

# **2025 Survey of Texans on Pedestrian and Bicycle Safety: Identifying Barriers to Understanding Pedestrian and Bicycle Safety Laws**

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# Introduction

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The objective of this survey is to measure and track pedestrian and bicycle safety in Texas. This is the fifth year that this survey has been conducted; a similar survey has been conducted since 2020. The survey provides a snapshot of the pedestrian and bicycle safety issues in Texas, and knowledge of laws. This report summarizes the findings of the 2025 survey. Additionally, comparisons to the previous years of the survey show how the issues are changing from year to year.

This survey was conducted as part of the grant-funded project Identifying Barriers to Understanding Pedestrian and Bicycle Safety Laws funded by the Texas Department of Transportation (TxDOT). The survey's goals were to learn more about pedestrian and bicyclist behavior and knowledge, and to help identify barriers to the public's understanding of laws related to pedestrian and bicycle safety.

## Methods

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### Survey Development

This survey was based on the survey conducted in 2024 with the addition of some new questions and response options and with the approval of TxDOT. The survey was submitted for review by the Texas A&M University Institutional Review Board and was given an exempt determination.

Appendix A includes a copy of the survey. The survey included questions about frequency of walking and biking, behaviors associated with pedestrian and bike laws/safety, preferences for educational materials, and knowledge of state pedestrian and bicycle laws. The survey was designed to take about 10 minutes to complete.

### Survey Distribution

The project team used Marketing Systems Group (MSG) to distribute the survey using an online panel. The survey was conducted using Qualtrics software and distributed to the panel. Anyone who was a current resident of Texas and at least 18 years of age was eligible to participate in the survey.

## Survey Analysis

A total of 530 individuals in Texas completed the online survey. To improve the validity of the results, the survey was weighted to provide a statewide representative dataset. Appendix B provides the survey weighting methodology, conducted by MSG.

Descriptive analysis (e.g., counts and percentages) of the survey data was conducted for each question. Results from the 2025 survey, including the knowledge assessment, were compared to previous years of the survey to look at changes over time.

## Summary of Key Changes Year to Year

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### Pedestrian Questions

The pedestrian survey questions showed the following changes year to year:

- Reported walking at least once per week decreased **8.9 percentage points** from 2024 to 2025.
- Walking for transportation, which had been increasing from 2022 to 2024, decreased 1.1 percentage points to **26.0 percent** of respondents in 2025.
- The percentage of pedestrians reporting that they follow pedestrian signals very often or always increased **7.1 percentage points** from 2024 to 2025.
- However, fewer pedestrians reported walking on the left side of road if no sidewalks are available, dropping from **50.3 percent** in 2024 to **43.5 percent** in 2025.
- Driver behavior is decreasing in prominence as an obstacle to people walking more often.

### Bicycle Questions

The bicycle survey questions showed the following changes year to year:

- Biking once a week or more decreased from 36.4 percent in 2024 to 24.9 percent in 2025. This was a substantial drop from year to year, however, the 2025 percentage is in-line with previous survey years.
- Biking for transportation has been increasing since 2022 and was cited by 28.8 percent of respondents in 2025.



- Reported riding against traffic in the roadway dropped 3.5 percentage points from 2024 to just over one-quarter of respondents (25.8 percent).
- Reported use of a bike light, reflective clothing at night and a helmet all decreased in 2025.
- In addition to weather conditions, a lack of bike lanes/trails and driver behavior continue to be obstacles to people biking more often.

## Driver Questions

The driver survey questions showed the following change year to year:

- Most driver behaviors showed their highest reported levels over the five survey waves, with the exception of ensuring a safe passing distance when passing a bicyclist, which dropped 3.1 percentage points from 2024 to 2025.
- Reported driver yielding to pedestrians at crosswalks not at an intersection (or mid-block) continues to be much lower than yielding at intersections.

## Enforcement, Laws, and Messaging

The enforcement, laws, and messaging survey questions showed the following changes year to year:

- Awareness of enforcement efforts regarding pedestrian and bicycle safety in 2025 remains at about one-third of respondents (33.2 percent), about a 1 percentage point drop from 2024.
- The percentage of respondents that reported any familiarity with pedestrian and bicycle laws has risen slightly each year since 2022. In 2025 the lowest percentage of respondents of the survey so far reported being not familiar with these laws at all.
- Roadway signs remain the preferred method for reaching Texans as selected by the highest percentage of respondents (71.8 percent), followed by driver education curriculum (46.4 percent). However, both of these percentages did decrease slightly from 2024 to 2025.

# Knowledge

Overall, knowledge of laws has remained relatively consistent over the past five years of the survey.

The only notable change from 2024 to 2025 was a 4.3 percentage point increase in the percentage of respondents that correctly identified all mark crosswalks among the images displayed.

## Geographic Distribution

Figure 1 displays the geographic distribution of survey respondents, which shows that respondents came from all parts of the state. As expected, Texas's most populous areas near Houston, Dallas/Ft. Worth, San Antonio and Austin had the greatest number of respondents. However, several respondents also came from other locations such as the Rio Grande Valley, El Paso and the Panhandle.

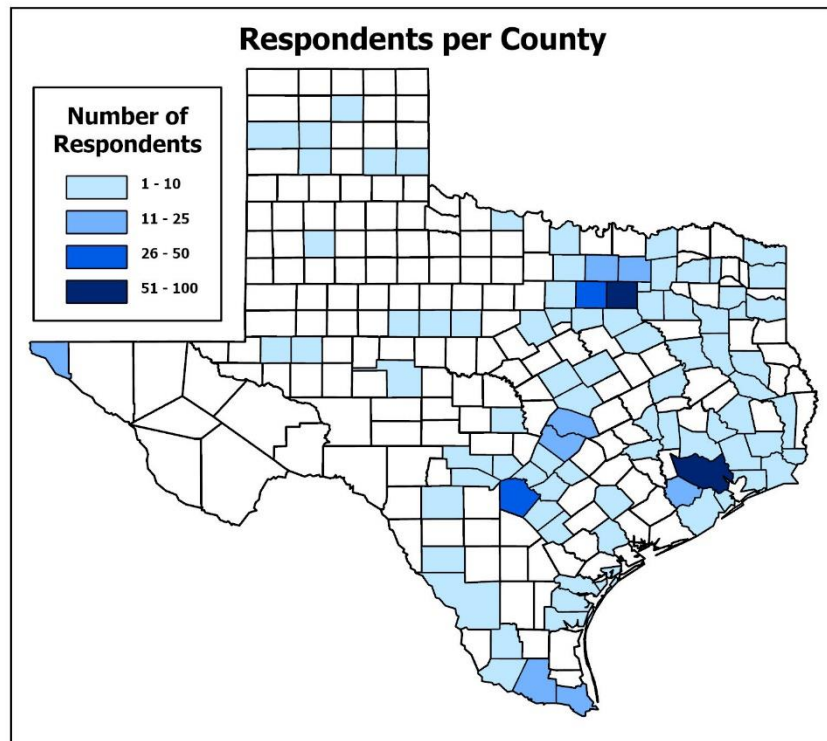


Figure 1. Geographic Distribution of Respondents.

# Demographics

Respondents were asked to self-identify the type of area in which they live. As Figure 2 shows, respondents came from a variety of location types. New this year was a response option for small city.

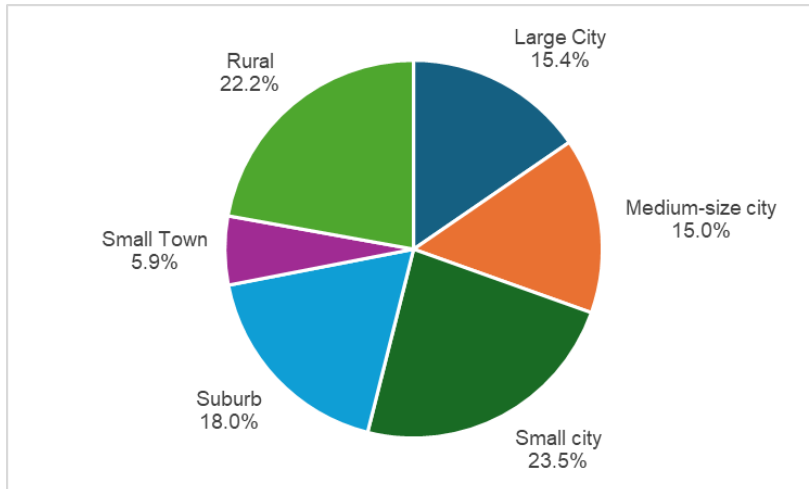


Figure 2. Location Type.

The survey respondents were almost evenly split between male and female, with males making up just over half of the respondents (**50.7 percent**) and females accounting for **49.0 percent**. A small fraction (**0.4 percent**) preferred not to state their gender (see Figure 3).

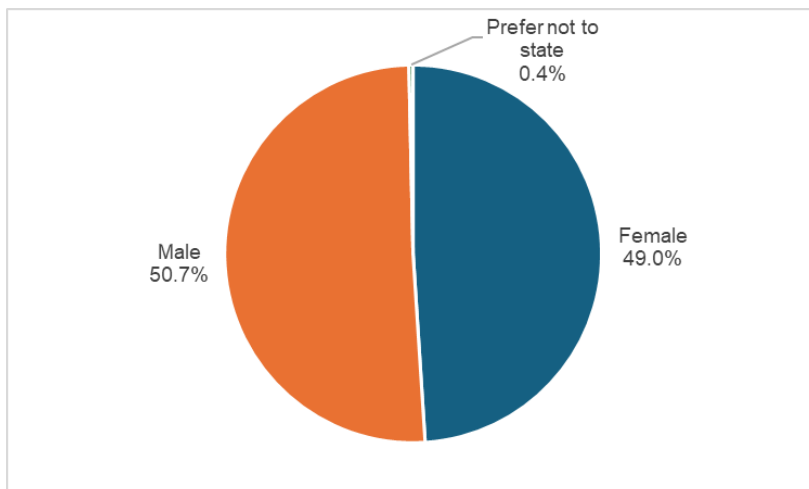
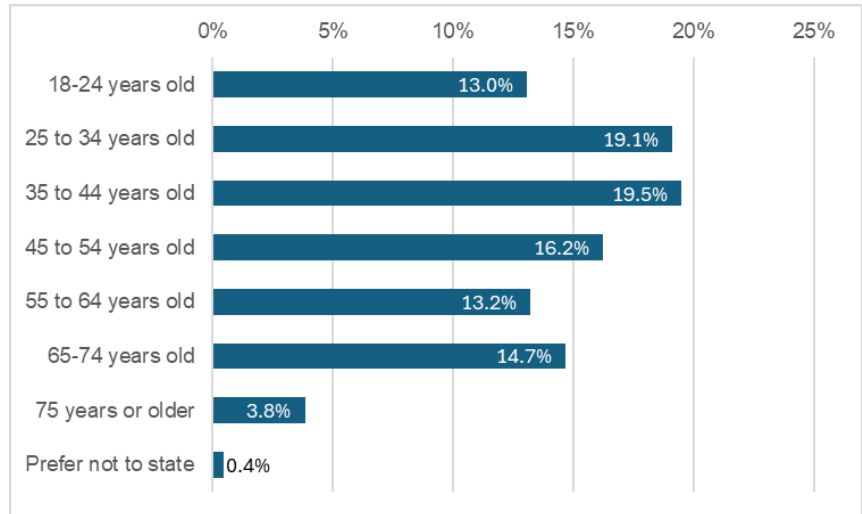


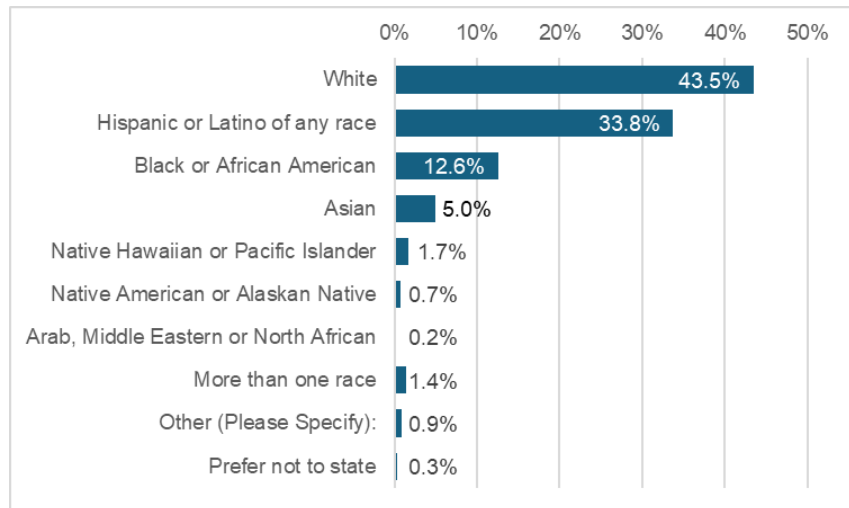
Figure 3. Gender.

As Figure 4 shows, the respondents' ages spanned a variety of groups. New this year was adding in a new age category of 65-74 instead of just having over 65. The two age groups with the highest percentage of respondents were 25 to 34 and 35 to 44.



**Figure 4. Age Category.**

The race and ethnicity of respondents shown in Figure 5 represent the diversity of Texas. The highest percentage of respondents were White (**43.5 percent**) and Hispanic or Latino of any race (**33.8 percent**). This was followed by Black or African American (**12.6 percent**) and Asian (**5.0 percent**). Less than 2 percent reported the remaining race and ethnicity categories.



**Figure 5. Race and Ethnicity.**

Educational attainment was also surveyed. As Figure 6 shows, **40.0 percent** of respondents reported obtaining a college degree (associate, bachelor's, or postgraduate), and another **20.3 percent** reported attending some college. Less than 5 percent reported not having a high school diploma.

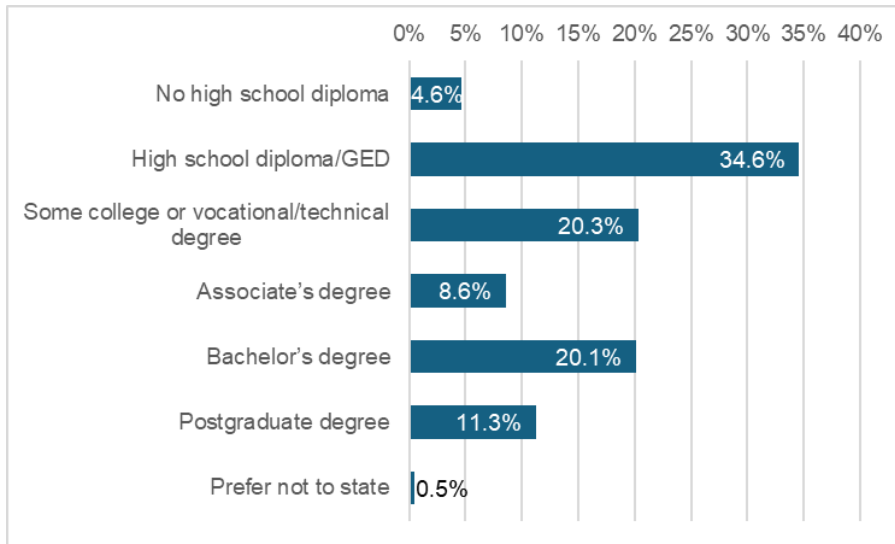
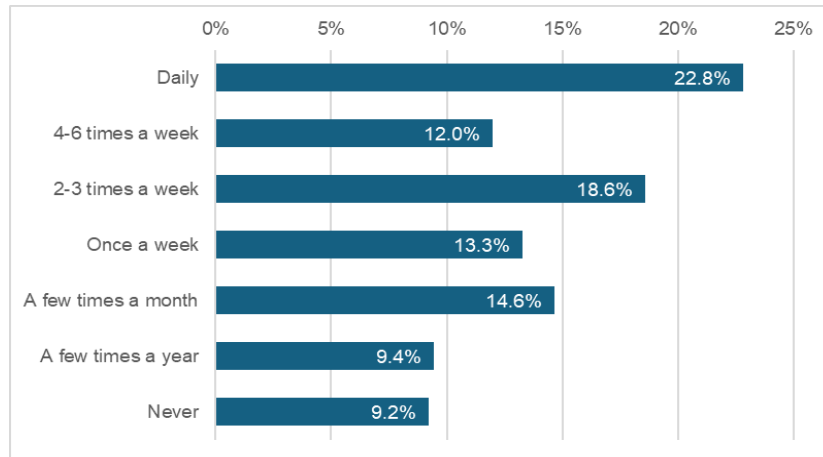


Figure 6. Education Level.

## Pedestrian Questions

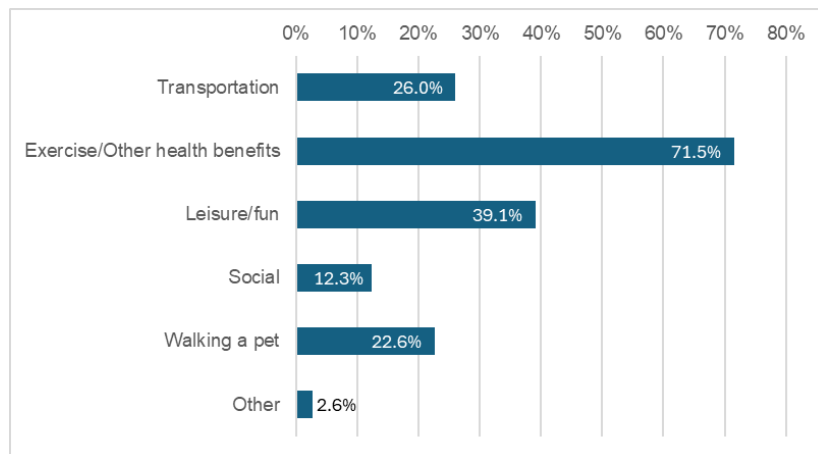
### Frequency and Purpose

First, respondents were asked about how frequently they walk on public roads or sidewalks. As Figure 7 shows, nearly a quarter (**22.8 percent**) of respondents reported walking daily, with **66.7 percent** reporting walking at least once per week. These percentages are slightly lower than in 2024's survey, when 27.2 percent of respondents reported walking daily and 75.5 percent reported walking at least once per week. Just **9.2 percent** in 2025 report never walking on public roads or sidewalks. Respondents who said they never walked were not presented with the following two questions regarding the reasons for walking or their walking behavior.



**Figure 7. Walking Frequency.**

Respondents were also asked the reason(s) why they walk. Figure 8 shows the responses, with the vast majority of respondents (**71.5 percent**) reporting walking for exercise or other health benefits. This is followed by over one-third (**39.1 percent**) that report walking for leisure or fun, **26.0 percent** that do so for transportation purposes, and **12.3 percent** that walk for social reasons. New this year was a response option for walking a pet, which was reported by **22.6 percent** of respondents. The total exceeds 100 percent since respondents could choose all options that applied to them.



**Figure 8. Walking Purpose.**

New this year was a follow-up question for those that responded that they walk for transportation purposes. Respondents were asked for what purpose(s) do they walk for transportation and the responses are shown in Figure 9. Most respondents reported accessing goods (e.g. grocery shopping, running errands, etc.) at 81.9 percent. More than half (58.9 percent) reported walking for transportation to get to or from work or school, and about a quarter (25.8 percent) reported walking for transportation to access care (e.g. doctor visit, social services, etc.).

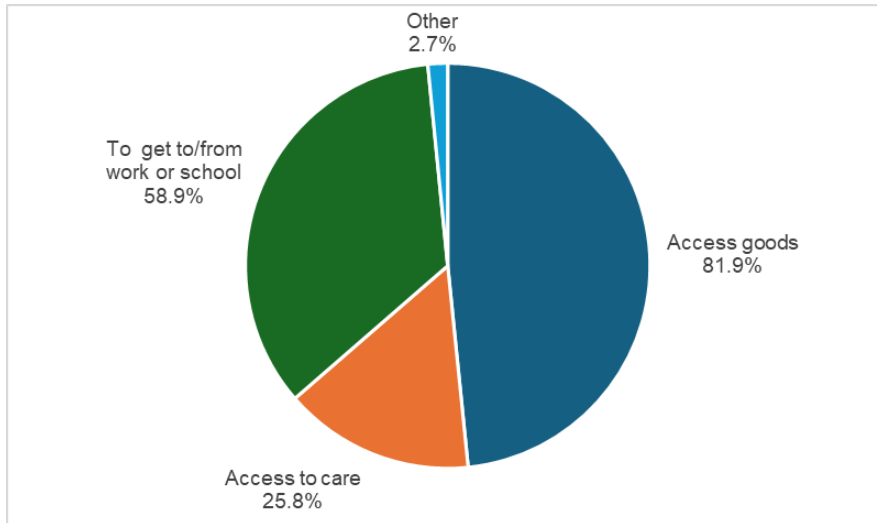


Figure 9. Walking for Transportation Reason.

## Pedestrian Behavior

Figure 10 shows reported pedestrian behavior, with **24.3 percent** of respondents reporting crossing the road at a location other than a crosswalk or intersection very often or always, with another **32.7 percent** reporting doing so sometimes. However, approximately **43.0 percent** reported doing so rarely or never. When pedestrians cross the road outside a crosswalk or intersection, they are required to yield the right-of-way to vehicles.

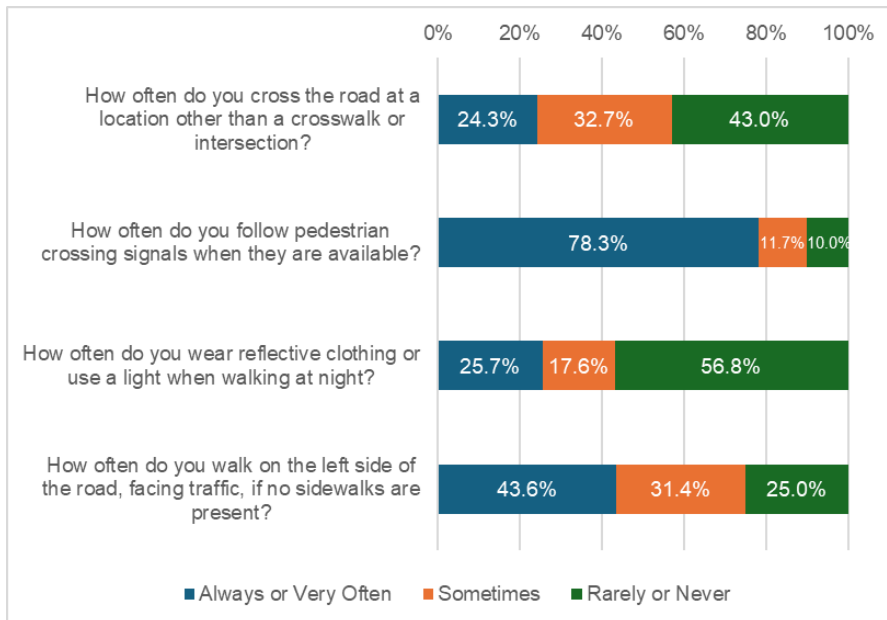


Figure 10. Walking Behavior.

The vast majority of respondents (**78.3 percent**) reported following pedestrian signals very often or always, with only **10 percent** reporting doing so rarely or never. At locations with pedestrian signals in use, pedestrian right-of-way is dictated by that signal. Wearing reflective clothing or using a light at night was reported at least some of the time by **42.3 percent** of respondents. Wearing reflective clothing at night is not required but can increase the visibility of pedestrians at night, therefore increasing their safety. Walking on the left side of the road when no sidewalks are available, which is the law in Texas, was reported by **43.6 percent** of respondents very often or always.

## Pedestrian Safety Features

Respondents were asked about pedestrian safety features available on the roads near where they live, and Table 1~~Error!~~ **Reference source not found.** shows the results. Responses show a lack of pedestrian crossing signals and marked crosswalks at intersections, with **14.5 percent** and **9.2 percent**, respectively, reporting these features at no locations near where they live. Street lighting/illumination was the most commonly reported safety feature observed by respondents.

**Table 1. Pedestrian Safety Features.**

	All Locations	More than Half of Locations	About Half of Locations	Less than Half of Locations	No Locations
Pedestrian Crossing Signals	22.1%	18.9%	21.9%	22.5%	14.5%
Sidewalks	24.4%	26.4%	21.0%	19.4%	8.8%
Street lighting/illumination	28.9%	31.7%	21.5%	12.1%	5.8%
Marked Crosswalks at intersections	27.6%	28.4%	22.8%	12.0%	9.2%

One issue of specific concern is regarding pedestrians having safe ways to cross higher-speed roadways, which pose a significant safety risk to pedestrians. As Figure 11 shows, a majority of respondents (**58.4 percent**) report safe ways to cross high-speed roads at some or all locations near where they live; of those, **85.6 percent** say these crossings are convenient to use. However, **22.6 percent** of respondents reported no safe places to cross high-speed roads.



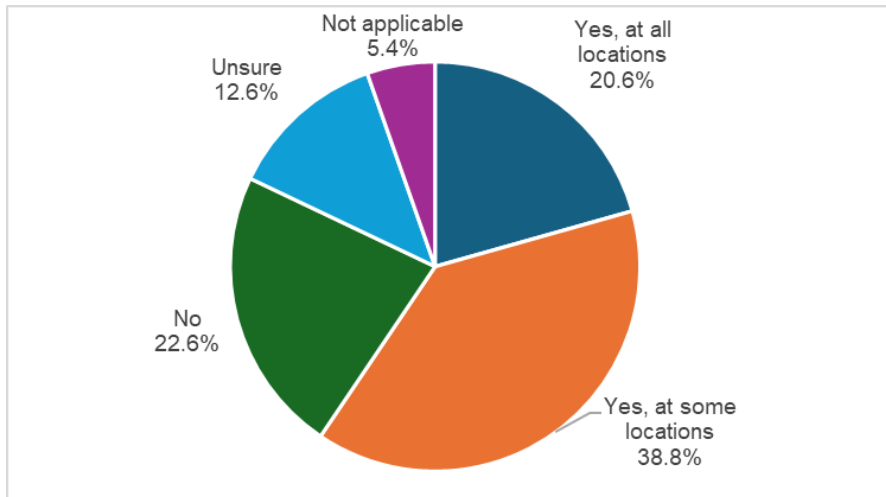


Figure 11. Safe Places to Cross High-Speed Roads as a Pedestrian.

## Obstacles for Pedestrians

Respondents were asked about the obstacles that keep them from walking more often, and Table 2 shows the results. The biggest obstacle to walking most often reported was weather, which includes rain, snow, cold, and heat, at **42.4 percent** of respondents. This was followed closely by the **41.3 percent** of respondents that reported lack of convenience as an obstacle to walking more. Other obstacles reported by 30 percent or more of respondents were lack of sidewalks, time to get to destination, and driver behavior.

Table 2. Pedestrian Obstacles.

Time to get to destination	34.9%
Lack of convenience	41.3%
Poor weather	42.4%
Lack of sidewalks	37.3%
Lack of crossing signals/signs	19.7%
Poor lighting	19.7%
Hard to navigate with a disability	9.9%
Poor roadway/sidewalk conditions	23.3%
Driver behavior	31.7%
Other sidewalk users	4.6%
Other (please specify)	6.0%

# Bicycle Questions

## Frequency and Purpose

Figure 12 shows the reported frequency of biking among respondents. One quarter (**24.9 percent**) of respondents reported biking at least once per week, with an additional **6.9 percent** reporting doing so a few times a month. Over half (**56.6 percent**) reported not biking. Any respondents who reported they never ride a bike were not presented with the next two questions regarding their reason for biking or their biking behavior.

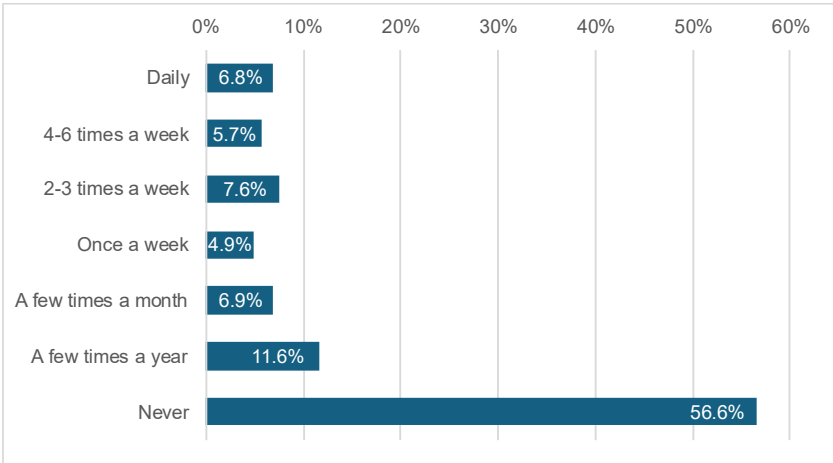
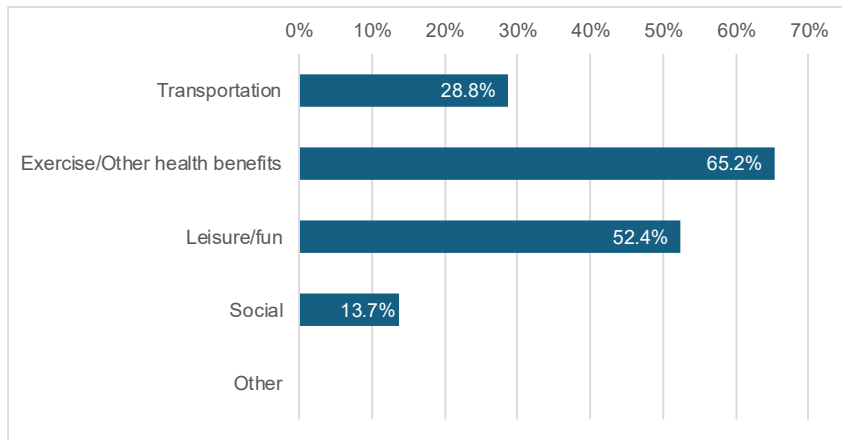


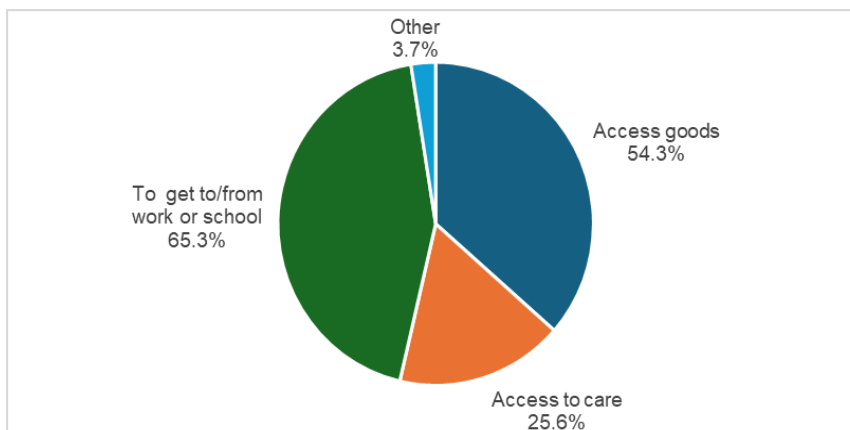
Figure 12. Biking Frequency.

Figure 13 shows respondents reported biking mainly for exercise/other health benefits (**65.2 percent**) and leisure/fun (**52.4 percent**). Biking for transportation was reported by **28.8 percent**, and biking for social reasons was reported by **13.7 percent** of respondents. The total exceeds 100 percent since respondents could choose all options that applied to them.



**Figure 13. Biking Purpose.**

New this year was a follow-up question for those that responded that they bike for transportation purposes. Respondents were asked for what purpose(s) do they bike for transportation and the responses are shown in Figure 14. Most respondents reported either to get to or from school (65.3 percent) or to access goods (54.3 percent). Approximately, one quarter (25.6 percent) reported doing so to access care.



**Figure 14. Biking for Transportation Reason.**

## Bicyclist Behavior

Respondents were asked about their bicycling behavior over the last year (see Figure 15). Riding against traffic in the road very often or always was reported by **25.8 percent** of respondents, with **25.5 percent** reporting doing so sometimes and **23.2 percent** rarely. According to Texas laws, bicyclists should follow the same laws as motor vehicle drivers and therefore should ride in the same direction as traffic. Use of a bike light at night was reported very often or always by **43.9 percent** of respondents. Less than one-fifth (**17.0 percent**) reported never doing so. Use of a white bike light on the front and a red light or red reflector in the

rear is required by state law. Frequent helmet use (very often or always) was reported by **43.3 percent** of respondents, with another **15.5 percent** reporting helmet use sometimes and **41.2 percent** reporting infrequent helmet use (rarely or never). Over one third (**37.5 percent**) of respondents reported wearing reflective clothing while biking very often or always. Bike helmets and reflective clothing are recommended for safety but are not required by Texas law.

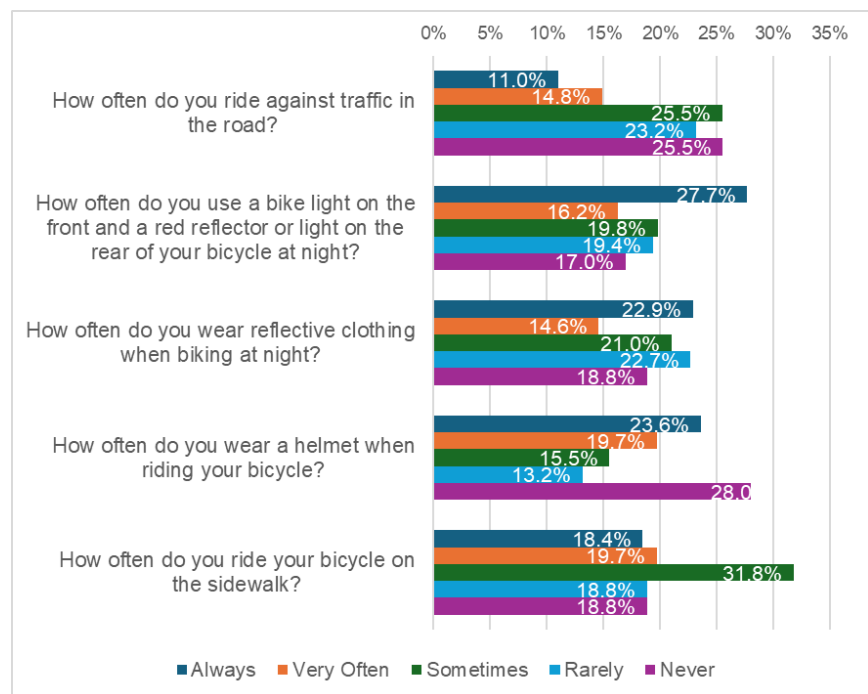


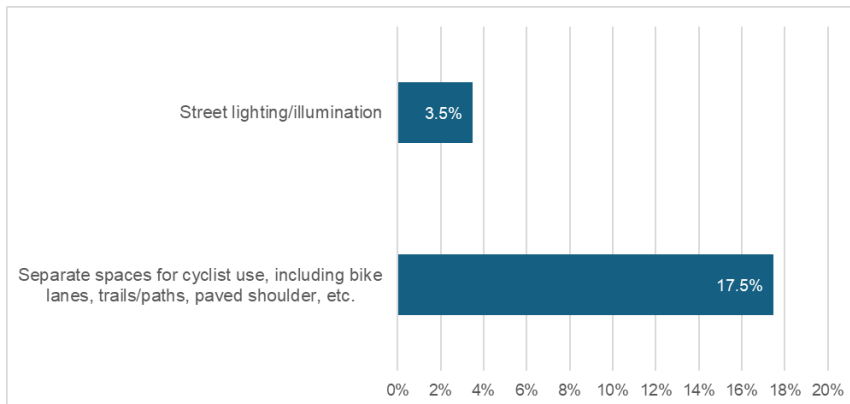
Figure 15. Biking Behavior.

For a second year, the survey included a question regarding biking on the sidewalk. Less than three-quarters (**69.9 percent**) of respondents reported riding their bicycle on the sidewalk at least some of the time, with **18.8 percent** saying they never and **38.1 percent** saying they always or very often ride on the sidewalk. While there is no state law prohibiting the use of bikes on the sidewalk, a local jurisdiction may have such prohibitions on some or all sidewalks.

## Bicycle Safety Features

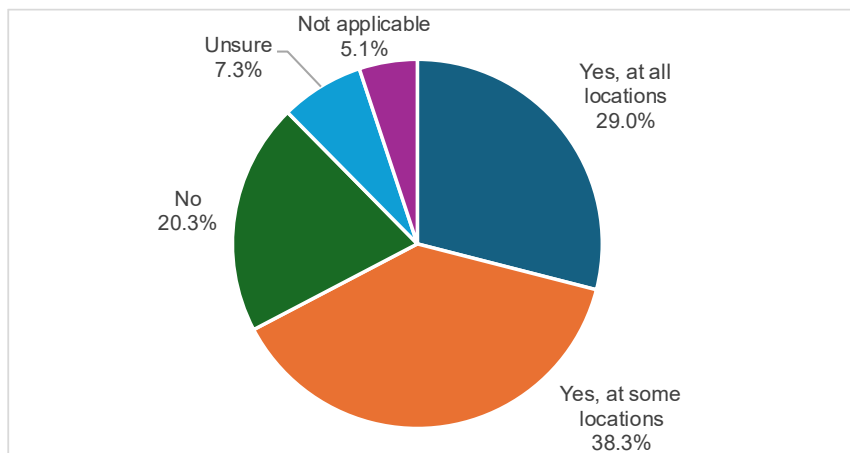
Respondents were asked about bicycle safety features that were available in the area near where they live. Separate spaces for bicyclist use were reported as available in at least half of locations by **54.5 percent** of respondents, with **17.5 percent** reporting no locations available near where they live with separate spaces for bicyclists to use (see Figure 16). Street

lighting/illumination was reported at no locations by only **3.5 percent** of respondents.



**Figure 16. Bicycle Safety Features at No Locations.**

As Figure 17 shows, **67.3 percent** of respondents reported that there are safe places for bicyclists to cross higher-speed roads at some or all locations near where they live, and **20.3 percent** reported that there were not. Overall, the crossings were seen as convenient, with **89.9 percent** reporting that these crossings were convenient to use.



**Figure 17. Safe Places to Cross High-Speed Roads as Bicyclist.**

## Bicyclist Obstacles

Respondents were asked about obstacles to biking more often. As Table 3 shows, poor weather was the top obstacle to biking more often for respondents. This was closely followed by lack of bike lanes/trails, driver behavior, and lack of convenience. Other obstacles included poor roadway or sidewalk conditions and time to get to destination.

Table 3. Bicyclist Obstacles.

Issue	Percent Cited as Obstacle
Time to get to destination	18.7%
Lack of convenience	29.9%
Poor weather	34.2%
Lack of bike lanes/trails	33.5%
Lack of crossing signals	14.7%
Poor lighting	13.6%
Poor roadway/sidewalk conditions	19.0%
Driver behavior	30.9%
Other sidewalk users	6.6%
Other	18.2%

## Driver Questions

Respondents were asked four questions about their driving behavior around pedestrians and bicyclists. Figure 18 shows the results. The first two questions asked how often drivers yield to pedestrians. Yielding to pedestrians at an intersection with a stop sign or traffic signal was reported by **68.0 percent** of drivers, always and **14.3 percent** reported very often.

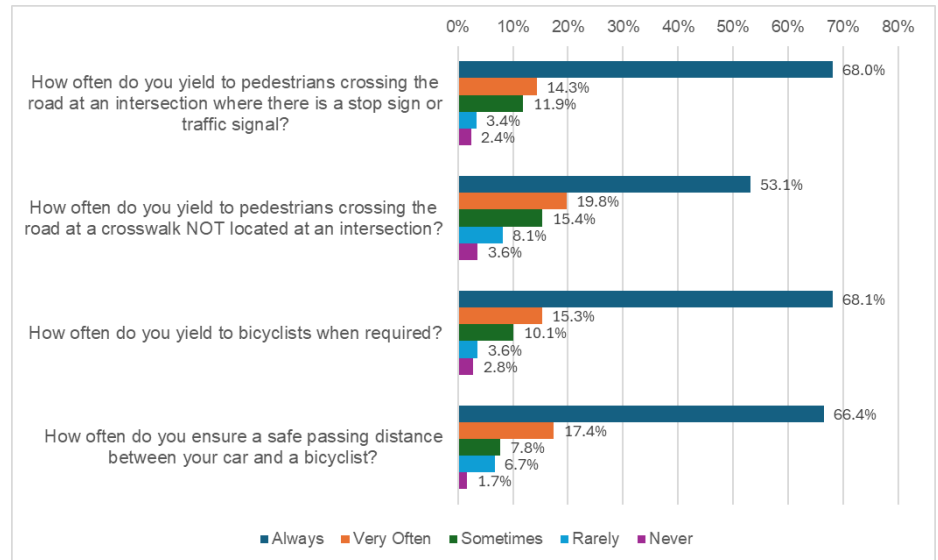


Figure 18. Driver Behavior Results

Yielding to pedestrians at a crosswalk not at an intersection (or mid-block) was reported less often, with **53.1 percent** reporting doing so always.

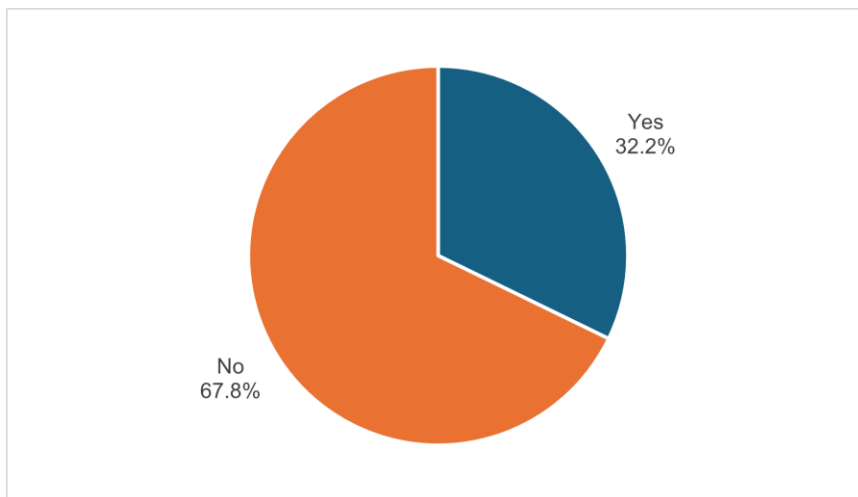
Respondents were also asked about their yielding to bicyclists when required. Similar to yielding to pedestrians, **68.1 percent** reported as always, and **15.3 percent** reported very often.

Ensuring a safe passing distance between their car and a bicyclist was reported by **83.8 percent** of respondents very often or always,.

## Enforcement

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Respondents were asked if they were aware of any traffic enforcement efforts by police (i.e. issuing warnings or citations) in their area regarding pedestrian and bicycle safety in the past year. As Figure 19 shows, about one-third (**32.2 percent**) of respondents reported an awareness of any such efforts.



**Figure 19. Traffic Enforcement Efforts.**

Respondents that answered yes were then asked to describe their experiences, which is summarized here. Based on the open-ended responses from the Texas survey regarding law enforcement efforts related to pedestrian and bicycle safety, several key themes emerged:

Many respondents reported positive experiences or observations of law enforcement actively promoting pedestrian and bicycle safety. These included increased patrols near schools and intersections, officers issuing citations or warnings for violations such as jaywalking or failing to yield to bicyclists, and visible enforcement in high-traffic areas. Some noted that police were present during school hours or community events, helping to manage traffic and ensure safety. A few respondents appreciated educational efforts, such as public notices or officers providing guidance on safe practices. These actions were generally seen as beneficial and reassuring, contributing to a sense of safety and awareness in the community.

However, there were also mixed or negative sentiments. Some respondents felt that enforcement was inconsistent or

insufficient, particularly during evening hours or in certain neighborhoods. A few mentioned that officers ignored violations or were not visible enough to make a meaningful impact. Others expressed confusion or lack of awareness about specific laws, such as which side of the road to walk on, or felt that enforcement was overly punitive in minor situations. A small number of comments reflected frustration with infrastructure issues, such as narrow bike lanes or poorly timed traffic lights, which complicate safe walking and biking regardless of enforcement.

## Laws and Messaging

As Figure 20 shows, just over half (**58.3 percent**) of respondents reported at least a moderate familiarity with pedestrian and bicycle safety laws, and another **26.0 percent** reported being slightly familiar with these laws. No familiarity was reported by **15.6 percent** of respondents.

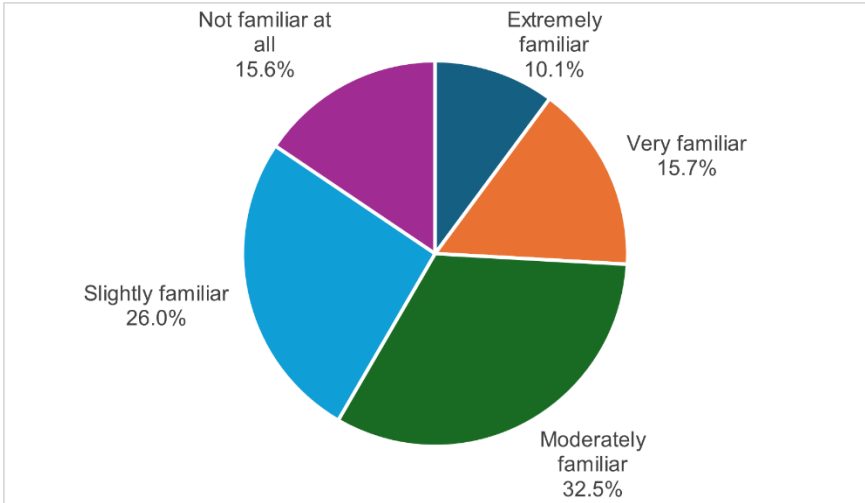


Figure 20. Familiarity with Laws.

Roadway signs were the most commonly selected method of education by respondents (see Figure 21) for educating Texans on bike and pedestrian safety laws, with **71.8 percent** choosing this option. Driver education curriculum was also popular, with **46.4 percent** of respondents choosing this method, followed by dynamic messaging signs with **37.2 percent**. Social media, education in elementary and middle schools, and public service announcements were less popular. Media campaigns were the least chosen method.



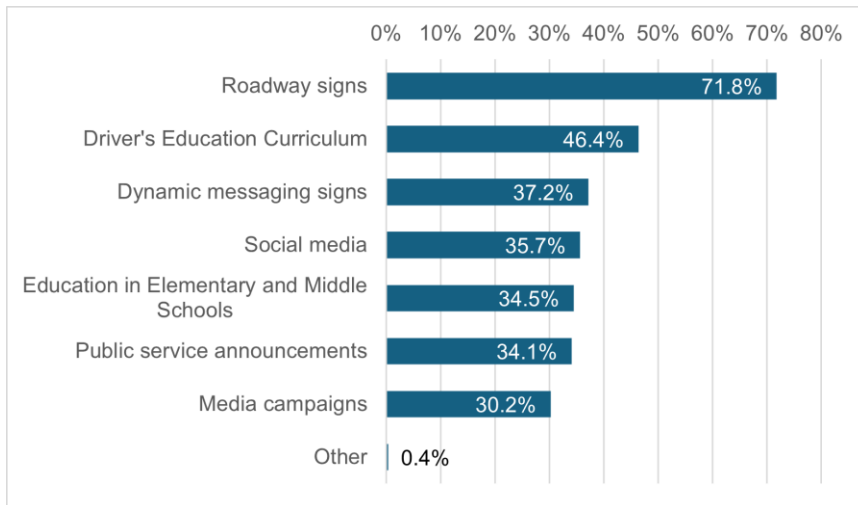


Figure 21. Messaging Preferences.

## Knowledge of Laws

The final section of the survey was the knowledge assessment. Respondents were asked to answer nine questions regarding pedestrian and bicycle safety laws. Seven questions were true/false, one asked about familiarity with a new law, and one involved making a selection from a set of pictures.

Table 4 shows the results of the true/false questions, with the percent of respondents selecting each option shown and the correct answer highlighted in green. The average percent correct across all true/false questions was **69.7 percent**.

Most respondents knew that a local authority may pass ordinances in addition to state laws, that bicyclists have the same rights and responsibilities, that bicyclists must use a light at night and that pedestrians must use the sidewalk if one is available and where to walk if there is not one.

The two questions where the lowest percentage of respondents answered correctly were if bicyclists should ride as far to the left-hand side of the street as possible (**51.5 percent** correct) and if the pedestrian always has the right-of-way (**33.5 percent** correct).

Table 4. True/False Knowledge Questions.

Question	TRUE	FALSE
A local authority may pass ordinances in addition to state statutes that address pedestrian and bicycle safety.	88.6%	11.4%
Bicyclists do not have the same rights and responsibilities as a motor vehicle on Texas roadways.	29.4%	70.6%
Bicyclists should ride as far to the left-hand side of the street as possible.	48.5%	51.5%
A bicyclist is required to use a light when riding at night.	85.0%	15.0%
As a pedestrian, if a sidewalk is available and accessible they must use it.	85.1%	14.9%
As a pedestrian, if a sidewalk is NOT available and accessible, they should walk on the left-hand side of the street – facing traffic.	73.7%	26.3%
The pedestrian always has the right-of-way.	66.5%	33.5%

Respondents were also asked if they were aware of the 2021 law requiring drivers to both stop and yield to pedestrians or other vulnerable road users using a crosswalk. As Figure 22 shows, **42.6 percent** of respondents were familiar with the law, **41.4 percent** were not familiar with the law, and another **16.1 percent** were not sure.

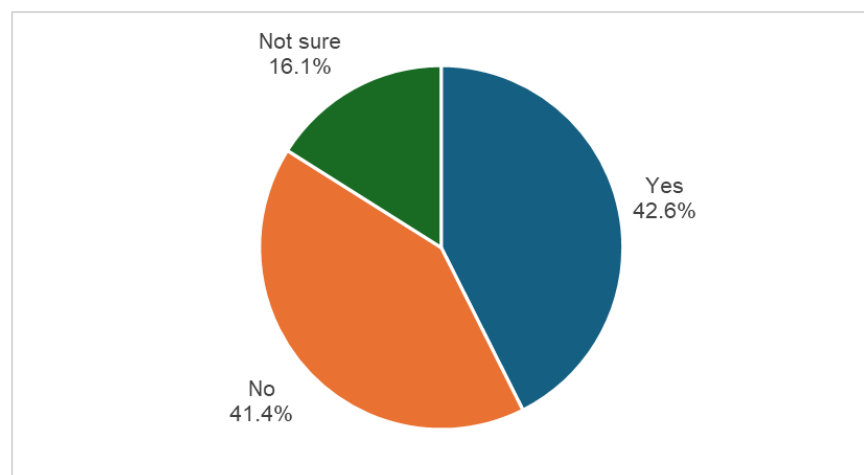


Figure 22. Familiarity with Stop and Yield Law.

The final question on the assessment asked respondents to select the images that contained crosswalks. Figure 23 shows the images that were displayed to respondents. Figure 24 shows the percentage of respondents that selected each image. The vast majority of respondents (**85.2 percent**) correctly identified image D, the mid-block crossing, as a crosswalk. However, the images of marked crosswalks at intersections, images A and B, were only correctly identified by **57.5 percent** and **56.5 percent** of respondents, respectively. Only **6.0 percent** of respondents correctly identified image C as containing a crosswalk. Image C has what is known as unmarked crosswalks at an intersection where the connections of sidewalks on opposite sides of the road form a crosswalk, even if they are not marked with lines. These unmarked crosswalks are located at all four-way intersections where there are sidewalks. Just **2.5 percent** of respondents in the survey correctly identified all images as containing a crosswalk.

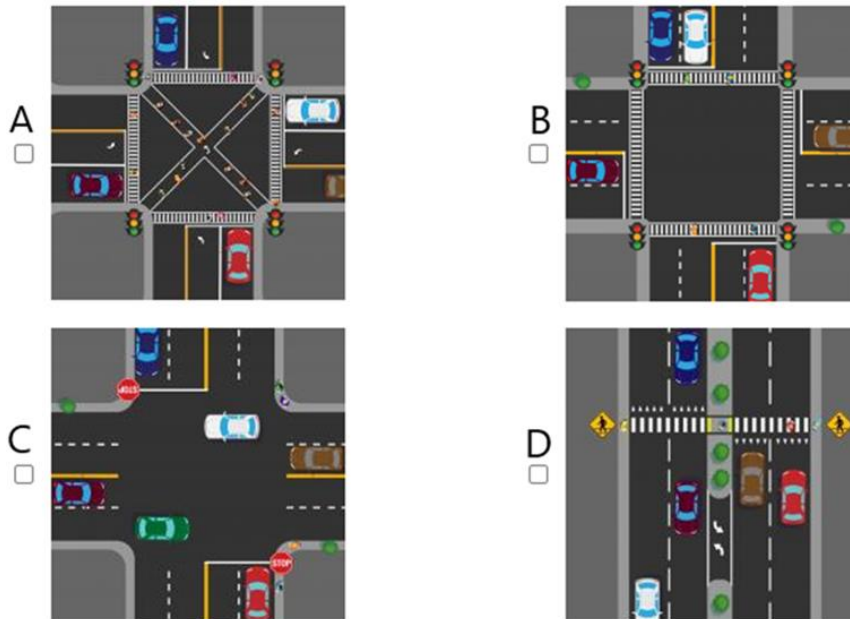


Figure 23. Crosswalk Images.

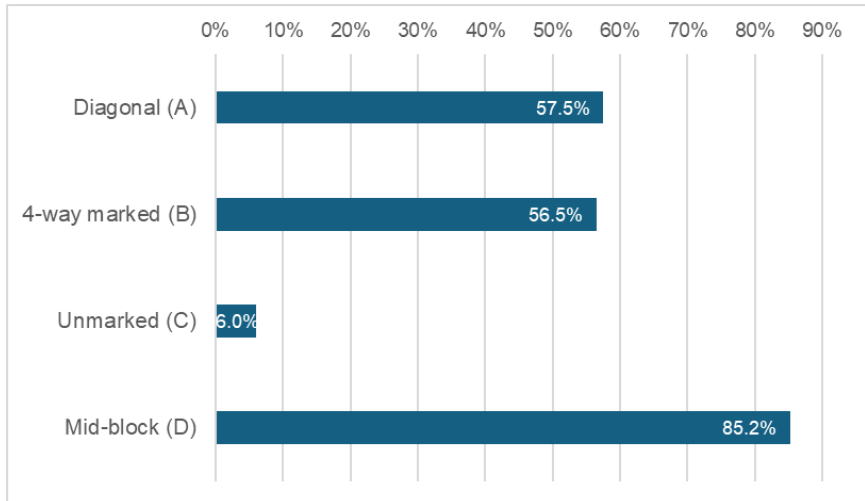


Figure 24. Identification of Crosswalks.

## Year-to-Year Comparisons

In this section, comparisons to the same survey conducted in 2021–2024 are included to provide a picture of how pedestrian and bicycle safety and knowledge have evolved over the past five years.

### Pedestrian Questions

In 2025, walking at least once per week was reported by **66.7 percent** of respondents, an **8.9 percentage point** decrease from 2024. As Figure 25 shows, this brings the level of reported walking down close to 2023 levels.

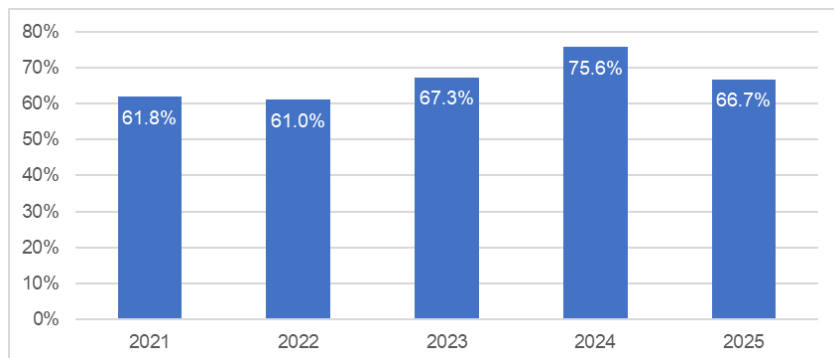
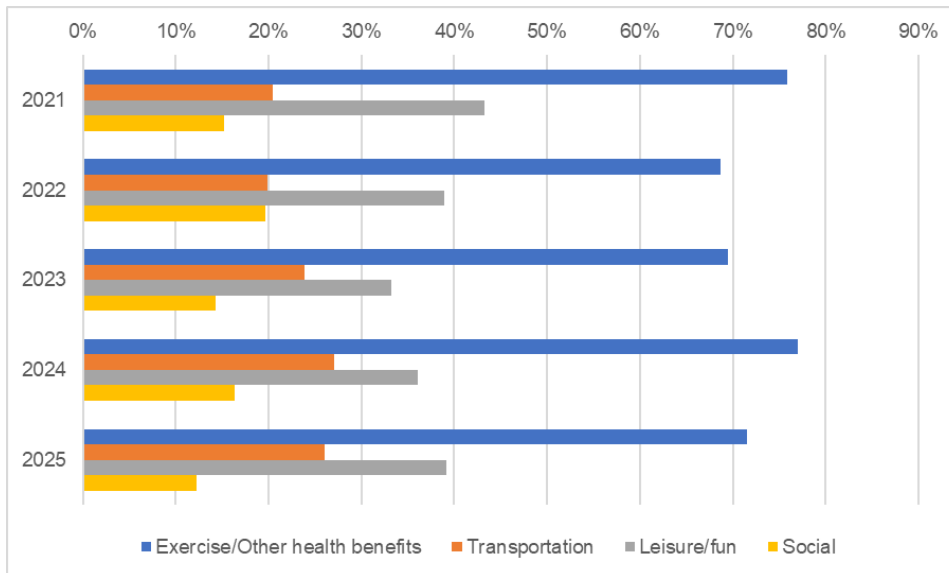


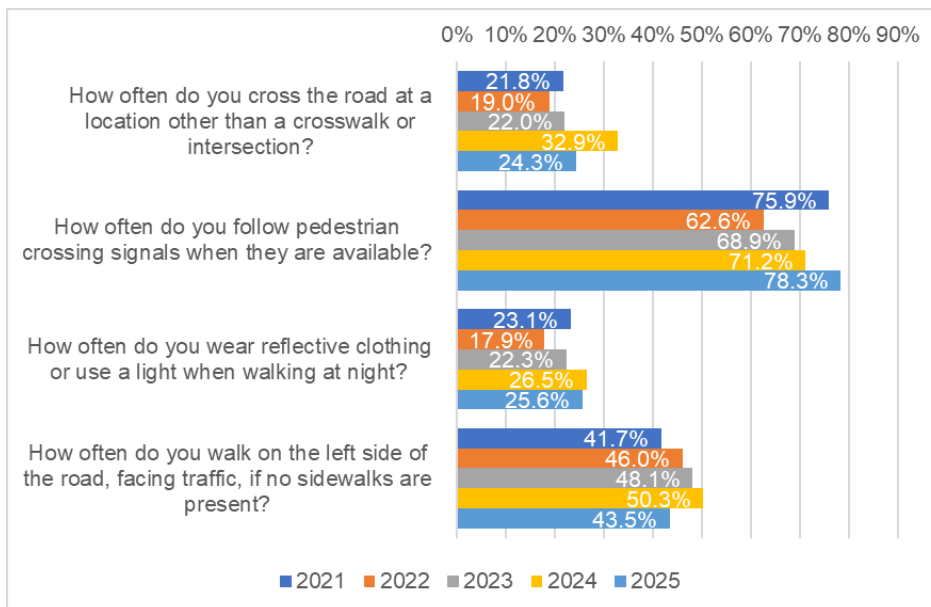
Figure 25. Walking at Least Once per Week, by Year.

The reasons for walking were largely the same across the three years of the survey, with exercise/other health benefits being the main reason for walking as shown in Figure 26.



**Figure 26. Walking Purpose, by Year.**

Reported pedestrian behavior showed some noteworthy changes in 2025. Figure 27 shows the percent of respondents in each year that reported engaging in each behavior very often or always. On the positive side, reported crossing of the road outside an intersection or crosswalk decreased significantly to less than one quarter of respondents after a sharp increase in 2024. Following crossing signals very often or always also increased to its highest reported level of the past five years. On the negative side, wearing reflective clothing or using a light at night while walking decreased slightly in 2024 compared to 2024. Similarly, walking on the left side of the road when no sidewalks are present decreased by over 7 percentage points from 2024 to 2025.



**Figure 27. Pedestrian Behavior (Very Often or Always), by Year.**

Pedestrian safety features also showed some changes. Figure 28 shows the percent of respondents for each year that reported not seeing these safety features at any locations. While there was an increase in the percentage of respondents reporting no pedestrian signals and a slight increase in the reports of no sidewalks, the percentage of locations with street lighting and marked crosswalks at no locations decreased. This means that while some infrastructure improvements have been seen, there is more work to be done, especially in terms of pedestrian signals.

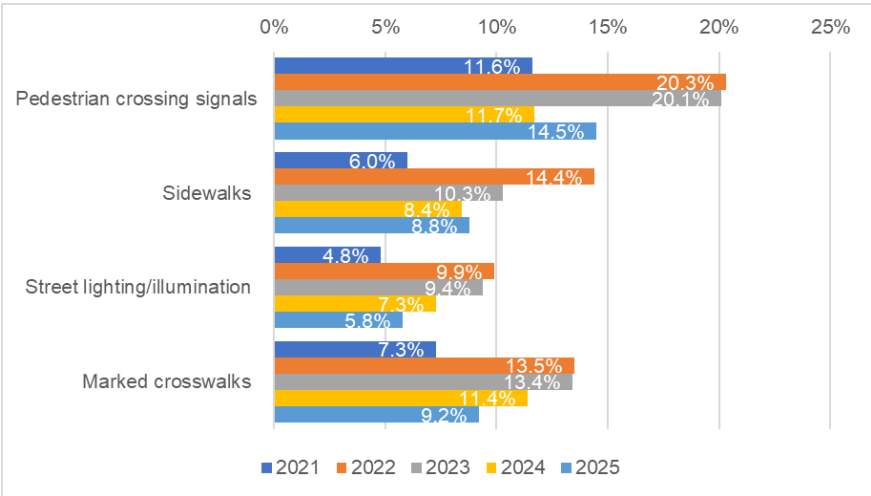


Figure 28. Pedestrian Safety Features at No Locations, by Year.

The top obstacles to people walking more often in 2025 were also compared to previous years. As **Table 5** shows, the top obstacle reported by pedestrians across all years continues to be poor weather, such as rain, snow, heat and cold. In previous years this was closely followed by driver behavior, however, in 2025 driver behavior moved down to the number five spot. Instead, lack of convenience became the second biggest obstacle. A lack of sidewalks also moved up to the third biggest obstacle. Time to get to destination also ranked in the top five obstacles to walking more often.

Table 5. Pedestrian Obstacles, by Year.

2021	Poor weather	Driver behavior	Time to get to destination	Poor lighting	Poor roadway/side walk conditions
2022	Poor weather	Driver behavior	Poor lighting	Lack of sidewalks	Time to get to destination
2023	Poor weather	Driver behavior	Poor roadway/side walk conditions	Lack of sidewalks	Lack of crossing signals/signs
2024	Poor weather	Driver behavior	Poor roadway/side walk conditions	Lack of convenience	Lack of sidewalks
2025	Poor weather	Lack of convenience	Lack of sidewalks	Time to get to destination	Driver behavior

## Bicycle Questions

In the 2025 survey, approximately one quarter of respondents reported biking once a week or more (see Figure 29). This was a substantial drop from the 2024 survey, but similar to previous year's. At the same time, the percentage of respondents that reported never biking climbed to over half.

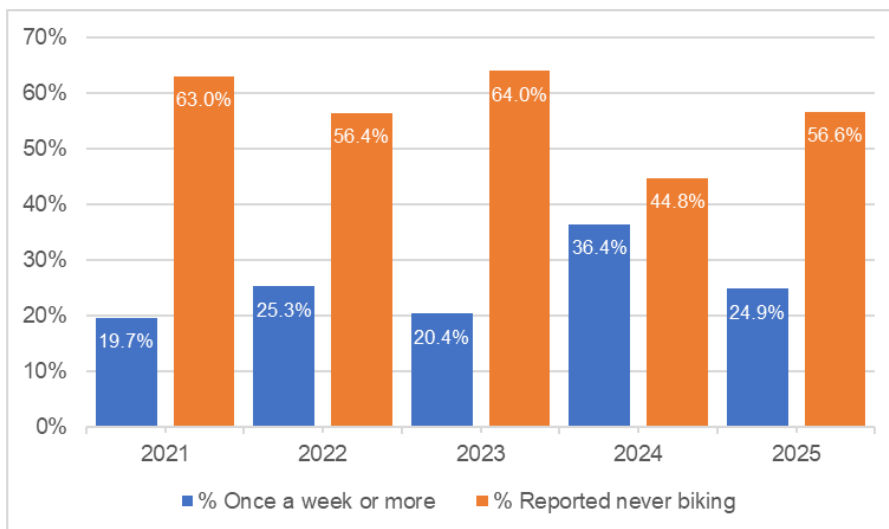


Figure 29. Biking Frequency, by Year.

The top reason for biking across all years was exercise or other health benefits; however, there has been an increase since 2022 in the percentage of respondents reporting biking for transportation reasons, as shown in Figure 30.

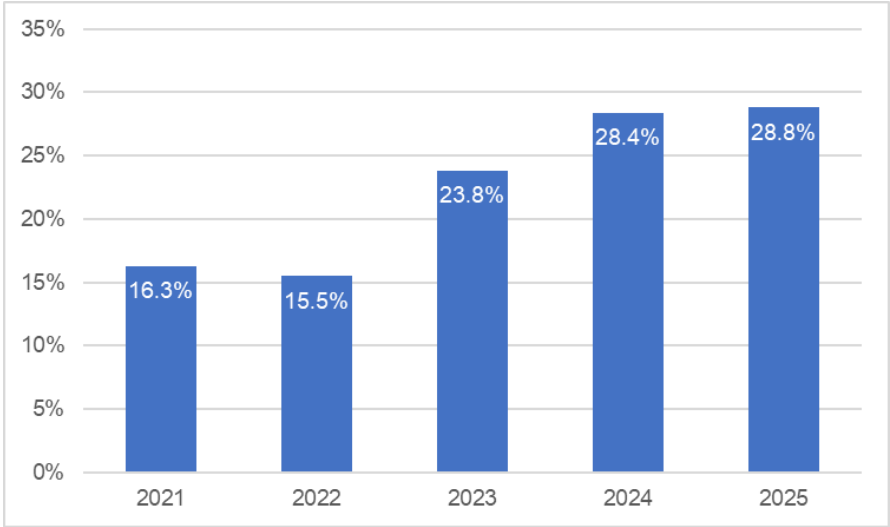


Figure 30. Biking for Transportation, by Year.

As Figure 31 shows, the percentage of respondents in 2025 that reported riding against traffic in the road very often or always dropped from the 2024 high. Reported use of a bike light, reflective clothing at night and a helmet all decreased in 2025. Riding on the sidewalk, which was a new question in 2023, decreased from 47.0 percent in 2024 to 38.1 percent in 2025..

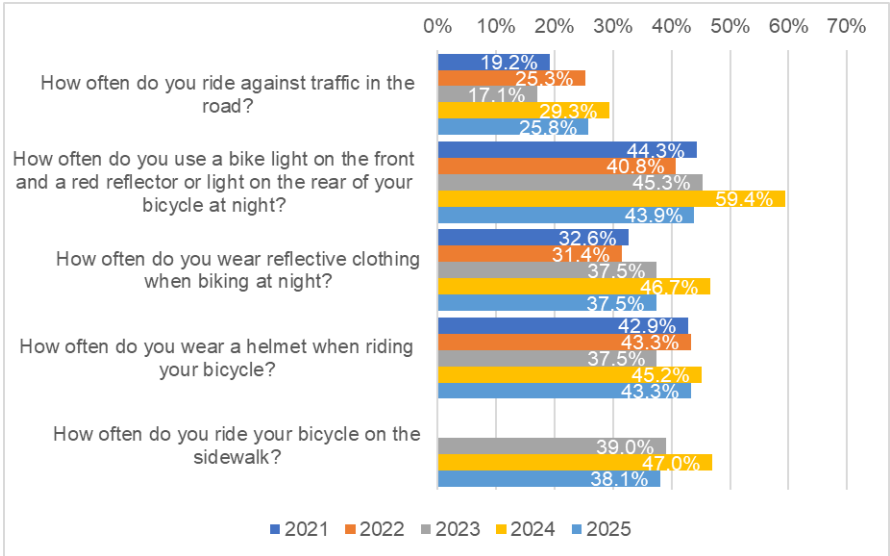
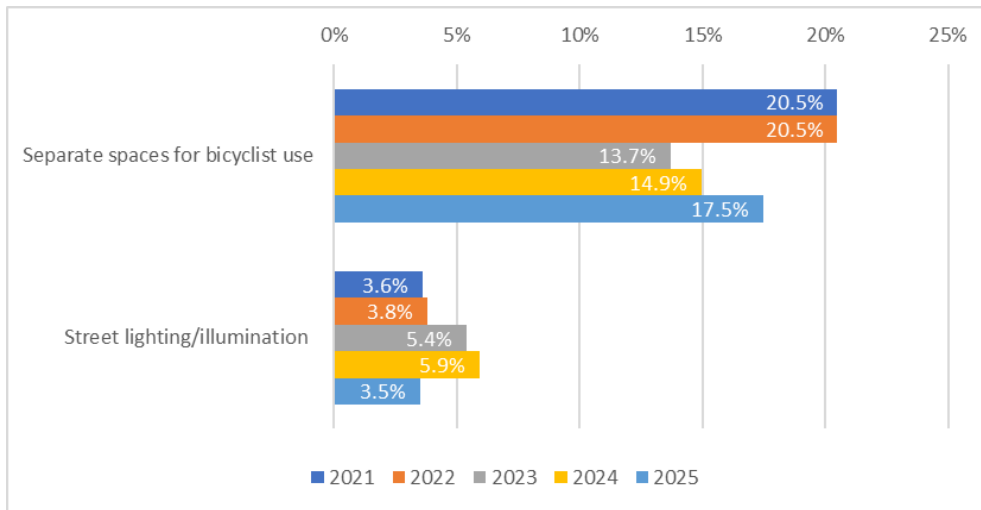


Figure 31. Bicyclist Behavior (Very Often or Always), by Year.

Bicycle safety features reported by respondents also had some changes in 2025. As Figure 32 shows, the percentage of respondents that reported separate spaces for bicyclist use at no



locations increased again in 2025. However, the percentage of respondents that reported street lighting/illumination at no locations decreased in 2025 to **3.5 percent**.



**Figure 32. Bicycle Safety Features at No Locations, by Year.**

Table 6 shows the top five obstacles that respondents cited as an obstacle to biking more often over the past five years. Poor weather has consistently been the first or second cited obstacle to biking more often. A lack of bikes lanes/trails has also consistently been ranked in the top three obstacles across all five years. Similarly, driver behavior has consistently been among the top five obstacles. A lack of convenience has been an obstacle the past two years. Poor roadway/sidewalk conditions rounded out the top five in 2025 and has been in the top five four of the last five years.

Table 6. Bicyclist Obstacles, by Year.

2021	Poor weather	Driver behavior	Lack of bike lanes/trails	Poor roadway/sidewalk conditions	Time to get to destination
2022	Poor weather	Lack of bike lanes/trails	Driver behavior	Poor roadway/sidewalk conditions	Lack of crossing signals or signs
2023	Lack of bike lanes/trails	Poor weather	Driver behavior	Poor roadway/sidewalk conditions	Lack of crossing signals or signs
2024	Poor weather	Lack of convenience	Lack of bike lanes/trails	Driver behavior	Poor lighting
2025	Poor weather	Lack of bike lanes/trails	Driver behavior	Lack of convenience	Poor roadway/sidewalk conditions

## Driver Questions

Figure 33 shows the driver behaviors around pedestrians and bicyclists reported by respondents very often or always. Most driver behaviors showed their highest reported levels over the five survey waves, with the exception of ensuring a safe passing distance. Reported driver yielding at intersections very often or always was **82.4 percent** but only **72.9 percent** at crosswalks at non-intersections (or mid-block). Of note though was an 8.6 percentage point increase from 2024 to 2025 of respondents reporting always yielding at a crosswalk at a non-intersection.

Ensuring a safe passing distance between their car and a bicyclist was reported by **83.4 percent** of respondents very often or always, a decrease of **3.2 percentage points** from 2024. Yielding to bicyclists when required, which was a new question in 2023, remained high at **83.9 percent**.

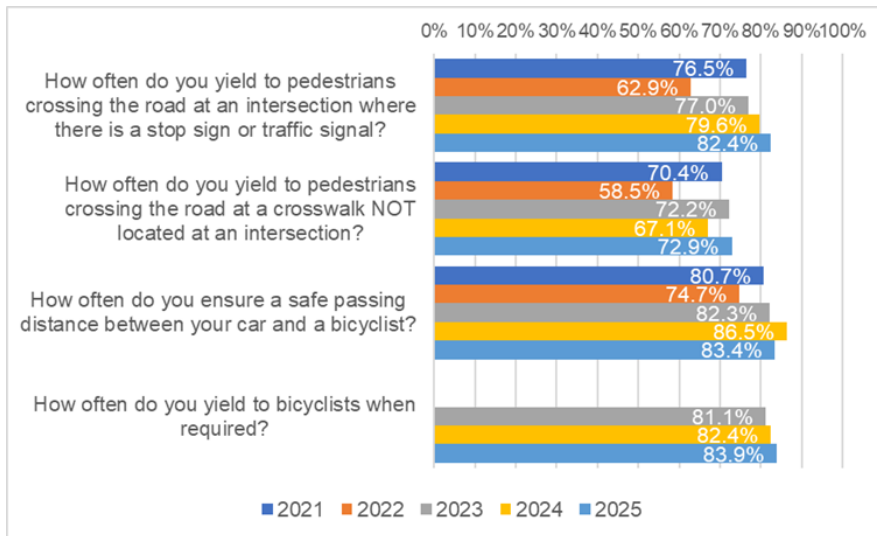


Figure 33. Driver Behavior (Very often or Always), by Year.

## Enforcement

Figure 34 shows the percentage of respondents reporting seeing or hearing about enforcement efforts by law enforcement regarding pedestrian and bicycle safety. In 2025, approximately one-third (**32.2 percent**) of respondents reported hearing about enforcement efforts, similar to 2024.

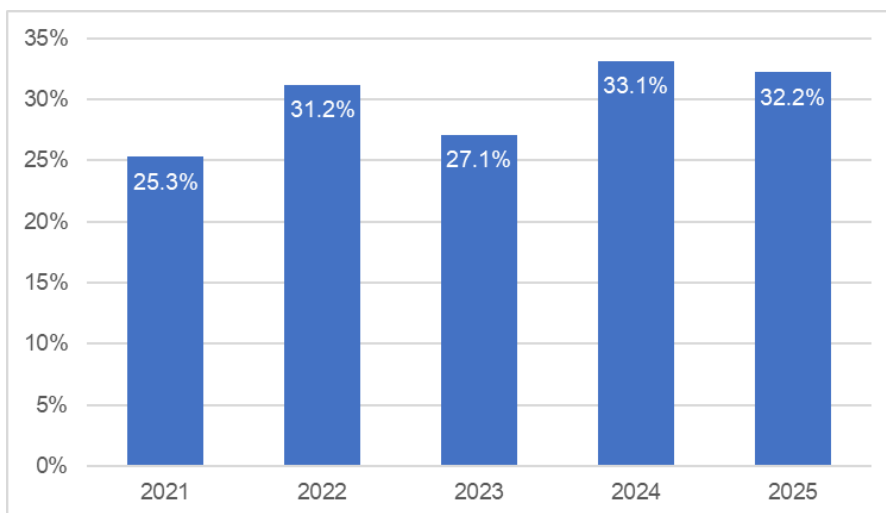


Figure 34. Respondents Reporting Enforcement, by Year.

## Familiarity with Laws

Figure 35 shows the self-reported familiarity with pedestrian and bicycle laws reported by respondents over the five years. Overall,

responses have remained similar over the five survey waves. The biggest change was the lower percentage of respondents from 2024 to 2025 that reported being extremely familiar with these laws. Meanwhile, 2025 had the lowest percentage of respondents reporting being not familiar with these laws at all – a positive sign.

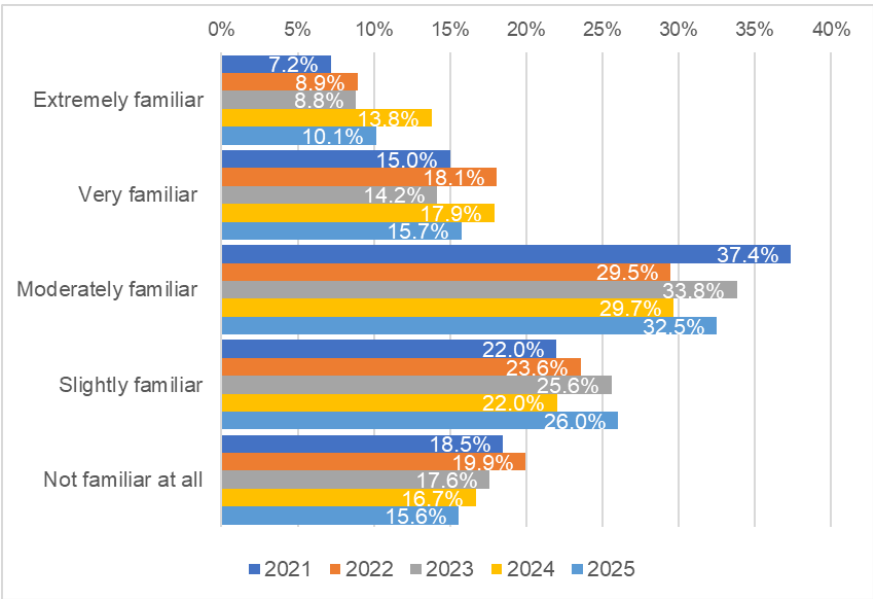


Figure 35. Familiarity with Laws, by Year.

## Methods for Education

As Figure 36 shows, support for the different methods of education mostly decreased in 2025, with the exception of media campaigns which remained about the same. Roadway signs remains the method for education selected by the highest percentage of respondents. Social media was a new option added in the 2024 survey and support for social media did decrease in 2025.

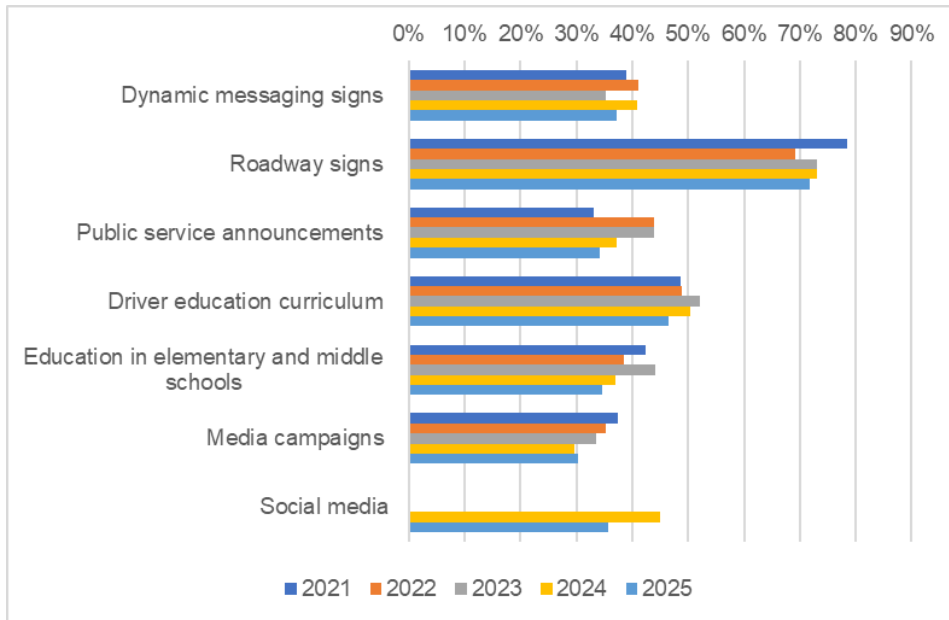


Figure 36. Methods for Messaging, by Year.

## Knowledge Questions

Figure 37 shows the percentage of respondents that correctly answered the true/false knowledge questions about pedestrian and bicycle safety laws. The responses have remained fairly consistent across the five years.

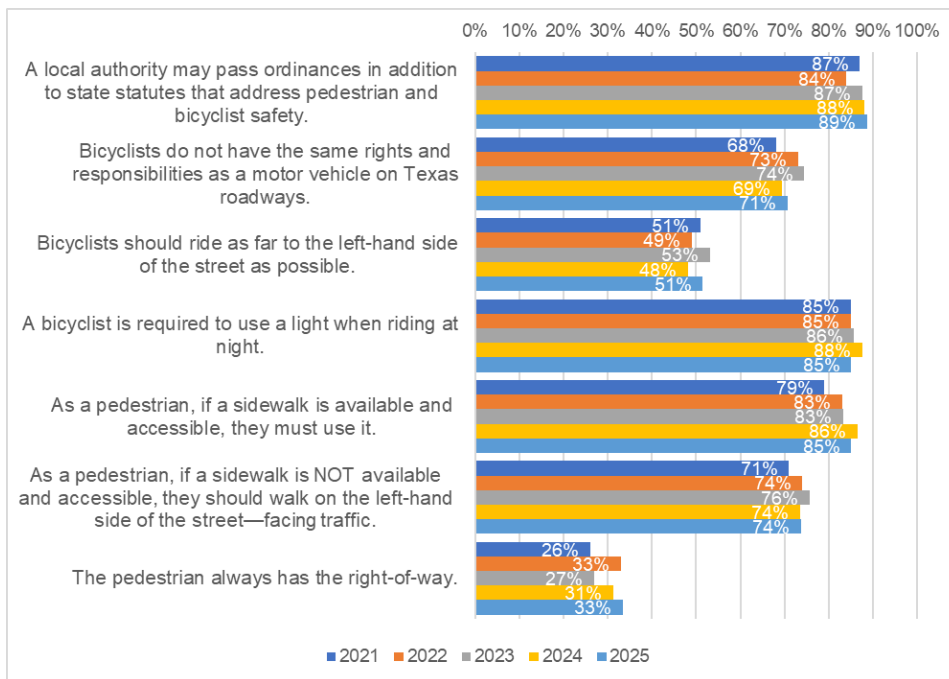


Figure 37. Knowledge of Laws, by Year.

This is the third year that respondents have been asked about their familiarity with the new stop and yield law, which was part of the Lisa Torrey Smith Act. As Figure 38 shows, familiarity with this law has remained in the low to mid-forty percent range for the past three years.

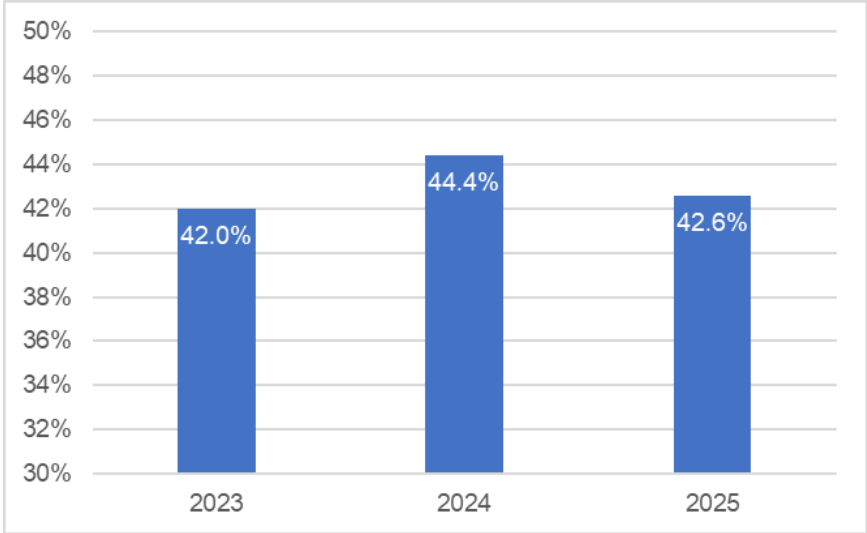


Figure 38. Familiarity with the Stop and Yield Law, by Year.

Figure 39 shows the percentage of respondents that correctly identified different types of crosswalks, by year. In 2025, **42.7 percent** of respondents correctly identified all the marked crosswalks, which is an increase over 2024. Less than 5 percent of respondents correctly identified all pictures as containing crosswalks.

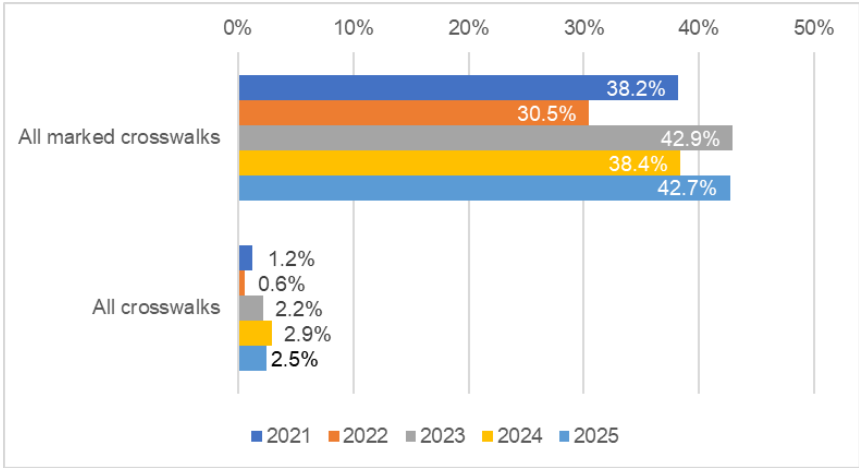


Figure 39. Crosswalk Identification, by Year.

# Appendix A: Pedestrian and Bicycle Safety— 2025 Survey

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Pedestrian and bicyclist fatalities have increased sharply over the past decade. The Texas A&M Transportation Institute is conducting this survey to learn more about what road users know about pedestrian and bicycle safety laws in Texas. This survey is sponsored by the Texas Department of Transportation. If you walk, bike, or drive on roads in Texas, we would like your input! The survey results will be used to design public outreach materials to educate road users about bicycle and pedestrian safety laws.

You must be at least 18 to participate. You can exit the survey at any point. The survey should take no more than 15 minutes to complete. Your information will be kept confidential to the extent allowed by law, and all identifiable information will be kept on a password protected computer accessible only by the research team. This survey has been designed in Qualtrics, and you can click [here](#) to view the Qualtrics confidentiality policy.

If you have any questions about this survey, please contact Neal Johnson at [neal-johnson@tti.tamu.edu](mailto:neal-johnson@tti.tamu.edu). You may also contact the Human Research Protection Program at Texas A&M University at 1-855-795- 8636 or [irb@tamu.edu](mailto:irb@tamu.edu). By continuing with the survey you agree to participate. If you do not agree to participate, you may close your browser window.

(screening question) Are you 18 years of age or older and a resident of Texas?

- Yes
- No

Q1 What is your zip code?

---

Q2 Which best describes the area where you live?

- Rural (not within city or town limits)
- Small Town (population under 5,000)
- Small city (population 5000-100,000)
- Medium-size city (population 100,000-250,000)
- Suburb (city or town inside the urbanized area of a principal city)
- Large City (population of 250,000 or greater)

Q3 Gender:

- Male
- Female

- Prefer not to state

Q4 Select your age category:

- 18 to 24 years old
- 25 to 34 years old
- 35 to 44 years old
- 45 to 54 years old
- 55 to 64 years old
- 65 to 74 years old
- 75 years old or older
- Prefer not to state

Q5 Select your race/ethnicity. Select all that apply.

- Asian
- Hispanic or Latino or Spanish origin of any race
- Black or African American
- White
- Native American or Alaskan Native
- Native Hawaiian or Pacific Islander
- Arab, Middle Eastern or North African
- More than one race
- Other (please specify): \_\_\_\_\_
- Prefer not to state

Q6 What is your highest level of education?

- No high school diploma
- High school diploma/GED
- Some college or vocational/technical degree
- Associate's degree (for example: AA, AS)
- Bachelor's degree (for example: BA, BS)
- Postgraduate degree (MA, MBA, PhD, MD, etc.)
- Prefer not to state



Q7 How many adults (including yourself) live in your household?

- 1 person
- 2 people
- 3 people
- 4 people
- 5 people
- 6 or more people
- Other (please specify) \_\_\_\_\_

Q8 What is your household income?

- \$0 - \$10K
- \$10,000-\$24,999
- \$25,000-\$49,999
- \$50,000-\$74,999
- \$75,000-\$99,000
- \$100,000-\$149,999
- \$150,000-\$199,999
- \$200,000+
- Prefer not to answer

Q9 What is your marital status?

- Married
- Widowed
- Divorced
- Separated
- Never married

Q10 How often do you walk on public roads/sidewalks?

- Daily
- 4-6 times a week
- 2-3 times a week
- Once a week
- A few times a month

- A few times a year
- Never

Q11 What are the primary reasons you walk? Select all that apply.

- Transportation
- Exercise/other health benefits
- Leisure/fun
- Social
- Walking a pet
- Other (please specify) \_\_\_\_\_

Q12 For what purpose(s) do you walk for transportation? (Select all that apply)

- To get to/from work or school
- Access goods (e.g. grocery shopping, running errands, etc.)
- Access to care (e.g. doctor visit, social services, etc.)
- Other (please specify)

Q13 Please answer the following questions about your walking behavior in the past year.

	Never	Rarely	Sometimes	Very Often	Always
How often do you cross the road at a location other than a crosswalk or intersection?					
How often do you follow pedestrian crossing signals when they are available?					
How often do you wear reflective clothing or use a light when walking at night?					
How often do you walk on the left side of the road, facing traffic, if no sidewalks are present?					

Q14 How often are the following pedestrian safety features found along the roads near where you live?

	No Locations	Less than Half of Locations	About Half of Locations	More Than Half of Locations	All Locations
Pedestrian crossing signals					
Sidewalks					

Street lighting/illumination					
Marked crosswalks at intersections					

Q15 Are there safe ways to cross higher-speed roads as a pedestrian where you live?

- Yes, at all locations
- Yes, at some locations
- No
- Unsure (i.e., I haven't looked to see)
- Not applicable (i.e., there are no higher-speed roads where I live)

Q16 (If yes) Are the crossings convenient to use?

- Yes
- No

Q17 How often do you ride a bicycle?

- Daily
- 4–6 times a week
- 2–3 times a week
- Once a week
- A few times a month
- A few times a year
- Never

Q18 What are the primary reasons you ride a bicycle? Select all that apply.

- Transportation
- Exercise/other health benefits
- Leisure/fun
- Social
- Other (please specify) \_\_\_\_\_

Q19 For what purpose(s) do you ride a bicycle for transportation? (Select all that apply)

- To get to/from work or school
- Access goods (e.g. grocery shopping, running errands, etc.)
- Access to care (e.g. doctor visit, social services, etc.)
- Other (please specify)

Q20 Please answer the following questions about your biking behavior in the past year.

	Never	Rarely	Sometimes	Very Often	Always
How often do you ride against traffic in the road?					
How often do you use a bike light on the front and a red reflector or light on the rear of your bicycle at night?					
How often do you wear reflective clothing when biking at night?					
How often do you wear a helmet when riding your bicycle?					
How often do you ride your bicycle on the sidewalk?					

Q21 How often are the following bicycle safety features found along the roads near where you live?

	No Locations	Less than Half of Locations	About Half of Locations	More Than Half of Locations	All Locations
Separate spaces for bicyclist use, including bike lanes, trails/paths, paved shoulder, etc.					
Street lighting/illumination					

Q22 Are there safe ways to cross higher-speed roads as a bicyclist where you live?

- Yes, at all locations
- Yes, at some locations
- No
- Unsure (i.e., I haven't looked to see)
- Not applicable (i.e., there are no higher-speed roads where I live)

Q23 (If yes) Are the crossings convenient to use?

- Yes
- No

Q24 Which of the following are an obstacle to you walking more often than you do now (select all that apply)?

Obstacle
<input type="checkbox"/> Time to get to destination
<input type="checkbox"/> Lack of convenience (e.g., easier to drive)
<input type="checkbox"/> Poor weather (e.g., temperature, rain)
<input type="checkbox"/> Lack of sidewalks
<input type="checkbox"/> Lack of crossing signals/signs
<input type="checkbox"/> Poor lighting (e.g., no lights, lights not working)
<input type="checkbox"/> Hard to navigate with a disability (e.g., blind, wheelchair)
<input type="checkbox"/> Poor roadway/sidewalk conditions (e.g., potholes)
<input type="checkbox"/> Driver behavior
<input type="checkbox"/> Other sidewalk users
<input type="checkbox"/> Other (please specify)

Q25 Which of the following are an obstacle to you biking more often than you do now (select all that apply)?

Obstacle
<input type="checkbox"/> Time to get to destination
<input type="checkbox"/> Lack of convenience (e.g., easier to drive)
<input type="checkbox"/> Poor weather (e.g., temperature, rain)
<input type="checkbox"/> Lack of bike lanes/trails
<input type="checkbox"/> Lack of crossing signals/signs
<input type="checkbox"/> Poor lighting (e.g., no lights, lights not working)
<input type="checkbox"/> Poor roadway/sidewalk conditions (e.g., potholes)
<input type="checkbox"/> Driver behavior
<input type="checkbox"/> Other sidewalk users
<input type="checkbox"/> Other (please specify)

Q26 Please answer the following questions about your driving behavior near pedestrians and bicyclists in the past year.

	Never	Rarely	Sometimes	Very Often	Always	NA (e.g., I Do Not Drive)
How often do you yield to pedestrians crossing the road at an intersection where there is a stop sign or traffic signal?						
How often do you yield to pedestrians crossing the road at a crosswalk NOT located at an intersection?						
How often do you yield to bicyclists when required?						
How often do you ensure a safe passing distance between your car and a bicyclist?						

Q27 Are you aware of any traffic enforcement efforts by police (i.e., issuing warnings or citations) in your area regarding pedestrian or bicycle safety in the past year?

- Yes
- No

Q28 If yes, please describe your experiences with traffic enforcement efforts regarding walking and biking safety.

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Q29 How familiar are you with bike and pedestrian safety laws in Texas?

- Extremely familiar
- Very familiar
- Moderately familiar
- Slightly familiar
- Not familiar at all

Q30 What methods would you recommend for educating Texans on bike and pedestrian safety laws in Texas? Select all that apply.

- Dynamic messaging signs
- Roadway signs
- Public service announcements
- Driver education curriculum

- Education in elementary and middle schools
- Media campaigns
- Social media
- Other (please specify): \_\_\_\_\_

**This section focuses on your knowledge of pedestrian and bicycle safety laws.**

Q31 Select if the following statements are true or false according to Texas law.

	True	False
A local authority may pass ordinances in addition to state statutes that address pedestrian and bicycle safety.		
Bicyclists do not have the same rights and responsibilities as a motor vehicle on Texas roadways.		
Bicyclists should ride as far to the left-hand side of the street as possible.		
A bicyclist is required to use a light when riding at night.		
As a pedestrian, if a sidewalk is available and accessible, they must use it.		
As a pedestrian, if a sidewalk is NOT available and accessible, they should walk on the left-hand side of the street—facing traffic.		
The pedestrian always has the right-of-way.		

Q32 Are you aware of the new Texas law (effective September 2021) requiring drivers to both stop and yield to pedestrians or other vulnerable road users using a crosswalk (i.e., the Lisa Torry Smith Act)?

- Yes
- No
- Not sure

Q33 Which of these pictures contains a crosswalk? Select all that apply.

- Image A: Diagonal crossing
- Image B: Marked crosswalk at intersection
- Image C: Unmarked crosswalk
- Image D: Mid-block crossing

A  
☐



B  
☐



C  
☐



D  
☐



Please [click here](#) for the correct answers to the knowledge questions to see how you did. And then come back to finalize your survey.



# Appendix B: Weighting Methodology Report— Texas Pedestrian Survey 2025

## Sampling

This survey secured a total of 530 adult respondents residing in Texas using a combination of online panels for sampling. The following table provides a summary of respondent by location type and gender.

**Table 1.** Respondent Distribution by Location Type and Gender

Location Type	Male		Female		Total	
1. Rural	30	11.9%	46	16.5%	<b>76</b>	<b>14.3%</b>
2. Small Town	14	5.6%	23	8.3%	<b>37</b>	<b>7.0%</b>
3. Small City	33	13.1%	33	11.9%	<b>66</b>	<b>12.5%</b>
4. Medium City	25	9.9%	23	8.3%	<b>48</b>	<b>9.1%</b>
5. Suburb	86	34.1%	73	26.3%	<b>159</b>	<b>30.0%</b>
6. Large City	64	25.4%	80	28.8%	<b>144</b>	<b>27.2%</b>
<b>Total</b>	<b>252</b>	<b>100.0%</b>	<b>278</b>	<b>100.0%</b>	<b>530</b>	<b>100.0%</b>

## Weighting

All survey data must be weighted before they could be used to produce unbiased estimates of population parameters. By improving the representation of respondents, weighting reduces bias and enhances the external validity of survey estimates. The weighting process for this survey included three major steps:

1. In the first step, design weights were computed to reflect selection probabilities that included interviewing only one adult per household.
2. In the second step, design weights were calibrated to the demographic distributions of the target population for whom the needed benchmarks were obtained from the latest American Community Survey (ACS 2023). These calibration adjustments were carried out using the *WgtAdjust* procedure of SUDAAN<sup>1</sup> to balance the distributions of survey respondents against multiple benchmarks simultaneously (tables 2 to 8). This procedure relies on a constrained logistic regression to predict the likelihood of response vis-à-vis the explanatory variables used in the model. The resulting likelihood probabilities are then used to create adjustments that align respondents to the specified benchmark distributions.
3. In the third step, produced weights were examined to identify and ameliorate extreme values. Trimming extreme weights is a standard practice that is used to improve the efficiency of the weighting process and add stability to survey estimates. This important gain in precision, however, is achieved at the expense of introducing some minor diversions between weighted totals and their corresponding population benchmarks. In order to accommodate different analyses, the following two sets of weights were generated:

<sup>1</sup> RTI International (2012). *SUDAAN Language Manual, Release 11.0*. RTI International. [www.rti.org/sudaan](http://www.rti.org/sudaan)

**WGT\_P:** Analysis weights aggregating to the total population of adult Texans (22,964,163)

**WGT\_R:** Analysis weights aggregating to the total respondents (530)

It should be noted that variables used for weighting included missing values due to refusal or selection of “Don’t Know” for response. Such values were first imputed using a *Hot-Deck* procedure in SAS<sup>2</sup> within homogeneous cells. As such, the respondent counts summarized in the following tables correspond to those after imputation.

**Table 2.** Population and Respondent Distributions by Age and Gender

Age	Males				Females			
	Population		Respondents		Population		Respondents	
18 - 24	1,512,175	13.3%	21	8.3%	1,420,469	12.2%	24	8.6%
25 - 34	2,213,217	19.5%	46	18.3%	2,166,683	18.7%	56	20.1%
35 - 44	2,217,087	19.5%	51	20.2%	2,142,432	18.5%	59	21.2%
45 - 54	1,873,929	16.5%	30	11.9%	1,879,485	16.2%	55	19.8%
55 - 64	1,645,333	14.5%	44	17.5%	1,698,421	14.6%	45	16.2%
65+	1,895,720	16.7%	60	23.8%	2,299,212	19.8%	39	14.0%
<b>Total</b>	<b>11,357,461</b>	<b>100.0%</b>	<b>252</b>	<b>100.0%</b>	<b>11,606,702</b>	<b>100.0%</b>	<b>278</b>	<b>100.0%</b>

**Table 3.** Population and Respondent Distributions by Race-Ethnicity and Gender

Race Ethnicity	Males				Females			
	Population		Respondents		Population		Respondents	
White	4,761,497	41.9%	119	47.2%	4,846,738	41.8%	96	34.5%
Hispanic	4,258,548	37.5%	80	31.7%	4,224,729	36.4%	98	35.3%
Black	1,302,128	11.5%	29	11.5%	1,453,933	12.5%	36	12.9%
Other	1,035,288	9.1%	24	9.5%	1,081,302	9.3%	48	17.3%
<b>Total</b>	<b>11,357,461</b>	<b>100.0%</b>	<b>252</b>	<b>100.0%</b>	<b>11,606,702</b>	<b>100.0%</b>	<b>278</b>	<b>100.0%</b>

**Table 4.** Population and Respondent Distributions by Education and Gender

Education	Males				Females			
	Population		Respondents		Population		Respondents	
Up to HS	4,754,723	41.9%	60	23.8%	4,322,054	37.2%	74	26.6%
Some College	2,372,896	20.9%	66	26.2%	2,504,313	21.6%	70	25.2%
AS	814,217	7.2%	29	11.5%	998,721	8.6%	49	17.6%
BS	2,190,598	19.3%	67	26.6%	2,439,032	21.0%	60	21.6%
MS+	1,225,027	10.8%	30	11.9%	1,342,582	11.6%	25	9.0%
<b>Total</b>	<b>11,357,461</b>	<b>100.0%</b>	<b>252</b>	<b>100.0%</b>	<b>11,606,702</b>	<b>100.0%</b>	<b>278</b>	<b>100.0%</b>

<sup>2</sup> <https://support.sas.com/resources/papers/proceedings16/SAS3520-2016.pdf>

**Table 5. Population and Respondent Distributions by Income and Gender**

Income	Males				Females			
	Population		Respondents		Population		Respondents	
\$0 < \$10K	732,006	6.4%	24	9.5%	669,997	5.8%	34	12.2%
\$10 < \$25K	656,200	5.8%	29	11.5%	928,729	8.0%	36	12.9%
\$25K < \$50K	1,566,147	13.8%	61	24.2%	1,831,704	15.8%	63	22.7%
\$50K < \$75K	1,784,751	15.7%	46	18.3%	1,871,500	16.1%	67	24.1%
\$75K < \$100K	1,526,838	13.4%	42	16.7%	1,527,317	13.2%	38	13.7%
\$100K < \$150K	2,287,631	20.1%	30	11.9%	2,154,812	18.6%	26	9.4%
\$150K+	2,803,888	24.7%	20	7.9%	2,622,643	22.6%	14	5.0%
<b>Total</b>	<b>11,357,461</b>	<b>100.0%</b>	<b>252</b>	<b>100.0%</b>	<b>11,606,702</b>	<b>100.0%</b>	<b>278</b>	<b>100.0%</b>

**Table 6. Population and Respondent Distributions by Marital Status and Gender**

Marital Status	Males				Females			
	Population		Respondents		Population		Respondents	
Married	6,119,217	53.9%	106	42.1%	5,867,133	50.5%	124	44.6%
Not Married	1,467,986	12.9%	49	19.4%	2,541,328	21.9%	56	20.1%
Never Married	3,770,258	33.2%	97	38.5%	3,198,241	27.6%	98	35.3%
<b>Total</b>	<b>11,357,461</b>	<b>100.0%</b>	<b>252</b>	<b>100.0%</b>	<b>11,606,702</b>	<b>100.0%</b>	<b>278</b>	<b>100.0%</b>

**Table 7. Population and Respondent Distributions by Number of Adults and Gender**

Adults	Males				Females			
	Population		Respondents		Population		Respondents	
1	1,920,841	16.9%	72	28.6%	2,224,858	19.2%	70	25.2%
2	5,515,085	48.6%	99	39.3%	5,605,909	48.3%	110	39.6%
3	2,206,974	19.4%	46	18.3%	2,163,974	18.6%	56	20.1%
4+	1,714,561	15.1%	35	13.9%	1,611,961	13.9%	42	15.1%
<b>Total</b>	<b>11,357,461</b>	<b>100.0%</b>	<b>252</b>	<b>100.0%</b>	<b>11,606,702</b>	<b>100.0%</b>	<b>278</b>	<b>100.0%</b>

**Table 8. Population and Respondent Distributions by Location Type and Gender**

Location Type	Males				Females			
	Population		Respondents		Population		Respondents	
Rural	2,702,047	23.8%	30	11.9%	2,663,214	22.9%	46	16.5%
Small Town	598,893	5.3%	14	5.6%	610,232	5.3%	23	8.3%

Small City	2,826,957	24.9%	33	13.1%	2,954,901	25.5%	33	11.9%
Medium City	1,637,974	14.4%	25	9.9%	1,709,289	14.7%	23	8.3%
Other	3,591,590	31.6%	150	59.5%	3,669,066	31.6%	153	55.0%
<b>Total</b>	<b>11,357,461</b>	<b>100.0%</b>	<b>252</b>	<b>100.0%</b>	<b>11,606,702</b>	<b>100.0%</b>	<b>278</b>	<b>100.0%</b>

#### Variance Estimation for Weighted Data:

Survey estimates can only be interpreted properly in light of their associated sampling errors. Since weighting often increases variance of estimates, use of standard variance calculation formulae with weighted data can result in misleading statistical inferences. With weighted data, two general approaches for variance estimation can be distinguished. One is *Taylor Series Linearization*, while the second method of variance estimation is *Replication*.

Also, an approximation method can be used for variance estimation when the above tools are not available. With  $W_i$  representing the final weight of the  $i^{\text{th}}$  respondent, the inflation due to weighting, which is commonly referred to as *Design Effect*, can be approximated by:

$$\delta = 1 + \frac{\sum_{i=1}^n \frac{(W_i - \bar{W})^2}{n-1}}{\bar{W}^2}$$

For calculation of confidence intervals for an estimated percentage,  $\hat{p}$ , one can obtain the conventional variance of the given percentage, multiply it by the resulting design effect,  $\delta$ , and use the resulting quantity as adjusted variance. That is, the adjusted variance would be given by:

$$\hat{S}^2(\hat{p}) \approx S^2(\hat{p})(\hat{p}) \times \delta = \frac{\hat{p} \times (1 - \hat{p})}{n-1} \left( \frac{N-n}{N} \right) \times \delta$$

Subsequently, the  $(100-\alpha)$  percent confidence interval for  $P$  would be given by:

$$\hat{p} - z_{\alpha/2} \sqrt{\frac{\hat{p} \times (1 - \hat{p})}{n-1} \left( \frac{N-n}{N} \right) \times \delta} \leq P \leq \hat{p} + z_{\alpha/2} \sqrt{\frac{\hat{p} \times (1 - \hat{p})}{n-1} \left( \frac{N-n}{N} \right) \times \delta}$$

The overall unequal weighting effect for this survey is estimated to be 2.4.