

Future Sandy

A multimodal transportation plan June 2024



Strategic Minds Consulting Group



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Growing up in Dhaka, Bangladesh, a city with over twenty million residents and numerous urban planning challenges, inspired Misty to pursue a career in urban planning. After earning her bachelor's degree in urban planning in Bangladesh, she sought a new perspective and began a master's program in planning at PSU. Her interests in planning focus on transportation, community engagement, and land use.



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Anchal, began her career in India as an architect. While exploring different avenues in her field, her work at INTACH, a non-profit focused on cultural preservation, ignited her passion for community work and led her to urban planning. With a keen interest in urban design and transportation planning, she aspires to help communities resolve transportation-related barriers, and improve accessibility and sustainability.



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Holly first developed an interest in transportation planning after moving to Copenhagen, Denmark, and experiencing the freedom and mobility that comes from abundant cycling, pedestrian, and public transit infrastructure — a major contrast from her hometown in South Georgia. She is passionate about using transportation planning to help create more equitable, sustainable, and accessible futures.



Katelyn Dendas

Project Coordinator

In a time of mourning the loss of her friend, Evelyn Andrews, Katelyn found solace in Arcata, California's community forest, walking among old redwoods — a rare urban opportunity. At Portland State, she discovered the power of healing through art, culture, and nature. Each element can stand independently but becomes even more beautiful when combined with community. She hopes to continue uplifting arts, culture, and nature with and for communities in the planning profession.



Symeon Walker

GIS Lead

Symeon discovered his passion for urban planning and public service growing up around a rural immigrant community in Oregon's Hood River Valley. A self-proclaimed map nerd, Symeon loves putting his Geographic Information Systems certificate to use by harnessing the power of maps to tell stories and highlight spatial challenges. He hopes to continue working alongside underserved communities to help create more just, sustainable, and vibrant cities and expand transportation options beyond the car for all.

Acknowledgements

The team would like to express its utmost appreciation for the involvement, thoughtful contributions, and partnership of all community members. Without your guidance, support, and encouragement, this project would not have been possible.

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Executive Summary

Project Context

Sandy Boulevard is a critical diagonal connection established in the late 1800s. For many years, people in the region have worked to make Sandy Boulevard safer and more appealing for people walking, bicycling, or taking transit. The City of Portland's efforts have resulted in new crossings and curb extensions, yet there remains a desire for greater change on this corridor.

The City's planned repaving of Sandy Boulevard between 14th and 28th Avenues presents an opportunity to better align the street with the city and region's traffic safety and climate goals. BikeLoud seeks to create momentum around a reimagined Sandy Boulevard by understanding community needs and identifying multimodal transportation and placemaking improvements that address these needs.

Study Corridor

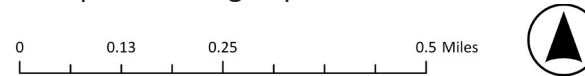


Figure 1: Study Corridor-NE Sandy Blvd between NE 14th Ave & NE 28th Ave

Project Purpose

The BikeLoud PDX-led Future Sandy project aims to address the need for comprehensive transportation improvements on Sandy Boulevard, utilizing the upcoming repaving project as a key opportunity. The purpose of the Future Sandy project is to identify and design multimodal improvements for Sandy Boulevard and develop an outreach campaign to build support for these changes. This project focuses on the stretch of Sandy Boulevard between 14th Avenue and 28th Avenue, which is the location of many planned developments that will reshape the corridor's landscape.

In collaboration with BikeLoud PDX, Strategic Minds identified stakeholders, developed community engagement strategies, and created alternative corridor concepts for Sandy Boulevard. They did so by evaluating existing network plans, conducting field visits, and engaging with the community to develop an implementation framework guided by research and community-driven prioritization. Analysis of existing conditions along the corridor along with previously adopted planning priorities reveals a compelling case for acting now and using the City's planned repaving project in 2026 as an opportunity to re-envision the corridor:

- Sandy Boulevard is a diagonal cross-town connector with high demand for transportation, but the street is currently designed to serve predominantly automobile traffic. Regional models show high latent demand for bicycling on Sandy Boulevard.
- The community demographics support the need for better walking and bicycling facilities. Households on and adjacent to Sandy Boulevard have lower median incomes than the City of Portland as a whole.
- The study area already has a higher population density than the City of Portland, and that density is further increasing due to an influx of multi-use, multi-family apartment complexes. Greater density lends

itself to walking, biking, and transit infrastructure.

- Sandy Boulevard is designated as a major city bikeway in the City's Transportation System Plan 2035, but no bike facilities exist today.
- The city and region's Vision Zero goals, modal hierarchy, and climate goals support the need to move the corridor away from dominant automobile use and toward active transportation and transit.

Community Engagement Feedback

Engagement methods were tailored to each audience and included one-on-one interviews, workshops, a survey, and an open house. Strategic Minds engaged with bike advocates, businesses, community-based organizations, and youth. Key issues include the following:

- Safety concerns, including excessive car volume, dangerous intersections, high vehicle speeds, long crossing spacing, and short pedestrian signal times were a primary concern for all involved groups.
- Community health was another significant concern, with a desire for more greenery, seating areas, lighting, and gathering spots.
- Whether parking contributes positively or negatively to community health was a topic of debate throughout the engagement process.
- To improve connectivity along Sandy Boulevard, cyclists would generally prefer more bike lanes, while businesses are keen on more multimodal transportation options.
- Trees were a popular request on the survey to combat the heat on Sandy Boulevard.

Project Goals

Based on community engagement and the examination of existing plans and policies, the project team developed five goals for the project.



Safety

Road users of all ages and abilities feel safe while traveling along and crossing Sandy Boulevard. Vulnerable road users, such as pedestrians, cyclists, and people accessing transit, feel comfortable using Sandy Boulevard for their day-to-day needs.



Environmental Health

Modes of transportation with lower greenhouse gas emissions than personal vehicles and less particulate pollution are convenient and encouraged by the streetscape design. Landscape design mitigates the heat island effect experienced on the corridor.



Connectivity

Modes of transportation with lower greenhouse gas emissions than personal vehicles and less particulate pollution are convenient and encouraged by the streetscape design. Landscape design mitigates the heat island effect experienced on the corridor.



Community Health

Sandy Boulevard feels comfortable and inviting for neighbors and visitors to linger, patronize local businesses, and form social connections with others. Businesses are financially strong, and the surrounding neighborhood is close-knit.



Accessibility

Sandy Boulevard is accessible and welcoming for people of all ages and abilities.

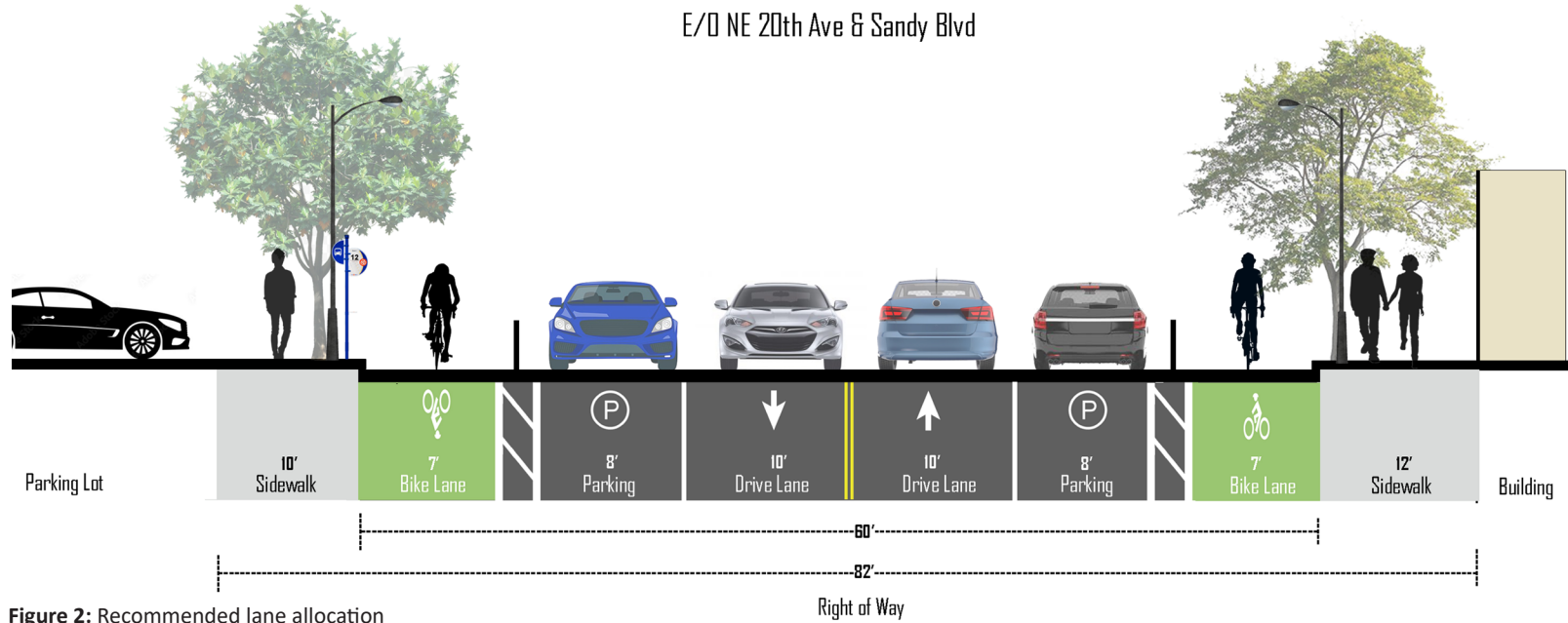


Figure 2: Recommended lane allocation

Recommendations

This plan’s recommendations fall into three categories: 1) an overall lane allocation recommendation, 2) site-specific pedestrian and placemaking improvements, and 3) corridor-wide recommendations.

For the overall lane allocation, the project team recommends converting one travel lane in either direction into a 7’ bike lane with a 3’ buffer (Figure 2). Parking along much of the corridor segment would provide an additional buffer between cyclists and fast-moving traffic. This lane allocation recommendation would entail major safety improvements for both those moving along Sandy Boulevard and those crossing it.

There are six recommendations in the category of site-specific pedestrian and place-making recommendations (figure 3).

Two sites are recommended for depaving and addition of either accessible green space or bioswales (1 and 3). Two intersections with long crossing distances between curbs are recommended for closure to improve pedestrian safety (2 and 5). A car-free plaza will be used to create a space where people feel comfortable lingering (4). Lastly, a basic crosswalk improvement will be used to create a safer pedestrian crossing experience for those accessing the new Pepsi Blocks development (6).

Two corridor-wide recommendations would improve safety outcomes along Sandy and make it easier to access local businesses and residences: more frequent crosswalks and wayfinding signage.

Pedestrian and Placemaking Recommendations

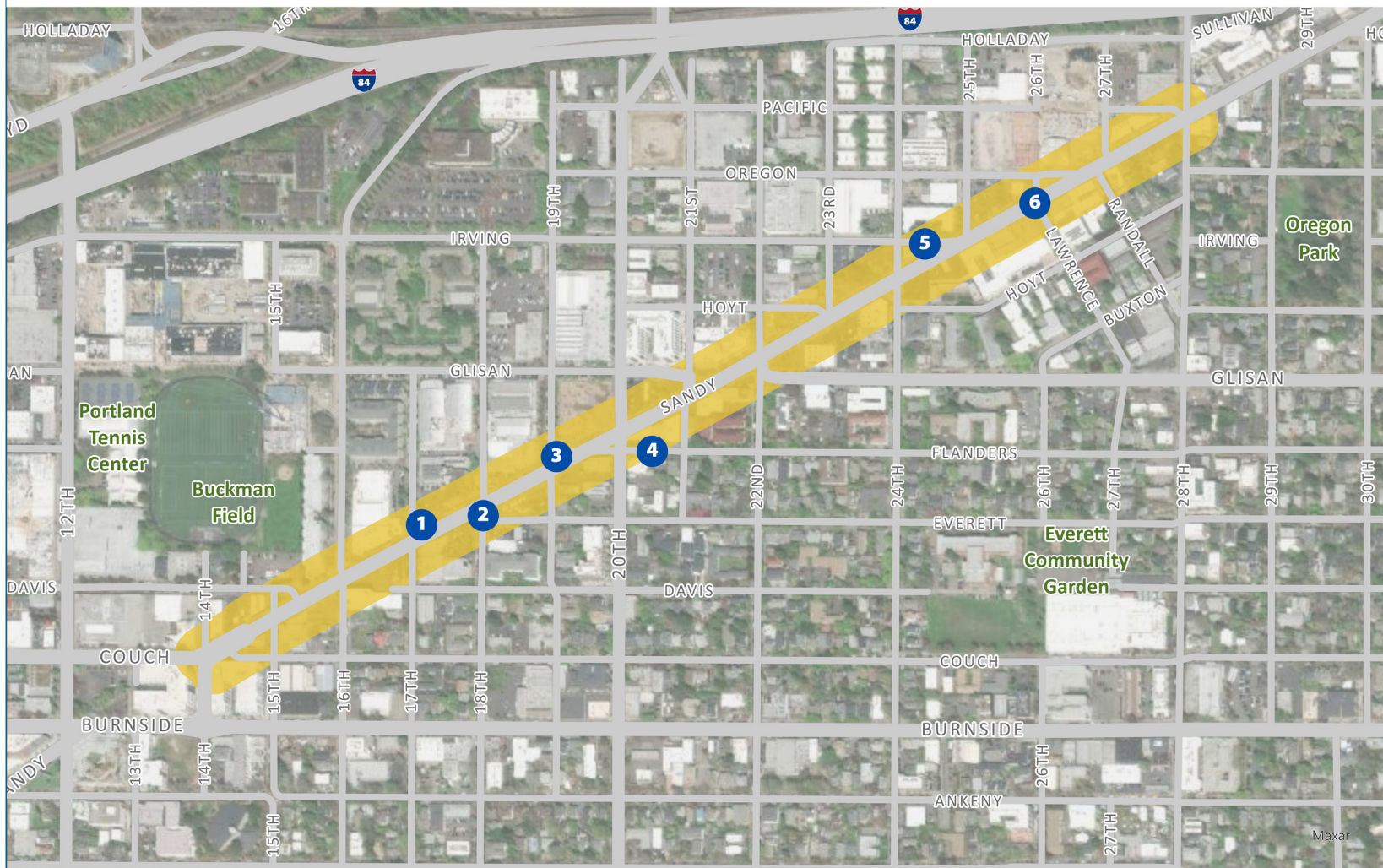
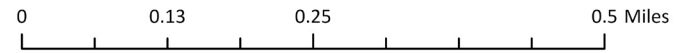


Figure 3: Pedestrian and Placemaking Recommendations Map

Introduction

Project Scope

Client: BikeLoud PDX

BikeLoud PDX is a 501(c)(3) non-profit that aims to promote bicycle transportation in Portland by empowering riders and creating safe streets for people. BikeLoud’s goal is to make it possible for 25% of all trips to be made by bike in Portland by 2030. This goal aligns with Portland’s climate, transportation, and bicycle plans. BikeLoud PDX consists of a diverse board representing various bicycling interests and has three geographic chapters that organize rides throughout the year. In 2023, they hosted over 100 rides open to the community.

BikeLoud PDX has an active Slack channel with over 400 members to discuss specific projects, including Sandy, and ideas as well as a monthly general and board meeting. Members testify at policy meetings, write letters to policymakers, and encourage active transportation adoption.

Project Timeline

Future Sandy envisions and advocates for multimodal improvements along Sandy Boulevard. These recommendations are rooted in research, community engagement, and strategic planning to deliver meaningful change.

The project team began with an existing conditions report, gathering information on the relevant history of the study area, guiding plans and policies, demographic data, and transportation conditions. This phase, spanning from early February through March, also included a field visit to physically assess the current state of the corridor and to identify opportunities and constraints.

Community involvement was central to the project and was conducted in two phases. In the first round, the project team directly engaged with stakeholders such as board members of neighborhood associations, community-based organizations (CBOs), and business owners. The team attended Bike Happy Hour to engage bike advocates through a mapping activity and hosted a coloring and route mapping activity for children at the Children’s Gym to involve the youth. A survey was disseminated to broaden the project’s reach.

In the second phase of community engagement, the project team hosted a public open house at the Village Free School, which provided an opportunity for attendees to voice their preferences and offer feedback on alternative recommendations. The consulting team, in conjunction with BikeLoud, will mobilize the coalition formed during the project to advocate for the implementation of these recommendations and the future development of Sandy.

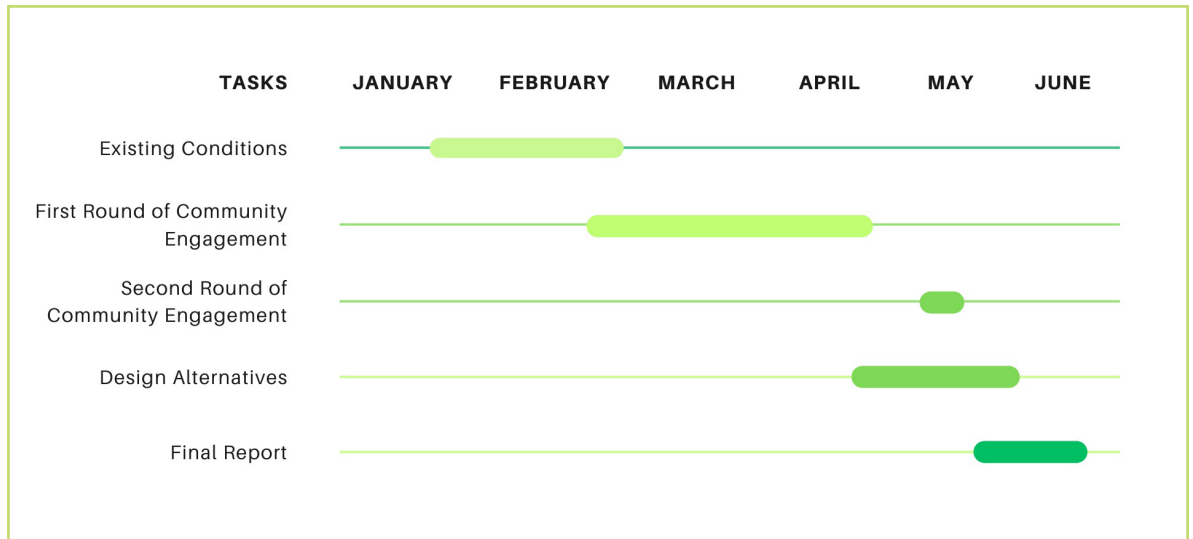


Figure 4: Project Timeline

Project Background

History of Sandy Boulevard

Sandy Boulevard can be traced back to a survey map from 1852, just a year after the city of Portland's inception (Figure 4)¹. Originally established as an Indigenous trail, Sandy's use during the 1847–1865 Settlement Era grew due to an influx of settler colonialism in the region.¹

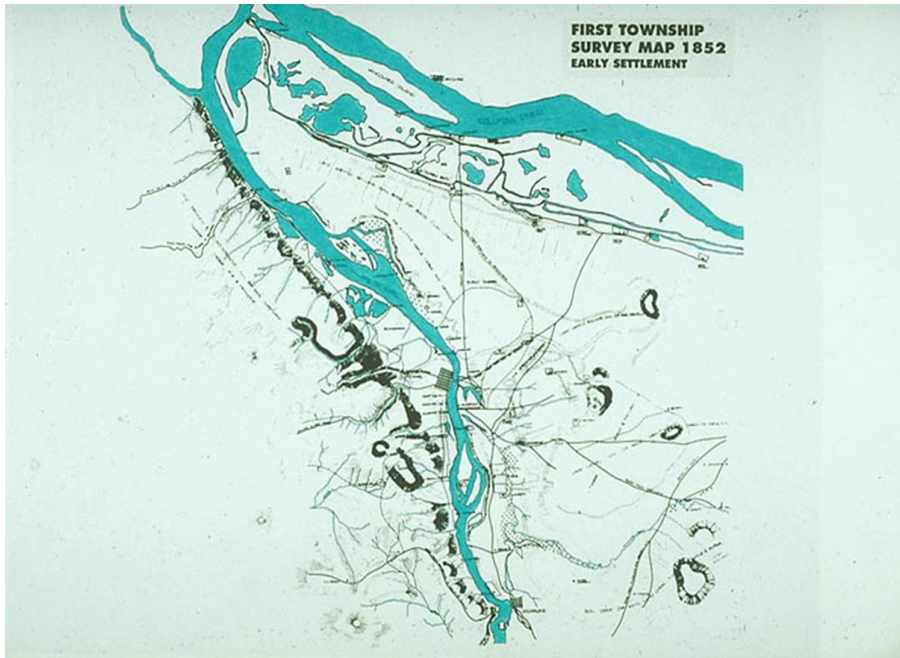


Figure 5: 1852 survey map, with Sandy Boulevard shown as a diagonal dashed line. Source: Portland Bureau of Transportation

What was then Sandy Road served as a vital pathway from the Willamette to the Columbia River. In the late 19th century, Sandy Boulevard was transformed during Portland's grid expansion eastward as a mass transit thoroughfare. The street was paved in 1912, marking its shift from a road to a boulevard, and in the same year, the Portland Railway Light and Power expanded streetcar service on Sandy. The shift from Sandy Road to Sandy Boulevard also marked a significant shift in the

Eastside's transition to automobile dominance. The end of the streetcar line in the 1950s, paired with the rise of new businesses like auto dealerships and fast food drive-throughs, solidified Sandy's status as a car-centric thoroughfare.

In the 1950s, Sandy transitioned to State Highway No. 59, also known as the Sandy Boulevard Highway.³ The Highway remained in the state's jurisdiction until ownership was transferred to the Portland Bureau of Transportation (PBOT) in 2003.⁴ Under the City's ownership, a variety of plans have been made to explore the revitalization of the diagonal corridor through transportation and infrastructure improvements.

Guiding Plans and Policies

Sandy Boulevard appears in a variety of plans from the city and the region. These plans largely focus on safety improvements, transit improvements, and better bike access.

Portland 2035 Transportation System Plan (TSP)

This is a guiding document designed to assist in supporting the city of Portland's Comprehensive Plan as regards transportation and urban growth. One of the most important guiding principles in the 2035 TSP is Policy 9.6: Transportation Strategy for People Movement, which prioritizes modes of travel. Walking and biking are identified as the top two priorities, and low to no occupancy vehicles are the lowest priority. Sandy is identified as a high crash street, and is recognized twice as a project location for future bicycle infrastructure, including the "Inner Sandy Boulevard Bikeway" project, which plans to "design



and implement separated in-roadway or protected bicycle facilities.”

The 2035 TSP is designed to support the City of Portland’s commitment to Vision Zero, which has the overarching goal of zero traffic deaths and serious injuries, through the adoption of a “safe system approach,” which is structured actions towards safe speeds, safe streets, safe people, safe vehicles, and accountability. travel lanes, removing on-street parking, or widening the shoulder.

Portland Bicycle Master Plan

his plan was adopted by the city of Portland in 1996 and designed to provide guidance for bicycle transportation planning over a 20-year period. The Bicycle Master Plan includes the entirety of Sandy Boulevard in its high-priority recommended projects list. Based on traffic volumes at the time, the plan recommends bicycle lanes as the appropriate bike infrastructure, stating that if this is not an option due to constraints or parking needs, traffic calming or a wide outside lane is acceptable under certain conditions. The Bicycle Master Plan states bike lanes can be implemented in a variety of ways, including narrowing or removing travel lanes, removing on-street parking, or widening the shoulder.⁵

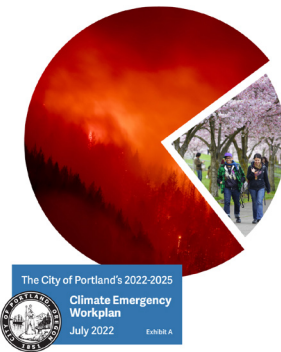


street that would have high to moderate bicycle volumes in 2035, pending safe bicycle facilities. The plan also emphasizes that Sandy Boulevard connects two important employment hubs – the inner eastside industrial area and the employment-rich area including and surrounding the Portland International Airport.



Portland’s Climate Emergency Workplan 2022–2025

This document, developed by the Bureau of Planning and Sustainability, identifies strategies to reach the City of Portland’s two main climate goals: to reduce carbon emissions by half by 2030 compared to 1990 levels and to be carbon emission net zero by 2050. The workplan identifies “rapidly reducing the amount of driving in our community” as a “key decarbonization priority” and recognizes “numerous co-benefits” of reducing driving, including “improved safety, public health, air and water quality, and supporting our vision for compact, mixed-use growth.”⁷



2014 Regional Active Transportation Plan:

Metro’s 2014 Regional Active Transportation Plan (ATP) identified Sandy Boulevard as having high latent demand for cycling (i.e., cycling numbers are currently low but would be much higher if adequate bicycle facilities were implemented). This is due to the unique diagonal nature of Sandy Boulevard, which cuts through the surrounding network and provides direct access between inner southeast Portland and outer northeast. Based on modeling work, the ATP identifies Sandy as a

Study Area Characteristics

Resident Demographics

The study area, defined as roughly within a half-mile of the study corridor, has a lower median household income than the city as a whole. The study area residents are less likely to drive to work than Portland residents in general. In the study area, 8.0% of residents bike to work, compared to 4.9% in the City of Portland. Study area residents are over twice as likely to walk to work, with 11.3% of study area residents making the trip to work by foot compared to 4.1% in Portland. The most dramatic difference between the study area and Portland as a whole pertains to housing tenure. In the study area, only 15.1% of homes

are owner-occupied, and the remaining 84.9% are renter-occupied. Detailed demographic information can be found in Appendix A. These demographic characteristics reflect a need for low-cost transportation options to serve the community.

Transportation Conditions

While the lane configuration along Sandy varies, within the study area it predominantly comprises two travel lanes in each direction with street parking along both sides of the street, with a street width of 60 feet from curb to curb (Figure 5).

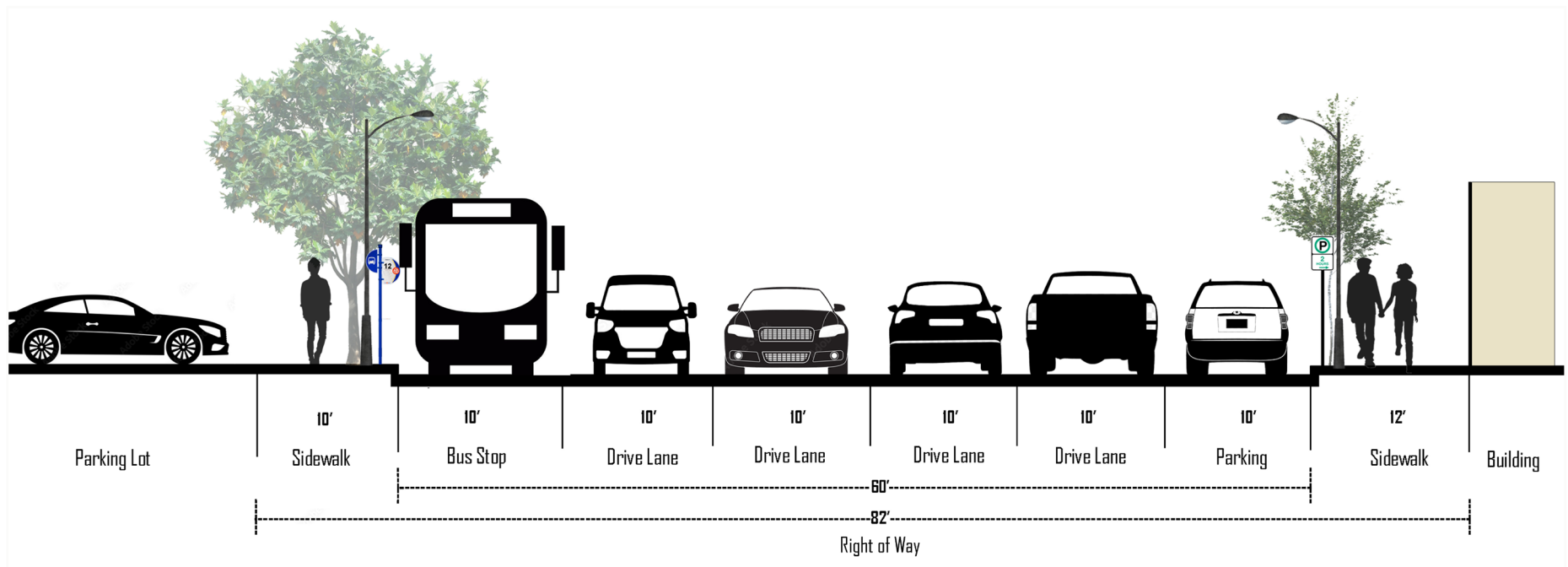


Figure 6: Street cross-section of Sandy Boulevard (E/O NE 25th Ave & NE Sandy Blvd)

Pedestrian Conditions

- Study corridor
- Green space
- Marked crosswalk

- Full Sidewalk Both Sides
- Partial Sidewalk
- Missing Sidewalk



0 0.25 0.5 Miles

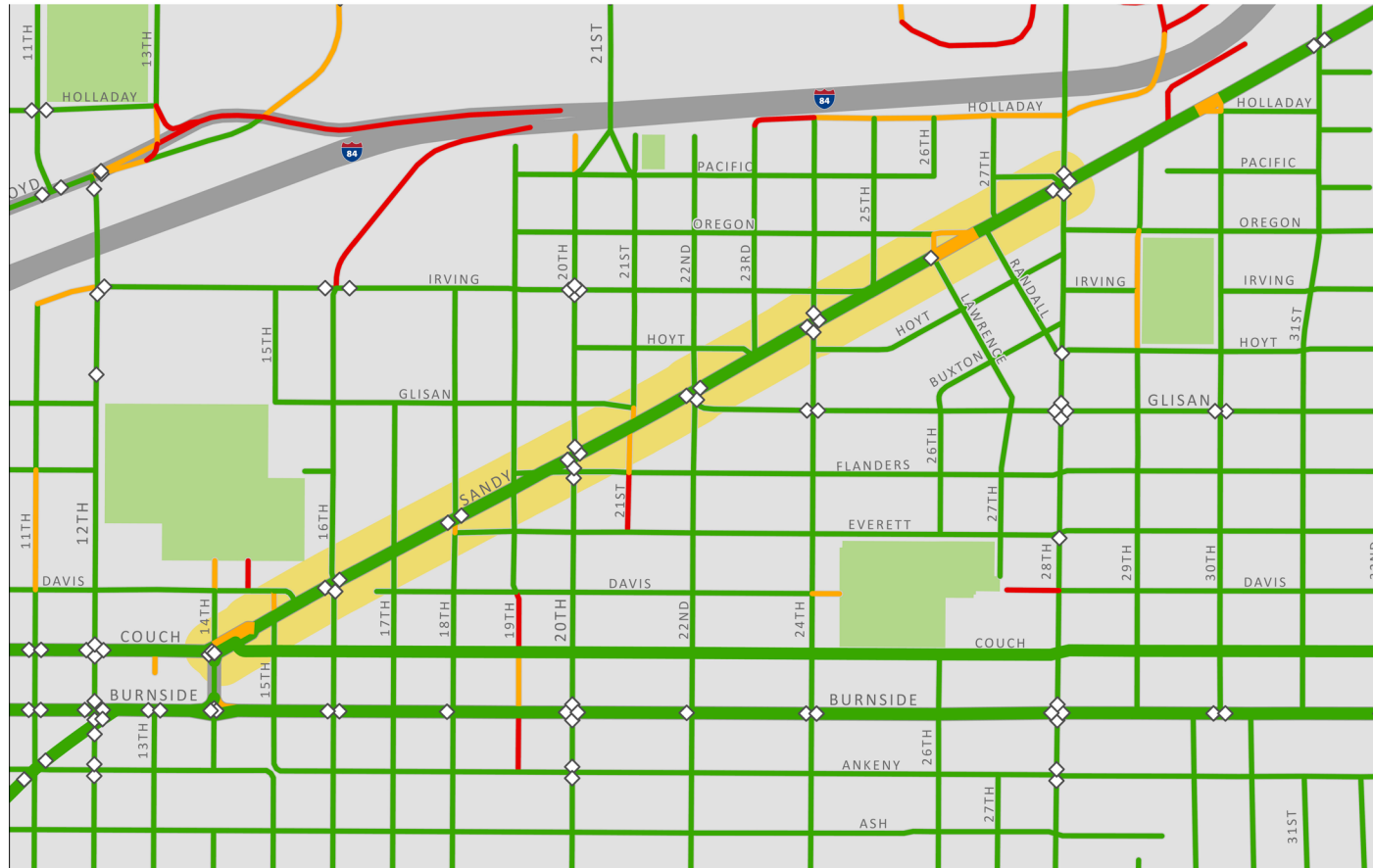


Figure 7: Sidewalk network and marked crosswalks in the study area

Pedestrian Conditions

Sandy Boulevard has full sidewalks on both sides of the street for most of the stretch between 14th and 28th Avenues, and there are marked crosswalks across Sandy roughly every other block. Despite the developed sidewalk network, the experience of walking along Sandy is neg-

atively impacted by the experience of walking close to multiple lanes of car traffic. Moreover, because Sandy is diagonal and cuts across the street grid, there are many intersections with very long crossing distances from one curb to the other along Sandy.

Bike Conditions

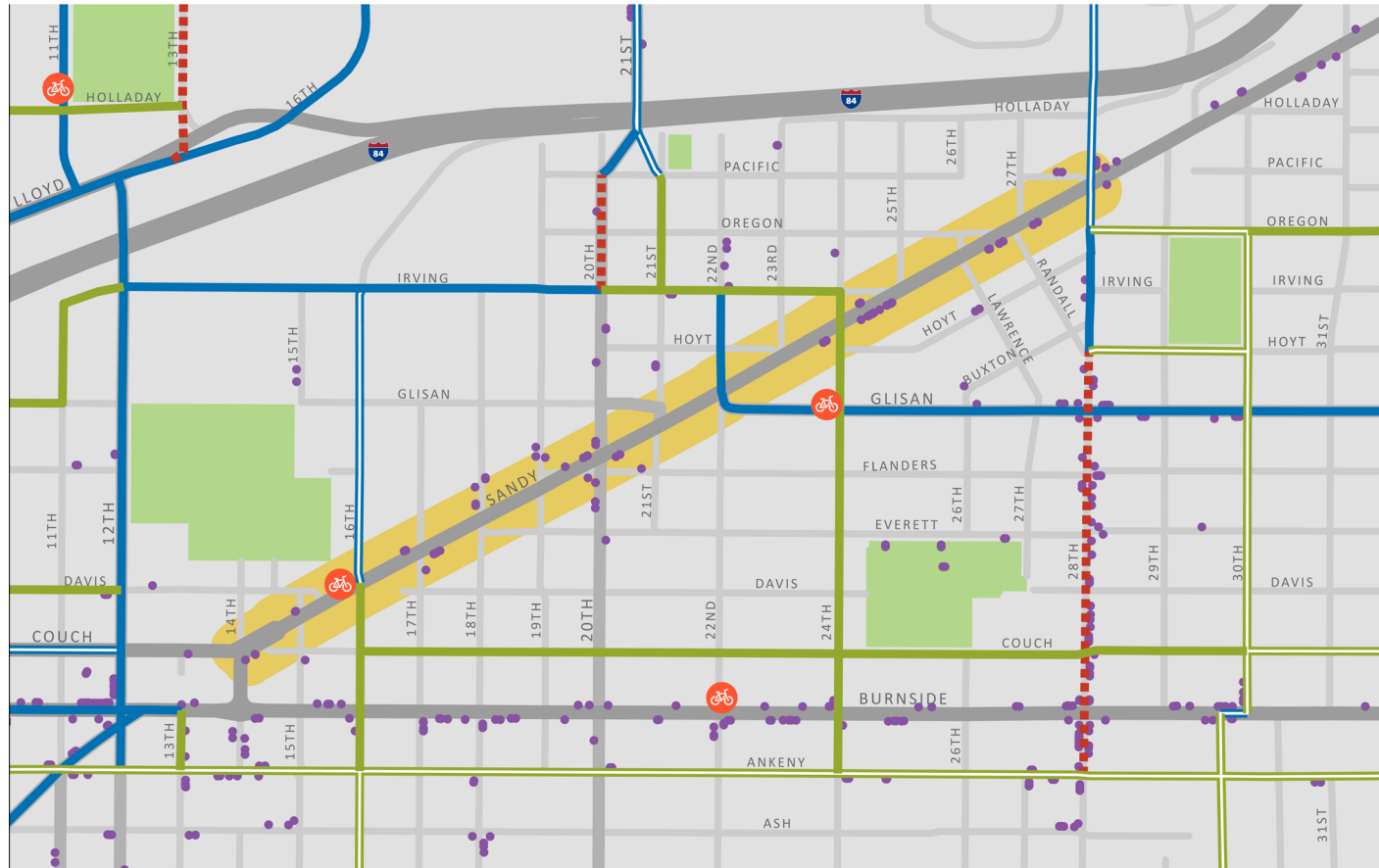
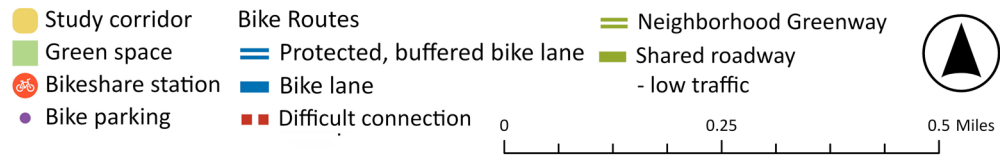


Figure 8: Bike network, bike parking, and bikeshare stations in the study area

Bike conditions

The current bike network has bike routes going east to west and from north to south throughout the study but none along Sandy Boulevard. Unless they choose to bike within the travel lanes on Sandy, cyclists currently must zig-zag along the bike network to move southwest to

northeast. Bike routes cross Sandy in the study area at 16th, 22nd, 24th, and 28th Avenues. Even when following the bike routes, gaps in the bike network create a confusing and stressful experience when biking.

Transit Conditions

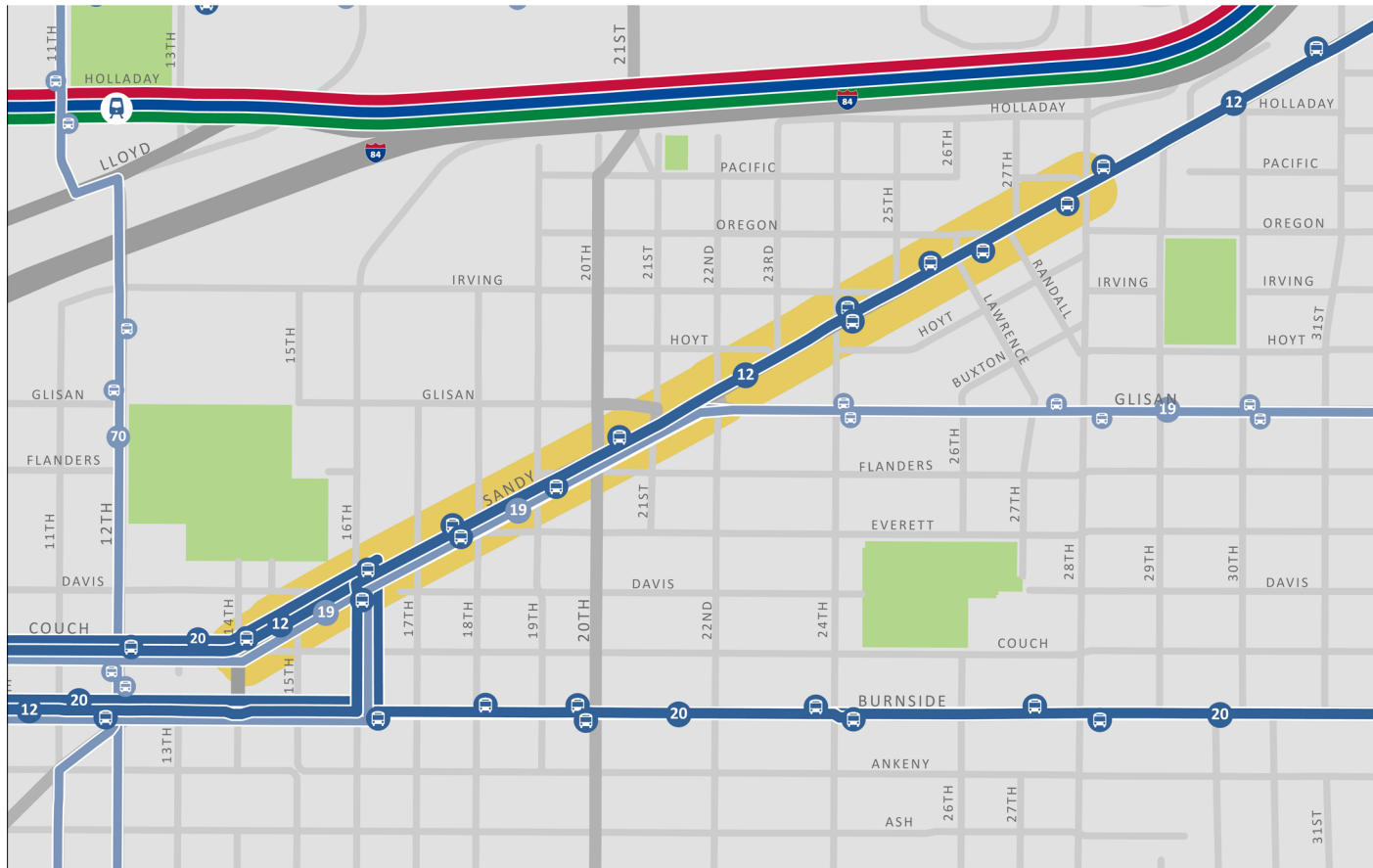
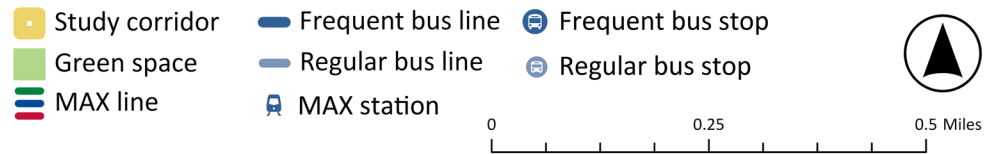


Figure 9: Transit in the study area

Transit conditions

The study area is served by a handful of bus routes and is in close proximity to the three MAX lines along Interstate 84. TriMet’s Line 12 bus is the only bus line that travels along Sandy for the entirety of the study area. Line 12 is a frequent service line, which is TriMet’s designation for lines with headways of 15 minutes or less for most of the day. It

connects Tigard to the Parkrose Transit Center through Portland City Center. Line 19 travels on Sandy west of 22nd Avenue and Line 20 travels on Sandy west of 16th Avenue. The varying levels of transit service along the corridor indicate that different levels of transit priority-related interventions might be needed to match the varying levels of service.



Key Takeaways

Sandy Boulevard has taken many forms through the years and is again poised to change as the number of multifamily and mixed-use developments increase along the corridor.

The median household income of the study area is noticeably lower than the median income of the city as a whole, reflecting a need for low-cost transportation options to serve the community.

The study area's population density combined with the mixture of commercial development and (mostly renter-occupied) housing along the corridor make it well-suited for investments in transit, walking, and biking.

Sandy Boulevard is estimated to have a high latent demand for cycling due to its diagonal nature but currently lacks cycling infrastructure, which is misaligned with the corridor's designation as a Major City Bikeway.

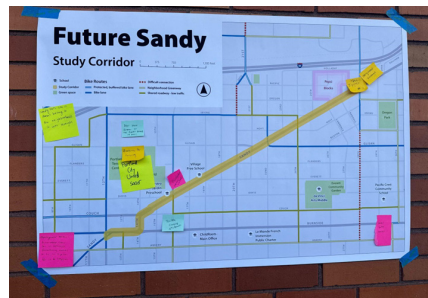
The city and region's current plans and policies support the transformation of the corridor into one that prioritizes active transportation and transit usage in order to meet goals related to climate change mitigation, safety improvements, environmental health, and quality of life.

Public Involvement

Outreach Summary

Community engagement and coalition-building were core elements of the project, as the team sought to learn various Portlanders' visions for the future of transportation in the project area. The team engaged with bike advocates, businesses, community-based organizations, youth, and residents of the neighborhoods that overlap the study area. The team held two rounds of engagement from March to May of 2024. Round one engagement comprised the following major elements: stakeholder identification and engagement, consultation with public agencies, and corridor-specific surveying. The team collected feedback from users of different transportation modes, including cyclists and pedestrians, through interviews and an online survey. Based on the information gathered in the first round, the team prioritized designs based on the community's vision for the corridor and developed four lane alternatives along with placemaking opportunities and safety interventions for Sandy Boulevard. In the second round of engagement, an open house was held with the previously engaged stakeholders to allow them to vote on their favorite alternatives and provide feedback on their designs.

Engaged Stakeholders



Bike Advocates: The team attended Bike Happy Hour hosted by Bike Portland for an interactive map activity.



Residents: The team held a one-on-one interview with Kerns Neighborhood Association Chair Dr. Jay Harris and at-large member Daniel Lyman. Additionally, the team presented the project with the QR code of the survey in their monthly meeting.

DAFFODIL STUDIOS

SONNY'S HOUSE
OF TATTOOS & TREASURES

Businesses: One-on-one interviews were conducted with businesses along Sandy Boulevard Daffodil Studios, Sonny's Tattoos and Treasures, and The Zipper.

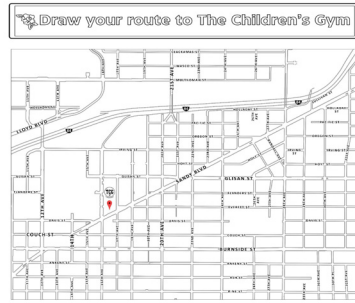
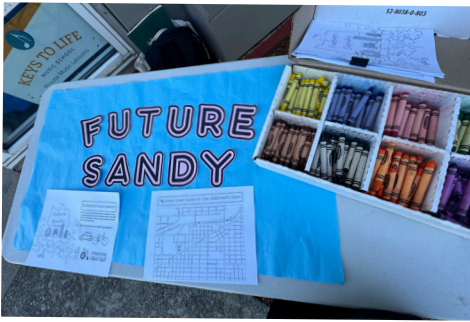


LatinoNetwork



OPAL
ORGANIZING PEOPLE / ACTIVATING LEADERS

Community-Based Organizations (CBO): The team held one-on-one interviews with organizations with missions to serve the local community: Depave, Oregon Walks, Latino Network, and Organizing People/Activating Leaders (OPAL).



Youth: A route-mapping activity was held at the Children’s Gym between 16th Avenue and 17th Avenue.



Sandy Users: A 12-question survey, including demographic inquiries, was conducted via Google Forms to gather insights on people’s experiences with Sandy Boulevard and their transportation priorities.

Engagement Themes

The first round of engagement asked community members about their transportation priorities and their vision for the corridor. Several common themes emerged: safety, community health, connectivity, environmental health, and accessibility. Key differences were around on-street parking.

Common Views on Goals Among Stakeholders

Safety

All stakeholders expressed concerns about safety on Sandy Boulevard, citing high vehicle speeds and risky crossings. They believe these issues

arise because the roads are primarily designed for cars, neglecting the diverse needs and limitations of the community. Also, inadequate lighting on Sandy Boulevard contributes to feelings of insecurity and safety concerns. The difficulty of crossing Sandy Boulevard was highlighted, with many noting either there are no signalized crossings on the street or those are too short for the width of the street. Businesses along Sandy observed people running across four lanes of traffic to reach stores due to the lack of nearby crosswalks. Multiple stakeholders shared experiences of witnessing traffic crashes on Sandy Boulevard.



"Cars frequently travel at high speeds and often run red lights. I recently saw a car do this, almost hitting a mom who was carrying a newborn baby while crossing the street."

Due to safety concerns and a lack of pedestrian signals, people often avoid parking on Sandy Boulevard and opt for neighborhood streets instead.

All engaged stakeholders mentioned the need for improved safety measures and infrastructure on Sandy Boulevard. Some community members emphasized the need for additional signage, particularly for guiding trucks through the narrow neighborhood streets, to improve safety. Concerning fast-moving vehicles, ideas for traffic-calming measures were suggested, including implementing speed cameras, increasing signage, extending and improving pedestrian signals, and creating protected bike lanes.

“Crossing Sandy is dicey, whether doing it via Ankeny, Burnside, or Couch. But my ultimate preference would be to calm traffic on Sandy and give it bike lanes. Then crossings will be easier and traffic will be slower.”



Community Health

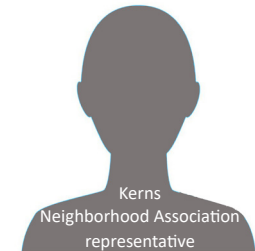
The stakeholders again compared Sandy Boulevard to a highway due to its lack of cleanliness and lack of shade. Business owners want Sandy to be seen less as a thoroughfare and more as a destination. They suggested adding bike lanes and community spaces like plazas to improve community health. Many participants highlighted businesses like The Zipper and wanted additional spaces that attract both local residents and visitors to the Sandy area. They also suggested planting more trees, adding trash cans, ornamental street lights, and Rose Lanes.

“Making this section of Sandy safer and more enjoyable to bike and walk on would make it a destination for folks who want to explore all the great shops and restaurants located here.”



The ongoing construction around Sandy is a significant challenge for businesses, causing reduced foot traffic due to blocked sidewalks and debris. However, the overall community is excited about the new construction and proposed facilities, expecting them to attract residents and visitors, thereby creating more opportunities in the neighborhood.

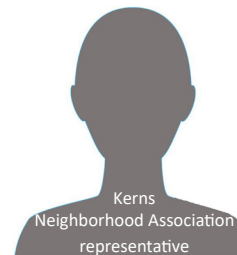
“We want to see greater setbacks for new apartments or have a plaza on the street side.”



Connectivity

Connectivity was also discussed during the engagement, though not as frequently as safety and community health. People expressed concerns about the current car-focused transportation system. Cyclists said they prefer alternative routes for biking and use Sandy Boulevard mainly for crossing due to high traffic speeds and dangerous intersections. Participants at mapping activities and Bike Happy Hour mentioned they would bike on Sandy if it were safer.

“Biking is very dangerous and rarely seen on Sandy. People use Sandy for crossing usually and bike to NE Tillamook and Broadway to go east-west.”



Biking and transit use were seen as complementary to each other, emphasizing the importance of integrating these two modes. However, there were concerns that bike/bus lanes might slow down buses or feel uncomfortable to cyclists. There was also discussion about improving multi-modal transportation options around Sandy, particularly from business owners.

Environmental Health

Environmental health has emerged as a theme throughout the community engagement process, though less frequently than the goals listed above. Community members are dissatisfied with Sandy Boulevard's current streetscape. Many survey participants requested trees to combat the heat.

Dissimilarity among Stakeholders

The engaged stakeholders shared similar perspectives on many topics, but parking emerged as a controversial topic. The perceived shortage of parking as well as the potential removal of existing spaces were frequently mentioned. Community members expressed concerns that new apartment complexes without parking facilities would worsen the neighborhood's parking situation. Businesses along Sandy Boulevard also voiced concerns about parking availability. One business implemented a rule requiring employees to park at least two blocks away to ensure customers could find nearby parking. Another business noted instances of customers arriving late for workshops after spending around 15 minutes searching for parking.

"Let's get a ton of trees, protected bike lanes, and rose lanes. Build more housing and it could become an incredibly thriving part of town so close to the central core."



"Sandy in its current state is dangerous, loud, and unpleasant to anyone not in a motor vehicle." all the great shops and restaurants located here."



"One of the biggest challenges was parking because parking is just in the street, and if you don't get there early enough, you don't find parking, so you have to park blocks away."

Accessibility:

Community members mentioned that time allotted to cross Sandy is too short. They also said that the condition of the pedestrian pathways is poor, making it hard for wheelchairs or strollers to use. One disabled interviewee shared frustration on how the overall transportation system is more car-centric, which creates barriers for the lower income and disabled individuals of using other modes other than cars. Lack of clear and accessible crosswalks were also mentioned in the engagements.

On the other hand, some stakeholders, especially bike advocates, argued that there is adequate parking available in the area apart from on-street parking on Sandy Boulevard. They pointed out that people can park at roadside parking lots, such as the one found on the north side of the intersection of NE 18th Avenue and Sandy Boulevard, or on neighborhood streets like NE Hoyt Street. Therefore, they suggested that a bike lane could be accommodated by removing on-street parking.

Evaluation Framework

The team considered alternatives that were grouped into three main categories: cross-sections that identified lane allocation (including bike lanes), site-specific pedestrian and placemaking recommendations, and corridor-wide recommendations. Each alternative was scored in a decision-making matrix on two categories: goals and feasibility (Appendix D). The five project goals are safety, environmental health, connectivity, community health, and accessibility and are described in the report’s executive summary. Each alternative was assigned a score of one to three based on its ability to achieve each goal. The numbers represent a low, medium, and high score for each goal rather than a precise numerical value. The original score for each goal is then multiplied by the goal weight.

The feasibility criteria are community support, affordability, and ease of implementation. These criteria were also scored on a scale of one to three. The affordability score represents whether the alternative is low cost, medium cost, or high cost. Speed of implementation separates potential quick-build projects from longer-term projects. The base score of one, two, or three was multiplied by the weight of each category. The community support score will represent how well each alternative was received by the public at the open house event held during the second round of community engagement. At the event, participants were asked to vote for their favorite alternatives.

Because safety was the most frequently mentioned priority throughout the engagement process, and because of the City of Portland’s Vision Zero, the safety score was multiplied by three. Community health scores were multiplied by two because this theme emerged as the second highest priority during the community engagement process. Accessibility was also weighted by two – while accessibility did not emerge as a major theme from the general public engagement, the percentage of residents in the study area that are disabled is higher than in Portland as a whole, and creating accessible designs has broad benefits for the public. Connectivity and environmental health were both unweighted. Creating better connections for active transportation was a baseline condition of the biking and pedestrian recommendations; therefore, connectivity was not a major differentiator between the alternatives. Environmental health is unweighted because, while it is important to include it to align with the City of Portland’s climate goals, it came up infrequently in the community engagement process. In the feasibility criteria, affordability and community support were weighted by two, while ease of implementation was unweighted. Affordability is important to consider because of budget limitations, and community support is crucial for identifying projects that will have buy-in from residents and users of Sandy Boulevard.

	Goals						Feasibility			
	Safety	Enviro Health	Connectivity	Community Health	Accessibility	Goal Score	Community Support	Affordability	Ease of Implementation	Total Score
Alternative 1										
Alternative 2										
Alternative 3										

Alternatives and Recommendations

Lane Allocation Recommendation

Recommended: Remove one travel lane in each direction for a 7' bike lane with a 3' buffer (Option B)

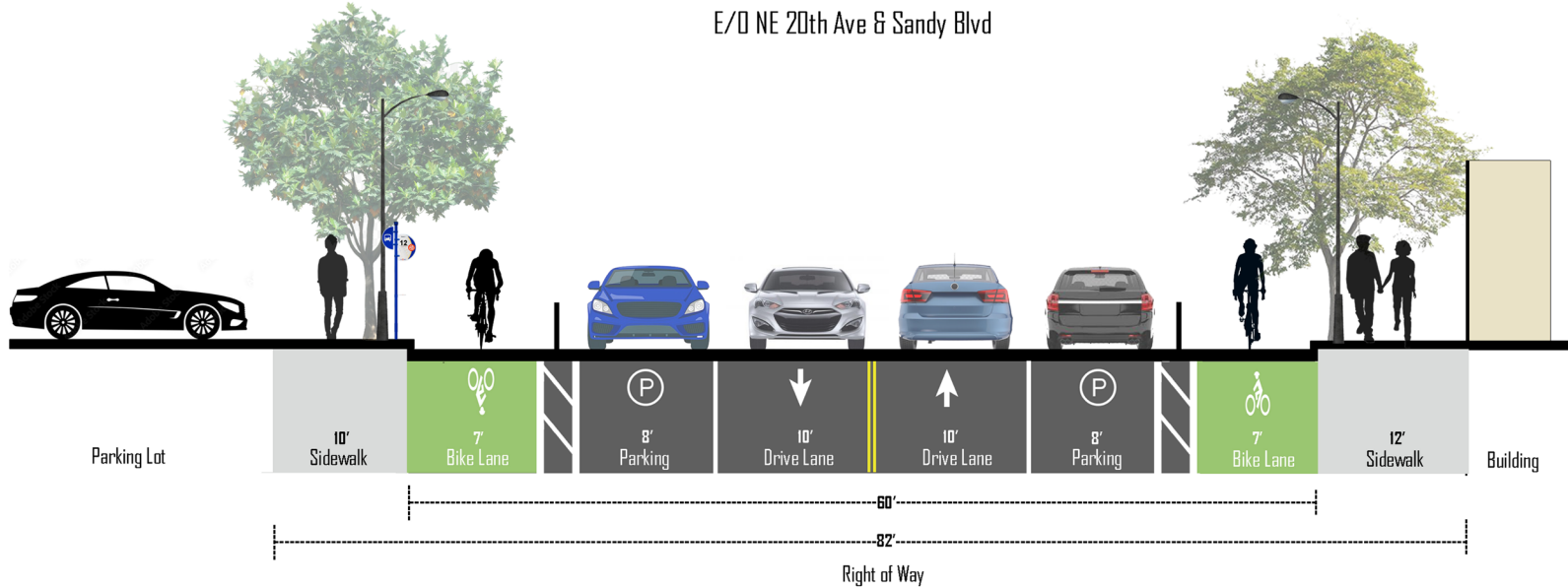


Figure 10: Street cross-section of design recommendation

This proposed design alternative involves the removal of one travel lane in each direction to accommodate a 7' bike lane plus a 3' buffer. This alternative allows existing parking lanes to be maintained on both sides of the street, providing a further barrier of protection between the bike lane and moving vehicle traffic. Cyclists would be unprotected by parking at intersections, drive-ways, and areas where the roadway narrows to the extent that parking cannot be accommodated, mostly due to left turn lanes, bus stops, and pedestrian crossing curb extensions.

In these areas, the bike lane would be separated from vehicle traffic with a 3' physical barrier. Currently, pedestrians crossing Sandy must cross four lanes of moving vehicle traffic. This alternative would shorten the crossing distance to two lanes of moving traffic, increasing safety and comfort for pedestrians.

14 th to 16th: Remove Travel Lane for Parking Protected Bike Lane



Figure 11: Plan view of bike lanes from 14th Avenue to 16th Avenue

16th to 22nd: Remove One Travel Lane in Each Direction

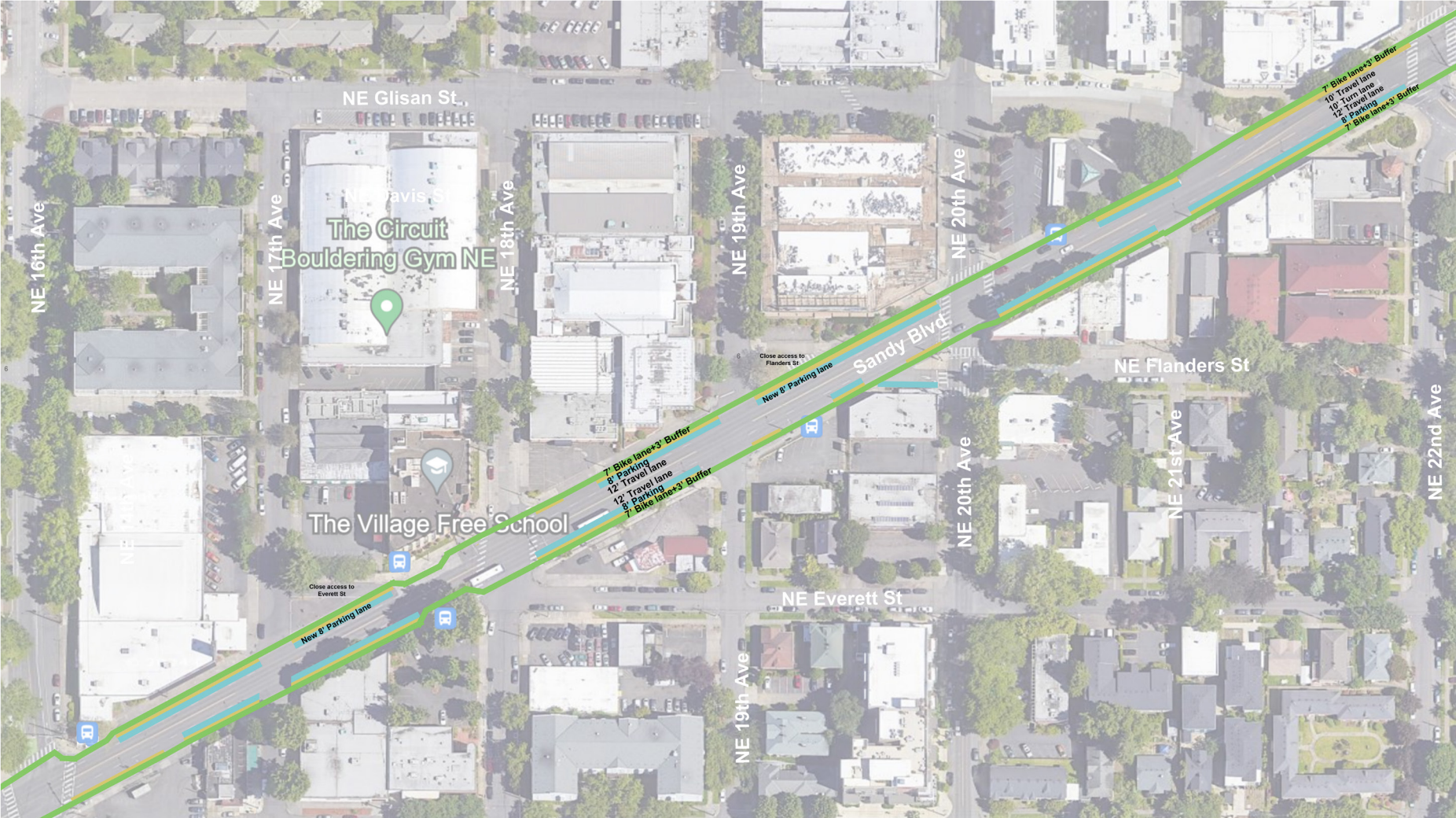


Figure 12: Plan view of bike lanes from 16th Avenue to 22nd Avenue

22nd to 28th: Remove One Travel Lane in Each Direction



Figure 13: Plan view of bike lanes from 22nd Avenue to 28th Avenue

Other Lane Alternatives Considered

Option A: Remove street parking for bike lane

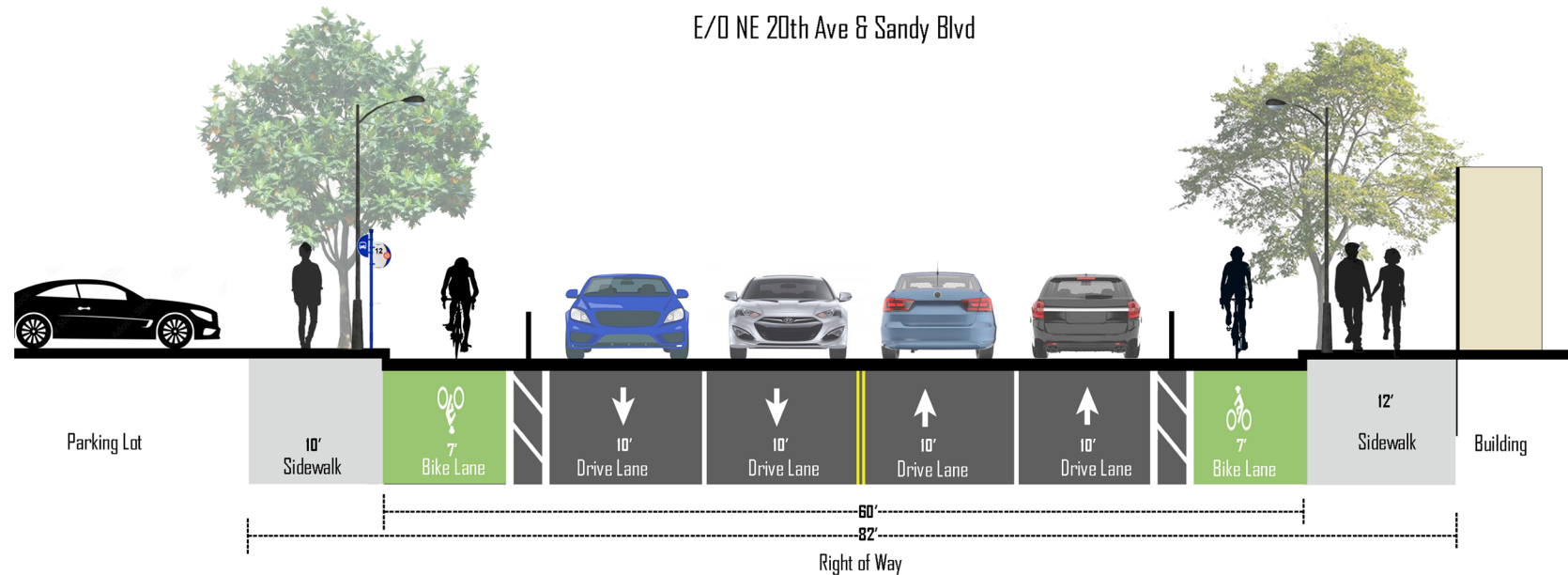


Figure 14: Street cross-section of option A

This proposed design alternative involves the removal of existing parking lanes on both sides of the street to accommodate a 7' bike lane plus a 3' buffer and physical barrier to protect cyclists from moving vehicle traffic. In some areas, the roadway narrows to the extent that there is currently no street parking. This is mostly due to left turn lanes, bus stops, and pedestrian crossing curb extensions.

In these cases, ramps up to the curb would need to be constructed, potentially resulting in bike/pedestrian conflicts. In the case of left turn lanes taking up that space, bikes in one direction would need to be routed off of Sandy for that block.

Option C: Convert one travel lane to a bus/bike lane

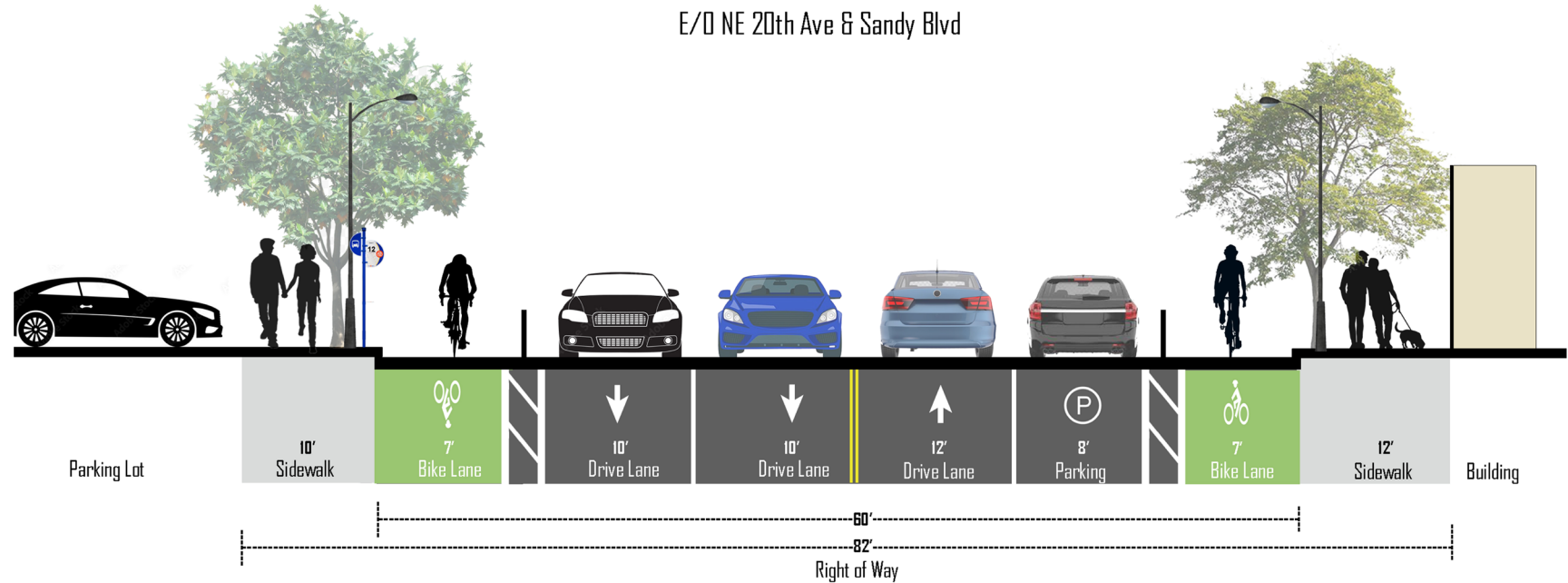


Figure 15: Street cross-section of option C

This proposed design alternative involves the removal of one travel lane in each direction to accommodate a 10' lane to be used exclusively by buses and bikes. This lane would improve cyclist safety and comfort compared to existing conditions biking in mixed vehicle traffic while also improving transit reliability. In most areas of the street, parking would be maintained on one side of the street and removed on the other.

Since no buses travel eastbound between 14th and 16th Avenues, parking on both sides of the street would be maintained in this section and a 7' parking-protected eastbound bike lane with a 3' buffer could be accommodated on this section of the street.

Option D: Remove one eastbound travel lane and some parking for bike lanes

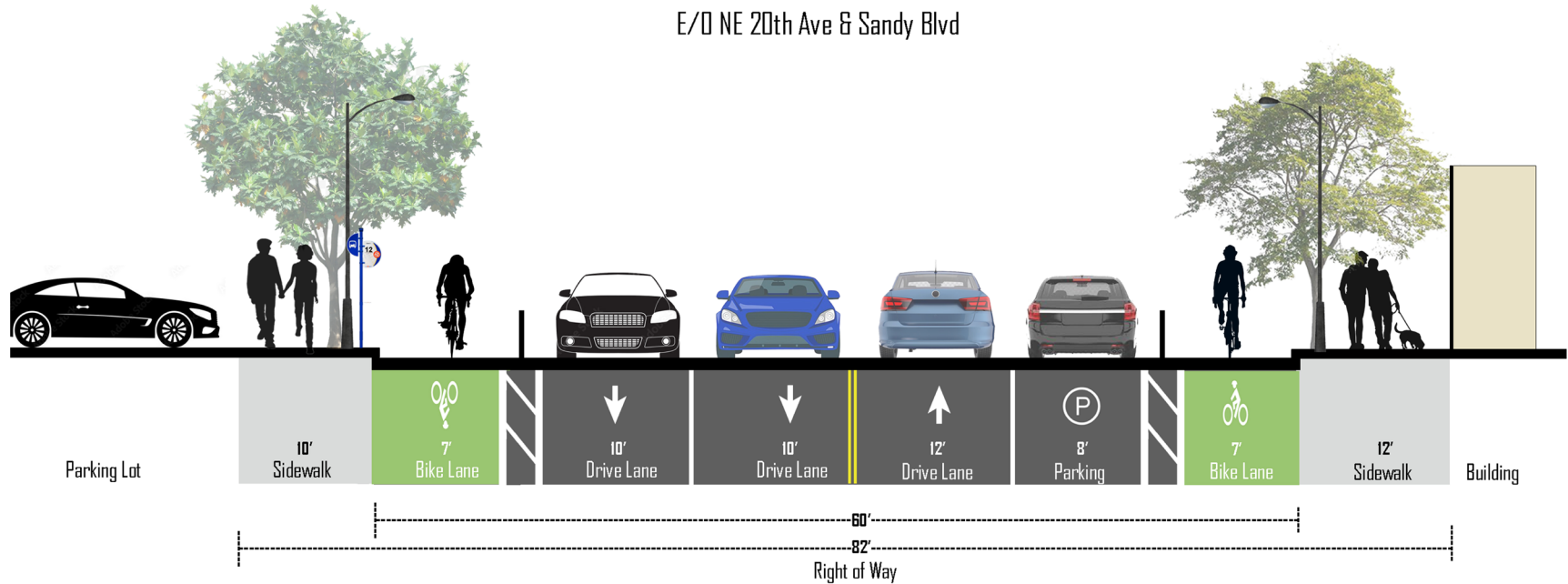


Figure 16: Street cross-section of option D

This proposed design alternative involves the removal of one eastbound travel lane in each direction to accommodate a 7' bike lane plus a 3' buffer. This alternative allows existing parking lanes to be maintained on one side of the street, providing a further barrier of protection between the bike lane and moving vehicle traffic, while parking on the other side of the street would be removed.

Westbound vehicle traffic sees higher peak volumes than eastbound traffic, so the eastbound lane would be removed to balance spatial tradeoffs with parking and bike lanes. Under this alternative, left turn lanes would be maintained.

Evaluation Considerations

The project team recommends converting one travel lane in each direction to a protected bike lane for several reasons. First, taking away two travel lanes will decrease speed along Sandy Boulevard, which will make it safer for all road users. Removing travel lanes will create a shorter crossing distance for pedestrians, cyclists, and motorists crossing Sandy Boulevard. While this would entail a major change to the street, the Vision Zero Safety goals adopted by the City of Portland focus on using street design to create safer systems for road users, and road diets are a key strategy for reaching this goal. This goal was also widely shared amongst all engaged stakeholders and community members. Shorter crossing distances also increase accessibility, as pedestrians and cyclists are no longer required to rush to cross multiple lanes of traffic. A narrower road will also decrease the cost of other safety interventions, like increasing the number of crosswalks along the corridor. An additional benefit other than safety gains is that when crossing distances are shorter, the pedestrian walk signals can also be shorter, which will lead to shorter red lights for vehicles, buses, and bikes. Engaged community members also put a strong emphasis on wanting Sandy Boulevard to be a pleasant place to spend time, rather than just a freeway bypass, which is represented in the community health goal. Removing travel lanes while retaining street parking will shift the emphasis to spending time along Sandy Boulevard rather than passing through at high speeds. This option also scores highly on the environmental health criterion because it discourages the use of personal vehicles while making bike travel significantly easier and faster. This is in line with both PBOT's modal hierarchy and the City of Portland's greenhouse gas emission reduction goals. In terms of feasibility, converting an existing travel lane to a protected bike lane will be less expensive than converting parking to a bike lane due to the frequency of corridor sections that have curb extensions and wide sidewalks in place of street parking. Removing two travel lanes was also the most popular option for those who attended the open house.⁷ Because this

recommendation entails a major change to the streetscape, the project team recommends putting in place a temporary road diet before any permanent capital improvements are made. This road diet could be tested before the repaving project begins to evaluate public reactions to the change.

Removing street parking would allow for large volumes of vehicles to continue to use Sandy Boulevard. However, the safety benefits for street users would be limited because this plan would retain the four travel lanes and original street width. Removing all street parking would be an unpopular decision, especially considering the number of the apartment complexes that are being built without space set aside for parking, which was a frequent complaint during the engagement process. Prioritizing the ability to use Sandy Boulevard to get from one location to another would come at the detriment of making Sandy Boulevard feel like a destination that people want to spend time on. As regards feasibility, building a protected bike lane around the four travel lanes would be expensive and time-consuming to implement because there are segments of the corridor that have curb extensions and wider sidewalks in place of street parking. For some sections, curb ramps would need to route the bike lane onto the sidewalk, which can create conflict points for pedestrians and cyclists. For other sections, the bike lane would need to deviate from Sandy Boulevard to account for the lack of space in the current road, which led to a low connectivity score for some sections of the corridor.

A shared bus/bike lane would benefit transit users by giving the bus more priority than it currently has; however, cyclists expressed concerns about the discomfort of sharing a lane with buses. Additionally, Sandy Boulevard has a slight uphill grade going northeast, which would slow down cyclists and lead to delays for the bikes. Within the study area, 14th Avenue to 16th Avenue has three bus lines, 16th to 22nd

⁷ Due to the way that the event was advertised through BikeLoud and Bike Portland, cyclists were likely over-represented at this event, so further engagement should be used to evaluate broader public opinion about the changes.

has two bus lines, and 22nd to 28th has one bus line. If a bus/bike lane were needed for a portion of the study area, it should be used only for the section between 14th and 16th, and there would only need to be a shared bus/bike lane going westbound because all three buses in this section only travel westbound.

Removing one eastbound lane and parking on one side of the street would be a good compromise between taking two travel lanes or taking all street parking, and this recommendation can be considered as a backup option to taking two travel lanes depending on the public's reaction to a temporary road diet of two lanes. There are two main reasons that it did not score as highly as the option of taking a travel lane in each direction: 1) it did not score as highly on safety since the higher number of lanes will allow cars to move at a faster rate and will be a longer crossing distance than just two lanes would be and 2) it scored slightly lower on community health because taking away street parking might make it slightly more difficult to visit businesses along the corridor.

Site-Specific Pedestrian and Placemaking Recommendations

The project team has six site-specific pedestrian and placemaking recommendations that are intended to make spending time on Sandy safer and more pleasant.

Depave underutilized asphalt at Everett, Sandy, and 17th

The current configuration of the intersection of Everett, Sandy, and 17th creates a triangle of underutilized asphalt that pedestrians must

traverse. Flexiposts and a painted triangle on the asphalt do little to afford a sense of security for crossing pedestrians. This site is a prime location for depaving and incorporating more greenery along the corridor. Two courses of action could be taken once the site is depaved —1) a parklet could be introduced to provide a small area of accessible greenery, or 2) a large bioswale could be put in to manage stormwater. The area's location directly adjacent to a surface parking lot would make it a prime spot for catching stormwater runoff as it drains off the parking lot.



Figure 17: Depave triangular space at 17th and Everett for green space

Close access to Sandy from 18th and Everett

The confluence of Everett and 18th creates a long crossing distance for pedestrians moving along Sandy Boulevard. Additionally, it creates confusion for pedestrians crossing across Sandy in the crosswalks because cars could be coming from Everett or 18th from the south onto Sandy. The building at the northwest corner of Sandy and 18th houses a school, and a children's gymnastics gym can be found

a block south of this intersection. The signalized crosswalk is one of the few areas that is safe to cross Sandy within a few blocks, so pedestrians are funneled to it. Closing access from Everett/18th to Sandy would reroute cars to use 19th or 17th to access Sandy Boulevard, neither of which have crosswalks that attract pedestrians.



Figure 18: Close access to Sandy from 18th and Everett

Depave Flanders on the north side of Sandy and 19th and add greenery

Flanders, Sandy, and 19th is another triangle-shaped lot that is currently underutilized in its current form. There is one large tree already at the corner of 19th and Sandy in a small tree well, but a slip lane takes

up the space between the tree and the sidewalk. Similar to the Everett site, this site could go in one of two directions: it could be turned into a small grassy lot that is accessible for passers-by, or it can be turned into a bioswale.



Figure 19: Depave north side of Flanders for green space

Close access to Irving and add parking

Pedestrians walking along Sandy currently must cross approximately 80 feet on asphalt to get across Irving. Curb bump-outs could be implemented to decrease this crossing distance. However, a more intensive intervention could both increase the safety of pedestrians and provide more parking options for people who visit the area or live in the apart

ment complex north of Irving. This intervention would entail closing access to Irving from Sandy, extending the sidewalk across Irving, and adding parking on Irving between 24th and Sandy.



Figure 20: Close access to Irving and add parking

Reinstate car-free plaza on Flanders between 20th and 21st

This section of Flanders was established as a car-free plaza by PBOT during the height of the COVID-19 pandemic. While many of these plazas have since been dismantled (including this one), the remaining pla-

zas remain popular spaces for gathering. The Rainbow Road on Ankeny is an example of a car-free plaza that clearly defines space for cyclists and space for people to linger.



Figure 21: Plan view of plaza on NE Flanders St



Figure 22: Rendered view of plaza on NE Flanders St

Add nose to the pedestrian refuge at Sandy and 26th

The pedestrian refuge at 26th Avenue only has concrete on the southwest side of the crosswalk. At the least, this pedestrian refuge needs to be completed with concrete on the northeast side so that pedestrians

are not vulnerable to vehicular traffic on that side. This crossing will become increasingly important as the Pepsi Blocks development with apartments and a food court opens.

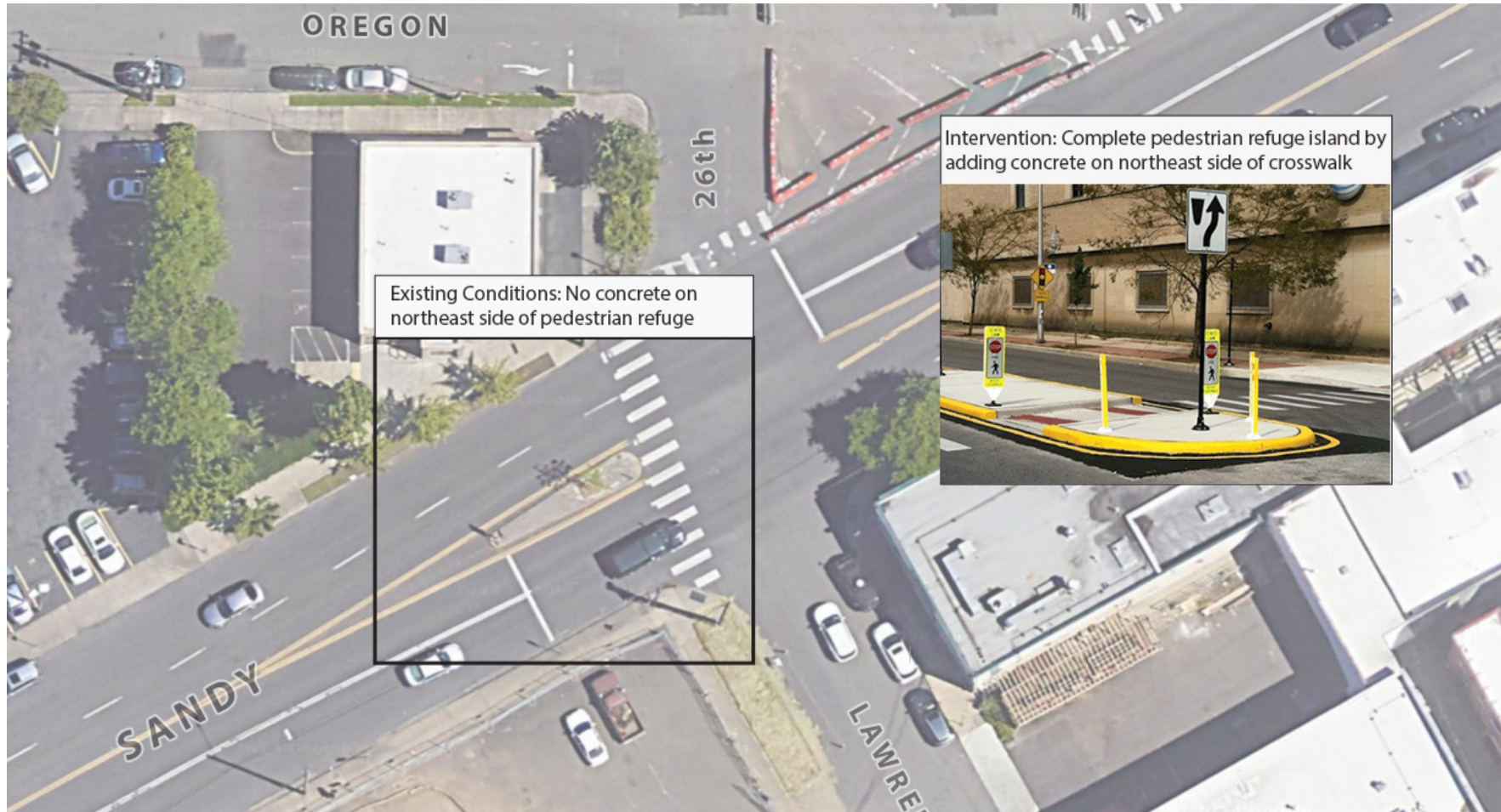


Figure 23: Complete Pedestrian Refuge Island

Corridor-Wide Recommendations

Increase the number of crosswalks across Sandy

To make Sandy comfortable for pedestrians, there must be safe places for pedestrians to cross the street. Painted continental crosswalks are the minimum intervention for making Sandy safer for pedestrians. Removing travel lanes for bike lanes will decrease speeds and hourly volumes of car traffic, which will make crossing less dangerous. The crosswalk spacing on Sandy between 14th and 28th meets the Ped-PDX standards of 530 feet for major city walkways within pedestrian districts. Cross-streets intersecting Sandy that are signalized and have a higher street classification already have crosswalks. For other streets that intersect with Sandy, crosswalk placement will be determined on a case-by-case basis.



Figure 24: Plan View of Crosswalk, Source:stock.adobe.com

Add wayfinding signage

When Sandy has bike lanes, the cyclist wayfinding signage used elsewhere in the City of Portland should be added to orient cyclists to the changes to the bike network. Additionally, wayfinding signage for pedestrians that tells people how far they should walk to reach major

destinations can help encourage walking as a mode of transportation. Improved signage is an accessibility measure for neurodivergent people who feel more comfortable in spaces that provide more information about their surroundings. Bike wayfinding signs are typically installed near intersections of streets that feature neighborhood greenways or any type of bike infrastructure. Given the current proposal to install bike lanes on Sandy, appropriate locations for these signs include the intersections of Sandy with streets that have bike infrastructure, such as 16th Avenue, 22nd Avenue, and 28th Avenue.



Figure 25: Bike Wayfinding Sign, Source: NACTO.org

Appendix A: Study Area Demographics

Table 1: Residential Demographics within ½ mile radius of Sandy Blvd

	Study Area	Portland
Total population	10,842	652,503
Population/sq mile	8,605	4,888
Median Household Income	\$68,479**	\$81,119
Percent below poverty level	10.2%	12.7%
Percent White alone*	73.2%	66.4%
Percent Black alone*	3.8%	5.7%
Percent Native American alone*	0.6%	0.7%
Percent Asian alone*	4.8%	8.0%
Percent Pacific Islander alone*	0.3%	0.6%
Percent some other race alone*	0.6%	0.6%
Percent two or more races*	7.3%	7.0%
Percent Hispanic/Latino, any race	9.4%	11.1%
Median age	34.5	38.5
Percent under 18	8.5%	16.7%
Percent over 65	7.40%	14.7%
Percent with a disability	16.2%	14.3%

*Not Hispanic/Latino

**Estimate

Source: US Census Bureau, American Community Survey 2022

Table 2: Means of Transportation to Work

Commute Mode	Study Area	City of Portland
Car, truck, or van	46.8%	59.1%
Public transportation	8.7%	8.5%
Bicycle	8.0%	4.9%
Walked	11.3%	4.1%
Worked from home	24.1%	22.0%

Source: ACS 2022 5-year estimates

Table 3: Housing tenure

	Study Area	City of Portland
Owner-occupied	15.1%	53.3%
Renter-occupied	84.9%	46.7%

Source: ACS 2022 5-year estimates

Appendix B: Flyers for Engagement Events



Figure 1: Flyer with QR code for online questionnaire



Figure 2: Engagement flyer for the open house

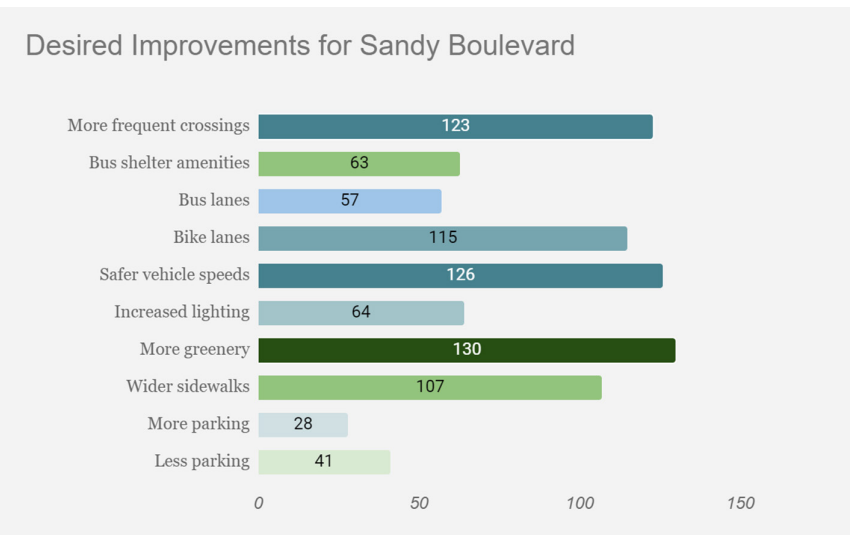


Figure 2: Recommended improvements from the survey participants

Appendix C: Survey Results

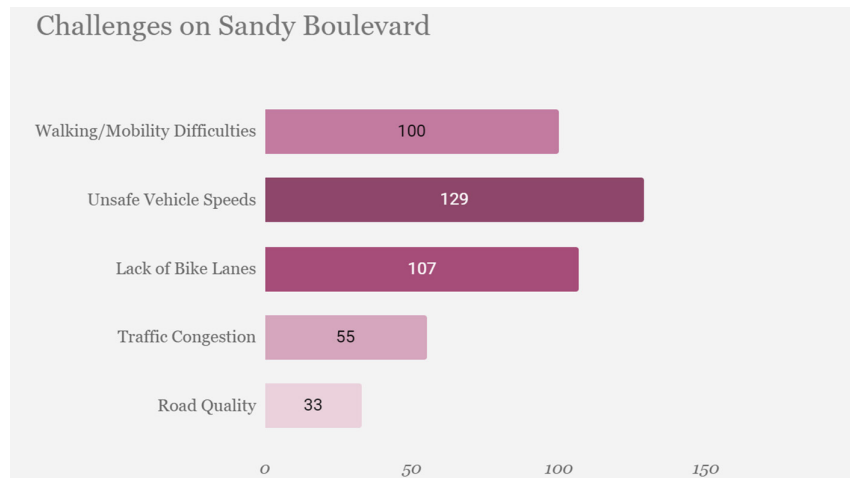


Figure 1: Main challenges encountered by the survey participants

Appendix D: Decision-making matrix

	Goals					Goal Score	Feasibility			Total Score	
	Safety	Environmental Health	Connectivity	Community Health	Accessibility		Community Support	Affordability	Ease of Implementation		
Lane Allocation	Section 1: 14th to 16th										
	1.a. Remove street parking for bike lane	6	2	3	4	6	21	2	2	1	26
	1.b. Remove travel lane in each direction for bike lane	9	2	2	6	6	25	6	6	3	40
	1.c. Change outer lane to bus/bike lane	6	3	3	4	2	18	6	4	3	31
	1.d. Remove one eastbound lane and one side of street parking for bike lane	6	3	2	6	6	23	2	4	2	31
	1.e. No build	3	1	1	4	2	11	2	6	3	22
	Section 2: 16th to 22nd										
	1.a. Remove street parking for bike lane	6	2	2	4	6	20	2	2	1	25
	1.b. Remove travel lane in each direction for bike lane	9	2	2	6	6	25	2	6	3	36
	1.c. Change outer lane to bus/bike lane	6	3	3	4	2	18	2	4	3	27
	1.d. Remove one eastbound lane and one side of street parking for bike lane	6	3	2	4	6	21	4	4	2	31
	1.e. No build	3	1	1	4	2	11	2	6	3	22
	Section 3: 22nd to 28th										
	1.a. Remove street parking for bike lane	6	2	2	4	6	20	2	2	1	25

	1.b. Remove travel lane in each direction for parking-protected bike lane	9	2	3	6	6	26	6	6	3	41
	1.c. Change outer lane to bus/bike lane	6	3	3	4	2	18	2	4	3	27
	1.d. Remove one eastbound lane and one side of street parking for bike lane	6	3	3	4	6	22	4	4	2	32
	1.e. No build	3	1	1	4	2	11	2	6	3	22
Pedestrian/ Placemaking	2.a. Close Everett & Sandy intersection	9	2	2	4	4	21	4	4	2	31
	3.a. Depave Flanders on north side of Sandy and 19th, add greenery	9	3	2	6	4	24	6	2	1	33
	4. Limit access to parking lot near 23rd	6	2	2	2	6	18	4	4	2	28
	5.a. Curb bump-outs at Irving and Sandy	6	1	2	2	4	15	2	4	2	23
	5.b. Close access to Irving & add parking	6	2	2	6	4	20	6	6	1	33
	6.a. Add nose to pedestrian refuge at 26th	6	2	2	4	4	18	6	4	2	30
	6.b. Install HAWK pedestrian signal at 26th & Sandy	9	2	2	4	6	23	2	2	2	29
	8.a. 17th, Everett & Sandy – depave	9	3	2	6	4	24	4	2	1	31

	9.a. Close the Flanders slip lane south of Sandy and reconfigure pork chop. extend outdoor seating (Pho Gia)	9	2	3	6	6	26	2	2	1	31
	9.b. Reinstate car-free plaza on Flanders between 20th and 21st	9	3	3	6	6	27	6	4	2	39
Corridor-wide	Wayfinding	9	3	3	4	6	25	4	4	2	35
	Lighting	9	2	2	4	4	21	6	2	1	30
	More crosswalks	9	3	3	4	4	23	6	6	3	38
	Longer pedestrian signals	6	2	2	4	6	20	2	6	3	31

Appendix E: Open House Voting Results

Section	Design Alternatives	Vote Count
14th to 16th	a. Remove street parking for protected bike lane	1
	b. Convert one travel lane in each direction into protected bike lanes and parking on both sides.	7
	c. Convert one westbound travel lane into bus/bike lane and parking on both sides	7
	d. Remove one eastbound travel lane for bike lanes on both and parking on the east side	0
16th to 22nd	a. Remove street parking for protected bike lane	3
	b. Convert one travel lane in each direction into protected bike lanes and parking on both sides.	4
	c. Convert one travel lane in each direction into bus/bike lanes and parking on both sides.	3
	d. Remove one eastbound travel lane for a protected bike lane on both and parking on the east side	2
22nd to 28th	a. Remove street parking for protected bike lane	2
	b. Convert one travel lane in each direction into protected bike lanes and parking on both sides	7
	c. Convert one travel lane in each direction into bus/bike lanes and parking on both sides.	7
	d. Remove one eastbound travel lane for protected bike lanes on both and parking on east side	4

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