Windsor NEXT

Community Transportation Priorities Study

January 2024

TOWN OF WINDSOR



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About this Study

Windsor NEXT is a community transportation priorities study by the Town of Windsor to provide a guide for the long-range vision of the future of Windsor's transportation system to advance transportation mobility, safety and equity.

This study began with a review of past transportation studies and planning efforts in the Town. Using findings from this review, a survey for the community was developed with questions that reflect both ongoing transportation concerns as well as potential future visions for the community transportation sytem. In parallel with the survey, a webmap platform was established to allow community members to place map markers to identify geographically-specific transportation needs, concerns, and opportunities. The survey and webmap were distributed through official Town channels to the community.

After the survey and webmap closed, the responses were summarized into a presentation, which was given at a community charette meeting attended by members of the Town Council as well as members of the community. Following the presentation, attendees were invited to give further input and feedback in small group discussions. This report documents the outcomes and findings from each of these phases.

Unlike previous transportation studies in the Town in years past, the community engagement conducted for this study is not targeted towards obtaining feedback for a specific project, geography, or singular transportation issue. Rather, it is geared broadly towards the "big picture" of the future of transportation in Windsor. It is meant to give a sense of what residents, employees and visitors perceive to be working and not working with regards to transportation in and around the Town, what they view as priorities for the future development of the transportation network, and to provide strategies, goals, and solutions for future action that are aligned with those priorities.

About Windsor

The Town of Windsor is situated in central Sonoma County. It is located nine miles north of the City of Santa Rosa, and some sixty miles north of San Francisco. First incorporated in 1992, the Town has evolved from its agricultural roots into a family-oriented residential community with supporting neighborhood businesses.

Windsor is served by the US 101 freeway, which is the Town's main connection to the surrounding region. The freeway also bisects the Town, presenting significant transportation connectivity challenges at its interchanges and creating a barrier between the Town's eastern and western halves. In addition to US 101, a number of arterials serve the Town, including Windsor Road, Windsor River Road, Starr Road, Arata Lane, Hembree Lane, Shiloh Road, and Old Redwood Highway; many of these facilities have historically faced multimodal challenges, including speeding and inadequate bicycle and pedestrian facilities, and these locations have been the focus of the Town's efforts to improve its transportation infrastructure in recent years. Finally, a northernly extension of the Sonoma–Marin Area Rail Transit (SMART) rail line is expected to arrive in Windsor in 2025, connecting it to points south such as Santa Rosa, Petaluma, and Marin County (with a connection to the Larkspur Golden Gate Ferry terminal).

The population of Windsor is 26,548 as of 2021. 59.6% of the population identified as white, 31.1% identified as Hispanic or Latino, 2.9% identified as Asian, 1% identified as Black, 1.4% identified as Native American, 0.4% identified as Pacific Islander, 0.5% identified as another race, and 3.2% identified as multiracial. Windsor's median household income was $123,277 per year, and its home ownership rate is 75.6%. Both of these indicators are higher than statewide and countywide averages.

Most Windsor workers use a car to get to work, either driving alone (79.7%) or as part of a carpool (11.2%); a further 6.5% work from home. Walking, biking, and taking public transit to work each account for less than one percent of all workers.

Data from the American Community Survey (ACS) 5-Year Estimates, 2017-2021

Previous Studies and Efforts

Windsor Safe Routes to School (SRTS) Survey

In 2023, the Town disseminated a Safe Routes to School survey in English and Spanish among parents and caregivers of students in the Windsor Unified School District. Safe Routes to School (SRTS) is an approach that encourages walking or biking to school via targeted infrastructure improvements, enforcement, safety education, and incentives. This survey asked how students travelled to school and the factors affecting these decisions. Most respondents were parents of children attending Cali Calmecac Language Academy.

The results of the survey indicated that most children were living one or more miles away from their school and traveling to school primarily in a personal family vehicle. Respondents indicated that major barriers to walking and biking to school were the distance between home and school and concerns about vehicle traffic, especially with the lack of bicycle facilities in the area. Many respondents and their children had attended SRTS activities in the past and expressed interest in wanting their children to bike and walk more if it were safer and more convenient to do so.

Sonoma County Vision Zero Action Plan

Vision Zero is an initiative to eliminate traffic-related injuries and fatalities. In March 2022, the County adopted its Vision Zero Action Plan with six high-level goals to improve traffic safety, including eliminating impaired driving, and building safe streets for all users. Traffic crashes are not distributed equally along roadways or road users: Sonoma County crash data from 2016 to 2020 shows that 8 percent of all trips were done walking or biking, but accounted for a disproportionate 19 percent of all crashes. Portions of the Town, especially around US 101, have been identified as places with higher perceived danger through community input collected as part of the creation of the Action Plan, in which Windsor residents and the sheriff's department were able to meaningfully participate.

Windsor Local Road Safety Plan (LRSP)

The Town adopted its Local Road Safety Plan (LRSP) in November 2021. It follows a Vision Zero framework and strives to provide a safe and sustainable multimodal transportation system for all users. Using the crash records from the Statewide Integrated Traffic Records System (SWITRS) database, the plan identifies major collision areas, which cluster around the Town's arterials, including Old Redwood Highway, Windsor River Road, Hembree Lane, Windsor Road, Starr Road, Shiloh Road, and Brooks Road South. Major violation categories include unsafe speeds and improper turning movements. The LRSP ranks priority intersections and segments and recommends engineering and non-engineering countermeasures for each facility.

An interactive map was also developed to inform the community about the LRSP and provided a platform for community input. Major concerns indicated on the map included perceived unsafe active transportation facilities at the US 101 interchanges, lack of bicycle facility markings around Town, and a perceived lack of pedestrian safety at crossings, especially for students. In many cases, public perception of safety issues matched the data from the SWITRS database.

Connecting Central Windsor Study

Currently, Central Windsor only has one route for bicyclists and pedestrians crossing US 101: the Old Redwood Highway undercrossing at the Central Windsor interchange. This undercrossing has numerous documented safety challenges, including being situated between heavily trafficked freeway on- and off-ramps. The 2018 Connecting Central Windsor study explored opportunities to improve active transportation connectivity between the east and west sides of the Town. Alternative solutions were analyzed and recommended, such as improving the existing Old Redwood Highway undercrossing and creating a new dedicated bicycle and pedestrian overcrossing.



Town of Windsor Class I Bicycle & Pedestrian Trails Study

In 2018, the Town conducted a Class I Bicycle and Pedestrian Trails study to identify trail connections, gaps, and opportunities for improvement to active transportation in the area. A Class I path or trail is a facility intended for shared use by bicyclists and pedestrians that is located on a separate right-of-way from vehicular roadways. The study identified 47 Class I trail segments throughout Windsor that could be implemented to bolster the Town's existing trail and bikeway network; four potential locations for underpass of the SMART rail line were also identified. These proposed facilities were prioritized based on their anticipated usage and ability to close gaps between existing Class I paths and link key activity centers, and top-scoring proposals were recommended for inclusion in future Town Capital Improvement Programs or land development projects.

Old Redwood Highway Corridor Enhancement Plan

Adopted in January 2022, this plan aims to improve multimodal mobility along the Old Redwood Highway Corridor and support Windsor's economic vitality. It includes specific bicycle and pedestrian infrastructure projects and policy recommendations in each of four segments of the corridor, such as providing continuous sidewalks with curbs and gutters, upgrading bicycle facilities, and adding new or enhanced crosswalks.

Survey and Webmap Results

The **Windsor NEXT** survey and webmap were open for public engagement from August 14, 2023 to September 24, 2023; the survey and webmap were broadcast through announcements in official Town channels. Both the survey and webmap were made available in English and Spanish for greater accessibility. During the period they were open, both the survey and webmap saw significant traffic and participation - the survey received 542 responses and the webmap saw 323 contributions.

542
survey responses

323
webmap contributions

Survey Results

This section summarizes the findings of each of the questions on the survey in detail.

Question 1

Which of these do you feel very confident driving through and knowing when to stop, when to proceed, and who to yield to?

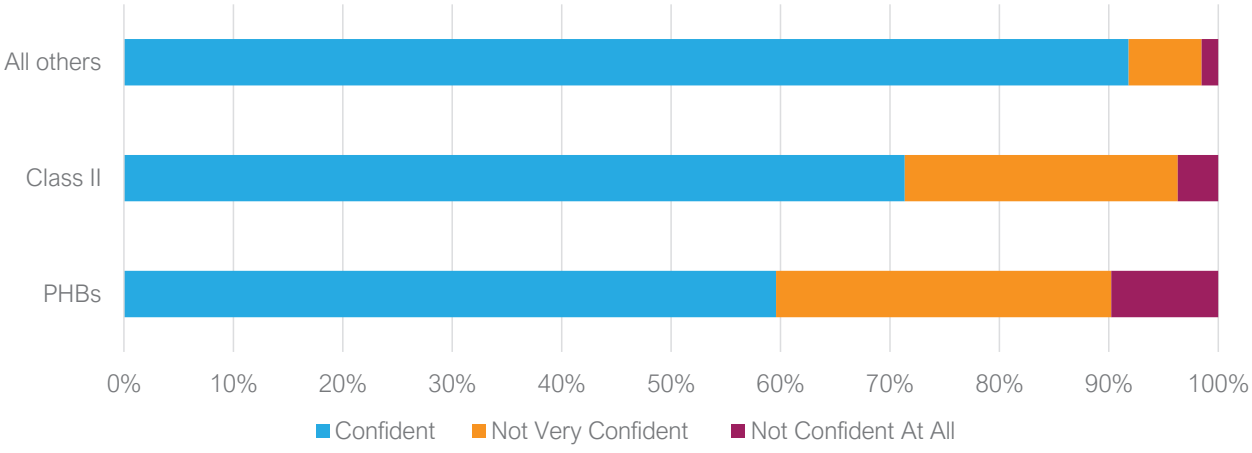
- *Roundabout*
- *Side-street stop control*
- *Permissive left turns (flashing yellow left turn arrows)*
- *Permissive left turns (no flashing yellow left turn arrows)*
- *Pedestrian Hybrid Beacon (PHB)*
- *Class II Bike lanes at intersection*

In the survey, images of each of the devices listed were shown, which are reproduced in **Figure 1**.

Over 90 percent of respondents expressed that they are very confident about knowing when to stop, proceed, and who to yield to at intersections with side-street stop-controls, intersections with permissive left turn signal phasing, and roundabouts. These statistics are encouraging, especially with respect to roundabouts, which are still relatively new to the Town, but people in Town have become increasingly familiar with their usage.

Figure 1
Graphical Summary of Results for Survey Question 1 and Reproductions of Images Shown for Each Traffic Control Device





However, respondents indicated that they felt less confident about navigating across Class II bike lanes at intersections where it is needed to cross the bike lane to access a right turn lane; nearly 30% of respondents feeling less than very confident. An even lower percentage of respondents felt confident about navigating PHBs and knowing what each of its phases mean, with over 40% of respondents feeling less than very confident. Public Transit Group

Question 2

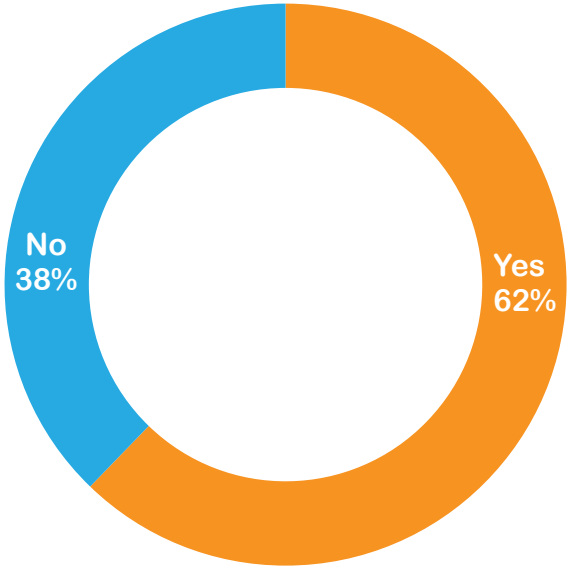
Are there any roadways in town you would never walk or bike down because you don't feel safe doing so?

Most respondents – 62 percent – indicated that there were streets in Windsor they did not feel safe walking or riding on. These included Old Redwood Highway, Starr Road, Windsor River Road, Shiloh Road, Arata Lane, Conde Lane, and Hembree Lane.

Common concerns about these were speeding vehicle traffic, lack of bike infrastructure, poor visibility or lighting, the lack of a sidewalk or shoulder, and lack of traffic control devices.

A significant number of respondents – 38 percent – did not feel there were any roadways in Town they did not feel safe walking or biking on.

Figure 2
Graphical Summary of Results for Survey Question 2



Question 3

Would you feel safe riding a Bird scooter around town currently? Would you feel safe doing so if you could do so in a protected bike lane (also known as a cycletrack) that is separated from vehicle traffic?

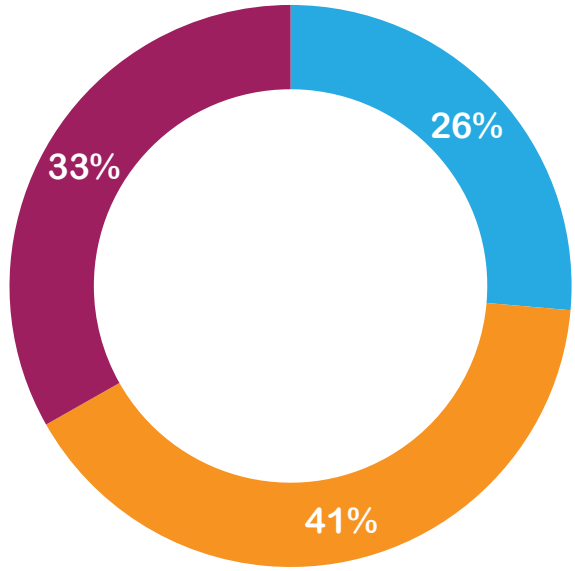
- *Yes - I feel safe now*
- *No - I do not feel safe now, but would using a protected bike lane*
- *No - I do not feel safe now, nor would I using a protected bike lane*

In the survey, an image of people riding electric scooters in a protected bike lane was shown for clarity, and is reproduced in **Figure 3**.

26 percent of respondents report feeling safe riding an electric scooter around town using the existing transportation infrastructure. An additional 41 percent of respondents indicated they would feel comfortable doing so if they were in a Class IV protected bike lane. Also called a cycletrack or separated bikeway, a protected bike lane is an on-street bike lane physically separated from vehicular traffic through any combination of grade separation, physical barriers, or on-street parking.

The remaining 33% of respondents would not feel comfortable riding electric scooters under existing conditions or in a Class IV cycletrack. These results indicate that while some residents do have safety concerns about new mobility devices, many are comfortable with and willing to try other forms of micromobility in the Town, especially if they had access to additional and better protected facilities.

Figure 3
Graphical Summary of Results for Survey Question 3 and Reproductions of Image Shown of Electric Scooter Riders Using a Protected Bike Lane



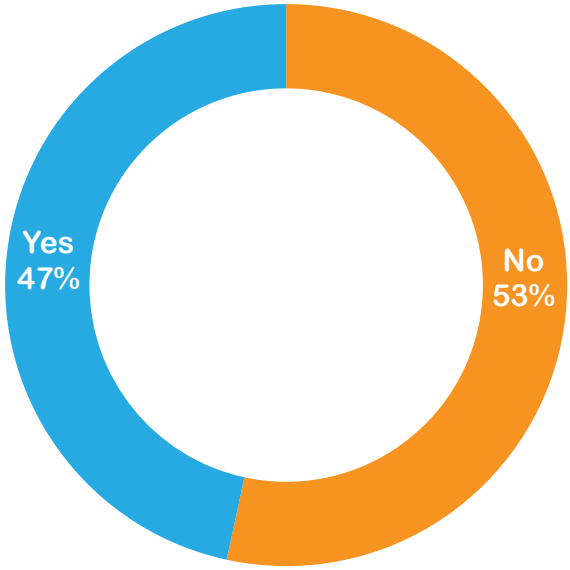


Question 4

Would you feel comfortable letting your middle school-aged kids walk/bike around town (for example, to and from school)? If not, why?

- *Yes*
- *No (If answered no, please specify reasons if desired)*

Figure 4
Graphical Summary of
Results for Survey Question 4



This question produced a near-even split among respondents: 47 percent of respondents indicated they would feel comfortable with middle school-aged children using active transportation to travel around Windsor, while 53 percent indicated they would not feel comfortable.

Some of the top reasons offered by those who responded in the negative include distance from school or other destinations, the prevalence of speeding or distracted driving around Town, and the lack of bicycle and pedestrian infrastructure.

Several respondents indicated their response to this question depended heavily on where they lived and where their children would be traveling to. For instance, some would feel comfortable with their kids walking and biking if they did have to not cross US 101 to get to the other side of Town.

Question 5

Rank the following ways of deterring speeding in order of what you think would be most to least effective:

- *Lower speed limits*
- *Larger fines*
- *Speed cushions or raised crosswalks*
- *Adding bike/pedestrian friendly roadway elements*
- *Digital speed feedback signs*
- *Roundabouts in place of traditional intersections*

Figure 5
Results for Survey Question 5

Measure	Score*
Speed cushions and raised crosswalks	**4.11**
Adding bike/ped roadway elements	**3.66**
Digital speed feedback signs	**3.57**
Roundabouts in place of standard intersections	**3.39**
Larger fines	**2.88**
Lower speed limits	**2.61**

* Higher scores indicate greater support

The scores for each option are calculated using an average of their rankings by respondents. For example, an option being ranked highest of the six by a respondent will earn it 5 points, with the next highest-ranked option earning 4 points, and so on, with the option being ranked lowest earning no points. These point values across all respondents are then averaged to produce a single score for each option.

Considering the scoring of all responses, adding speed cushions and raised crosswalks, as well as other bike- and pedestrian-friendly roadway elements (which will vary for different roadways depending on the specific context of the location), were ranked by respondents as the most effective ways of deterring speeding. Larger fines and lower speed limits were ranked as the least effective.

Unsafe speeds are a significant concern in the Town that has consistently been raised by community members in the course of outreach for various projects and plans over the years. This result shows respondents' awareness of bicycle and pedestrian infrastructure's effect to not only improve user experience for those modes, but also slow vehicle traffic and make streets safer for all. It also shows broader support among respondents for these treatments as opposed to enforcement-based responses such as speed limit setting and fines.


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Question 6

The following lists several pieces of infrastructure that costs about the same to the Town. Please rank them in order of your preference, from most preferred to least preferred.

- *250 new parking spots in a parking garage*
- *20 units of affordable housing*
- *10 miles of new sidewalks*
- *20 miles of separated bike lanes*
- *10 new signals*

Similar to the previous question, the scores for each option are calculated using an average of their rankings by respondents. For example, an option being ranked highest of the five by a respondent will earn it 4 points, with the next highest-ranked option earning 3 points, and so on, with the option being ranked lowest earning no points. These point values across all respondents are then averaged to produce a single score for each option.

Respondents ranked sidewalks and separated bike lanes significantly higher than the remaining options, indicating significant support among respondents in prioritizing improved bicycle and pedestrian infrastructure over other items traditionally also seen as priorities, such as building more public parking.

Figure 6
Results for Survey Question 6

Measure	Score*
10 miles of new sidewalks	**3.79**
20 miles of separated bikeways	**3.33**
250 new parking spaces	**2.83**
20 units of affordable housing	**2.43**
10 intersections signalized	**2.33**

* Higher scores indicate greater support

Question 7

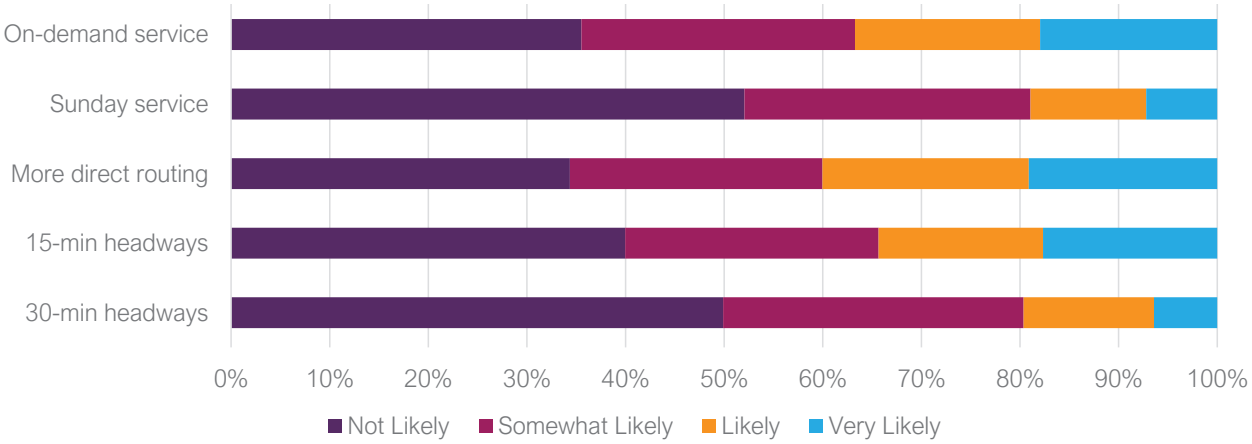
Windsor is currently served by a single local bus route, the Windsor Shuttle (Route 66). Score each of the following improvements in terms of how likely they would make you want to ride the bus?

- *Shorter headways (more frequent buses) – 30 minutes between buses*
- *Shorter headways (more frequent buses) – 15 minutes between buses*
- *More direct routing (multiple direct lines as opposed to one loop covering the whole Town)*
- *Sunday service*
- *On-demand/dial-a-ride service like the SMART Connect Microtransit Shuttle*

None of the five options garnered a majority of "likely" or "very likely" responses. More direct routing enjoyed the most support, 40% of respondents responding "likely" or "very likely". Furthermore, nearly 20% of respondents answered "very likely" to the 15-minute headways, more direct routing, and on-demand service options.

Overall, the responses to this question compared to previous questions indicate less community focus on local bus transit when compared to active transportation improvements, which can serve as connectivity to regional transit. More robust community feedback on transit issues was received at the charette meeting.

Figure 7
Graphical Summary of Results for Survey Question 7

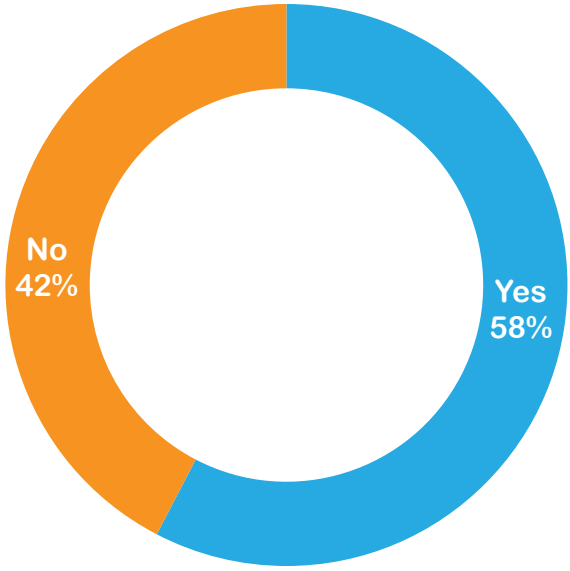


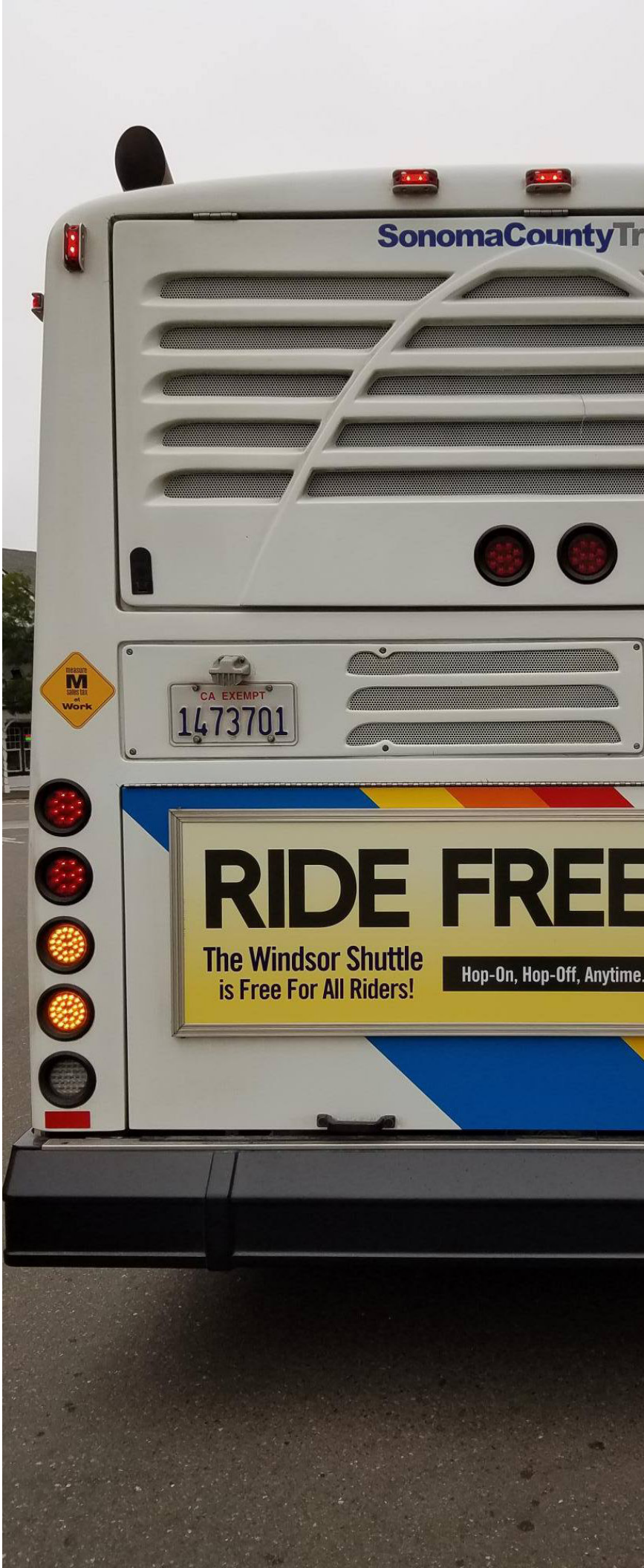
Question 8

Follow-up question from previous: the Windsor Shuttle is currently free to ride. Would you be willing to pay the regular SCTA fare (currently $1.50) in order to fund the improvements above?

58 percent of respondents said they would be willing to see the $1.50 fare resumed, with fare revenues used to fund improved transit service. However, responses to the previous question suggest that there is no clear coalescing around any particular improvement.

Figure 8
Graphical Summary of
Results for Survey Question 8





Webmap Results

The webmap allowed participants to drop pins on a map to indicate where in Windsor they have experienced issues while driving, walking, biking, or taking transit, and allowed respondents to include comments with their pins. Furthermore, respondents were able to upvote and comment on other respondents' pins.

With respect to location, nearly half of all pins – 157 contributions – were about concerns and locations in Downtown Windsor. Outside of Downtown, major hotspots include the interchanges with US 101 and the intersection of Shiloh Road and Old Redwood Highway.

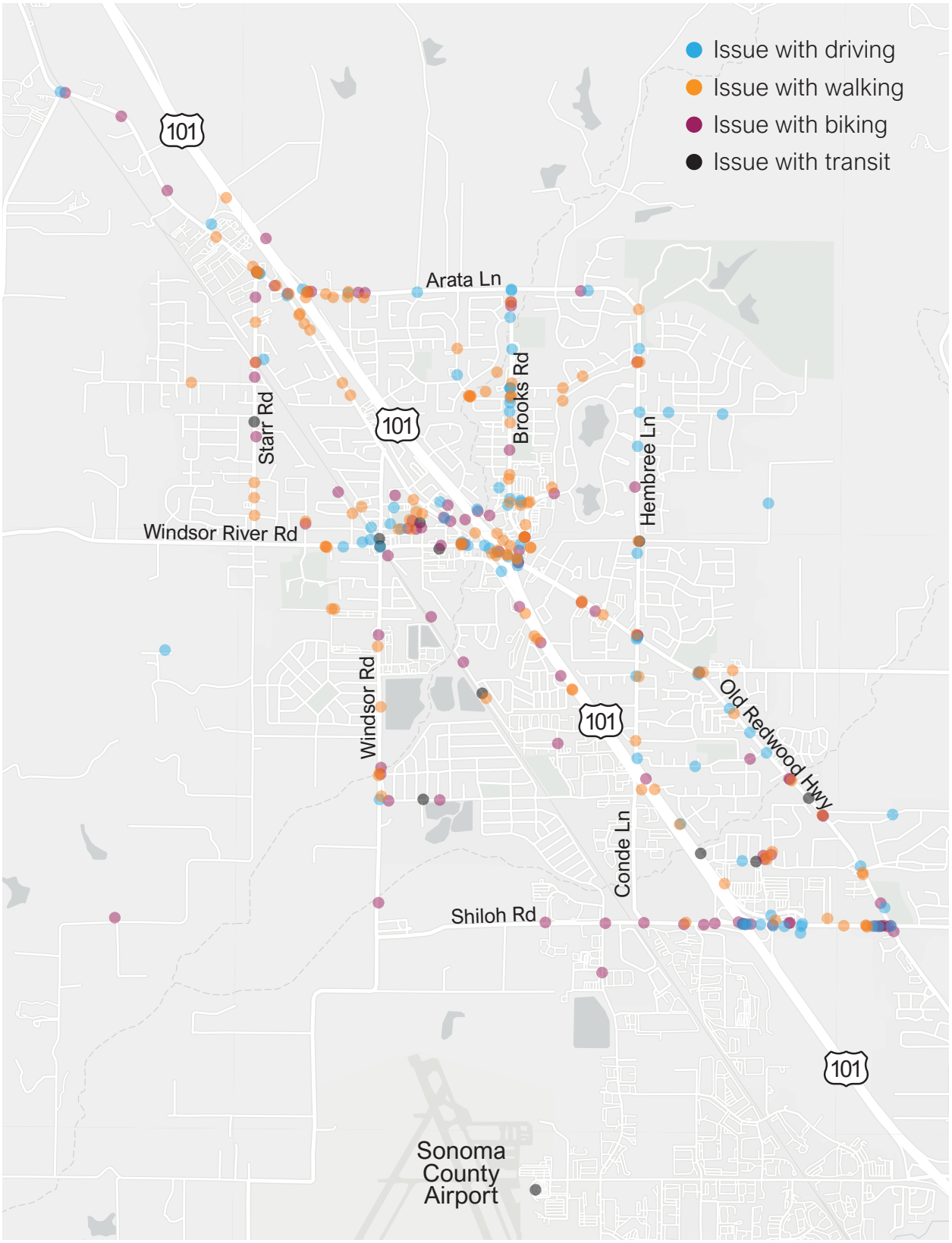
With respect to modes, 40 percent of concerns were related to walking and 30 percent related to biking.

Common concerns and requests include:

- Lack or quality of sidewalks
- Lack of protected bike infrastructure
- Need for signage and striping for safer, well-connected bike network
- Need for greater pedestrian comfort through sidewalk furniture, shade, and better lighting
- Improving pedestrian safety at intersections using traffic control devices such as roundabouts



Figure 9
Graphical Summary of Webmap Contributions



Charette Meeting

On October 5, 2023, a public charette meeting was held at the Town of Windsor Council Chambers. The community was invited to a presentation overviewing results from the Survey and Webmap.

Following this presentation, participants self-selected amongst several tables, with each table dedicated to a specific topic of conversation and staffed with a facilitator who took notes. This charette format allowed attendees to discuss these results and give additional feedback by sharing their experiences and opinions in a smaller group setting. The topics of conversation for the groups were:

- Biking around Town
- Walking around Town
- Transportation issues around schools and school zones
- Taking transit in Town
- Traffic enforcement
- Intersection control and roundabouts

The following sections include the main takeaways of each group discussion.

Biking Around Town

Attendees overwhelmingly expressed a need for protected bike lanes and a more interconnected bike network. They noted that many areas of Town see their connectivity limited by a few stress points, and if these were targeted, biking experience in the Town could be significantly improved. These major stress points of concern were the US 101 undercrossings, followed by certain segments and intersections along Windsor River Road, Shiloh Road, and Old Redwood Highway. Feedback for existing protected bike facilities was positive, with participants noting both improvements to biking experience as well as overall traffic flow.

There was also discussion on pavement quality for bicyclists, as roadway resurfacing is performed based on metrics that prioritize vehicles as opposed to bicycles. There was also concern over the availability and quality of active transportation infrastructure outside Town boundaries, and whether there will be inconsistencies and discontinuities of the Town's bicycle network with those of surrounding areas.

Walking Around Town

The discussion focused on improving existing pedestrian facilities as well as creating new connections. The proposed US 101 pedestrian and bicycle overpass and a means to cross the new SMART rail line were viewed as necessary connectors. Attendees also noted that a connection between the Brooks Creek Trail and Old Redwood Highway would help improve pedestrian safety for north-south movement.

Attendees noted that systemic improvements throughout Town are needed to improve pedestrian access, safety, and circulation, such as adding crosswalks in busy shopping areas, widening sidewalks, improving lighting for pedestrians, and installing street furniture like benches and shade. Several sidewalk gaps were called to note, including portions of Conde Lane, Shiloh Road, Arata Lane, and Windsor River Road.

Issues in School Zones

Most participants agreed that they did not feel comfortable allowing middle school-aged children to ride their bikes using existing transportation infrastructure, especially as there is only one middle school on the east side of Town and only one K-8 school on the west side of the Town. This suggests that biking to school is challenging due to not only the distance but also the safety concerns associated with needing to cross US 101.

The group suggested an ambitious goal to make biking and walking safer in school zones - adding bollards to protect bike lanes for major arterial streets within six blocks of every school in Windsor. Discussion around pedestrian issues highlighted priorities such as programming additional pedestrian leading intervals at signalized intersections, building trails along creeks, and adding more wayfinding signs.

Taking Transit in Town

The discussion focused on understanding the demographics of bus transit users. A large number of Windsor residents are older, and this segment of the population may need additional consideration in transit planning and design. In addition to a focus on senior services, and praise that the existing Windsor shuttle route does a good job of hitting most of the larger senior complexes, there was discussion of needing more targeted outreach to and services for lower income households.

The group noted that offering both clockwise and counterclockwise service on the shuttle route – for which grant funding was recently won – could be useful, but that more and better-quality amenities would be needed to ultimately make the services more attractive.

Attendees were enthusiastic about the SMART extension to be completed in 2025, although there is some concern about parking impacts due to the projected demand for park-and-ride at the station, which will serve as the line's temporary northern terminus for the time being. The Windsor Wheels volunteer dial-a-ride service was commended, but attendees noted that it lacks drivers and discussed incentives for drivers or other funding measures to support the service. There was limited interest in on-demand microtransit among attendees. Microtransit is usually considered to be bus or minibus demand-responsive vehicles for hire that allow for flexible scheduling and routing.

Traffic Enforcement

The discussion revolved around the idea that enforcement is not always the best tool to address traffic violations. The group agreed that the priority should be creating safer streets for all modes and users that can function effectively without needing an enforcement presence. Sonoma County Sheriff's Department officers who were present in the discussion also stated they have been using targeted enforcement techniques and that the department is currently working hard to address as many issues as possible with its limited resources. Attendees agreed that enforcement should continue to be proactive and targeted in that they should focus on major corridors where the most issues exist, such as areas experiencing speeding, large multi-lane roadways, freeway interchanges, schools, and parks, with existing and future planning efforts identifying these priority areas.

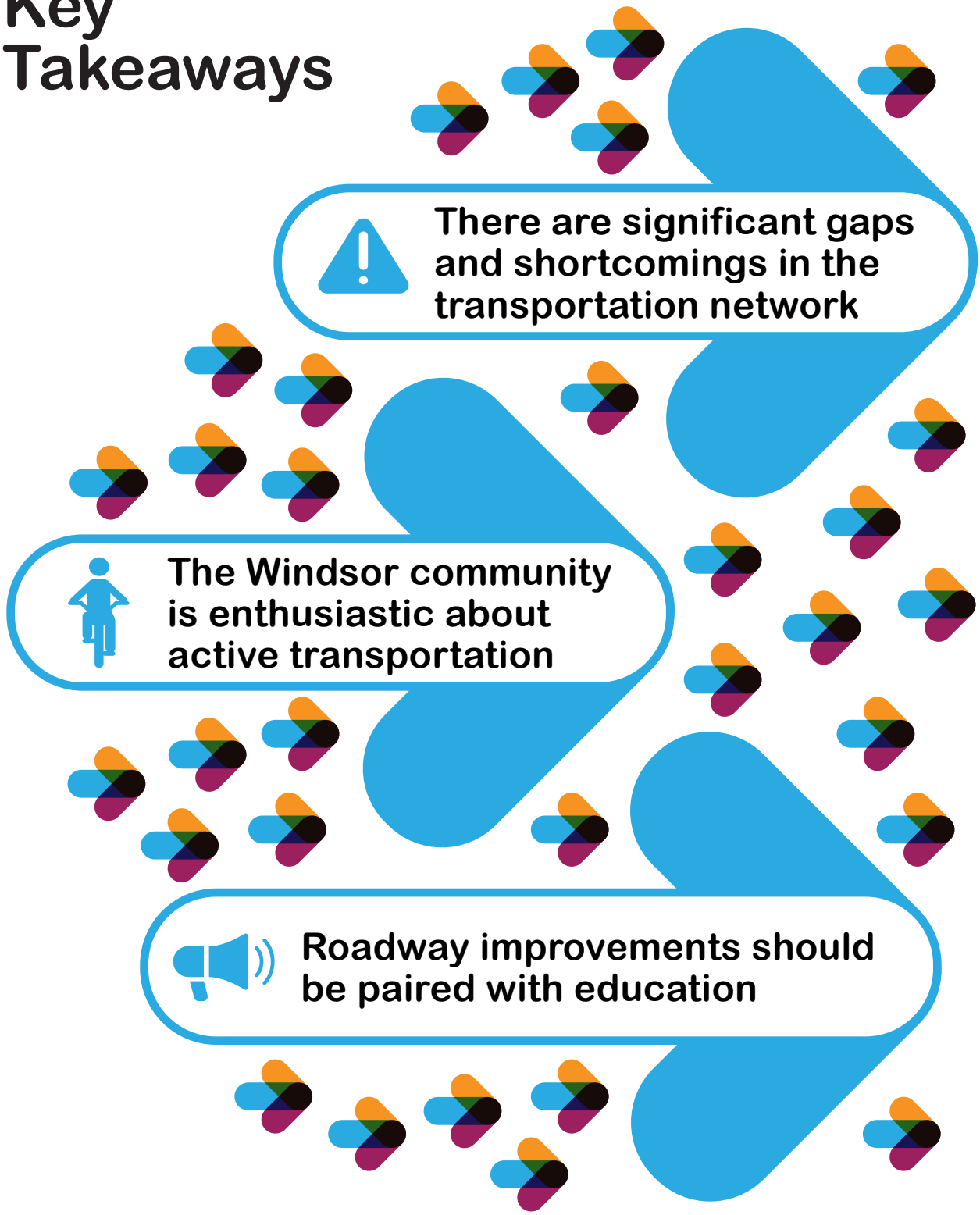
Intersection Control and Roundabouts

Feedback about the Town's existing roundabouts was mostly positive, and there was discussion about the potential for new roundabouts at intersections, such as at Starr Road and Old Redwood Highway, or at Shiloh Road and Old Redwood Highway. Attendees pointed out that roundabouts could reduce speeding and address other safety concerns while also presenting placemaking opportunities to create distinctive landmarks in Windsor. The intersections of Old Redwood Highway and Starr Road and Arata Lane were also noted as a source of safety concerns due to the presence of the freeway.

Figure 10
Images from the Charette Event



Key Takeaways



There are significant gaps and shortcomings in the transportation network

The feedback indicates that the community sees significant gaps and shortcomings with the current state of the transportation network. The webmap received more than 300 contributions from the community, noting issues and opportunities across all parts of Town. There was particularly high concentrations of comments and concerns around Windsor's most heavily traveled areas, including Downtown, interchanges along US 101, and at the intersections of major arterials, such as that of Shiloh Road and Old Redwood Highway. This feedback is in line with the findings from numerous previous transportation studies conducted in Windsor.

Much of the community's concerns lie in issues surrounding safety and accessibility for people walking and biking. Concerns related to walking and biking accounted for approximately 70% of all webmap contributions. These concerns are also reflected in responses to the survey, where nearly two-thirds of survey respondents indicated that there were roadways around Town they did not feel safe to walk or bike on.

These concerns are heightened for users of differing ages, abilities, and comfort levels. For example, while the community has repeatedly expressed in this and other public outreach efforts a desire for age-appropriate schoolchildren to be able to walk or bike to school, this desire is outweighed by concerns for the safety of younger users under the current state of the transportation system. A majority of survey respondents felt they would not feel comfortable having middle school-aged children bike or walk to and from school on their own, and concerns were raised at the charette meeting around the challenges around children navigating large roadways (such as US 101 and major arterials), which can act as barriers and obstacles for those walking and biking. Similar concerns were raised at the charette around mobility challenges for older residents, who also form a substantial proportion of the Windsor community.

The feedback from the community underscore the need for the Town to treat roadway safety as a priority in improving its transportation network. The Town should also prioritize vulnerable user groups when it addresses roadway safety concerns. These user groups include those walking or biking, who are more vulnerable in the event of a collision as they lack the protection afforded to them by being inside a motor vehicle; as a result, collisions involving people walking or biking are more likely to result in injury and fatality. Seniors, children, and people with limited mobility walking and biking are particularly vulnerable.

The Windsor community is enthusiastic about active transportation

The Town has a golden opportunity to address the safety concerns raised by the community. It is evident from the feedback that the community is enthusiastic and supportive of active transportation – that is, modes of travel involving physical human power such as walking and biking. The community is keen on prioritizing investments in bicycle and pedestrian infrastructure, as well as making Windsor's transportation network safe and accessible for all modes of transportation and for people of all ages and abilities. When the survey asked respondents to rank preferred infrastructure investments, bicycle and pedestrian infrastructure ranked at the top, significantly higher than other items such as public parking. Expanding bicycle and pedestrian infrastructure also featured front and center in conversations at the charette meeting.

Charette participants emphasized the need for bicycle and pedestrian improvements that bridge the gap at a few major stress points around Town, which align with the hotspots identified in the webmap, that act as chokepoints on the roadway network and limit overall connectivity. They emphasized the need for an interconnected network of bicycle and pedestrian facilities that allow for seamless travel across all of Windsor, with new and improved connectivity across major barriers such as US 101.

The community seems open to newer modes of transportation, as well. Two-thirds of survey respondents noted that they would be comfortable riding an electric scooter around Windsor either under current conditions or along protected bike lanes, highlighting the potential for mode shift towards active transportation modes within the community if there is appropriate investment in creating the necessary infrastructure. Protected bike lanes also saw support in the charette meeting, where participants suggested implementing them at more places around Town, including a systemic approach for all locations near schools.

It is also evident that the community sees the value of improving bicycle and pedestrian infrastructure beyond improving travel experience for those modes, but also towards safety on Windsor's transportation network more broadly. When the survey asked respondents to rank changes that they anticipate would most reduce speeding around Town, bicycle and pedestrian improvements were ranked highest, and above traditional approaches such as enforcement and lowering speed limits. Charette meeting attendees expressed similar beliefs, with attendees and law enforcement officers in attendance agreeing that combatting speeding required approaches beyond



enforcement, and several attendees speaking to the ability of certain bicycle and pedestrian infrastructure improvements, such as protected bike lanes, to reduce speeding and smooth traffic flow.

In light of these findings, the Town should prioritize investments in bicycle and pedestrian infrastructure in order to create a truly multimodal transportation network for Windsor – in line with the desires of the community. These improvements should initially target the pain points identified by the community, such as freeway interchanges and major arterials, as well as places where network connectivity breaks, such as sidewalk gaps along major connectors. Further improvements should focus on providing coverage and connectivity to all parts of Town. Wherever feasible, the Town should look to build protected bike lanes or separated bike trails by default as a matter of policy, as is requested by the community. They would also offer the most protection and comfort for users, which is important to making the network safer and more usable for users of differing ages and abilities, including schoolchildren and seniors.

Roadway improvements should be paired with education

Finally, it is important to recognize that improvements to the roadway infrastructure can only be truly effective if people understand how to use them, and therefore infrastructure improvements and education must go hand in hand.

The need for education around more novel roadway features is evident in the survey results, where two blind spots in respondents' knowledge were identified. Nearly 30% of respondents report feeling less than confident about how to navigate Class II bike lanes at intersections where it is needed to cross the bike lane to access a right turn lane or pocket, while over 40% of respondents report feeling less than confident about how a Pedestrian Hybrid Beacon (PHB) works.

Improvements to the roadway are more effective when users are more familiar with them. Windsor's experience with roundabouts is a perfect case study. Today, the Town's roundabouts are a key fixture. In the charette meeting, community members were overwhelmingly supportive of the existing roundabouts around Town, and many participants expressed a desire for even more intersections to be converted into roundabout operations. Along the same lines, over 90% of respondents to the survey indicated that they are confident in how roundabouts worked, and know when to proceed and who to yield to when driving through one. However, this was not always the case. When roundabouts first appeared in the Town several years ago, they were a traffic safety innovation most residents were unfamiliar with. Indeed, many charette participants who are now supportive of roundabouts were open about their apprehension and confusion around them just a few years ago, and it is evident based on the feedback that the community's comfort with and support of roundabouts developed gradually in the years since they were first implemented as a result of growing familiarity.

Windsor's experience with roundabouts should inform its strategy in rolling out future improvements to its transportation network, especially if types of infrastructure and countermeasures that are new to Windsor are being implemented. Specifically, the Town can speed up the community's acclimation to new roadway features through education, which can take a variety of forms, ranging from on-street signage to instructional videos and graphics distributed either by mail or digitally over the Town's official channels and social media. These education measures can help target blind spots in road users' knowledge, improving legibility of the roadways, reducing user confusion, and thereby improving the efficacy of roadway improvements.


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