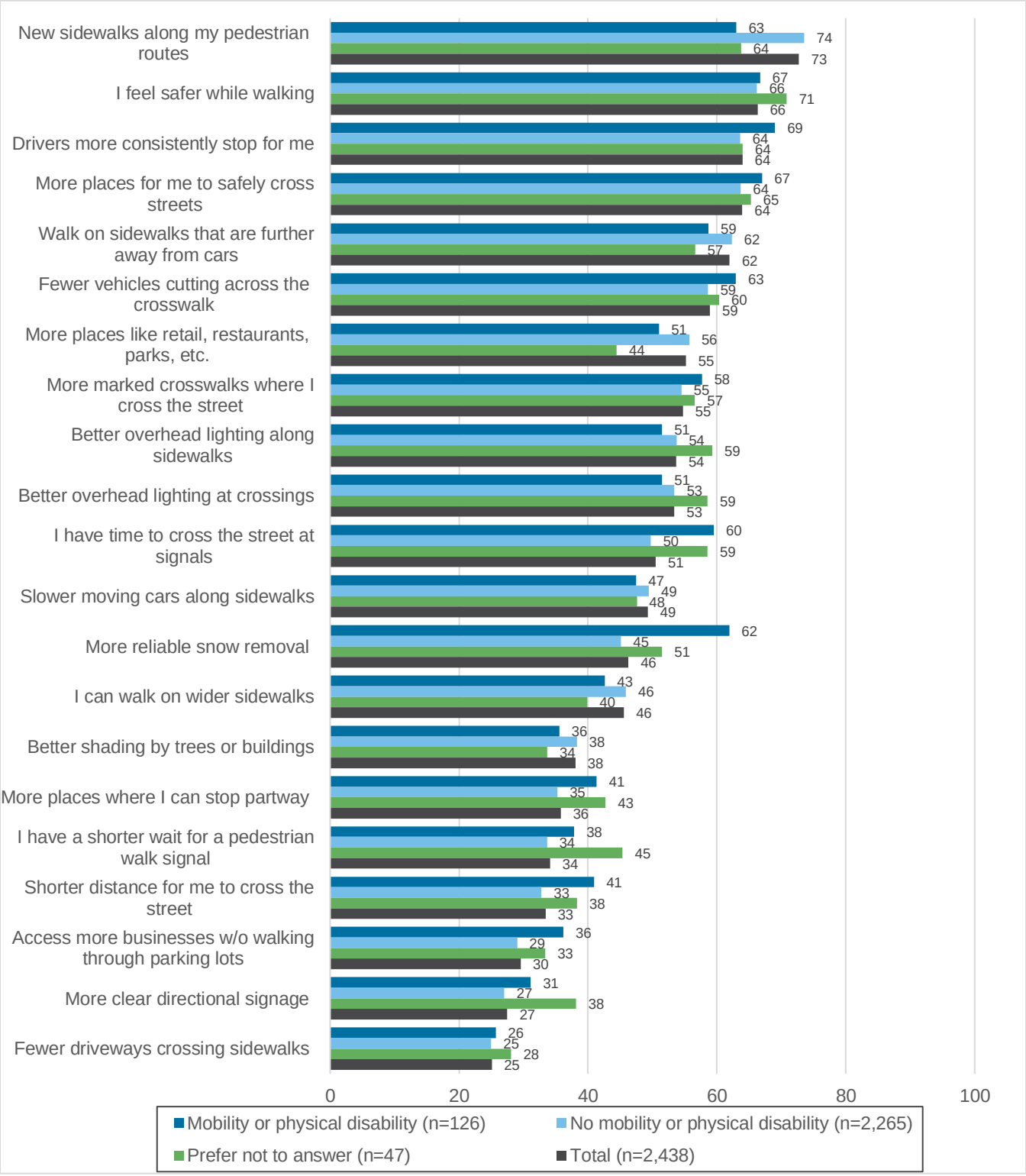


Figure 44 to Figure 47 show quadrant (quad) charts which plot satisfaction against importance for each element relating to walking or rolling in Montgomery County. Each quadrant is labeled in the charts below. Statements in the “critical factors” quadrant indicate high satisfaction and a high importance among respondents. Statements in the “opportunities” quadrant were rated low on satisfaction but high on importance. Statements in the “value improvement” quadrant were rated high on satisfaction but low on importance. Lastly, statements in the “monitor” quadrant were rated low in satisfaction and low in importance.

Figure 44 illustrates importance and satisfaction for all respondents. Throughout these charts, a trend is that many elements in the “value improvement” or “opportunities” quadrants— those most likely to produce substantive impact— involve piecemeal improvements to physical infrastructure within the County.

**FIGURE 44: FULL SAMPLE QUAD CHART**

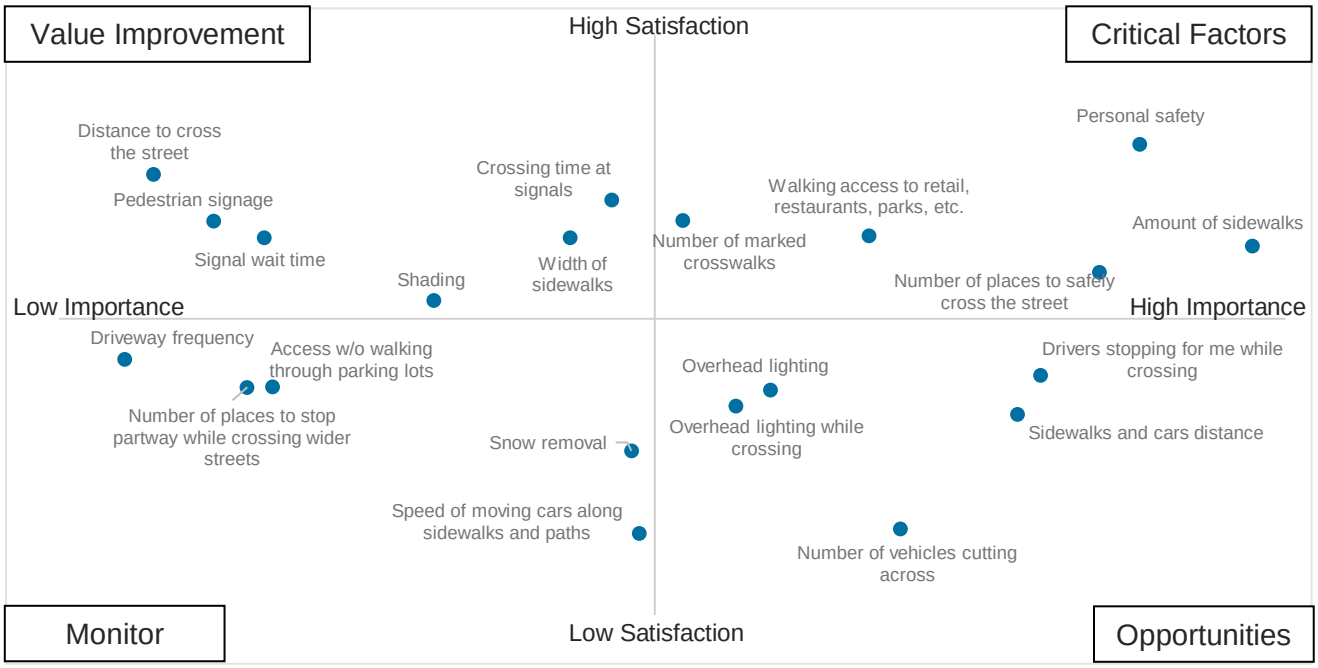



Figure 45 illustrates importance and satisfaction for respondents in the urban geography.

**FIGURE 45: URBAN QUAD CHART**


Figure 46 illustrates importance and satisfaction for respondents in the transit corridor geography.

**FIGURE 46: TRANSIT CORRIDOR QUAD CHART**

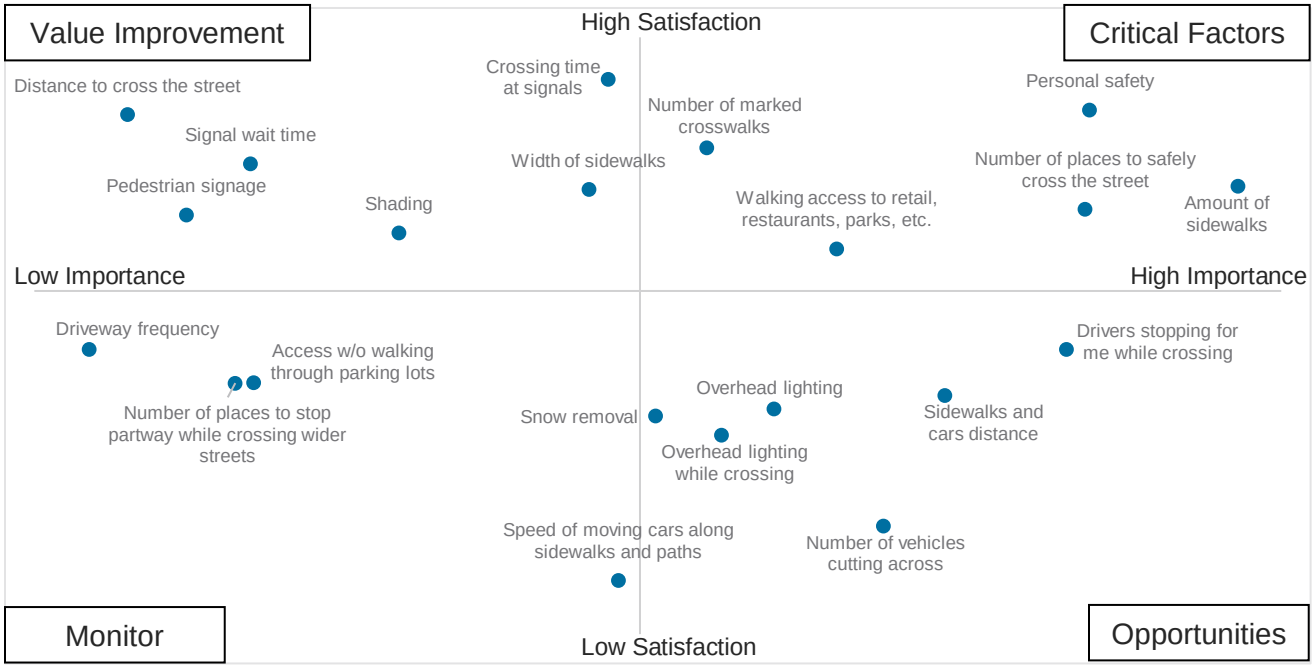
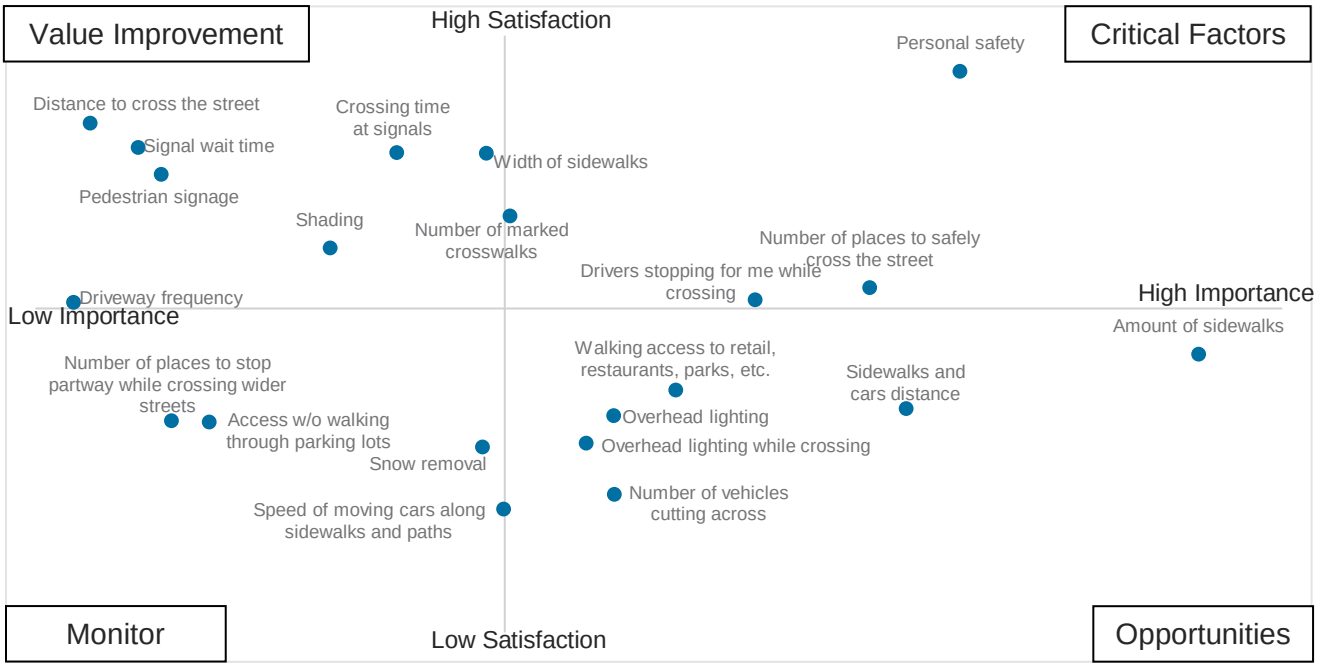


Figure 47 illustrates importance and satisfaction for respondents in the exurban or rural geography.

**FIGURE 47: RURAL/EXURBAN QUAD CHART**



## 1.4 COVID-19 IMPACTS

The next section of questions asked all respondents how different types of trips have changed due to COVID-19. These charts were segmented by the three project geographies.

Figure 48 shows the changes in walking trip purposes due to COVID-19. At the time of the survey, fifty-one percent of respondents were taking more walking or rolling trips for exercise or recreation; whereas, 66% of respondents were taking fewer trips to go to restaurants and bars, 53% taking fewer trips to commute to work and 50% taking fewer trips for entertainment.

**FIGURE 48: CHANGE IN WALKING OR ROLLING TRIPS DUE TO COVID-19**

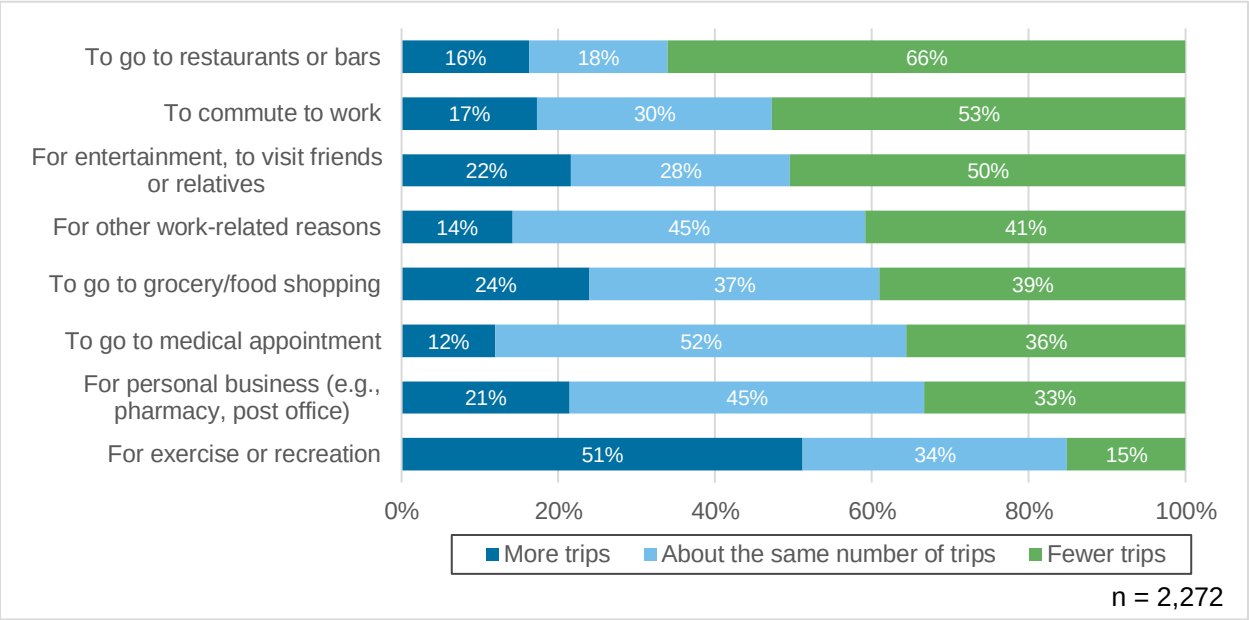



Figure 49 shows work location before the COVID-19 pandemic (mid-March 2020) and Figure 50 shows work location as of Fall 2020. Before COVID-19 only 10% of respondents worked exclusively from home and 52% of respondents worked at a single work location outside of the home; however, in the Fall of 2020, 55% of respondents worked exclusively from home and only 17% of respondents worked at a single location outside of the home.

**FIGURE 49: WORK LOCATION BEFORE COVID-19**

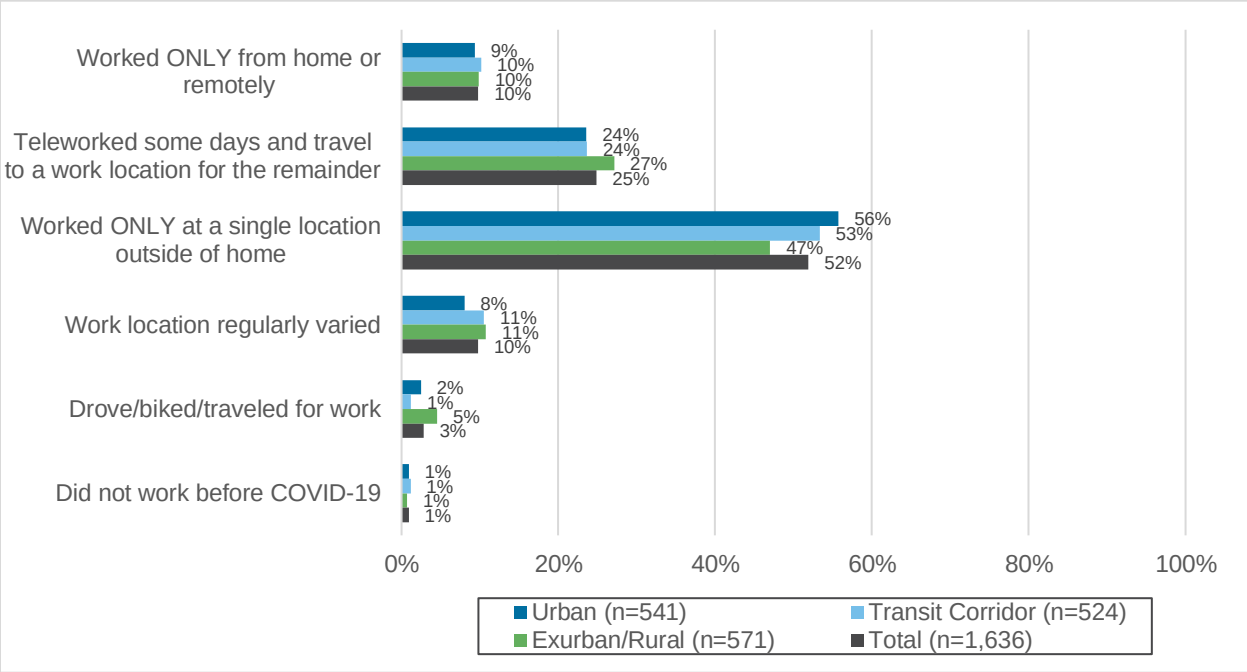



**FIGURE 50: WORK LOCATION FALL 2020**

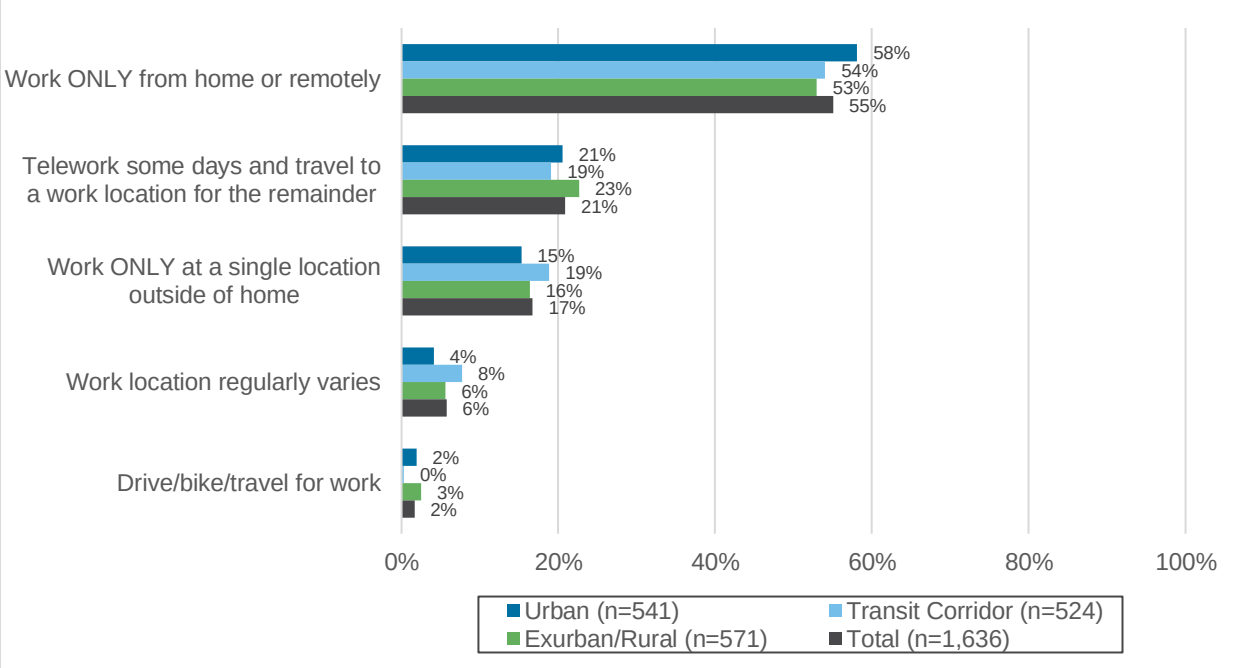



Figure 51 to Figure 53 illustrate the changes in telecommuting due to the COVID-19 pandemic. Respondents indicated that they were telecommuting more during Fall 2020 than before

COVID-19 and expect to continue to work from home more frequently once COVID-19 is no longer a threat.

**FIGURE 51: TELEWORK FREQUENCY BEFORE COVID-19**

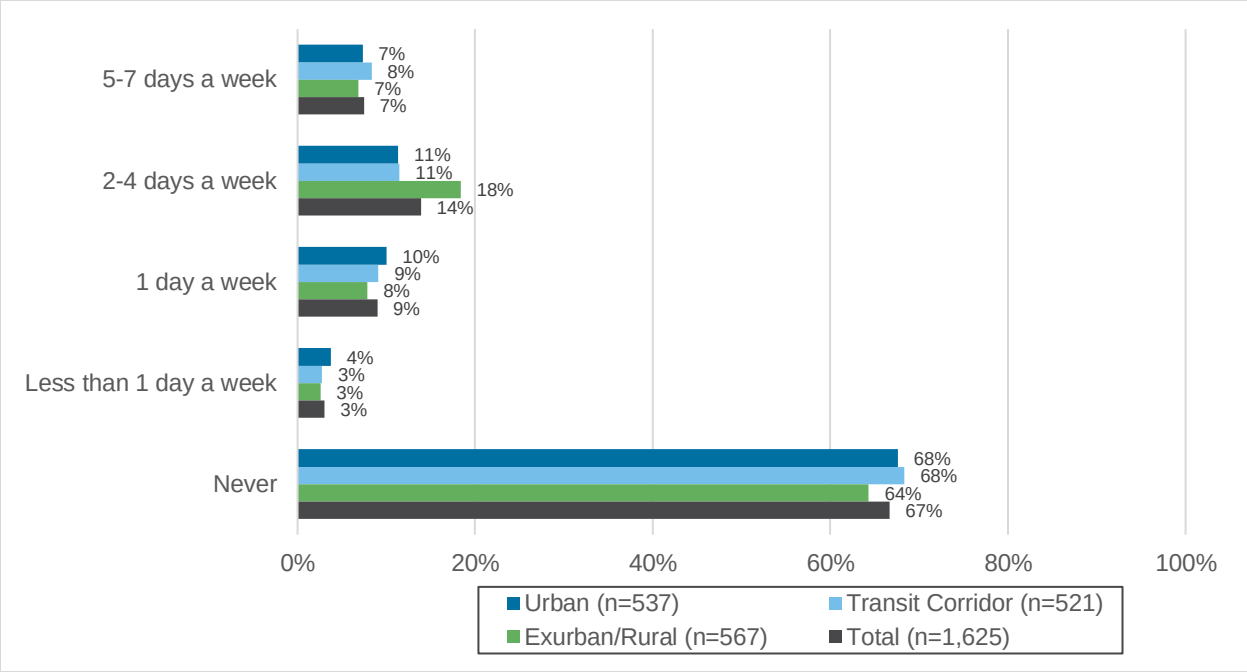



**FIGURE 52: TELEWORK FREQUENCY FALL 2020**

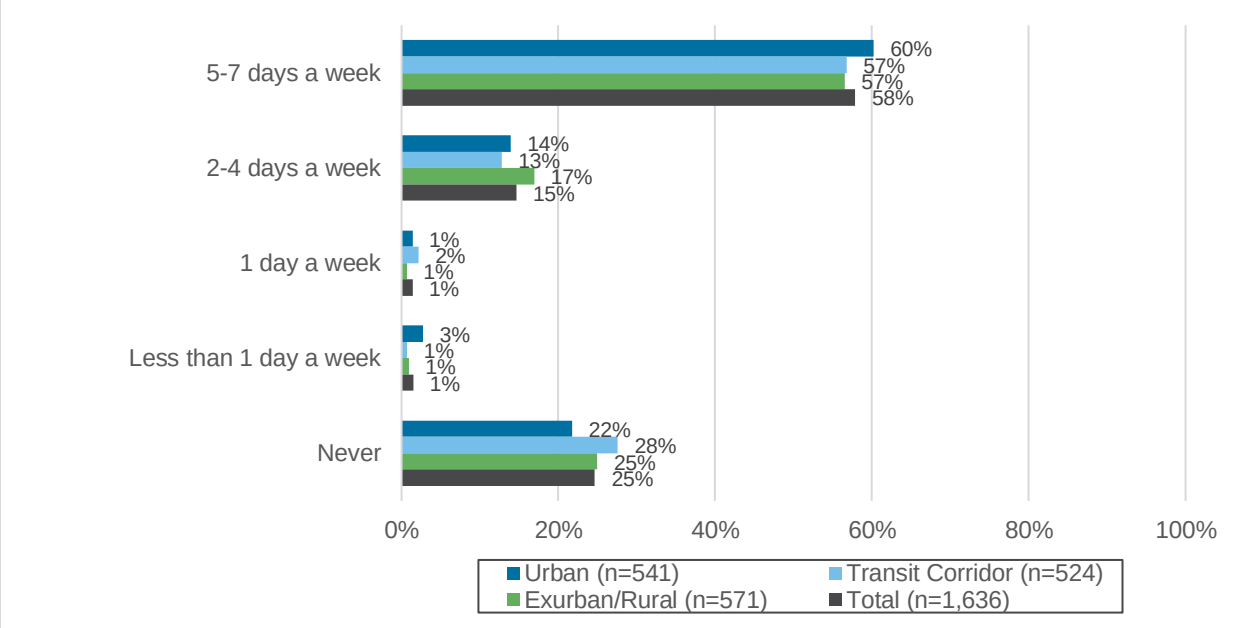
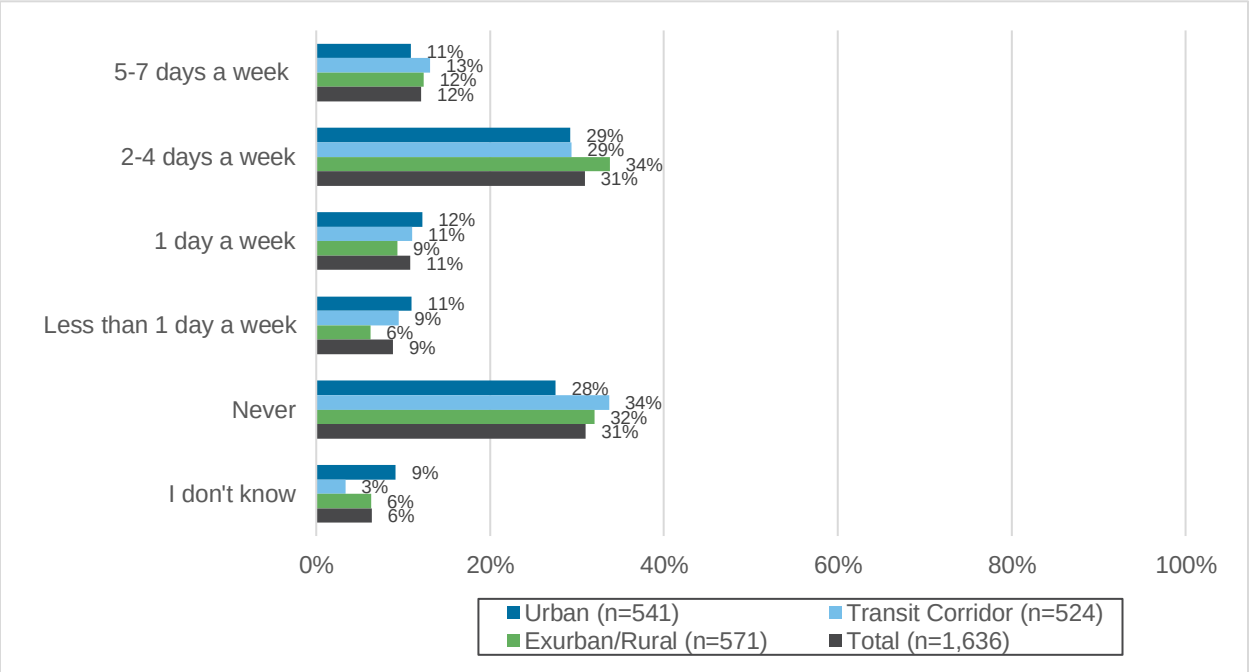


**FIGURE 53: EXPECTED TELEWORK FREQUENCY AFTER COVID-19**



## 1.5 DEMOGRAPHICS

The final section of the survey asked all respondents to provide information about themselves.

Figure 54 shows respondents' perceived home density by geography. The majority of the transit corridor geography and exurban or rural geography respondents categorize their home neighborhood as suburban, and the majority of urban geography respondents categorize their home neighborhood as somewhat urban or very urban.

**FIGURE 54: HOME DENSITY BY GEOGRAPHY**

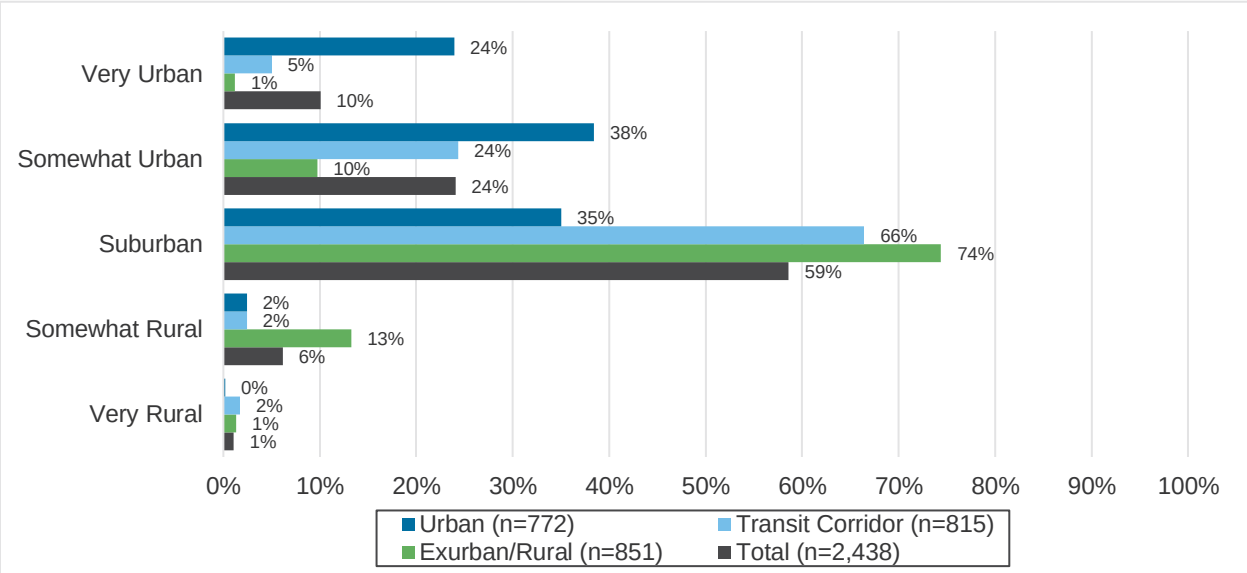



Figure 55 shows the distribution of home type by geography. The majority of transit corridor geography and exurban or rural geography respondents live in a single family home, whereas, the majority of urban geography respondents live in an apartment building with multiple units. Because of these trends, geography is a reliable proxy for home type and home density in this pedestrian study. For this reason, much of the analysis in this report is segmented by geography.

**FIGURE 55: HOME TYPE BY GEOGRAPHY**

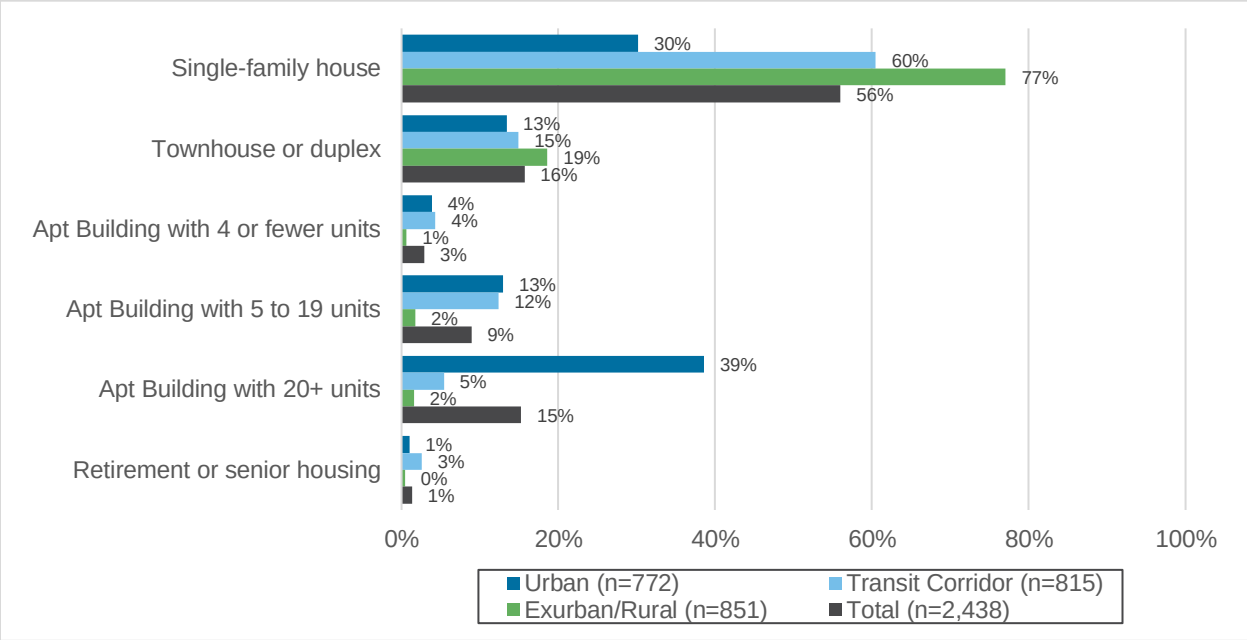



Figure 56 shows the distribution of household size among geographies. About two-thirds of urban geography respondents live in one or two person households, whereas, the majority of exurban or rural geography respondents have three or more people in their household.

**FIGURE 56: HOUSEHOLD SIZE BY GEOGRAPHY**

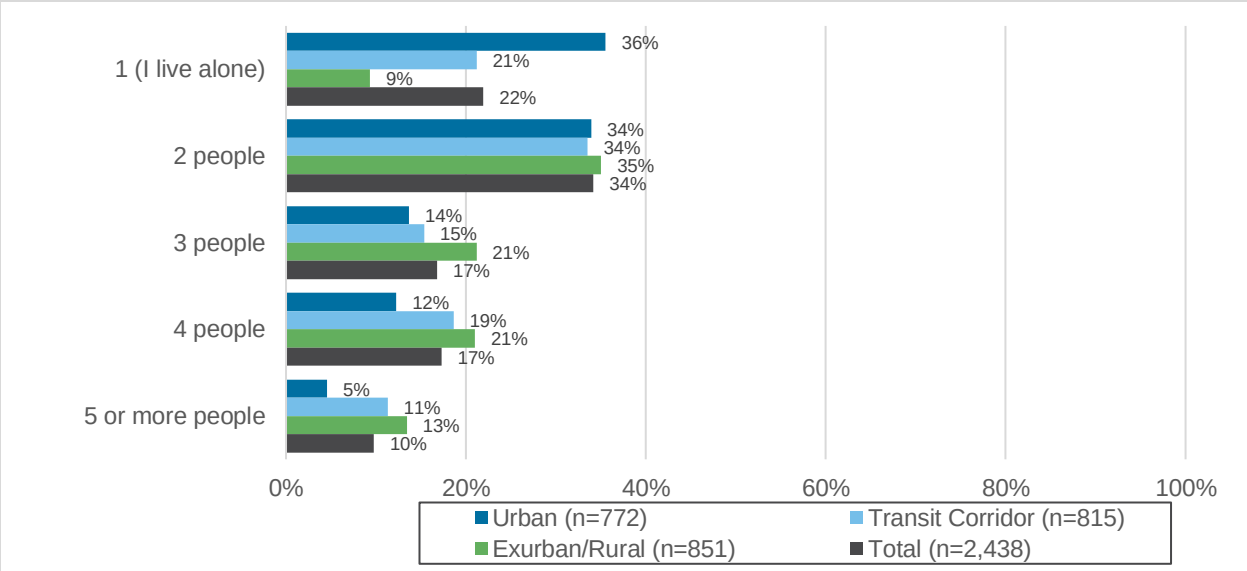



Figure 57 shows the distribution of children and adults in the household. Forty-six percent of respondents in the exurban or rural geography have at least one child under the age of 18 living

in their household; whereas, only 23% of respondents in the urban geography have at least one child under the age of 18 living in their household.

**FIGURE 57: HOUSEHOLD COMPOSITION BY GEOGRAPHY**

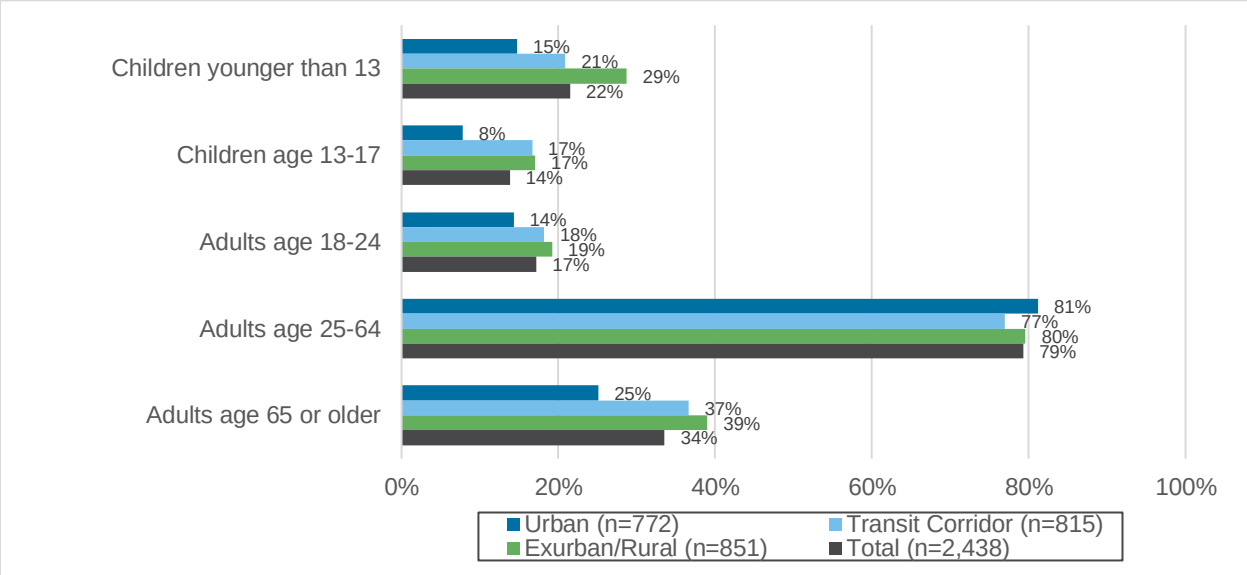



Figure 58 shows the distribution of age among survey respondents. The median age of survey respondents is in the range of 45 to 54 years old. The transit corridor geography and exurban or rural geography respondents are older than the urban geography respondents. The median age for the transit corridor geography and the exurban or rural geography respondents is in the range of 55 to 64 years old and the median age of the urban geography respondents is in the range of 45 to 54 years old.

**FIGURE 58: AGE BY GEOGRAPHY**

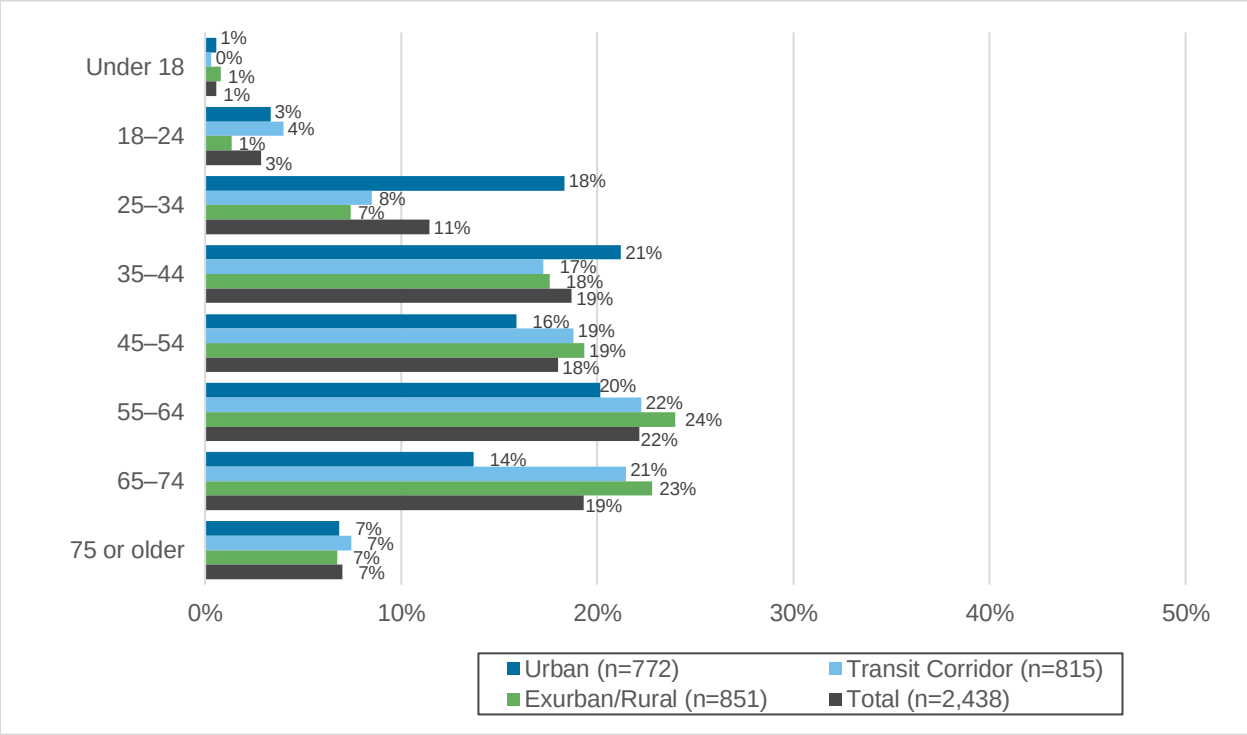



Figure 59 demonstrates the distribution of gender among the survey respondents. A little over half of respondents are female.

**FIGURE 59: GENDER BY GEOGRAPHY**

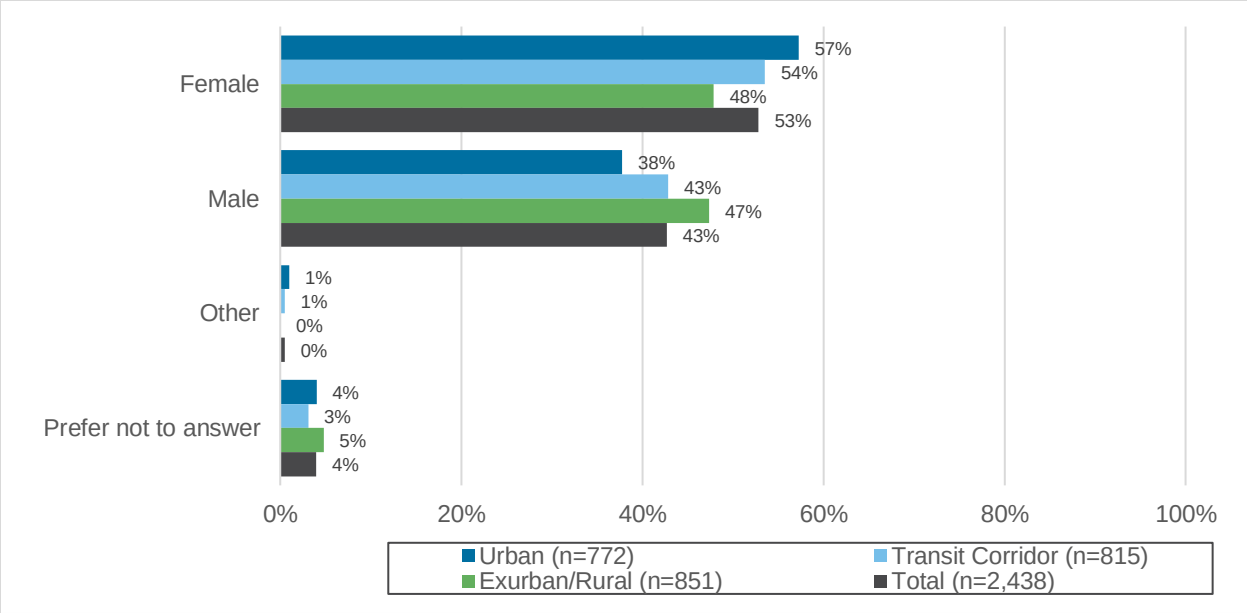


Figure 60 shows that 52% of all respondents are employed full-time. The employment rate was lowest among respondents from the transit corridor and highest among the urban geography residents; however, about 26% of the transit corridor geography respondents are retired.

**FIGURE 60: EMPLOYMENT BY GEOGRAPHY**

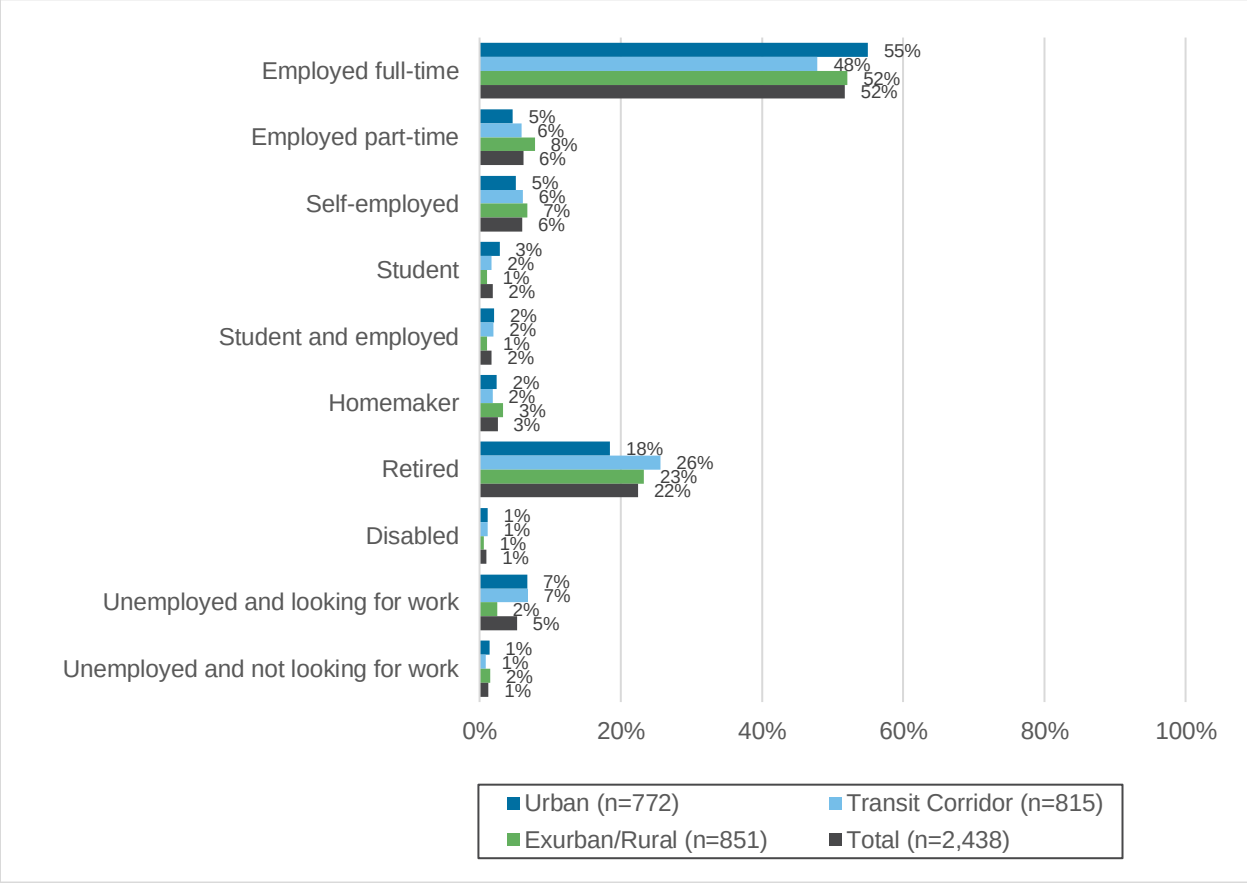



Figure 61 shows that a vast majority (92%) of the sample did not have a mobility disability. Respondents in the transit corridor geography had the highest rate (4%) of using an assistive device such as a wheelchair or cane.

**FIGURE 61: MOBILITY DISABILITY BY GEOGRAPHY**

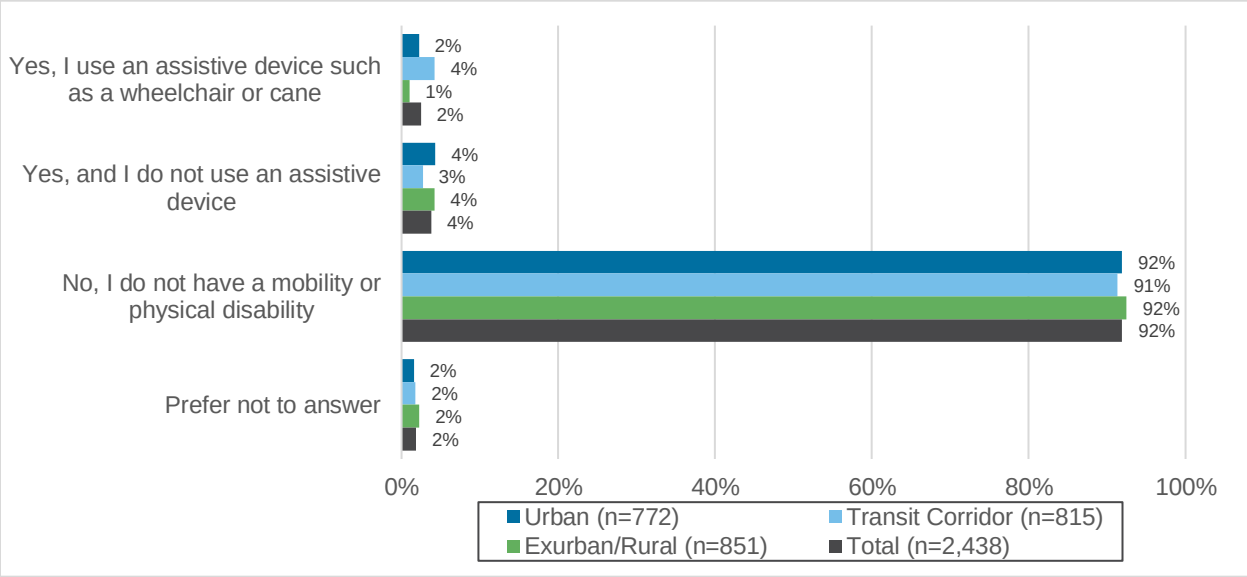



Figure 62 shows household vehicle ownership among survey respondents. The majority (52%) of respondents in the exurban or rural geography have two vehicles in their household. Almost two-thirds (63%) of the urban geography respondents have one or no vehicles in their household.

**FIGURE 62: HOUSEHOLD VEHICLES**

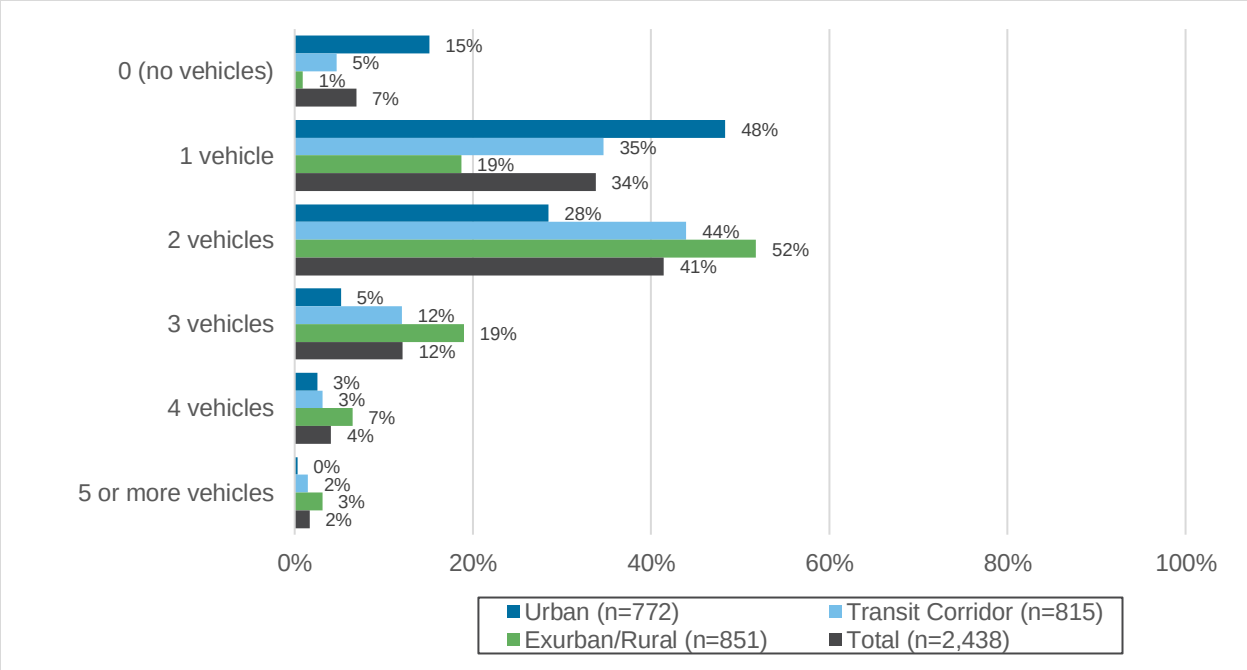


Figure 63 shows the distribution of respondents of Hispanic, Spanish or Latino origin. Both the urban geography and the transit corridor geography, 17% of respondents identify as Hispanic, Spanish or Latino; whereas, only 9% of respondents from the exurban or rural geography are Hispanic, Spanish or Latino.

**FIGURE 63: HISPANIC, SPANISH, OR LATINO BY GEOGRAPHY**

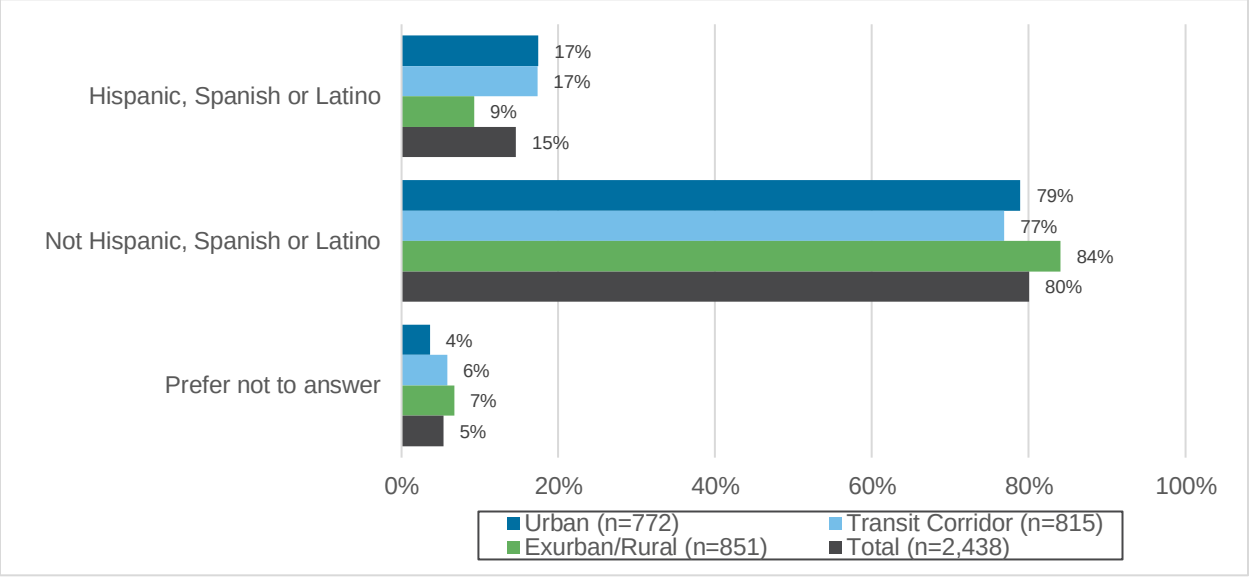



Figure 64 shows the distribution of race for each geography. Over half of respondents in each geography identify as White. The urban geography and the transit geography have a larger percentage of Black, Indigenous and people of color (BIPOC) respondents than the rural or exurban geography.

**FIGURE 64: RACE BY GEOGRAPHY**

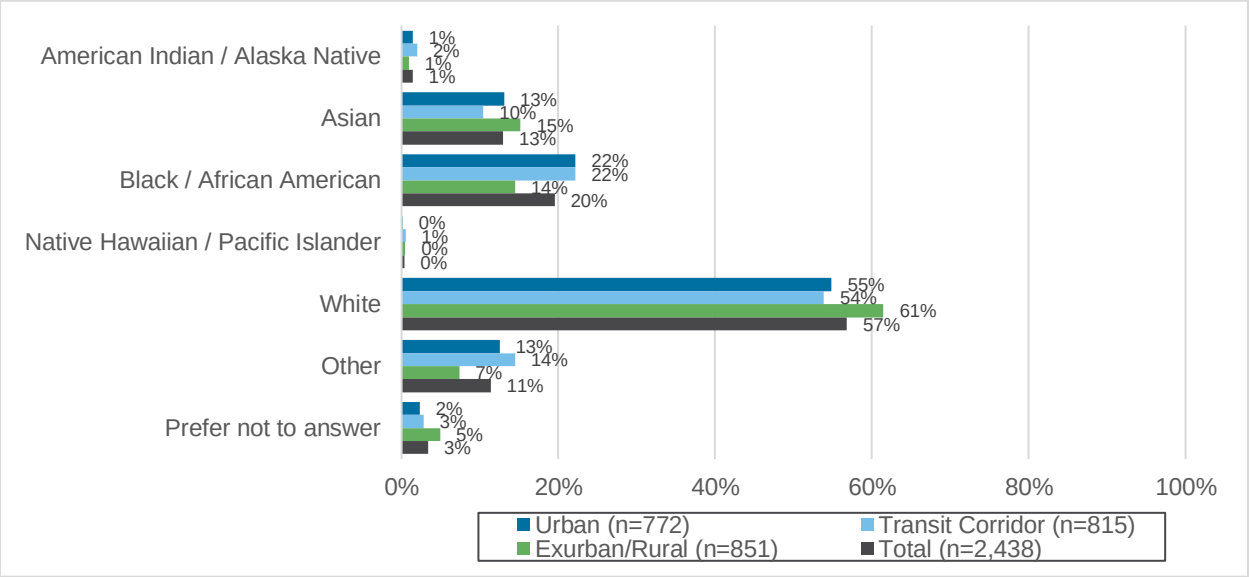
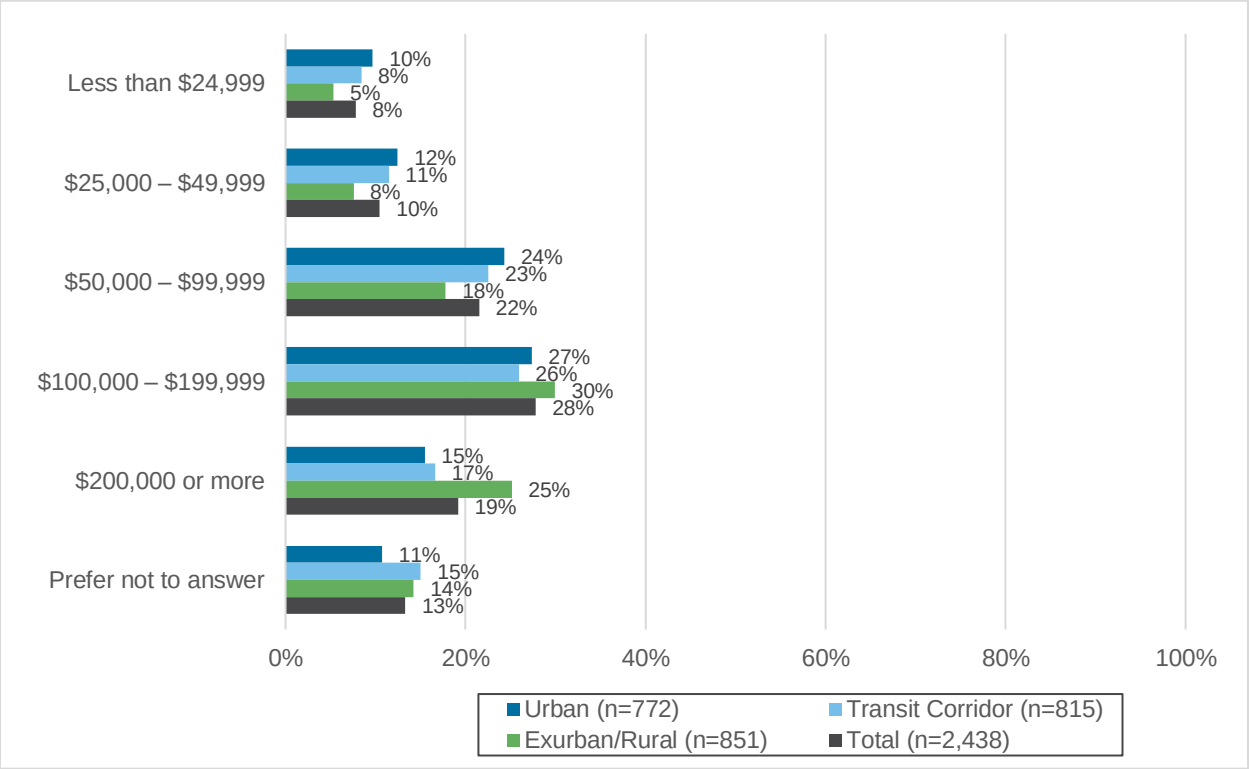



Figure 65 illustrates the distribution of household income. Respondents in the exurban or rural geography have the highest household income with one quarter of respondents making $200,000 or more.

**FIGURE 65: HOUSEHOLD INCOME BY GEOGRAPHY**



# 2.0 SURVEY DEVELOPMENT

The research team worked with Montgomery Planning staff to design a questionnaire that addressed their key pedestrian planning needs. Having worked with Montgomery Planning previously, Toole Design Group played an important role in ensuring the planning objectives were addressed with the questionnaire. The final questionnaire included questions related to:

- Walking/rolling trip details (e.g., number of trips, frequency, trip purpose)
- Most important/least important factors the county should use to prioritize improvements to the pedestrian environment
- Satisfaction with pedestrian environment factors
- Understanding of traffic laws related to pedestrians
- Safety and harassment experience
- Demographics

In order to help Montgomery Planning better understand resident priorities, a technique called Maximum Difference Scaling (aka MaxDiff) was used. This survey technique is easy for respondents to understand and asks them to trade off various improvements. These trade off data result in an ordered list of priorities. This list not only provides the order of preference, but also the strength of preference. Details of the MaxDiff are discussed in a later section.

Once the questionnaire content was finalized, it was programmed using proprietary web survey software, rSurvey. The survey was translated into Spanish and Simplified Chinese. It was password-protected so that each respondent household could only take the survey one time. All responses were stored in a secure Microsoft Azure cloud-based server.

# 3.0 SAMPLING

The sole recruitment strategy for the Montgomery County Pedestrian Survey was address-based sampling (ABS) which entails sending postcards to randomly selected mailing addresses in Montgomery County. A sampling plan was created targeting 1,200 total completed responses. With an assumed overall response rate of 2%, a total of 60,000 addresses were sampled.

The sampling plan was further disaggregated into three sub-areas within Montgomery County to ensure wide participation amongst County residents and enough sample for analysis among different land-use types, which is described in more detail below. For each of the three geographies the target margin of error was approximately 5% and 400 completed surveys.

Figure 3-1 and Figure 3-2 show the postcard which was sent to the invited households. The postcard included invitation language in Spanish and Simplified Chinese to support more diverse outreach for the survey. To maximize response rates, a reminder postcard was sent to all respondents and a raffle of ten $100 e-gift cards was administered for respondents who have completed the survey.

**FIGURE 3-1: FRONT OF POSTCARD**

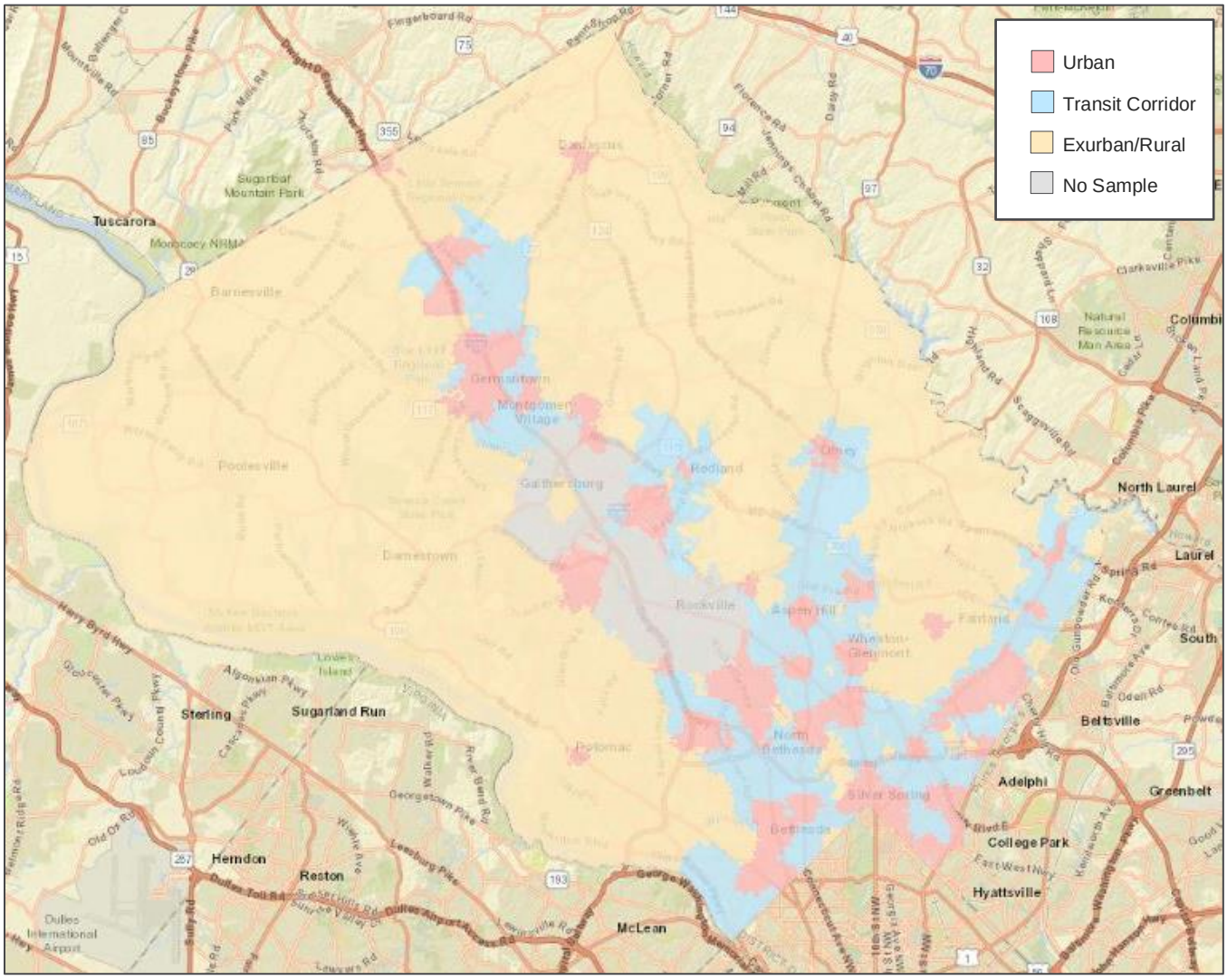
**FIGURE 3-2: BACK OF POSTCARD**


As shown in Figure 3-3, three geographies were identified in Montgomery County for sampling. Separating the region into three different geographies ensured wide coverage in the county by accounting for different land use and, accordingly, the pedestrian environments residents encounter. M-NCPPC provided a map assigning areas throughout the county into three geographies by block group. From there, the geographies were further disaggregated such that each block within Montgomery County was assigned to a single geography as some block groups were large enough to include multiple land use types. The three geographies are defined as:

1. Urban: Geography 1 consists of downtowns and town centers within Montgomery County, containing 2,604 total census blocks.
2. Transit Corridor: Geography 2 consists of transit corridors within Montgomery County, containing 3,089 total census blocks.
3. Exurban/Rural: Geography 3 consists of exurban and rural areas within Montgomery County, containing 3,551 total census blocks.

A total of 1,349 blocks compromising Rockville and Gaithersburg were excluded from sampling as those fell outside of M-NCPPC's planning jurisdiction.

**FIGURE 3-3: SAMPLE GEOGRAPHIES IN MONTGOMERY COUNTY**



# 4.0 SURVEY ADMINISTRATION

The invitation postcards were mailed on Monday, October 26, 2020 followed by the reminder postcards mailed on Friday, November 6, 2020. The survey remained open from Monday, October 26, 2020 until Thursday, December 10, 2020.

Figure 4-1 shows the allocation of postcards mailed within Montgomery County. The red dots indicate addresses in the Geography 1 sample (Urban), the blue dots addresses in Geography 2 (Transit) and the yellow dots addresses in Geography 3 (Exurban/Rural).

**FIGURE 4-1: POSTCARD SAMPLING ADDRESSES BY GEOGRAPHY**

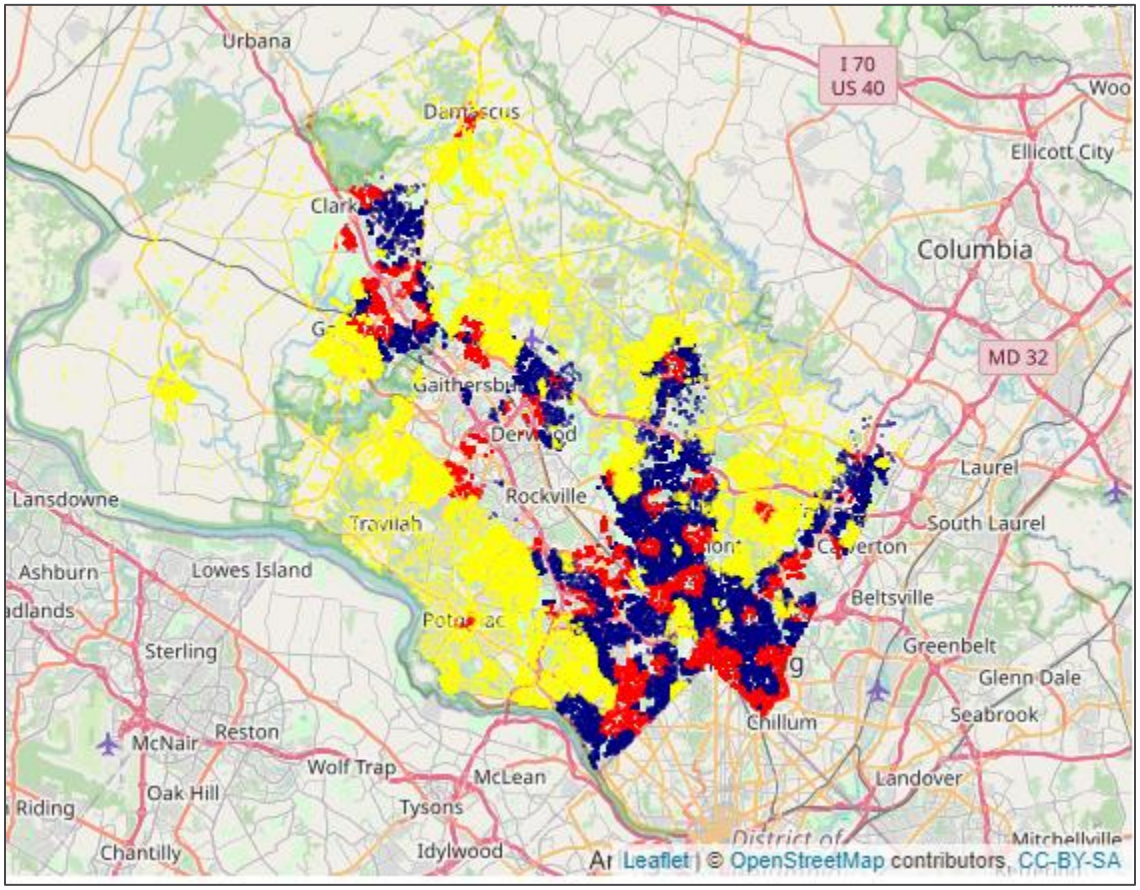


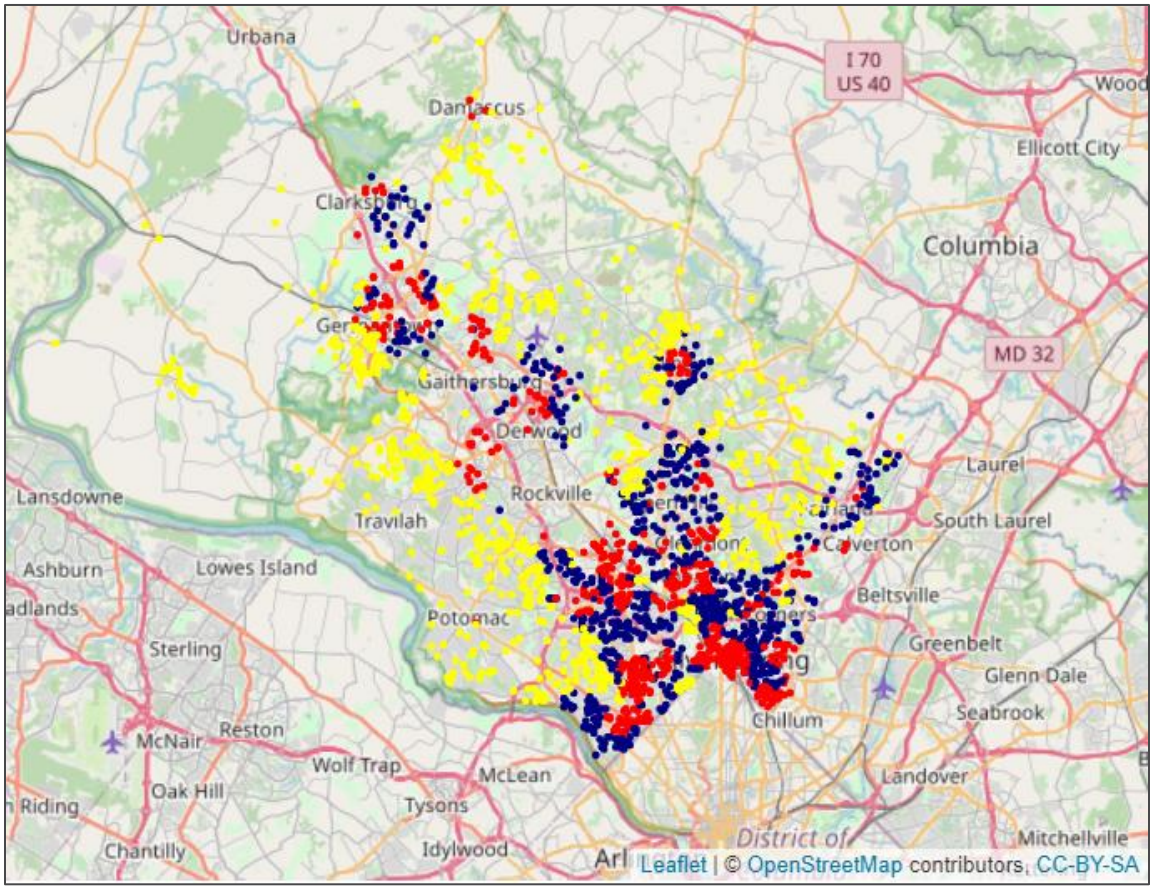

Table 9 shows the number of invitations, survey completions, completions by language, response rate, and margin of error for each geography. A total of 2,438 responses were received with a response rate of 4.1%, significantly exceeding the targeted number of completed surveys for each geography. A total of 2,182 postcards were returned to sender between the original invite and a reminder invitation (approximately 1,090 households), therefore the effective response rate is slightly higher.

**TABLE 9: SURVEY RESPONSE SUMMARY**

| | Urban (1) | Transit (2) | Exurban/ Rural (3) | Total |
|---|---|---|---|---|
| Invitations | 20,000 | 20,000 | 20,000 | 60,000 |
| Survey Completes | 772 | 815 | 851 | 2,438 |
| Spanish Completes | 7 | 18 | 3 | 28 |
| Chinese Completes | 2 | 3 | 7 | 12 |
| Overall Response Rate | 3.9% | 4.1% | 4.3% | 4.1% |
| Margin of Error (95% CI) | 4% | 3% | 3% | 2% |

Figure 4-2 shows survey completions by geography. The red dots indicate completions in Geography 1 (Urban), the blue dots are completions in Geography 2 (Transit) and the yellow dots are completions in Geography 3 (Exurban/Rural). This map, along with Figure 3-3, demonstrates the wide distribution and subsequent completion of surveys across the County.

**FIGURE 4-2: SURVEY COMPLETES BY GEOGRAPHY**



# 5.0 WEIGHTING

The survey records were weighted to better represent the actual population in the Montgomery County Planning Department's jurisdiction within Montgomery County. The survey records were separated for weighting by the same three geographies used in sampling: urban, transit, and exurban/rural. The data were weighted using 2018 American Community Survey (ACS), 5-year estimates (U.S. Census Bureau) of income, race and Hispanic, Spanish or Latino origin distributions for each geography. To account for survey respondents who preferred to not provide their 2019 household income, race or Hispanic, Spanish, or Latino origin, the category was treated separately and the ACS distributions were adjusted accordingly (in other words, the proportion of "prefer not to answer" responses were kept the same). The income and race/ethnicity variables were not imputed for respondents who chose not to answer because a) there was no distinguishable pattern to these respondent's survey responses compared to the overall sample, b) the final number of affected respondents was relatively low, and c) given the first two points there was no reason to introduce unnecessary estimated adjustments through the imputation process.

All analysis of the dataset were conducted using weighted data to ensure that the results are representative of the County population.

Table 10 shows the ACS distribution of income within each geography. Several household income categories were combined to match ACS data ("$200,000 to $299,000" and "$300,000 or more").

**TABLE 10: INCOME TARGET DISTRIBUTION**

| Household Income | Urban (1) | Transit (2) | Exurban/ Rural (3) |
|---|---|---|---|
| Less than $15,000 | 6.0% | 4.5% | 3.2% |
| $15,000 – $24,999 | 3.6% | 4.0% | 2.2% |
| $25,000 – $34,999 | 4.9% | 4.4% | 2.9% |
| $35,000 – $49,999 | 7.5% | 7.0% | 4.7% |
| $50,000 – $74,999 | 13.0% | 12.1% | 8.9% |
| $75,000 – $99,999 | 11.4% | 10.4% | 8.8% |
| $100,000 – $149,999 | 17.6% | 15.8% | 17.0% |
| $150,000 – $199,999 | 9.8% | 10.1% | 12.9% |
| $200,000 or more | 15.5% | 16.6% | 25.1% |
| Prefer Not to Answer | 10.7% | 15.1% | 14.2% |
| **Total** | **100.0%** | **100.0%** | **100%** |

Table 11 shows the overall unweighted income distribution, the weighted income distribution, and the difference between the unweighted and weighted income distributions. Lower income respondents were underrepresented in the survey response and were weighted up to match ACS distributions, whereas higher income respondents were overrepresented in the sample and weighted down. All three geographies had unweighted and weighted differences that are similar to the overall survey area.

**TABLE 11: INCOME BY UNWEIGHTED VS. WEIGHTED**

| Income | Unweighted | Weighted | Difference |
|---|---|---|---|
| Less than $15,000 | 2% | 5% | 3% |
| $15,000 – $24,999 | 2% | 3% | 2% |
| $25,000 – $34,999 | 2% | 4% | 2% |
| $35,000 – $49,999 | 3% | 6% | 3% |
| $50,000 – $74,999 | 8% | 11% | 4% |
| $75,000 – $99,999 | 10% | 10% | 0% |
| $100,000 – $149,999 | 20% | 17% | -3% |
| $150,000 – $199,999 | 16% | 11% | -5% |
| $200,000 or more | 25% | 19% | -6% |
| Prefer not to answer | 13% | 13% | 0% |
| **Total** | **100%** | **100%** | |

Table 12 shows the ACS distribution of race within each geography. Some race categories represent a small percentage of the Montgomery County population and had small sample sizes in the survey data, therefore, the survey data were weighted to black or African American alone, white alone, and other races ACS distributions.

**TABLE 12: RACE TARGET DISTRIBUTIONS**

| Race | Urban (1) | Transit (2) | Exurban/ Rural (3) |
|---|---|---|---|
| Black or African American Alone | 21.2% | 20.1% | 13.6% |
| White Alone | 49.3% | 49.6% | 57.1% |
| Other Races | 27.2% | 27.4% | 24.3% |
| Prefer Not to Answer | 2.4% | 2.8% | 4.9% |
| **Total** | **100%** | **100%** | **100%** |

Table 13 shows the overall unweighted race distribution, the weighted race distribution, and the difference between the unweighted and weighted race distributions. Black or African American and other races were underrepresented in the survey response and were weighted up to match ACS distributions. While Black or African American respondents were underrepresented in the

sample, there were a total of 177 survey respondents in that segment, which provides a 7% margin of error for this segment at the county level.

**TABLE 13: RACE BY UNWEIGHTED VS. WEIGHTED**

| Race | Unweighted | Weighted | Difference |
|---|---|---|---|
| **Black or African American** | 6% | 18% | 12% |
| **White** | 74% | 52% | -21% |
| **Other Races** | 17% | 26% | 9% |
| **Prefer not to answer** | 3% | 3% | 0% |
| **Total** | 100% | 100% | |

Table 14 shows the ACS distribution of Hispanic, Spanish or Latino origin within each geography.

**TABLE 14: HISPANIC, SPANISH, OR LATINO ORIGIN TARGET DISTRIBUTIONS**

| Hispanic, Spanish, or Latino Origin | Urban (1) | Transit (2) | Exurban/ Rural (3) |
|---|---|---|---|
| Yes | 17.5% | 17.3% | 9.3% |
| No | 78.9% | 76.8% | 84.0% |
| Prefer Not to Answer | 3.6% | 5.9% | 6.7% |
| **Total** | **100%** | **100%** | **100%** |

Table 15 shows the overall unweighted distribution, the weighted distribution and the difference between the unweighted and weighted distributions for respondents of Hispanic, Spanish or Latino origin. Respondents of Hispanic, Spanish or Latino origin were underrepresented in the survey response and were weighted up to match ACS distributions. While these respondents were underrepresented in the sample, there were a total of 147 survey respondents in the segment, which equates to an 8% margin of error.

**TABLE 15: HISPANIC, SPANISH, OR LATINO ORIGIN BY UNWEIGHTED VS. WEIGHTED**

| Hispanic, Spanish, or Latino Origin | Unweighted | Weighted | Difference |
|---|---|---|---|
| Yes | 6% | 15% | 9% |
| No | 89% | 80% | -9% |
| Prefer not to answer | 5% | 5% | 0% |
| **Total** | **100%** | **100%** | |

Lastly, the overall geography distributions were weighted to the ACS population so that the sample is representative of M-NCPPC's planning districts including all towns in Montgomery County with the exception of Rockville and Gaithersburg. Table 16 shows the unweighted

distribution, the weighted distribution, and the difference between the unweighted and weighted distributions for each geography. This analysis demonstrates that the unweighted sample was already very close to representing the actual distribution of residents across Montgomery County.

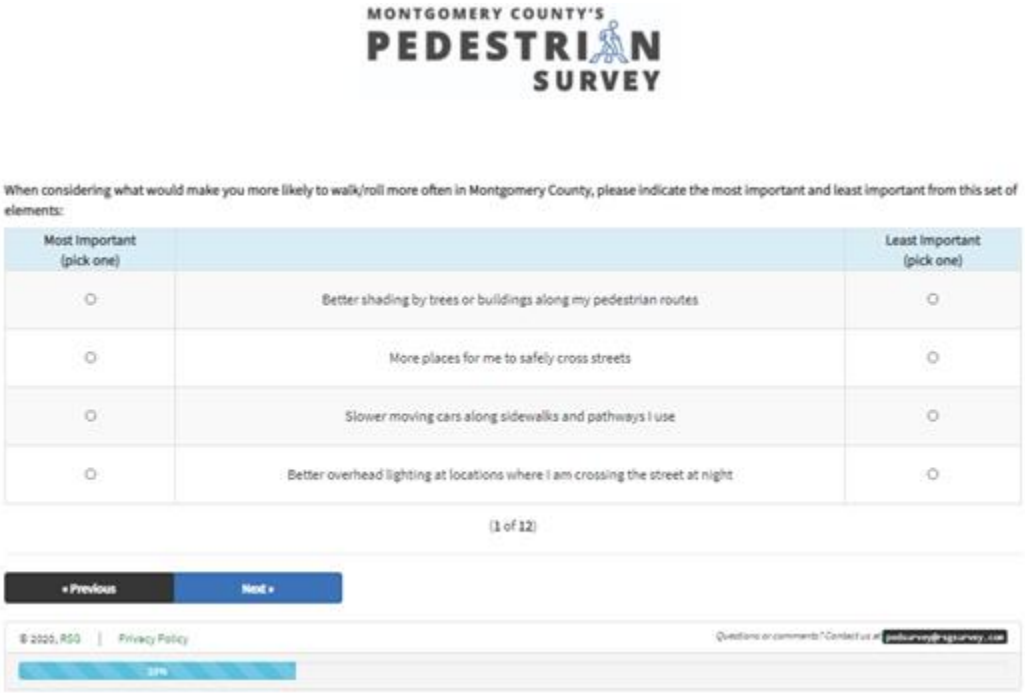
**TABLE 16: GEOGRAPHY DISTRIBUTION BY UNWEIGHTED VS. WEIGHTED**

| | Unweighted | Weighted | Difference |
|---|---|---|---|
| Urban (1) | 32% | 34% | 2% |
| Transit (2) | 33% | 32% | -1% |
| Exurban/Rural (3) | 35% | 34% | -1% |
| **Total** | **100%** | **100%** | |

# 6.0 MAXIMUM DIFFERENCE (MAXDIFF)

A key part of this survey was to capture resident sentiment around pedestrian experience. For this task, a MaxDiff approach was used, which allows one to assess both relative and absolute importance amongst different items. For the MaxDiff experiments, 21 unique statements about the pedestrian experience in Montgomery County were developed and shown in the survey. As shown in Figure 6-1, respondents were provided 12 separate experiments and each experiment presented the respondent with four different statements. The respondent chose which statement was most important and which statement was least important to them. The results were modeled using Sawtooth Software CBC/HB, a Hierarchical Bayes estimation software, which produced individual utilities for each statement.

**FIGURE 6-1: MAXDIFF EXPERIMENT FROM SURVEY INSTRUMENT**




RSG rescaled the MaxDiff utilities using min-max normalization, so that the normalized utilities for each respondent fall in the range from 0 to 100. The final dataset contains the normalized utilities as well as variables that flag (assign a 1 to) each utility over sixty, representing a reasonable cutoff for “high” priority statements. The normalized values can be averaged and ranked, where the statements with the highest average were the most important to respondents and the statements with the lowest average were the least important. The variables that flag each normalized utility over 60 can be used to show the percentage of the sample that found a particular statement important, a useful supplemental tool for conducting cross-tabulations

against other variables of interest. The threshold to flag a value over 60 is commonly used, but different thresholds can be developed from the normalized scores and employed for different analytical purposes. MaxDiff results are explored using weighted survey results in section 1.3 of this report.

# 7.0 APPENDIX A: SCREEN CAPTURES

**FIGURE 7-1: LANGUAGE**

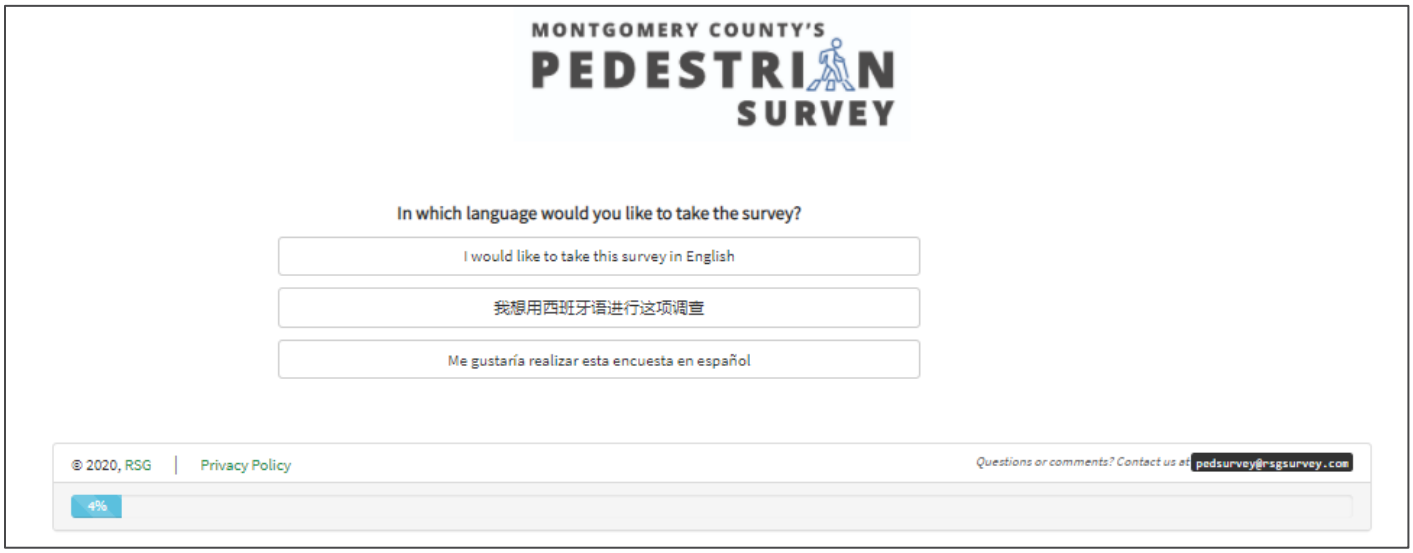


**FIGURE 7-2: INTRODUCTION**

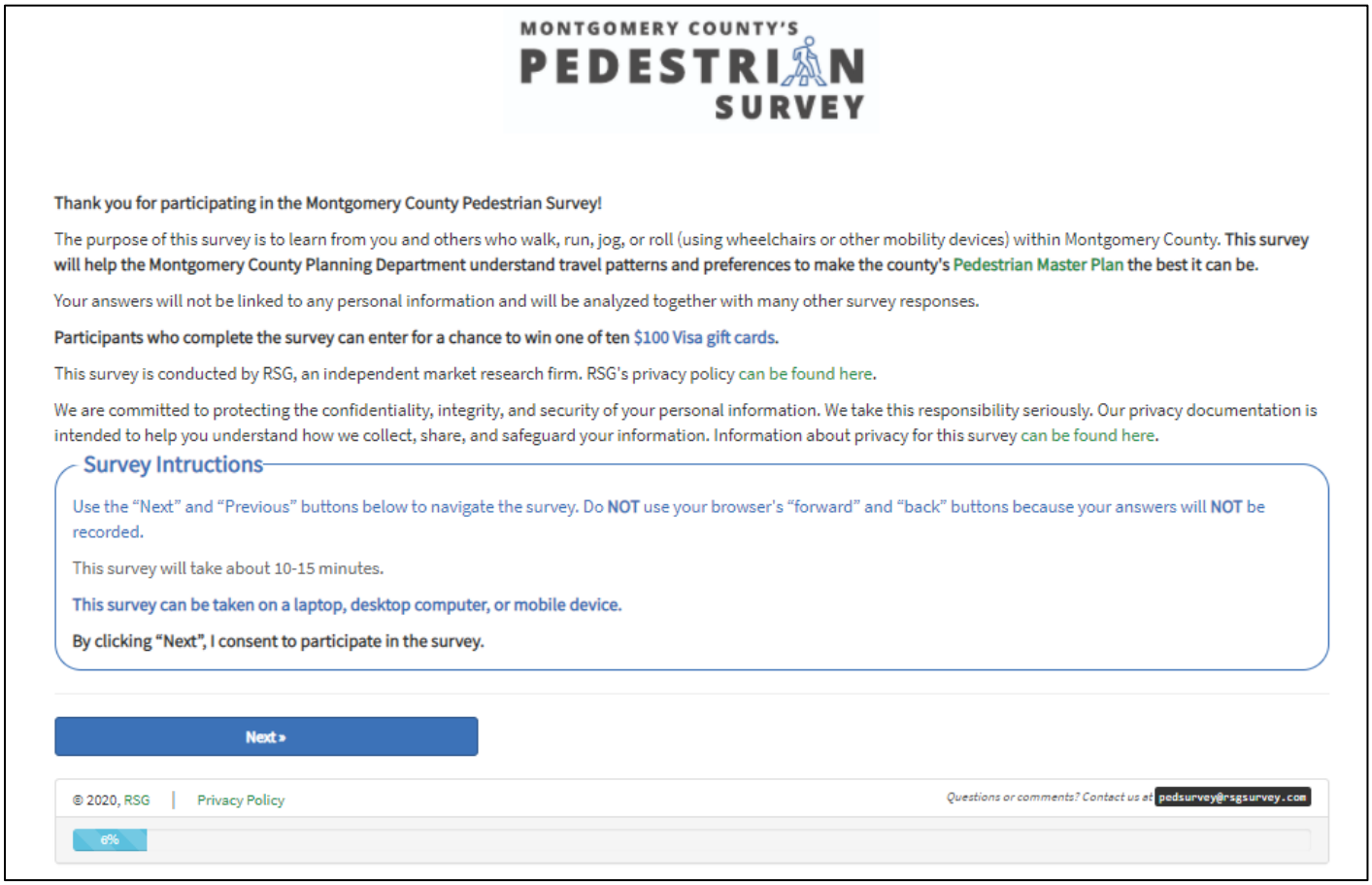


**FIGURE 7-3: WALK PURPOSE**

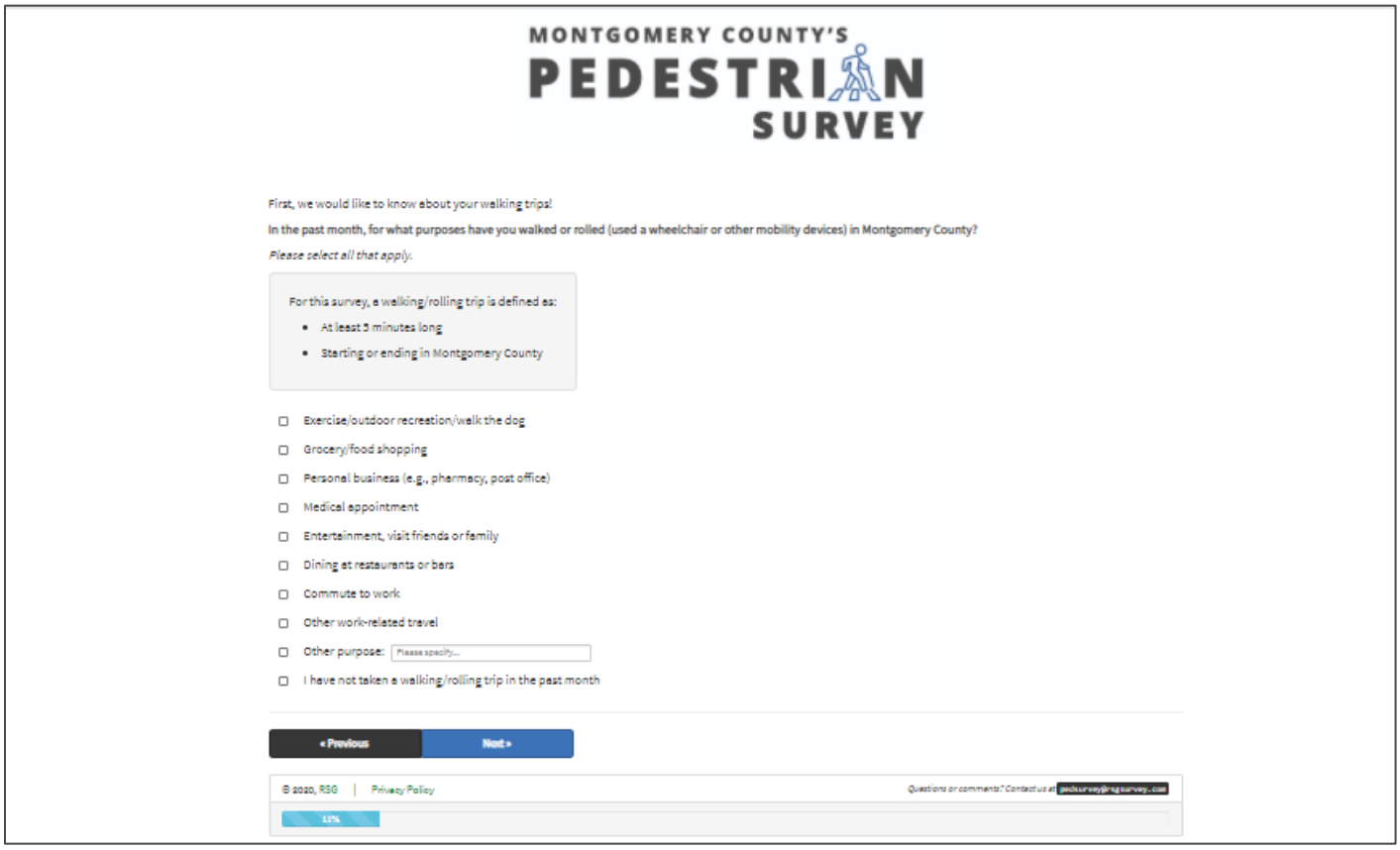


**FIGURE 7-4: WALK FREQUENCY**

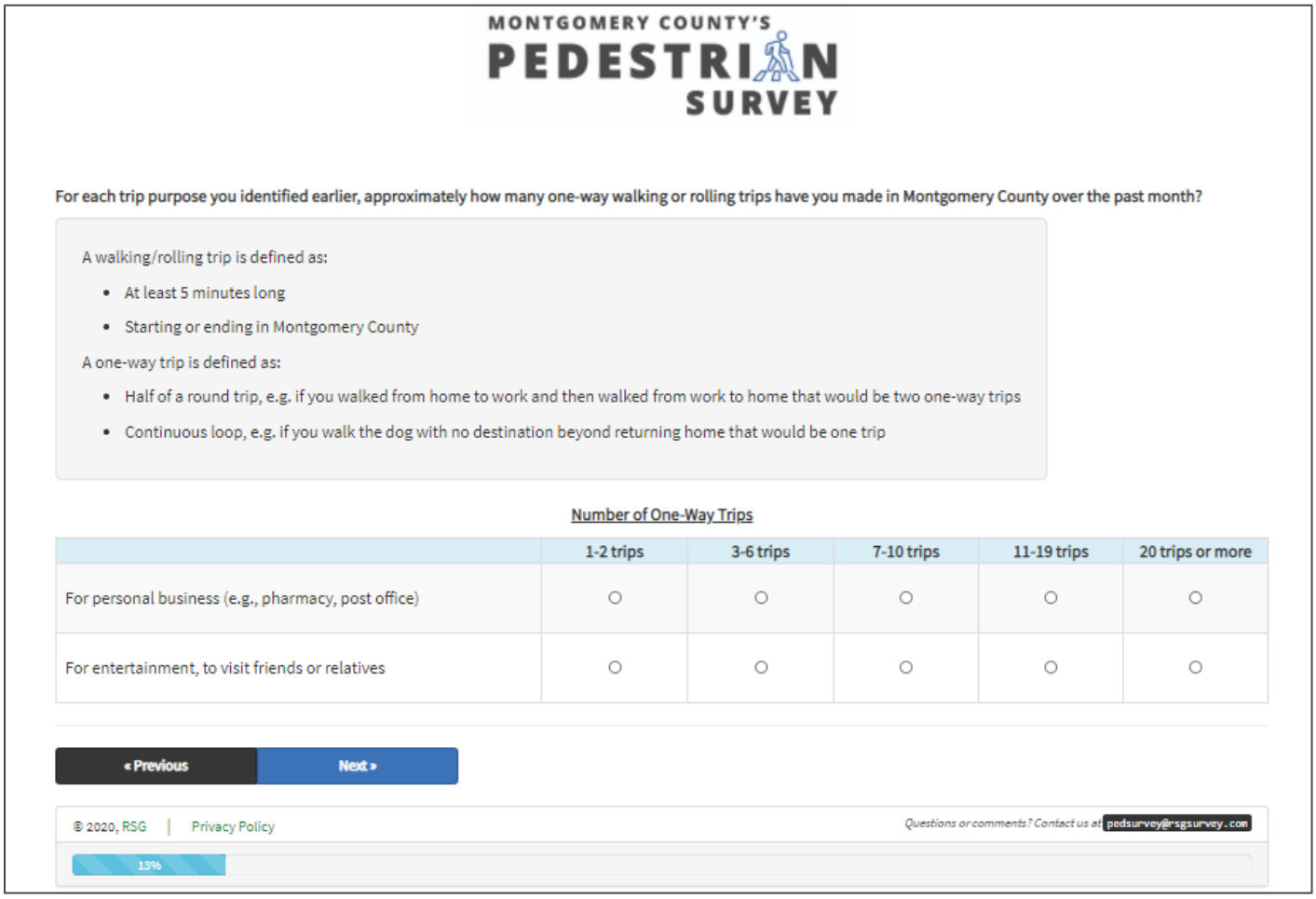


**FIGURE 7-5: WALK TIME OF DAY**

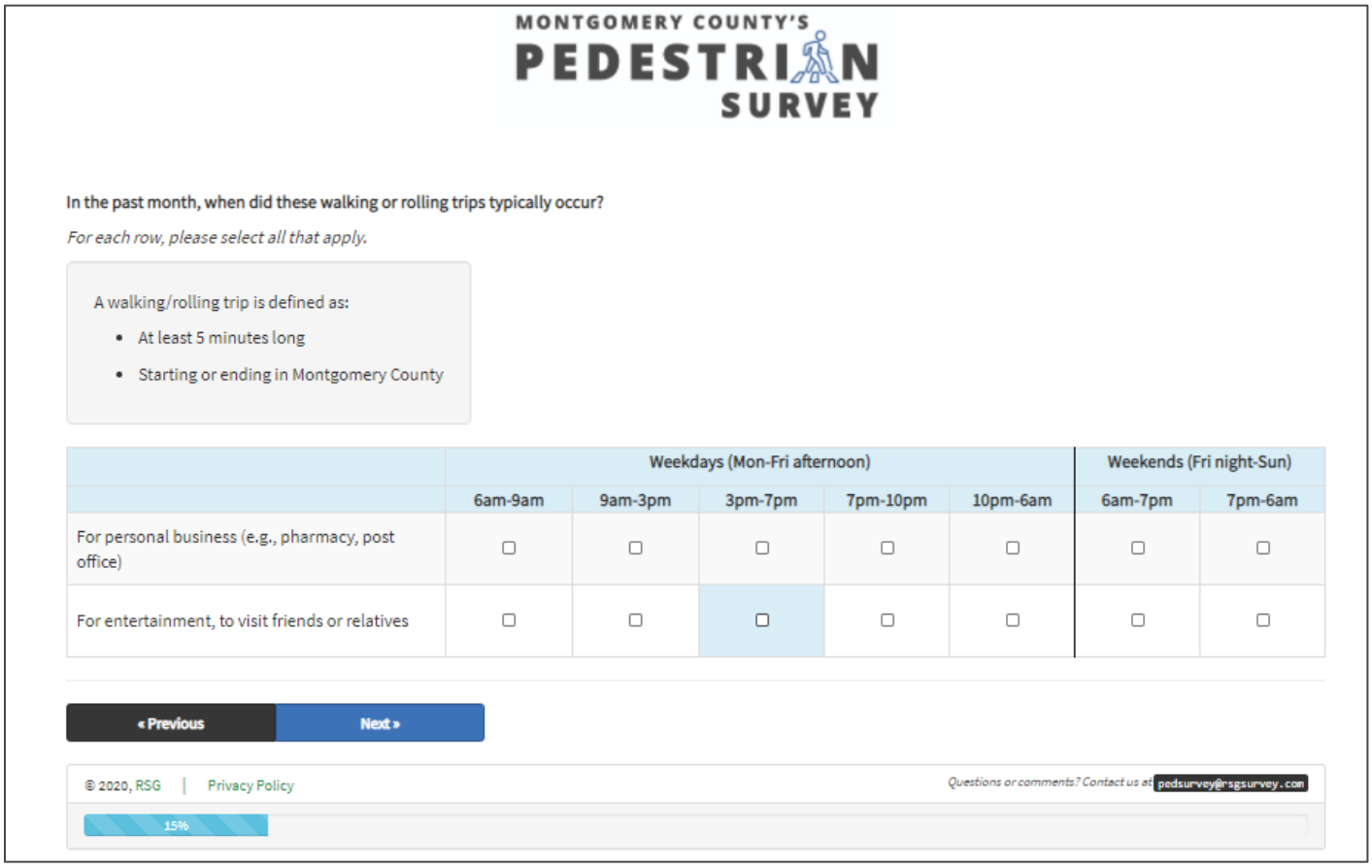


**FIGURE 7-6: WALK DESTINATION**

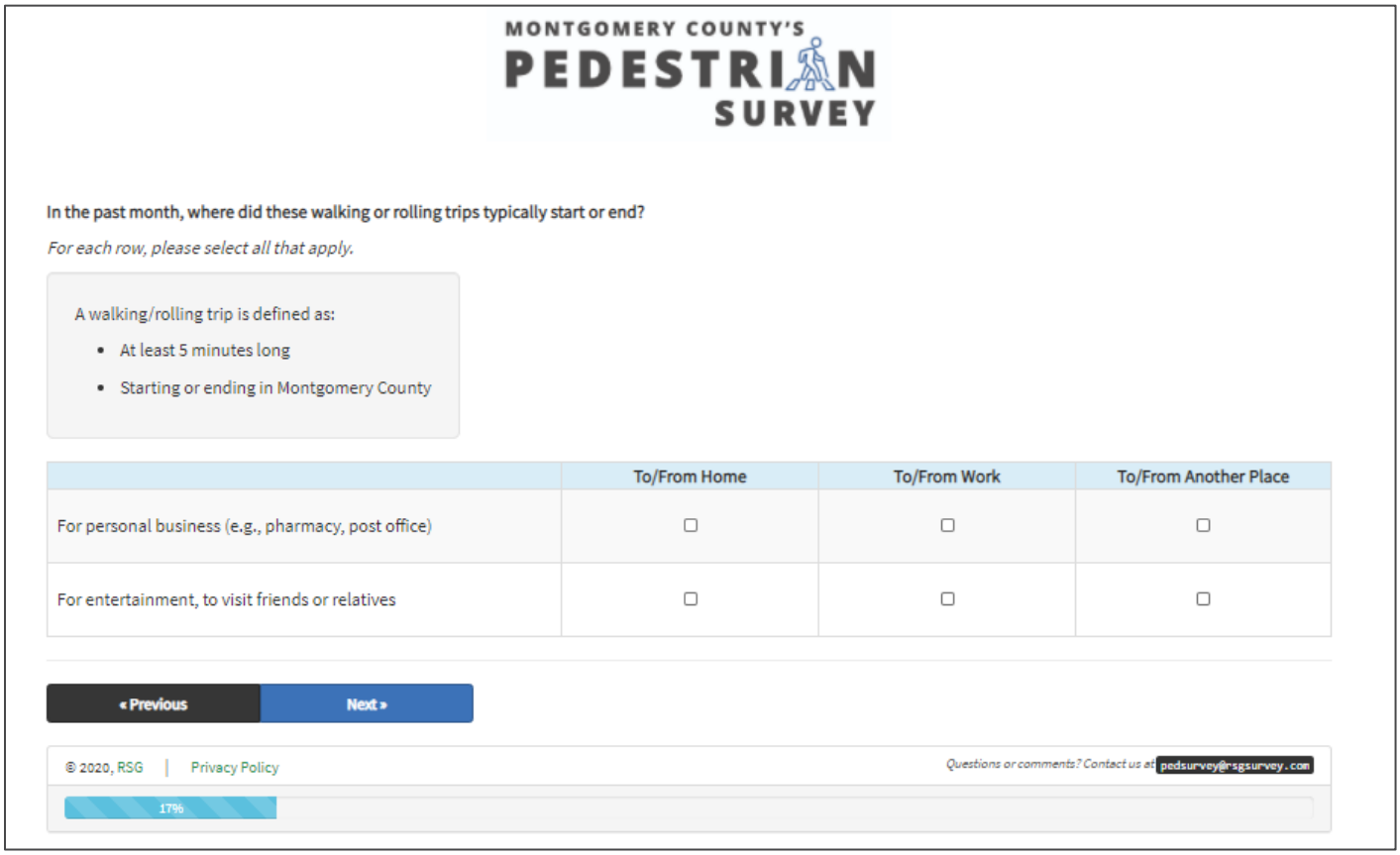


**FIGURE 7-7: WALK TIME**

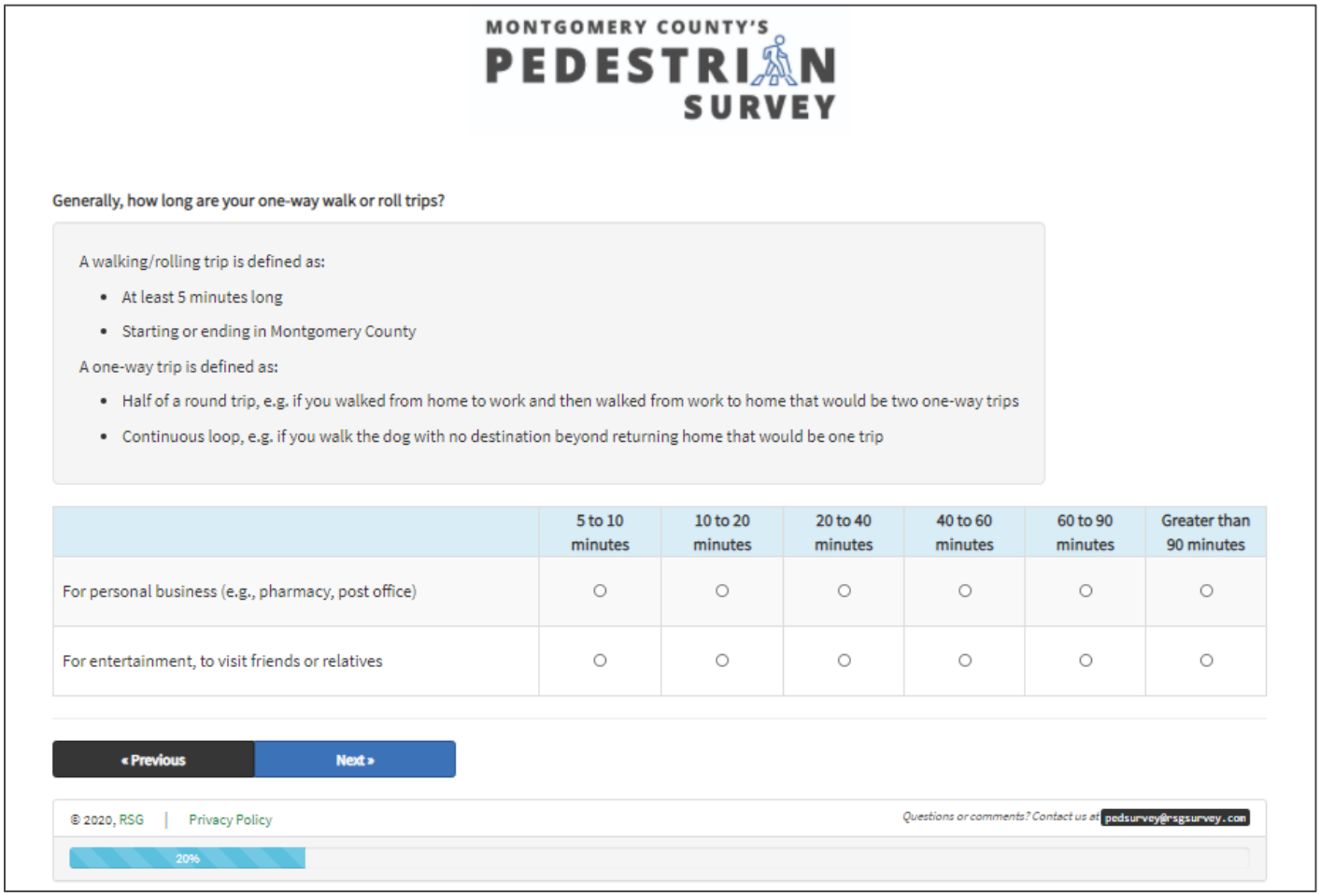


**FIGURE 7-8: BEFORE AND AFTER COVID-19 TRIP TYPES**

**FIGURE 7-9: WHY NOT WALKING**

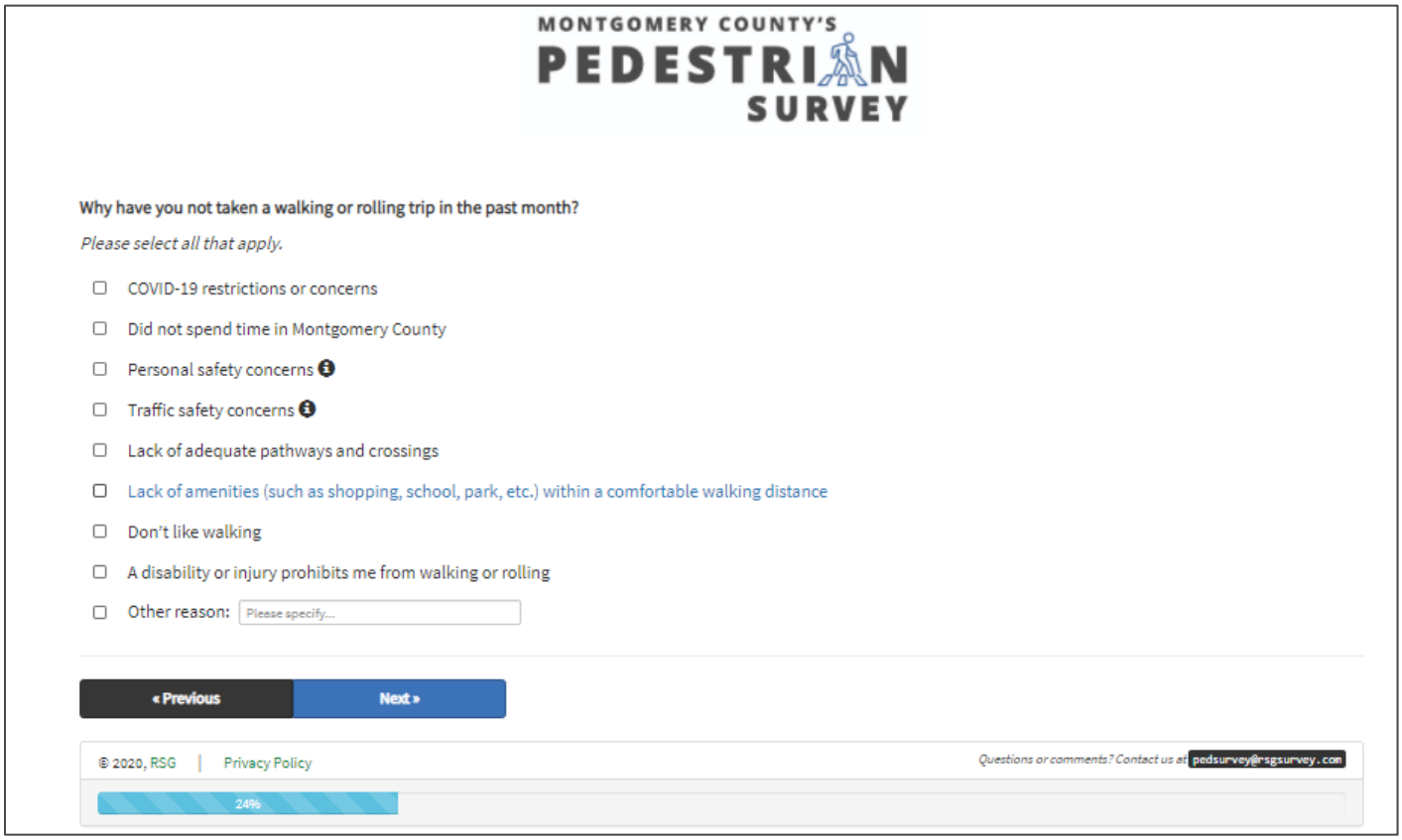



**FIGURE 7-10: MAXDIFF INTRODUCTION**

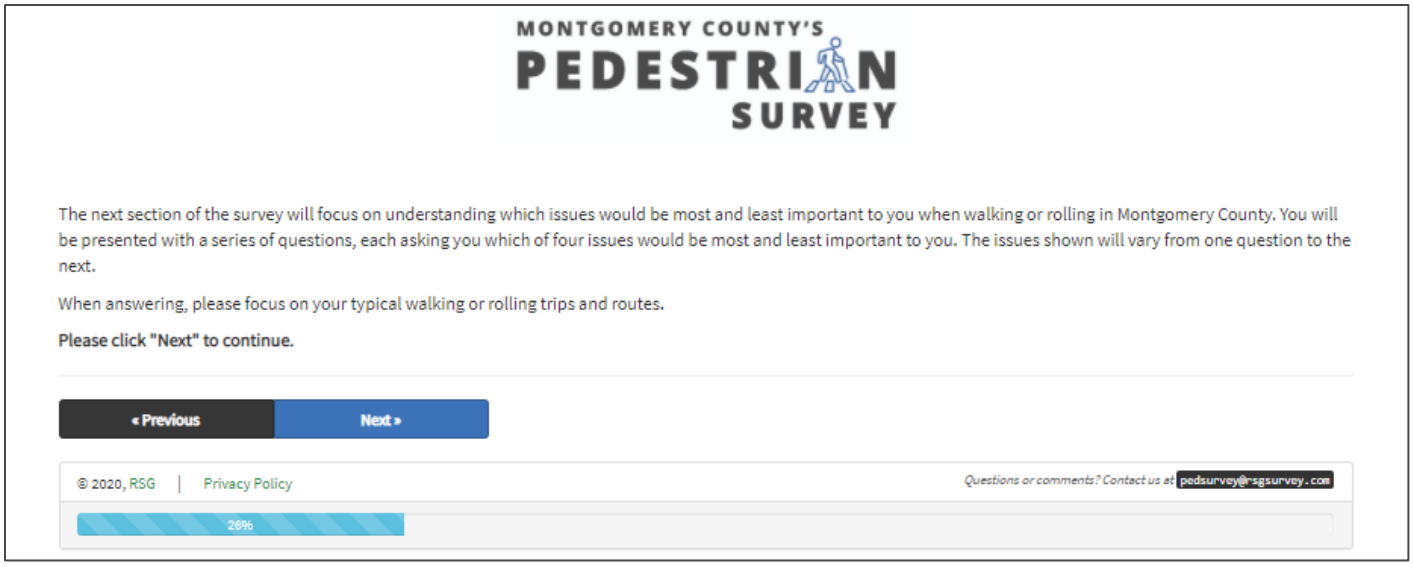


**FIGURE 7-11: MAXDIFF EXPERIMENT 1**

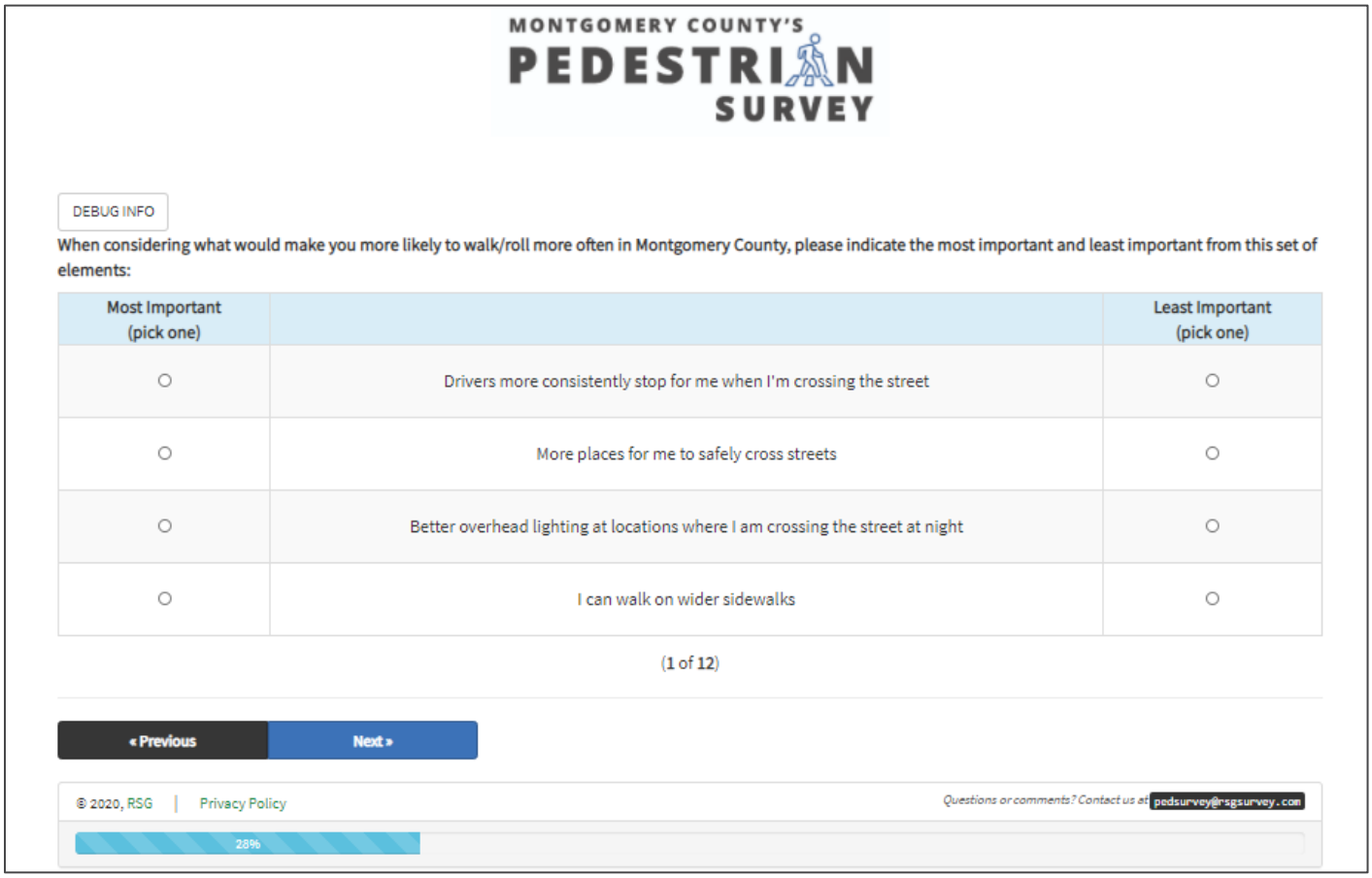


**FIGURE 7-12: MAXDIFF EXPERIMENT 2**

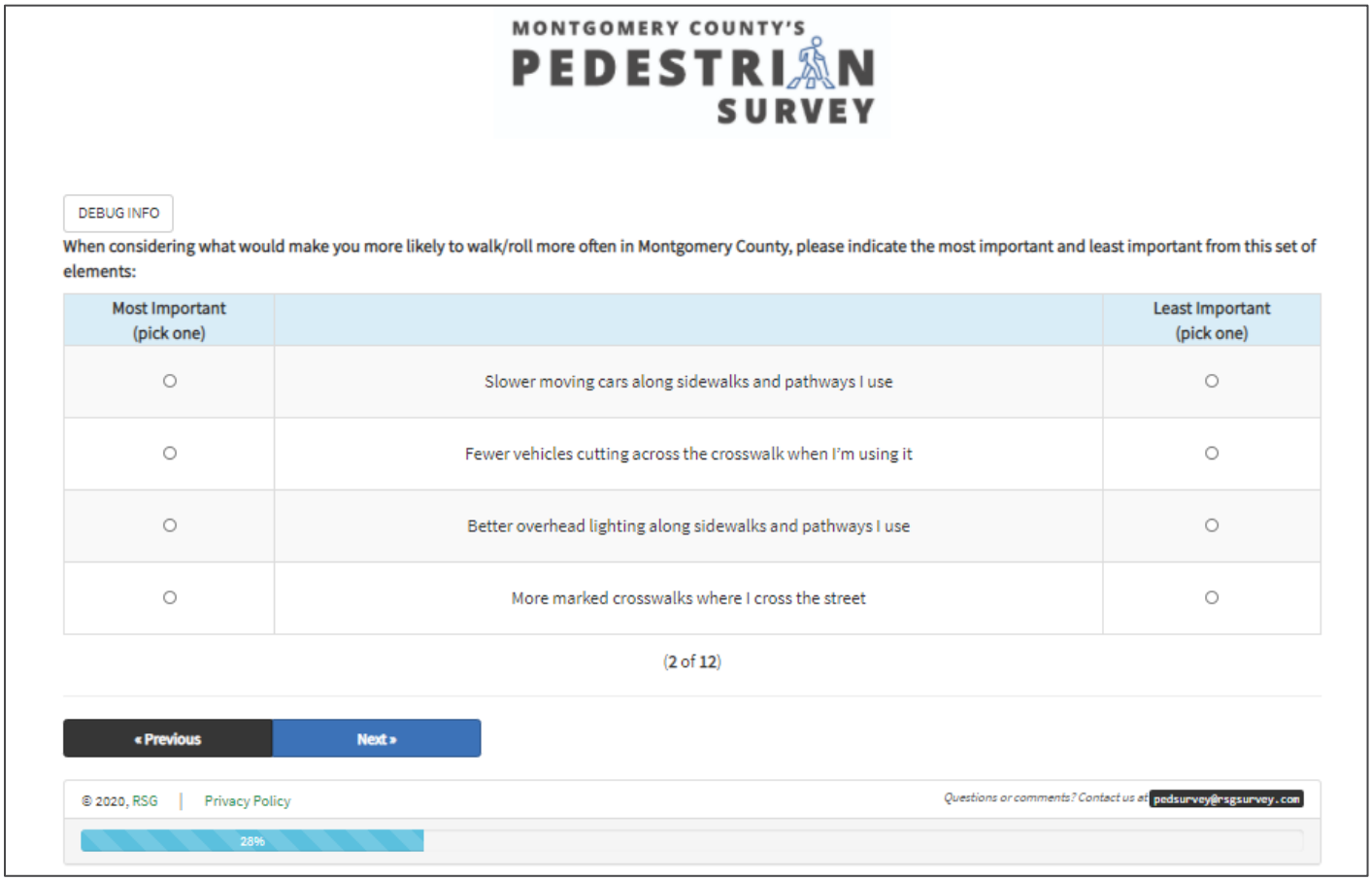


**FIGURE 7-13: MAXDIFF EXPERIMENT 3**

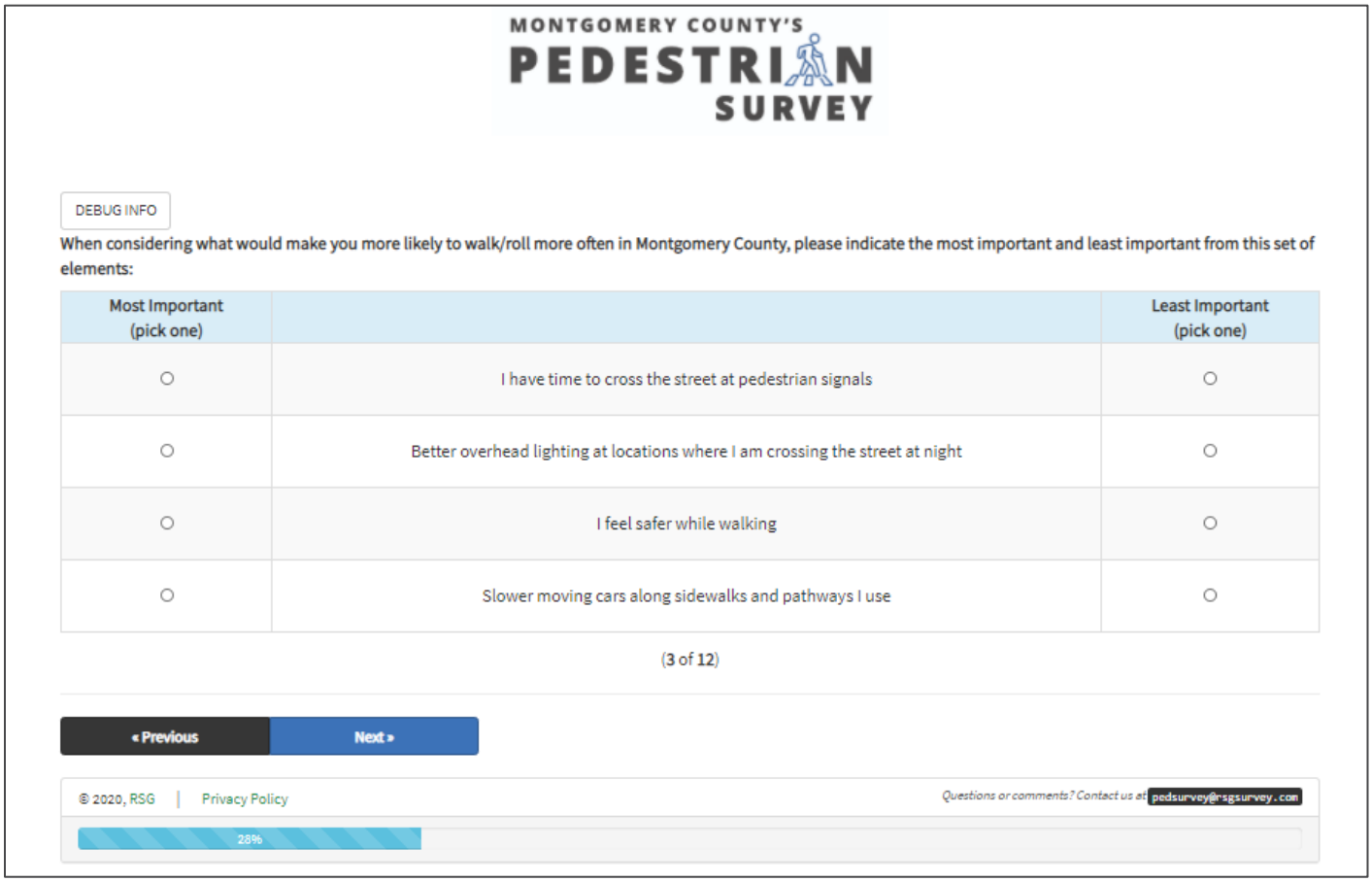


**FIGURE 7-14: MAXDIFF EXPERIMENT 4**

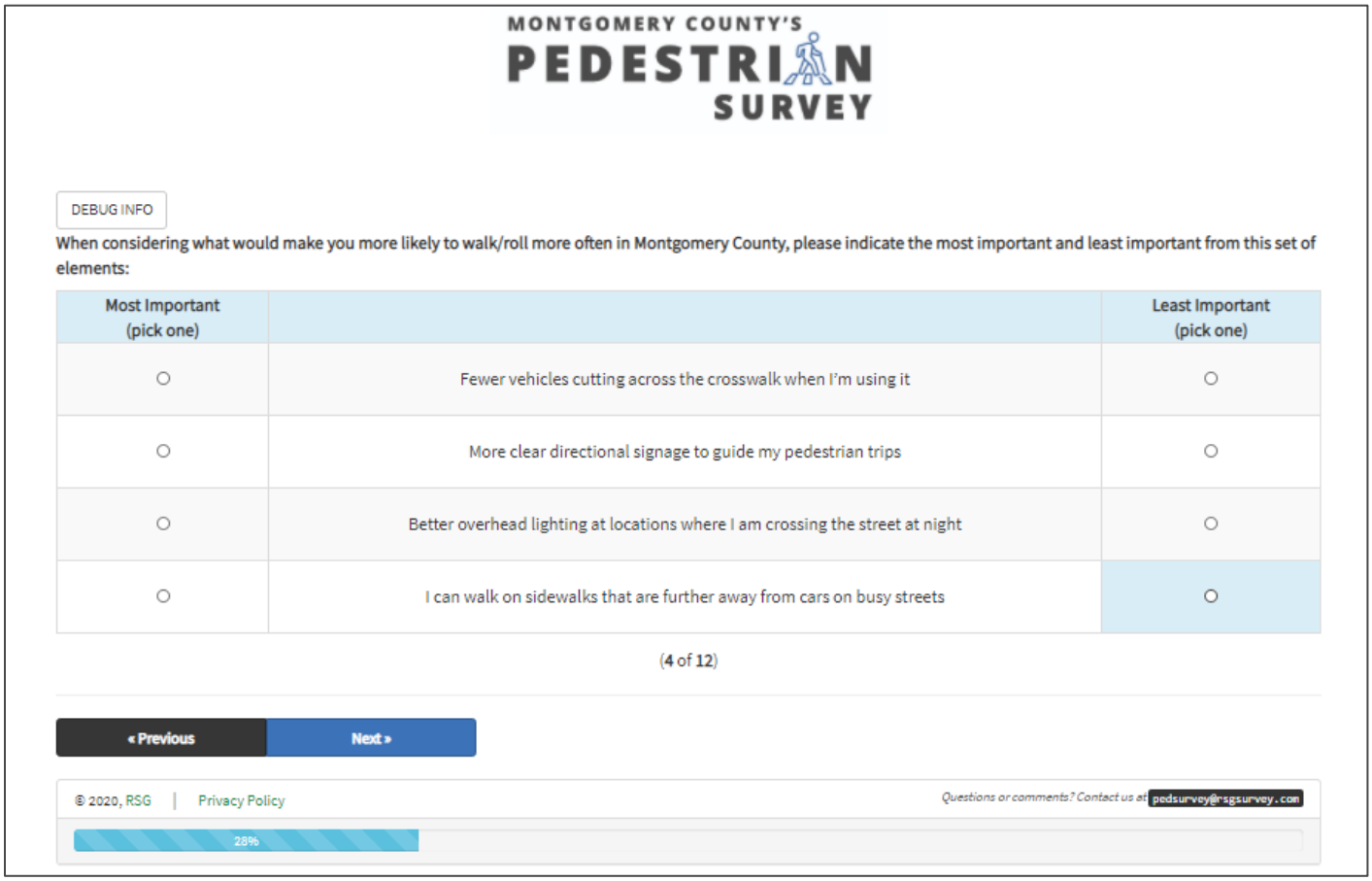


**FIGURE 7-15: MAXDIFF EXPERIMENT 5**

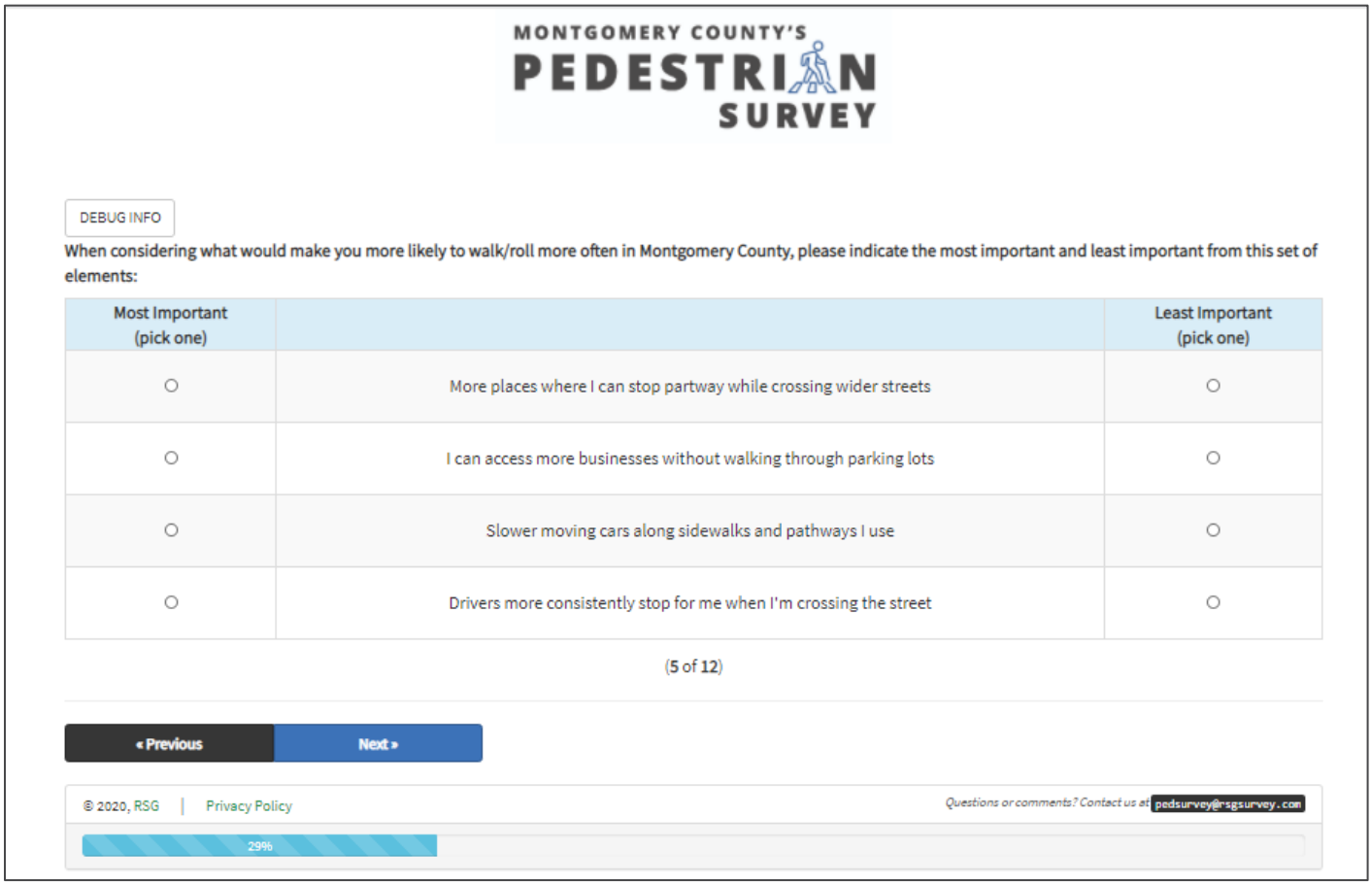


**FIGURE 7-16: MAXDIFF EXPERIMENT 6**

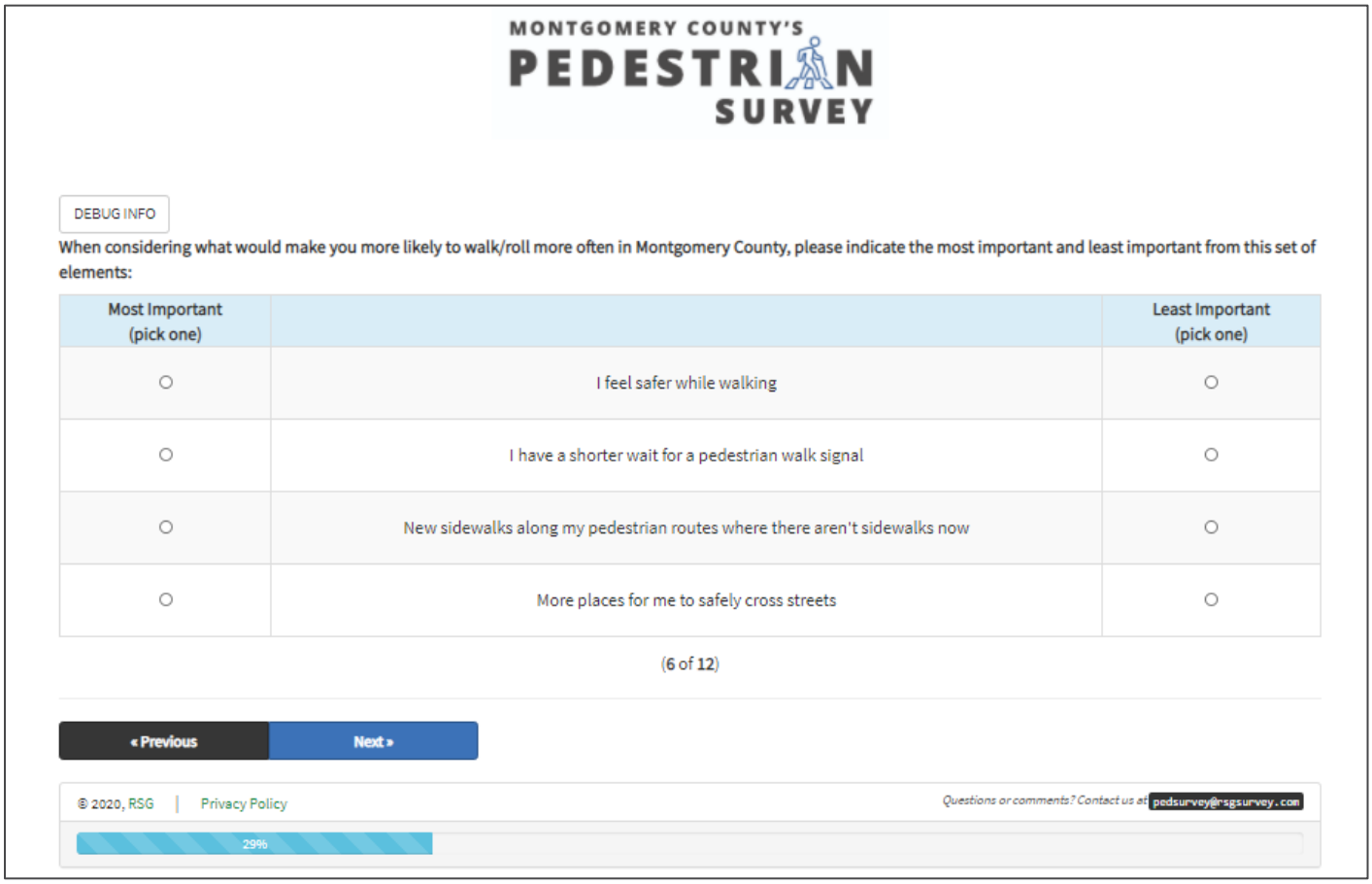


**FIGURE 7-17: MAXDIFF EXPERIMENT 7**

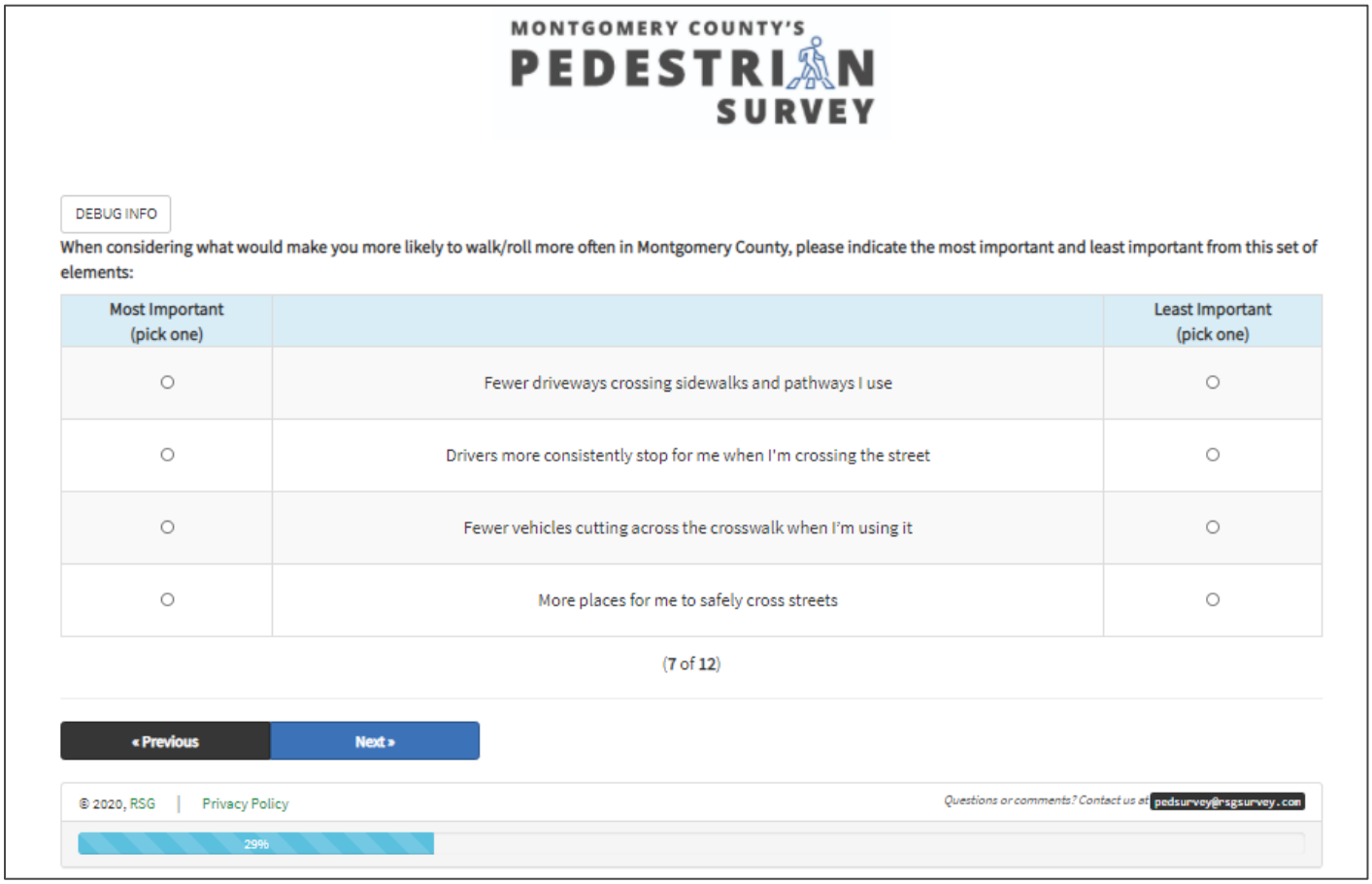


**FIGURE 7-18: MAXDIFF EXPERIMENT 8**

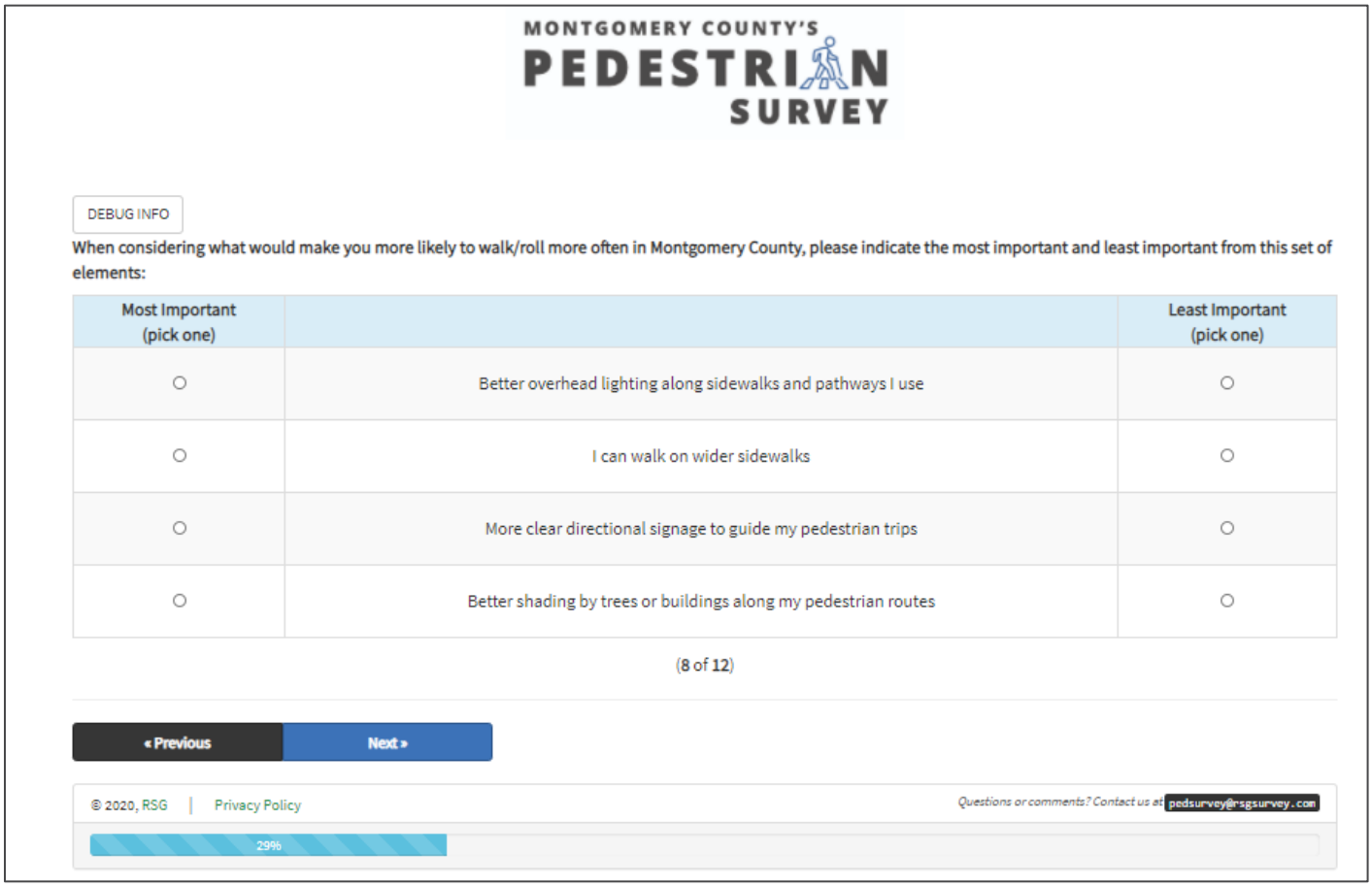


**FIGURE 7-19: MAXDIFF EXPERIMENT 9**

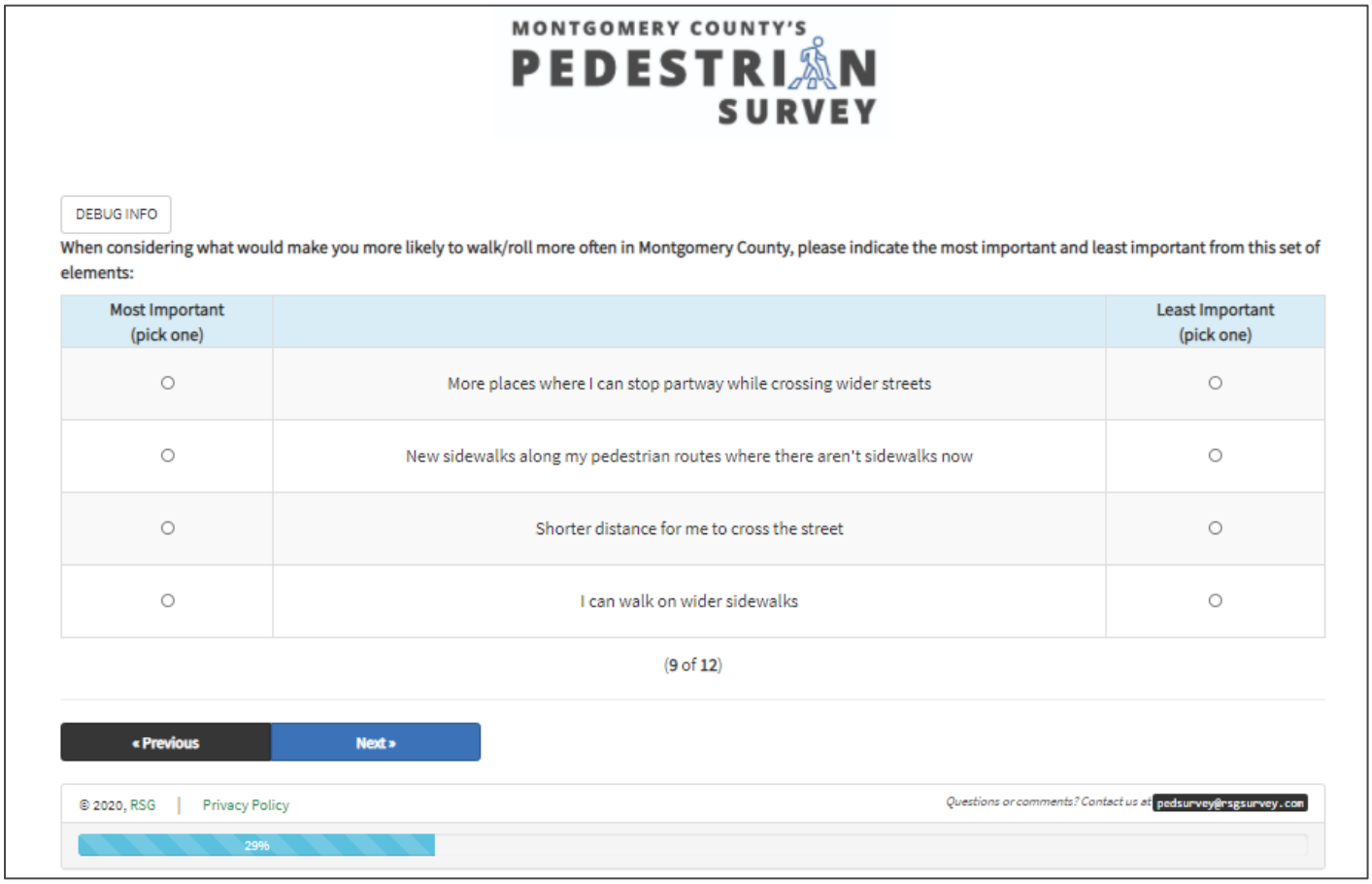


**FIGURE 7-20: MAXDIFF EXPERIMENT 10**

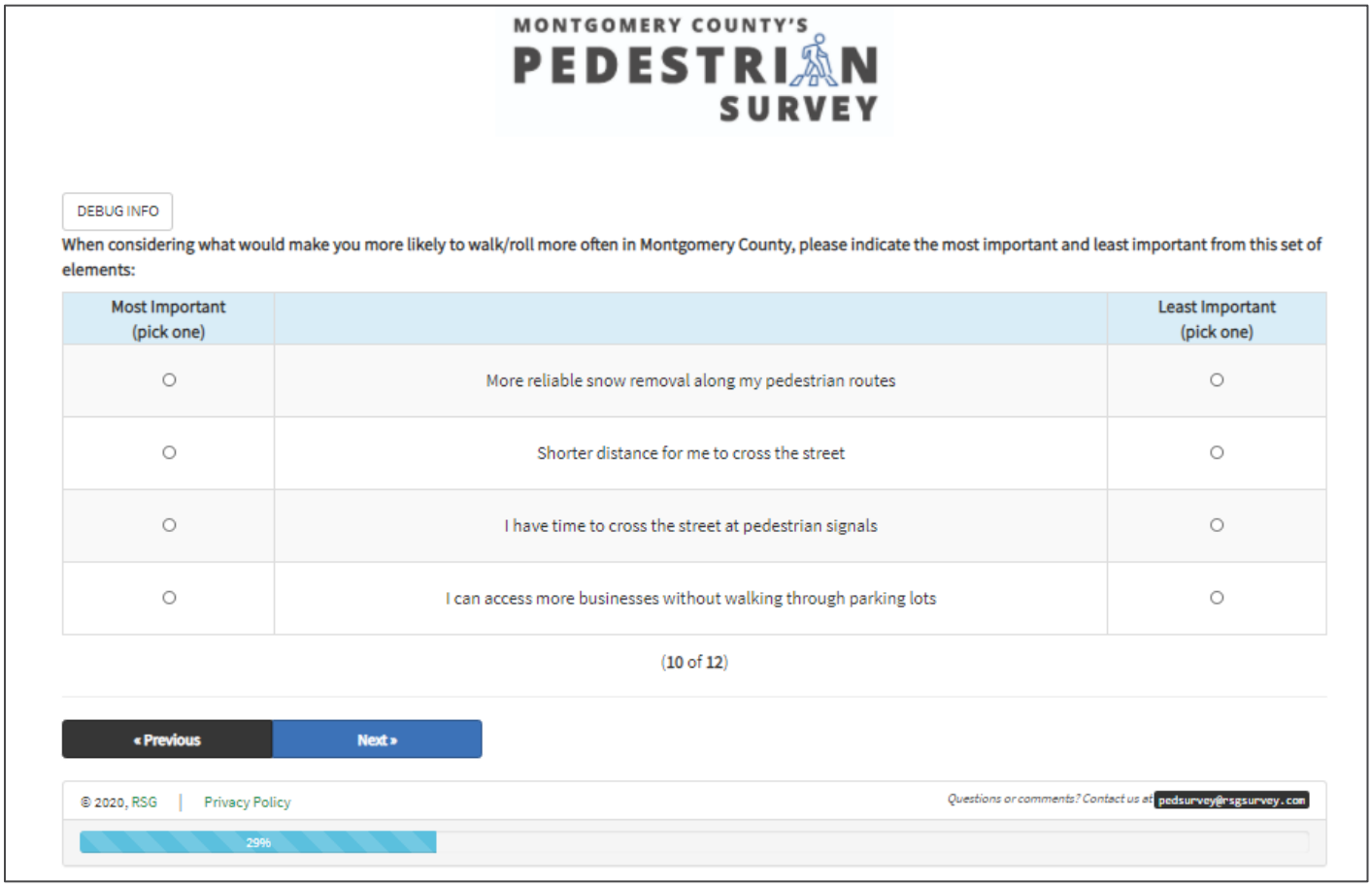


**FIGURE 7-21: MAXDIFF EXPERIMENT 11**

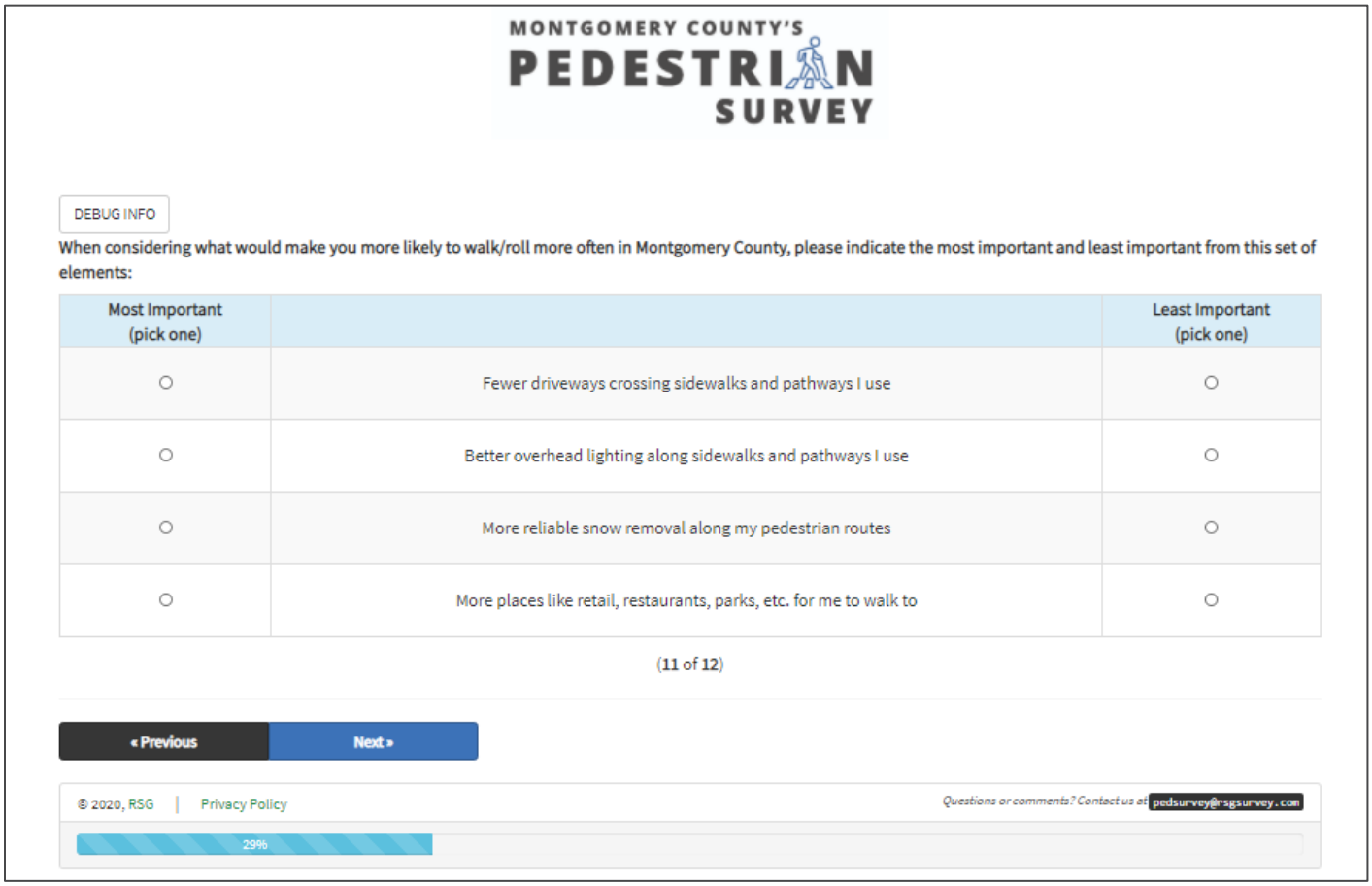


**FIGURE 7-22: MAXDIFF EXPERIMENT 12**

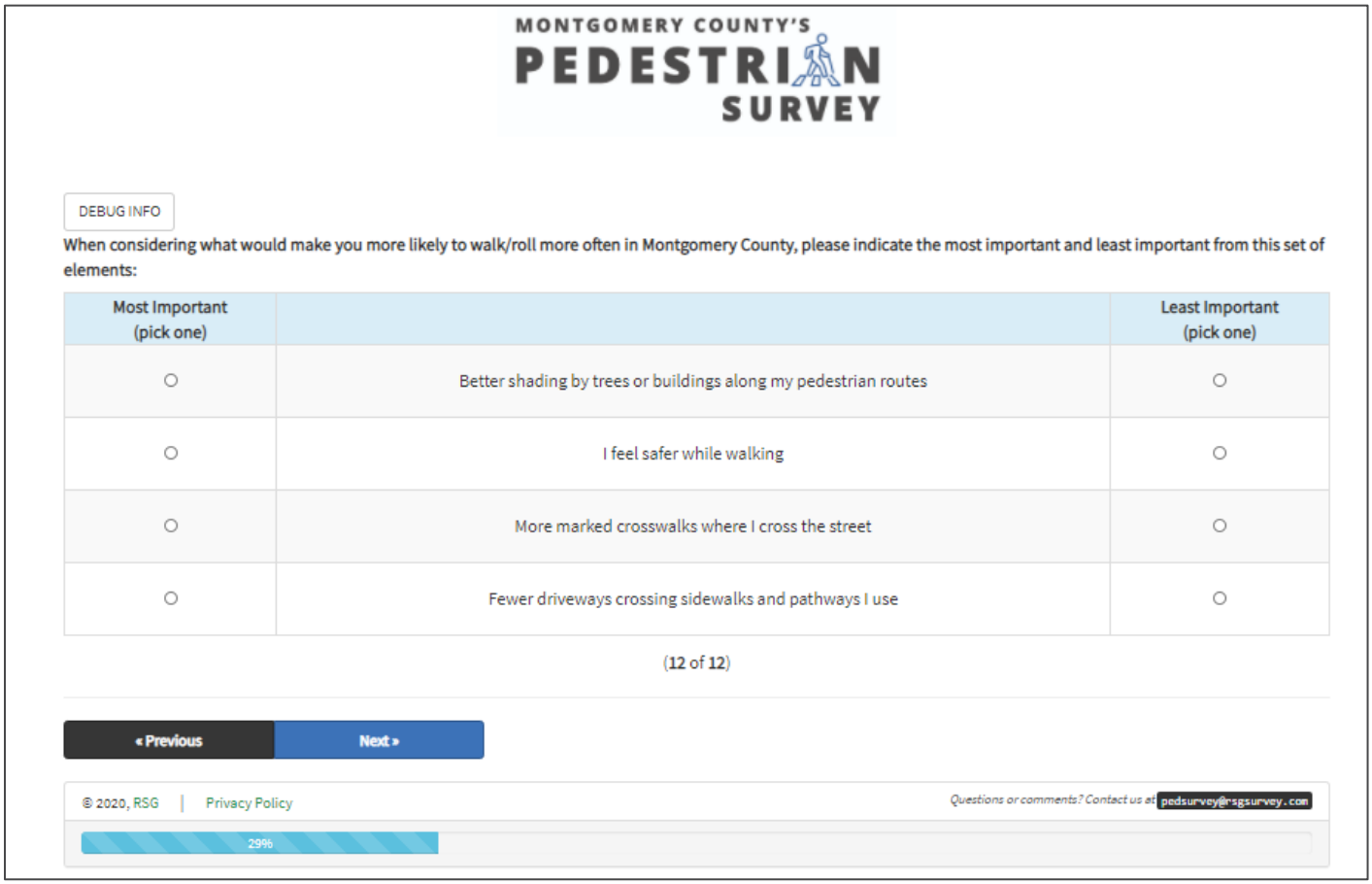
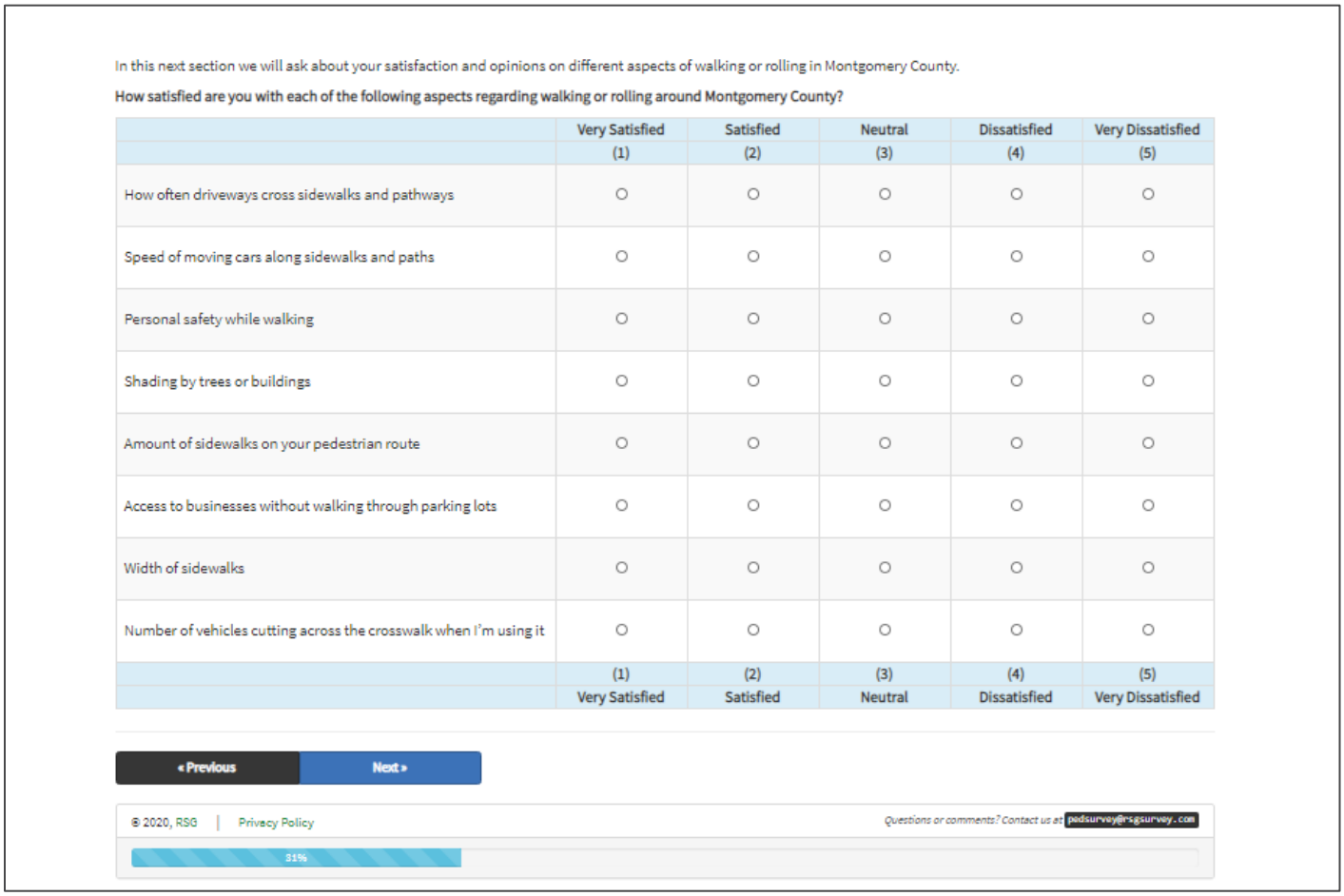


**FIGURE 7-23: SATISFACTION 1**



In this next section we will ask about your satisfaction and opinions on different aspects of walking or rolling in Montgomery County.

**How satisfied are you with each of the following aspects regarding walking or rolling around Montgomery County?**

| | Very Satisfied (1) | Satisfied (2) | Neutral (3) | Dissatisfied (4) | Very Dissatisfied (5) |
|---|---|---|---|---|---|
| How often driveways cross sidewalks and pathways | ○ | ○ | ○ | ○ | ○ |
| Speed of moving cars along sidewalks and paths | ○ | ○ | ○ | ○ | ○ |
| Personal safety while walking | ○ | ○ | ○ | ○ | ○ |
| Shading by trees or buildings | ○ | ○ | ○ | ○ | ○ |
| Amount of sidewalks on your pedestrian route | ○ | ○ | ○ | ○ | ○ |
| Access to businesses without walking through parking lots | ○ | ○ | ○ | ○ | ○ |
| Width of sidewalks | ○ | ○ | ○ | ○ | ○ |
| Number of vehicles cutting across the crosswalk when I'm using it | ○ | ○ | ○ | ○ | ○ |
| | (1) Very Satisfied | (2) Satisfied | (3) Neutral | (4) Dissatisfied | (5) Very Dissatisfied |

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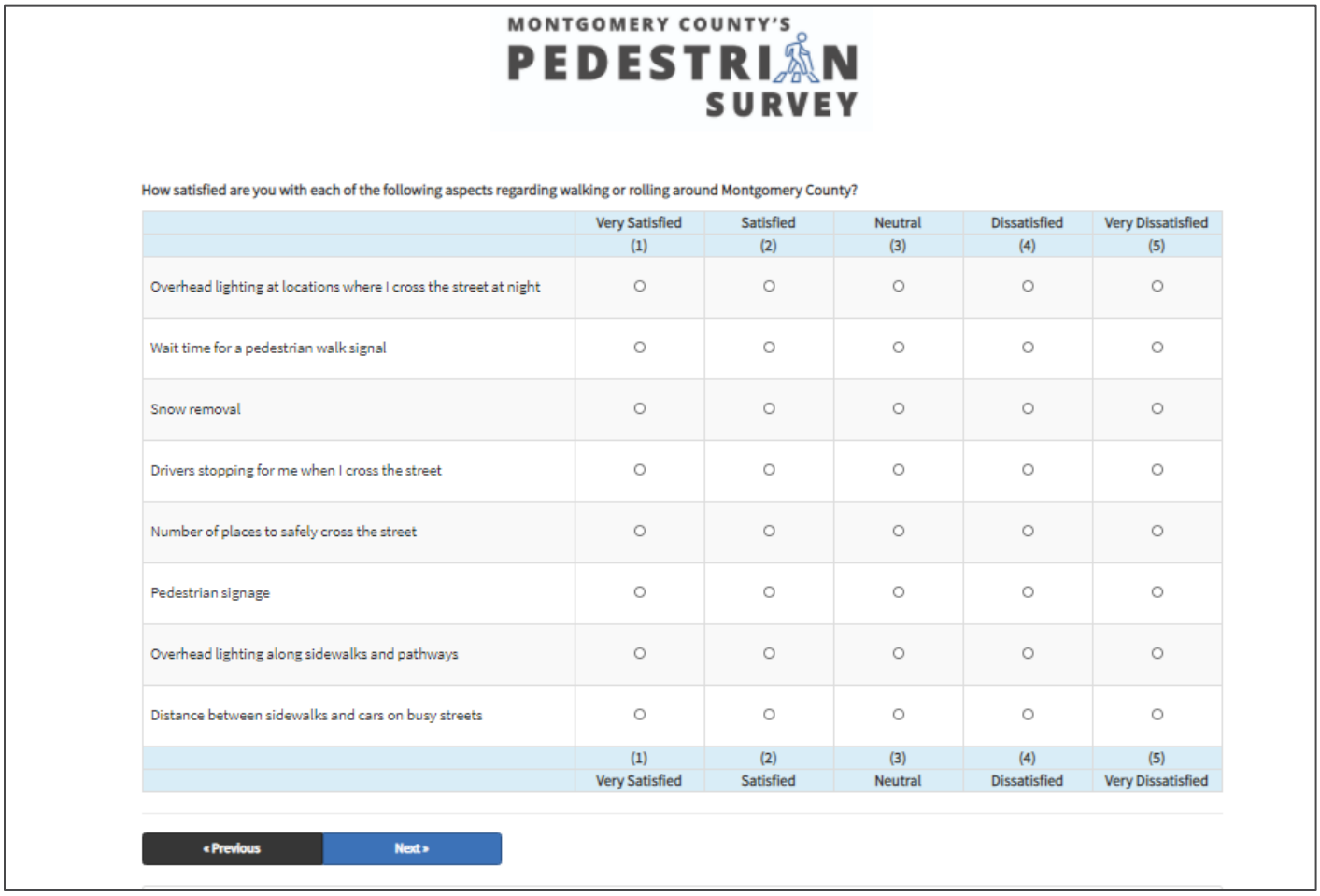
**FIGURE 7-24: SATISFACTION 2**



MONTGOMERY COUNTY'S PEDESTRIAN SURVEY

How satisfied are you with each of the following aspects regarding walking or rolling around Montgomery County?

| | Very Satisfied (1) | Satisfied (2) | Neutral (3) | Dissatisfied (4) | Very Dissatisfied (5) |
|---|---|---|---|---|---|
| Overhead lighting at locations where I cross the street at night | ○ | ○ | ○ | ○ | ○ |
| Wait time for a pedestrian walk signal | ○ | ○ | ○ | ○ | ○ |
| Snow removal | ○ | ○ | ○ | ○ | ○ |
| Drivers stopping for me when I cross the street | ○ | ○ | ○ | ○ | ○ |
| Number of places to safely cross the street | ○ | ○ | ○ | ○ | ○ |
| Pedestrian signage | ○ | ○ | ○ | ○ | ○ |
| Overhead lighting along sidewalks and pathways | ○ | ○ | ○ | ○ | ○ |
| Distance between sidewalks and cars on busy streets | ○ | ○ | ○ | ○ | ○ |
| | (1) Very Satisfied | (2) Satisfied | (3) Neutral | (4) Dissatisfied | (5) Very Dissatisfied |

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**FIGURE 7-25: SATISFACTION 3**

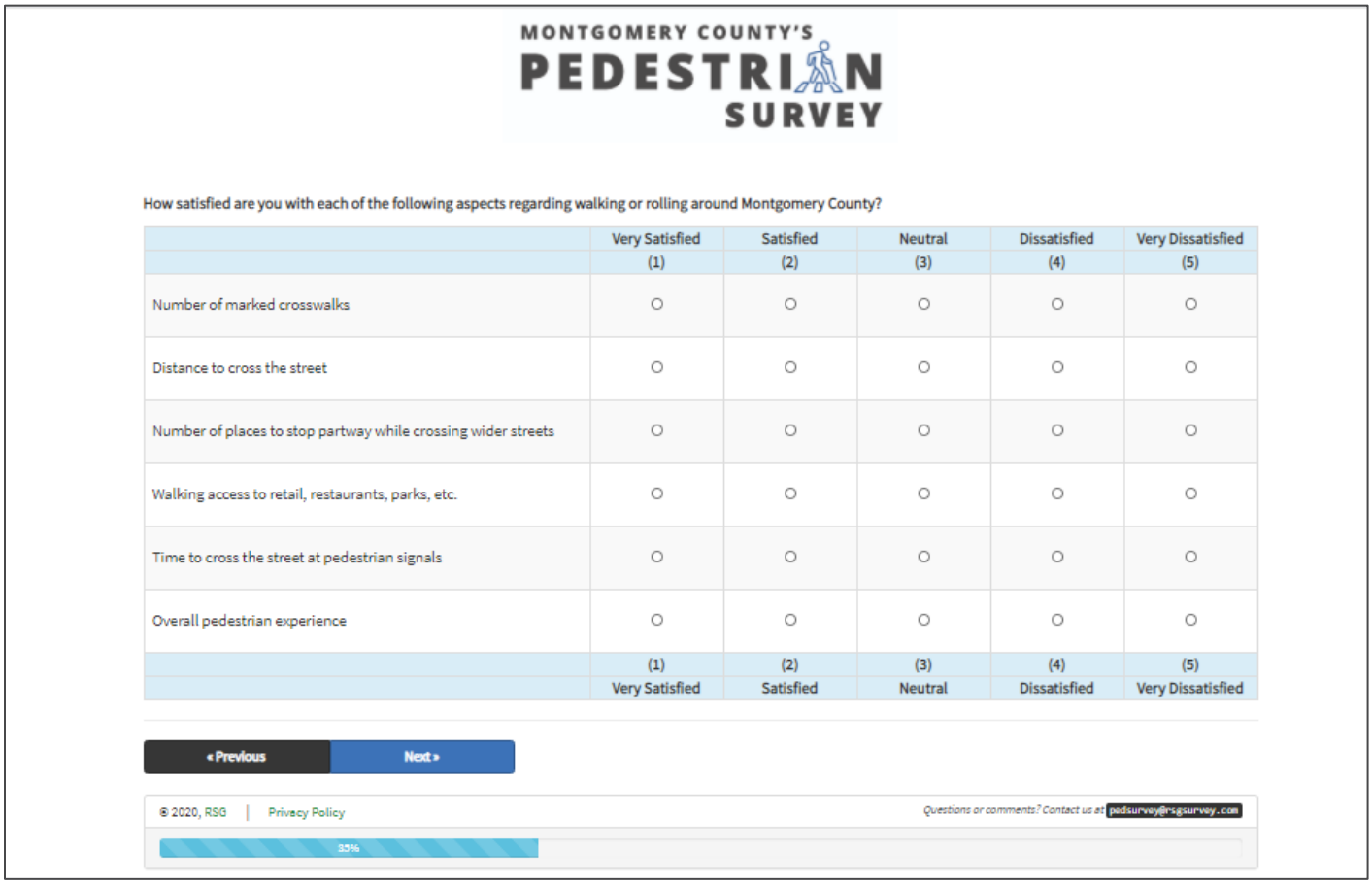
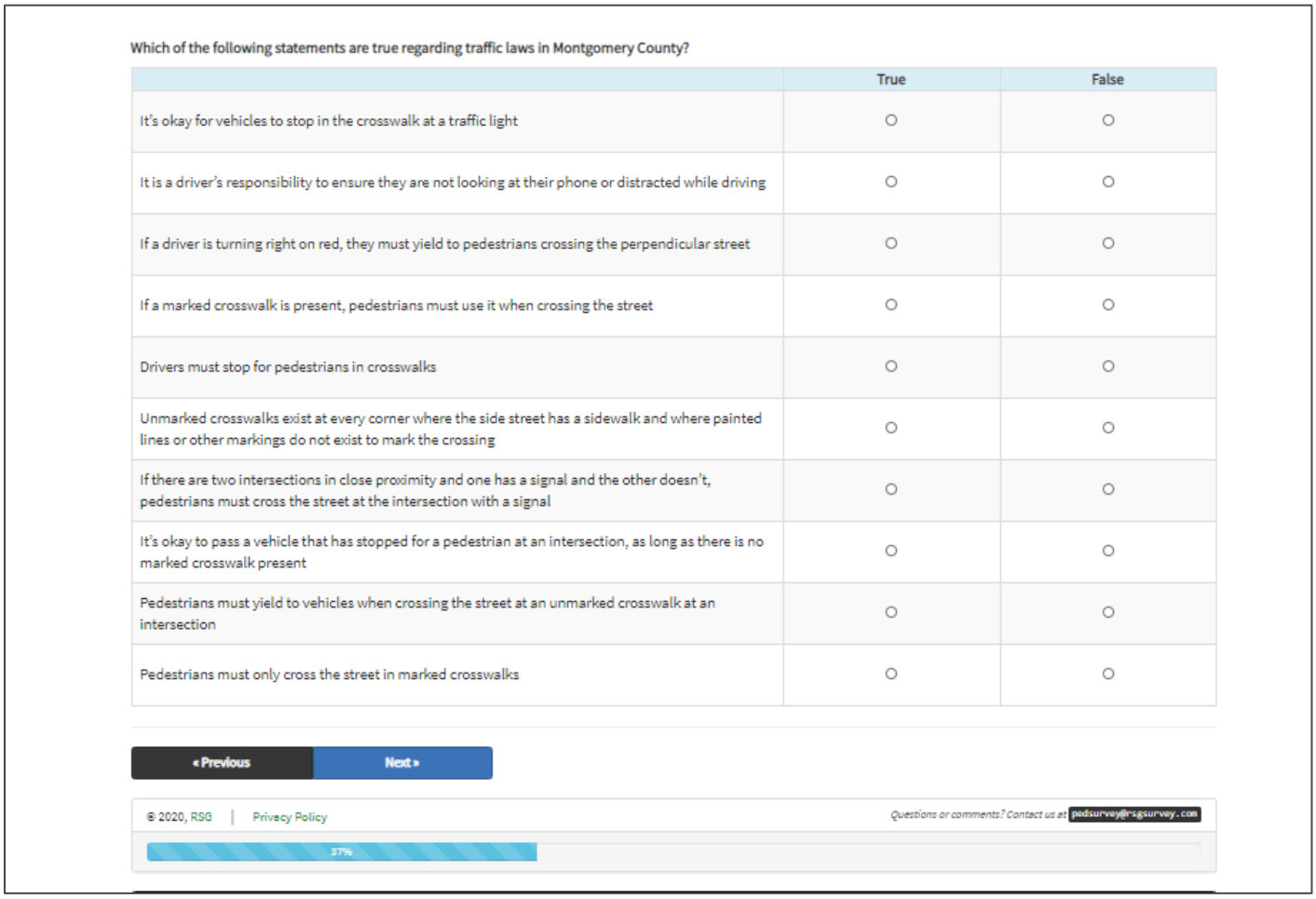


**FIGURE 7-26: PEDESTRIAN LAWS**



Which of the following statements are true regarding traffic laws in Montgomery County?

| | True | False |
|---|---|---|
| It's okay for vehicles to stop in the crosswalk at a traffic light | ○ | ○ |
| It is a driver's responsibility to ensure they are not looking at their phone or distracted while driving | ○ | ○ |
| If a driver is turning right on red, they must yield to pedestrians crossing the perpendicular street | ○ | ○ |
| If a marked crosswalk is present, pedestrians must use it when crossing the street | ○ | ○ |
| Drivers must stop for pedestrians in crosswalks | ○ | ○ |
| Unmarked crosswalks exist at every corner where the side street has a sidewalk and where painted lines or other markings do not exist to mark the crossing | ○ | ○ |
| If there are two intersections in close proximity and one has a signal and the other doesn't, pedestrians must cross the street at the intersection with a signal | ○ | ○ |
| It's okay to pass a vehicle that has stopped for a pedestrian at an intersection, as long as there is no marked crosswalk present | ○ | ○ |
| Pedestrians must yield to vehicles when crossing the street at an unmarked crosswalk at an intersection | ○ | ○ |
| Pedestrians must only cross the street in marked crosswalks | ○ | ○ |

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**FIGURE 7-27: SAFETY OPINIONS**

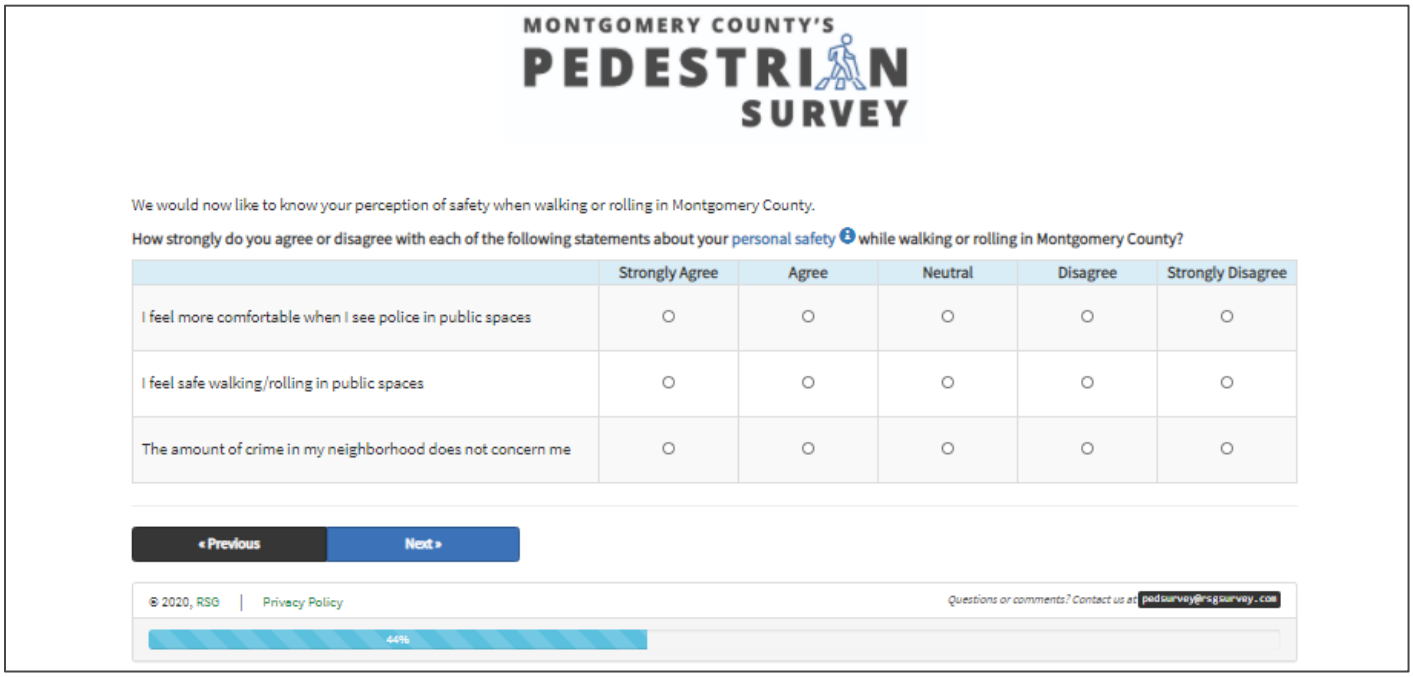


**FIGURE 7-28: HARASSMENT**

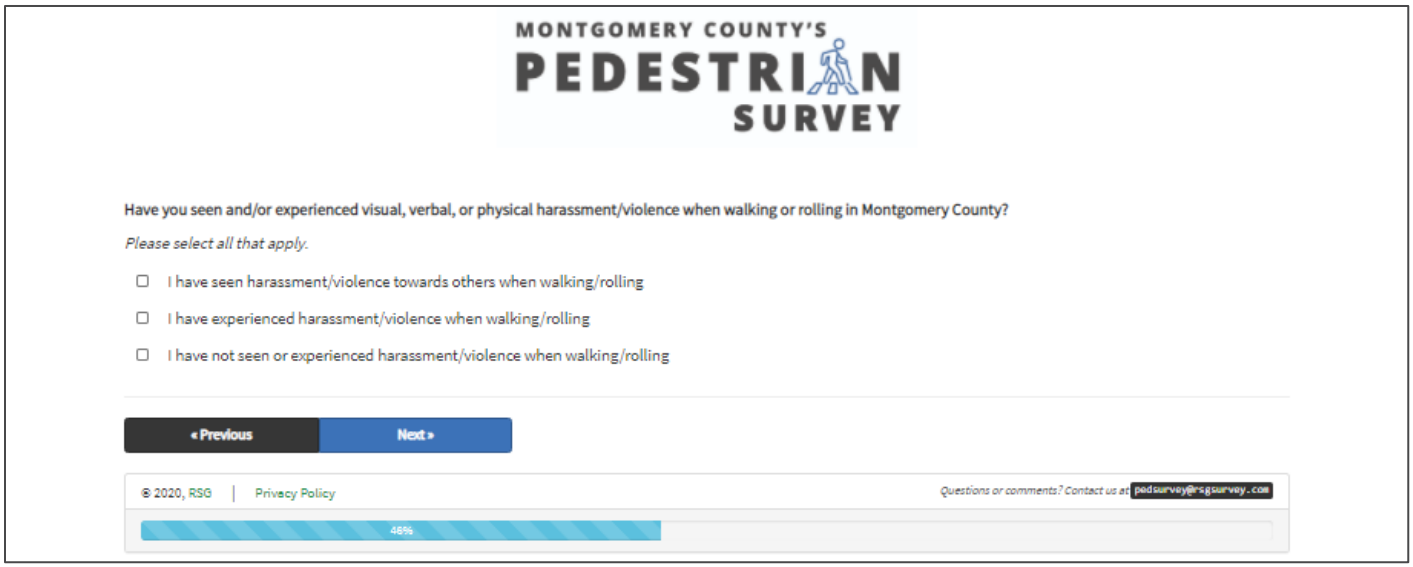

**FIGURE 7-29: HARASSMENT INFLUENCE**

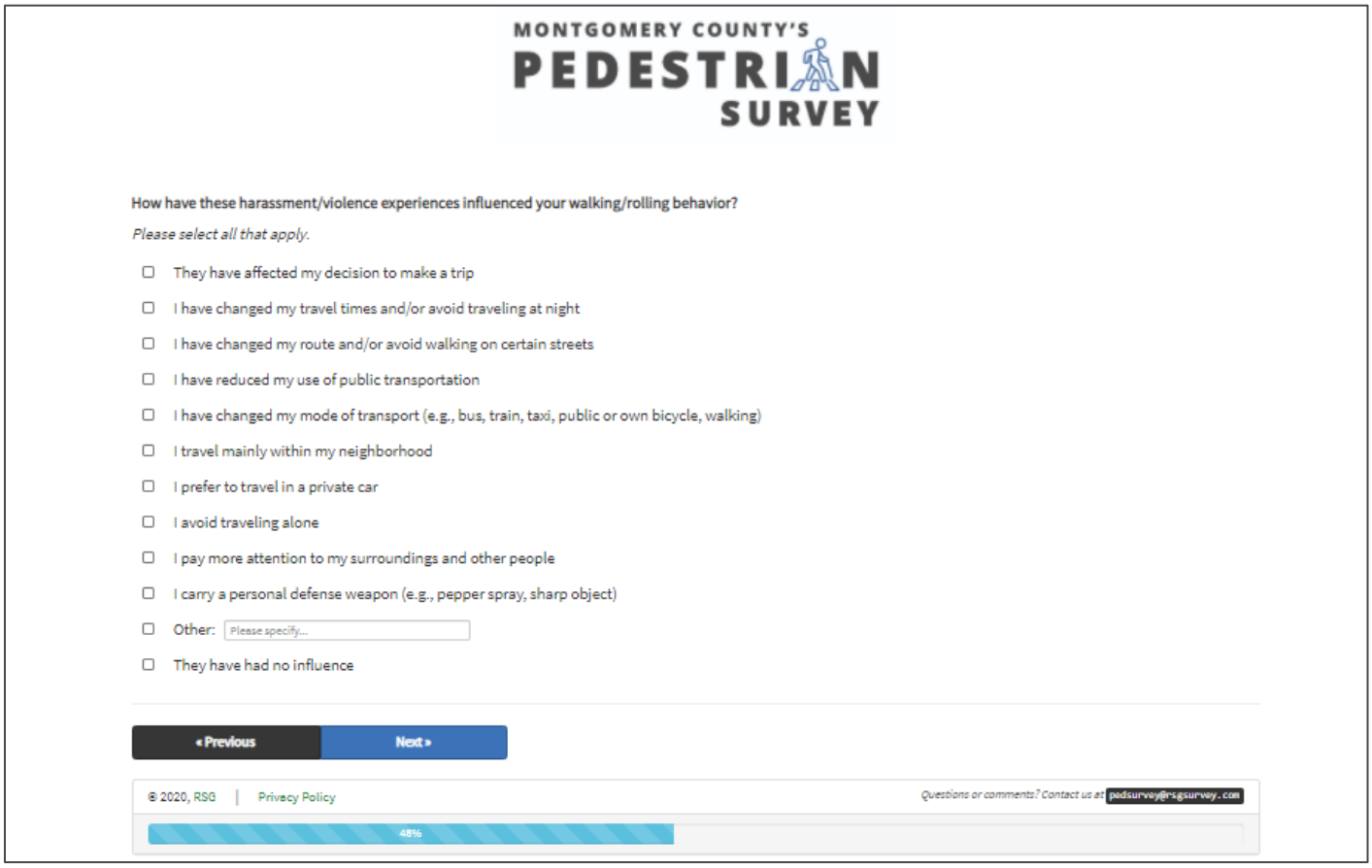

**FIGURE 7-30: HOME SETTING**

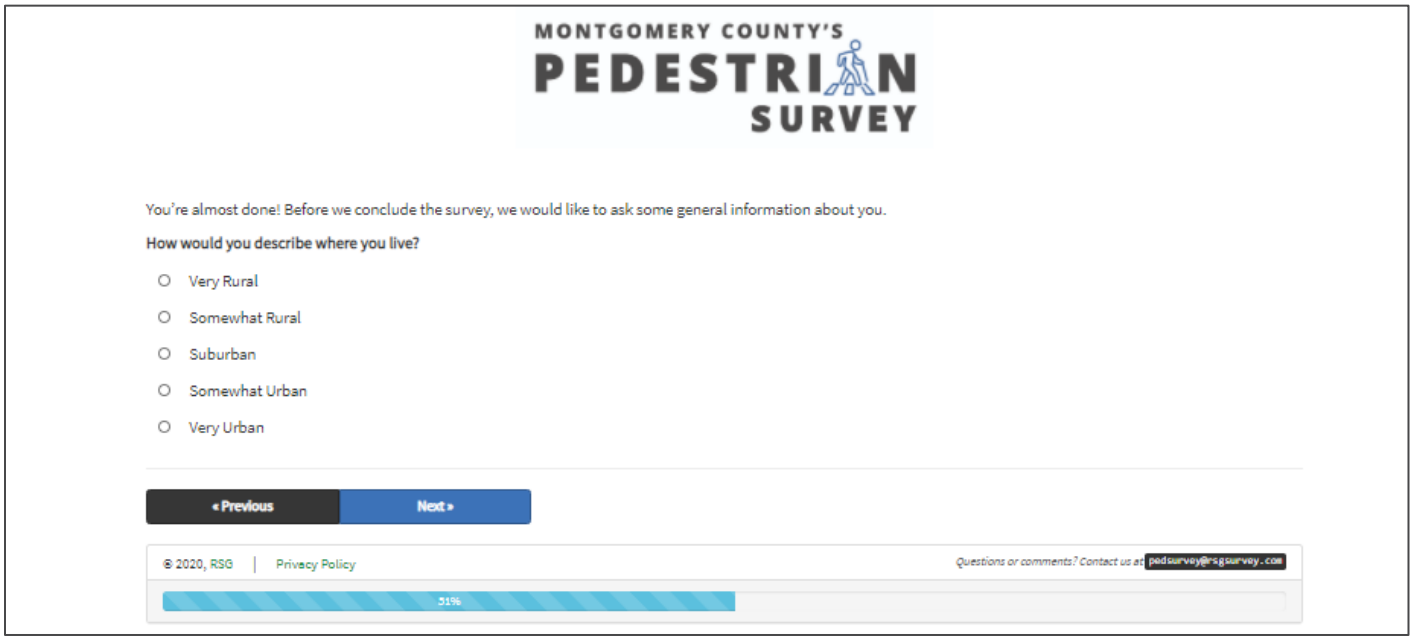


**FIGURE 7-31: HOME TYPE**

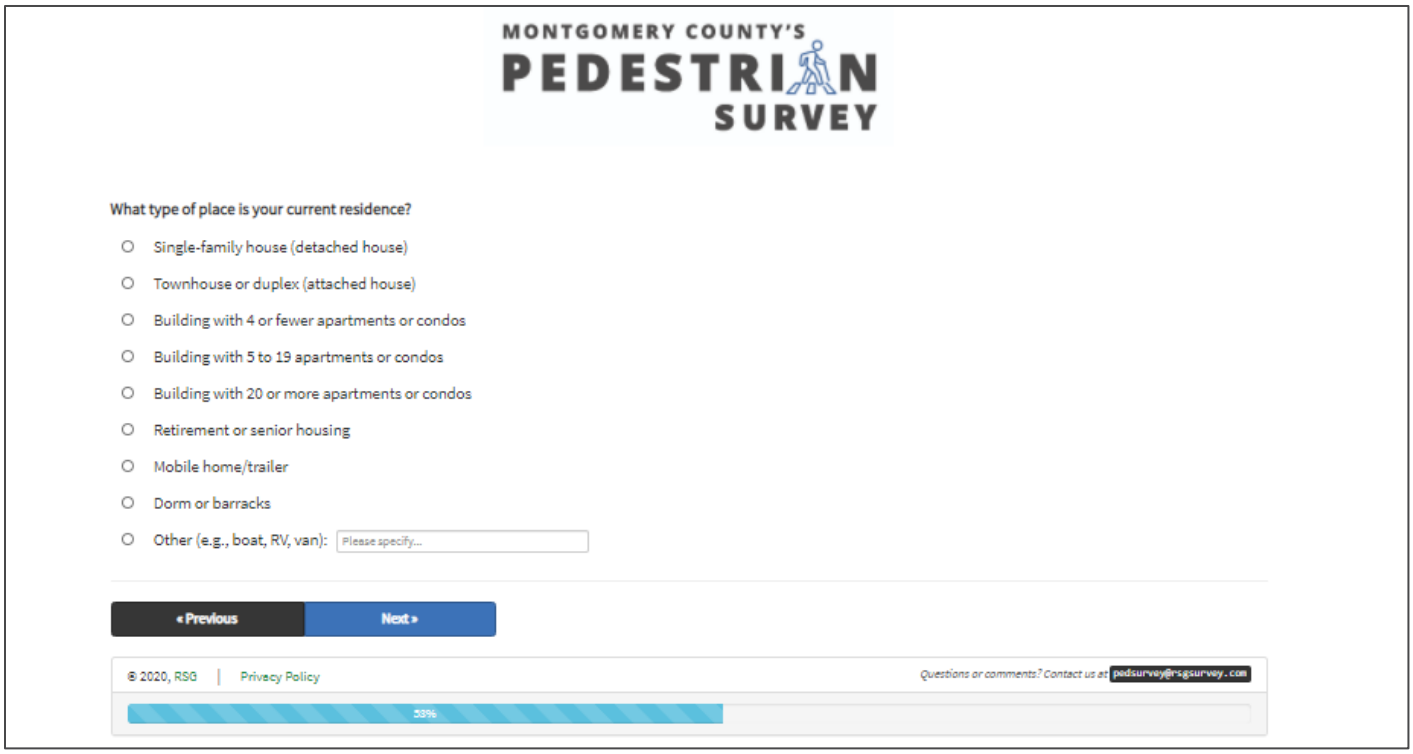

**FIGURE 7-32: HOUSEHOLD SIZE**

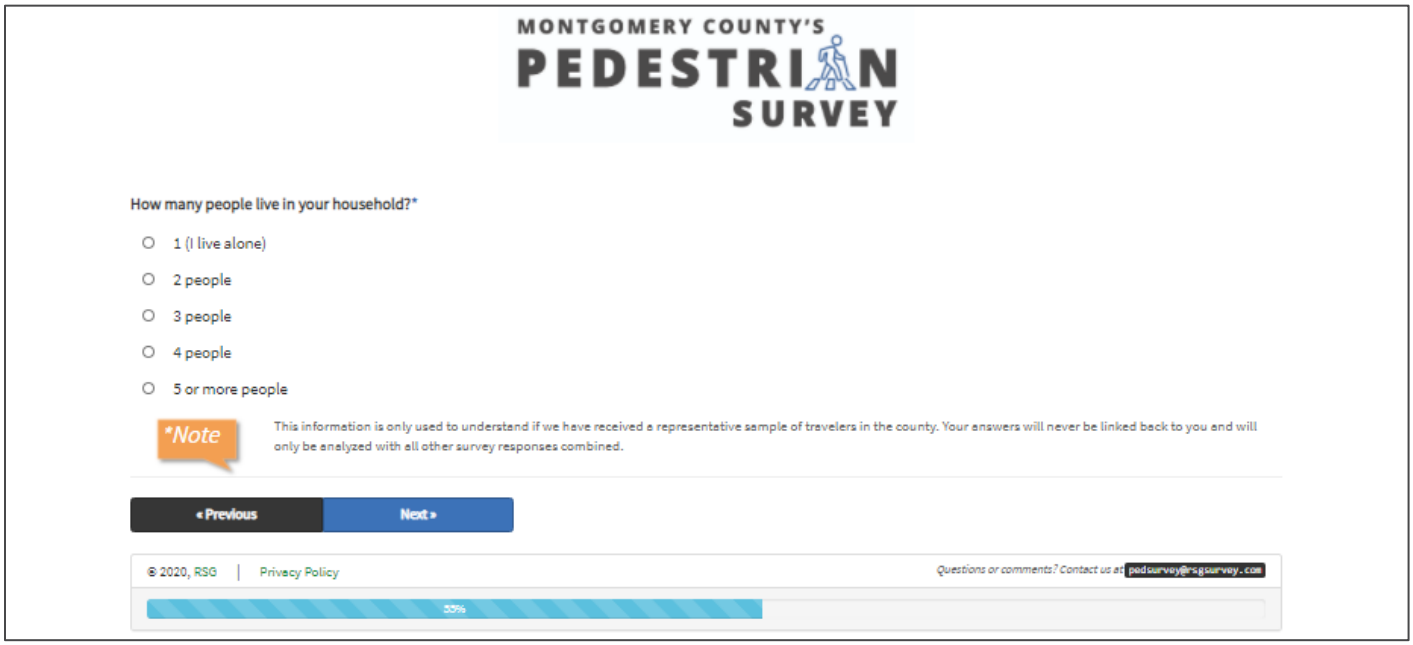


**FIGURE 7-33: HOUSEHOLD MEMBERS**

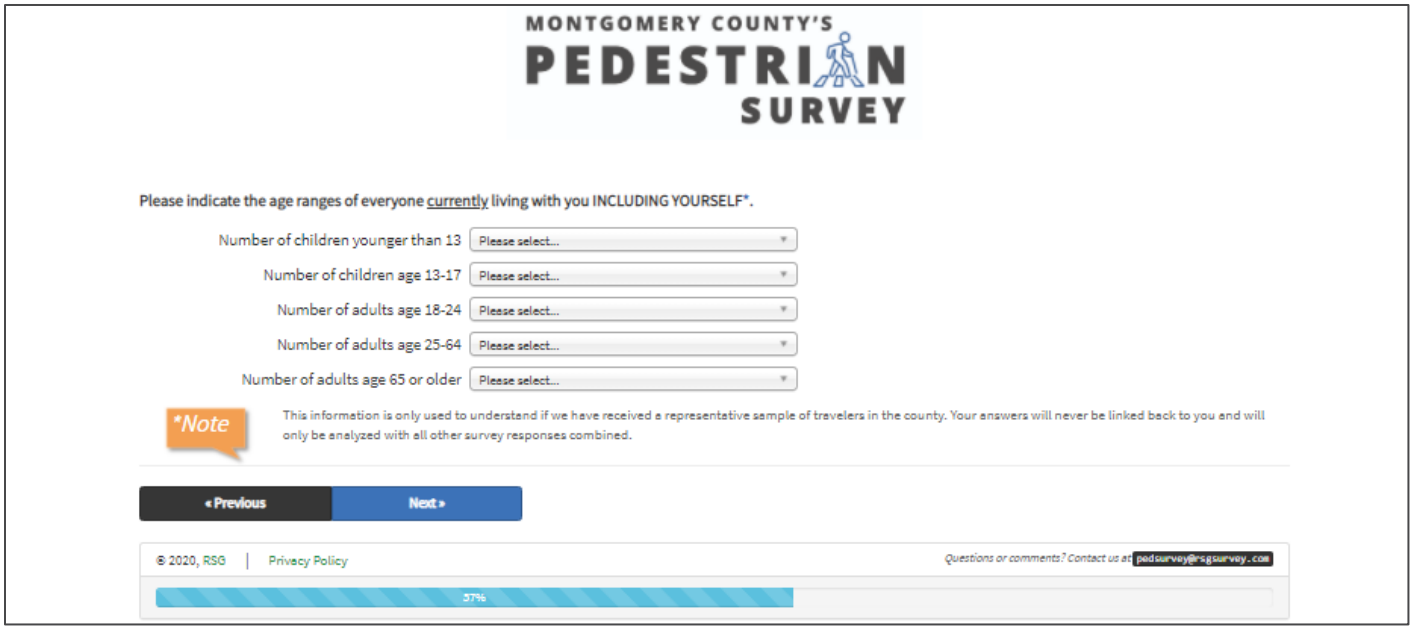

**FIGURE 7-34: AGE**


**FIGURE 7-35: GENDER**

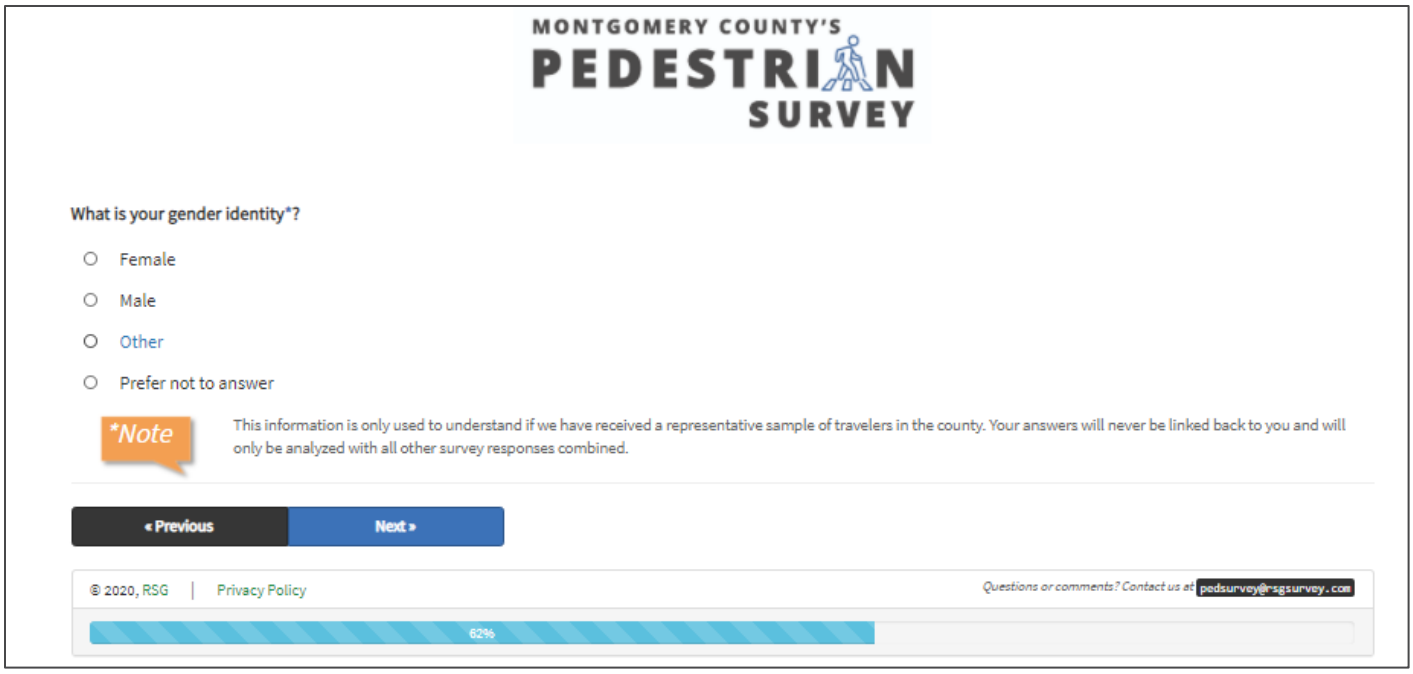

**FIGURE 7-36: DISABILITY**

**FIGURE 7-37: EMPLOYMENT STATUS**

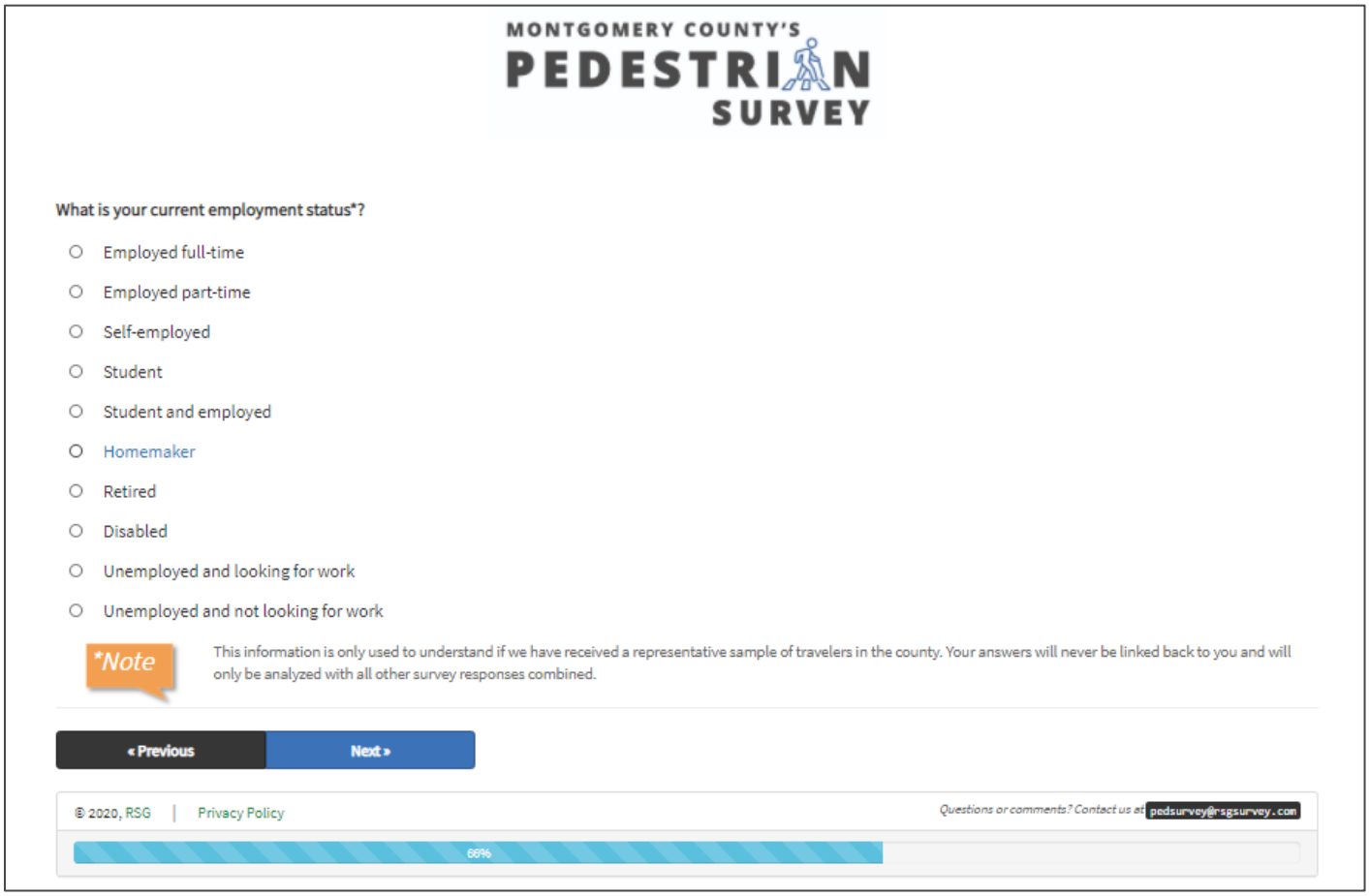

**FIGURE 7-38: WORK LOCATION**

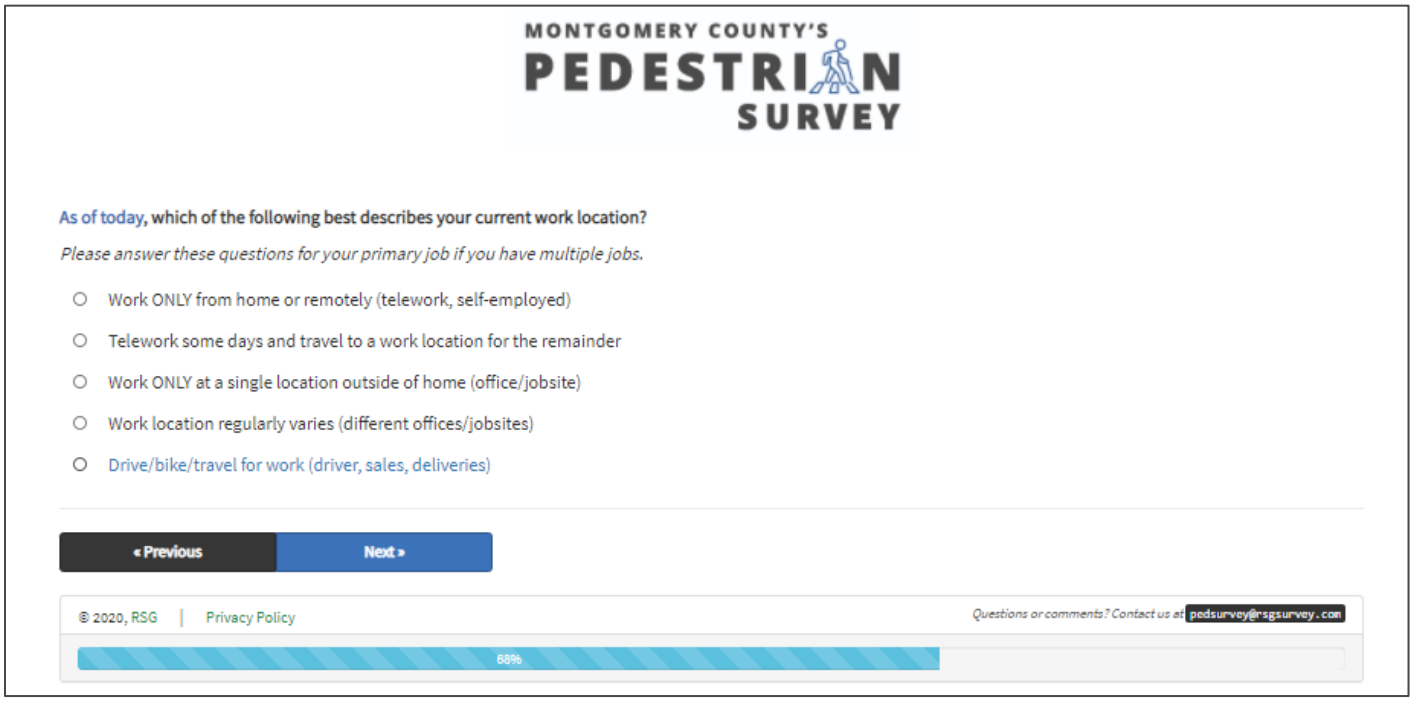


**FIGURE 7-39: WORK LOCATION BEFORE COVID-19**

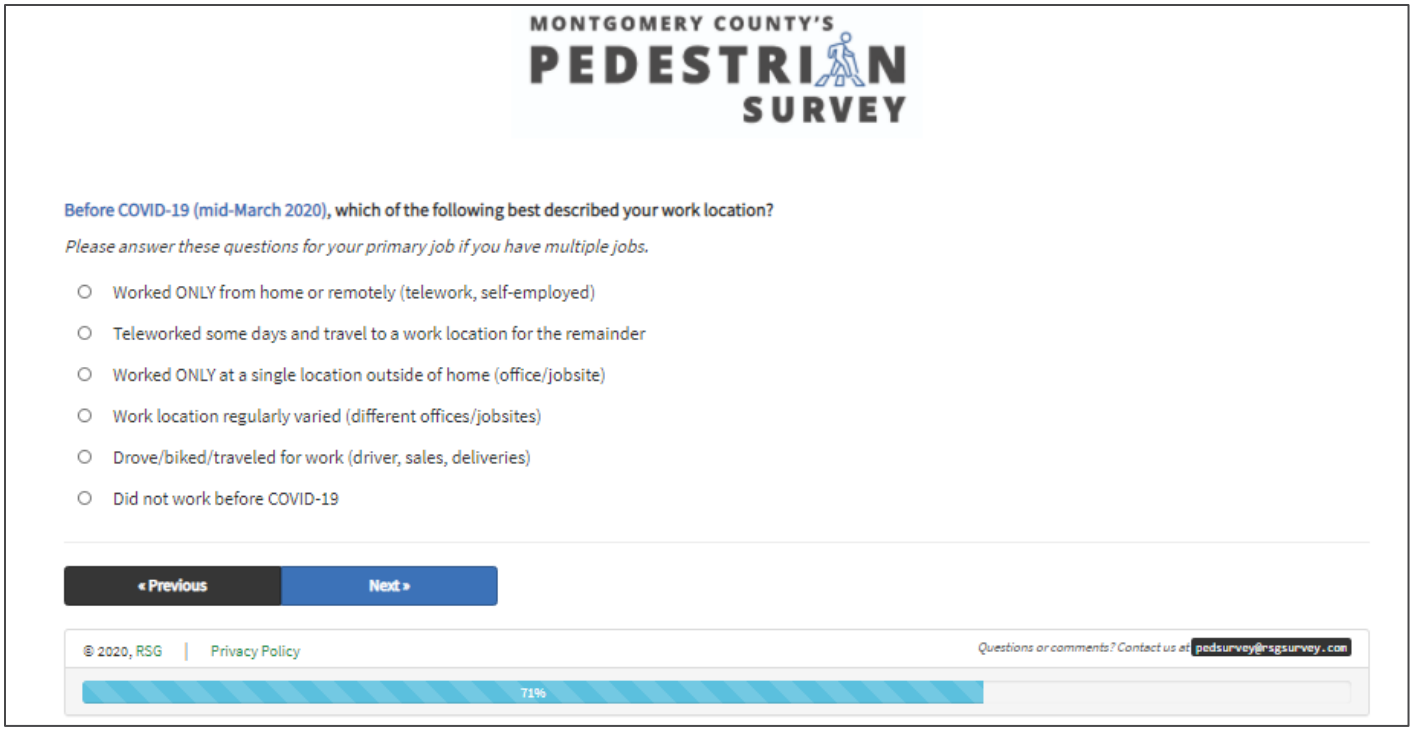

**FIGURE 7-40: TELEWORK**

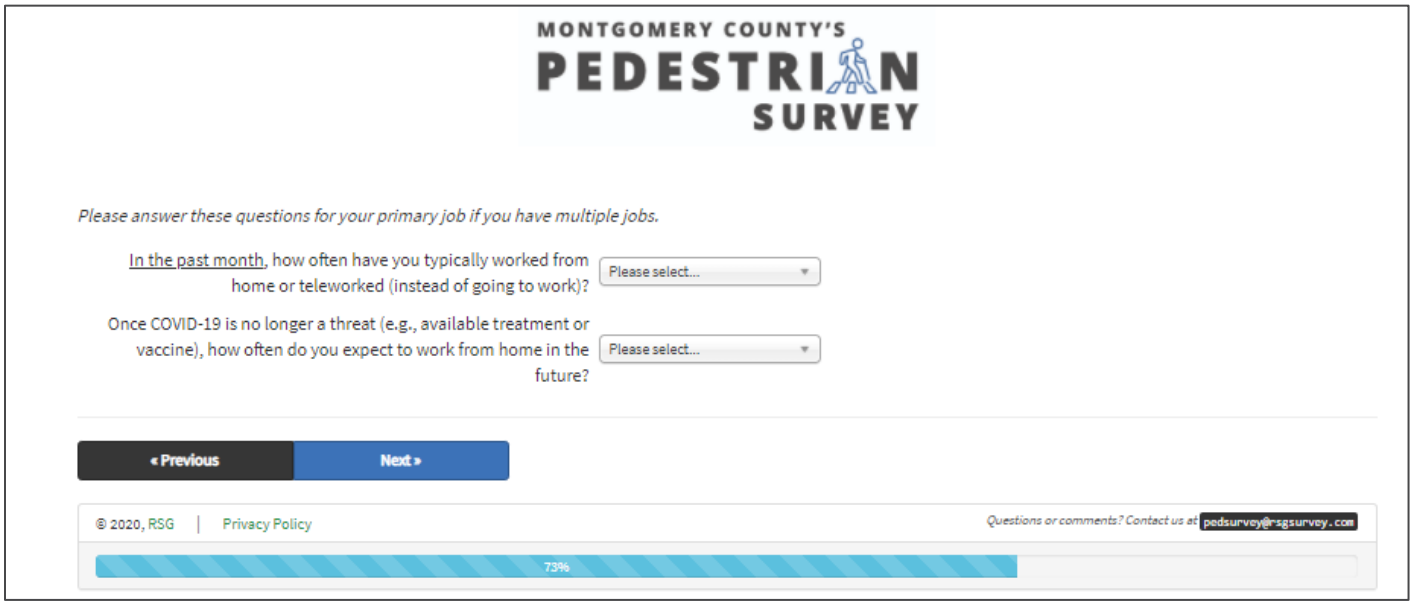

**FIGURE 7-41: WORK LOCATION**

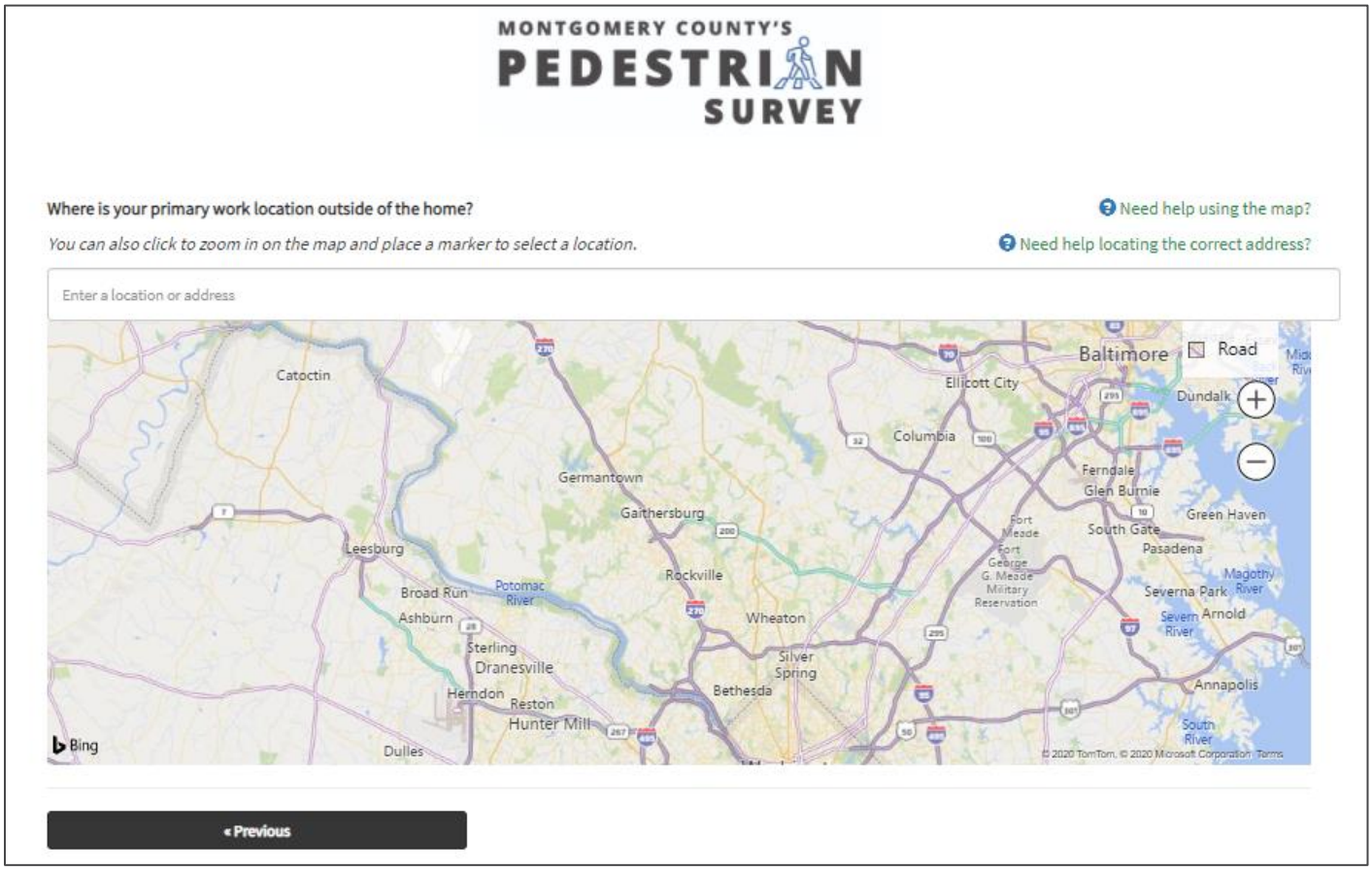

**FIGURE 7-42: SCHOOL LOCATION**

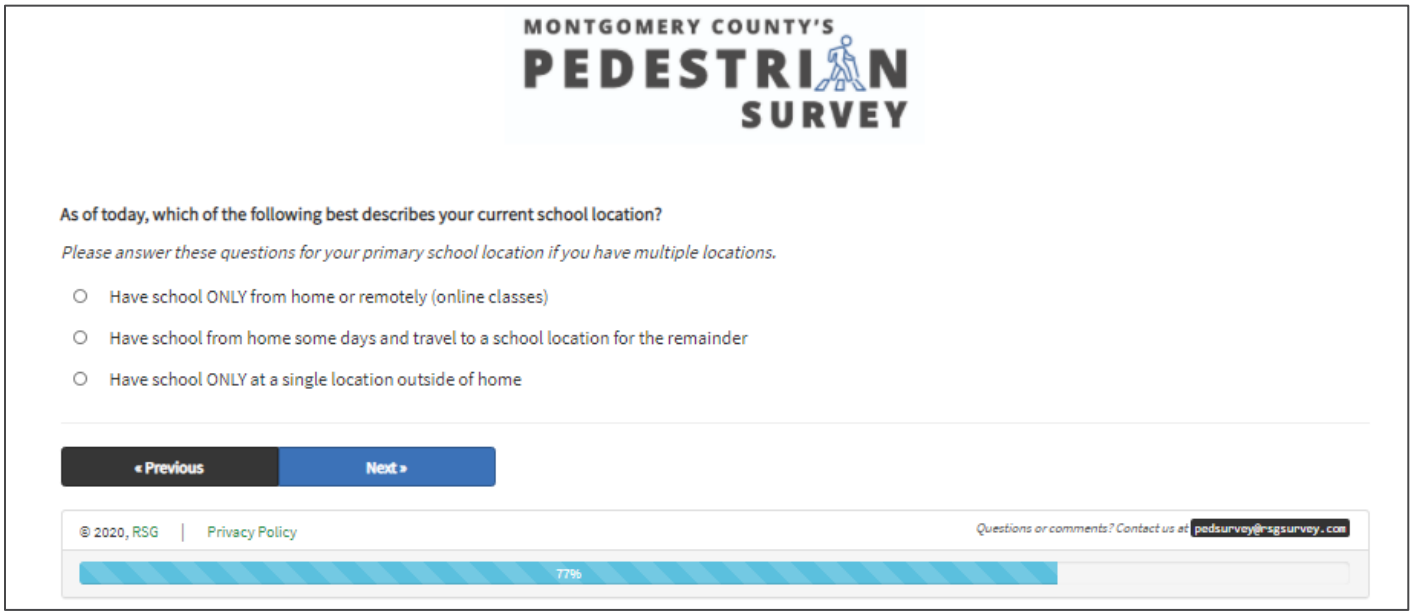

**FIGURE 7-43: SCHOOL LOCATION BEFORE**

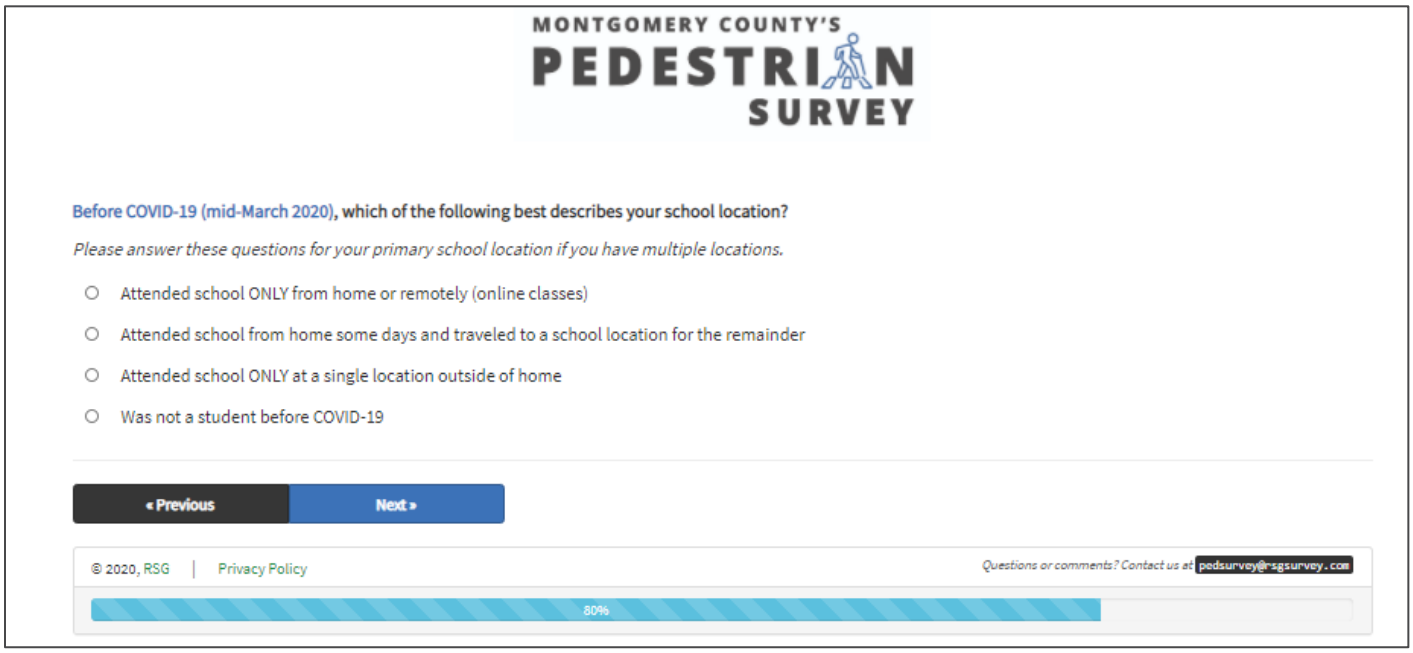


**FIGURE 7-44: REMOTE SCHOOL FREQUENCY**

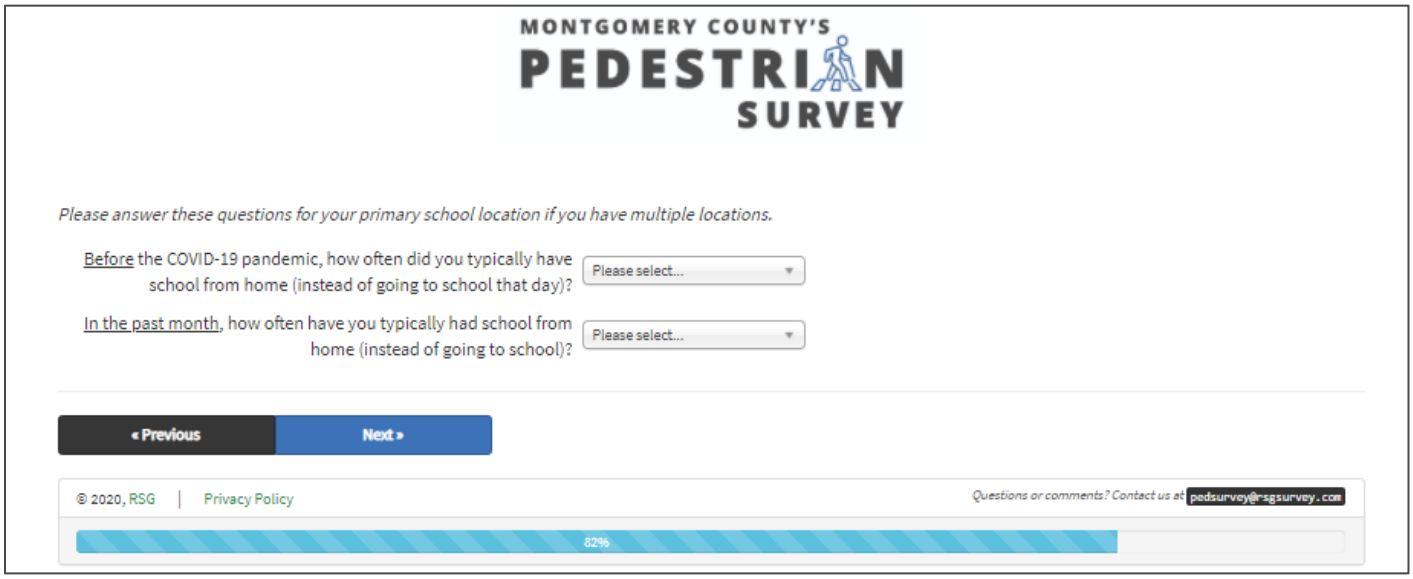

**FIGURE 7-45: SCHOOL LOCATION**

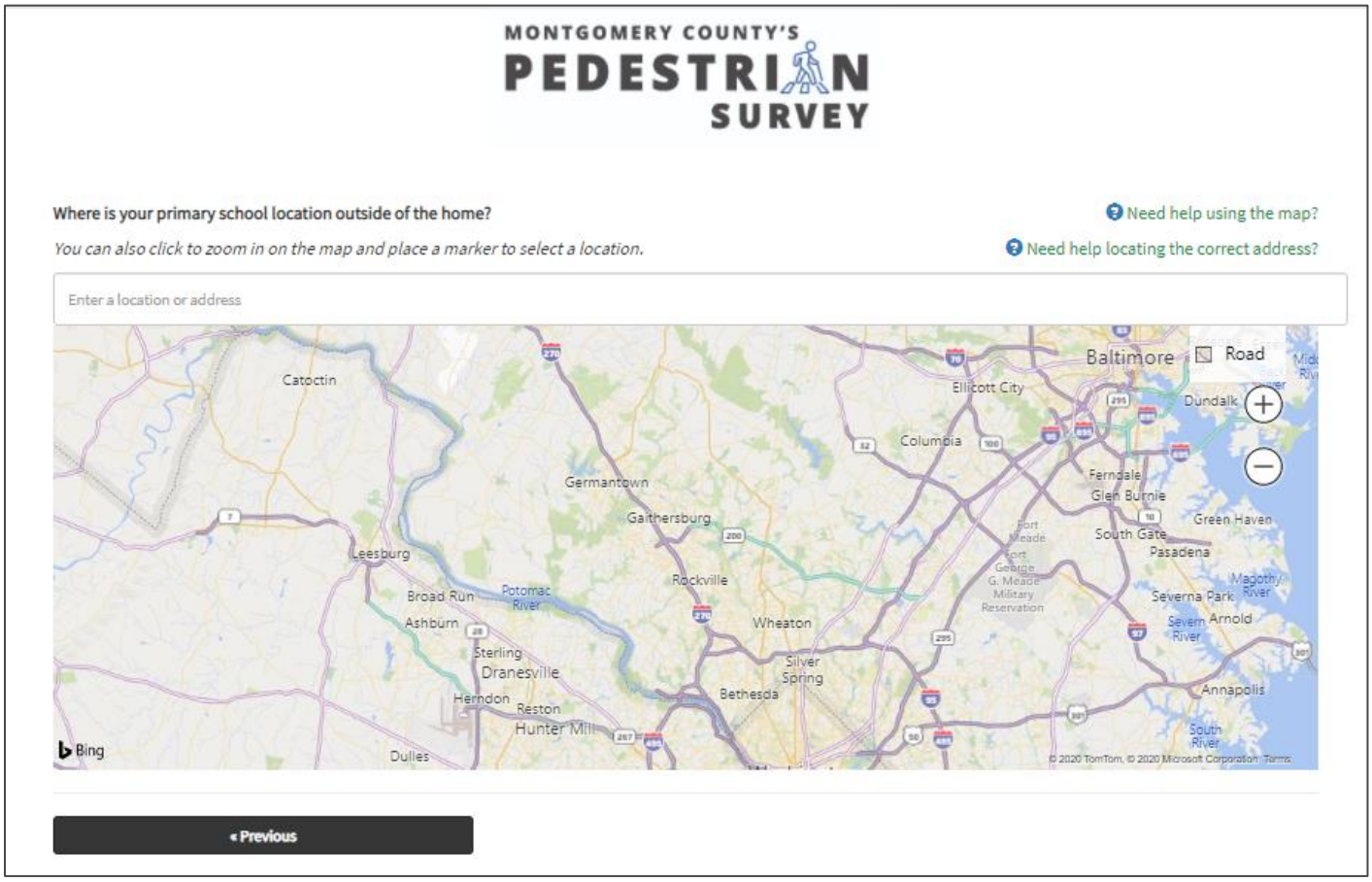

**FIGURE 7-46: HOUSEHOLD VEHICLES**

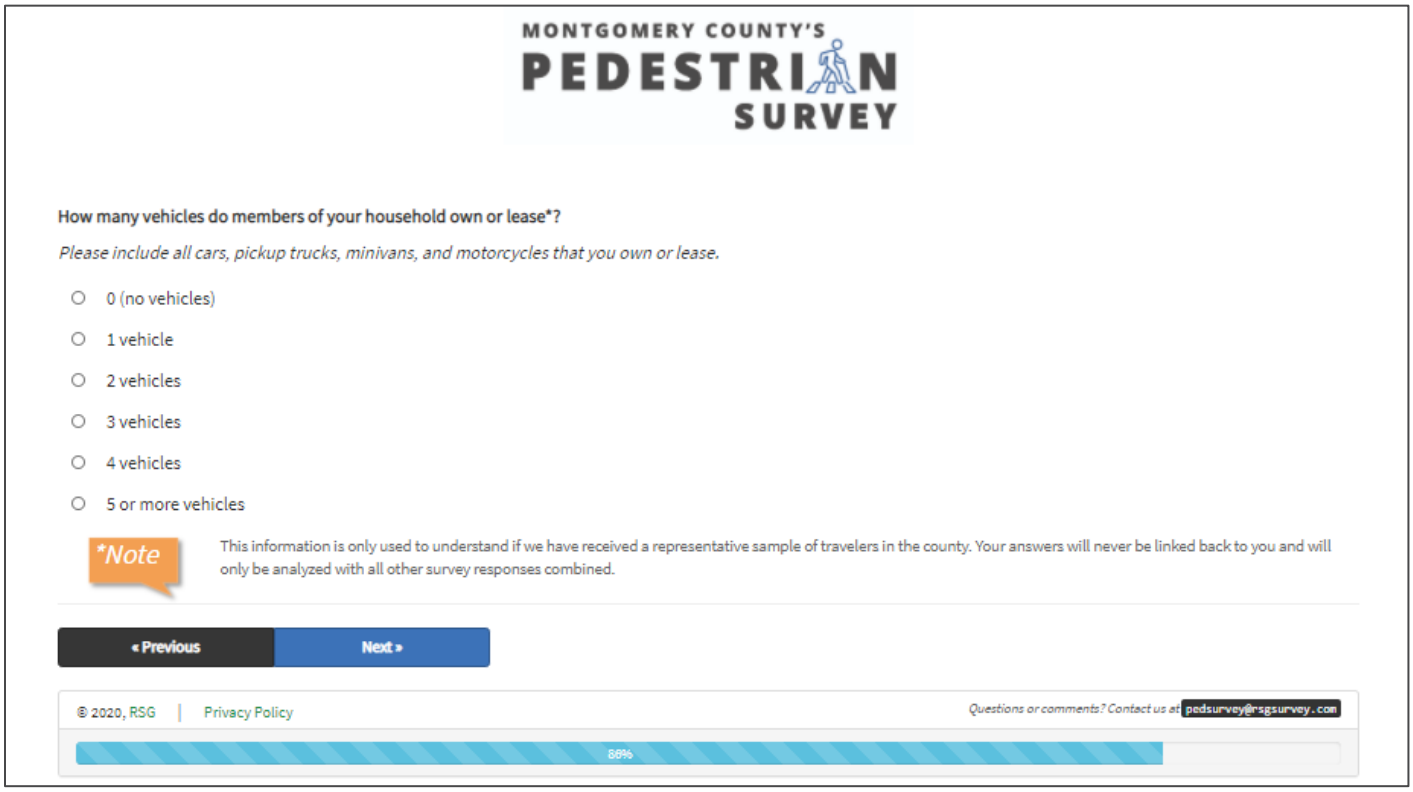


**FIGURE 7-47: HISPANIC, SPANISH OR LATINO ORIGIN**

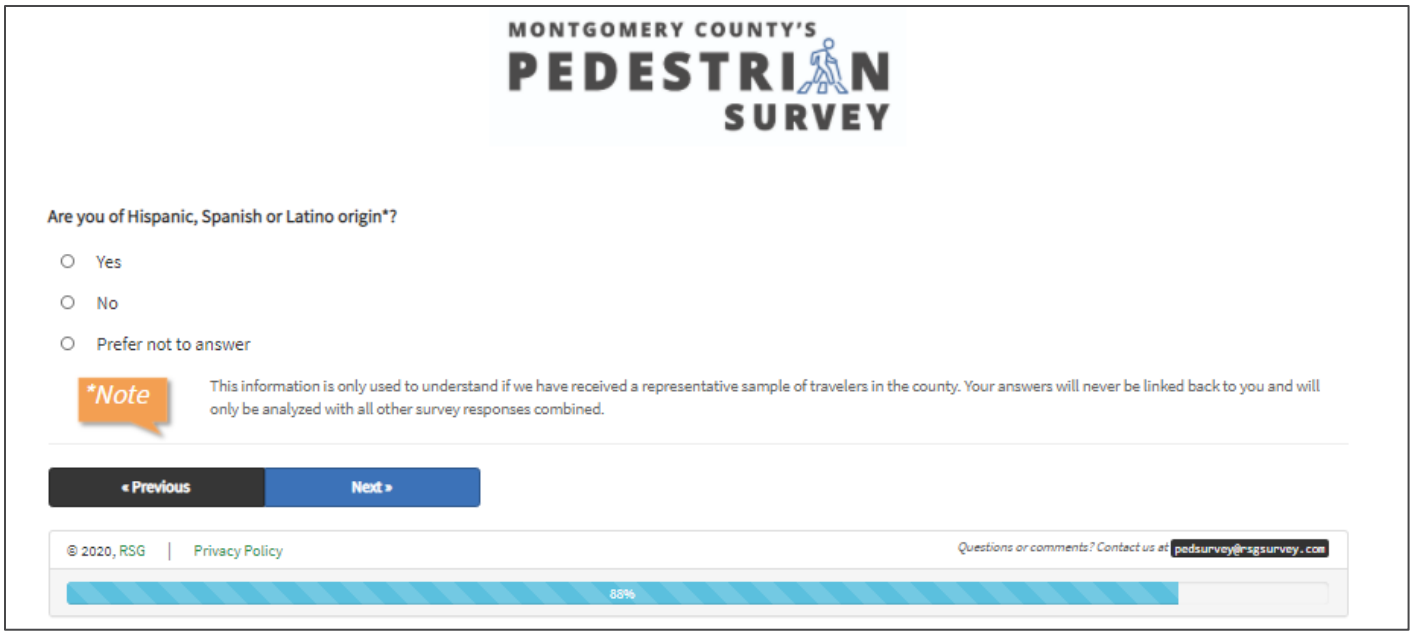

**FIGURE 7-48: RACE**

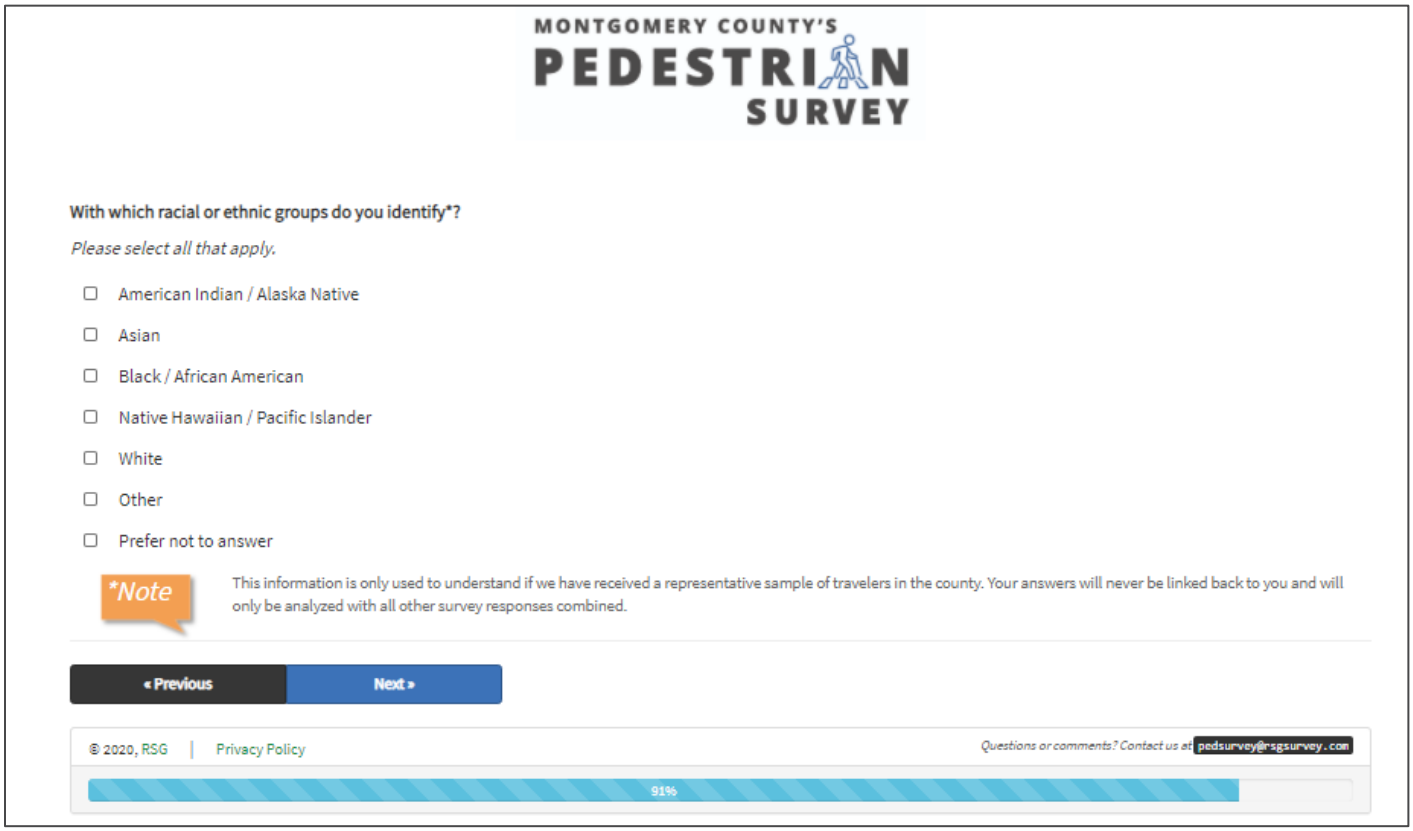

**FIGURE 7-49: HOUSEHOLD INCOME**

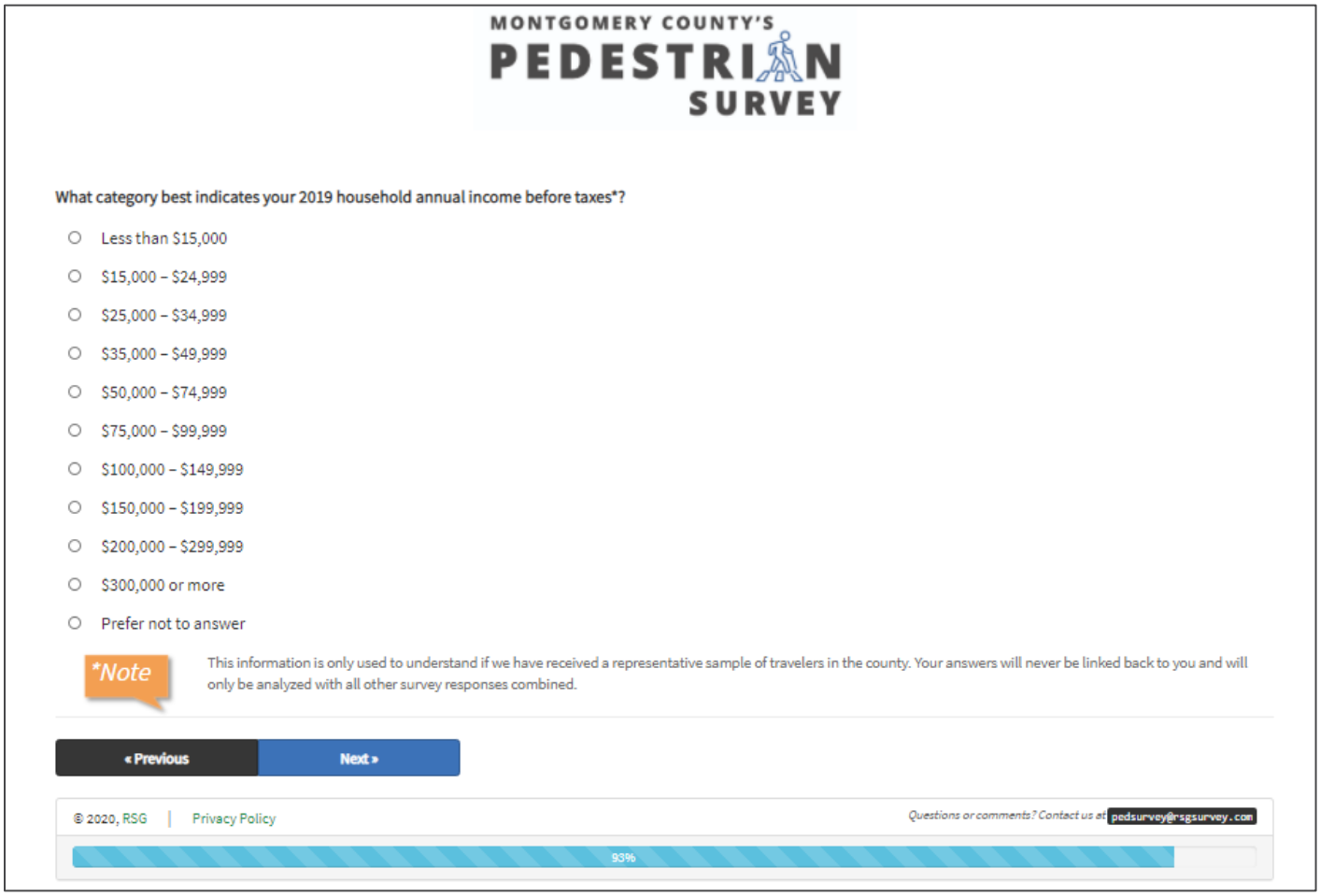

**FIGURE 7-50: RECONTACT AND RAFFLE**

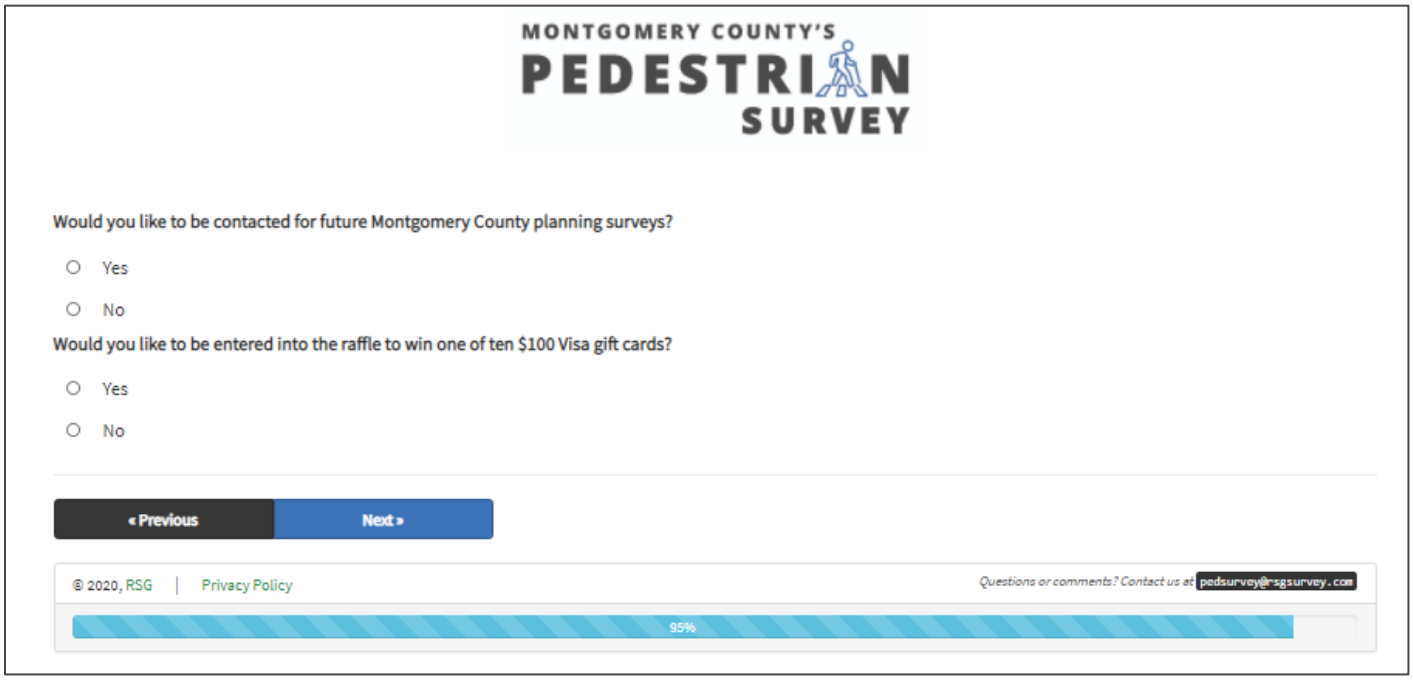


**FIGURE 7-51: COMMENTS**