Utah Statewide Bicycling Needs Assessment

A Qualitative Approach Focusing on Underrepresented Populations

BikeUtah

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About Bike Utah: We envision a Utah where complete networks of bike lanes, paths, and trails contribute to livable, healthy communities, allowing everyone to ride regardless of age, ability, race, or income.

EXECUTIVE SUMMARY

Cycling provides an opportunity for Utah residents to participate in physical activity, enjoy recreational areas, or as a mode for destination-based travel. Cycling benefits the health, mental well-being, family, community, and economy of people and places across the state. At the same time, the unique uses, needs, and challenges for riding a bicycle safely can sometimes stand in the way of riders, especially those from historically underrepresented populations. Therefore, Bike Utah performed a statewide needs assessment to better understand and identify support that can be provided to improve cycling ridership for this specific population.

Bike Utah utilized a qualitative research approach centered around individual and group-based discussions allowing for participant experiences and ideas to come into fuller context. Over 200 Utah residents who identified as underrepresented individuals in cycling shared their concerns and stories. Clear emerging themes gave shape to a systems-based framework that can be used to meet the cycling needs of underrepresented individuals and grow ridership.

The 5 interrelated pillars of this framework, including key findings, are:

1. **Availability of desirable cycling infrastructure and facilities.** Participants acutely felt the risk of sharing the road with motor vehicles. For mobility purposes on paved surfaces, protected active transportation networks that separate individuals from automobiles are the highest priority for underrepresented populations. The development and management of recreational areas can support greater accessibility and bring enjoyment to individuals of all abilities.

2. **Access, ownership, and maintenance of bicycles and related safety gear.** Bicycles can represent a costly investment to Utahns, and even maintenance can be a challenge. Emerging models utilizing social innovation can help further address financial and accessibility barriers to ridership. Bike share programs and recycling bikes are examples that can lower the barrier to entry, however there is opportunity for other impactful models. More emphasis should be placed on the experience-based barriers to visiting a bike shop for purchasing or servicing equipment. Different types of cycling resource spaces can provide options that better meet community needs and can activate interest in performing simple repairs and maintenance so that more bicycles stay safe and functional.

3. **Education and information that promotes and protects cyclists.** Cyclists and other vehicles on the road have a shared responsibility for everyone's safety. Adequate education measures that reflect safe behavior from motor vehicle operators can encourage more individuals to ride bicycles comfortably and confidently. Additional gateways to finding cycling routes and trails should include expanded details on features and obstacles that will allow experiences to meet expectations.

4. **Visible and inclusive community of cyclists.** Seeing other individuals on bicycles who participants identify with signals a few important things. First, it provides a visible example that cycling is a viable way to get around, recreate, and more. Second, it serves as an opportunity to connect with community members to build fellowship. Lastly, seeing more cyclists can create a sense that some of the other listed pillars have been adequately addressed and that cycling is a "normal" behavior.

EXECUTIVE SUMMARY

5. **Advocacy for equitable planning and policy.** Policies that shape planning standards and guidelines are an invisible pillar that individuals do not physically encounter. However, they do give form to the built environment which can largely impact ridership. Leadership and involvement from all community members, regardless if they are (interested) cyclists, is critical to introducing the changes needed to support greater ridership.

It became evident from participant insights that issues of accessibility or availability across all these pillars require a holistic strategy to ensure everyone can benefit and have the opportunity to ride their bicycle safely.

Efforts toward fairer representation in cycling fit under the overarching goal of improving equitable health outcomes for all people. The framework for an equitable cycling environment serves as guidance for Bike Utah and stakeholders by systematically examining, understanding, and introducing change with community members to improve their ridership.

Policy Considerations

To help promote and support ridership among underrepresented populations in Utah, policymakers should consider the following:

- Increase use of high comfort, high safety infrastructure, with an emphasis on fully separated bicycle facilities on high speed roads.
- Implement land use policies that encourage walkable and bikeable environments, such as mixed use, medium density, and infill development, particularly in downtown areas and near transit.
- Research and implement bike parking requirements at commercial shopping plazas, places of employment, and other high interest destinations.
- Provide support to interested businesses in developing and hosting a bike repair area with trained support staff.
- Make cycling-related topics and education more robust within the Utah Drivers License educational manual, examination, and renewal process.
- Adopt adaptive-friendly cycling standards for the creation and maintenance of trails.

OVERVIEW // RESEARCH GOAL

Cycling has wide utility – as a mode of transportation, for physical activity, or social and recreational use. Because the opportunity to ride a bicycle can provide a means for mobility, improved physical and mental wellbeing, and an alternative way to engage your community and natural surroundings, it's paramount to ensure equitable cycling access and experiences for all Utah residents.

Given the known benefits that cycling can offer, the needs assessment examines why historically underrepresented community members may continue with their current (or lack of) cycling habits. Furthermore, these individuals may also be considered underserved due to lack of resources, planning considerations, or other factors that can influence their ridership. Therefore, the goal is to better understand what influences the utility of bicycles for Utah residents who are either underrepresented in cycling or potentially part of traditionally underserved communities.

Background

The League of the American Bicyclists highlights bike trip trends among racial and ethnic groups utilizing data from the Federal Highway Administration's National Household Travel Survey between 2009 and 2017. White Non-Hispanic individuals continued to be the overwhelming majority participating in bike trips (72%), followed by Hispanic Status (12%), Asian (7%), Black or African American (6%), and all other racial/ethnic groups compromising the remaining 3% (The League of American Bicyclists 2021). Their report builds upon previous research that examines systemic challenges and barriers in increased representation and ridership.

The individual experience of a cyclist has several external determinants that influence ridership. The built environment, such as cycling-specific infrastructure, is one key element that is heavily researched. The Utah Division of Multicultural Affairs has explored transportation equity with regards to how historical redlining and systemic issues have affected accessibility to public transportation, and other modes of transportation such as cycling, for people of color (Loayza and Dillman 2022). A Bicycle Equity Index (BEI) provides a framework for spatial analysis to understand the equitable access and distribution of cycling infrastructure for underserved populations, with data suggesting that residence within a quarter mile of on-street bicycle facilities increased the odds of ridership (Prelog 2015). These observed outcomes are rooted in policy and active transportation plans that give shape to the built environment for cyclists.

Another determinant is accessibility to bicycles, gear, and related services. In Utah, cycling resources come in the form of local bike shops, do-it-yourself bike repair and maintenance spaces, and bike share programs. The Bicycle Collective (4 locations total in Salt Lake City, Ogden, Provo, and St. George) and Cedar City Bike Works are well known do-it-yourself spaces, and also offer other goods and services. Bike share programs are operational in the following areas: Summit Bike Share in Park City, GREENbike in Salt Lake City and Ogden, and Spin products and services at the University of Utah and St. George.

And lastly, the ability and opportunity to attend cycling-related education on road safety can impart knowledge and behavior to improve comfort and confidence when sharing the road with other vehicles. Established programs in Utah include Bike Rodeos organized by the state's Highway Safety Office, classes hosted by cycling clubs, advocacy groups, or local bike shops, and Bike Utah's Bicycle Education and Safety Training.

OVERVIEW // RESEARCH GOAL

Purpose

The background only briefly mentions a few determinants that can strongly influence who is and isn't riding their bicycles. While sufficient ridership data doesn't exist for Utah, the state likely mirrors nationwide data presented earlier – an underrepresentation of individuals cycling from minorities and other demographic groups. To ensure the needs assessment is reflective of all underrepresented populations in Utah, Bike Utah included other groups of interest with particular emphasis placed on the needs of rural residents. 12% of Utah residents live in rural regions, which constitutes 77% of the state's land (Kem C. Gardner Policy Institute 2017).

Bike Utah favored discussions with eligible study participants to gain a holistic understanding of how their upbringing and experiences contributed to current needs and concerns that affect their ridership. Equally important is the opportunity to hear suggestions, ideas, or more simply put, what their vision of ridership looks like.

The timing of this report is relevant with the most recent Utah Legislative General Session approving appropriations and ongoing funding for the Active Transportation Investment Fund, which supports the planning and eventual construction of a network of paved pathways interconnected throughout the state for pedestrian and non-motorized vehicle use (Utah Department of Transportation 2022). The findings will inform Utah stakeholders on recommendations for programming and policy considerations that can lead to improved ridership from underrepresented populations.

Image 1. An adaptive cyclist at a Bike Utah Mid Week MTB Series event. *Photo Credit: Ron Winsett*

DESIGN // DEMOGRAPHICS OF PARTICIPANTS

Study Population

The needs assessment was designed around purely qualitative research methods to answer the following question:

What influences the utility of bicycles for Utah residents who are either underrepresented in cycling or potentially part of traditionally underserved communities?

Eligible participants were a resident of Utah and represented at least one of the following criteria:

- Identified as dependent on active transportation (or strongly preferred its use)
- A rural resident
- Youth (younger than 18 years old) or senior (65+ years old)
- Individual with adaptive needs (or works closely with this population)
- Minority (non-White; self-identified or researcher observed)

While not part of the eligibility criteria, notes were made if a participant was a new and/or interested individual to cycling.

Recruitment & Research Methods

As a first step for recruitment, Bike Utah inquired through pre-existing and new relationships with city officials, community-based organizations, educational institutions, libraries, and other advocacy groups. Snowball recruitment tactics were later used to expand reach within established networks. To limit oversampling from one region of Utah, the study population was segmented across the 7 Association of Government regions – Bear River, Five County, Mountainland, Six County, Southeast Utah, Uintah Basin, and Wasatch Front Regional Council.

Bike Utah used a broad range of qualitative research methods to best meet the availability and comfort of participants. In-depth interviews and group oriented discussions (e.g. focus groups) were conducted with individuals whose schedules would allow for participation. Intercept survey tactics were used at events and public locations to engage in conversations. To better accommodate interested participants, the study team was available to speak outside of traditional working hours for participants who preferred evenings or weekends.

Data Collection // Interviews

A semi-structured question guide was used with questions falling under five topics – 1) bicycle hardware & services; 2) bicycle related education & resources; 3) bicycle infrastructure & safety; 4) community & culture; and 5) leadership & advocacy for change. In recognition of the unique experience of each participant, the line of questioning and topics were left flexible enough to allow for a conversation that could take its own shape in order to reach contextual depth and help answer the study question. Therefore, no standardized set of questions was used with participants. As data was analyzed periodically before the conclusion of the study, emerging themes and new topics were considered in formulating additional questions for subsequent participants.

Data was collected between August 2022 and May 2023. During that time frame, Bike Utah had the opportunity to engage in 105 unique interactions with participants; 85 were individual interactions, 20 were group interactions. Written or verbal consent was given prior to discussions. Audio recordings (n=26) were made when allowed by participants and were used for playback, partial transcription, and analysis of data.

DESIGN // DEMOGRAPHICS OF PARTICIPANTS

Within the study team there was a primary individual for data collection. Colleagues with Spanish language fluency assisted in leading interviews and discussions as needed, and also provided subsequent translation of associated audio recordings into English for analysis. Partial transcriptions were made for data analysis and capturing quotes for the presentation of findings.

Data Analysis

All study participants were given pseudonyms for data entry and analysis. The same individual conducting interviews also performed initial inductive coding of data within 24 hours of collection and conducted batch analyses periodically to identify any emerging themes, develop future questions, and evaluate which study population segments more data was needed from. At the conclusion of data collection, the main author re-coded with the full set of data in a spreadsheet and yielded 78 unique codes. The study team discussed emerging themes that codes could be condensed into and made annotations. Desk research and expert review were also completed to provide additional context.

Image 2. Plenty of bicycle parking at a Bike Utah event. *Photo Credit: Bike Utah*

What is the Value of Qualitative Research?

"'Qualitative methods are used to answer questions about experience, meaning and perspective, most often from the standpoint of the participant." – Hammarberg, Kirkman, and de Lacey 2016

Qualitative research differs greatly from quantitative research. While surveys provide an opportunity for a broad range of questioning and can be designed to collect qualitative data, it lacks the ability to do a deeper dive and probe further with additional questions on a singular topic. The goal of qualitative research and its design does not aim for findings that can be generalized, but rather a richer understanding of observed phenomena.

The needs assessment was designed to intentionally speak with underrepresented individuals who resided within Utah. The topic of conversation was wholly centered on participants' relationship and experiences with bicycles. Interactions and engagements could last mere minutes, whereas in-depth interviews typically lasted on average around 45 minutes (with some going over an hour).

During the course of a conversation, back and forth dialogue allowed for establishing context and an opportunity to reach saturation (i.e. exhaustive understanding) on emerging issues that are uniquely relevant to an individual's situation and/or experience. Instead of numeric figures in the presentation of findings, participant quotes are used throughout to highlight those obstacles that affected their ridership. Therefore, what qualitative research can help uncover is the what and why that have shaped participants' relationships and utility with bicycles.

DESIGN // DEMOGRAPHICS OF PARTICIPANTS

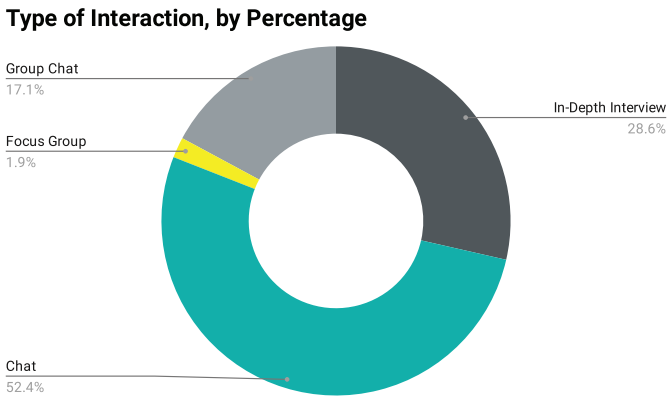

Figure 1. Participant interaction type[3] by percentage (n=105)

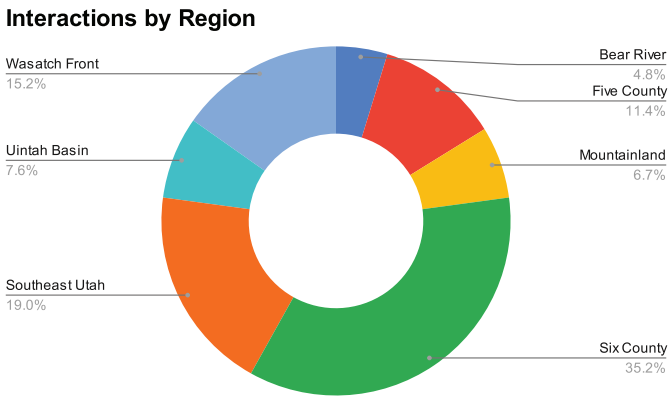

Figure 2. Participant interaction by regions in Utah (n=105)

217 Total Study Participants **through** **105** Total Interactions

Note: 85 by Individual Format, 132 by Group Format. Demographic identifiers were only counted once in group-oriented interactions.

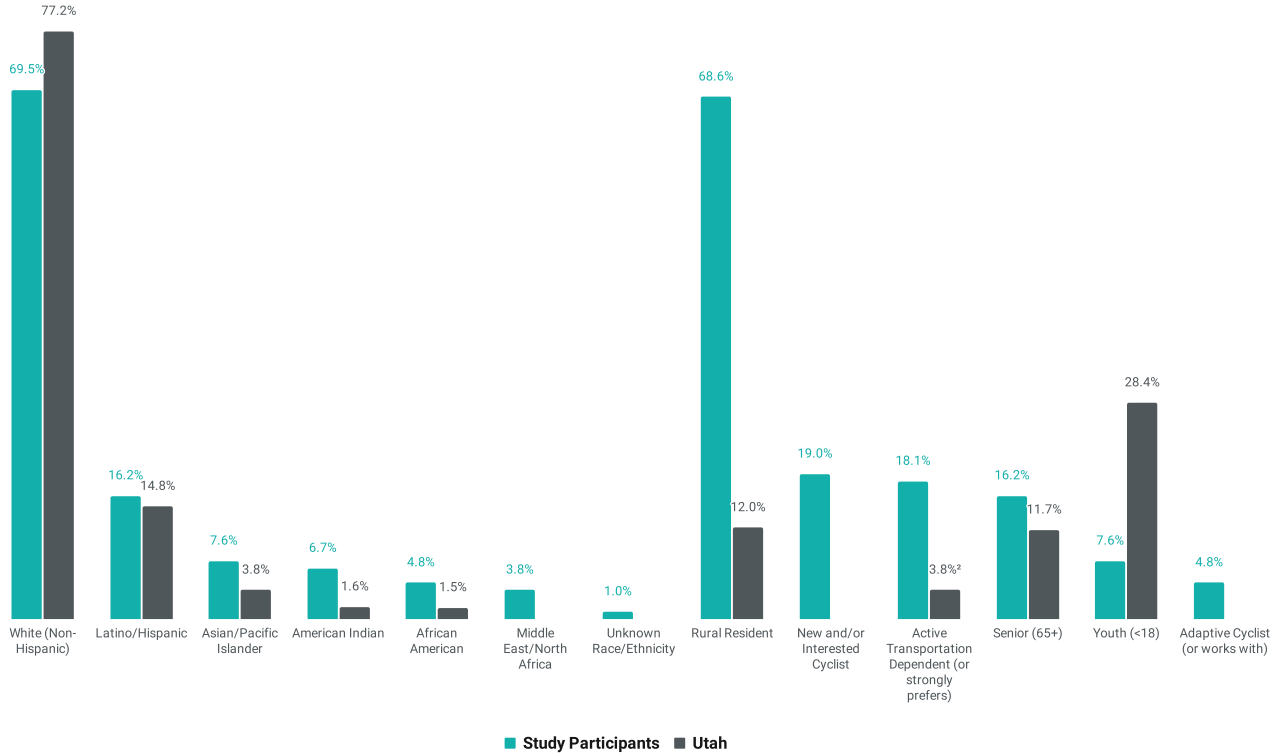

Figure 3. Demographics of study participants compared to available Utah data (United States Census Bureau 2023) & (Kem C. Gardner Policy Institute 2017)

[1] A group oriented interaction is 2 or more individuals. "Chat" is a more informal conversation setting.
[2] Figure indicates car-less households in Utah

BICYCLE INFRASTRUCTURE THAT MEETS EVERYONE'S NEEDS

Key Findings

- Participants' key concern was exposure to motor vehicles and the safety risks of sharing the road
- Additionally, participants wanted routes connecting their homes to useful destinations, be it for everyday life or recreation
- To see use, active transportation networks should address both the desire for safety and destination-based travel

Cycling Infrastructure

One of the most relevant and discussed themes to emerge was a strong preference to only ride bicycles in a space separated from automobiles. Participants mentioned that to feel safe and comfortable while riding a bicycle, they would need options like the sidewalk or some version of a separate and dedicated space for cyclists. For the latter, examples specifically mentioned or described were protected bike lanes, side paths, or shared use paths. Rural residents and minorities were most likely to mention this concern, followed by new and/or interested participants, including those in urban and suburban areas.

Providing the appropriate and desired cycling infrastructure is of the utmost importance to promote and encourage more ridership from underrepresented individuals. While subsequent sections cover other themes relevant to these populations, a critical tipping point for whether or not an individual feels willing and comfortable to ride a bicycle is the existence and level of safety provided by cycling infrastructure.

Bike Utah has also found similar results outside of this study. At community events with audiences who match the study population, Bike Utah has asked individuals to select where they would feel most comfortable riding a bicycle from 6 images – a travel lane with sharrows, conventional bike lane, protected bike lane, grade separated bike lane, shared use path, or on the sidewalk; shared use paths and protected, separated facilities were the most preferred by a large margin.

Keep Us Separated, Please

"I would always prefer safer and separated facilities because all it ever takes is one person checking a text message drifting into a bike lane and killing me." – Resident of Salt Lake County

To be clear, participants who talked about cycling infrastructure were not including conventional or buffered bike lanes on the road as a desirable place to ride their bicycle. This type of bicycle facility does not meet the needs for the majority of users. In the Lived Experience section, many participants mentioned the concern of cars and this correlates with a desire to reduce, if not eliminate, opportunities for points of conflict. In fact, participants mentioned they would ignore and not use these types of bicycle facilities if encountered on a ride, and instead use the sidewalk if one was available.

Therefore, the need for physical separation is a critical element of cycling infrastructure because participants believed that upon contact by an automobile it reminds the operator to return back to their designated travel lane. Preferences shared by participants were the use of bollards, grade separation, planter boxes, and other features.

BICYCLE INFRASTRUCTURE THAT MEETS EVERYONE'S NEEDS

Complete Active Transportation Networks

Often discussed with separate and dedicated cycling infrastructure is the need for complete active transportation networks. This can refer to bicycle facility continuity or destination focused facilities – essentially providing routes that are adequately safe and comfortable for cyclists at all times so they can ride from their neighborhood to their destination.

Rural and minority participants were the most vocal about the lack of complete active transportation networks where they resided, followed by individuals who were dependent or strongly preferred the use of active transportation infrastructure. Additional insights highlight an inability to: ride from one's place of residence to a nearby recreational area or trail, ride between towns in a region, or ride intracity to destinations of high interest.

Where Can We Ride To?

"We have a few bike lanes, but they don't go anywhere. They don't connect to anything." – Resident of Iron County

"The only way to do it now is to put your bike in your car, which seems really stupid when you're only going 1.5 mi [to get to a safe riding area]." – Resident of Salt Lake County

Facility continuity matters, and like the availability of protected bicycle facilities, is a pivotal factor that influences ridership. Even short lapses of appropriate cycling infrastructure is enough to frustrate individuals. Participants wanted destination focused facilities to schools and campuses, commercial shopping plazas, places of employment, and also to nearby recreational areas so they wouldn't have to load their bicycles onto their car for a short drive.

Image 3. Conventional bike lanes evoke mixed feelings. *Photo Credit: Bike Utah*

Non-Existent or Inadequate Infrastructure

While a network of protected bicycle facilities frequently came up in discussions, participants shared other general infrastructure that was lacking or inadequate and how it affected their level of ridership. Rural participants commented most often and pressed on the need for sidewalks so that there was a dedicated space for pedestrians or people on bicycles.

Minority and senior participants were more interested in improving the maintenance of existing paved paths, the desire for lights to improve safety on shared use paths, and more signage for cars to slow down or be aware of people on bicycles.

BICYCLE INFRASTRUCTURE THAT MEETS EVERYONE'S NEEDS

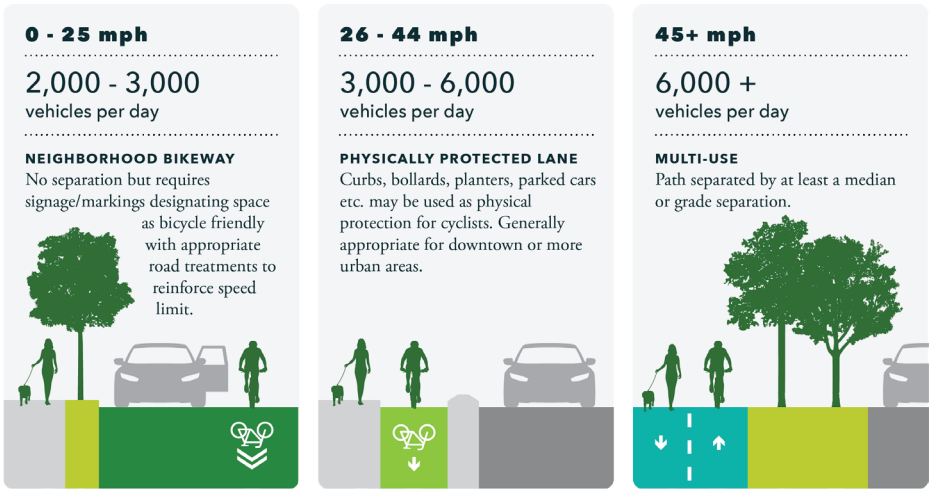

Image 4. Despite guidance for the type of paved cycling infrastructure to use in active transportation plans, participants strongly preferred physically protected lanes. *Source: Bike Utah*

Recommendations

The National Association of City Transportation Officials Urban Bikeway Design Guide, exists for planners and provides guidelines for cycling infrastructure based on variables such as automobile speed and traffic volume. While these standards provide alternative options to limit the widespread usage of protected bike lanes, a key finding from participants is the high priority placed in the existence and ease of accessibility to cycling infrastructure that keeps them separated from automobiles. This aligns with the results of other reports that have inquired about protected bike lanes (National Association of City Transportation Officials 2016) and how invaluable and diverse the impact can be for underrepresented populations with the development of a protected active transportation network (Alliance for Biking and Walking and PeopleForBikes 2015).

Taking into consideration planning limitations and the strong preference from participants, steps forward include reviewing the design of neighborhoods (regardless of residential setting) to ensure: 1) low-stress and safe options for cyclists are present until an opportunity to connect into a network of protected bicycle facilities and 2) upon entry into this network, participants can arrive at their destination through interconnected bicycle facilities.

Further emphasis needs to be placed for destinations such as schools, universities, places of employment, and commercial shopping plazas. Feedback from underrepresented populations will provide insight for other prioritized destinations within a particular community. The design of cycling infrastructure is the top influential factor in determining whether or not a bicycle is a feasible option for destination-based or leisurely riding.

Social and spatial equity has been an emerging concept to evaluate fairness and accessibility to bike share programs, cycling infrastructure, and other resources (Lee, Sener, and Jones 2016). Mentioned briefly in their research and worth highlighting again because the needs assessment corroborates those findings – it is not only the mere existence or proximity of any type of cycling infrastructure to a household that will provide value, but cycling facilities that create low-stress experiences with the ability to get individuals to desired destinations through a protected network. The recent launch of the powerful tool, Utah Healthy Places Index, currently only lists "Bike Lane Access" by "Total miles of bike lanes and paths." As more data becomes available, details on the cycling infrastructure type and metrics on user safety, comfort, and utility can be helpful.

LIVED EXPERIENCES CONTRIBUTE TO HESITATION

Key Findings

- Participants' primary fear in cycling came from exposure to cars
- Inconveniences around safe bike storage also presented a barrier
- Entities should evaluate both the safety and convenience of existing infrastructure when attempting to increase ridership in their area
- To increase ridership, creating opportunities for shared positive experiences is essential

Participants talked about either lived or shared experiences from friends and family that influenced their feelings, perceptions, and decisions to ride a bicycle. The key takeaway is that there is fear and/or lingering trauma related to their safety, with cars a focal point of many conversations. Rural, minority, and then senior participants were the most likely to bring up this concern.

While a handful of participants talked about trauma from falling off a bicycle, a previously stolen bicycle, or the inability to maintain balance on a bicycle, the majority of participants who shared their experiences attributed much of their hesitation to riding a bicycle due to the presence and behavior of motor vehicle operators. Participants feared cars going too fast near them or drivers being distracted from the use of their cell phones. A few mentioned that they perceived members in their community might be operating cars while under the influence.

Participants also shared that motor vehicle operators either didn't know or ignored cycling infrastructure, have cut them off, or have even gotten into a crash with them because the operator was distracted. Participants acknowledged it would not end well for them if they were to come in contact with an automobile while on a bicycle, and it was not worth the risk knowing they could not control the behavior of motor vehicle operators.

> *"I don't think sharrows are all that helpful because the drivers don't know what they mean. From what I understand, the bicycle is a car and can take a whole lane. However, drivers don't know that. Drivers will be like there's a little bike arrow on the ground." – Resident of Cache County*

Several participants felt their perceived safety improved when there were fewer vehicles on the road. When population growth occurred in their city of residence, they consequently observed more vehicular traffic and volume on the road. Individuals who wanted to continue recreational riding on the road, but reduce their odds of coming in conflict with an automobile, rearranged their riding schedule to occur at times of the day when automobile traffic and volume was at a low point. A couple of participants decided to retire their road bicycle to an indoor trainer and branched off into other (non-paved) cycling disciplines or other outdoor activities to avoid automobiles.

Several parents, mostly minority representatives, shared how their fear of automobiles caused them to place restrictions on where their children could ride or how it changed where they rode bicycles with them. Parents shared that their children should only ride on sidewalks, avoid riding in certain locations (because of known, busy areas with automobiles), and to come back home before dark when their visibility to other vehicles is low.

> *"Even with a bike lane, it just doesn't feel safe to ride a bike all the way there [to a school]. I'm sure the kids might like to ride their bikes. But the parents won't let them. You're worried as a parent." – Resident of Cache County*

LIVED EXPERIENCES CONTRIBUTE TO HESITATION

A handful of participants also shared concern from a non-cyclist perspective – from the viewpoint as a motor vehicle operator. For example, a participant wondered why there isn't enough space for cyclists to ride on the road; it feels unsafe for them. And for locals who live in rural areas, they were concerned about tourists visiting and their presumed lack of knowledge about how unsafe it is to be a pedestrian or to ride a bicycle around town due to the known lack of active transportation infrastructure (e.g. sidewalk, lighting, or bike lane) that would protect them from motor vehicles.

Discouraging Behavior from Automobiles

"Cars do not like to watch for pedestrians or people on bikes. It's stressful." – Resident of Utah County

"People drive in the bike lanes, so define the bike lanes more. I've seen people driving in the bike lane as if it was a turn lane. I wouldn't call them a bike lane." – Resident of Washington County

It becomes a challenge to promote cycling as a form of transportation when it does not seem like a safe option. Whether it's because of automobiles or the lack of adequately safe cycling infrastructure, participants have credible concerns that can be mitigated with infrastructure that instills more comfort, confidence, and protection away from automobiles.

However, infrastructure alone is not enough. Another area to target is providing motor vehicle operators education about cyclists' behavior and related cycling infrastructure; this is covered more in the Education section.

Image 5. Installment of bicycle racks at shopping plazas that can be used year-round can help support destination focused travel. *Photo Credit: Bike Utah*

The Inconveniences of Riding a Bicycle

Not all shared lived experiences related to the fear of automobiles. Participants also touched upon the inconvenient reality of riding a bicycle, like the lack of bicycle parking at a destination, and how it caused concern about the security of their bicycle.

> *"Accessibility of bike racks is a huge thing. In shopping areas particularly, like a strip mall plaza, there isn't a bike rack in sight. There's a dumpster and you're trying to get inventive with it [to lock your bike]." – Resident of Washington County*

Participants wanted more accessible bicycle parking at their school and commercial shopping plazas. Furthermore, the type of parking should also reflect their needs. At schools, youths mentioned a fenced or indoor storage because of the fear of their bicycle getting stolen due to prolonged inactivity throughout the day or not owning a bike lock to secure their bicycle to a rack.

LIVED EXPERIENCES CONTRIBUTE TO HESITATION

Other mentioned inconveniences by participants were reflective of the long distances and time it would take to get around by bicycle due to the size and layout of their city, the lack of wayfinding for safe routes, and for a handful, the ability to store or secure bicycles at their place of residence. The latter included issues with apartments feeling too cramped to keep bicycles inside and one participant shared that their solution was to rent a storage unit.

Recommendations

The unsafe and inconvenient experiences of riding a bicycle is deeply embedded in the minds of Utahns. In other sections, Bike Utah discusses how cycling infrastructure and education recommendations can potentially minimize interactions between cyclists and automobiles. There is an eventual opportunity to push and promote a more positive story about riding bicycles in Utah. Until then, residents who want to use bicycles for destination-based purposes need a supportive journey, door-to-door, between their departure and arrival point.

For each individual there will be unique needs and desires regarding bicycles routes and chosen destinations. However, where participants have suggested improvements are for trips to commercial shopping plazas. In addition to protected, continuous bicycle facilities to support safe travel to these plazas, bike storage availability needs to reflect and meet the expressed demand of a growing user base. Bike Utah again recommends that communities investigate prioritized areas of high interest to members, and evaluate whether or not supportive infrastructure is in existence or planned to support individuals arriving at their destination safely.

Shared positive experiences among community members that highlight improvements can encourage others that cycling is a safe and convenient option for transportation, recreation, and social activities.

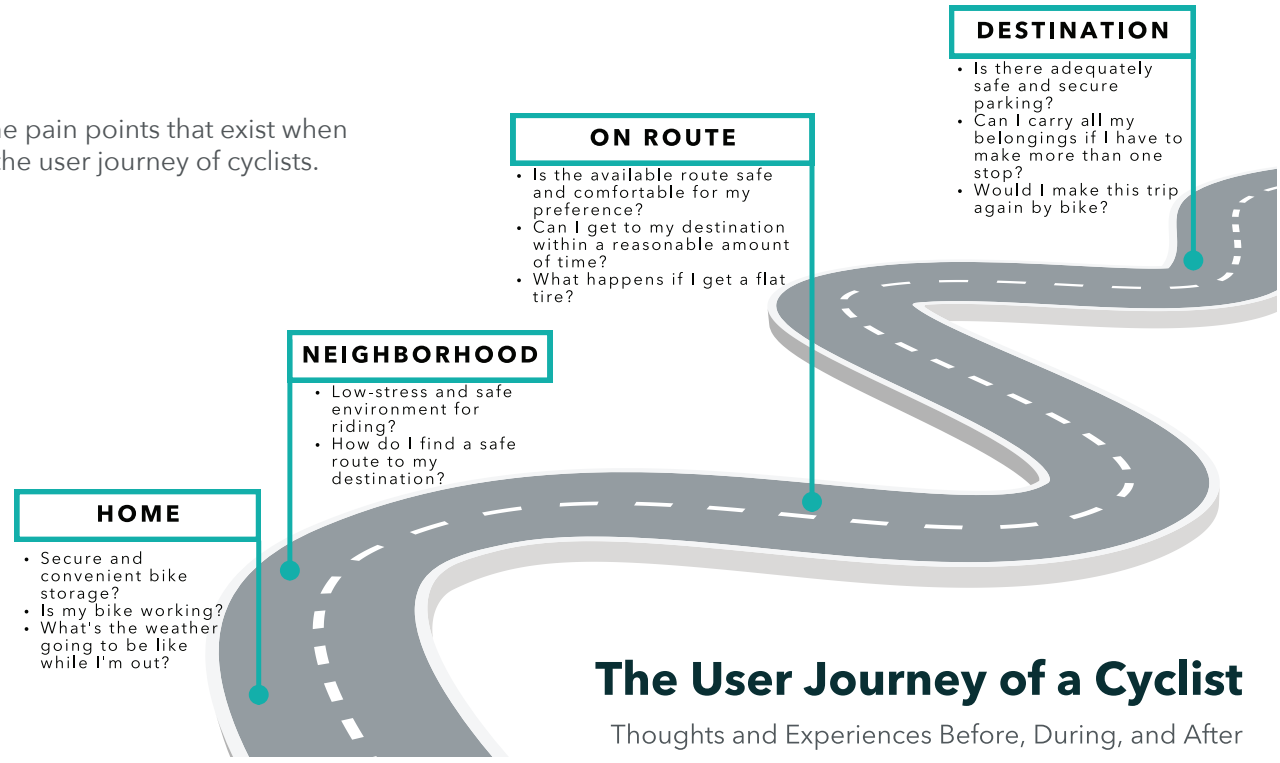

Figure 4. The pain points that exist when examining the user journey of cyclists.

RESOURCE CHALLENGES IN ENTRY AND CONTINUING TO CYCLE

Key Findings

- Low-cost bikes lead to increased maintenance problems and costs, but higher quality, new bikes otherwise present a price barrier
- Participants perceived shops as intimidating and pricey, as well as presenting language barriers for some
- Ownership and maintenance barriers might be addressed through bike share or bike giveaway programs that include other necessary equipment, public bike maintenance facilities with trained staff, and community maintenance events
- Clear and accessible information on how and where to ride safely for new or uncertain riders can also lower barriers

Participants shared their realities and thoughts on bicycle ownership – covering issues of affordability, accessibility, maintenance, and bike share programs. The key takeaway is participants' ridership would improve if they had access to a local bike shop, or equivalent, that matched their expectations and needs.

Rural participants often commented on how a local bike shop didn't exist or was reasonably close to them. There was a normalized feeling and willingness to drive long distances to access shop services. Participants would travel, sometimes up to over an hour, to a different county or even state (if residing near the border). Rural participants seemed to be complacent about these long travel times because they were used to traveling far for other resources and services; often if it was possible, they would add a visit to a bike store to the list of places to stop by on such a trip. However, there was a welcoming tone to the idea of a more conveniently located bike shop opening near them.

Several minority participants felt that visiting a bike shop was not worth it, even if there was one in relatively close proximity. There were several insights as to why minorities did not favor using local bike shops as a cycling resource. First, bicycles can be prohibitively expensive at local bike shops with "entry-level" adult bikes costing several hundred dollars. A handful of participants shared that around $100 was what they considered a reasonable budget for a bicycle; however, that budget balloons when taking into consideration how many family members want a bicycle. At that price point, there are not a lot of bicycle options and families will choose to purchase bicycles from large retail stores who don't necessarily specialize in outdoor gear. A limited budget also does not ensure safety gear (e.g. helmet, lock, or lights) will be purchased.

Second, is the cost of bicycle repair or maintenance services. In some cases, these services can be more than the value of a participant's bicycle making the decision difficult to move forward with. Third, Latino/Hispanic participants encountered challenges with a language barrier; not all shops have staff members who are fluent in Spanish.

> *"When someone tries to buy a bike and they don't speak English well, it can be a [barrier]." Furthermore, "they don't have information about the bike or if they want to buy something specific then you need to talk with another language actually - the language of bikes." – Resident of Wasatch County*

A handful of participants mentioned the challenges in knowing what parts or services to request. This in itself can be considered a language barrier, especially for individuals who are new and/or interested in cycling. The asymmetry of the bike shop staff knowing more than the customer can be uncomfortable when visiting; participants felt overwhelmed with bicycle terminology used in conversations or how to articulate what needed to be replaced or repaired.

RESOURCE CHALLENGES IN ENTRY AND CONTINUING TO CYCLE

Ultimately, the reluctance to visit or rely on a local bike shop and their offered services resulted in neglected bikes that remain in need of repair before being functional enough to ride safely. Participants mentioned that it was an unfortunate situation, but in some cases it made more sense to buy another low-cost bicycle instead of getting one repaired. An idea offered by several participants was a bike shop that fit their budget – that could either be a "mid-level shop" or a place where they could learn and work on bicycle maintenance themselves, e.g. a shop modeled like the Bicycle Collective.

Image 6. Bike share programs provide an alternative to ownership. *Photo Credit: Bike Utah*

Ownership vs. Bike Share

If bicycle ownership is an unreasonable cost for participants, then a bike share program might be appealing. Participants thought a bike share program would have value for their community in terms of accessibility; participants who were dependent or strongly preferred the use of active transportation were more likely to mention that an invaluable benefit of a bike share program is that they are not responsible for its maintenance and repairs. E-bike models were sought after to help travel longer distances. However, a couple participants mentioned ensuring that bike shares were functional and safe to ride because of previously poor experiences. While not mentioned, research showed that common barriers to bike share programs for underrepresented populations can include: station siting, costs, payment systems, and general knowledge of use and operation of bike shares (McNeil et al. 2017).

Cautionary Tips from Recipients of Donated and Lower Quality Bicycles

"If we have a bicycle [donated to us], we must have a helmet. We must have a light for a bicycle so we may use it at night." – Resident of Cache County

"People will buy bikes at the [redact] for $35-40 and take it to a bike shop [to get fixed]. They'll get quoted $200 to repair everything – new brake pads, new tires, new tubes, etc." – Resident of Cache County

Several participants who identified as a minority and/or dependent on active transportation were the fortunate recipients of donated bicycles or had acquired them cheaply. They were quick to point out other needs that got overlooked. Because many of these participants either had a small or non-existent budget, they had no control in what type of bicycle they would receive. More likely than not, those receiving donated bicycles often did not receive a helmet, lights, or a bike lock to allow for safe, destination-based riding at all times of the day and night.

Likewise, for those who acquired relatively cheap bicycles, there was the issue and costs of being responsible for repairs and ongoing maintenance. Often budgets do not take into account these costs and can lead to a bicycle being neglected in care and eventually unusable.

RESOURCE CHALLENGES IN ENTRY AND CONTINUING TO CYCLE

Recommendations

There needs to be more options than a dedicated, brick and mortar bike shop for underrepresented populations. Participants offered ideas around bike-related support being anchored in a pre-existing space or service that they already utilized. For those participants who were unsheltered or were new families or individuals resettling in Utah, it could be setting up bike-related services and bike shares through the organization that manages their cases. Alternatively, another accessible and equitable location to serve as a bicycle resource for communities is the library. There are a handful of branches in Utah who are already equipped with designated space, bicycle-specific tools, and community programming to support underrepresented populations.

Regardless of where these locations are set up, there are several benefits in moving away from a traditional brick and mortar shop. Bike resources or services can be located within another willing business, which can improve accessibility because of closer proximity or operating hours that are more amenable for intended users. Naturally, these locations should be connected into a network of protected bicycle facilities. The tools and resources offered can also be designed to better meet the demands and budget of users – specifically a less intimidating environment for questions about bicycles, a space to work on one's own bicycle, or a place to find community.

Staff should be trained and ready to provide essential knowledge and support on performing simple bike repairs, riding safety tips relevant to the area, and where or who to reach out to when expertise is needed beyond their capability. Staff at these locations can be trained through a training-of-trainer model that can be hosted and led by local experts – examples could be partnering with an interested local bike shop or volunteer bike mechanics. Furthermore, they can provide ongoing support as needed.

Bike Utah and partners have found success in hosting bicycle repair events within neighborhoods of underrepresented populations. By setting up services for free bicycle mechanic assistance in these neighborhoods, the inconvenience of finding time or loading a broken bicycle(s) into a car (if possible) is reduced or eliminated. While not a sustainable model, the event outcome suggests an increased willingness to get a bicycle fixed when barriers are reduced for convenience, spoken language availability, costs, and in general a lighter atmosphere. Bike Utah and partners also provide education and tips so that participants feel empowered to know more about their bicycle and can perform common repairs like fixing a flat tire – an unwelcoming but common experience for many participants.

Image 7. Salt Lake County Library (Kearns) has an expansive set of tools for bicycle repair and maintenance. *Photo Credit: Bike Utah*

In order to support a more realistic budget shared by participants, stakeholders in the cycling industry should consider programs and materials that fit a broad range of budgets. While bike share programs can be a solution for some, there are inherent equity issues with them

including the need for them to be operational in communities that have safe and adequate cycling infrastructure (National Association of City Transportation Officials 2016). Therefore, the value of bike share programs for underrepresented populations is dependent on numerous factors that center around convenience, cost, safety, and ease of use.

An awareness campaign worth considering is understanding how to approach the cost-aversion of owning and using a bicycle. When comparing the cost between automobile and bicycle ownership, the latter can be far less. The average cost of car ownership in Utah was around $6,200 annually (Roberts 2021). While solely relying on a bicycle for transportation might not be viable for all residents, the cost of ownership and co-benefits of riding a bicycle could be worthwhile for those contemplating replacing the use of their automobile for more trips.

Access to Information on Routes & Trails

Applications like Google Maps, Trailforks, and other similar services are established resources that can provide general information on route and trail selection. However, participants had more nuanced needs. For example, those living in rural regions of Utah might not have all available routes or trails included in these databases; some applications rely on crowdsourced information. General knowledge and the accessibility to this information also was lacking. Local rural residents wanted this information for themselves, as well as the ability to recommend routes and trails to visiting tourists.

For participants who identified as senior or new and/or interested in cycling, the conversations were on where to find safe routes that matched their experience, ability, and expected comfort level. For seniors in particular, more detailed information about the level of fitness would be welcomed.

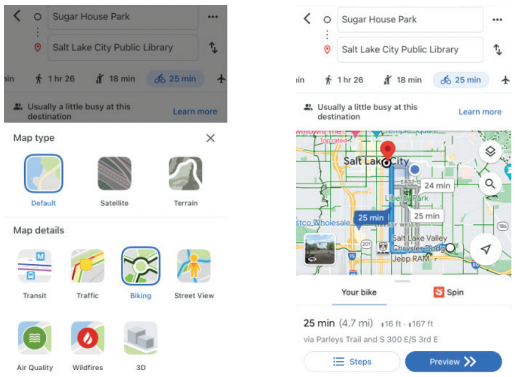

Image 8. Can applications like Google Maps offer additional details to help individuals of varying ability and comfort levels ride within active transportation networks?

Recommendations

While there can be a wealth of bicycle route and trail information available at our fingertips, filtering it down to the relevant details, if they exist, can be a challenge. There are two raised issues to address here: 1) more accessible gateways to information portals and/or applications; and 2) the evolution and expansion of detail that is typically collected and provided.

While there are multiple established databases and applications, that does not necessarily mean they are well known or best suited for users – especially as mentioned by rural and new and/or interested cyclists. The type of information and where participants of this study look for support suggest the following:

- Information and its access points (e.g. print or web-based) need to be circulated by community members (i.e. similar demographic characteristics or background) or at a local bike shop (or community reference hub).

- Details should have filtering abilities to identify a route or trail that mirrors your ability and expectations. For active transportation, this could mean the type of preferred cycling infrastructure, gradient restrictions, bike storage/rack existence at destinations, or relative fitness required.

EDUCATION NEEDS TO COVER MORE THAN CYCLING SAFETY TIPS

Key Findings

- Participants expressed an interest in educational opportunities around both safety and maintenance
- Participants noted that drivers often do not know how to drive around cyclists safely and may ignore bike infrastructure such as bike lanes
- Motorist education provides an opportunity for increased road awareness and safety of cyclists

Minority, rural, and new and/or interested (in cycling) participants were the most likely to express the importance of cycling safety education and interest in understanding related laws applying to cyclists in Utah. Their challenges, though, included difficulty attending cycling-related courses because of availability, costs, schedule conflicts, or language barriers.

A handful of participants mentioned the need for e-bike users to receive education on safe behavior and trail etiquette, and for all trail users to receive education on sharing its use with others (including different vehicle types). There was a sense that e-bike users, based on observations of their unsafe behavior, were relatively new to riding on the road and trails, and entered cycling with little to any riding experience prior to hopping on a powerful motorized bicycle.

Strong Interest in Bicycle Care and Maintenance

Minority participants were most excited by the idea of having a space to learn and work on their own bicycle, followed by individuals who were new and/or interested in cycling and individuals dependent on the use of active transportation (or strongly preferred it). Participants believed it would be more convenient and help save on the costs of bicycle ownership by being able to perform a limited range of repairs and maintenance.

Figure 5. Nationally, 50% of bicycle/motor vehicle crashes are due to motorists' errors. *Source: The League of American Bicyclists 2018*

Let's Not Forget About Motorist Education

"When I was driving, there was a biker next to me and they threw up their hand. I had no clue what they were trying to tell me, so I just kept driving. I feel like there could be (clearer) communication between bikers and drivers." – Resident of Washington County

"There's nothing that drivers can see that either explains what a bike boulevard is or says watch out for cyclists on this road." – Resident of Cache County

Automobiles were the top prohibiting factor for ridership from underrepresented populations. While thoughtful cycling infrastructure and city planning design can improve the perception and confidence of (would be) cyclists, there needs to be renewed efforts in providing better education and accountability of motor vehicle operators.

Several participants recommended motor vehicle operators receive more education about cyclist behavior, cycling infrastructure, and how to operate automobiles safely when in the vicinity of either. A few participants commented on how the DMV should include more mandatory questions within the driver license examination as well as during the renewal process.

EDUCATION NEEDS TO COVER MORE THAN CYCLING SAFETY TIPS

Recommendations

Education that will support underrepresented populations should focus on both road cycling safety and bicycle maintenance. Road cycling safety education is primarily centered around sharing the road with other vehicles and understanding how to recognize and avoid hazardous situations. While understanding the cycling-related laws and the rules of the road are paramount for an individual's safety, education should emphasize road obstacles, infrastructure, and features that best reflect what will be encountered in the neighborhood. Instructors should understand the experiences of class participants as well as the type of cycling infrastructure that exists (or doesn't) in the area to incorporate into lesson planning. For example, if participants prefer to ride on (existing) sidewalks then tips on safety and expectations should be provided for this travel space. As cycling infrastructure availability and city planning designs are consistently being introduced, future education can reflect these updates by providing additional knowledge, upskilling, and behavior modifications. It is less impactful to broadly teach topics or promote cycling in situations or experiences that either do not exist or are not how or where an individual would like to ride.

The perception and observed experiences of unsafe motor vehicle behavior around cyclists needs to change. One way this change can start to take place is through driver's education. Bike Utah worked with the Utah State Board of Education to release a new Bicycle-Friendly Driving Curriculum that is being included in all driver's education courses in Utah. The curriculum is designed to inform new drivers of what behaviors to expect from cyclists and help them to understand and empathize with these vulnerable roadway users. This approach has the added benefit of highlighting cyclists to driver's education instructors, as well. There are also places within the Utah Driver Handbook 2022-2023 that could further emphasize

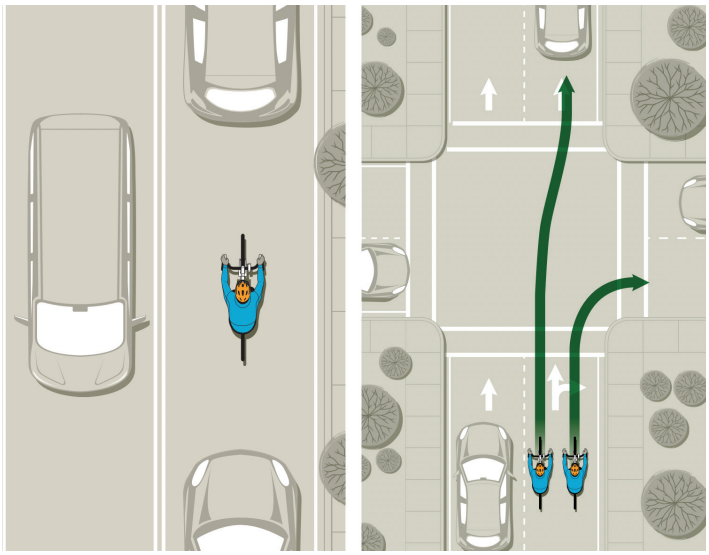

Image 9. Visuals highlighting the behavior of cyclists can help educate all roadway users and keep everyone safe. *Source: The League of American Bicyclists' Smart Cycling Manual*

cycling-related information. Here are a few recommendations for future versions:

- Make it more explicit and clear on where cyclists will, and are allowed to, ride – taking the lane, shoulder, bike lanes, and sidewalks – as well as associated stress levels cyclists may be experiencing.

- Expanded information and visuals on cycling infrastructure: The current publication only references conventional bike lanes. Stronger language and visuals that show the type of bike lanes motor vehicle operators might encounter in Utah will help with recognition of cycling infrastructure. Furthermore, instruction on how the flow of traffic for cyclists at intersections with cycling infrastructure can help other roadway users understand where and when they should be starting their turn.

- Education on understanding the broad spectrum of speeds cyclists can reach: With the introduction of e-bikes, it's important to understand that cyclists on non-motorized or motorized bicycles can move at a fast pace and motor vehicle operators need to take this into consideration especially when

EDUCATION NEEDS TO COVER MORE THAN CYCLING SAFETY TIPS

overtaking a cyclist for a right turn or when trying to make an unprotected left turn with an approaching cyclist from the opposite direction.

- Expectation setting in residential settings: In select Utah cities, there are established bicycle boulevards and routes that many cyclists will use. Motor vehicle operators should understand and demonstrate patience in these areas as cyclists are suggested to take the lane when in these low-speed/traffic streets. While cyclists might know where established bike routes are, motor vehicle operators might not be aware even with signs posted. Education on what to expect from cyclists using this route can help motor vehicles operators adjust their behavior so everyone is safe on the road.

- And lastly, ensure that this content is always included on the drivers license examination and renewal process.

Bicycles are a relatively simple machine. Participants expressed more education on "bike literacy," and this can help build confidence in the acquisition, maintenance, and increased use of bicycles. Recommended topics include the following:

- Basic maintenance one can expect to perform on a bicycle at monthly/mileage intervals and the name of the parts that are involved.

- The handful of tools needed and how to perform basic maintenance and repairs (e.g. like changing a flat), as well as where to access these tools if one cannot perform these activities at home.

- How to diagnose more complicated or major maintenance/repairs, and what the experience/cost will be at a local bike shop.

Image 10. Staff from Bike Utah and evo Salt Lake teach community members about their bicycles while performing tune ups. *Photo Credit: Bike Utah*

THE COMMUNITY IS THE CULTURE

Key Findings

- Lack of cycling culture is a challenge in much of the state, with life centered around cars
- Participants still recognized the value of riding and expressed interest in riding in groups, especially with folks of a similar background
- At the same time, racial and ethnic identities play into perceptions of cycling in complex ways
- The challenge to increased ridership on a communal level lies in figuring out how to spark community cycling activities that are inclusive and fit participant identities

What Community Means to Underrepresented Populations

A community of cyclists can inspire and support one another in their cycling interests and activities. Rural, minority, and senior participants were most likely to express how important it was to see, feel a sense of belonging, and interact with other cyclists who were of similar background. They believed that through cycling, community and fellowship can be cultivated to improve social relationships – one participant felt that being outside of a car could change the dynamics and feel of a neighborhood.

> *"In my neighborhood, they don't recognize me. But if you are always outside on your bike, you will get to recognize people. You get to see them outside of the car and not through the window, and that might give more of a sense of community." – Resident of Cache County*

Minority participants were quick to point out that they find safety in connecting and riding with others who share a common background; it provides opportunity to bond over other interests and experiences that span beyond cycling. They were also more inclined to ask for help from members who were of their community. Senior participants also felt similarly because it was more likely than not that a fellow community member would be able to empathize and understand an issue.

Image 11. Bike Utah and Latino Outdoors co-organized a social ride near Farmington Bay. *Photo Credit: Bike Utah*

> *"My local bike shop tells people if [they] want to learn about the roads and branch out more, this [person - the participant] can help you with that." – Resident of Iron County*

A community of cyclists to support each other was even more important in rural regions, where cycling resources and expertise can be limited. Rural participants expressed pride in being self-sufficient and very willing to help locals and visitors alike with their bicycle issues.

> *"To survive out here, we need to know how to do stuff on our own. The default setting for anyone with anything, whether it's their swamp cooler or their bike, is that we fix our stuff ourselves." – Resident of San Juan County*

Despite a wealth of cycling resources existing in different formats on the Internet, there was an overall sense and preference of bonding over cycling with other members in-person if a community did exist. While participants shared the value a cycling community can offer, it did not necessarily mean that they were currently able to be part of one.

THE COMMUNITY IS THE CULTURE

Advocacy & Leadership

Who creates and shapes a cycling community then if it doesn't yet exist for participants? A few participants observed good leadership within their community had been a driving force for advocating change to improve bicycle ridership. More common though, was what minority participants shared – uncertainty on where to even voice their opinion and needs for cycling.

Public comment for proposed active transportation or master plans are a key part of the process and provide an opportunity for input from community members. These plans include how cycling infrastructure will be created or expanded, relevant factors that this study has shown influences ridership among underrepresented populations. For those who were aware of the opportunity for public comment, they found the process not convenient for them – especially if it was an event held only in-person at a time they were unavailable.

How does the Lack of a Cycling Community Affect the Culture of Cycling?

Participants, especially from minority and rural backgrounds, did not sense the presence of a cycling culture for which they can identify with, and therefore did not consider cycling as a reasonable activity for transportation or physical activity. A common comment was the lack of seeing other people, regardless of background, riding bicycles. It instills this idea that cycling is not a normal mode of transportation.

> *"Yo creo que aquí es más un lujo tener una bicicleta." ("I think that it is more of a luxury here to have a bike.") – Resident of Salt Lake County*

> *"The cost of the bike is expensive. If someone wants to buy a car or a bike, it will be the first one." – Resident of Wasatch County*

Another insight was that racial and ethnic culture can influence the prioritization a family places on bicycle ridership. Latino/Hispanic participants shared how cycling might be a lower priority for them, especially adults, and that they value socializing with family and friends in their free time. Going on a bicycle ride was not of high interest, however they felt that it might be an acceptable activity for their children. One Asian American participant shared how their parents didn't approve of them pursuing work as a bicycle mechanic, and had pushed for them to consider a different career path.

Can Utah Escape Car-Centricity?

"But that would cause trouble because people would say they wouldn't be able to get to their job." [in reference to bike design ideas disrupting automobile travel] – Resident of Cache County

"They were intentional about it, with a median for walking your dog, riding your bike. That was the culture established and I don't think we have anything like that here." – Resident of Washington County

Despite recent investments in active transportation infrastructure, much of Utah's built environment is centered around automobiles. 2021 survey estimates for Utah households indicated 32.5% have 3 or more vehicles, 39.3% have 2 vehicles, 24.3% have 1 vehicle, and only 3.8% of households were car-free (United States Census Bureau 2022). The dominance of car culture and infrastructure clearly can affect participants' views on the state of bicycling culture in Utah.

THE COMMUNITY IS THE CULTURE

Image 12. Members of the Salt Lake City chapter of Radical Adventure Riders enjoy a social ride together. *Photo Credit: PeopleForBikes & RAR SLC*

Recommendations

Cycling communities are integral in providing an inclusive and welcoming space to build relationships and provide support to each other. While some individuals might have little to any difficulty finding and identifying with a cycling community, challenges exist for underrepresented populations. In some cases, a cycling community they identify with may not exist yet, and in other cases they might not identify with the established community.

While established cycling communities can introduce strategies to be more sensitive and inclusive to the needs of all individuals, there will still be a need for diverse cycling communities that fit participant identities and provide opportunities for those participants to connect. Radical Adventure Riders has a Salt Lake City chapter and is one of the very few established groups in Utah for femme, transgender, women and non-binary (FTWN-B) and Black, Indigenous and people of color (BIPOC) individuals interested in cycling. More support for the creation of affinity groups can provide leadership and potential growth of ridership among underrepresented populations.

Groups looking to use cycling as a means of strengthening their community need to assess what a culture of cycling could look like for their particular context. As evident from participants, seeing others who represent similar backgrounds and abilities can be encouraging. Other community members might want more opportunities to ride with a group, answers about cycling and bikes, and ultimately fellowship. Bike Utah has an advocacy toolkit available to help communities with the first steps in creating a vision.

THE LANDSCAPE OF CYCLING IN RURAL UTAH

Key Findings

- Rural participants expressed an interest in access to interconnected bike infrastructure and recreational opportunities for their families
- E-bikes in particular were called out as a good fit for rural users, especially seniors. However, recall that bike shops simply aren't always available in rural regions
- Many of Utah rural areas see opportunities in land development, especially with mountain biking, but this is mixed with a desire to maintain the rural quality of life

Because of Utah's unique geography and population distribution, Bike Utah found certain comments specific to participants residing in either rural or remote parts of the state. Rural in this study is defined as the following: 1) a population under 50,000; and 2) fits the T2 category[3] within this transect (Pape 2015).

The first insight from rural participants is interest in bicycle routes that connected residents between communities within a region or corridor. Participants mentioned this would give them the option to not use their car and provide an opportunity to exercise. The co-benefits are numerous, with individuals reducing emissions from a motorized vehicle, participating in physical activity, and helping to reduce car traffic volume and noise.

> *"I've seen a huge change in my community. People who wouldn't bike before are getting e-bikes, and they wouldn't go on a bike ride with me before but now they want to go." – Resident of Sanpete County*

Second, electric bikes were an appealing option for rural participants because of their ability to help either cover longer distances or provide a boost to those who were not (or no longer) fit enough. Senior participants were among the rural crowd who were already using or would consider e-bikes. One participant also thought e-bikes held additional value by not emitting as much noise as an automobile, and could help maintain a quiet, rural environment.

Lastly, rural participants showed interest in conveniently accessible recreation-specific areas for riding bicycles. Examples mentioned were family-friendly green spaces, social and leisurely loops around town, as well as non-paved trail development.

> *"The people who were building the trails didn't know what they were doing, so it wasn't the best built trails. (It seemed like) they didn't have any trail building education...You have to think about the style of trails. If you want kids involved and hooked on it, and even adults, [you have to create] fun, flowy trails." – Resident of San Juan County*

For trail development, rural participants further elaborated that in addition to the creation (or development) of trail networks there should be options that were inclusive of all ability levels. Participating self-identified mountain bike enthusiasts suggested more ideas and tactics were needed to activate the interest of fellow rural residents.

Image 13. An example of road cycling between towns in a rural region of the state. *Photo Credit: Bike Utah*

[3] T2 category considered "farms, woodlands, wetlands, streams, large regional parks"

THE LANDSCAPE OF CYCLING IN RURAL UTAH

Balancing Development in Rural Communities

"We're a really rural community, but we're also growing and people hate that. There's more private cars and what people want is that quiet, peaceful town again. The less cars on the road, the more intimate the city is." – Resident of Sanpete County

There was a divided response on development and growth in rural regions. On one hand, rural participants mentioned the desire for more recreational opportunities and options. Participants viewed an increase in cycling infrastructure and/or related-events as a potential pathway to stimulate local economy. That's certainly true of Moab, a well-known destination for mountain biking and outdoor recreation. Despite its small population of just over 5,000, Moab sees an estimated 3 million visitors annually (Fisher 2022). Those types of figures represent "tourism-saturation" and studies have shown that residents often do not view that type of growth favorably (Smith and Krannich 1998).

Indeed, participants of rural regions feared that development could draw the attention of more tourists, and consequently affect the quiet and sleepy aspects that make living in a rural locale appealing in the first place. For communities surrounded by an abundance of public land, recreational development and population growth continue to be a recognized issue for rural residents as they experience the transition to a gateway community for tourism (Stoker et al. 2020).

"There's a sweet spot between over-marketing and tipping over to the resort town tone." – Resident of San Juan County

Land development for recreational cycling use is a multi-step process. Participants embarking on this process have encountered NIMBY-ism (not in my backyard), struggled to achieve consensus and support from local land managers and interest groups, and, for new advocates, had trouble identifying where to even begin the process.

Recommendations

Utah's rural regions are projected to observe minimal population growth by 2060 (Hollingshaus et al. 2022). At the same time, places like Moab show both a clear economic opportunity and a cautionary tale for other rural Utah towns that share some of the same natural landscapes unique to this state. Despite limited growth, rural residents are still interested in resources and infrastructure to help meet and stoke the future demands in cycling.

Conversations with rural residents were generally fueled by enthusiasm for development of surrounding land for recreational use. Conversely, many participants feared over-development and a change to the fundamental culture of the town. These competing interests mean that efforts to develop these areas must be approached sensitively and in a manner that ensures involvement from all local stakeholders. If plans are to move forward with land development, trail designers should ensure principles of equity and accessibility guide the use and enjoyment for all residents.

Intra- and inter-city connection by separated bicycle facilities is also of interest, though this depends on resident input as each rural region holds different appeal and possibilities. On that note, providing subject matter experts in regions lacking advisory can help align a vision among city officials, stakeholders, and community members.

ADAPTIVE CYCLISTS SUPPORT AND CONSIDERATIONS

Key Findings

- Participants noted confusion on trail accessibility standards - ADA compliant does not mean adaptive-friendly trails
- To be adaptive-friendly, trail standards need to be adopted and ample information on obstacles and conditions needs to be available
- Equipment barriers to adaptive cycling run from high prices for ownership to challenges in storage and transportation

For adaptive cycling participants in this study, key takeaways were primarily for improvements in trail accessibility, on-trail experience, and relevant trail information. Participants highlighted trail development and maintenance standards to be more widely adopted for better inclusivity and use. One resource recommended was the Kootenay Adaptive Sport Association aMTB trail standards, which can help advise on solutions and standards for trail width, camber, pinch points, and other trail obstacles for adaptive cyclists.

A misconception mentioned is that ADA-compliance does not necessarily mean trails in the area are adaptive-friendly for cycling, and likewise adaptive-friendly trails do not mean ADA-compliant facilities are available at parking and the trailhead. While both address accessibility issues, they cover different but important aspects. For example, an overlooked barrier is a cattle guard which is potentially too narrow to accommodate adaptive cycles, and therefore requires an alternative gate for accessibility.

Another insight was the need for more readily available information about adaptive-friendly trails. Because not all trails have been built to adaptive-friendly standards (or, because trail conditions change), adaptive cyclists would appreciate details that caution obstacles that are impassable or require the additional support of other individuals. Information critical to the safety and enjoyment of adaptive cyclists should be posted at trailhead signs and also accessible and updated on internet-based applications like Trailforks.

> *"If I were to go to a trail I've never ridden before, that's always a risk. I have seen mentioned on Trailforks [a database application of MTB trails] that 'this is adaptive-friendly' [with information about possible needs for assistance]. What's helpful is different rocks on the trail, obstacles like that, and obviously the width of the trail and the camber. And switchbacks, if they're too tight it can be difficult." – Resident of Salt Lake County*

Image 14. Cattle guard as the only option to access a trail. *Photo Credit: MTB Project*

The Journey to Adaptive Cycle Ownership

One participant shared what the experience can look like for someone interested in owning an adaptive cycle. Adaptive cycles (and racks for transportation) are very expensive, and in some cases, an individual may require a custom build. Before reaching that decision, an individual interested in an adaptive cycle benefits from having access to a resource center that can provide an opportunity to try various models to see which, if any, will be a good fit.

Upon finding an adaptive cycle model, individuals who do not have enough disposable income to fully purchase the equipment will

ADAPTIVE CYCLISTS SUPPORT AND CONSIDERATIONS

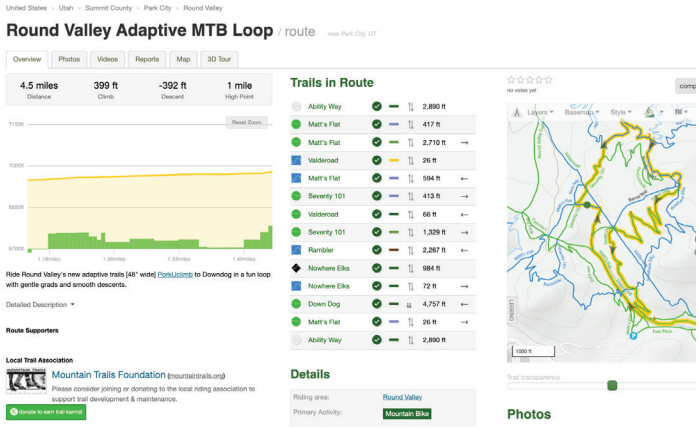

Image 15. Snapshot of Trailforks' details for an adaptive-friendly trail. *Photo Credit: Trailforks*

need to apply for a grant; more likely than not, one grant will not cover the whole cost of an adaptive cycle. Afterwards, there is often a lead time for one to be custom built and that period can last several months. Upon receipt, there can be the challenge of storage, transportation (e.g to trails), and maintenance – requiring additional funds as well as mechanical expertise that a typical bicycle retail shop will not possess.

It's no easy feat to own and maintain an adaptive cycle. However, in Utah there are 5 organizations supporting adaptive cyclists – the National Ability Center, Wasatch Adaptive Sports, Common Ground Outdoor Adventures, Ogden Valley Adaptive Sports, and the University of Utah TRAILS: Technology Recreation Access Independence Lifestyle Sports – and are involved in efforts including advocacy, education, equipment accessibility and maintenance, and community-building through organized group activities.

Recommendations

Adaptive cyclists are pushing for more equitable access to non-paved trails in Utah. Several ways to provide support include:

- **Wider adoption of trail standards and guidelines for the creation and modification of trails.** Furthermore, ensuring that adaptive-friendly trails are also ADA compliant. In addition to improved personal use for adaptive cyclists, more adaptive-friendly trails allow for greater inclusion of adaptive athletes at cycling events. For the past few years, Bike Utah's Mid Week MTB Series has included a registration and racing category for adaptive cyclists. Bike Utah can share its experience in making events more inclusive as well as providing referrals to partnering organizations who have provided invaluable guidance and expertise.

- **Detailed trail information for adaptive cyclists on publicly accessible databases.** Further collaboration with adaptive cyclists is advantageous to identify the most relevant information along the lines of obstacles, accessibility at trailheads and staging areas, and relative fitness and difficulty. A participant mentioned that the typical green, blue, and black difficulty rating for MTB categories does not always translate well for adaptive cyclists.

- **Support for greater access and reach of adaptive cycling resources.** The gateway for individuals to enter adaptive cycling is having accessibility to learn more and test out equipment best suited for their needs and style of riding. Therefore, there is the utmost value of individuals having contact, community, and consistent support from organizations that can provide these resources. Because a limited number of established centers exist in Utah, further support to help these organizations promote and bridge resources to interested individuals who do not reside nearby can help accessibility issues and ridership.

- **Better understanding of how active transportation networks can fit adaptive cycling needs.** Participants rarely mentioned using their adaptive cycle for riding within active transportation networks. There were a couple comments on established operating space standards being too narrow and fear of being close to automobiles.

CONCLUSION // PARTING THOUGHTS

After speaking with families and individuals of underrepresented populations in different regions of the state, it's clear that many of these people are interested in riding bicycles more. However, certain barriers clearly stand in their way. In an effort to improve their representation within cycling, Bike Utah introduces a systems-based framework that includes five themes based on what participants shared. These themes can be viewed as pillars that strongly contribute to a safe and supportive bicycle environment, helping define a locale's culture of cycling. They are:

1. **Availability of desirable cycling infrastructure and facilities.** Participants acutely felt the risk of sharing the road with motor vehicles. For mobility purposes on paved surfaces, protected active transportation networks that separate individuals from automobiles are the highest priority for underrepresented populations. The development and management of recreational areas can support greater accessibility and bring enjoyment to individuals of all abilities.

2. **Access, ownership, and maintenance of bicycles and related safety gear.** Bicycles can represent a costly investment to Utahns, and even maintenance can be a challenge. Emerging models utilizing social innovation can help further address financial and accessibility barriers to ridership. Bike share programs and recycling bikes are examples that can lower the barrier to entry, however there is opportunity for other impactful models. More emphasis should be placed on the experience-based barriers to visiting a bike shop for purchasing or servicing equipment. Different types of cycling resource spaces can provide options that better meet community needs and can activate interest in performing simple repairs and maintenance so that more bicycles stay safe and functional.

3. **Education and information that promotes and protects cyclists.** Cyclists and other vehicles on the road have a shared responsibility for everyone's safety. Adequate education measures that reflect safe behavior from motor vehicle operators can encourage more individuals to ride bicycles comfortably and confidently. Additional gateways to finding cycling routes and trails should include expanded details on features and obstacles that will allow experiences to meet expectations.

4. **Visible and inclusive community of cyclists.** Seeing other individuals on bicycles who participants identify with signals a few important things. First, it provides a visible example that cycling is a viable way to get around, recreate, and more. Second, it serves as an opportunity to connect with community members to build fellowship. Lastly, seeing more cyclists can create a sense that some of the other listed pillars have been adequately addressed and that cycling is a "normal" behavior.

5. **Advocacy for equitable planning and policy.** Policies that shape planning standards and guidelines are an invisible pillar that individuals do not physically encounter. However, they do give form to the built environment which can largely impact ridership. Leadership and involvement from all community members, regardless if they are (interested) cyclists, is critical to introducing the changes needed to support greater ridership.

Any people or organizations attempting to meet the needs of community members will have to account for differences in geography, resource availability, and community preferences. Great caution should be placed in addressing equity issues across all pillars and making concerted planning efforts with stakeholders and partners for each defined community. For example, the installment of protected bike lanes increases

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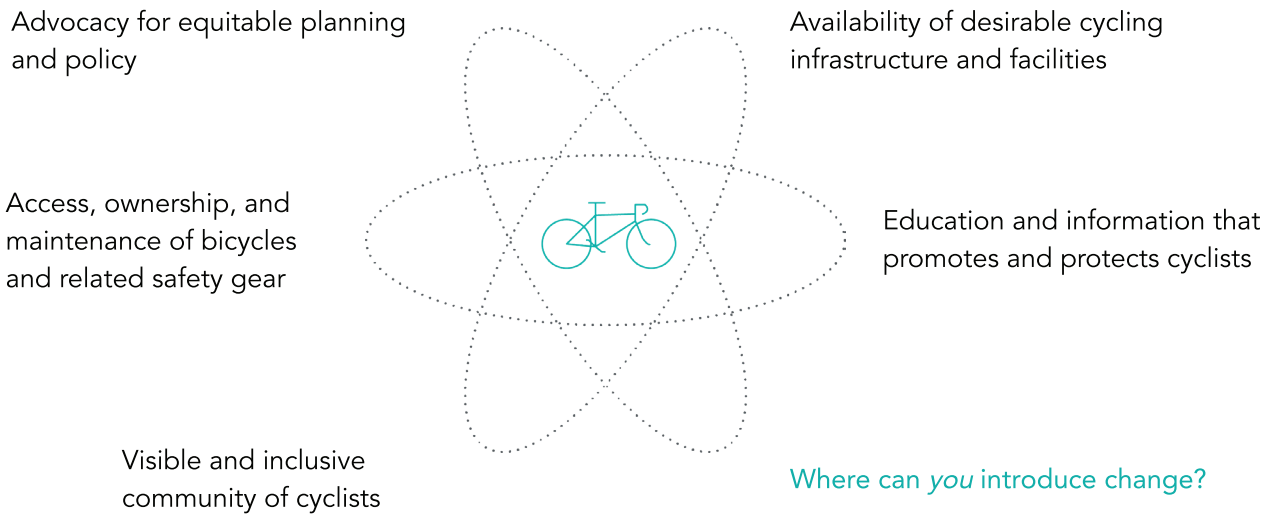

Figure 6. A framework for determinants of a bicycling environment. Within each determinant exists issues of equity.

the odds of benefiting individuals who have the means to obtain and maintain a bicycle; and conversely, hypothetically flooding the market with free bike share programs will not ensure increased ridership from all individuals if adequate infrastructure and other areas of support are non-existent.

For underrepresented populations, the absence and yet desire for the development of a culture of cycling is a causality dilemma – how do you create an interest in cycling when supportive factors from and within your community do not exist? A community-centric approach that starts by understanding nuanced concerns and needs, based on the proposed framework, can lead to the co-development of a strategy and activities to help activate interest in cycling. In some cases, cycling may be seen as a foreign or low-priority activity due to accessibility issues or established perceptions. A recommended starting point might be to co-organize a social ride to introduce community members to cycling within their neighborhood. Providing bicycles and safety gear to those who do not own or have access can help with participation. Another goal of a social ride is to begin evaluating what resources and support need to be developed to meet their needs and concerns. With Utah investing greatly into the development of a statewide active transportation network, let's ensure a culture of cycling can thrive among underrepresented populations and help create a bicycle environment that truly makes it a better place for everyone to ride.

Why Does Utah Need Improved Representation in Cycling?

The needs assessment elucidates a systems-based framework is necessary for understanding and generating tactics to help further activate individuals who have historically been underserved. The phenomenon of social, cultural, economic, and built surroundings influencing ridership draws similarities to the conceptual framework of the Social Determinants of Health (Center for Disease Control and Prevention 2022); in fact, the ability to ride a bicycle for transportation purposes is already an equity issue examined through the lens of the Social Determinants of Health. Economic stability, education access and quality, health care access and quality, neighborhood and built environment, and social and community context – those terms used to describe the 5 domains of the Social

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Determinants of Health can be used, with slight modification, interchangeably with the proposed cycling framework.

The Social Determinants of Health examines how from birth onward numerous factors influence an individual's well-being, and that is no different in understanding what affects an individuals' ridership ability and interest. For example, the neighborhood and surrounding built environment of their childhood residence can determine the access and quality of active transportation networks. Or, the family's perception on bicycles and willingness to purchase and support ridership can determine how early discovery to cycling occurs. These are a couple determinants that can shape a generation's disposition and use of bicycles as well as influence other members within their community.

Therefore, a holistic approach through the lens of a framework that examines all determinants is critical in introducing change towards greater representation in cycling. Fairer representation allows the opportunity for all individuals, including those who were not part of the study population, to gain and contribute to the following individual and public health benefits that can be found in cycling:

- **Physical activity & health.** 2019 Utah data indicated 55.2% of adults were meeting the recommended amount of aerobic physical activity. Yet when viewing data by Race/ Ethnicity, most non-White populations are below that mark (Utah Department of Health and Human Services 2022). Among adolescents, those figures dropped to 14.0% for females and 28.0% for males (Utah Department of Health and Human Services 2022). Research has shown the benefits riding bicycles can have for physical activity and health (Götschi, Garrard, and Giles-Corti 2016).

- **Safer roads for more cyclists.** Cyclists are considered vulnerable roadway users. In 2022, there were 15 fatalities on Utah roads (Utah Department of Transportation 2023). UDOT continues to make significant investments in active transportation and efforts within the Zero Fatalities program aim to reverse trends and make Utah more safe for vulnerable roadway users.

- **Automobile alternatives for short-distance travel.** Using a bicycle for short-distance travel (e.g. fewer than 3 miles) can help reduce automobile traffic volume and noise on the road, contributing to potentially safer roads and less conflicts between vehicles and vulnerable roadway users.

- **Improved social cohesion and relationships within a community.** Bicycles provide multiple co-benefits and one is a common activity for individuals to participate in together. Because bicycles can be used for transportation, recreation, or social purposes, there is an opportunity for diverse communities to emerge, with new leadership and vision supporting the next generation's needs.

Image 16. Children decorating bicycles at a Día Del Niño event. *Photo Credit: Bike Utah*

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APPENDIX: ADDITIONAL DETAILS ON RESEARCH DESIGN & DATA

Details of Research Findings by Demographics

To supplement the findings presented, the following data indicates the top 3 themes mentioned by demographic breakdowns. Since a standardized set of questions was not used, data interpretation from a quantitative perspective is limited.

Rural Residents
n=72

32% Separate and dedicated bicycle facilities

32% Fear of cycling

28% More land development for recreational cycling

Minorities
n=41

46% A cycling community or culture does not exist for them

46% Separate and dedicated bicycle facilities

46% Fear of cycling

New and/or Interested Cyclists
n=20

55% Separate and dedicated bicycle facilities

45% Fear of cycling

30% Interest in "bike literacy" and maintenance

Active Transportation Dependent or Strongly Preferred
n=19

53% Separate and dedicated bicycle facilities

53% Fear of cycling

42% A need for bicycle safety gear

Seniors, 65+ years old
n=17

59% Fear of cycling

41% Separate and dedicated bicycle facilities

35% Complete active transportation network

Youths, <18 years old
n=8

50% Infrastructure was non-existent or inadequate

38% Fear of cycling

38% Lack of bicycle parking at their destination

Adaptive Cyclists
n=5

40% Trail development and maintenance needs to be standardized for adaptive cyclist use

20% Importance of accessible and centralized support for adaptive cyclists

20% Improved trail information for adaptive cyclists

Reflexivity // About the Primary Researcher

Within qualitative research, the researcher is the instrument for data collection and their characteristics and experiences contribute to the process (Pezalla, Pettigrew, and Miller-Day 2012). The primary researcher responsible for data collection and analysis is an Asian American male who commutes by bicycle throughout the year. He resides in Salt Lake County, but has ridden throughout the state on both road and non-paved terrain. He is a trained League Cycling Instructor and has taught road cycling safety to audiences of varying age and ability throughout Utah. Lastly, he is trained in qualitative research and has studied and worked in the field of public health.