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EVALUATING AND PROMOTING TRANSIT CONNECTIONS TO REGIONAL OPEN SPACES IN UTAH

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Chapter 1. Introduction

The Wasatch Front is a region where residents have almost unparalleled access to regional parks, trails, and the great outdoors. Year round, residents of Salt Lake City, Ogden, Provo, and the cities in between, access the many recreational opportunities that the region has to offer. The close proximity between densely populated cities and the wilderness creates both opportunities and challenges. Apparent opportunities include ease of access to world-renowned natural areas, and many possibilities related to tourism and economic development (K. Park et al., 2021). Challenges include overcrowding in many natural settings, carrying capacity issues related to overcrowding, transportation issues involving travel times, parking, and carbon dioxide emissions, as well as unequal accessibility to mountain amenities between the East and West sides of the Salt Lake Valley (K. Park et al., 2021; Wilson et al., 2018; Yochim & Lowry, 2016; Youngs et al., 2008).

Transit to parks initiatives could help address some of the aforementioned challenges. Here, we use the term “transit to parks” (T2P) to describe transit service (e.g., buses, shuttle, trains) to active or passive outdoor recreation sites. The latter can include regional parks (>20 acres), trails for hiking, road biking, mountain biking, or gravel biking, as well as blue spaces such as lakes and rivers. Our focus on both active and passive recreation comes from the recognition that some individuals and groups might access a regional park (or national forest) for hiking or mountain biking (active) whereas others might attend picnics or cultural events (passive). We include both circumstances because research shows that time spent in nature is beneficial for one’s physical and mental health regardless of whether one engages in physical activity (Markevych et al., 2017; Nieuwenhuijsen et al., 2017; Twohig-Bennett & Jones, 2018).

In recent years, several transit to parks initiatives have been implemented in the U.S. and Canada by transit agencies, cities, counties, states, federal agencies (e.g., National Park Service), and nonprofit organizations (see Chapter 4). Based on our analysis, transit to parks initiatives from between informational campaigns about outdoor recreation settings accessible via existing transit lines, seasonal shuttle programs to reach targeted trailheads, permanent bus lines to outdoor recreation settings, and system-wide transit plans to increase access to the outdoors. Based on what we learned (see Chapter 4), these initiatives are mostly motivated by environmental concerns—addressing road congestion, parking issues, and related environmental impacts—and equity concerns—providing access to the outdoors to people who do not have a car or cannot drive.

The Wasatch Front and nearby areas have a few transit services that provide access to outdoor recreation. Based on the analyses shown in Chapters 2 and 4, transit to parks options in the region include:

- Several Utah Transit Authority (UTA) bus and TRAX routes with stops within walking (< 0.5 mile) or biking (< 2 miles) distance from regional urban parks (> 20 acres) or trailheads.
- Seasonal UTA service to ski resorts during the winter months (e.g., Alta/Snowbird, Solitude/Brighton, Snowbasin).
- A seasonal on-demand shuttle connecting Park City to the Bonanza Flats area (partnership between Park City, Utah Open Lands, and the Central Wasatch Commission).

Besides an investigation we conducted in 2021 to understand whether access to regional open space via transit is equitable (K. Park et al., 2021), limited research has focused on transit to parks. Specifically, we know very little about how to quantify transit access to parks and open spaces and how to plan for such services. Also, no research to date has examined the experiences of people taking transit to access regional open spaces, nor the barriers they face. Finally, no studies have sought to analyze and summarize the different types of T2P initiatives that have been implemented. Knowledge about these topics could help transit agencies, public land agencies, nonprofits, and other partner agencies plan and implement T2P initiatives.

To address the above knowledge gaps and help the Utah Transit Authority (UTA) conceive future T2P initiatives, we conducted a series of studies focusing on various aspects of transit to parks. Specifically, each chapter of this report focuses on a set of related research questions:

- **Chapter 2: Mapping Transit-to-Parks (T2P) and T2P opportunity areas**
 - Aims:
 - To measure public transit access to regional parks in the Wasatch Front region
 - To locate transit-dependent neighborhoods lacking access to regional parks
 - Study site:
 - Wasatch Front
 - Methods:
 - Geospatial analysis
- **Chapter 3: Exploring residents' motivations, constraints, and negotiations to ride transit to parks in the Wasatch Front**
 - Research questions
 - What are the motivations and values that encourage people to ride transit to parks? And how do such values and motivations vary by demographics?
 - How do people describe their experiences of and constraints to transit-to-parks services? How do people of different demographics, including those experiencing marginalization, describe experiences and constraints?
 - What kind of transit services, improvements, or other initiatives would encourage people to ride transit to parks? And how do the above vary by demographics?
 - Study site:
 - Wasatch Front
 - Methods:
 - Interviews with transit riders
- **Chapter 4: Transit to parks initiatives in the U.S. and Canada: What can we learn?**
 - Research questions
 - What are the main types of transit to parks initiatives implemented around the U.S. and Canada?
 - What are the other general characteristics of these initiatives, including funding, destinations reached, and cost?
 - What are the main motivations to implement transit to parks initiatives?
 - What advocacy strategies have been used to push for the implementation of transit to parks initiatives?
 - How do partnerships between various organizations facilitate transit to parks initiatives?
 - What are the main challenges to implementing transit to parks initiatives?

- What “worked” in the planning and implementation of transit to parks initiatives?
- How do agencies monitor the impacts of T2P initiatives?
- Study site:
 - United States and Canada
- Methods:
 - Web searches to identify T2P initiatives and find information about them
 - Interviews with professionals involved in T2P initiatives

The report concludes with Chapter 5, where we provide big-picture recommendations for UTA to move toward the implementation of more T2P initiatives.

Chapter 2. Mapping Transit-to-Parks (T2P) and T2P opportunity areas

2.1. Introduction

Providing access to parks and greenways is an overlooked yet potentially key role of public transportation. There has been limited research on whether public transit provides equitable access to regional open spaces for all populations. Given the increasing importance of nature visits during the COVID-19 pandemic, this chapter examines how transit provides adequate access to such spaces for low-mobility populations (e.g., low-income people, older adults, people with disabilities, and Indigenous populations) in the Wasatch Front region. In addition to the green equity issue, transit-to-parks solutions could also address park management issues (e.g., overcrowding and parking shortage during peak seasons) and environmental issues (e.g., greenhouse gas emissions from private vehicles).

This chapter aims to 1) measure public transit access to regional parks in the Wasatch Front region and 2) locate transit-dependent neighborhoods lacking access to regional parks. To measure public transit access to regional parks at the neighborhood level, we use the transit-to-parks (T2P) index that we developed in the context of the U.S. West (K. Park et al., 2021). The T2P index measures how many regional open spaces a resident can reach by using public transit within a given time. Second, we identify transit-dependent communities (e.g., low-income, racial and ethnic minority groups, and low car ownership) without access to large parks, called “transit-to-parks opportunity areas.” These communities and the index are visualized on an interactive online map. The map and the T2P tool should be easily updated by users, for example, every five or ten years, to reflect changes in neighborhood socio-demographics, transit systems, and regional open spaces.

2.2. Data and methods

2.2.1. Transit-to-Parks (T2P) index (K. Park et al., 2021)

Originally developed by the researchers of this project in the context of the U.S. West, the transit-to-parks (T2P) index measures how many large parks residents can reach by using public transit and walking within a given time. For large parks, we include all public lands that are 1) owned and managed by federal, state, and local governments, 2) locate within or intersect with the Wasatch Front region boundary ([link](#)), and 3) larger than 20 acres, a commonly-used upper-bound size limit of neighborhood parks (Cohen et al., 2016; Gupta et al., 2016; Mertes & Hall, 1996).

For the time limit, we use 30 minutes of total travel time, including walking and in-vehicle time. According to the 2017 National Household Travel Survey (Federal Highway Administration, 2018), social/recreational trips take 23 minutes on average among Utah residents. Considering that a majority of such travels were done with personal vehicles (83%) and that public transit generally takes a longer time, we use 30 minutes as a threshold. Applying the temporal limit was also needed for a practical reason as we had calculated transit travel time between every pair of Census block groups and large parks in the Wasatch Front region. We use a gravity model to measure T2P access.

$$T2P_i = \sum_{j=1}^n C_j d_{ij}^{-\beta}$$

, where $T2P_i$ indicates the Census block group i 's park accessibility; C_j is the capacity of the park j measured as the park's size; and d_{ij}^β is the transit travel time between the centroid of the block group i and the entrance point of the park j . With a large park having multiple entrances, minimum travel time is chosen (see the next section for methods). β is the travel friction coefficient and is determined at 1, indicating that friction is a simple linear function of distance (K. Park et al., 2021).

For each neighborhood, the T2P index measures the total acreage of large parks (acre) accessible within 30 minutes by public transit, inversely weighted by travel time (in minutes) for each park. The unit of the T2P index is acre/minute. For example, when a block group has only one 40-acre park which can be reached in 20 minutes by transit, the T2P value is 2 acre/minute (40 divided by 20). With two 20-acre parks both accessible in 20 minutes, the T2P is also 2 acre/minute ($20 \div 20$ plus $20 \div 20$).

2.2.2. Data collection and processing (see the Appendix "Transit-to-Parks processing manual" for step-by-step instructions)

The T2P index includes three parts: census block groups (travel origins), parks (travel destinations), and transit travel times (Figure 2.1). First, we use Census block groups as the unit of analysis in this study, given their fine scale and socio-demographic information provided from Census data. We downloaded the population-weighted centroid locations for block groups from the (U.S. Census Bureau, 2020). Point data, not a polygon, is essential in calculating travel times and creating service areas in network analysis.

Second, we extracted park locations as travel destinations from two sources—UGRC for local parks ([link](#)) and Esri Park data for National and State Parks and Forests ([link](#)), which include information about park boundaries, types, and sizes. In addition, we collected trailhead data from UGRC ([link](#)). We included parks that had no restriction on public access and that were larger than 20 acres (8.09 hectares). Because park entrance location data are not available at such a regional scale, we estimate them as any points where a park and roads intersect with each other. For road data, we used all roads from TIGER/Line® shapefiles (U.S. Census Bureau, 2020) and excluded highways with limited access to adjacent lands. For park boundaries, we apply a 100-ft (30.5-meter) buffer since the road centerline may not touch a park boundary even when they are close enough, and there might be a pedestrian route between the two, not included in the TIGER/Line® shapefiles. For trailheads, we applied a longer search distance, 300 feet (91.4 meters).

Last, to calculate transit travel times between parks and census block groups, we model a transportation network from two sources: road centerline data from TIGER/Line® shapefiles and transit service feed data (e.g., routes, stops, schedule) from General Transit Feed Specification (GTFS) (OpenMobilityData, 2020). We first created a network dataset using the "GTFS to Network Dataset Transit Sources" tool in ArcGIS Pro. Then, we calculated the travel time between each park entrance and a Census block group centroid using the "OD Cost Matrix" ArcGIS tool. To capture recreational visits to parks, we calculated travel time on Saturday morning (11 am), when such recreational activities might be more likely to happen (Banda et al., 2014; Shores & West, 2010). Additionally, the "Dissolve" tool helps to select the minimum travel time when there are multiple park entrances, and the "Select by Attribute" tool excludes origin-destination pairs beyond the 30-minute threshold. The process was repeated for trailheads.

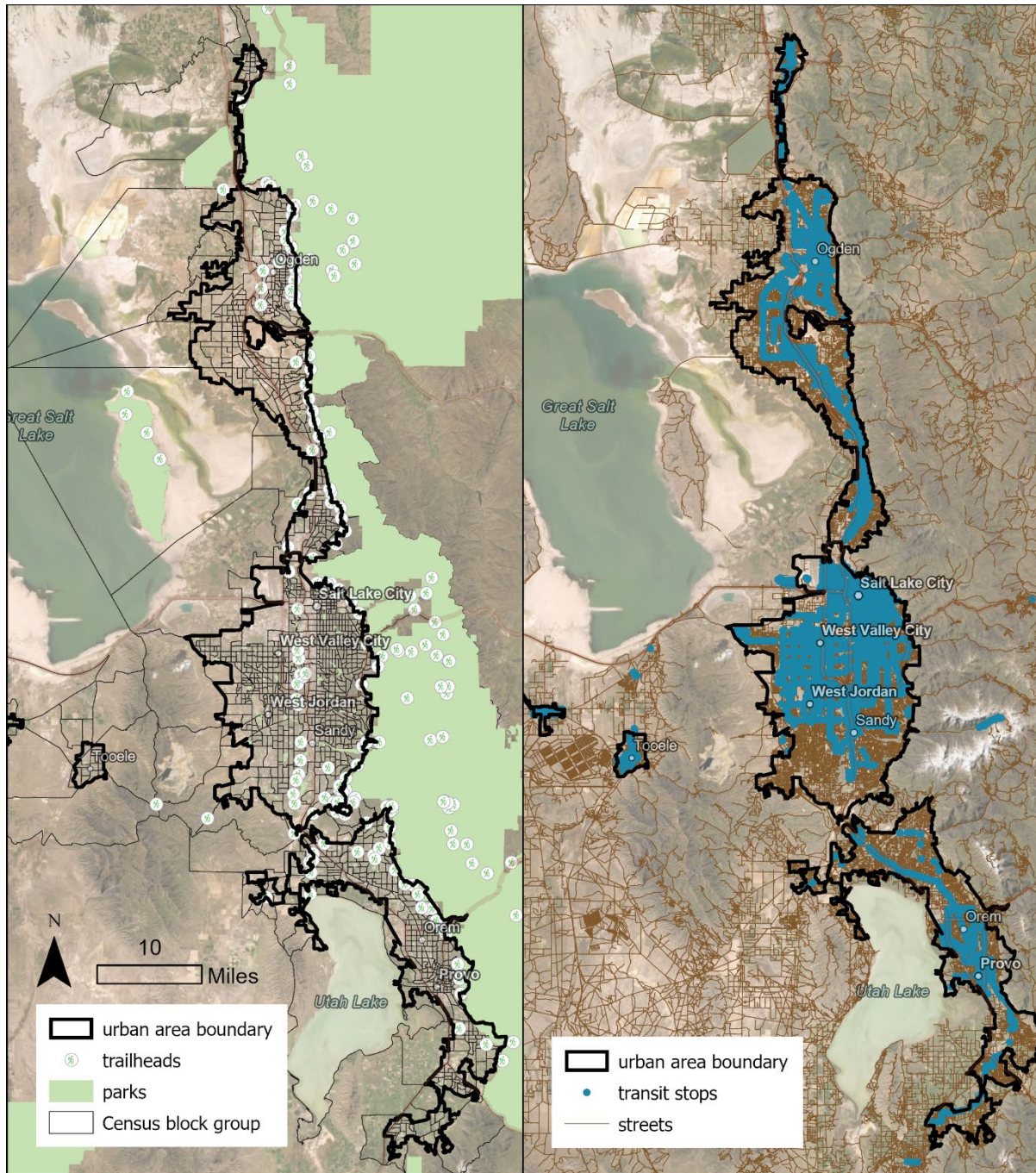


Figure 2.1. Input data (left: parks and trailheads, right: streets and stops)

2.2.3. Measuring T2P variables

The final T2P measures include four variables.

- 1) T2P counts: The number of large parks (> 20 acres) accessible within 30 minutes via transit and walking from a Census Block Group
- 2) T2T counts: The number of trailheads accessible within 30 minutes via transit and walking from a Census Block Group
- 3) T2P+T counts: The sum of #1 and #2 (number of large parks and trailheads)

- 4) T2P index: A gravity model accounts for park size and transit travel time

Regarding #4 (T2P index), we first calculated the T2P index for each pair of a block group and a park with park size (in square miles) divided by travel time (in minutes). Then, we aggregated individual T2P index values at the Census block group level (i.e., for all accessible parks within a 30-minute threshold from each block group).

2.2.4. Locating T2P opportunity areas

To identify disadvantaged communities without access to large parks via transit, we defined "transit-to-parks opportunity areas" following two criteria. Transit agencies such as the UTA and CVTD, municipal planners, and parks and recreation agencies could focus their efforts on those communities.

- 1) WFRC-defined Equity Focus Areas (EFA; [link](#)): disadvantaged communities meeting any of the three criteria below:
 - a. Greater than 25 percent of Low-Income people
 - b. Greater than 40 percent of Persons of Color
 - c. Greater than 10 percent of Zero-Car Households
- 2) Low T2P value. According to our analysis, the bottom 40% value of T2P index is 3.0 acres/minute.

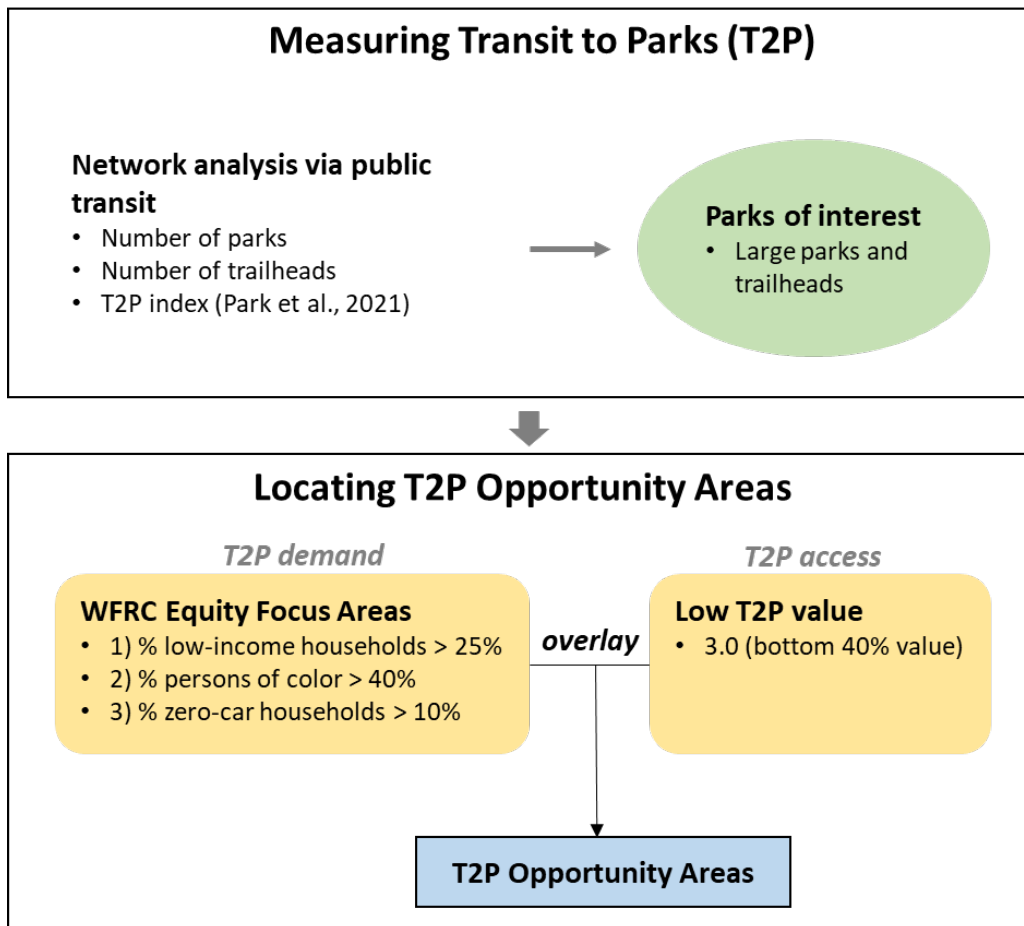


Figure 2.2. Research framework for measuring T2P and identifying T2P opportunity areas

2.3. Results

2.3.1. Measuring T2P variables in the Wasatch Front

Table 2.1 shows descriptive statistics of our T2P measures. Through median values, an average Census block group has public transit access to on large park and no trailhead and has a T2P index of 4.29 (acre/minute) within 30 minutes of transit travel time from its centroid. The T2P value, 4.29, can mean 128.7 acres of a large park (4.29 times 30) if the park entrance is 30-minute away from the block group via transit. Or, it can be 42.9 acres of a large park if it takes 10 minutes from the block group to the park entrance (4.29 times 10).

Table 2.1. Descriptive statistics of T2P measures

Variable	Mean	Median	Minimum	Maximum	Standard deviation	% block groups having zero value
T2P counts	1.88	1	0	9	1.77	22.9%
T2T counts	0.49	0	0	5	0.88	68.8%
T2P+T counts	2.37	2	0	13	2.11	18.6%
T2P index (acre/minute)	3,802.52	4.29	0	182,722.75	14,624.81	22.9%

Table 2.1 also shows that almost one-fourth of Wasatch Front neighborhoods do not have access to any large park via public transit, and almost 70% of neighborhoods do not have access to a trail. In sum, 18.6% of Census block groups in this region have no access to either a large park or a trailhead.

Table 2.2 shows T2P measures by municipality among the top 20 most-populated cities. Among them, Salt Lake City has the highest level of T2P index (11.99), followed by Riverton (9.45), Taylorsville (9.16), and Ogden (8.69). In terms of the number of large parks accessible via transit, Taylorsville has the highest number (4 parks), followed by Salt Lake City (3 parks). Several cities, including Layton, Lehi, and Roy, have a median T2P index value of 0, meaning that a majority of block group within these cities has no accessible large parks via public transit (within 30 minutes) at all.

Table 2.2. T2P measures by municipality (top 20 in population; see Appendix for the full list)

Municipality	County	Pop (2019)	T2P counts (median)	T2T counts (median)	T2P+T counts (median)	T2P index (median)
Salt Lake City	Salt Lake	200,567	3	0	4	11.99
West Valley City	Salt Lake	135,248	2	0	2	5.22
Provo	Utah	116,618	1	0	1	1.45
West Jordan	Salt Lake	116,480	2	0	1	5.67
Orem	Utah	97,828	2	0	2	1.27
Sandy	Salt Lake	96,380	2	0	2	4.64
Ogden	Weber	87,773	2	2	3	8.69
Layton	Davis	78,014	1	0	1	0.00
South Jordan	Salt Lake	76,598	2	0	1	5.32
Lehi	Salt Lake	69,724	1	1	1	0.00
Millcreek	Salt Lake	61,450	2	0	3	8.33
Taylorsville	Salt Lake	59,805	4	1	5	9.16
Herriman	Salt Lake	51,348	1	0	1	2.66
Murray	Salt Lake	48,917	2	0	2	6.76
Draper	Salt Lake	46,367	1	1	2	2.75
Draper	Salt Lake	46,367	2	2	3	4.46
Riverton	Salt Lake	44,440	2	0	3	9.45
Bountiful	Davis	43,981	1	1	1	1.23
Spanish Fork	Utah	40,913	1	0	1	3.35
Roy	Weber	39,613	1	1	0	0.00

Below we present maps of two T2P measures (number of parks and T2P index) across the Wasatch Front region (Figure 2.3: Salt Lake County area, Figure 2.4: Davis and Weber Counties, and Figure 2.5: Utah County). The interactive online maps for all four T2P measures are available [here](#). And an additional map of transit routes accessible to large parks and trailheads is available [here](#).

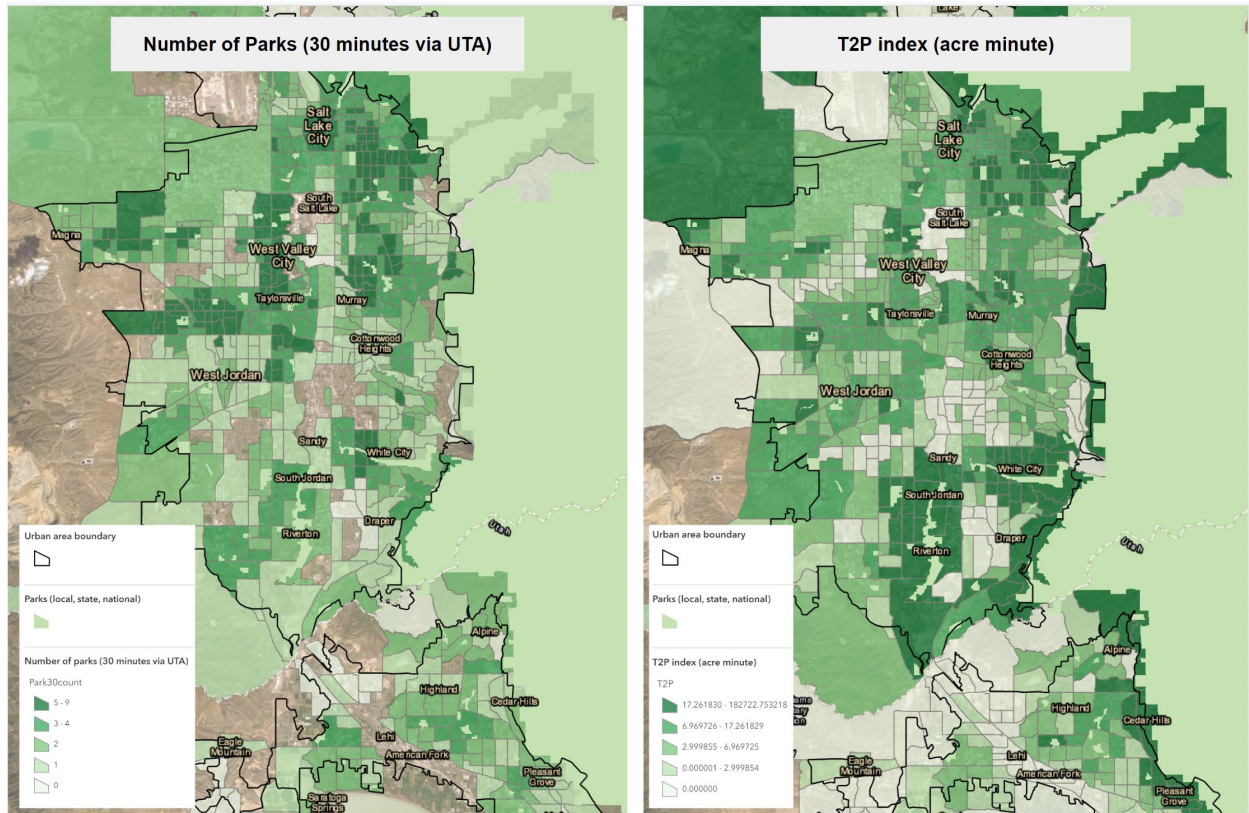


Figure 2.3. Maps of T2P measures in Salt Lake County

Two T2P measures—the number of accessible parks and the T2P index—show different spatial patterns across the study region. In Salt Lake County, the number of accessible large parks tends to be higher in its northern parts, particularly Salt Lake City, West Valley City, Murray, and Holladay (Figure 2,3). On the other hand, the T2P index is higher in block groups adjacent to the Uinta-Wasatch-Cache National Forest on the east. Additionally, the southeastern corner of the county, including South Jordan, Riverton, and Bluffdale, also has a higher T2P value, possibly because of its proximity to the Jordan River Parkway.

In Davis County and Weber County, neighborhoods on the east, near the Uinta-Wasatch-Cache National Forest, show better T2P values (Figure 2.4). Several municipalities on the west have no or almost no access to large parks via public transit, including Roy, Clearfield, Layton, and Syracuse; These four cities have a median T2P value of 0.

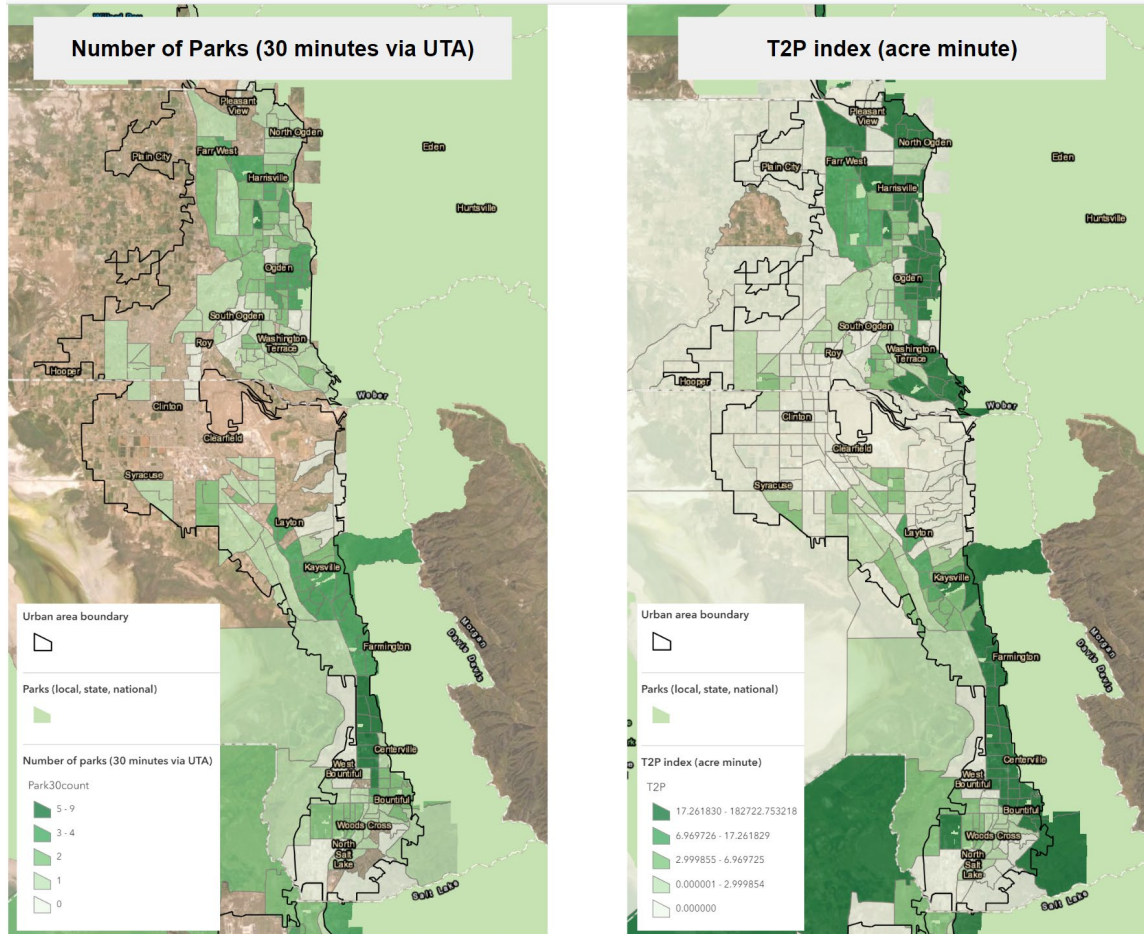


Figure 2.4. Maps of T2P measures in Davis and Weber Counties

Utah County shows a similar trend; Census block groups on the east, near the Uinta-Wasatch-Cache National Forest, show better T2P values (Figure 2.5). Overall, neighborhoods in Utah County have fewer accessible large parks compared with those in Salt Lake County.

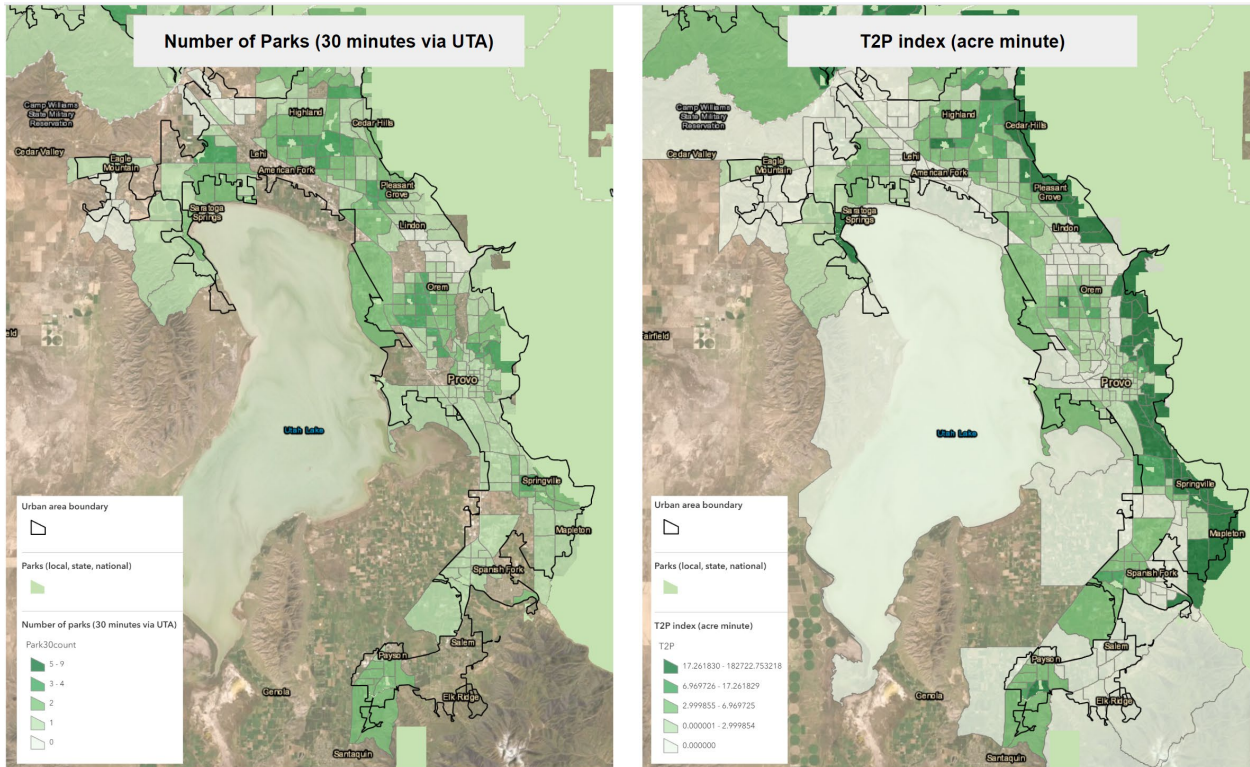


Figure 2.5. Maps of T2P measures in Utah County

2.3.2. Locating and examining T2P opportunity areas in the Wasatch Front

Among 1,283 Census block groups in our study region, 346 block groups (27%) are designated as Equity Focus Areas (EFAs). Table 2.3 shows T2P measures and socio-demographic variables between EFAs and others. Interestingly, T2P counts—the number of large parks accessible via transit in 30 minutes—and T2P index—accounting for park sizes—show opposite patterns. T2P counts are higher in EFAs (2.42 parks on average in EFA vs. 1.69 parks in the others), but the T2P index is much lower in those areas (2,374 vs. 4,339 acre/minute on average). EFAs also have worse “walking” access to parks, when including both local and large parks, compared to the other block groups. Less than half of EFAs have a park of any size within ½-mile walking distance from its centroid.

Table 2.3. Descriptive statistics of socio-economic variables between WFRC Equity Focus Areas and the others (mean values are from the American Community Survey 2013-2017)

Variables	Equity Focus Areas (n=346)	The others (n=935)	p value
T2P counts	2.42	1.69	<.01
T2T counts	0.50	0.49	.80
T2P index	2,374.00	4,339.00	<.01
% block groups having walking access to large parks	12%	9%	.10
% block groups having walking access to all size of parks	44%	54%	<.01
% non-Hispanic White	62%	84%	<.01
% Hispanic	27%	10%	<.01
Median household income	\$ 48,920	\$ 80,263	<.01
% renters	51%	23%	<.01
% households with no vehicle	9%	2%	<.01

As expected, EFAs tend to have a higher percentage of racial/ethnic minorities, renters, and households with no vehicle and a lower level of median household income. All differences between the two groups presented in Table 2.3, except for T2T counts, are statistically significant at $p < 0.1$ level, according to independent t -tests.

After overlaying EFA with low T2P areas (bottom 40%), 126 block groups (9.8%) are identified as T2P opportunity areas in the Wasatch Front. Figure 2.6 shows their locations. T2P opportunity areas are scattered throughout the valley, but are mainly located in Ogden, Layton, West Valley City, Midvale, and Provo.



Figure 2.6. T2P opportunity areas

We compared park access and socio-economic variables between T2P opportunity areas and other EFA block groups (Table 2.4). Both groups are disadvantaged—higher percentages of racial/ethnic minorities, renters, and zero-car households and low income—without statistically significant differences ($p > .1$ from independent t -tests). Differences are found in transit-to-parks access, including T2P counts, T2T counts, and T2P index, all being lower in our T2P opportunity areas. On the other hand, walking access to local parks is comparable between the two groups.

Table 2.4. Descriptive statistics of socio-economic variables between T2P opportunity areas and the other EFA block groups (mean values are from the American Community Survey 2013-2017)

Variables	T2P opportunity areas (n=126)	Other EFAs (n=220)	p value
T2P counts	0.84	3.32	<.01
T2T counts	0.29	0.62	<.01
T2P index	1.13	3,733.00	<.01
% block groups having walking access to large parks	0.00	0.15	<.01
% block groups having walking access to all sizes of parks	0.56	0.52	.40
% non-Hispanic White	64%	61%	.30
% Hispanic	27%	27%	.80
Median household income	\$ 47,813	\$ 49,554	.40
% renters	54%	49%	.20
% households with no vehicle	9%	10%	.20

2.4. Conclusions

This chapter has two objectives—1) measure public transit access to regional parks in the Wasatch Front region and 2) locate transit-dependent neighborhoods lacking access to regional parks.

The T2P index and mapping tool we developed can be used by UTA, other transit agencies, and government organizations managing public lands. Applying the T2P index can help UTA understand how to adapt their system to ensure that its service provides convenient access to large parks or other public amenities (e.g., libraries, community centers). Identifying “transit-to-parks opportunity areas” through our mapping work can help to think about the location of some pilot programs. Transit agencies such as the UTA and CVTD, municipal planners, and parks and recreation agencies could use our web map and programming strategies to implement combined efforts to improve access to large parks for people in Utah. Parks and recreation agencies could work with transit agencies to identify priority large parks that are popular in their communities and host successful investments (e.g., UDOT’s [Recreation Hotspots Study](#)).

Graphical and statistical analysis of T2P opportunity areas reveals environmental injustices in transit access to large parks based on race/ethnicity, income level, and vehicle ownership. Not only do disadvantaged communities have worse walking access to large parks, but they also have worse transit access to such parks than their more advantaged counterparts. *Title VI of the Civil Rights Act of 1964* and *Environmental Justice Policy Guidance* by the Federal Transit Administration (FTA) prohibit discrimination based on race, color, national origin, and income (Federal Transit Administration & US Department of Transportation, 2012). Thus, we find that unequal access to large parks is an environmental justice issue that elected officials, transit agencies, and park agencies need to address.

Planning transit for park access provides a unique challenge for transit service planners. Typical variables that they consider when planning transit service include residential and employment densities, as an investment in service generally results in higher ridership in areas with higher densities than in less dense areas (Goddard & Dill, 2013; Karner, 2018). These densities do not

often exist, however, at or near large parks. If transit agencies are considering planning service in an environmentally just way, park access for disadvantaged populations should also be included. Thus, we suggest that following examples in Los Angeles and Seattle, transit agencies should intentionally partner with park agencies to ensure that transit becomes a tool to address income-based environmental injustices in access to large parks (Arakaki et al., 2019; Los Angeles County Metropolitan Transportation Authority, 2019)

In improving transit-to-parks access, transit service density and frequency may work in different ways. Higher transit service frequency allows for shorter wait times at the origin or at transfers between routes, making transit connections to parks more viable at the 60-minute threshold. Higher transit service density can also help connect disadvantaged populations to parks by reducing walking distances and times to routes that will ultimately bring them to large parks. A recent study found that both service density and frequency are highly impactful on transit ridership, so increasing these measures in a way that helps accessibility to parks can potentially be synergistic with agency ridership goals (Lyons & Ewing, 2021). An outing to a large park where people spend an average of over 4 hours is bound to take much of the waking day. As such, these trips are unlikely to take place on a weekday when transit service is most commonly concentrated. UTA and other agencies should identify potential T2P routes, those that connect disadvantaged neighborhoods (T2P opportunity areas) to large parks, and ensure that frequencies and hours are not cut on the weekends for these routes. Further, UTA and municipalities should consider targeted transit reroutings and shuttle buses to close the gaps between busy transit stations and large parks, as done in a few pilot initiatives in Los Angeles and Seattle (Arakaki et al., 2019; Los Angeles County Metropolitan Transportation Authority, 2019).

Chapter 3. Exploring residents' motivations, constraints, and negotiations to ride transit to parks in the Wasatch Front

3.1. Introduction

Very limited research to date has experienced why recreationists choose to ride transit to regional open spaces. Understanding the transit rider perspective is important to design T2P initiatives that help connect people to the outdoors without relying on a car. Beyond the strong demand for T2P initiatives that emerged from our research, the 2022 Free Fare February run by UTA shows particularly strong increase for ridership types that are linked to leisure and recreation: A 58.1% ridership increase on Saturdays for all services and a stunning 202.3% increase on Saturdays for the Frontrunner, compared to a smaller yet important 16.2% increase on weekdays (Utah Transit Authority, 2022).

The purpose of the study presented in this chapter is to explore motivations, constraints, and negotiations for people to ride transit to parks and how such factors vary across demographic groups.

We used a framework including motivations, constraints, and negotiations (Humagain & Singleton, 2021) to capture the different factors that have an influence on whether people choose to ride transit when accessing outdoor recreation settings. Active and passive recreation in outdoor settings are considered leisure activities, and the motivations-constraints-negotiations framework has been used extensively to explain leisure behaviors (Humagain & Singleton, 2021). We saw the choice of taking transit to parks as part of one's leisure behavior. Indeed, the act of taking transit to reach a recreation site is part of one's leisure time. For example, one might have three hours to go on a hike and might spend 40 minutes (20 in each direction) to get to the trailhead and back. Further, for people who do not own a car, taking transit to reach outdoor recreation settings is often the only option unless they get a ride from friends or use other services like Uber or Lyft.

We were interested in learning about how such motivations, constraints, and negotiations differ by demographic group, including but not limited to variations in gender, race/ethnicity, physical abilities, and neighborhood of residence. We explored these variations because we recognize that transit experiences might vary based on one's identities (Lubitow et al., 2020; J. Park & Chowdhury, 2018; Shaker et al., 2022). Further, we acknowledge that parts of the Wasatch Front, such as the Salt Lake Valley, include cities and neighborhoods with very different physical and economic constraints to accessing outdoor recreation. In the Salt Lake Valley, the wealthier East side has easy access to the Wasatch Mountains; and the less wealthy West side is located further from the Wasatch and has limited recreation opportunities in the nearby Oquirrh Mountains, most of which are owned by a mining company.

Based on the general research purposes and the motivations-constraints-negotiation (MCN) framework, we developed several research questions that guided our study. The questions are presented in Table 3.1. Each of the groups of research questions presented below refer to one or more domain of the MCN framework introduced above.

Table 3.1. Research questions

Groups	Questions	Domain
1. Motivations and values to ride transit to parks	What are the motivations and values that encourage people to ride transit to parks? And how do such values and motivations vary by demographics?	Motivations
2. Current experiences and constraints	How do people describe their experiences of and constraints to transit-to-parks services? How do people of different demographics, including those experiencing marginalization, describe experiences and constraints?	Constraints and negotiations (current)
3. Future opportunities and service changes	What kind of transit services, improvements, or other initiatives would encourage people to ride transit to parks? And how do the above vary by demographics?	Negotiations (future, also by removing constraints)

3.2. Methods

We conducted interviews with 25 residents living in the Wasatch Front. Eligibility criteria included the following: being at least 18 years old, living in the region, being transit riders (currently or in the past), and having experience or interest in taking transit to parks. Whereas talking to 25 transit riders might not reflect the variety of experiences of riders in UTA's service area (1.8 million people), our sample size is more than sufficient to achieve theoretical saturation—the time when collecting more data about a topic stops revealing new information about such a topic (Hennink & Kaiser, 2021).

3.2.1. Sampling and recruitment

We used a combination of purposive and snowball sampling to recruit participants. The purposive strategy involved seeking to diversify our sample based on the demographic characteristics listed above (gender, race/ethnicity, physical abilities, and neighborhood of residence). The snowball sample involved asking interviewees to refer us to other potential participants.

To recruit interviewees, we advertised the study in a variety of ways. We asked the University Neighborhood Partners – a nonprofit affiliated with the University of Utah operating on the West side of the Salt Lake Valley – to share this research opportunity among their networks. We also advertised this research opportunity via Twitter. Then, to reach more diverse groups, we attended meetings of some community organizations, and we reached out to nonprofits and volunteer groups focusing on outdoor recreation for disadvantaged groups. In all cases, we shared information about our study and provided our contact information; people who were interested in participating contacted us via email to learn more about the study and/or set up a time for an interview. All participants received a \$25 online gift card as a recognition of their time.

These recruitment efforts resulted in significant diversity in the sample. Specifically, 52% of the 25 interviewees identify as women and 48% as men. Also, 60% identify as white, whereas 40% identify as part of other racial/ethnic groups, including Latino/a/x, Asian American, and African American. Also, 76% of participants live in neighborhoods with a median household income

below the median of their metropolitan area. Yet all but one of our respondents live in the Salt Lake Valley, likely due to our networks being more developed in that area, and thus our sample does not adequately represent other parts of the UTA service area. Finally, in terms of age, 80% of our respondents were in their 20s or 30s, with the remainder being in their 40s and 60s.

3.2.2. Interview procedures

We used a semi-structured interview format in which all conversations covered a predetermined set of topics and while allowing for some flexibility in terms of follow-up questions. The main topics of our questions included the following: demographics of the participant, general transit use, use of transit to reach parks, motivations to take transit to parks, and potential service change that would facilitate taking transit to parks. These groups of questions were guided by the MCN framework, as we covered motivations, constraints (current experiences), and negotiation (current experiences and potential service changes). Therefore, our questions covered motivations, constraints, and negotiations to *taking transit to access large parks and trails*.

We conducted all interviews via Zoom or via phone, and these conversations lasted between 45 and 60 minutes. Two researchers conducted all 25 interviews, and in most of them, both researcher were present. We audio-recorded each interview and used otter.ai, an artificial intelligence program, to transcribe the recording. To enhance the trustworthiness of our results, we conducted member checking either after specific questions or at the end of interviews (Korstjens & Moser, 2018): This involved summarizing what we heard from the interviewee to double-check that we understood their answers accurately.

3.2.3. Data analysis

We analyzed the interview transcripts using constant comparative analysis, an inductive technique that results in the formulation of themes to describe complex phenomena (Leech & Onwuegbuzie, 2007). We first read each transcript to regain familiarity with the interviews. Then, we started a coding process that involved labeling chunks of text (from one sentence to entire paragraphs) as representing a particular construct (e.g., constraints related to gender). As we coded the transcript, we paid particular attention to topics that could help us answer our three research questions. Our analysis primarily focused on the answers that pertain to *taking transit to visit large parks and trails* although respondents in some cases talked about taking transit in general. Two researchers conducted the coding process recursively so that the codes assigned by one researcher were read and vetted by another researcher, which increases the dependability of the results (Korstjens & Moser, 2018). We used taguette, an open-access qualitative data analysis software, for the coding process (Rampin et al., 2021).

3.3. Results

Interviewees showed great interest in current and future T2P initiatives in the Wasatch Front. Overall, the interviews we conducted suggest that there is much enthusiasm and appetite for more T2P services in the Wasatch Front. Most participants had direct experiences of using transit to reach urban parks and trails, whereas a small subset had never used transit to access such destinations due to several constraints (see more below). Also, a handful of interviewees does not own a car, and therefore using transit to reach outdoor recreation destination is the main option they have. Importantly, some participants noted that the main reason why they own a car is to access trails and parks, which further shows appetite for T2P services. For example,

a respondent noted, “The only reason I have my car is to access the outdoors here, otherwise, I would love to sell it.”

Respondents mentioned a few common destination types of transit to parks trips. They included the foothill trails above Salt Lake City (e.g., Twin Peaks, City Creek Canyon, the Living Room Trail), ski resorts in the Cottonwood Canyons during the winter season, large city parks like Liberty Park, regional trail systems on valley floors like the Jordan River Trail, and Park City trail systems accessible via the PC-SLC Connect bus. The over-representation of respondents in the Salt Lake Valley and Salt Lake City in particular might have affected the destination types mentioned more frequently. Additionally, the most common outdoor recreation activities related to these trips included hiking, mountain biking, road biking, and skiing/snowboarding. When talking about using transit to access urban parks, participants also mentioned cultural events and picnics with family and friends.

Particularly interesting was the use of transit for mountain biking, road biking, and gravel biking. In some circumstances, participants rode their bikes along a regional trail system to reach another city in the Wasatch Front (for example, from Salt Lake City to Ogden) and took the Frontrunner on their way back. Also, for people using transit to for cycling, that the distance between transit stops and trails can be larger than for people hiking. This has implications for designing transit services targeted to different types of outdoor recreation activities (see more below).

3.3.1. Motivations and values to ride transit to parks (Research question 1)

Table 3.2 summarizes the main motivations and values for riding transit to parks among interviewees. Specifically, respondents shared two main reasons: environmental concerns associated with driving and concerns related to traffic congestion and parking. We consider environmental concerns as part of people’s *values*, i.e., underlying beliefs that individuals hold and that rarely change over time. Also, we see concerns related to traffic congestion and parking as *motivations*, which are more mundane and circumstantial reasons that influence a person’s behavior, and can change over time.

Table 3.2. Reasons why people ride transit to parks

Reason	Description
Environmental concerns (<i>value</i>)	Riding transit is a more environmentally friendly way to travel than driving a car, especially when accessing ecologically sensitive areas such as forests and other protected areas
Traffic congestion and parking (<i>motivation</i>)	Driving a car to a trailhead or park can be difficult due to traffic congestion and limited parking availability, especially on weekends. Riding transit can be a convenient alternative that helps bypass parking issues
Cheaper cost (<i>motivation</i>)	Riding transit to parks is generally cheaper than driving one's car, especially when considering the cost of owning a car
Safety (<i>motivation</i>)	Riding transit to parks is seen as safer than driving one's car, especially in the winter
Social experience (<i>motivation</i>)	Riding transit to parks can be a social experience where one meets like-minded individuals and can learn about interesting trails, ski runs, etc.
Dislike for cars and driving (<i>value</i>)	Some respondents choose to ride transit to parks because they deeply dislike cars and driving

Environmental concerns. Environmental concerns related to driving were among the most commonly shared reasons related that encouraged respondents to taking transit to parks. Concerns about the environmental impacts of driving were particularly strong when respondents talked about destinations in ecologically sensitive settings such as the Cottonwood Canyons and other protected areas. For example, an interviewee stated, "I don't want to drive to go hike, you know, I feel really bad about driving to go be out in nature; and using all that fuel and also just the chaos that is the canyons". Other respondents stated that they took transit to parks to help improve air quality in the Wasatch Front and/or to limit the impact of their travel on climate change. One respondent noted, "And then living in this valley, where [...] in the wintertime, it's horribly smoggy. I feel a sense of responsibility [to take transit when recreating]".

Traffic congestion and parking. Several respondents were motivated to use transit to parks by the significant traffic congestion and parking issues that many protected areas and trailheads in the Wasatch Front experience frequently. In this context, some interviewees saw riding transit to parks as a convenient alternative wherein they did not have to worry about finding parking and they could relax while on the bus. For example, one interviewee noted, "not having to park and not dealing with the stress of driving is really great." Along these lines, an interviewee mentioned the following when talking about hiking in the Wasatch Mountains,

And by the time that I get up there, you know, I'm more stressed about finding a place to park, or maybe more accurately saying, creating a place to park on the side of the highway, then I am excited to actually join up with this group and go hiking.

Another participant stated the following regarding taking the ski bus to a Cottonwood Canyon resort,

I'm not worrying about parking, like I'm not worrying about having to haul all of my gear from the car. It's actually quite nice to get on a bus after you're done

skiing, because ... I'm tired. So I can just sit back, relax, like enjoy the trip back down the canyon.

Issues of related to parking congestion, especially in the Cottonwood Canyons, were mentioned for the summer as well. One respondent noted, "I think parking is even more of a pain, honestly, in the summer [than in the winter.] Parking is the worst part of hiking in the Cottonwood Canyons in the summer." And similar sentiments were shared for parking in the Salt Lake City foothills. A respondent who takes TRAX to go mountain biking in the foothills noted the following: "I have complete flexibility on timing ... I know parking can get crowded, especially in the summer. And just like congestion, like if you're parking at the museum [Natural History Museum of Utah], it's always complicated." Overall, participants emphasized that the lack of parking or the difficulty of parking and the stress of sitting in traffic motivated them to take transit to parks instead, for destinations where transit was available.

Cheaper cost. Several participants note that taking transit to parks can be cheaper than driving. Some mentioned that some resorts and trailheads charge for parking, whereas others noted the high cost per mile of operating and maintaining a car. For example, one participant noted, "\$10 to go to Park City and back [by bus] is fine, because that's exactly what I would pay for gas. And no wear and tear on my car." And another commented on how many people rarely think about the overall cost of driving: "If you drive up the Cottonwood Canyons to go to a hike and come back, you don't think of that as being \$25 because of how we pay for the costs of driving."

Safety. Some respondents also noted that they choose to take transit to parks because they perceive it as a safer option than driving. Specifically, some respondents feel that transit is particularly safer than driving with snowy conditions, especially when trying to access winter recreation destinations. One interviewee noted, "when it's snowing here, [the bus is] a heavier vehicle, and the drivers have a lot more experience in those conditions. And I feel a lot safer riding the bus than driving in those conditions." Another respondent emphasized how the dangers of winter driving in the mountains motivate them to take the bus: "When I take the bus, I don't really worry about all the curves and rocks in the road. Let somebody else worry about that."

Social experience. A few respondents shared that they choose to ride transit to parks because doing so is a positive social experience. Specifically, riding transit to an outdoor destination can lead to meeting like-minded individuals and learn about interesting outdoor recreation settings. One participant noted,

There is something nice about being on a bus with other people going skiing, like you know, everybody can talk to each other about going skiing and what runs they're going to hit and what lifts are open and the conditions and everything like that. And when you're driving in a car alone, you definitely don't get that.

Other participants noted benefits related to casual encounters and meeting people from other backgrounds. One said, "when I'm on transit, I have these I'm more likely to have like chance encounters with acquaintances, and those acquaintances then become friends." And another interviewee, talking about the ski bus in the Cottonwood Canyons, noted,

And I'd rather be inside [the bus] talking with some people who maybe are from a bunch of different places or, you know, it's a kind of a cultural blitzing blending event to where you can meet people who are interested in the same things in your community.

Dislike for cars and driving. Finally, some respondents expressed a profound dislike for cars and driving. This dislike led some of these residents to getting rid of their car. Regardless of car ownership, some interviewees try to minimize their use of cars (including ride sharing) and, therefore, their main option to access outdoor recreation is public transit. Dislike for cars is mainly linked to environmental concerns and to safety concerns (e.g., being involved in a car crash). We consider this dislike for cars as a value, as it is a deeply-steeped belief that influenced many behaviors for some respondents. For example, one respondent noted, “My [partner] actually hates driving. It gives [them] a lot of anxiety. [They don’t] like the idea that [they are] in control of a machine that could kill people. It’s not an enjoyable way to travel at all.”

Differences in motivations and values based on demographics. We did not observe striking demographic variations in reasons to ride transit to parks among our respondents. For example, interviewees of all genders and all races mentioned reasons related to environmental concerns, traffic congestion and parking, and cheaper cost quite often. It is important to note that our sample size ($n = 25$) is too small to conduct statistical analyses about such potential variations, and therefore what we report here and in other sections is based on a qualitative evaluation of responses depending on the demographics of the respondents.

One respondent noted that environmental values might particularly resonate with younger people. They noted, “Millennials and younger without kids absolutely would take this [transit to park] service. They want to find more ethical and more honestly fun and safer ways to get outdoors.” Additionally, respondents who expressed a profound dislike for cars were also generally in their 20s and 30s and without children, suggesting that age might play a role in the reasons to take transit to parks.

3.3.2. Current experiences and constraints (Research question 2)

Respondents experience numerous constraints to riding transit to parks, and they also seek to negotiate such constraints in some ways. Table 3.3 summarizes the main constraints shared by the interviewees and Table 3.4 presents constraints related to specific demographic groups. Here, we distinguish between structural, intrapersonal, and interpersonal constraints (Humagain & Singleton, 2021). Structural constraints relate to the built environment and transit service; interpersonal constraints deal with individual psychological conditions; and intrapersonal constraints derive from interactions with other individuals, including those within one’s social circles. In the paragraphs below, we first describe the general constraints (Table 3.3) and then discuss constraints experienced by specific demographic groups (Table 3.4).

Table 3.3. General constraints to taking transit to parks

Type	Constraint	Description
Structural	Overall travel time	Excessive time needed to access trails and parks via transit deters respondents from taking transit to parks (or from taking it more often). This also includes excessive distance between transit stops and trails
Structural	Service frequency	Limited transit frequency deters some respondents from taking transit to parks (or from taking it more often)
Structural	Service reliability	Limited transit reliability and the need to make connections between two transit lines deter some respondents from taking transit to parks (or from taking it more often)
Structural	Stops and stations	Unsafe and/or uncomfortable transit stop and station deter some respondents from taking transit to parks (or from taking it more often)
Structural	Cost	The cost of some T2P services deters some respondents from taking such services
Structural	Gear on board	The difficulty of bringing gear on board (e.g., skis, bikes) deters some respondents from taking transit to parks
Structural	Last mile connections	Unsafe, inconvenient, and/or unclear first and last mile connections deter some respondents from taking transit to parks
Intrapersonal	Leisure time reasons	The need to plan ahead to take transit to parks (as opposed to driving) and the need to wait for transit during one's leisure time deter some respondents from taking transit to parks
Intrapersonal	Transit stigma	The stigma associated with transit deters some friends of the interviewees from taking transit to parks

Table 3.3 includes seven structural constraints to taking transit to parks. Six of them (all but “last mile connections”) pertain directly to transit agencies. The first three constraints listed in the table (service frequency, time, and reliability) were mentioned very often by participants. And although those three are constraints that affect transit ridership in general, they also have specific impacts on respondents’ decisions to take transit to parks.

Overall travel time. Several participants noted that a major reason why they do not take transit to parks (or why they do not that more often) is that it often takes them an excessive amount of time to reach a desired outdoor recreation destination via transit (as opposed to driving). In some cases, interviewees reported that reaching the same trailhead or park via transit would take between two and three times more than driving. As part of this constraints, respondents also lamented that many trailheads are located excessively far from transit stops (for example, more than one mile), and therefore reaching those trailheads by walking (and returning to the transit stop afterwards) would add an unreasonable distance to a hike. In other words, closing the gap between transit stops and some trailheads or parks by walking would make the length of trips excessive for many respondents.

These sentiments were shared both for city parks and for trails. For example, a respondent shared the following about reaching some city parks via transit,

So I even looked up how do I get to Jordan Park from my home. And I don't know the specific distance [...] But there was no bus route that would take me from where I live. ... I also looked it up to go to Liberty Park. And that was it seemed excessive. I think it said it was going to be like, an hour to get there. Yeah, so. So I would ride it [the bus] if it were more practical.

Another interviewee noted similar issues related to a city park,

I would love to get to Liberty Park more easily. ... Using UTA without taking like two hours of your life to do it. So it's too long. And, and, like, too many lines [...]. I do a lot of transfers, you got to do a lot of waiting.

And a participant shared similar sentiments related to accessing the foothill trails, I do think that there are some limitations with some of that access [to the foothills]. The [TRAX] Red Line obviously gives you access to some of the foothills, which is nice, but it's not direct. [...] you're not being dropped off at a trailhead, but then it kind of narrows your window.

The same respondent went on to describe how closing the transit stop-trailhead gap on foot requires much more time than doing so by bike,

And the time to get from the station to the trailhead would be longer just because the pace that I'm moving is slower on foot [than by bike]. And so the last mile problem, as you say, is more serious on foot than it is on a bike.

Further, another participant noted how difficult it would be to access the Mount Olympus trailhead, as the gap between the closest transit stop and the trailhead is 2 miles. They noted, "When I was looking at like trying to do Olympus but then it was like this is you know adding four miles to the trip for this is just not going to make me happy".

A few interviewees noted the excessive travel time to reach ski resorts via transit from central Salt Lake City and the west side of the Salt Lake Valley. One stated, "But getting to the ski bus from downtown Salt Lake City, there's not like a direct route." And another pointed out an excessive travel time to reach ski resorts via transit, "The two-hour bus ride to get to the places where you could ski just sounds like too long. Too many different stops. You have to take TRAX to this bus stop and then take one bus. Too many transfers." A similar sentiment was shared to access downtown Park City, which currently requires making at least one transfer when traveling from Salt Lake City,

I looked at taking a bus to Park City, and it was quite complicated. And so it would be nice to be able to bike with my mountain in the summer, going to downtown Park City. [...] Why can't I just take a direct bus into Park City instead, I have to take this like intra city transit agency bus and then connect somewhere over in Park City, and then take that into downtown Park City.

Another respondent summarized well the need of fast transit connections to parks and trails, especially as people have limited time to recreate,

Anything that takes longer than like 30 minutes [to access via transit] is like, well, that's gonna be my night. And that sometimes that'll turn you off from recreating... If it takes too long to get somewhere, and you're spending a lot of your time just trying to transport yourself to go have fun on a weeknight, it's often not worth the opportunity cost of doing something closer to home or staying home and doing something that feels like it's worth your time.

In general, some interviewees noted that a lack of transit lines that go close enough to trailheads. For example, one noted, "I haven't used transit as much to get to mountains and canyons. There aren't a whole lot of bus lines or anything that really serve that purpose." And another one stated, "I feel a little bit restricted that a lot of this recreation recreational opportunities aren't really easily accessible without a car."

Service frequency. Limited frequency, especially during weekends, was another significant constraint to taking transit to parks (or taking transit to parks more often). In many cases, respondents noted that limited frequency contributed to excessively long travel times. One respondent talked about frequency when mentioning their transit to parks trip to Mill Creek Canyon: "I think frequency is a big one. When I went to Mill Creek [Canyon to hike], I took the 3 bus to the 4. But the 3 only runs once an hour, which means if you miss it, you have to wait like 58 minutes or however much you've missed it by."

Respondents were particularly concerned about the lack of frequency (and in some cases the lack of services) on weekends, when people recreate outdoor most often, and even more so on Sundays. For example, one respondent who takes TRAX to the Salt Lake City's foothills trails noted, "And on the weekends, it's more important to catch the specific train [TRAX Red Line] because the 30 minute intervals on the weekend." Another interviewee echoed similar sentiments related to weekend service,

And then service regularity. I think it's difficult to ride [the bus] if you're timing a loop or point to point, you get back and then buses only every 30 minutes, especially on Sundays. [...] but there's a solid chance that I'm going to get to the bus stop and miss it. I'm going to be stuck there for half an hour.

Limited weekend service also affected users of the ski bus to reach Cottonwood Canyons resorts. One respondent riding the bus from central Salt Lake City noted, "And I would say that the most frustrating thing is that the Sunday schedule for the 220 [bus] doesn't line up with the ski bus due to lower frequency. [...] it's like an extra 20 minutes that I'm waiting."

As a result of limited weekend service, some respondents noted that they found it easier to take transit to parks on weekdays, relying on commuter services. For example, one stated, "I feel like [taking transit to parks] has been easier for me to do during the week because of [...] early morning or after work [...] the regularity of the commuter lines, whereas on Sundays there are big gaps [in service]."

Numerous participants noted that the limited frequency of bus service to Park City also creates a constraints to their outdoor recreation activities in the area. One respondent described such service in the following way, "So the Park City connect bus only runs early in the mornings. I mean, it runs later in the afternoon, too. But it's one of those express buses that runs for commuters in the mornings, and then commuters in the afternoons, but it doesn't run during the day." Another respondent noted how the limited frequency affects their trip choices over weekends, and especially during the summer,

It's unfortunate, because [...] I don't think there even is a weekend schedule in the summer. I know it runs in the winter on the weekend. But in general, the scheduling is like not super ideal for like a Saturday afternoon, because if you want to get up there, you have to get up there at like, you know, nine or 10 am. And then the first bust down is at three or four [pm]. So I usually don't go up there on the weekends just because of that. I would like to but it is it's just too difficult.

And yet another responded echoed similar issues for the Park City - Salt Lake City connect,

If I wanted to stay for a run after work, that's usually fine because I can take the 902 back. But on the weekends, the 902 doesn't run so that that kind of Park City commute doesn't work super well. And even on weekdays, the 902 doesn't run super late. So both the time that they run and the frequency that they run are like a huge barrier, for sure.

Service reliability. Experiences or fears of unreliable transit service was another deterrent from taking transit to parks (or doing so more often). Respondents referred to reliability as the ability of knowing exactly at what time a bus or train would come, and they noted how unreliable service has led to long waits, especially in bad weather (e.g., in the snow). Reliability was often mentioned alongside frequency, as unreliable service is a bigger issue when service is less frequent. For example, a respondent noted, “with the existing lines, frequency, and like reliability of service, so you know, you'll be able to get where you need to go, when, you know, whenever you need to do it within reason.”

Some interviewees identified specific reliability issues with the ski bus service in the Cottonwood Canyons. One noted, “It seems pretty confirmed at this point is that like, parking fills up all the time, the bus is not reliable at all, the bus, even if you don't even get a parking spot, if you're close to the actual canyon itself, the bus is oftentimes full.” And another respondent elaborated on how fully-occupied ski buses mean that several people end up waiting significant time at the mouths of the Cottonwood Canyons,

There seems to be two boarding points for these buses that go out into the canyon. And if you don't know which boarding point you should be on, then they will stop at the first one. They'll load everybody on. And for the two buses that came at the same time. When we went up to Solitude, they were totally full at the first stop. And then they just pass the second stop. [...] People who are waiting at that second pickup point [...] could just be waiting there forever, because it's just full bus after full bus and nobody's stopping for them.

Respondents navigated constraints related to overall travel time, frequency, and reliability in several ways. A few interviewees noted that they do not mind the extra time it takes to travel to parks via transit because they occupy their time by reading books or listening to podcasts. One participant noted, “But I'm never waiting for the train. I'm always reading my book, or listening to a podcast. And I'm not waiting in traffic, you know. So for me, it's all upsides.” Others suggested that they needed to plan their transit to parks trips more carefully than when they drove to outdoor recreation sites, and planning helped them navigate some issue. For example, a respondent stated, “And you have to plan a lot more carefully. And [the weekend is] when I have more time to go do recreational activities.”

Stops and stations. Respondents identified a series of common concerns about transit stops and stations, and some demographic groups noted more specific concerns (see below). One main issue that interviews shared is the lack of shelter at many transit stops located both near city parks and near exurban outdoor recreation destinations. Regarding city parks, a respondent noted, “I know that there are certain stations that give you a bit of shelter the one that's next to me [...] doesn't have any anything. [...] And I think it's nice when you always have the option to sit down and like have some type of shelter if it's raining.” Lack of shelter might deter some people from taking transit to parks, especially during weather events, as noted by a participant, “I'm probably willing to sit out next to the bus stop for a while. But if I have to wait more than 30 minutes during bad weather [at a bus stop without a shelter], I'm not going to want to do it, for sure.”

The lack of shelter can be particularly felt at ski resort, as people wait for buses at the end of the ski day. One interviewee explained how insufficient facilities at these locations might de-incentivize the use of buses to reach ski resorts,

I haven't skied in a while but I did a lot in the past and tried using the UTA ski buses a lot. And you always kind of felt like you were a second class citizen even though you were trying to do the right thing. The problem was that like at the end of the day, everybody's tired from skiing, and you're all waiting to get on the bus. And basically there's no sheltered, heated waiting area with seats to sit on while you're waiting. And so there's basically an issue with lack of amenities surrounding transit. So if our expectation is to have the majority of people going to ski resorts riding the bus, then we need to have facilities that will make that experience as great as possible. [...] Make me people feel like they're not second class citizens.

Along these lines, another participant stated that bus stops are hard to find at ski resorts, suggesting the need for more amenities and wayfinding,

Honestly, I think that, even at the ski resorts, where the [ski bus] stops are is kind of obscure, like I don't know where Brighton's are. I've taken the bus to Brighton, I've never taken it from Brighton. [...] It's all in that dark and you need to ask around.

Fortunately, we also heard from some respondents with good experiences of transit stations, especially in the Park City area. One noted,

I like the Kimball junction Lodge is like really nice, too. So you can sit and wait for your connection up there in Park City. And that actually adds a lot. Because if you're you know, if you have 20 minutes, but it's 20 degrees outside that is quite awful the way out in the cold.

Finally, some respondents suggested that most transit stops near city parks and exurban outdoor recreation destinations lack services like bathrooms and water fountains. The lack of such services might deter some people from taking transit to parks, especially as one might be seeking a bathroom after a hike or a bike ride. One participant explained,

Basic things like having access to a bathroom. Because like if you have to take the bus somewhere and you don't know if there's like a restroom, like you don't

know if you're going to be able to get to one quickly. Same with like water fountains.

Cost. A few respondents shared that the cost of some transit services acted as a deterrent from taking transit to parks. Specifically, interviewees were aware of higher-than-normal costs (where a normal fare is \$2.50) for services like the ski bus, the Salt Lake City-Park City Connect, and the Frontrunner (which was often used to access biking trails). In addition to being more expensive, interviewees reported that these services generally require a different ticket, which can create barriers. For example, when asked about the ski bus, one respondent noted,

If I'm looking at how I plan my route, I will definitely ask, 'do I need to have another ticket? Is there a way to avoid that?' If there is that scenario, you know, that's part of why I haven't been taking the Front Runners because [...] it's an extra cost one for me.

Some participants also stated that, thanks to Free Fare February in 2022, they used those services more often than usual. One shared the following, "I went up to Ogden, just to see since we have free fare right now, with the Front Runner [...] I brought my bike with me." And another talked about a trip to Park City that likely would not have happened without Free Fare February,

I'm really enjoying the Free Fare February because I've got services that aren't included in my pass that are currently free so I can ride around on Front Runner. And also on Tuesday, I rode all the way up to Park City to just enjoy being out.

Gear on board. Some respondents shared some struggles but also positive experiences related to carrying gear on buses and trains, including bikes and ski gear. Among the struggles, a few interviewees pointed out that loading one's bike on the racks placed on the front end of a bus can be difficult for people who would be doing that for the first time. One respondent noted, "Luckily, I haven't had issues finding bike spots on buses. But you know, if we're going back to accessibility, it's not easy to load and unload a bike onto a bus. Especially quickly and efficiently."

Another interviewee explained that their partner, who generally does not ride transit, had significant questions and concerns about loading a bike on a bus rack. They noted,

[They] had a lot of questions about how to load his bike on the front of the bus. It's something that I have done, that I feel comfortable with. But I think that it might be something that would be important to [...] have a "how to" or demystify that for some people. Or convince people that, a lot of people spend a lot of money on their recreational bikes, that it actually is safe to put it on the front of a bus. That would probably ease some of the concerns that people have. Because like doing anything else, as a human, if you've never done it before, and you're in a time limited situation where you're unfamiliar with your settings, I could see where people would be really nervous not understanding how to fold the rack down load their bike [...]. So I think that that would be something that would be an important part of this conversation, especially for recreational bikers.

This concern about the potential inability to carry bikes on the bus rack might be justified when the bikes have large tires. One respondent stated,

I know that fat tire bikes are not compatible yet with a lot of the bike racks on buses. But a lot of the bikes being purchased nowadays especially e-cargo bikes have the fat tires. [...] You might want to look at not just to get people on the flat tire of mountain bikes to the outdoors, but a dad with a seat on the back of his fat tire cargo bike might not be able to use a bus.

Some respondents noted that carrying a bike on the light rail seems easier than doing so on the bus. One explained, "I would say the light rail is my preference because it's easier for a bike." And another respondent shared similar sentiments about some people potentially feeling intimidated by or confused about how to load a bike on the bus rack. They noted,

That's pretty easy [to carry a bike]. I mean, at least on the light rail. So one mental hump that I have is using the bike on the bus, because it seems like you have to be an expert. And, the bus driver, I've seen it happen. They're like, 'yeah, it's just like, throw it there.' And you went to the contraption, and you're like, whatever.

Other respondents reported uncomfortable experiences carrying their gear on transit when trains or buses are crowded. For example, a respondent taking TRAX frequently with their mountain bike noted,

If the [TRAX] cars are full, it's a little complicated. [...] Sometimes it's other people that have a bike. Sometimes, [...] they don't like because I have a backpack and I stood on the wall. Sometimes, it seems to stressed out the other people in the car with a bike or people that are like walking back and forth. Because there's not really any bike infrastructure other than just the kind of opening between the two sides of the car.

Other issues raised by respondents were related to complex transit connections and to limited frequency. One respondent noted the difficulty of traveling with gear (like ski gear) when making connections between two transit routes,

But how do logistically, take my skis, my boots, my poles, anything else I might need to actually make it to Brighton from [their house]. That involves taking a bus to the ski bus. [...] How am I gonna carry my stuff and if I can actually get the bus that will take me to the ski bus?

Another participant shared the concern of potentially missing an infrequent bus (1-hour headways) while traveling with their bike because the two bike racks were already occupied. They noted,

I do appreciate the bike racks that each of the buses have and by car on the Front Runner. I know sometimes it can get tricky. So down here in Southern Utah County we have the A 21 bus line, which is basically our only bus line. If you I've seen people sometimes show up and the bike racks are already full and the bus drivers not very bike friendly, and so he just doesn't, they're out of luck and they're gonna have to wait another hour for the next bus to come. If you're planning on taking a bike with you on the bus, you can be at the mercy of...

Fortunately, numerous interviewees also reported positive experiences carrying their gears on transit. For example, several people found it easy and convenient to carry bikes on trains. One

noted, “The Front Runner is great for bikes like just putting your bike onto the bike car and leaving it there and you get to sit, chill and look out the window. That’s very convenient.” Another echoed a similar sentiment, “We can bring our bicycles on the train. That’s what we do when we go to the Jordan River Parkway, or to the Wild West Park. I’ve even taken the bicycles with us on the Front Runner.” And yet another interviewee noted that carrying ski gear is easy on Park City Transit buses, “And the [bus] drivers [of Park City Transit] are all good with you bring your skis on board and everything. And you get dropped off right at Round Valley.”

Last mile connections. Interviewees have reported several concerns about the “last mile” connection between transit stops and outdoor recreation destinations. As a start, several people noted that, to limit this type of constraint, it would be preferable for transit services to reach the actual trailheads. One stated, “I don’t think that most people are going to be willing to, to do the last mile connection to a trailhead, but I think people would take advantage of if the stop was at the trailhead. . . . if you’re like, going for a three mile hike, and it’s a half-mile between the stop and the trail, that’s not doable for most people.” Another participant echoed similar sentiments, stating that the lack of direct access to trails can act as a major deterrent,

As it stands right now, you pay for a bus and they drop you off on the highway you have to walk especially longer distance especially most humiliating through and frustrating is when you have to walk through the very parking lot that you were trying to avoid. Knowing that the people were able to come up to that parking lot free of charge. So that’s a discouragement whenever you have buses that are when it’s going to be you’re going to be treated that way. So if they have the buses that took it right to like the front door of the event, that would be nice. That would send a signal that that the transit people are welcome and that they are treated better and more of a reward, because right now, there’s no reward. Actually the reward is definitely on the private vehicle.

Several other participants raised concerns about the safety of these “last mile” connections, including safety issues for pedestrians and cyclists. Safety issues for pedestrians included the lack of sidewalks and subpar intersections, whereas safety issues for cyclists included the need to ride along heavily-trafficked roads without bike infrastructure and high speed limits. One participant noted the following regarding biking, “Man, this is really hard for me to do. And like, I feel kind of sketchy biking around some of these roads, [...] if it’s unfriendly to me [a young, able-bodied cyclist], or if it’s barely possible for me, that’s not, it’s not a good threshold.” Another cyclist noted similar concerns regarding closing the “last mile” gap by bike,

I also thought of something else I meant to say about barriers to doing transit plus bike trips, which is in areas I don’t know as well, not knowing if there’s going to be a road I feel safe biking on to get to my destination. I’ve been wanting to check out Dimple Dell park, but I don’t know if there’s a comfortable bike route from the South Jordan Frontrunner or Sandy TRAX stations, just to give one example.

“Last mile” safety issues raised by pedestrians were also concerning. A few respondents reported experiences in canyons near trailheads. For example, one noted,

Essentially the bus stop is there next to this highway was people in their Tesla’s going down that canyon so fast. And then once you get on that bus stop, you have to walk a half mile just to get to the trailhead. I was like, well at that point. No, I just preferred to use the parking lot at the trailhead, because that way,

when we get out of the car, I'll immediately have a pleasant hiking mountain sensation rather than having to walk along some third service road that just leads me to a parking lot.

Another participant raised similar issues for connections to foothills trails from the TRAX stop at the University of Utah Hospital. They noted, "You also have amazing issues with pedestrian safety, there's not a lot of crossing abilities right there to be able to get across to any of those trailheads to not get killed in the traffic, which is kind of crazy." And similar issues were raised for other transit stops that are relatively adjacent to trails but located along busy arterial roads. One noted,

Well and like the Olympus is so it is a park and ride [...]. But it doesn't even have a sidewalk going from the where you get off the bus to the intersection, [...] where you take it over to get to Mill Creek Canyon. [...] I think there was like a curb and I just walked on kind of this dirt or grass thing next to it. But you don't even have a sidewalk getting to the transit hub.

Other interviewees stated that it was sometimes unclear to find their way to trailheads from transit stops. One explained,

At the hospital [U of Utah Hospital] station, it is extremely not user friendly to get from the [TRAX Red Line] station itself up to the BST [Bonneville Shoreline Trail], it's like 20 massive buildings, they're all connected. [...] So you have to take a very circuitous route to get around the hospital. And even on Google Maps, it's hard to figure out what the easiest route is.

Finally, a few respondent noted that the lack of bike parking at trailheads limited their ability to use bikes in combinations with transit to go on hikes. One explained, "the last mile connections to trailheads, like, almost never bike parking at trailheads you have to get a little creative to find a place to walk your bike. Um, yeah, I don't know. And I think that as ebikes become, you know, more popular and more accessible, I think that's like 100% people are gonna ride their bikes to the trailhead. Like, we should have parking there for them." And another echoed similar sentiments, "If I biked up there and there wasn't bike parking, or wasn't a place I felt secure locking my bike that would sort of be a bummer ... Sometimes if there's not a rack at least there's a sign you can lock it two or three or something but I prefer racks."

Leisure time reasons. Another set of constraints relate to the nature of leisure time as involving often spontaneous and self-directed activities. Specifically, the need to plan ahead to take transit to parks (as opposed to driving) and the need to wait for transit during one's leisure time deter some respondents from taking transit to parks. Regarding the first constraint (need for planning), one respondent noted, "And I at least for using [transit] for pleasure, it's usually figuring it out last second kind of thing." Another participant explained how their leisure time activities are often spontaneous,

I don't really plan my trips around [...] I'm gonna go hike here and make it to and use transit to get there. It's usually a last like minute thing, or another group of people invited me and, and in order to make it a timely thing, I drive.

The constraints related to waiting for transit during one's leisure time was well articulated by one respondent, who noted,

Just any kind of friction that there is in terms of using on transit for leisure, makes me less likely to want to use it for leisure. Because like, I don't want to spend my leisure time sitting on a street corner, hoping that the bus is coming. Do you know what I mean? So whether that's more frequent service, or whether that's better schedule alignment for some of the major routes that could take you to leisure destinations [...] I think that that taking a look at service with the idea of leisure in mind might help improve the demand for the for that service.

Transit stigma. Some interviewees noted that transit has significant stigma in their social circles. One respondent shared the following, “Because in Europe, you just you get on the bus or the train or whatever, just like everybody else. But in America, you get on the bus to the train, and people are like, ‘Oh, you’re poor.’” A few participants pointed out that this stigma is particularly active among some recreation-related groups. Among various reports of this issue, one interviewee noted,

Even in the outdoor communities that I participate in, like getting to a bike race, people can't understand that I am going to take Front Runner to get to a bike race in Ogden. They'll be like, ‘oh, I'll just drive you.’ And I'm like, ‘No, it's okay, I'll just take the train, it's fine.’ It's the same. It takes me an hour to get to Ogden, no matter what train or not, I don't have to worry about being in a car, I just hop on the train. [...] But when I show up at these bike races, it's a bunch of oftentimes older people in Lycra that are looking at me kind of funny, because I just walked off the train, and we're going to do this race. And I guess I don't really understand why.

In the remainder of this section, we focus on how constraints to taking transit to parks vary across various demographic groups. See Table 3.4 for a summary. Some of these variations shed further light on the general constraints described above. For example, structural constraints like last mile connections can create particular impediments to people with physical disabilities.

Table 3.4. Constraints to taking transit to parks for specific demographic groups

Type	Constraint	Description
Structural	Geographic disparities	The West side of the Salt Lake Valley is located much farther from most outdoor recreation destinations than the East side. Taking transit to parks on the West side is much harder and takes longer
Structural and interpersonal	Physical abilities	Respondents with limited physical abilities (including those with physical disabilities) faced more constraints to taking transit to parks
Interpersonal and intrapersonal	Gender	Women mentioned more constraints to taking transit to parks than men (mostly related to fears for personal safety)
Interpersonal and intrapersonal	Race and ethnicity	People of color mentioned specific constraints to taking transit to parks related to perceived discrimination
Structural and interpersonal	Families and kids	Families with children face specific constraints to taking transit to parks

Geographic disparities. Several participants noted that some neighborhoods have much worse access to parks and trails via transit than others. Here, geographic disparities reflect socioeconomic and racial/ethnic disparities, wherein the West side has lower socioeconomic status and has higher shares of people of color than the East side. Respondents shared that taking transit to parks on the West side is much harder and takes longer than on the East side. This is because the West side of the Salt Lake Valley is located much farther from most outdoor recreation destinations than the East side and because transit service tends to be more sporadic on the West side. In relation to limited transit service *in general*, one West side resident noted, “The West side has a unique issue because we don’t have enough services over here.” Another West side respondent echoed similar thoughts and shared their hope for planned cross-town improvements,

From my perspective, especially living [on the West Side], I’m really excited to see the impacts of some of the UTA changes to the bus service. Being able to have better across town bus service. Because I think that some of the biggest difficulty of living on the West Side [...] is that it does really feel like you’re bifurcated from the rest of the city. Having to take transit and needing to transfer at Central Point Station before getting anywhere on the east side. So the number of transfers you do really increases the amount of time that you have to spend.

A few other interviewees specifically lamented that transit to parks services are missing on the West side. One stated, “I am very disappointed. We don’t have some sort of central bussing system to get people up the canyons [from the West side]. Just for equity reasons, I think that should exist.” And they continued, “There’s no transit [from the West side] either to get up to something like Memory Grove Park or even up to the Capitol, which is a beautiful place to go hang out.” Another West side resident echoed similar sentiments,

There isn’t one bus that picks people up from the West side, for example, and goes all the way up to the mountains. It’s kind of assuming that most, which is racist, that most of the recreation people live on the East side. [...] But people on this side of the city [the West side] deserve access to everything that the valley has to offer.

Other residents noted geographic disparities in transit stops and stations, including their facilities and maintenance. One respondent noted,

I think the actual messaging is sort of apparent in the infrastructure we have [on the West side]. [...] If you look at some of our bus shelters, they’re like in subpar condition. [...] So to me that screams, ‘we don’t care.’ [...] Just a contrast for real quick. In Utah, just go to Park City, where transit is free and they have electric buses. That to me screams like [...] Obviously, the demographics are vastly different. So I acknowledge that. But that incentive is there. ‘Okay. I should use it.’ [...] And electric buses, and then the shelter and like, all the facilities over there look great.

Physical abilities. Some participants also noted that the limited physical abilities of some residents can hinder their use of transit to parks. At the most basic level, a few interviewees noted that people with physical disabilities often cannot use transit to access parks or trails because of a lack of transit stops at parks or trails. One interviewee with a physical disability noted,

It would be it would make it easier for me if [the bus] actually goes to the park and has to stop at the park. If it stops two or three blocks away, I will still have to walk there, I use a walker. So there's a lot of roads that have holes or are cracked, and they would make it hard. So if the buses do have to stop right at the park, it would make it much easier for me to actually go and be a little bit more independent and go on my own.

Along these lines, a few other respondents noted issues with last mile connections wherein the lack of sidewalks, cracked sidewalks, and other impediments. One noted,

I think if a bus does go to a park, I think there needs to be a place where people are going to get off on that it's accessible. Because I think just stopping on a sidewalk that has grass wouldn't really be accessible because there's going to be snow, and if it's it rains, it's going to be muddy. [...] But if you if you have any type of mobility limitation, it's going to be really hard. It needs to be somewhere that is paved.

Other respondents shared similar sentiments. One explained,

The only thing that most of the time worries me is that on some of the roads, the sidewalks are not very good. So walking myself with a walker is going to be a little bit hard because I could have to lift it up or things like that.

Other participants pointed out that the lack of snow and ice removal on sidewalks near bus and rail stops makes it difficult for people with physical disabilities to access parks in the winter. One explained, "I'm really thankful that I'm able bodied person because especially in the winter, the snow and ice are not being cleared. So it's impossible if you [...] have a wheelchair or walker, then you'd be absolutely stuck. Which is crazy." And another participant shared similar thoughts,

And I think I noticed that a lot when we had our huge snowstorm, sidewalks where not shoveled so I had to step over mounds of snow that were shoveled to the curb to clear the street to step into my bus. But I think for people who use wheelchair, that's a little bit harder for them. For me, it's accessible because I'm not impaired by any physical disabilities.

Another set of concerns involved older adults and the need to better serve their transit to parks needs. A few respondents reported that the current distances between transit stops and parks and/or trails tend to be too long for older adults. One noted, "[To reach a park via transit] that's half a mile [of walking]. For anybody who's a little older, a little handicapped or whatever and has difficulty walking uphill, there's no way. And Reservoir Park should be a destination as should the Victory Park because it's got a senior center right next to it and tennis courts." Another respondent echoed similar concerns,

The Farmington Bay Waterfowl Management Area is a place we thought about taking my mother in law when she was visiting before we had a car, but 3 miles each way is just too much to ask someone to walk and then also enjoy walking around the trails to see the birds.

And some interviewees noted that safety issues in last mile connections could be felt unevenly by seniors. One explained,

I'm a healthy person in my 30s without a kid or an older person that I'm walking with most of the time. And I walk pretty quickly. If I don't feel safe at various things or if I feel like it's a little dicey, then how would someone in a different demographic feel? [...] Like, how is someone else going to do this?

Gender. Women reported some constraints to riding transit in general due to experiences of or fears of harassment. Specifically, women were concerned about waiting at poorly-lit bus stops, especially at night, and reported being harassed while riding transit. No specific concerns related to gender were raised regarding transit trips to parks or trails.

Race and ethnicity. As for gender, some people of color we interviewed reported constraints related to their race and ethnicity. We heard about experiences of discrimination and harassment while riding transit among Latinx and Asian riders, including perceptions that they were being targeted for their appearance or the language they spoke. Some racial/ethnic minority participants also suggested that the lack of signage and informational materials in languages other than English was a barrier for some people in their communities, especially recent immigrants. Similar to gender, we did not hear specific concerns related to race or ethnicity for transit trips to parks or trails. One interviewee talked about what they heard from women of color who take transit to access parks,

People walk around with various identities, and specifically some young women of color. They share concerns frequently in some of these groups, right? Young Asian woman by themselves [taking transit], particularly the time during COVID. And this last year and a half, they were 'No, I'm not going to do that. Not unless I have a button to push to say I need help, or I've got buddies with me that make me feel safe. And the transit service is frequent and fast.' ... These are systemic issues that we got to figure out how to fix.

Families and kids. Some respondents noted that there might be specific constraints to riding transit to trails for families with children. In particular, a few participants noted that carrying gear on transit that is needed for recreation (and in general, for children) can be complicated. One interviewee noted that most buses lack the space for gear that is needed to take children to recreation sites, "And I've got a picnic basket, and a diaper bag, and a stroller. And I don't know what else that you have to all take along. Where do I put that stuff? When I get on any of the transit vehicles, I don't have an ability to put this very well." Another participant talked about potentially taking their children skiing, but deciding against that because it would be complicated for the kids to take their ski gear. The interviewee explained

The first time skiing ever was just this past Sunday. We would not consider taking the bus for that because we were the ones carrying our children's gear. And we needed a car to transport the gear and as a comfortable place to park. However, if the children were older, able to carry their own gear, and that we had a sense of where we were going and experience, we would consider taking the bus. ... I could not rely on the bus for [going skiing], especially when you got a five year old who can't handle his own gear a 10 year old who might wrestle trying to do it. The ski bus is not meant for families, just end of story.

Other respondents talked about the experience of taking transit with children. The content below hints to the fact that taking transit to trails might be more complicated with younger children than with older ones. One interviewee pointed out that the lengthy trips that are often needed to reach parks and trails via transit, combined with often unreliable service, would not make for a

pleasant experience. They noted, “I just know that it's so hard with kids, especially if you got young kids, like trying to get to places so I can see it being more challenging for parents with young children. It's gonna be really hard, especially if it takes a long time, because the last thing you want is to be stuck on a bus for an hour with a crying child.” Another perspective is from a parent with older children. This participant noted that (older) kids enjoy transit to reach recreation settings, whereas as a parent, they do not have to worry about driving and do not get tired as a consequence. The participant explained,

For me to buckle up the children in the car, there's a sense of restraint that they have to have. Yeah, we can get to our destination faster. But then, I don't feel relaxed and rested is when we approach it because I have had my mind focused on paying attention while I'm driving. [...] So when we arrive somewhere [for recreation] via transit, I feel like I'm more engaged to the event at hand, rather than having to rest up from the trip [...]. And the kids can get restless in the car, especially if the trip is longer than 15 minutes. They will let me know.

Finally, similar to older adults, some participants noted that it can be difficult for families with children to walk between transit stops and parks or trails. One interviewee stated,

I would probably say a mile [between transit stop and trailhead] would be about the limit. And I'm sure it would vary. [...] I also imagine people with kids and mixed ability level families to be able to do this kind of thing. Because if it's a mile each way, it's probably pushing it depending on how good the kids are at walking.

Overall, these constraints suggest that the current transit services in the Wasatch Front might not meet the needs of people seeking to access large urban parks and trails. Our findings also highlight that the constraints to riding transit to parks are much bigger for individuals who are not young, are not in good physical shape, have disability, identify as a woman, identify as a person of color, or have children traveling with them.

3.3.3. Future opportunities and services changes (Research question 3)

Participants provided a wealth of ideas about potential improvements to T2P services that would help negotiate some of the aforementioned concerns. Table 3.5 summarizes the general ideas suggested by respondents and links them to the constraints that such ideas could help negotiate. In the next few paragraphs, we describe the general ideas presented in Table 3.5, including sharing quotes about these ideas from the interviewees. We then present the ideas for improved T2P service that can help negotiate constraints experienced by specific demographic groups.

Table 3.5. General ideas for improved T2P service

Idea	Description	Constraint(s) negotiated
New T2P services or reroutes	New transit lines, seasonal shuttles, or small reroutes to access parks or trails. These might involve adding services in certain seasons (e.g., summer) or days of the week (e.g., weekend)	Overall travel time, Last mile connections
Increased frequency	Increased frequency on lines that give access to parks or trails (either lines dedicated to such settings or those that go close enough)	Service frequency, Service reliability, Overall travel time, Leisure time reasons
Improved last mile connections	Make the connection between transit stops and parks/trails safer, shorter, more pleasant, and easier	Last mile connections
Cheaper cost	Lower or streamline the cost of specific services used to access parks or trails	Cost
Information about transit to parks	Create and disseminate informational material about T2P initiatives – includes maps, schedules, and wayfinding	Overall travel time, Last mile connections
Positive experiences	Making transit to parks a positive experience wherein riders have comforts, and overall a better experience than driving	Stops and stations, Transit stigma, Gear on board
Programs to help people try services	Create initiatives to help people try transit to parks for the first time	Transit stigma, Leisure time reasons
Marketing	Create targeted marketing campaigns to promote transit to parks services	Transit stigma, Leisure time reasons
Limits to car use	Implement measures such as congestion pricing or parking fees to reduce the use of cars in highly-congested mountain areas or urban parks	Overall travel time, Last mile connections, Service reliability

New T2P services or reroutes. Respondents suggested a number of T2P services that would help negotiate the key constraint of *Overall travel time* (i.e., excessive amount of time to reach parks or trails via transit) and the *Last mile connection* constraint. Specifically, interviewees provided suggestions about new transit lines, seasonal shuttles, or small reroutes of existing lines to access parks or trails. These ideas also involve adding services in certain seasons (e.g., a summer service in the Cottonwood Canyons) or days of the week (e.g., running the Fronrunner on Sundays). *Overall time* seemed like one of the most significant constraints that interviewees mentioned, and therefore providing more T2P services as suggested by participants seems paramount to give residents workable options.

Participants suggested a few key destination types that future T2P initiatives in the Wasatch Front could target: Mountains and canyons, the foothills around Salt Lake City and other cities, urban regional parks, state and national parks located farther away from the Wasatch Front (e.g., Capitol Reef National Park), and the Great Salt Lake. We elaborate on those destinations in the following paragraphs.

The most commonly mentioned destination types are mountains and canyons where recreationists hike, backpack, mountain bike, and more. Specific destinations include, but are not limited to, the Cottonwood Canyons, Millcreek Canyon, the Park City area, and Corner

Canyon in Draper. Several participants noted that, because these mountain destinations tend to be heavily congested year round, transit service should also be present in various seasons. One interviewee noted, "I think there's a need for transit to trails especially with the congestion that has been such an issue in the canyons, even in the summers and the parking. [...] I think that would be a huge thing. A huge improvement. So I just think that that's what's really lacking whereas there's already some service to the regional parks in Salt Lake."

More specifically, several participants appreciated the ski bus services over the winter, but they called for similar services in the summer to give access to hiking, climbing, mountain biking, and more. One stated, "But I wish there were a bus that would run in summer, that could drop people off at certain trailheads." Overall, the support for summer service at least in the Cottonwood Canyons seemed overwhelming among participants. Several quotes from participants show how transit could help with congestion, parking issues, and simply give the opportunity to recreate in highly-desirable areas to people who cannot or choose not to drive.

Also, maybe the ski bus could be running in the summer. I think I would definitely use those to access all of the hiking trails that exists in the canyons, because we have driven to those in the summer. And I always think 'man, if only the ski bus ran the summer I would absolutely use it.'

I would use [a bus service] in the Cottonwood Canyons, especially because I think parking is even more of a pain honestly, in the summer like parking is the worst part of hiking in the Cottonwood Canyons in the summer.

I think the trailheads in Big Cottonwood Canyon. That S curve where people get in the summer is a madhouse. Same thing with some little Cottonwood Canyon parking lots. I avoid Mill Creek on the weekends in the summer. I'll go either super early or late afternoon, but from like, 9am to 2pm, you've got like a 50-50 shot of just driving around the top for 20 minutes, at least.

I don't quite understand why there's not a bus that runs up Big Cottonwood and Little Cottonwood during the summer. Because every single trail is packed with cars like there's always people at the resorts in the summer now.

I would think honestly, the most impactful thing they could do is make canyon transit viable, even if it was just one Canyon to start. But the amount of people that I see parked at Donut Falls trailhead, or the S turn on Big Cottonwood or White Pine in Little Cottonwood, there is simply no reason that there can't be a bus running every couple of hours or every hour on weekends. But I think that opening up the canyons to public transit year round would do so much for encouraging people to use it more than just getting to work. [...] So I think that my number one priority is add service in the Cottonwoods year round, even if it was just on weekends.

The biggest thing in my mind is summer service into the canyons. I have no idea why that doesn't exist. There's so crowded in the summer and parking gets so crowded at all the trailheads that why don't we just have buses that go up in the summer? [...] But it's insane to me that we don't have any bus service up there other than during the peak of the ski season.

Others also advocated for a weekend service to Park City, which is currently only accessible via transit on weekdays, according to the interviewees. One suggested, “I think the bare minimum is the 902 [Park City – SLC Connect] weekend service. And then running the ski buses year round in the Cottonwood Canyons.” Another participant elaborated on more service to the Park City area. They noted,

I really wish it was easier to get to Park City because I don't really enjoy driving that canyon. And contributing to that mess. [...] But I would go to Park City a lot more if I could get there conveniently without driving. [...] Park City has all those trails for people who love to mountain bike. So if there were buses that could take gear to these trails, like mountain bikes, and whatever, snowboards and all that fun stuff.

Respondents also provided specific suggestions on how to connect residents of the Salt Lake Valley to transit services that give access to canyons. Specifically, suggestions included boosting park-and-ride opportunities at the mouths of canyons or throughout the region; creating better connections between other transit services and future canyons services; or establishing express routes from densely populated areas such as downtown Salt Lake City. The quotes below explain some of these ideas.

I think I think park-and-ride probably the most practical just because you've got people coming from all over the place. So you'd have to have a place for them to park and then get on the shuttle, just kind of like Zion. But ideally, I think there would be connections with other transit lines. [...] And then either of those bus routes would continue up the canyon, or just drop people off and need to get on the shuttle.

The presence of transplants in downtown. You see a lot of people that are like, ‘Oh, I'm moving to like Salt Lake City, do I need a car if I'm living downtown? And I think more service [to the canyons] from downtown, maybe it's an express service to the mountains. [...] I think the most realistic way to get people more people using transit is to start with the transplants from downtown, that are moving from California, New York, DC or wherever, and they're used to using transit.

Maybe a challenge for Salt Lake City is that [...] we don't have a big central transit center. Where people could hypothetically transfer and get on to all these distinct lines. Even for even for the ski bus.

I think how the ski bus operates would be excellent [for summer service]. I think having the bigger TRAX stations that are also bus stations. Like, Murray Central and Sandy Expo. [...] Maybe every hour, even every two hours, there could be a bus that goes up into Mill Creek Canyon, Little Cottonwood Canyon, and Big Cottonwood Canyon from those stations.

I think it would be great if there were more hubs, where people actually live, rather than only at the mouth of the canyon, because those park-and-rides also get full. They're known for being pretty bad. [...] If there was, you know, there was like a Sugar House transit hub or if there was a Millcreek transit hub or something like that where the recreational buses would start from.

Many other participants suggested creating better transit access to the Salt Lake City foothills, noting the presence of many untapped opportunities given the short distance between where people live/work and trailheads. Some people suggested making small changes to the routes of existing bus lines to access key trailheads, whereas others recommended creating a dedicated shuttle service that gives access to different foothills trails. Interviewees noted how foothills T2P service would likely require fewer resources than those to access the canyons, and that a broader number of people could access the foothills via transit given the shorter travel compared to traveling to the canyons. The quotes below elucidate these different suggestions,

There's a huge opportunity with our foothills trails to have a smaller line running from downtown. [...] It just feels like such an easy lift. And then, with existing bus lines, like the 6 or the 21, making those connections because they're within maybe a quarter mile or half mile [from a trailhead]. So formalizing those trailhead stops. I think would be huge. Hells Canyon is another one. The 200 is within a stone's throw of Hells Canyon, but not a formal connection. It's doing those smaller connections, like we talked about with the 21 and the 6 [to go to the Foothills], and I'm sure there are other ones that I haven't discovered yet.

More intentional connections as far as building transit stops around trailheads, or dedicated lines, servicing foothills trail heads. That could even be a minivan. But I think the specific thing that I would like is having all of these trailheads be explicitly accessible via transit. There used to be the 11 bus, which is now the F 11, which would get pretty close to some of the foothills trails that we access. [...] Like in the upper avenues, in particular, having stops on whatever bus line close enough to trails.

I often think of places that I would like to see become more transit accessible. And earlier this year, I really wanted to go hike Ensign Peak, but without a car, it's pretty difficult to get there. [...] I wish that there were a bus that would go to the Ensign Peak trailhead and also serve that neighborhood. And I wish that there were bus service that went to the City Creek trailhead, and maybe even to Memory Grove. Places like that would be great.

I wonder if you could do some seasonal stuff up into the foothills above [the University of Utah's] Research Park. Last mile stuff to get you from the end of the Red Line up to the trailheads. That can be cool.

A few other respondents recommended creating more direct transit connections to urban regional parks, especially Sugar House and Liberty parks. Specifically, participants noted that future service could eliminate the need of crossing busy streets to access these parks. And a few participants suggested linking increased bus services to urban parks to weekly events such as farmers markets. The quotes below exemplify suggestions related to urban parks service,

The larger parks like Liberty and Sugar House, I don't think the buses ever go inside the park. So they'll drop you off on the edge but then if you have to walk to some like pavilion or playground, that may deter people. So maybe some buses going inside the park dropping people off there would attract people to those destinations a little bit better.

To promote those weekly events like farmers markets, there's one at Liberty Park on Friday afternoons. And there is one on Saturday mornings at Pioneer Park. [...] In collaboration with the market [...] parking is always an issue [...] maybe the bus could do extra runs during those times.

Two other times of destinations were in the wish list of transit to parks users, even though they were mentioned less commonly than the three above: state and national parks located farther away from the Wasatch Front and recreational sites on the Great Salt Lake. The two following quotes elucidate suggestions for these two types of destinations, respectively,

Increasing accessibility [to parks] throughout the state, but one of the problems is that it's difficult to even get to any of our national parks without a car. Zion has a pretty good shuttle service and Bryce Canyon is getting better with their shuttle service. But our other three national parks don't have any type of public transit. And there's not really any public transit that will take you to any of the parks. So those are all things that that I feel need to be looked at.

Going to the Great Salt Lake to actually like stand on the shores of the Great Salt Lake, there's no transit service that will get you there. So it'd be great if state park funding was somehow involved with transit funding so that we'd have shuttle buses that would get you to the marina on the south side of the Great Salt Lake [...] or Antelope Island.

Besides negotiating the aforementioned barriers, several interviewees stated that having T2P service in places like the Cottonwood Canyons or the Salt Lake City foothills would enable them to create point-to-point routes (as opposed to loops that start and end in the same place). Participants noted how this opportunity would significantly increase the types of adventures they could undertake, including discovering new places. The quotes below exemplify these adventures, including hiking, backpacking, trail running, mountain biking, and more.

I think that there is like a compelling case to be made for unique trips. Having to start and end at the same place on a hike, or a mountain bike ride is not freedom, that's the opposite of freedom. So if you have transit service that extends the length of the canyon or links to canyons, all of a sudden, what used to be one loop that you could do now becomes a cool link up of two canyons where you cross a ridge.

There are so many cool hikes and like extended day trips you could do if you could pick up buses in either canyon or at different points along the canyon. It would just open up so many more options to have a service and frequently I love that you could do a canyon link up where you don't have to do an out and back, you just do a bus link up between the two canyons, which would be really neat. Instead of doing a car shuttle, and having to do two cars.

Man, I think that'd be pretty cool. If the bus stopped at trailheads, that'd be awesome. I think it would actually open up kind of a new realm of possibility for the kind of hiking that you could do. Whenever you want to go out hiking, you can only leave your car somewhere for so long. But if you really wanted to take off back in those backwoods trails for a few days, and you could just pop off on the bus one day, and then head up over that over this mountain and literally end up in the next canyon, and then pop up on a bus. [...] Man, that'd be a really

wonderful experience. And it would open up a new way to experience our canyons, especially in a way that you would be less about the hustle and bustle of, 'oh, I want to go to this trail. But is there enough parking there?'

Increased frequency. Numerous respondents suggested that increased frequency for transit lines that give access to parks and trails would help address several constraints, including limited *Service frequency*, issues with *Service reliability*, excessive time to travel to parks or trails (*Overall travel time*), and *Leisure time reasons* (see Table 3.3). Participants mentioned they would like to see increased frequency both in lines dedicated to reaching parks or trails (e.g., ski bus) and in other lines they use to access those destinations.

A common suggestion was increasing the frequency of weekend service, as several participants noted that weekends are the times when people engage the most in outdoor recreation. One stated, "And the weekend is when, you know, often I have more time to go do recreational activities. So I think more weekend service would be helpful." Another interviewee echoed similar sentiments,

Weekend serving being more regular. The times that most people are going to be doing these kinds of trips, and the time when the pressure is highest on parking. Those are weekends. So if your Sunday service is half of what you have the rest of the week, it's not good. I think we need to rethink about how people are using transit for recreation.

A few participants elaborated on the frequency that they would like to see for new T2P services in the Cottonwood Canyons and similar settings. Responses varied greatly, ranging between 3-4 buses per day in each direction to 15-minute headways. The quotes below exemplify the different perspectives on frequency for these hypothetical summer services.

But if you had like a \$10 fare, and you had three or four trips up three or four trips down over the course of a day. I think that could I think that could be really useful for hiking and sightseeing up the canyons.

I don't think it would need to be more than more frequent than on the hour or every hour. I think it'd be easy to plan hikes around that. An hour isn't super long, I don't think you can keep yourself entertained. Ideally, it'd be like super-duper frequent. But I think that we don't need to ask for everything at once.

The frequency depends on the type of hike you're going to be doing. Right? If you know it, you can plan accordingly. And maybe link in something else or bring lunch while you wait. Right? So an hour could totally be something reasonable. 30 minutes sounds like the ideal number.

Having buses that went up the canyons would be great. Not just the ski buses, but buses that would stop at the Brighton Lakes Trail, Lake Blanche. [...] If they run every 15 or 30 minutes, you feel like once you get off of the trail, it's not going to be that long before a bus is going to come.

Improved last mile connections. Another suggestion that the interviewees provide is to enhance the "last mile" connections between transit stops and parks/trails. This suggestion included making such connections safer, shorter, more pleasant, and easier to navigate. Respondents

made this suggestion for both trails and urban parks. One interviewee mentioned the following when talking about urban parks,

In terms of the parks, bus access is like an afterthought, even for Liberty Park Sugar House Park. [...] Other cities I've been to actually route right through their park and have a stop right in the park. So that people can safely get off inside the park.

Another participant talked about the need to walk through parking lots and incoming traffic to access the proper recreational areas of a park,

Having a stop inside the park would give priority to the people who are riding transit or biking to the parks. Rather than having all around Liberty Park, parking, parking, parking, you know. So that's another thing, taking obstacles away.

Other interviewees talked about the need to improve last mile connections for canyon service. One noted,

Making sure that if you are dropped off like a quarter mile, half a mile away from the trailhead, that you can actually get to the trailhead safely. And oftentimes, the canyon walking along the road, and there are cars that are driving 40-50 miles per hour down the canyon. So I don't necessarily know what that would look like, but I think that's a really huge concern.

Cheaper cost. Several interviewees mentioned that the cost of specific services used to access parks or trails (e.g., ski bus, SLC-PC Connect, Front Runner) could be lowered or streamlined in order to incentivize more people to take transit. The lowest-hanging fruit that respondents suggested is to make services like the ski bus, the SLC-PC Connect, and the Front Runner part of the same fare as the other services. The quotes below exemplify these suggestions,

I think that any buses that go up to the canyons, need to be on the same fare structure as the rest of the system. So that means that you're not paying an additional separate fare to use the canyons, buses, which that's one of the problems I see with the ski buses right now is that it's a whole separate fare that you have to pay for on top of already paying for transit.

The fact was I'll still need to like maybe take another bus or like left or Uber somewhere after they get off the FrontRunner is a deterrent for folks. [...] If you offer some type of discount or a better pass beyond the Hive pass that people would take from on or even more.

Other people note that making transit free, like during Free Fare February, would greatly incentivize transit to parks. The quotes below share this sentiment,

Anecdotally, because I've been on the train over the weekends. Yeah. I have seen an increase in families going on it; it seems like grandparents are the ones taking the kids on the train. Because it's free. It's I think it's a natural delight that they're doing that. So yes, that could be a factor.

I think, free fares are also a good way to get people comfortable with using trains. I don't personally think that fares should be permanently free. But I think it is a

good way to get people who are kind of curious to experiment with it. I mean, it seems like the data supports that for free fair February.

When I go hiking with you often carpool together more. I think another really big thing is they don't want to pay to take public transit. And so I think if the fares were reduced or free, that would be easier to encourage other friends to take public transit if they didn't have to pay out of pocket for transit, as opposed to if we all just carpool then went up and like one of our cars or something.

Information about transit to parks. Another set of suggestions involved creating and disseminating informational material about T2P initiatives. These materials could take the form of maps, webpages, and wayfinding signage at transit stops. In terms of constraints potentially addressed, informational materials could help people plan for transit to trails trips, thus potentially reducing the time for such trips (*Overall travel time*), and wayfinding signage could facilitate *Last mile connections*.

A first set of suggestions included the creation of maps, infographics, and/or websites to make potential riders aware of the trails and urban parks that can be reached with current transit services. Specifically, one participant who has taken transit to reach trails noted, "But throughout the process of trying to plan these trips, it was really became a question of like, man, it's so close, but it's so far away to like, being a transit to trails thing. And there are no resources anywhere to like, help me plan these trips." The quotes below illustrate this type of suggestion for both trails and urban parks,

I think some resources online. I think if you search like transit trails in other cities, you can get like a handful of news articles, if not directly from the transit agency website saying, 'Hey, this is where you can go to go hiking using transit.' I think that would be good base level information.

If there were some kind of educational material about on how to use transit to get to certain recreational destinations, like either a trailhead or a park, just making it really easy to figure that out, I think that might be helpful. So you don't have to like comb through the map of the whole bus system to figure it out. But you know, just points out like these three lines will get you there.

I'm just thinking of a news article with the hikes you can access via transit. Maybe depending on where you're located. [...] How do you get there? What bus line is? And what is the trail length and distance? And how hard is it because a lot of our trails are straight up and down? What is the service level of the bus? Are you going to get stranded? Those are like the generally the things I would think about being like necessary information on something like that.

If there were some information [about trails and parks that can be reached via transit] that already had it pre planned, that had some information on it, that would actually be a really cool thing that could be distributed through community councils that could distribute through the city. Both in paper but also a website or like a website. [...] Something that says, 'Hey, you know what, you can get to these six trailheads. Here's how you can do it. And here's how often you can how you can go.' I think it would actually ignite it for people who aren't thinking about it. I don't think people even think that they can use transit.

If there was a note on the route description for the 39 that says like, 'hey, this goes up to Mill Creek Canyon.' [...] If those if those routes [that go close enough to trails] were flagged in their descriptions as saying, 'this is a good hiking route,' that could be a cool way to promote those as leisure options.

Some respondents clearly articulated that easily accessible information on transit to parks would make it significantly easier to plan for those trips, helping negotiate a constraint related to planning recreational activity (*Leisure time reasons*). The two quotes below exemplify these sentiments,

How to make my decision without going to do a bunch of research? [...] So yeah, being able to have information that assists me in planning out how I'm going to use the UTA would be excellent.

If there are more barriers, and the information is harder to digest, I think people would easily give up and stop trying to figure out how to make it happen. [...] Putting the information out there will make it easier for people to understand and digest and actually make an effort [to take transit to parks].

Other participants suggested that the UTA and other transit agencies could provide information about the basic mechanics of taking transit to parks for people who have never taken transit. One participant provided a detailed explanation of this suggestion,

To tell people that it is possible to, to recreate outside and do the things that you love without having a car. And I think people, especially the younger generation, they are interested in that and want to pursue that. But they don't necessarily see how that can be done. I think there needs to be some models out there that are like, explaining how you can do even things that like are simple, like using a ski bus, right? Because even that can be kind of daunting if you've never grown up with public transit or never use public transit before. I mean, it's kind of scary to know, 'Oh, what if I missed the last bus? Does my paths cover the fare? Or can I put my skis on the bus?' Like, there are a lot of questions that seem like really basic to me, and I know how to answer. But if I had never taken a bus to the ski resort before, I think I would be kind of concerned with these things.

Another type of informational material mentioned by participants are wayfinding signs at bus stops or train stations to indicate how to reach parks and trails. This signage would bring parks and trails to the attention of riders who might not know about their existence and would help other riders who are instead seeking to access those outdoor spaces. The two quotes below exemplify these ideas,

Because I can see a situation where the routes are there, but people don't know about it. Having stations with wayfinding signs that celebrate, 'hey, you can take to this to the Jordan River.' That would help activate people and to get over there.

Wayfinding signs... I would love if we could have wayfinding signs [for parks.] I think that is something that would activate everywhere that we live, it would look beautiful, because you could advertise beautiful signage, all these wonderful places [...] that people could naturally discover it while they're walking around.

Positive experiences. A few participants suggested that making transit to parks a positive experience wherein rides have comforts and a better experience than driving can help attract potential riders and negotiate constraints. Specifically, respondents' suggestions implicitly address constraints such as subpar *Stops and stations*, *Transit stigma*, and issues with *Gear on board*.

Some participants suggested increasing some basic comforts on T2P services, including WiFi and water bottles on buses and shuttles. One noted, "I don't know maybe like adding Wi Fi to the buses or something so that they feel a little more luxurious or comfortable. And making it feel kind of like an experience rather than just getting crammed onto the bus." And another echoed similar sentiments, "If there's Wi Fi, and you could have, like water bottles or something for people who are finishing their hikes. [...] So it's a little something extra." Others suggested making significant improvements to the stops near trails and large parks to improve the overall experience of arriving at destination. The quotes below exemplify these suggestions,

I would like to have a couple of canyon villages in say, the Cottonwood Canyons, which would have the buildings close up to the highway, which would make the traffic feel like it should slow down a little bit, probably put pavers or something like that. And then there would essentially be the bus stop in this little village commerce. Something architecturally intriguing and interesting, with proper shade, trees and landscape. So it's like, 'okay, we'll take the bus stop here. We step off of this bus stop here. And we can walk a little ways, and maybe get a little ice cream cone and walk a little bit further, and there's the trailhead.' [...] I would expect that the bus would have a place to pull off far enough from the highway to make it so that they feel like they're a little bit away from the highway, making sure that it's an inviting place with a proper landscape and shade trees. [...] Kind of reward the transit users because you they not drive the car.

So, at the mouth of the canyon, for example, if there was a shuttle, like a bus service that goes up. Having amenities at the mouth of the canyon, where people can charge their phones, and can grab a cup of chocolate or coffee, not just wait in the cold and have something nice to do. Because you got to appeal to people because you can't compete realistically, you can't compete with a car, right? The convenience factor of a car is huge. So you have to find other ways to make it more appealing to people.

Other participants suggested making efforts to turn the transit to parks experience into something "cool" and especially doing so to attract young people. One respondent noted, "if there are these recreational trailhead stops. There could just be something, it could just become something that's cool." Another had more specific suggestions related to partnerships with businesses,

For my age group, I would like things to be attached to, you know, the transit to be attached to things that are exciting. [...] There was a public bus that was shuttling back and forth between the pumpkin patch. So you just went and parked somewhere and then the bus would take you over the pumpkin patch and back and forth. When they did their night on Main Street, they worked with businesses, and you could get some free vouchers or win some free prizes.

Yet other participants suggested that creating positive experiences in groups, including during social hikes, could help negotiate some constraints. One suggested, “To make it like an adventure, especially for people who don't do public transit.” Another had more elaborated ideas,

I feel like doing public events, like, ‘Hey, we're all gonna meet here and take the shuttle up and do this hike.’ That would be a really easy way to engage people in socializing them to their routes, or even like leveraging the meetup platform. [...] You got socialize that it's an opportunity.

Programs to help people try services. Another suggestion was to create initiatives to help people try transit to parks for the first time, and especially people without prior experiences of using transit. This suggestion could help address constraints such as *Transit stigma* and *Leisure time reasons* (see Table 3.3).

Some interviewees noted that finding ways to make people try transit to parks might be a way to retain some of these riders in the future. One suggested,

I think sparking people's interest in usage of transit to parks or trails, who wouldn't normally think about using it, is something that would go a long way. And then out of the 100 people, you get them to do it once, maybe 20 people continue. Right? They see the benefit, they see the time savings, they see the environmental impact.

Other participants suggested that some group events or hikes might help people try transit to trails for the first time. The two quotes below exemplify these ideas,

They'll end up doing activities with groups of people. So they'll go to like a park, and they'll do birdwatching. Or they'll take a group of people to do like a tour of a park. [...] Yeah, it sounds like fun, especially if I know I can do that with a group. I think that would be a really good way of introducing people to ride the bus, you know, having those groups of people go all together, because these people are in the same group.

Because you're not really going on your own, you're going with a group of people. Even if you're not that familiar with them, you're all having the same interest. So you're there for the same reason. So you're going to be with a group of people that are there for the same reason as you. But you're going to have some interactions with people who ride the bus every single day for many other reasons.

Marketing. Several participants suggested creating targeted marketing campaigns to promote T2P services. Like the previous idea, this suggestion could help negotiating constraints such as *Transit stigma* and *Leisure time reasons*.

Numerous participants suggested marketing T2P services as more environmentally friendly than driving, and they noted that such a strategy would particularly appeal to younger generation. The quotes below exemplify these ideas,

I think people my age [young people] are very concerned about the environment. Trying to talk about the benefits of reducing emissions. And air quality is one

way. I think convenience too, if you can just try to promote the idea that you don't have to worry about parking at a trailhead.

I think a lot of people do care about the environment. I think a lot of young people care about the environment now. So if you're going to be targeting young people to ride a bus, I think that would be a good approach

I think that a lot of people in my peer group who are driving care about climate change, for instance. You don't want to shame people, obviously. [...] But trying to use these messages [...] saying that there are real impacts [of taking transit to parks.]

Making it a stewardship issue. Saying, 'we want to be outside, but we also want to make sure that that we're taking care of outside.' I mean, the connection is not that hard for people who recreate. I know a lot of people who don't like the fact that they have to drive to access outdoor recreation.

Other participants recommended marking transit to parks via a variety of media, including social media and in-person events. The quotes below provide more details about these marketing ideas,

Instagram ads, for sure, would get people in my age group to go do it. Then there's the Twittersphere, which is very specific. But if you we did like Instagram things ... So Instagram ads, like public events, where you're coordinating groups of people to go have fun together.

If you're doing some online media buys consider the standard Facebook and any of the ad networks from Google. Those might help.

Other suggestions involved conducting target outreach near trailheads and reaching out to groups that organize outdoor recreation trips. Several participants shared these recommendations,

Have one of [the UTA] employees go out and hike; create a position for that, to just go out and talk and talk with people. The one way to find out who's using those trails. [...] Go out there at six o'clock and look for a big group of people. And find the meetup groups, just tell people in the group, 'hey, you could do this as well.' You can approach them with a brochure.

If we add year round bus service in the canyons, it would be great to put up a lot of advertising around the trailheads. So maybe people aren't riding it on this trip. But if they see the signs that will plant some seeds to get them to do it the next time.

Spread the word to the groups that are hiking, I think there are Facebook groups. [...]. Find them out there and hand them informational packets on the trail. [...] But I think the really big groups would probably appreciate being reached out to, especially the organizers who are trying to create a fun experience and that lightens their load.

Limits to car use. The final set of general suggestions is to implement measures such as congestion pricing or parking fees to reduce the use of cars in highly-congested mountain areas or urban parks. Although these ideas could be politically controversial, they would help riders

negotiate key constraints, such as *Overall travel time*, *Last mile connections*, and *Service reliability*. Whereas most of the above strategies could be considered a carrot (i.e., incentive), putting limits to car use near recreational areas could be considered a stick (i.e., regulation). One participant noted, “But I also think that’s one of the reasons why having a congestion charge on drivers in the canyons would be a really great way to while it’s kind of using the stick instead of the carrot, but it’s a good way to very quickly educate people about the alternatives.” Numerous quotes exemplify various ideas that would limit the presence of cars in canyons and in and around large urban parks. Most of these suggestions focus on economic arguments, wherein transit would be incentivized by charging people to use their private vehicles. Some ideas are more radical than others, but we report them here to provide the range of suggestions we received,

I’m somebody who is not opposed to banning private cars from some of the canyons. That would be like the perfect way to have a shuttle system in Big and Little Cottonwood Canyon. [...] But you have to make it harder and more expensive to drive. Like whether that’s like incentivizing carpool, like something like Solitudes parking.

The Snowbird paid parking is actually a tiny fraction of the cost of skiing. With my pass, I have three parking reservations at Alta. And so it’s extremely easy to park there, guaranteed even on crowded days. But theoretically, if there was a toll or a universal parking fee, then that would absolutely change my calculus, and I would be taking public transit because I would not want to pay every time I go up the canyons for parking.

I think that we should be charging the heck out of cars. And limiting their use. I know that’s super unpopular. That’s a really hard message to get across. [...] I think that parking should be 50 times more expensive than it is. And limiting cars would be fantastic, too.

I think it would be critical to charge a congestion fee or parking fee or whatever that that de-incentivizes driving, and also becomes a revenue source to offset the cost of providing the buses. So I think that’s very important. And I think it needs to be not just a flat fee, but it needs to be based on how congested things are. So, if you’re on a summer weekday, maybe you’re paying \$10 to drive up a canyon. But if you’re driving up one of the canyons on Presidents Day weekend, you’re maybe paying \$100.

I think even a \$5 charge, even a \$2 charge, would incentivize so much more carpooling and incentivize bus transit that it would be a complete game changer for overall traffic. And it would reduce the congestion around the mouth of the canyons. And then all of a sudden, the bus looks like a much more compelling option, and that would compound itself and turn it into a viable alternative. Whereas the setup now means that the bus, as I said, is like borderline sabotage in terms of how bad the amenities and the service are, where and where it can’t get the critical mass required to actually turn it into a viable option.

Different ideas based on demographics. Respondents provided suggestions on how to negotiate some constraints affecting specific demographic groups. In particular, such ideas address some of the constraints described in Table 3.4.

Regarding constraints related to geographic disparities, some participants suggested that T2P initiatives should target the West side of the Salt Lake Valley, which tends to have fewer regional open spaces and less transit than the East side. Suggestions for T2P initiatives from the West side included services to reach urban parks and trailheads located in the mountains. Regarding urban parks, some interviewees emphasized the idea that connections to urban parks could be the priority, as they those interviewees perceive urban parks as being highly visited by low-income families. One respondent noted,

Connections to urban parks are a really important thing to explore. And I think I would actually prioritize parks over canyons, especially for access for low income family who don't have much of an opportunity to get outdoors. Parks are obviously the best way to spend time outdoors. [...] And so I think we need to be looking at how parks can be more accessible within the city. [...] Especially because they're not only good spaces for spending time outdoors, but they're often gathering spaces.

Other participants provided suggestions related mountain destinations that could be reached via transit from the West side. One stated,

[A service between] West Valley to Park City. It's really hard because you have to go all the way to downtown Salt Lake or find a bounce route where Park City stops and it's sometimes it's not as easy as the views drive when your car from West Valley to Park City, which is 25 minutes. So it's it just makes it really hard. And it's a place that also a lot of people want to go. But because of public transportation not being available, then that's not as easy and convenient to really do it. [...] The one in little Cottonwood, and Big Cottonwood, they do have buses that go up there. But there's no bus that would take you there from the West Side. So then that makes it difficult for people to go out in nature without using that car.

Regarding constraints related to physical abilities, some participants suggested creating materials that provide information about the accessibility of bus stops and last mile connections near parks. One interviewee noted,

When it comes to the apps or the maps or everything. [...] Maybe if you're choosing your stop having like a, like a link that directs you to a Google image like a like a Street View, like being able to see where you're going to get off, I think that would be huge. [...] I don't know if it's going to be on a sidewalk, that's, that's all cracked and it's broken, or if it's going to be actually accessible for me to get off or not like.

Suggestions to negotiate concerns related to gender included investing on on-demand services that can be taken to parks and trails as well as organized social hikes for women via transit. Both suggestions would increase the feeling of safety among some of the women we interviewed. The following quote exemplifies the suggestion about the on-demand shuttle,

I would love to see the on demand shuttle service expanded. [...] It would be really great to have like the on demand shuttle not only, especially if we were all going to like a similar place. Honestly, that'd be so fun. If I took a shuttle and we're all going to the canyon and then like meeting new people who are going to

the canyon. I think that would be a great social experience. And it's also like a more comfortable experience. As a woman who gets around via public transit, sometimes it can be uncomfortable, but I feel like these on-demand services, from my experience so far, don't attract creepy people. And it's a small enough environment where the situation is socially contained. So you're not going to run into the same issues that I've run into on like TRAX or buses. So I think in that sense, it's like a better experience like socially and safety wise.

And the following quote describe opportunities related to social hikes for women that can be accessed via transit,

I think women have a lot of have a hard time doing things by themselves. So if you can get people to do things in groups, it can make it a more comfortable experience. And then those people will eventually feel more comfortable, like doing it just for themselves, if it's proven to be like a safe and fun experience. So that's where I can see like, starting it out is like a very social activity could really help make it popular, and just like show people that it's safe and fun, because I know a lot of women who would not take the bus by themselves to go anywhere, you know, unless they absolutely had to.

Finally, suggestions to negotiate barriers related to race/ethnicity mostly included the opportunity to provide informational materials about transit to parks in Spanish and other non-English language. The two quotes below exemplify these suggestions,

I think I have seen one or two ads by UTA in Spanish. So perhaps more YouTube ads or social media ads in Spanish can be helpful. The language barrier is a big thing. [...] It can be difficult to figure out routes.

But even if you're advertising something in English saying 'go to the website,' it should available in Spanish and in other languages. So the kids [who tend to speak English] can see it and they can tell their parents that they might need that service. So it I think it would help older people or other people who don't speak English.

3.4. Conclusion

In this chapter, we presented the methods and results of interviews with 25 residents of the Wasatch Front who are either taking transit to parks or are interested in doing so. Here, we provide a summary of the findings and key implications. We invite readers to consult the Results section, specifically Tables 3.2 to 3.5, for more detailed content on the findings and recommendations from residents.

3.4.1. Overall findings

- Interviewees show a significant interest in more T2P services. Although this might be in part due to self-selection bias, we believe there is notable unmet demand for transit to parks on the Wasatch Front.
- Creating more T2P initiatives might help some people get rid of their cars and ride transit more often for recreation and other purposes. We heard respondents stating that the lack of transit to their preferred outdoor recreation destinations was the only reason why

they kept their cars. Overall, more T2P service (and more transit in general) might lead to more people living car-free, which would have tremendous benefits for air quality and road safety in the region.

- The primary motivations to ride transit to parks include environmental concerns, the convenience of not having to park and getting stuck in traffic, and the cheaper cost compared to driving. See Table 3.2 for more details. Messaging about transit to parks could focus on these themes and beyond.
- The main constraints to taking transit to parks include (a) excessive time to reach destinations due to limited or absent service, (b) issues with transit frequency and reliability, especially during weekends when people recreate the most, (c) unsafe or confusing last-mile connections to parks and trailheads, and (d) the higher cost of some services. See Table 3.3 for more details.
- Disadvantaged communities suffer particularly strong constraints to riding transit to parks. People living on the West side, people with disabilities, women, people of color, and to some extent families with children all face specific constraints (see Table 3.4).

3.4.2. Recommendations

- Respondents suggested that a few key new T2P services would be likely to increase their ridership for this purpose. These services included summer or year-round service in the Cottonwood Canyons (complementing the winter ski bus), a dedicated bus or shuttle accessing the foothills trailheads in Salt Lake City, and better service to the Park City area (more frequent during the week and weekend service).
- Significant opportunities exist for better transit services to city parks, especially large parks such as Liberty Park and Sugar House Park where residents spend longer amounts of time. Creating more direct access and removing barriers such as large parking lots can significantly help residents access those parks via transit.
- More information and marketing campaigns about available T2P services seem like a “low-hanging fruit” to make residents more aware of existing opportunities. Interviewees suggested actionable strategies ranging between webpages, signage near transit, social media campaigns, and targeted outreach to groups organizing outdoor adventures in the Wasatch Front.
- In general, increased frequency and reliability especially during weekend seem paramount to maximize the use of existing transit lines to access urban parks and foothill trailheads during the days when people recreate the most. Further, operating the Frontrunner on Sundays would enable people to explore towns and their trails via transit on a day when many residents engage in recreation activities.
- Transit agencies like UTA should partner with UDOT and other local transportation agencies to use both a “stick” and “carrot” approach. The carrot is, of course, increased transit service. The stick involves charging for parking in congested recreation areas or tolling roads that give access to recreation areas (such as Millcreek Canyon).
- Future T2P initiatives could particularly pay attention to the needs and constraints experienced by disadvantaged populations (see Table 3.4). These populations face particularly large constraints to use current T2P services, and future initiatives could particularly focus on meeting their needs.

Chapter 4. Transit to parks initiatives in the U.S. and Canada: What can we learn?

4.1. Introduction

The last decade has seen significant interest in creating transit access to regional parks and open spaces (K. Park et al., 2021; Swanteson-Franz et al., 2020). Advocacy to create such initiatives came from individuals and organizations working on public lands and on transit (Arakaki et al., 2019; Swanteson-Franz et al., 2020). The academic literature on this topic has been relatively limited (see Park et al., 2021), and much of the knowledge about transit to parks comes from reports created by advocacy organizations (Arakaki et al., 2019; Sierra Club, 2021; Swanteson-Franz et al., 2020) or press coverage (Scauzillo, 2018; Scruggs, 2021). Specifically, to our knowledge, no attempt has been made to survey, categorize, and learn from transit to parks initiatives in U.S. and Canada. This knowledge could help inform transit agencies, public land managers, and advocates for increased access to open spaces.

In this chapter, we present a systematic survey of transit to parks initiatives in the U.S. and Canada. As defined in Chapter 3, transit to parks (T2P) initiatives describe transit service (e.g., buses, shuttles, trains) to active or passive outdoor recreation sites, including urban regional parks and natural open spaces. We focus on the U.S. and Canada because interest in T2P initiatives seems to have ramped up in both countries, and the two countries have numerous similarities in their land use patterns and geographies. The study presented in this chapter is driven by several research questions that are regrouped into four topics: types and characteristics, motivations and advocacy, facilitators and barriers, and lessons learned and monitoring. The research questions are presented in Table 4.1, alongside these main topics, and the two main methods we used to answer the questions (web searches and interviews with professionals).

Table 4.1. Research questions

Groups	Questions	Method(s) to answer
Types and characteristics	1. What are the main types of transit to parks initiatives implemented around the U.S. and Canada?	Web searches
	2. What are the other general characteristics of these initiatives, including funding, destinations reached, and cost?	Web searches
Motivations and advocacy	3. What are the main motivations to implement transit to parks initiatives?	Web searches and interviews
	4. What advocacy strategies have been used to push for the implementation of transit to parks initiatives?	Interviews
Facilitators and barriers	5. How do partnerships between various organizations facilitate transit to parks initiatives?	Web searches and interviews
	6. What are the main challenges to implementing transit to parks initiatives?	Interviews
Lessons learned and monitoring	7. What “worked” in the planning and implementation of transit to parks initiatives?	Interviews
	8. How do agencies monitor the impacts of T2P initiatives?	Web searches and interviews

4.2. Methods

4.2.1. Research design

We conducted a qualitative multi-method study integrating two main data sources: web searches of content about T2P initiatives and interviews with professionals involved in such initiatives. We worked iteratively between web searches and interviews. We conducted an initial web search to identify the first set of initiatives, using general search expressions not targeted to specific locations. We then reached out to professionals involved in those initiatives to gauge their interest in sharing information about these transit-to-parks programs. For the interviews, we specifically focused on initiatives in the western U.S. and Canada because we identified more of such initiatives in that region. We then conducted additional web searches to identify additional initiatives. Further, we conducted additional interviews and expanded our sample in part based on referrals

4.2.2. Web documents on transit to parks initiatives

To study T2P initiatives case studies in the U.S. and Canada, we conducted a comprehensive search process using Google. We used a range of terms to identify potential T2P initiatives including a combination of the following: “transit to parks,” “transit to trails,” (“transit” and “parks”), (“transit” and “trails”), (“transit” and “beach”), (“shuttle” and “trails”), and (“bus” and “parks”). Additional search terms included “nature,” “outdoors,” “open spaces”, and “lakes.” After identifying a T2P initiative, we conducted further searches on Google to gather additional details about the initiative’s funding sources, implementation processes, core motivations, and operations.

Specifically, we only included initiatives wherein transit services provide access to a park or open space from outside such park or open space. In other words, we excluded shuttle services located within national parks, such as the one in Zion National Park (Utah, U.S.). And we included services that connect nearby communities where residents live to parks or open spaces.

As we started identifying T2P initiatives, we created a spreadsheet where we collected information about each initiative in a systematic way. The spreadsheet includes columns describing the initiative’s name, location, type, operation dates, motivations, evaluation, funding model, presence of partnerships, the cost to take transit, and types of open space that the transit service reaches. The spreadsheet with all initiatives can be accessed at this [link](#). The main types of documents that provided useful information included plans, transit agency websites, and coverage from local media (e.g., newspaper articles). We used the information collected in our spreadsheet to answer some of our research questions (see more below).

4.2.3. Interviews

To gain a more nuanced understanding of T2P initiatives, we conducted interviews with professionals working on such initiatives in the U.S. or Canada. In particular, we sought to recruit professionals working in transit agencies, public land agencies, and advocacy organizations working on either transit or public lands. We started to recruit potential participants by connecting with contacts within our professional networks, and then we used a snowball approach by asking interviewees to refer us to other professionals involved in this work. As noted above, we used an iterative approach wherein some of the results of the web

searches provided input for recruiting additional participants who worked in the TP2 initiatives we identified.

We interviewed 27 individuals, including 18 working in the U.S. and 9 working in Canada. Among the interviewees, 14 (52%) worked in transportation-oriented organizations, and 13 (48%) worked in public lands and environmental organizations. Also, 16 (59%) of interviewees worked in government agencies, and 11 (41%) worked in nonprofit organizations. Thus, our sample of respondents is relatively balanced between transportation and public lands organizations, and it has more individuals working in government agencies than in nonprofits.

After obtaining verbal informed consent, we conducted interviews via Zoom. Interviews lasted between 45 and 60 minutes, and they were audio-recorded and subsequently transcribed via artificial intelligence software.

Interview questions focused on some of the main areas covered by the research questions (see Table 4.1). Specifically, we asked introductory questions about the initiative(s) that professionals were involved in, the motivations for such initiative(s), facilitators and challenges to implementing the initiative(s) (including partnerships and funding), strategies to advocate for such initiative(s), and main lessons learned from working on such initiative(s). The specific questions we asked differed slightly between interviewee types: For example, most of our questions to individuals involved in T2P advocacy focused on the advocacy strategies they used.

At the end of each interview, we summarized what we learned and asked interviewees to provide feedback on our main takeaways. This process, known as member checking, enhances the credibility of the results of qualitative research (Korstjens & Moser, 2018).

4.2.4. Data analysis

For the web searches, we analyzed the content we collected for each initiative. Depending on the column of the aforementioned spreadsheet, we either sought to categorize types of initiatives or approaches, or we developed narrative descriptions of various aspects of T2P initiatives. For example, we categorized T2P initiatives into several types and described the various ways in which they monitored their operations. Four researchers participated in this analysis process, which ensured cross-checks among them for the content reported in each of the columns of the spreadsheet. Importantly, findings from the web searches are quite descriptive, and therefore, the possibility of misinterpreting the information reported in planning documents, agencies' websites, and media coverage is quite small.

We analyzed the interview transcripts through content analysis (Leech & Onwuegbuzie, 2008). Specifically, we used deductive and inductive coding to make sense of the interview transcripts. Deductive coding involved looking for content that related directly to our research questions, such as content about motivations, partnerships, or lessons learned. Inductive coding involved identifying other relevant content via a bottom-up approach, including content we did not expect to hear and that still provided useful information to answer our research questions. In this process, we developed a codebook that includes codes created deductively and inductively, and we classified such codes based on the research question they pertained to. Three researchers participated in this data analysis process, which helps ensure the dependability of our findings (Korstjens & Moser, 2018).

For some research questions, we compared data from web searches and interviews. Specifically, we compared information about motivations, partnerships, and monitoring from the two data sources, seeking to understand whether these data points converged or diverged (see Table 4.1). This process, known as data triangulation, helps boost the credibility of qualitative findings (Korstjens & Moser, 2018).

4.3. Results

Through our iterative web search, we identified 106 TP2 initiatives across the U.S. and Canada, including 74 in the U.S. and 32 in Canada. The initiatives we identified are listed in this [summary spreadsheet](#). These initiatives can be implemented at a variety of scales, from small-scale programs that only serve one location to broad initiatives that seek to have a nationwide impact. The list of T2P initiatives we created is, by no means, a reflection of *all* such initiatives in the U.S. and Canada. Indeed, although our search methods were thorough and systematic, we likely missed some initiatives that should have been included. Also, information on the web about certain initiatives was very limited, especially for smaller initiatives that had happened a few years ago and have subsequently been discontinued. Thus, the descriptive statistics we provide about the 106 T2P initiatives include some missing data, and more outreach to each transit agency would have been needed to gather similar information about all initiatives. Despite these limitations, we believe that our findings reported below provide a useful snapshot of this nascent field of practice. We now turn to answering each research question.

4.3.1. Types and characteristics: What are the main types of transit to parks initiatives implemented around the U.S. and Canada?

We identified six main types of T2P initiatives that have been implemented across the U.S. and Canada: seasonal transit programs, permanent transit routes, informational campaigns, micro-transit on demand in areas with parks or trails, system-wide plans or studies, and legislation/funding programs (see Table 4.2).

Table 4.2. Types of T2P initiatives implemented in the U.S. and Canada.

Initiative type	Initiative description
Seasonal transit programs	Dedicated routes that operate during a specific time of year (e.g., summer) to provide connections to designated open space destination(s).
Permanent transit routes	Permanent transit systems that connect to specific parks, forests, or other forms of open space. These services often utilize existing public transportation infrastructure.
Informational campaigns	Informational maps, applications, blog posts, or other communication materials highlight which parks, trails, and other forms of open space are accessible via transit.
On-demand, micro-transit services	Technology-assisted transit systems that utilize pooled vehicles (e.g., vans, shuttles) to provide on-demand transportation services to outdoor spaces.
System-wide plans or studies	Documents that propose several changes to transit service to connect people with the outdoors.
Legislation/funding programs	Legislation and/or funding aimed at improving transit access to parks and open space, typically through the provision of funds for transit and/or green space projects.

Figure 4.1 shows the frequency of the six initiative types among the 106 we identified. The most common T2P initiative type is the seasonal transit program (48%, n = 51). Seasonal transit programs provide dedicated service to specific open space destinations during a portion of the year. Commonly, these initiatives operate in the summertime from late spring to early fall, although some operate in the winter and serve spaces used for cold-weather recreation, like ski resorts. Given their impermanence, many seasonal transit programs transport passengers using shuttles, which have the flexibility to connect to other existing transit routes or designated park-and-ride areas.

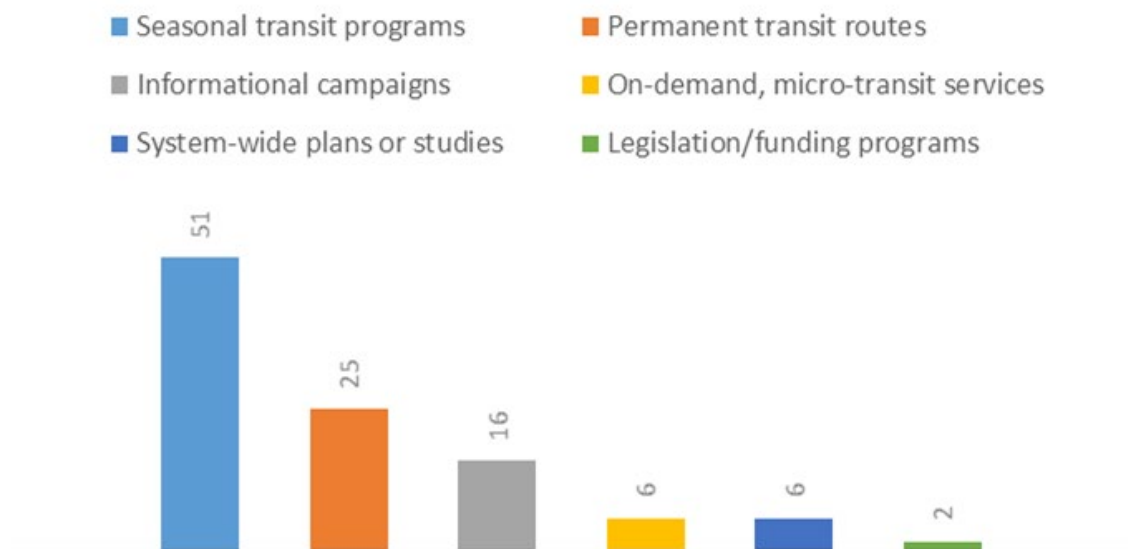


Figure 4.1. Frequencies of the T2P six initiative types

The second most common T2P initiative type in our sample is the permanent transit route (23%, n = 25). Like seasonal transit programs, permanent transit routes provide access to designated outdoor spaces. However, unlike seasonal programs, permanent transit routes operate year-round. This includes shuttles that offer service throughout the year, but also programs that utilize transportation infrastructure like commuter and light rail systems in the U.S., as well as frequent and express transit in Canada.

Informational campaigns are communication initiatives that focus on demonstrating how to use T2P services or publicizing parks, trails, and other forms of open space accessible via transit. Such campaigns are the third most frequent initiative type in our sample (15%, n = 16). Unlike previous types, this type of T2P initiative typically advertises *existing* transit-to-parks services in hopes of enhancing ridership rates and park access. Informational campaign initiatives can vary greatly in scope and utilize a variety of communications materials to advertise T2P services, including brochures, maps, mobile applications, web pages, and blog posts. Informational campaign initiatives are advantageous because they are cheaper than other initiative types, like permanent or seasonal transit routes, which require larger investments to operate successfully. It is important to note that other initiative types, such as seasonal transit programs, often include informational campaigns to advertise their services. Thus, the T2P initiatives we include in this category *only* involved the dissemination of information about transit to parks.

On-demand, micro-transit services are technology-assisted programs that provide pooled transportation upon request (6% of our sample, n = 6). Unlike seasonal and permanent transit programs, on-demand, micro-transit services often operate in a designated service area rather than serving specific locations. Although micro-transit T2P services are less common, they provide a more flexible transportation option compared to other services that operate on fixed routes and schedules.

System-wide plans and studies (6% of our sample, n = 6) seek to evaluate the performance or feasibility of current and potential T2P systems and services. Often, plans will provide a detailed outline of potential services, routes, or other system characteristics necessary to make a permanent or seasonal T2P program function. A key example of this initiative type is the transit to parks plan created by Los Angeles Metro (Los Angeles County Metropolitan Transportation Authority, 2019).

T2P legislation and funding programs are initiatives that aim to enhance access to open spaces through the provision of funds and other resources through a combination of transit and green space projects (2%, n = 2). A key example of this initiative type is the proposed “Transit to Trails Act” in the U.S., which has been considered by the U.S. Congress a few times in recent years (Gomez, 2021). Although it is becoming more common for transit and green space agencies to work together, creating partnerships between these two spheres involves some challenges, which we describe later in the Results section.

4.3.2. Types and characteristics: What are the other general characteristics of these initiatives, including funding, destinations reached, and cost?

Location. The T2P initiatives we identified are mostly located in densely populated regions, especially in the western U.S. and Canada (see Figure 4.2). In Canada, the majority of transit-to-parks services are offered in large metro areas such as Vancouver and Toronto. In the U.S., many T2P projects are located in California and other parts of the west, including Washington and Colorado. The Boston-Washington corridor also sees a high number of T2P projects. In rural areas, T2P programs are often offered by resort towns to transport visitors to ski areas or

popular hiking destinations. For the most part, T2P programs in rural areas offer less service level — often using a micro-transit or on-demand model — compared to services offered in densely populated regions. Finally, we did not identify any T2P initiatives in the U.S. South, including states such as Texas, Florida, and Mississippi.



Figure 4.2. The location of T2P initiatives across Canada and the United States. The map was produced using Google MyMaps (n=106). ([Link to the interactive web maps](#))

Funding. Nearly all T2P initiatives for which we found information about funding relied on public resources to run. These included cases wherein operators used only public funds and cases wherein public funds were used in combination with private resources (see Figure 4.3). In the latter situation, private resources that complemented public funding included donations from companies working in the outdoor recreation space (e.g., Recreational Equipment, Inc.) and money provided by large environmental nonprofit organizations (e.g., The Trust for Public Land).

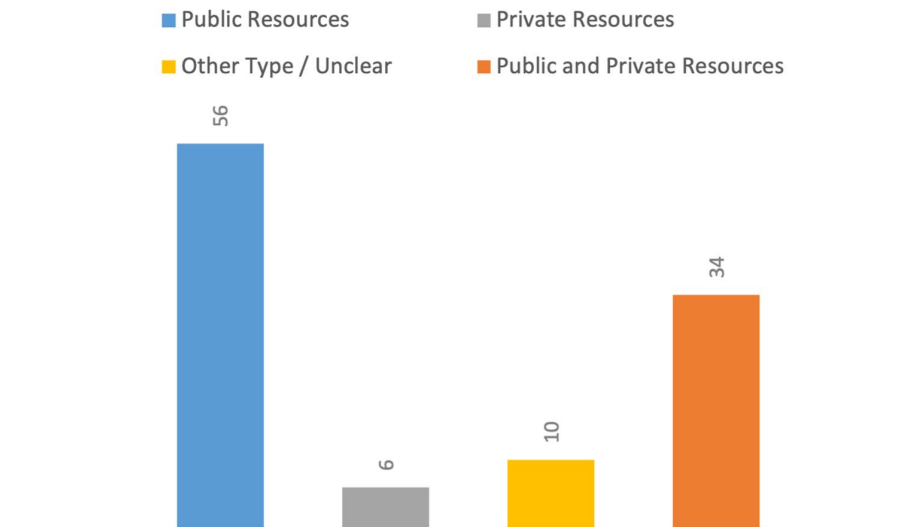


Figure 4.3. Funding sources to support T2P initiatives.

We recognize that “public resources” can include a broad range of funding sources, ranging both based on the level of government (e.g., city, county, state/province, and federal) and the mission of the government agency (e.g., transit, transportation, public lands). Among the T2P initiatives we identified, most were funded by transportation agencies, including local transit providers (n = 26, 24%), state or provincial departments of transportation, (n = 15, 14%), federal transportation agencies (n = 19, 18%), and/or revenue for parking and/or road tolling (n = 3, 3%). Additionally, 30 initiatives (28%) were supported in part by funding from municipalities’ or counties’ general funds. Funding from public land agencies or other environmental agencies was less commonly used than funding from transportation agencies, as only 17 initiatives relied, at least in part, on funding from the former (n = 17, 16%). And finally, nine initiatives (8%) were supported, at least in part, by nonprofits and charities, and 16 (15%) were supported by corporations or local businesses, including ski resorts. Overall, even among the initiatives that only relied on public funding, most used different funding sources.

Service cost. The cost of riding transit as part of a T2P initiative varied quite considerably, ranging from free service to tickets costing more than 50 U.S. dollars. Specifically, 50 T2P initiatives (47% of the sample) offered free services for everyone or selected users (e.g., children, and people with disabilities). Besides the free services, most other fares have similar costs to those of other transit services (e.g., between 2 and 5 U.S. dollars). Among the initiatives we surveyed, those that are motivated by increasing equitable access to the outdoors also tend to have low-cost or free service.

Agencies in charge. Most of the T2P initiatives in our sample are led by a government agency. Provincial/state and municipal public transportation agencies are the most common operators of T2P initiatives. Another common type of public agency involved in the T2P initiative are agencies managing public lands, which generally have the often-conflicting tasks of protecting natural resources and creating recreational opportunities for visitors (e.g., U.S. National Park Service, U.S. Forest Service). In some cases, for example, public land agencies have acquired buses or shuttles and hired operators to run transit routes that provide access to some of their parks and forests. On rare occasions, nonprofit organizations have led T2P initiatives, but they are more likely to appear as one partner of the initiatives.

Operation dates and destinations served. Based on our search, the oldest T2P service is the *Summit Stage Bus* in Summit County, Colorado, which started operations in 1977. The newest T2P initiatives started operations as recently as the summer of 2022, such as *PonyPlus* in Monroe County, Pennsylvania, and the *Sedona Shuttle Connect* in Sedona, Arizona. Various T2P services stopped operations due to different reasons ranging from low ridership, lack of funding, and noise complaints from residences. The COVID-19 pandemic seems to have accelerated the implementation of T2P services, as more than 19 initiatives in the U.S. and Canada started in 2020 or later.

T2P services elevate access to more than parks — ski resorts, inland waters, beaches, and trails are just a handful of open space types accessible. Most of the initiatives we identified sought to provide access to “non-urban” parks, meaning destinations such as resorts, national forests, and national parks that support outdoor recreation activities. Certain destinations are subject to high seasonal variations in visitors, which create challenges for visitor demand management. As such, many towns and cities resort to T2P initiatives as an innovative solution for challenges including parking overflow and traffic congestion.

4.3.3. Motivations and advocacy: What are the main motivations to implement transit to parks initiatives?

Based on our analysis of web documents and interviews with professionals, four main factors motivated the implementation of T2P initiatives in the U.S. and Canada: parking lot capacity, environmental impacts of traffic, equity, and economic development via tourism.

Large parks and open spaces, which include regional parks, state parks, and national parks and forests, provide immense ecosystem services that contribute to environmental sustainability while serving as important venues for leisure and recreation (K. Park et al., 2021). Yet most park visitors get there by car, as most large parks are situated away from urban centers, inaccessible by walking or cycling.

The over-reliance on cars to access large parks and open space spaces has serious negative impacts. At several regional and national parks, parking demand exceeds what is available during peak seasons. Further, traffic congestion results in hundreds of cars idling in traffic, which creates unnecessary pollution while also degrading the experience of visiting regional or national parks. As such, we found that the vast majority of T2P initiatives across the U.S. and Canada aimed at improving and encouraging alternative park access by transit to reduce traffic congestion and parking issues. The three quotes below from interviewees in our study exemplify these motivations:

What's been most interesting about that program is that the need identified for the shuttle service was really around an infrastructure problem. And parking congestion in particular, at some really popular sites.

A lot of our rec trailheads get pretty overwhelmed with people parking. And so we're working with the trails, open space, and parking and transit to try and develop more long-term solutions on how to alleviate some of the parking concerns at trailheads.

And a few years later, after the [San Gabriel Mountains national] monument designation, we started thinking about transit. Because our forest is an urban

forest. It's one of the busiest in the nation. And so we started looking at what can we do to adjust that, and we start talking about transit because we have congestion, not just in our highways, but out in nature to public can access. I think 17 million people in Los Angeles can access the forest within 90 minutes. That puts a tremendous burden on the recreation component of what we do. The pandemic didn't slow things down, people were still getting up there, even though we had a closure on the forest.

Other interviewees explained that illegal parking can create some safety issues, including limiting access for emergency vehicles. One noted,

I think the other element of the transit to trails is really, because there were huge safety issues that were being created by people parking along the road. And actually, on Labor Day, a couple of years before we implemented transit to trails, people were parked in the roadway, and emergency vehicles could not get through

A related motivation of T2P initiatives involves environmental concerns: By providing an alternative to driving, transit to parks can help reduce harmful emissions, noise, and deterioration of water, soil, and air quality. Calls to reduce the use of cars in parks and protected areas by promoting transit also involve conversations about “carrying capacity,” which describes how many cars and visitors a specific park can host without degradation of its environmental features. Several participants in this study linked concerns related to traffic and parking to environmental degradation. See the quotes below as examples of such related concerns.

One of the major goals ... of this program is to reduce traffic to these trailheads. Reduce roadside parking ... of course, you can imagine the impacts on the ecology, the off-road ecology, and flora and fauna. If we have ... hundreds of people stamping down the flora and fauna in a day. So highly trafficked, highly visited trailheads.

As an organization that protects open spaces that provide recreational opportunities, and also protects those open spaces that protect wildlife habitat, it is very clear to us that a lot of these places are being loved to death. And part of them being left to death is people parking on the side of roads, kind of the whole traffic jam element of getting some of these places. ... So from our perspective, we felt that transit to trails or a program that helped people get to some of these areas, and allowed them to have a recreational experience without all of that hassle [of driving and parking].

We have a parking lot now, but because we're a national wildlife refuge, we didn't want to create a huge parking lot because we needed to use as much of our land for habitat restoration for people to visit and for wildlife. Also, as an environmental organization, we want to think about things that we can do to reduce carbon emissions. So carpooling, mass transit, and bicycling.

And so we really especially like to maybe eight or ten years, I've noticed the impact of vehicle congestion, especially in the last two to three years. And so I would say it was a pernicious combination of environmental reasons, but also just straight-up congestion issues. The roads were chock full of vehicles and cars. So these were two primary reasons for the creation of roles.

We have, in some parts of the park system, a crisis of parking. You know, there are some parks that are over-supplied with parking...at peak hours, which is, basically, Saturdays and Sundays and long weekends are oversubscribed ... which is kind of why you can see why there is a shuttle there in operation. And because of our protecting park system mandate, the idea of using sensitive ecosystems to develop more parking is not something that we really want to do.

Further, a few interviewees highlighted the contradictions between driving to the great outdoors and the desire to protect the outdoors of many recreationists. For example, one stated,

The whole reason you're going to this trailhead, or this public park is because you, on some level, love the environment. Right? You want to be outside in nature. How hilarious that you are driving your gasoline-powered vehicle there, your personal gasoline-powered vehicle?

As a third motivation, a relatively small number of T2P initiatives were motivated by increasing equitable access to the great outdoors via transit (n = 16, 15%; see Figure 4.4). It is important to note that, in many cases, it was hard to determine the extent to which a T2P initiative focused on equity, especially when information about initiatives was limited. Still, initiatives that are motivated by equity goals help connect people without private cars (or with intermittent access to a car) to nature, especially marginalized populations and communities that lack access to regional open spaces. Compared to other initiatives, these equity-focused initiatives specifically consider the needs of transit-dependent populations and underserved areas, and/or aim to increase the diversity of people visiting open spaces.

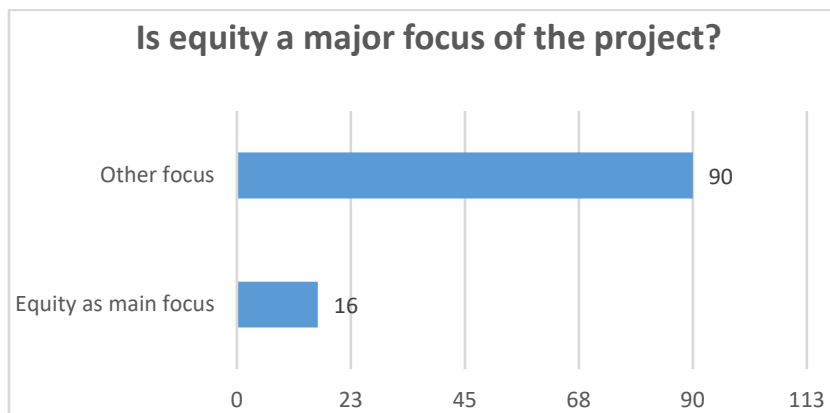


Figure 4.4. The number of T2P initiatives mentioning equity as one of their main focuses.

Several interviewees shared that the T2P initiative they were involved in was motivated by the need to increase access to the outdoors for disadvantaged populations. The quotes below exemplify some of the sets of motivations related to equity such as providing access to the great outdoors, removing transportation barriers, and moving toward health equity by increasing access to the outdoors for marginalized communities.

And I think [our work on transit to parks] started with the recognition of the San Gabriel Mountains as a national monument. And so here you have a very unique national monument where the mountains are connected to the urban... You have

Los Angeles County, a place of 10 million people in the mountains that that are sort of in the middle. ... The history of that work of that designation, there was a big community process that was done a lot of outreach to community-based organizations. ... And in that outreach, what was learned was that folks did folks felt cut off from the mountains, there wasn't a lot of access to them. ... [Several organizations] started to look at transit as a solution to close the gap in access. And some pilot shuttles were implemented with the support of the local forest service unit there.

We recognize that certain hikers face barriers to access to be able to enjoy those trails. And so one of those barriers, obviously, is transportation access. And so legislation like the Transit to Trails Act is one way that kind of us as an organization can support a federal policy objective that can help remove that transportation barrier.

The purpose of the [Transit to Trails Act] legislation is disproportionately beneficial to Latino communities who own cars in lower numbers, who in higher numbers lack access to larger public lands or parks, and who are disproportionately overweight and diabetic. Having access to outdoor recreation is been shown repeatedly to have direct positive impacts [on these health issues.]

So we looked at a lot of communities that may have a park nearby, but couldn't get to it. And so having that extra transit connector is really important for a community that is just looking to get to a close park and doesn't have all day to take off to get to the [mountains].

And lastly, being an equity issue, right? When you're providing a transit service to a significant regional open space, you're enabling some people who don't have cars or who can't afford to drive to access these spaces.

Access to nature is super important, hence [the program name]. So because we realize that a lot of there are a lot of barriers to getting people into the regional parks, there's a lot of obstacles that they face, whether it's a lack of funds or they just can't get there. Transportation was a huge barrier to getting to the regional parks. And of course, like we said, connecting people with nature was something that we set out to do.

Further, equity is usually not the only focus of TP2 initiatives that seek to further this goal. Rather, it is integrated with other parallel goals, including environmental protection, addressing parking issues and traffic congestion, and enhancing tourism. Some interviewees noted that equity and environmental concerns are somewhat complementary motivations, especially for environmental nonprofits. Specifically, one participant noted,

I'd say we entered this, I think, because of the equitable access focus, but I think with the benefit of that it can have on kind of the congestion overcrowding, how it plays in potential, like climate benefits to reducing the number of vehicles that trails heads. So I think both of those factors are important.

As a representation of the integration of different motivations, one T2P initiative was initially

driven by the need to relieve parking congestion, but then advocates made the case for considering equity as a lens for the initiative. As explained by an interviewee involved in that initiative,

The [initiative] started to address the parking problem at some of the most popular sites along the mountain corridor. ... So that summer, we [nonprofit organizations] an effort to build partnerships with groups like outdoor for Latino Outdoors, Outdoor Asian, all these various cultural affinity groups, and then groups that served some historically underserved areas within the region. ... And transportation is often a barrier to getting to the outdoors. So we really looked at [the T2P initiative] as an opportunity, literal vehicle that could help them more easily connect their communities to kind of nature experiences. So we tested that that first year, we did outreach, we also kind of established some core partnerships with these groups to help provide some funding to support staff time in planning trips, but then also provided transit cards. ... That really helped shift ... we saw this shift within the transit agency that the initiative was no longer just about addressing a parking problem. But we got them to shift and look at it more as an equitable access solution to expanding equitable access to open spaces. ... One thing in particular that changed was that they [transit agency] added a whole new [T2P] service route that would better serve the [disadvantaged areas in the region.]

The last type of motivation, economic development via tourism, was mentioned on rare occasions by our interviewees. In this context, T2P initiatives are seen as a means to provide more convenient access to outdoor recreation for recreationists and tourists than driving. In some highly congested locations, ski resorts and national parks have found that traffic congestion contributes to degrading the visitor experience. As such, ski resorts have contributed to funding T2P initiatives (see also section 4.3.2). Specifically, one interviewee noted that messaging around T2P initiatives and economic development resonates across the political spectrum,

A lot of times the message that resonates a lot is kind of what the economic impact is going to be. Like, are trails going to bring more visitors or more tourism dollars to kind of their area?

4.3.4. Motivations and advocacy: What advocacy strategies have been used to push for the implementation of transit to parks initiatives?

Individuals working in nonprofit organizations, and on some occasions public agencies, have conducted different advocacy efforts to establish and implement T2P initiatives in the U.S. and Canada. Based on our findings, most of this advocacy has come from organizations and individuals working to increase access to parks and the great outdoors for populations experiencing marginalization, although some organizations working primarily on environmental conservation have also advocated for T2P initiatives. Further, advocacy efforts to encourage the implementation of T2P initiatives are linked to the content about motivations described in the previous section because such motivations are often parts of policy narratives used in this space.

Based on our interviews, the main policy advocacy strategies that organizations and individuals have used to push for T2P initiatives included developing policy narratives about the need for such initiatives, creating advocacy coalitions, collecting and disseminating data showing the

need for such initiatives, and leveraging pilot programs (e.g., seasonal shuttle) as a proof of concept to generate more funding. We discuss each strategy in the paragraphs below.

Narratives. We found that advocates see narrative development as a key strategy to implement T2P initiatives. This was expected, as advocates working on green space equity use narratives extensively in their work (Rigolon et al., 2022). One of the narrative development strategies that interviewees shared was the need to target such narratives to specific audiences. For example, some interviewees pointed out the need to focus on economic development narratives when talking about T2P initiatives in politically conservative cities and states. Additionally, other interviewees suggested developing narratives focused on the public health benefits of T2P initiatives. One participant noted,

I think they need to put a public health lens to the work that they're doing ... They want to go to parks because they want to be healthy, they want to be able to access hospitals, they want to be able to access schools and work. You also want to go to other places that are gonna be beneficial to your health. And we know that parks are those healthy spaces.

Other organizations have developed narratives that center the T2P experiences of individuals from marginalized groups. For example, one interviewee described the creation of videos that got disseminated via social media to show how difficult it can be to access parks via transit in a certain place,

We did do some awesome social media push videos ... like park equity videos, where we had folks take transit to get to parks and tell their story. And I'll tell you, those were wildly popular on social media. And it was just kind of elevating this issue of park equity and transit equity and transit access to parks.

Advocacy coalitions. Numerous interviewees talked about the importance of coalitions when advocating for T2P initiatives, and some also noted some difficulties in creating effective partnerships and coalitions. In the transit to parks space, we learned that coalitions generally include nonprofits that work on environmental issues or access to open spaces and nonprofits that advocate for transit service. Participants who talked about such coalitions, who were mostly working in environmental organizations, expressed some positive views about environmental-transit coalitions, and some talked about issues in these coalitions.

The interviewees that highlighted the advantages of coalitions between environmental organizations and transit organizations pointed out the advantages of having diverse voices, diverse perspectives, and complementary strengths. The two quotes below exemplify these sentiments,

I think just the importance of coalition building and having different voices and different perspectives, I think is important. I think the coalition that we were able to put together for kind of the legislation brings together trail groups, outdoor recreation businesses, and environmental nonprofits, that all provide kind of different and distinct perspectives, but all support the same issue. And so I think it's just important to bring a large coalition and community together to show that your support isn't just coming from one place is, I think, an important kind of lesson for this as well. ... I think that's another lesson, just bringing in diverse voices and different perspectives that can reach the audience you're hoping to reach.

I think just recognizing that they [other organizations] both bring different expertise and knowledge bases that others might not have or might not have thought about, I think has been interesting. From the transit folks, I learned more about how the grant-making process actually works to access kind of these grants at the transportation level.

Other participants with overall positive views of these environmental-transit coalitions pointed out the need for green space advocates to push for stronger transit systems and to become allies of transit-oriented nonprofits to advocate for more transit service in general. Two interviewees expressed those views in the two quotes below,

We've also tried to tap into some of the larger national transit coalition efforts because we don't have a healthy transit system. You're not going to get investment in transit to trails options within that system. Like we got to move these things together. And so do our part to be a strong ally in those larger transit, transit equity, transit, and general kind of coalition efforts. So we started to plug into those.

You show up as a strong ally, and just to transit advocacy space. ... Here locally, we joined a great group called the transportation choices coalition, a super strong voice for transit and at the state level, and they have a wide network of folks that they activate, and bring together on their issues. And so we, when we started [working on transit to trails], we joined that coalition. And we're showing up and just really trying to show our support in general for transit. So that kind of progressive policy on transit and investments. And so we've shown up consistently in that space and built new partnerships with non-traditional allies. With hopes that ... they've supported our efforts on transit to trails. ... We obviously can't do that alone. All this work is really about collective impacts.

Several other participants noted difficulties in creating real environmental-transit coalitions where both sets of groups are equal partners and share the load of advocacy. Specifically, they noted how both nonprofits and public agencies can operate as separate silos, and little information is shared between transit and environmental organizations. The three quotes below exemplify this concept

They [public lands advocacy groups and transit advocacy groups] do tend to be really separate and something that it's frustrating to me. ... The siloing of all sorts of areas of sort of advocacy and thinking about urban planning, but particularly transportation, because transportation is not standalone.

I think, unfortunately, the way that we've structured some of our coalitions is that the transit folks are here, the healthcare folks are here, the environmental folks are here, and we don't talk to each other, which is just frustrating, because it's all integrated. Or if you're going to do comprehensive legislation, that's not going to just fix kind the tip of the mountain and actually get to the base. You have to all work together. And we're failing.

They [public agencies working in transit and those working on parks] don't really care what the other ones are doing. They just care about their piece of their projects.

Other issues in the coalitions between environmental and transit groups involve the unequal level of responsibility carried by these groups when advocating for transit to parks. Several participants noted that transit groups get involved in T2P advocacy, but that they mostly follow the lead of environmental groups and do not seem to prioritize this work. For example, one interviewee noted,

Well, so in terms of convening, it's really easy to get support, you can send a letter around saying, 'Here's what the bill does. We want your support.' It's really easy to get sign ons. ... The drive came from environmental groups. So that was easy. In terms of active participants, much harder. The bill was probably helped out mostly by environmental groups and not transit groups. The few transit groups that were helpful, they were largely local groups in Ohio, in California, that were in sponsor states that provided some feedback and support in that way. Also, transit authorities can't publicly support a bill. So they can't be on record saying that they support it.

Respondents also talked about partnerships between larger environmental nonprofits and small grassroots groups in advocating for transit to parks. Overall, these partnerships are seen as positive and effective, but it is important to note that we only heard the perspectives of individuals working for larger nonprofits. Grassroots organizations have relationships with and the trust of people experiencing marginalization so they are much better situated to capture their lived experiences than larger nonprofits. These grassroots groups can also mobilize individuals in their community to try T2P services. On the flip side, larger environmental nonprofits can conduct policy advocacy as they, for example, have policy directors on their staff. So these partnerships between environmental nonprofits and grassroots groups highlight the complementary strengths of these types of organizations. The quotes below exemplify some of these points,

We distributed [transit cards] amongst partners that we knew had an interest in getting out and taking their member base out and facilitating some of those trips ... Girl track, we work with Asian Outdoors and Latino Outdoors. Disabled Hikers recently engaged with us. There are a lot of groups in Seattle that are really interested in [T2P initiatives] and really been supportive of us, even being a partner with them. So that's been good. And then in Albuquerque ... there's a whole "urban to wild" coalition there. But there's one group, in particular, that does a lot of transit advocacy, just transit advocacy in general, they didn't have a specific focus on parks, although they always thought it was important to lift transit connecting to parks.

And because a lot of those [outdoor recreation] groups that I talked about earlier, they're all volunteer, they don't have policy directors or advocacy directors or, you know, an agenda that they're trying to advance. You're just trying to get people out and have fun together and build community. ... And so we [environmental nonprofit] have kind of stepped into a space, and then try to kind of be that coordinator, be that lead, see if we could help, just be a strong ally to advance the work.

We've really tried to intentionally engage those folks in the community through those trusted community groups. ... We're not a community-based organization, we're trying to build those partnerships with groups that serve those

communities. ... Places underserved in terms of parks, open space, transit, all the things. That community group really provides really important social services and all sorts of different ways to support the community and the immigrant refugee communities in particular that that live in that region.

Data. Interviewees who work in policy advocacy for T2P initiatives also highlighted the importance of using data to make the case for such initiatives. The main data type that these advocacy organizations used are maps created via geographic information systems, but some respondents also talked about qualitative data collected via interviews and focus groups. In general, data and research are used to make the case for certain T2P initiatives, as expressed by a respondent: “So in all three places we have the analysis [of existing transit to parks services] sort of backup the advocacy.”

Based on what we learned from the interviewees, in most cases, nonprofit organizations that advocate for T2P initiatives collect and analyze data. In more rare occasions, transit agencies have analyzed transit access to parks and open spaces, as in the case of Los Angeles (Los Angeles County Metropolitan Transportation Authority, 2019). A few interviewees specifically argued that transit agencies should collect and analyze more data. For example, one noted,

And what all transit agencies should be doing, the first step is research. It looks not just like data gathering, like someone's putting all this wonky stuff together. It's really about reaching out to your customer base. And your riders, the people that depend on you, first and foremost, and then sort of going out, but combining that or making that part of your research on transit to trails really important. So I hope to see more agencies take that route.

When nonprofit organizations conducted research on transit to parks, they often aimed to identify the neighborhoods that were underserved by local parks and that had limited transit connections to open spaces. Individuals in these nonprofits often found that several low-income communities of color had few local parks and did not have transit access to larger parks. As such, they used the findings of their research to advocate for equitable investment in T2P initiatives. The three quotes below exemplify this strategy,

And then we've also done a couple of research efforts. So a couple of years ago, we did a GIS analysis of transit access to parks. We worked with a contractor to map gaps in access. And we found that [part of a region] had a lot of gaps in access, which is where a lot of our BIPOC [Black, Indigenous, and People of Color] and low-income communities live. So it wasn't very surprising, but it really emphasized the need to do more advocacy and investment in those places. So that was more of a quantitative analysis. And then more recently, we did a community needs assessment. This was more of a qualitative way of getting community feedback and more information on their needs and preferences for reaching parks on the bus. And we did most of this work in 2021. We worked with a number of community partners and those community partners led focus groups and conversations with their community members. And then we recently published ... a report, which is now available to the public, and we just really highlighted some of the needs that community members have related to parks and transit.

We had a transit to parks analysis where we identified the neighborhoods that were really lacking in good transit access. It's sort of the neighborhoods that if you've grown up in [city] are very familiar with, those that have been under-invested for a long time.

So we did that transit to parks GIS [geographic information systems] analysis in 2019, which ... tried to bring these [work on transit and access to parks] together. And ... the county executive launched this land conservation initiative, which big bold vision to protect all the remaining places and protection in the next generation. ... So that initiative was launched, and a big part of that initiative was looking at open space equity, and identifying areas that are underserved in terms of open space and green space. So the county identified a lot of these areas through that process, and a lot of them are in [disadvantaged area]. So we were looking at that, and saying, 'Hey, these are gaps. These buses don't go to these parks. How can we look at the transit system to assess equity?' That's been an important part of our work, too, because the county loves maps, they love the data, they love the science behind all this. So being able to bring that added credibility is important.

A few other interviewees noted that showing service gaps in T2P access through GIS analyses has been an effective strategy. As a result of these analyses, some transit agencies have made changes to their services to provide better access to open space via transit from low-income communities. The two quotes below show examples of such instances,

And then with [transit agency], it's been really great outcomes there ... they show they value the partnership, and they have even taken recommendations from the reports on transit to parks to access and to improve their service.

We built this community partnership network and got folks engaged. And then we were able to gather really important information from these partnerships. You know, at the end of each season [of T2P initiatives], we said, 'hey, what worked well, what didn't, what recommendations might, you have to make this experience better for your community?'. We channeled all that information back to [the transit agency] and to partners One thing in particular that changed was that they [transit agency] added a whole new [T2P] service route that would better serve the [disadvantaged areas in the region.]

Pilot programs. In some regions, T2P advocates used pilot programs such as seasonal shuttles as proof of concept to push for more extensive T2P services. Specifically, such advocates worked with transit agencies, sponsors, and volunteers to establish shuttle programs that reached a few popular destinations. They then evaluated ridership and other factors (e.g., parking) and used their findings to advocate for the need for more similar T2P programs. The three quotes below exemplify this advocacy process,

And some pilots were done with the support of the local forest service unit there. Some pilots were launched in the San Gabriel Valley, one specific one with the Chantry flat shuttle. And that showed that even if you run a shuttle on an occasional basis through a limited time, people are going to respond if you're done if you've done the outreach right. If you're including people and making them aware of the service, it was really successful. (Nonprofit organization staffer).

And so we brought that premise [transit access to parks] to the Angeles National Forest, and we did a pilot shuttle in 2016. That was very popular. We only were able to do it for three weekends. But out of that, we were able to say, 'hey, there's something to this.' And we had a lot of public involvement and public interest. We had scoping meetings, we did an after-action review on that. And we invited a lot of our stakeholders and partners, a lot of them more local communities, up against the foothills of the Angeles National Forest. We talked to them. And they were very enthusiastic. And we had a couple of follow-ups after that. (Public land agency staffer).

A [volunteer] lives in Altadena, California, which is near one of the original transit to trails pilot programs to access the San Gabriel Mountains. ... There's actually a bus line that ends at the foot of the mountain. So she's trying to raise awareness for her community as to like why this is important and bring more attention to that bus line. (Nonprofit organization staffer).

Interestingly, some pilot T2P initiatives in California resulted in the development of a bill in the U.S. Congress titled the "Transit to Trails Act" (*Transit to Trails Act*, 2021). The bill has yet to be passed as of November 2022, but it is interesting to see that pilot shuttles led to a national policy conversation about transit to parks. One interviewee explained the genesis of this bill,

So that's kind of the beginning. The bill [Transit to Trails Act] really started from a community-based pilot program [a transit to parks shuttle] and having conversations with federal legislation for legislators.

4.3.5. Facilitators and barriers: How do partnerships between various organizations facilitate transit to parks initiatives?

Partnerships between nonprofits and public agencies, as well as between different public agencies, are key to the implementation of T2P initiatives. We already covered partnerships when discussing funding (section 4.3.2) and advocacy (section 4.3.4). In this section, we talk about the potential of partnerships in facilitating T2P initiatives beyond funding and advocacy.

In general, we observed different types of partnerships to implement T2P initiatives. First, we found some *horizontal partnerships* that include government agencies that operate at the metropolitan, state/provincial, and/or federal levels. For example, these partnerships include collaborations between metropolitan transit agencies and federal land managers, such as, respectively, the Los Angeles County Metropolitan Transportation Authority (LA Metro) and the USDA Forest Service.

Second, we found examples of *vertical partnerships* between larger public agencies (metropolitan, state, or federal levels) and smaller levels of government, such as municipalities. These partnerships generally involve a transit agency (metropolitan level) working with the parks department of a municipality or a state agency providing funding for a municipality-run transit service.

Third, we found numerous examples of *public-private partnerships* wherein public agencies worked with nonprofits and/or businesses/corporations. Importantly, many of these public-private partnerships include several public agencies in either horizontal or vertical partnerships.

Beyond funding and advocacy, organizations within partnerships collaborate to carry out the following activities:

- Providing technical assistance and support
- Carrying out public engagement
- Convening conversations among public agencies and nonprofits
- Building transportation infrastructure
- Coordinating transportation services with ski resorts

Partnerships in which one organization provided technical assistance to another involved statewide transportation organizations helping transit agencies optimize frequencies for T2P services, helping coordinate road closures with local police departments, and providing transportation planning services to public land agencies. The quotes below exemplify how partnerships led to technical assistance,

We [state transportation agency] worked with [transit agency] a few seasons ago to improve frequency and efficiencies on the ski bus routes. And we were able to implement that in a quick turnaround.

This current season, we're [state transportation agency] working with [city police department] and [transit agency] on a bus bypass service. ... Their police department is escorting buses up to the mouth of the canyon so they can bypass all of that congestion.

[Public land agencies] have to engage local stakeholders in the creation of transportation projects and access programs and projects that really would increase access at those urban [open space]. ... And now [public land agencies] have engaged people who are planners and transportation professionals. ... And a lot of it has to do with providing technical assistance to urban [open spaces], so that they can move forward on some of these [transit to parks] projects.

Numerous interviewees pointed out how partnerships were important to conduct community outreach to plan and implement T2P initiatives. Partnerships often occurred between a public agency and several nonprofits that coordinated community outreach. These partnerships are not only necessary because nonprofit organizations tend to have good relationships with the communities they serve, but also because some public agencies have bureaucratic barriers that make community outreach hard to conduct. The two quotes below from two nonprofit staffers exemplify the role of partnership in conducting community engagement.

A lot of work is done through partnering with the county [transit agency] and our [nonprofit] role in supporting the [T2P initiative]. For outreach, we were tabling at community events when that was possible. And we had to go virtual with the pandemic. But doing some tabling, talking with partner organizations, providing even some community-based organizations with stipends, if they're interested in taking their member base out for a day using the [T2P initiative] ... So that was part of our fluency with building this community partnership network, getting folks engaged. And then we were able to gather really important information from these partnerships.

In the conversations that I've been having with one of our coalitions, we were talking about putting out a community engagement survey. And I think they were hoping that the [public land agency] would put out the survey, but the [public land agency] didn't feel comfortable putting it out with their name and logo on it. Because then they have to have like approval from a variety of different people above them... They just need to have a lot of different approvals. ... Whereas I think some of the conservation groups and green groups are like, 'Well, we have an idea, we want to put it out there.' So those are just kind of different perspectives on how to go about the work.

Participants also noted that some public agencies create partnerships by promoting convenings among numerous other public agencies and nonprofits. These convenings might be focused on solving transportation in a specific location (e.g., a canyon, or a national park) or creating broader partnerships. In many circumstances, convenings included agencies working across different sectors, such as transportation, public lands, public safety, and recreation and hospitality. The organizations that facilitate these convenings are generally public agencies, including state transportation agencies and federal public land managers. The quotes below provide additional details about such convenings.

We [state transportation agency] also have a 35-member stakeholder council that takes up a lot of the work. And one thing I'm sure you hear a lot about is the challenges with [canyon]. And the mobility issues up there. We have a committee working on [canyon] that took a pretty deep dive into what is it going to take to implement transportation improvement. (State transportation agency staffer).

The true power of [state transportation agency] is in our consensus with our jurisdictions. So how we get things done is through partnerships and through planning, and so that's how we do that. ... And we'll certainly convene ... beyond just the policymakers, the stakeholders. And so we go through a rigorous process of going through a 35-member stakeholder council. ... And we try our darndest to insert ourselves with conversations [between various agencies]. (State transportation agency staffer).

I would say there's more coordination [between transit and public land agencies]. There has been in the past, and now there's a greater look at it. So there's been a couple of efforts that are happening at the federal level. The Federal Highway Administration has been doing these integrated planning efforts in a few states, where they're bringing together ... this big coalition of cities, localities, counties, and state DOTs. Public land entities come together and ask, 'how can we plan more integrated? How can we work together, and really improve our systems?' ... They're doing these integrated planning efforts, saying, 'Let's look at the statewide transportation system, let's look at this local needs and how we can address those local needs to access these federal lands? How can we better partner together for these projects?' ... I think that there's more of a drive to do things together and to talk especially at a state level. (Federal public land agency staffer).

A few years later, once we started talking about transit [to parks] opportunities in 2016, we did have a meeting with a lot of these stakeholders where we talked about transportation in the Angeles National Forest. We invited everybody that

we could, we had conversations and presentations. ... We talked about what our vision of transit into the forest was. We had different associations and groups like bike users and the local communities. ... So we had that, and that was very productive. And then we launched the shuttle program a few months later in December of 2016. That's the pilot. ... After that, we even had an additional series of meetings, where we talked about that. And, and the [public land agency] initiated them, we had a lot of partners. ... And we are having conversations with, I think three or four different groups to talk about what we have going on right now. (Federal public land agency staffer).

Several partnerships involved transit agencies coordinating transit initiatives with ski and summer resorts, which are major destinations in mountain towns and some metropolitan areas. This type of work involved resorts paying part of the fares of transit riders, implementing paid parking, and/or creating dedicated bus lanes to access these destinations. As a public sector planner in a mountain town explained,

We're working with the [ski] resorts on ways to reduce single occupancy or even multiple-person occupancy. They have proposals for increased parking charges, and we support that. We've been working with loading and unloading areas for transit. Previous to this, we are actually having a lot of transit delays ... buses would get stuck in the same traffic. So our team ... developed a plan that gave a bus a free lane into there. And that was just implemented this winter. And we saw our delay go down from sometimes 30 minutes of delay per route, which is pretty high to around five to 10 minutes at the worst.

Finally, some partnerships involved several public agencies working together to implement capital improvement projects that facilitated transit to open spaces. These partnerships are often needed because roads that provide access to open spaces such as national forests are often owned and operated by cities or counties. One interviewee explained this situation,

And they're [USDA Forest Service] working closely with County Public Works, for example. They want to widen, at one point, the road that gets you to [name] trailhead. ... But they wanted to make improvements [to make it possible for buses to get there] to that road, and they were going to apply for a grant. And they were both working collaboratively. So I do think there is an appetite and a desire to work more closely.

4.3.6. Facilitators and barriers: What are the main challenges to implementing transit to parks initiatives?

Interviewees noted that the implementation of T2P initiatives faces many challenges, and some of such challenges are similar to those faced by transit in general. The five main challenges mentioned by participants are listed below:

- Limited funding
- Labor shortage
- Infrastructure
- Difficulty in working across agencies
- Politics and bureaucracy

The first two such challenges (limited funding and labor shortage) affect most transit services, especially as transit agencies are still recovering from the acute phase of the COVID-19 pandemic. The other three challenges (infrastructure, difficulty in working across agencies, and politics and bureaucracy) seem more specific to T2P initiatives. In the paragraphs below, we discuss each challenge in more detail.

Limited funding. Transit agencies in the U.S. and Canada struggle to secure enough funding to provide basic transit services, and such struggles seem particularly strong for T2P initiatives. Numerous interviewees mentioned funding as a key barrier to creating T2P initiatives. For example, one staffer of a public land nonprofit noted, “I think that the barrier is always going to kind of be funding.” Another staffer of an environmental nonprofit shared similar sentiments, “Also, funding can be an issue. I've already been in some conversations that are like, ‘Okay, now that we have figured out [the T2P initiative], what are the next steps, we need, like 3 million extra dollars.’”

Some interviewees noted that funding has become a bigger issue after the onset of the COVID-19 pandemic, which has seen decreased transit ridership and lower revenue for transit agencies. For example, one interviewee noted, “There's not a lot of funding overall. And I think a lot of it has also been diminished because of COVID. So there are not many resources, generally speaking, for people to get great access to parks.” Another interviewee shared similar thoughts,

[State] has no money. [City] has no money for public transit. Especially with COVID. Obviously, this is an issue across the country, but it was really apparent in [city]. Our transit system was so hard hit by COVID and it's so underfunded, to begin with.

Other barriers related to funding deal with the high cost of some T2P initiatives and the need to compensate for other funding priorities. When discussing a seasonal shuttle service in a mountain town, one interviewee noted, “[the transit to trails initiative] was successful, but it was very expensive for the amount of ridership these trips actually got.” Other interviewees mentioned competing priorities for transit: “In [city], it's definitely more just sort of funding priorities.” And another participant, when talking about a mountain town, explained

About funding, ... I think one of the interesting things is we don't want to just be a transit recreation service. ... We want to provide some access to recreation areas for a community, but we don't want to be solely a rec trip provider.

Some participants also mentioned that certain funding sources can only be spent for capital improvements (such as widening a road), whereas others can only be used for operations (such as hiring bus drivers). These conditions attached to funding create issues for the implementation of T2P initiatives. The quotes below exemplify these issues

I think they [funding agency] mostly fund capital improvements. I think the problem is that the transit authority is looking for ongoing costs for maintaining buses or hiring bus drivers. And that's where we're having trouble finding that kind of continuous funding. ... We were able to convince people and say, ‘Hey, give us this one-time money to buy the bus.’ But the ongoing costs are where the struggle is.

The issue with [funding source A] is that you can only spend the money on capital expenses and not programming expenses. So then advocates got together and tried to think, 'How are we going to fund the non-capital costs, the programming costs?'"

Labor shortage. Another significant issue affecting most transit agencies during the recovery period of the COVID-19 pandemic is the labor shortage. Many interviewees lamented that transit agencies have trouble finding bus drivers in general, and especially for T2P initiatives because they are seen as less essential than other services (such as those to reach jobs). As a result of labor shortages, there have been service cuts to T2P services. The quotes below provide accounts of this issue.

'So many challenges and in service cuts after service cut. ... For several reasons, right? They [city A] are, they're short-staffed. And [city B] is experiencing some of the same where they're short on drivers.

And then one barrier, and this is probably just gonna be a point in time, is there's a driver shortage. ... But for bus drivers in general, there's a big shortage right now. So that seems to be a pretty severe limitation this particular season.

But again, that's a capacity thing. Do we have a driver? Do we have enough people when we're trying to run an event?

So regarding transit to trails, the priority for transit agencies is not necessarily to get people to a park, right? The transit agencies don't lose sleep over like, 'Oh, God, we're not getting people to park there. Like we need to get people home and people be between home and work in school.'"

Infrastructure. A set of barriers that seems more specific to T2P initiatives deals with infrastructure. The main infrastructural barriers that hinder the implementation of T2P involve difficulties in accessing locations in mountainous or hilly locations, and they were not generally mentioned for T2P initiatives that focus on urban parks. The barriers include:

- Narrow roads and bridges
- Limited locations for buses to turn around
- Transit service conflicts with cars
- Lack of cell phone coverage
- Last-mile connections

The quotes below exemplify some of the main barriers just listed. Some participants mentioned "infrastructure" as a general barrier but then elaborated in follow-up questions. For example, a state agency staffer noted, "Unfortunately, there's not the infrastructure to implement a shuttle service up [canyon], but ... we certainly have eyes on that."

Other participants raised the issue of the width of roads and bridges, which in some cases limits the implementation of T2P altogether, and in others, leads to using smaller vehicles, such as shuttles, which are more expensive to operate per rider. The three quotes below provide additional details about this issue.

This is where some of the infrastructure challenges have been. We can't really go too much farther beyond [trailhead], just because with our vehicles right now, like the turnarounds are very difficult. The roads are quite narrow. And so that's kind of where we did the transit the trails program. And we can't really run our buses up there all the time. You know, just, it's not safe, pretty much. So we hired a private shuttle company to provide service during summer time periods.

The [canyon] is a really popular area. And folks have been advocating for the bus I think do go into there. ... And then all of a sudden, someone chimed up one day ... But the barrier for them is just the bridge was not built for a bus, it's like two inches too narrow for a bus. So if we wanted to extend that bus line those last two miles, it would involve literally rebuilding the bridge. So I know that's one of those funky infrastructure issues.

The roadway between [canyons] is so incredibly inconsistent. It would be an incredible safety nightmare for any police officers to do that escort service [to buses]. They would literally have to be weaving traffic, and that's terrifying.

A related infrastructural challenge to limited road width is the lack of spaces for buses to turn around, especially when they serve dead-end canyon roads. In some cases, turning buses or shuttles around was possible, but it would have taken too much time due to other vehicular traffic. The quotes below exemplify this issue,

We can't go too far up there [in the mountains]. Because if you go too far up, you know, farther, turning around, takes five minutes dependent throws the whole system off.

So that was also concerned with the buses that they needed because there's no place to turn around, so there needs to be some planning done to reconfigure that.

When we started talking to the city and they [transit agency] said, 'Well, we didn't put one down there because there wasn't a place to turn around, because our street is a dead end.' And so we just built this brand new visitor center. And as part of our visitor center, we built a bus turnaround.

The lack of cell phone coverage was mentioned primarily as a safety issue in case of disasters or sudden need for evacuation of mountainous areas. The two quotes below explain this issue,

Communication is another barrier. We don't have a good wireless network in the forest. ... You lose your cell phone coverage, and that adds to the gravity of the situation [need to evacuate].

We researched the feasibility of a [canyon] shuttle. ... And through many meetings, it was determined [that there it is currently not possible] because there's no phone service, so emergency services in that canyon would not be able to access without phone service. The road is also very narrow so it was not feasible at that time.

Several participants noted that the opportunity to implement T2P initiatives, and when implemented, their success, clashes with the presence of many private vehicles on roads with limited capacity. This set of issues includes buses and shuttles having unreliable service times due to traffic congestion and the lack of dedicated bus lanes, as well as difficulties in finding space for effective park-and-ride locations. The two quotes below explain these two issues,

If you've used buses to get into the mountains, you know that you can put all the schedules you want for buses, but they get caught in the same traffic. Buses get caught under the same conditions as other vehicles going up and down these canyons. They cannot keep to a schedule, even under the best of circumstances, they can't keep to a schedule.

We have looked at multiple park-and-rides throughout the valley, and we've gotten rough estimates on what it would cost to have 80% of the people riding buses from seven different hubs across the valley.

Finally, unsafe or unclear last-mile connections make it difficult for recreationists to reach their destination from transit stops. A few participants explained this issue,

We're gonna need to provide sidewalks for one mile in either direction of the trailhead so that if you ride the bus there, you can safely get to the trailhead.

[Street] is the main road that goes through our neighborhood that also accesses the [open space]. And it has no sidewalks, it has no lighting, it has no curbs, it's pretty dangerous.

Difficulty in working across agencies. Numerous participants have pointed out that T2P initiatives could be inherently difficult to implement because they might require partnerships between government agencies that traditionally operate in different silos. Those siloed agencies include park agencies and transit agencies, but also transit agencies operating in nearby jurisdictions. Various participants highlighted these related issues.

One specifically noted that funding for parks and funding for transit tends to be siloed and often not available at the same time. They noted,

But it gets complicated because a lot of this work requires a lot of funding. And when funding streams are so siloed and limited for one agency or one program, they might only be able to cover a certain thing, but they're they can pay for roads, but they can't pay for the operation. So then they're trying to find somebody that can pay operations and it's a headache. It's a lot, and you're asking agencies to do a lot of work to do that collaboration.

Another participant noted that parks and public lands agencies have often more interest in fielding T2P initiatives than transit agencies. They provided an in-depth account of this issue,

[Park agency] had some complementary resources that would support community partnerships. So we [nonprofit] went in 50-50, on developing these community partnerships with nonprofit groups. ... So that's been wonderful with [park agency]. [Transit agency] has still operated somewhat in an insulated

space. Sometimes that can be challenging because we're hearing 'Yes, yes, yes. Awesome,' from [park agency], and then you go over to [transit agency] and they're like, 'No.' Interesting interdepartmental dynamics there.

Another side of this issue is that public land agencies generally do not control the design of the roads that give access to certain trailheads. Local departments of transportation or state departments of transportation design and manage those roads. This disconnect can hinder the implementation of T2P initiatives, as shared by a participant,

All of the roads had access to these public lands, and the recreation sites, they're all from other sources. They're either state DOT, the Department of Transportation, or county highways. And so we rely on them because it's their right of way, and sometimes our parking encroaches into their right of way. And so we have to kind of work together to find solutions to them.

The geometry of the road is such that there's not a safe place to put bus stops and so for me as a transit planner is frustrating because it means that you're skipping a population that could otherwise have access to the bus. Since BC Transit doesn't control the roadways or the infrastructure, it's not something that we really have a say in. It's the Ministry of Transportation that's who owns the road at that point. Besides, it's a priority that they can make it happen, but they have more priorities across the province

The lack of collaboration between governmental agencies can also manifest between various transit agencies serving nearby areas. One participant explained this issue,

It's a difficult thing to do, because of the way that we've structured transit in [state] ... And so the problem is that we end up really only having good public transit within local transit districts. And those transit districts are all very siloed. And in fact, with the exception of [service], we don't have any public transit that connects any of our transit districts. And so that makes it difficult to get for people to get around the state [to recreational sites].

Politics and bureaucracy. A final set of barriers include several complex issues that relate to politics and bureaucracy. These main issue include the lack of agreement about basic facts and solutions due to fractured political environments, opposition to T2P initiatives from residents of wealthy hillside and mountain communities, and general bureaucratic issues. The quote below exemplifies the lack of agreement about basic facts that can lead to more reasoned decisions about transportation solutions,

The challenge is to get the players to operate from the same information. Because ... everyone thinks they are a transportation expert ... But the fact that matter is there is sort of a science and expertise around transportation systems and how they work. ... And it's as true in transit, as it is in roads. But most people don't have any idea about that. And so they think, because they use the transportation system, they bring a lot of expertise and or they have strongly held opinions regardless. So I think our biggest challenge right now is to try to get a nucleus of people that are decision-makers to accept the same transportation information. ... And transportation in these mountains involves such strong opinions and passions, that people aren't willing to take that step even. ... And it

doesn't enable good solutions at the moment. We're just in such a fractured political environment that it makes it especially difficult.

Other participants shared instances in which residents of wealthy neighborhoods raised “Not in my back yard” (NIMBY) concerns about T2P initiatives. In some cases, these vocal oppositions have led to the discontinuation of T2P services. In one of the T2P initiatives we identified in the search (Pasadena, CA, U.S.), residents opposing the initiative lamented that a lack of community engagement prior to the implementation of the transit service was one of the reasons for their opposition (Munguia, 2018). The two quotes below provide additional details about this issue.

There was a lot of pushback from some community members, where the routes went through there. ... They just didn't want people coming through their communities. So while I think there are a lot of people who think it's a good idea to have access, some people don't necessarily want to be the ones facing those routes, and that increased access come through their neighborhood.

The most vocal people, it's the NIMBY people, “not in my backyard.” That's what happened at [site]. ... Most of the people who were vocal about it [T2P initiative], it was the residents, so we didn't hear from every group on that. I think there would have been probably the same or if not more people who actually benefit they the shuttle. You have those situations where some people are not gonna like this concept because it impacts them as a resident.

Other participants talked about broader bureaucratic issues, and how they slowed down the implementation of T2P initiatives. The quotes below exemplify these barriers,

It seems like there are a lot of different sources of input that need to be obtained, and approvals needed, like the [federal public land agency] and [transit agency]. ... So there's a lot just a lot of like voices in the space to approve each process. So bureaucracy, also, I think, is a big barrier.

Sometimes working with [transit agency] makes me realize how much red tape there is involved in a lot of these processes. That's not as easy as just like, ‘Oh, you could put this route here’ because it would need so many approval processes.

Sometimes, the federal agencies just move slower, because they have a lot of things to consider.

4.3.7. Lessons learned and monitoring: What “worked” in the planning and implementation of transit to parks initiatives?

When we asked interviewees what lessons they learned from working on T2P initiatives, most respondents talked about the importance of community engagement, and others talked about making T2P initiatives easy and convenient. The bullet points below summarize the main lessons learned that interviewees shared with us.

- Conducting in-depth community engagement
 - Community engagement helps design new effective T2P initiatives
 - Community engagement helps people become aware of T2P initiatives

- Community engagement enables agencies to hear from disadvantaged groups
- Community input helps make the case for T2P initiatives with elected officials and transit agencies
- Making services easy to use and convenient

In-depth community engagement. Many respondents mentioned the many advantages to conduct in-depth community engagement when asked about the biggest lessons learned about working on T2P initiatives. This is an important finding, as we did not ask any direct or indirect questions about community engagement, and we did not expect that nearly all interviewees would bring up this topic when asked about what they learned from T2P experiences.

As listed in the bullet points above, community engagement is a fundamental component in designing effective T2P initiatives. In particular, getting the word out about such initiatives, learning about the specific needs of disadvantaged groups, and gathering evidence about community support, can help make the case for such initiatives with elected officials and transit agencies. In the paragraphs below, we expand on these points.

Numerous interviewees stated that it was critical to conduct thoughtful community engagement with the future users of a T2P initiative when designing such an initiative. The numerous quotes below provide important details about this lesson learned, including (a) sharing current traffic congestion issues with communities, (b) using the good ideas that communities provide, (c) starting community engagement from very early on, and (d) ensuring that who participates in community engagement is representative of the demographics in their communities.

I think one thing that we probably could do better is more coordination and more dissemination of information and more public input. ... I think just having engagement right off the bat is going to be helpful. Definitely knowing the areas that you're targeting, if you want to provide access to a specific park. ... But you definitely have to start with the with the conversations up front. You want to engage with the public, you want to have some forums where you have some open house dialogue, you tell them, 'Hey, this is this is the challenge that we face for *blank* picnic area or campground or trail.' We see that there's congestion and we also know that not every family can get out there because they don't have, vehicles or they might be packing their families into one vehicle. 'You know, we're proposing a [transit] route to adjust some of these concerns. What do you think?'

I think some of my biggest takeaways ... is really good community engagement. All of the things that you can miss seem very small, but absolutely create a huge barrier for people participating. So that's been a really impactful thing, for me. ... This isn't groundbreaking or anything, but I think it's one of those important things that I've learned is just how communities have so many good ideas for how to better serve their communities with parks and transit and almost everything. But if [transit] agencies really want to serve the people that they're saying they want to serve, they should be listening, and holding themselves accountable to doing what the communities are saying.

I don't think our transportation vision would be as robust, it definitely wouldn't be as robust if we didn't have constant community involvement, constant discussion, and the importance placed on listening to what our community needs

and asking them for what they need, and then acting on that. Our programs are so much stronger, and we have such a better vision of where we want to be and who we want to be. Because we co-create and work hand in hand with community members. So I think that's probably the biggest lesson of why we [public land agency] are so successful in what we do in getting funding and figuring out where we want to go. And it helps us build more relationships when we have those successes because we really think about co-creation of the vision for this [open space], and how the impact the [open space] can have on our neighbors.

As part of that process was for the [open space], they have to engage local stakeholders in the creation of transportation projects and access programs. And that single engagement piece is I think, a really, very strong tie to why these [open space] access plans are so important. Because they engage a set of stakeholders that are not necessarily engaged on that level at that [open space] Representation from these target communities that are near [open spaces], and we tried to focus on increasing access.

We try to begin those conversations early on, with those communities, with those targeted communities and really engage them at a very personal level, on how they would like to interact with us [federal public land agency]. We can talk internally about what equity means, to us and our [open space], and to what we do. But in different localities, it's going to change and going to be different. So engaging the stakeholders, and talking to them. And that's why our urban connections study process is really important for that engagement. Because ... we understand that there's a lot of needs, by communities.

Many respondents also stressed the importance of community engagement to inform the public about new or existing T2P initiatives. In other words, community engagement needs to continue after T2P initiatives are implemented to ensure that communities of interest are aware of such services. As explained in the quotes below, interviewees noted that advertising existing opportunities is a relatively easy thing to do for transit agencies (see also section 4.3.1), which can also help boost ridership.

I think something we've talked about a lot is an awareness campaign of current routes that already do connect people decently well to parks and trails. And when we [environmental nonprofit] did that GIS analysis a couple of years ago, we're mostly trying to figure out where there are gaps. But along the way, we found that there actually are a lot of good routes that just aren't advertised very well. And we've been talking with the county on doing some kind of awareness campaign ... where they could put up signs at bus shelters, and light rail stops that say, 'Here's a park a really great park, you can get to within half an hour, if you get on right here.' I just think there's not a lot of information out there on these opportunities. And so that's an easy, relatively easy gap that could be filled.

I feel like the lack of understanding or awareness around the routes that already exist, but then also the services that are outside of a bus that people can utilize to get themselves places. [County] has a program called the community van program. And that is a service that you can use. And you can get a van and take it where you need to go with a group. And some of those services are not as

widely known. Or it's difficult to manage or to like sift through all the information on how to actually utilize it.

Creating awareness around existing routes, I feel because, at least in [neighborhood], there's a lot of access to the beaches and things like that through public transportation, but you wouldn't necessarily think of them as good ways to get to the beach. There are also a fair amount of state parks that we have in [region]. So awareness around how people can access those better-funded higher quality parks, then maybe their neighborhood parks, through public transportation will be good, easy lifts.

What we've done in the past is we've done advertising to do pickups at the existing bus stops, as well as at the commuter rail stop. One of the bus stops in our neighborhood is also at the community center. So we also would pick people up at the community center. And then there's a local health clinic. And we would pick people up at the health clinic. So we've done that at the health clinic, the community center, the bus stop, and the rail station.

But when you go in and change, any transit service, people are going to be understandably confused or upset. And if you didn't do like the pre-outreach, I think it's backfired on us a little bit where we are getting basically no ridership on a route. ... So I think what we've learned as a city is we really got to be proactive if we're really significantly planning to change something. So in our short-range transit plan, we're basically allocating the whole next year after we have new routes, we plan to go out to the community to share what's changing and say, 'This is what's being replaced in six months; expect to see this.'

Some interviewees also mentioned that in-depth community engagement is particularly important to understand the recreational and transit needs of groups experiencing disadvantage, such as low-income people, people of color, and people with disabilities. Hence, some respondents argued that it is particularly important to facilitate community engagement processes for T2P initiatives, especially focusing on groups that experience disadvantage. The quotes below exemplify these points.

Big picture, Government entities are not usually the best at really putting in the time and effort to get the real community input. It is a huge undertaking to make sure that you are making meetings accessible. If you're going to have a meeting to get public input, you need to advertise it well in advance. You need to have it at a location that's easily accessible. You need to have Spanish and sign language translation and any other language translation that's needed. You need to have word-of-mouth campaigns and flyering campaigns to hand out information to get people to come, you need to think about other ways to advertise. We send flyers home with the kids at school, we walk door to door to carry flyers to houses, we provide kids activities at evening meetings, and we provide full dinner at evening meetings. These are not things that the government is used to doing. If you want to host a public meeting it, for us [federal public land agency], it's months of planning and preparation. And that's not usually how the government works and getting input; it's usually a blurb in the newspaper a week before, and a handful of people show up. And it's a whole paradigm shift on where you have to put your focus to be able to make those

things happen. And we luckily have just made that a priority for us. And that's really built those relationships that help us move forward.

We had a series of meetings to talk about what the [transportation] changes were, and how they might affect public use. We had a lot of engagement with the public, I think we had four public meetings, and then one of them was Spanish speaking. ... One of those components [what people were talking about] was transportation. So we talked about that very specifically, we showed the [open space] boundary, and we asked people, 'What do you think about our current access into the forest?' And they were very vocal to say, 'There are challenges, we can't find parking or you guys have too many closures'. ... we had a lot of feedback for that. So that was very helpful. It didn't address the voices of every single group, because frankly, we didn't, we didn't have a lot of representation from some of those underserved communities. So we [federal public land agency] were able to get some help from some partners [community-based nonprofits] who helped us get the word out, not just on social media, but also send out flyers, contact people, and get some of those stakeholders to try to participate. So that's the one thing: you're only as good as how many people get the message. And it's hard. It's hard enough sometimes for people who are working more than 40 hours a week to get to these meetings.

Finally, a few respondents noted that conducting a robust community engagement could gather evidence to foster strong support for T2P initiatives among communities. Such evidence could also be helpful to advocate for more T2P initiatives with elected officials and transit agencies. The quotes below exemplify this lesson learned.

You have to identify some potential funding sources or at least some programs that already have transit to try to ask them, 'Hey, would you be willing to entertain this idea of a shuttle program into the forest? This is what we're thinking, what do you think about your thoughts?' And you need to engage the public. It comes down to that, too, because without that buy-in from the public without people saying, 'Yeah, we can use this [T2P initiative],' then it is going to have a lot more strength and merit if you can say that this is addressing the needs of the public. They are federal lands, they belong to all of us, taxpayers, all of us, we use them, for better, for worse, and we're identifying the needs of the public.

That intentional engagement of community partners. At the end of each season [of a T2P initiative], we would put a report together that gathered information that we got from community partners. We asked the partners five questions by the end of the season, and ask their members about their issues. ... They did interviews and reported back. So at the end of each season, we have three or four of these reports where we gathered photos and the numbers and stories and feedback from community partners. And we channeled that back into the [transit and parks] agencies, and we community recommendations.

Ensuring T2P initiatives are easy to use and convenient. Another lesson mentioned by a few respondents was the need to make T2P initiatives easy to use and convenient. Practical actions include providing clear information about the destinations served, making it easier to book or purchase tickets for T2P initiatives, and making the travel time via transit comparable to that via car. The latter strategy is only achievable through a "stick and carrot" approach wherein

transportation agencies make it harder to drive to recreational destinations by either implementing road tolling or limiting parking options. The quotes below explain some of the lessons learned about making T2P initiatives easy and convenient.

Because of the social media that we [open space nonprofit] had done, and we had public service announcements, so we had PSAs on [public radio about a T2P initiative]. And then we also paid for a couple of ads that we did. And so I think the reason that the other [T2P initiatives] were not necessarily as successful is ... they were a little bit more confusing. And then they added more destinations. So that became confusing. It just wasn't coordinated. And I think that what I took away from the whole thing is one sort of the single destination is a huge value and you and then the second part of it is you really have to think it through all the way at the beginning. And your media plan, your PSAs, your advertising, where people go to get information should really be central.... And part of what we're going to be doing is having trail cams set up so that we can actually help people understand when the trailhead is at its fullest. So that that it'll incentivize them, in real time, to take transit instead. Like, when you go on Google, you see the busiest hours of a store. So people can look at these trailheads and go, 'Well, maybe I don't want to drive. And here's the option of taking the shuttle.' So that's something we're gonna incorporate this year, see if that works.

I really think that nobody wants to have to think too hard about how to get to their destination. And if you make it hard for them to think about how they're going to get there and go through all of these different machinations, they are just going to take the car.

I think convenience for people is a huge issue. And so being able to get to exactly where they want to get to, without having to make several stops, was a huge value [of the T2P initiative]. Another element is that ability to be able to call up and reserve your spot [on the shuttle]. It had a certain cachet to it. And then I think that, for me, the overall overarching element is really what is the goal? ... The goal really has to be, 'Are you improving the recreational experience for people? Are you reducing their stress? Are you making this not just convenient, but attractive?'

4.3.8. Lessons learned and monitoring: How do agencies monitor the impacts of T2P initiatives?

We sought to understand whether transit agencies and their partners monitor the impacts and successes of T2P initiatives via both web searches and interviews with key informants. Through the web search, we found that 51 of the 106 T2P initiatives in the U.S. and Canada had available information about monitoring the initiative. That amounts to 48% of the surveyed initiatives, and it might be an underestimation of the initiatives that do monitor their impacts and successes because not every initiative might report information on the web about monitoring.

Among the T2P initiatives that monitored their outcomes, most collected and reported data about ridership. These data are generally collected automatically as riders need to pay a fare when they board a bus or shuttle. The results of the web search indicated that a handful of T2P initiatives also conducted surveys with riders to ask them about the trip experience, their motivation to ride transit to parks and trails, demographic questions, and/or whether they had access to a personal vehicle.

Findings from the key informant interviews provide a more nuanced understanding of monitoring and impacts. In terms of methods used to evaluate T2P initiatives, interviewees listed ridership counts, traffic and parking counts near recreational areas, surveys with riders, and interviews and focus groups with riders and non-riders. Thus, the methods ranged from traditional quantitative methods used by transportation planners (e.g., ridership counts) to qualitative methods that are more commonly used among community-based organizations (e.g., interviews). Some interviewees noted that tracking ridership is a useful method to evaluate success if the agencies implementing T2P initiatives adequately informed the public about these services. One noted,

They [federal agencies] started to look at transit as a solution to close the gap in access to the national forest. And some pilots were done with the support of the local forest service unit there. ... And that showed that even if you run a shuttle on an occasional basis, through a limited time, people are going to respond if you've done the outreach right. If you're including people and making them aware of the service, it will be really successful.

A few interviewees working in the nonprofit sector lamented that transit agencies overly rely on ridership data to evaluate whether a given T2P initiative or specific transit route was successful. This approach, some argue, does not allow agencies to understand the reasons why some groups, especially disadvantaged groups, might not take advantage of T2P initiatives. Specifically, low-income populations and people of color might face other systemic barriers that limit the extent to which they take transit to reach open spaces. Thus, relying only on transit ridership numbers could mean that transit agencies are unaware of these systematic barriers. The quotes below explain this issue.

But [transit agency] uses ridership as a way to think about how successful their services have been. ... They [transit agency] don't do enough outreach to communities that they're they want to provide service to, so the ridership numbers are super low. But that could just be a communication issue or more like non-tangible things. This community needs assessment that we did recently found a lot of non-tangible issues that were not just physical access to parks. But things like safety, or information barriers, or language barriers, all things that community members were experiencing, that were more than just, 'I can't reach this park on the bus.' But other reasons that would make them not want to go or not know about the options for going. So I think there are a lot of broader systemic issues that need to be addressed to fully make transit to parks routes successful and used by community members, especially communities that haven't had good access before, and that government agencies are trying to provide access to but they have to do it in a way that is reachable for them.
(Nonprofit staffer)

Transit agencies are so ridership-focused. That's definitely been an issue around zero fares is that they only want to look at whether more people are using the bus. And even if there's not an increase in people using the bus, the people who are always using the bus are having better experiences because either they're not getting discriminated against by the bus driver or they're not struggling to find money to pay. And so that's been a thing where they [transit agencies] are like, 'Yeah, we want stories.' But they're still producing reports and information that definitely is very cold hard facts like there is an increase in these number of

security incidents. ... So a big thing that I've struggled with and watch community partners struggle with a lot is that transit agencies haven't put more weight on community experiences, more than just on numbers. (Nonprofit staffer)

As transportation professionals for a very long time, we've been so focused on numbers and data and capacity, and especially just on roads and level of service on roads and whatnot. And it really changed into more... we got to look at other methods of gauging how the level of services for pedestrians for bikers, transit users, the elderly, and civility. Part of this process is to bring them all together so they can understand, they can hear the issues that are happening, and possibly, they can start connecting with these people to or understand what their needs are. (Federal public land agency staffer)

Some participants pointed out the importance of evaluating the equity component of T2P initiatives. One equity aspect involves whether T2P initiatives are primarily serving more affluent white people who might already access the great outdoors (and thus T2P initiatives would only reduce congestion) or they are also serving low-income people of color who probably would not be accessing the outdoors without such services. One interviewee working at an environmental nonprofit explained that their organization had tracked the demographics of T2P service users via a survey.

We wanted to see whether it was primarily white folks or BIPOC [Black, Indigenous, and People of Color] folks [who were riding a T2P service.] We wanted to know whether we're just reducing congestion by serving higher-income people who might have a car, or whether we're actually connecting with people who wouldn't have access otherwise. Yeah, the survey showed that it was pretty split. ... It was a pretty mixed audience for that service or a mixed customer base. ... We did have an emphasis on reaching out to BIPOC communities.

Some interviewees lamented that public agencies rarely collect data about the race/ethnicity or income of riders. That lack of information means that transit agencies lack contextual information to understand whether certain T2P routes have ridership and whether others might have low ridership (potentially because disadvantaged population experience other systemic barriers). One participant noted,

That route [in a low-income community] only had one year as a pilot route. [Transit agency] did some evaluation of ridership, and they weren't able to get any information on say, race, and ethnicity. You know, there's kind of just straight-up people clicking the fare box, some numbers.

Also in relation to equity, some interviewees explained that it is important for transit agencies to provide spaces for people in disadvantaged communities to provide feedback about T2P initiatives (and transit in general). Also, respondents noted that it would be important for transit agencies to conduct interviews and focus groups with residents who do not use T2P services but would have access to them. Doing so would help transit agencies understand some of the systemic barriers that might prevent disadvantaged groups from using T2P services. The quotes below, all by staffers of nonprofits, exemplify these suggestions.

We built this community partnership network and got folks engaged. And then we were able to gather really important information from these partnerships. You know, at the end of each season [of T2P initiatives], we said, 'hey, what worked well, what didn't, what recommendations might, you have to make this experience better for your community?' We channeled all that information back to [the transit agency] and to partners.

The community groups that we partnered with that year when that service was running, they use that route. They went and provided feedback [to the transit agency] on the fact that it was a long ride to get from the light rail station to this particular awesome regional park, saying, 'We have lots of opinions about how that route could be improved.'

Beyond equity considerations, many respondents mentioned the importance of conducting surveys with riders of T2P services to understand their experiences, their reasons for riding such services, and some of the barriers they might experience. The quotes below explain how different agencies have conducted surveys and some of the things they learned from riders.

We found that the transit trail program specific to [open space] was an overwhelming success. And part of that is that we conducted a survey with the riders. And we asked them various questions. And we got a lot of really great comments about how this was such a great thing that we were able to provide, they loved the fact that it was free. They definitely were telling friends to use it. They all said yes, they'd use it again. So our survey indicated it was a big success. One of the things that I think is interesting is that I think in a program like this, having a low-cost or no-cost value is a huge value to folks. [Open space nonprofit]

From a different demographic standpoint, we ran a survey [with public land users] to ask where they [visitors] come from and how long they plan on being there [at the open space]. We can't do surveys as a federal agency ourselves. So we had some collaborations with some local colleges and universities. ... When we did the [pilot T2P] shuttles, we did the same thing [i.e., a survey]. We try to ask them [the riders], 'What do you think about the congestion up there?' [Federal public land agency]

We learned from that first one [pilot T2P initiative] in 2016 through a survey. We actually put a report together of the things that worked and what we needed to do better. I think overall, the consensus was that something like that is definitely something that people want to see. And they would even pay \$1 or \$5 to ride [the T2P service].

4.4. Conclusion

In this chapter, we presented the result of an investigation of T2P initiatives around the U.S. and Canada. This is the first effort to comprehensively investigate T2P initiatives, including their types, motivations, barriers, lessons learned, and much more. In this section, we provide a summary of the findings and the key implications for planning T2P initiatives.

4.4.1. Overall findings

Below, we provide brief answers to each of our eight research questions.

Types and characteristics: What are the main types of transit to parks initiatives implemented around the U.S. and Canada?

Below are the types of initiatives we uncovered, including the percentage of times they appeared:

- Seasonal transit programs (48%)
- Permanent transit routes (23%)
- Informational campaigns (15%)
- On-demand, micro-transit services (6%)
- System-wide plans or studies (6%)
- Legislation/funding programs (2%)

Types and characteristics: What are the other general characteristics of these initiatives, including funding, destinations reached, and cost?

- The T2P initiatives we identified are mostly located in densely populated regions, especially in the western U.S. and Canada
- Nearly all T2P initiatives for which we found information about funding relied on public resources to run, but some used a combination of public and private funds
- The cost of riding transit as part of a T2P initiative varied quite considerably, ranging from free service to tickets costing more than 50 U.S. dollars
- Most of the T2P initiatives in our sample are led by a government agency, and public transportation agencies are the most common operators of T2P initiatives

Motivations and advocacy: What are the main motivations to implement transit to parks initiatives?

- Parking lot capacity
- Environmental impacts of traffic
- Equity: Providing access to open spaces for a broader range of people
- Economic development via tourism

Motivations and advocacy: What advocacy strategies have been used to push for the implementation of transit to parks initiatives?

- Developing policy narratives about the need for T2P initiatives
- Creating advocacy coalitions
- Collecting and disseminating data showing the need for T2P initiatives
- Leveraging pilot programs (e.g., seasonal shuttle) as a proof of concept to generate more funding

Facilitators and barriers: How do partnerships between various organizations facilitate transit to parks initiatives?

- Combining funding sources from different agencies
- Providing technical assistance and support
- Carrying out public engagement
- Convening conversations among public agencies and nonprofits
- Building transportation infrastructure

- Coordinating transportation services with ski resorts

Facilitators and barriers: What are the main challenges to implementing transit to parks initiatives?

- Limited funding
- Labor shortage
- Infrastructure
- Difficulty in working across agencies
- Politics and bureaucracy

Lessons learned and monitoring: What “worked” in the planning and implementation of transit to parks initiatives?

- Conducting in-depth community engagement
 - Community engagement helps design new effective T2P initiatives
 - Community engagement helps people become aware of T2P initiatives
 - Community engagement enables agencies to hear from disadvantaged groups
 - Community input helps make the case for T2P initiatives with elected officials and transit agencies
- Making services easy to use and convenient

Lessons learned and monitoring: How do agencies monitor the impacts of T2P initiatives?

- Based on web searches, 48% of the surveyed initiatives had available information about monitoring their successes and impacts
- Web searches also showed that the most common way to monitor T2P initiatives was to track ridership; a few initiatives used surveys to understand reasons to ride, experiences, and demographics; and in rare occasions, nonprofit partners of T2P initiatives ran
- Transit agencies seem to overly rely on ridership data to evaluate whether a T2P initiative was successful, but that can lead to agencies overlooking broader issues that might prevent ridership, especially in disadvantaged communities
- Some initiatives evaluated the equity-related aspects of T2P initiatives, including asking riders about their demographics, reaching out to non-riders in disadvantaged communities, and centering the experiences of those communities when designing future initiatives

4.4.2. Recommendations

Below, we provide a few key recommendations for the implementation of T2P initiatives based on the findings of our research in the U.S. and Canada. These recommendations should not be read as a one-size-fits-all approach to creating T2P initiatives, as we found that understanding each community through in-depth community engagement was one of the key lessons learned. Relatedly, community engagement is one of our key recommendations.

- Community engagement
 - Transit agencies should start every T2P initiative with community engagement to understand the related transportation and recreational needs of communities that could be served by such initiative
 - Especially when doing engagement in disadvantaged communities, transit agencies should partner with local community-based organizations that have the trust of such communities

- Community engagement should be an ongoing process that also involves getting the word out about T2P initiatives after they are implemented
- Partnerships
 - Partnerships among public agencies and public agencies and nonprofits are key to the implementation of T2P initiatives; thus, it is helpful to establish partnerships when creating a T2P initiative
 - Because partnerships between transit and public lands organizations can involve some issues, agencies that are willing to work together should start by establishing shared expectations and policies, including through memoranda of understanding
 - Because almost all funding models for T2P initiatives involve some form of partnership, transit agencies or nonprofits running the initiatives should look for a variety of federal and state/provincial funding sources both in the transportation and public lands sectors
 - Ski resorts can be important partners of transit agencies in the implementation of T2P initiatives because bad customer experiences with transportation and parking can lead to revenue losses
- Pilot projects
 - Agencies seeking to implement T2P initiatives could start with pilot projects such as seasonal shuttles and then evaluate the impacts of those pilots
 - Data from pilots can be used to advocate for more funding that enables agencies to implement larger initiatives
 - The evaluation of pilots needs to go beyond ridership data to also include surveys to understand experiences, motivations, barriers, and the demographics of riders
- Narratives for advocacy
 - Narratives to advocate for T2P initiatives could focus on the main motivations behind these initiatives: Road and parking congestion, environmental issues, equity, and economic development
 - Data and storytelling from affected communities can be embedded in T2P narratives
- Overcoming barriers
 - Effective partnerships can help overcome barriers related to limited funding, infrastructure, and siloed agencies
 - Robust community engagement can help address barriers related to politics and bureaucracy, especially NIMBY opposition to T2P initiatives
- Monitoring
 - Transit agencies and their partners should use a variety of methods to evaluate T2P initiatives
 - Specifically, they should go beyond ridership counts to understand reasons why different demographics choose to ride or not to ride

Chapter 5. Big picture recommendations

In this final chapter, we provide broad recommendations for UTA to make steps toward the implementation of more T2P initiatives. The recommendations we provide draw from the findings of Chapters 2, 3, and 4, as the findings of each provide unique perspectives about potential next steps for UTA in this area. We organize our big-picture recommendations based on the potential timing of implementation. In that regard, shorter-term actions generally require fewer dollars and capacity, whereas longer-term actions rely on gathering more resources.

5.1. Short-term actions

- 1. Run information campaigns about existing transit access to parks.** UTA could create a website, blog posts, social media posts, and other marketing strategies to make the public aware of transit opportunities to reach parks and regional open spaces (as examples, see our maps [here](#) for T2P measures and [here](#) for accessible transit routes in the Wasatch Front). Beyond an interactive website where residents can check which transit routes get close to trailheads, UTA could also promote a “hike of the month” (or “ride of the month” for cyclists) that is accessible via transit. Such “hike of the month” could be promoted via blog posts and/or social media posts. See sections 3.3.3 and 3.4.2 for additional details about information campaigns and marketing.
- 2. Hold regular meetings with public land agencies.** UTA could start meeting at least three/four times a year with agencies that manage public lands in the Wasatch Front (e.g., large cities, counties, USDA Forest Service). These meetings could focus on strategizing areas of near-term or future collaborations, and they could build on existing conversations such as those to improve access to Little Cottonwood Canyon. Having ongoing conversations and building trust between agencies working in different sectors is fundamental to establishing successful partnerships for T2P initiatives. The Central Wasatch Commission or other state agencies could help facilitate these conversations. See section 4.3.5 for more details.
- 3. Run pilot shuttles to busy recreational destinations on weekends.** UTA could run a few pilot shuttles to provide access to highly-visited recreational sites on selected summer, fall, and winter weekends. Potential sites include the “S Curve” trailhead in Big Cottonwood Canyon (with access to Lake Blanche and more), Bell Canyon trailhead, and a few trailheads in Salt Lake City’s Upper Avenues. The specific locations could be selected, in part, through an online survey. These pilot shuttles have been successful elsewhere – such as in Park City’s Transit to Trails program. It is also important to evaluate ridership, as well as riders’ motivations and experiences. The evaluation of these pilot programs has led to increased rollouts of T2P initiatives. See sections 3.3.3, 4.3.4, and 4.4.2 for more details. See also section 2.3 for the results of our mapping analysis, which can also be used to inform locations of T2P pilot programs.
- 4. Start conducting robust community engagement about T2P initiatives in the Wasatch Front.** UTA could work with public land managers (see point 2 above) to conduct in-depth community engagement about the potential of implementing T2P initiatives in the Wasatch Front. This engagement could involve ongoing online surveys as well as focus groups and open houses in communities located near recreation destinations (such as near the foothills, mouths of highly-trafficked canyons, and the Jordan River). Questions asked in these community engagement efforts can include specific transportation barriers to accessing the great outdoors, other non-transportation barriers, people’s overall transportation experiences to open spaces, and the reasons why residents currently do not ride existing T2P services in the Wasatch Front. These

community engagement activities could prepare UTA for future T2P initiatives and could be used to inform residents about existing and upcoming T2P services. See sections 3.3.3, 4.3.7, and 4.4.2 for more details.

5.2. Medium-term actions

- 1. Create a year-round bus service in the Cottonwood Canyons, Friday to Sunday.** UTA could look for funding to run a bus service in the Cottonwood Canyons year-round, with everyday service in the winter (already existing) and a new Friday-to-Sunday service during other seasons. The residents we interviewed, [data](#) from the Utah Department of Transportation, and [reports](#) from the media, show that both Big and Little Cottonwood Canyons are increasingly congested year-round, with peaks in the winter (ski season), summer (hiking), and fall (leaf peeping). Frequencies would need to be determined based on budgets and labor availability, and specific routes into the canyon could follow the currently available winter options. See sections 3.3.3 and 3.4.2 for more details.
- 2. Make changes to existing routes in SLC to better serve busy foothill trailheads.** Building on pilot shuttles (point 3, Short-term actions) and ongoing community engagement, UTA could make some changes to existing routes in SLC to provide better access to highly-visited foothill trailheads and other recreational amenities. The limited distance between downtown, the University of Utah, other large employment centers, and Salt Lake City's foothills makes it possible to run effective bus services that provide access to both jobs, educational institutions, outdoor recreation opportunities, and cultural institutions. For example, the Utah Hogle Zoo, the Natural History Museum of Utah, the Red Butte Garden, and This is the Place Heritage Park lack transit access as of December 2022. This issue could be rectified by either creating a new transit line focusing on the SLC foothills or by modifying one or two existing lines. See sections 3.3.3 and 3.4.2 for more details.
- 3. Partner with outdoor recreation groups to promote new and existing T2P services.** UTA and public land managers could partner with outdoor recreation groups, especially those serving disadvantaged communities, to promote the use of new and existing T2P services. Organizations that promote outdoor recreation for relatively large groups—such as outdoor recreation groups, schools, religious organizations, and more—can both provide solid ridership numbers for T2P initiatives and help spread the word about such services. Further, we found that one of the main obstacles to people riding transit is for them to try it for the first time. Thus, partnerships between UTA and outdoor recreation organizations can help create future ridership outside of these groups. Partnerships can involve discounted fares, some on-demand services, and social media promotion of T2P services by these organizations. See sections 3.3.3, 3.4.2, and 4.3.5 for more details.
- 4. Work with public land agency partners to create safe last-mile connections.** UTA could work with public land agencies to facilitate the implementation of safe and convenient last-mile connections between transit stops and parks or trailheads. Many residents we interviewed lamented that it feels unsafe, unclear, or inconvenient to access parks, trails, and other recreational settings from UTA stops and stations located near them. Shortening the distance between stops/stations and recreational settings, providing safe pedestrian and bike infrastructure, and including wayfinding signage can help address this last-mile issue. We recognize that UTA cannot undertake some of these actions, but they can work with partners (see point 2 in the Short-term actions). See sections 3.3.2, 3.3.3, and 4.3.5 for more details.

5. **Monitor the impacts of T2P strategies.** UTA could continue to monitor the impacts of T2P strategies through using both quantitative and qualitative data. Quantitative data would focus on ridership counts (both spatially and temporally) and traffic and parking count near recreational areas to assess the efficacy of new and existing T2P initiatives. In addition, qualitative data from observation and survey of riders can help to understand the demographics (e.g., whether disadvantaged groups use the services), transit use experience, and challenges. Also, our T2P tool and web maps can be updated regularly (e.g., every five years) to reflect changes in neighborhood socio-demographics, transit systems (e.g., new routes and stops, schedule changes), and public open spaces (e.g., new parks and trailheads). See sections 4.3.8 for more details.
6. **Continue community engagement efforts.** UTA could keep working on community engagement, as outlined in point 4 of the Short-term actions.

5.3. Long-term actions

1. **Create a UTA T2P plan that involves robust community engagement.** Building on all the previous actions, including community engagement and evaluation of previous T2P initiatives, UTA could launch a system-wide planning effort focused on improving transit access to recreational settings. This kind of system-wide planning has been done in Los Angeles (Los Angeles County Metropolitan Transportation Authority, 2019) and other places across the U.S. and Canada. This planning effort could involve a large survey, targeted focus groups, and open houses, and it would require alignment with long-term open space planning efforts by municipal, county, state, and federal agencies operating in the Wasatch Front. The plan could identify priority areas for future T2P investments. See section 4.3.1 for additional details.
2. **Based on the above plan, create new year-round T2P lines.** UTA could implement the recommendations included in the plan described in point 1 of the Long-term actions. This could include running FrontRunner services on Sundays and holidays, which seems to be a very popular suggestion among the residents we interviewed. See sections 3.3.3 and 3.4.2 for more details.

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Appendix

Appendix 1. T2P measures by municipality

Municipality	County	Population (2019)	Number of accessible large parks (median)	Number of accessible trails (median)	Number of large parks and trails (median)	T2P index (median)
Brigham City	Box Elder	19601	1	0	1	2.02
Perry	Box Elder	5248	2	1	2	37241.09
Willard	Box Elder	1958	1	0	1	5.15
Corinne	Box Elder	763	1	0	1	5.15
Mantua	Box Elder	963	0	2	1	0.00
Pleasant View	Box Elder	10839	1	0	0	0.00
Farr West	Box Elder	7385	1	0	0	0.00
Clearfield	Davis	32118	1	0	0	0.00
West Point	Davis	10957	0	0	0	0.00
Syracuse	Davis	31458	1	0	0	0.00
Layton	Davis	78014	1	0	1	0.00
Centerville	Davis	17587	5	2	6	8393.96
Bountiful	Davis	43981	1	1	1	1.23
Woods Cross	Davis	11431	2	0	2	3.24
West Bountiful	Davis	5800	1	0	1	2.18
Kaysville	Davis	32390	2	0	3	3.92
Farmington	Davis	25339	3	1	3	5.49
Fruit Heights	Davis	6221	3	1	3	8.10
North Salt Lake	Salt Lake	20948	2	0	1	2.83
Alta	Salt Lake	379	1	0	0	0.00
Brighton	Salt Lake	260	1	0	0	0.00
Park City	Salt Lake	8526	1	0	1	6220.18
Holladay	Salt Lake	30325	3	0	4	8.15
Murray	Salt Lake	48917	2	0	2	6.76
Midvale	Salt Lake	34124	1	0	1	2.06
Cottonwood Heights	Salt Lake	33843	1	0	1	4.47
South Salt Lake	Salt Lake	25582	2	0	2	4.51
Salt Lake City	Salt Lake	200567	3	0	4	11.99
Millcreek	Salt Lake	61450	2	0	3	8.33
Sandy	Salt Lake	96380	2	0	2	4.64
Lehi	Salt Lake	69724	1	1	1	0.00

Municipality	County	Population (2019)	Number of accessible large parks (median)	Number of accessible trails (median)	Number of large parks and trails (median)	T2P index (median)
Draper	Salt Lake	46367	1	1	2	2.75
Bluffdale	Salt Lake	16358	2	0	3	5.49
Bluffdale	Salt Lake	16358	1	1	1	0.00
Draper	Salt Lake	46367	2	2	3	4.46
Riverton	Salt Lake	44440	2	0	3	9.45
South Jordan	Salt Lake	76598	2	0	1	5.32
Herriman	Salt Lake	51348	1	0	1	2.66
West Valley City	Salt Lake	135248	2	0	2	5.22
Taylorsville	Salt Lake	59805	4	1	5	9.16
West Jordan	Salt Lake	116480	2	0	1	5.67
Stockton	Tooele	682	0	0	0	0.00
Grantsville	Tooele	12064	0	0	0	0.00
Tooele	Tooele	36015	1	0	0	0.00
American Fork	Utah	33161	2	0	2	3.29
Pleasant Grove	Utah	38258	2	1	3	6.06
Lindon	Utah	11100	1	2	2	0.00
Orem	Utah	97828	2	0	2	1.27
Provo	Utah	116618	1	0	1	1.45
Eagle Mountain	Utah	38391	0	1	1	0.00
Saratoga Springs	Utah	33282	1	0	1	1.46
Vineyard	Utah	11866	2	0	0	0.00
Alpine	Utah	10498	2	1	3	4.01
Cedar Hills	Utah	10083	2	1	2	10519.27
Spanish Fork	Utah	40913	1	0	1	3.35
Mapleton	Utah	10731	1	1	2	2.06
Payson	Utah	20303	2	0	2	3.70
Salem	Utah	8621	1	0	0	0.00
Elk Ridge	Utah	4335	0	0	0	0.00
Santaquin	Utah	12865	2	0	2	5.03
Woodland Hills	Utah	1590	0	0	0	0.00
Springville	Utah	33310	1	1	2	7.00
Genola	Utah	1567	0	0	0	0.00
Highland	Utah	19175	2	1	3	5.90
Harrisville	Weber	6872	2	0	3	15.18
Ogden	Weber	87773	2	2	3	8.69

Municipality	County	Population (2019)	Number of accessible large parks (median)	Number of accessible trails (median)	Number of large parks and trails (median)	T2P index (median)
North Ogden	Weber	20582	1	2	2	43833.36
Marriott-Slaterville	Weber	1898	2	0	0	0.00
Plain City	Weber	7669	0	0	0	0.00
West Haven	Weber	16109	1	0	0	0.00
Hooper	Weber	9152	1	0	0	0.00
Roy	Weber	39613	1	1	0	0.00
Clinton	Weber	22499	1	0	0	0.00
Sunset	Weber	5364	0	1	0	0.00
Riverdale	Weber	8838	1	1	1	0.00
South Ogden	Weber	17199	1	1	2	2.14
Washington Terrace	Weber	9248	1	0	1	3.21
South Weber	Weber	7836	1	0	0	0.00
Uintah	Weber	1353	1	0	1	257.12