

FlexPass at ABC Ramps

A strategic initiative to improve
Twin Cities commuting

Summer 2020 Report



DEPARTMENT OF
TRANSPORTATION



UNIVERSITY OF MINNESOTA

Driven to DiscoverSM



About The Report:

This report summarizes two project tasks for the Parking FlexPass at ABC Ramps research project: the systems integration and software development; and the product pricing research. The report details the literature and program review work conducted thus far and the work completed to develop a FlexPass product to pilot and study.

This research project was initiated by the Minnesota Department of Transportation as part of their initiatives to decrease regional drive-alone commuting rates. The research is supported by Congestion Mitigation and Air Quality (CMAQ) funding from the Federal Highway Administration, by funding from the Minnesota Department of Transportation, and by funding from the University of Minnesota. The FlexPass project began in October, 2019 and is anticipated to end in March, 2021.

Report Developed By: Galen Ryan Research Fellow University of Minnesota ryan0783@umn.edu	Research Principle Investigator: Yingling Fan Professor University of Minnesota yingling@umn.edu	Lead Product Director: Elliott McFadden Program Coordinator MN Department of Transportation elliott.mcfadden@state.mn.us
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University Team Members:

Frank Douma Humphrey School of Public Affairs	Julian Wolfson School of Public Health	Chen-Fu Liao Mechanical Engineering
Andy Becker School of Public Health		

Project Partners:

Metro Transit	City of Minneapolis—Parking Services (MPLS Parking)	
Move Minneapolis	Daynamica	Center for Transportation Studies

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Report Disclaimer:

This report represents the results of research conducted by the authors and does not necessarily represent the views or policies of the Minnesota Department of Transportation and/or the University of Minnesota and/or the other project partners. This report does not contain a standard or specified technique.

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Introduction

The transportation sector is now the largest source of greenhouse gas emissions both nationally and locally (Popovich & Lu, 2019; Minnesota Pollution Control Agency, 2019). More than 50 percent of the emissions in this sector come from passenger and light-duty trucks and are concentrated in metropolitan centers. Commuting trips are a major contributor to transportation emissions. The State of Minnesota needs strategies to reduce car trips, especially single-occupancy vehicle (SOV) travel, in order to meet legislative emission reduction mandates in the Next Generation Energy Act of 2007 (Minn. Stat. § 216H.02).

Of the many strategies to reduce car trips, encouraging multimodal integration is a promising direction as a single transportation mode is unlikely to fulfill the mobility needs of various individuals. This project aims to leverage existing transportation infrastructure and systems to provide more flexible, multimodal transportation options for ABC Ramps parking contract holders who tend to be SOV drivers.

ABC Ramps was built on top of the Interstate 394 and Interstate 94 access points on the west side of downtown Minneapolis in 1992. Ramp A, the largest, holds over 3,500 parking stalls. Ramp B and Ramp C each contain about 1,500 stalls. The Minnesota Department of Transportation (MnDOT) is the owner of the ABC Ramps and are obligated to reduce congestion and SOV travel in downtown Minneapolis, as required in initial federal funding agreements.

At the start of 2020, there were about 3,000 Monthly contract holders (for SOV commuting) and about 900 Carpool contracts holders across ABC Ramps. MnDOT has focused on carpooling programs to reduce SOV but these programs have not significantly increased in popularity since the strategy was first implemented over 20 years ago. In addition, increasing parking demand and decreasing supply due to new development on surface lots throughout downtown and the North Loop necessitate new strategies to ensure the optimal use of the ramps. The ramps are reaching their capacity on a daily basis.



View of ABC Ramps and downtown Minneapolis, facing south. Source: Google Earth

The [ABC Ramps Transportation Options project](#), completed in 2019, identified present and emerging challenges with parking and transportation in downtown Minneapolis and potential next steps for ABC Ramps (Douma et al., 2019). The project found that many contract holders are interested in taking transit more frequently. However, this region lacks a flexible transit and parking commuter program that is institutionally supported. Current cost scenarios, described in a later section, influence Monthly contract holders to take full advantage of their contracts and avoid additional expenses resulting from occasional transit use.

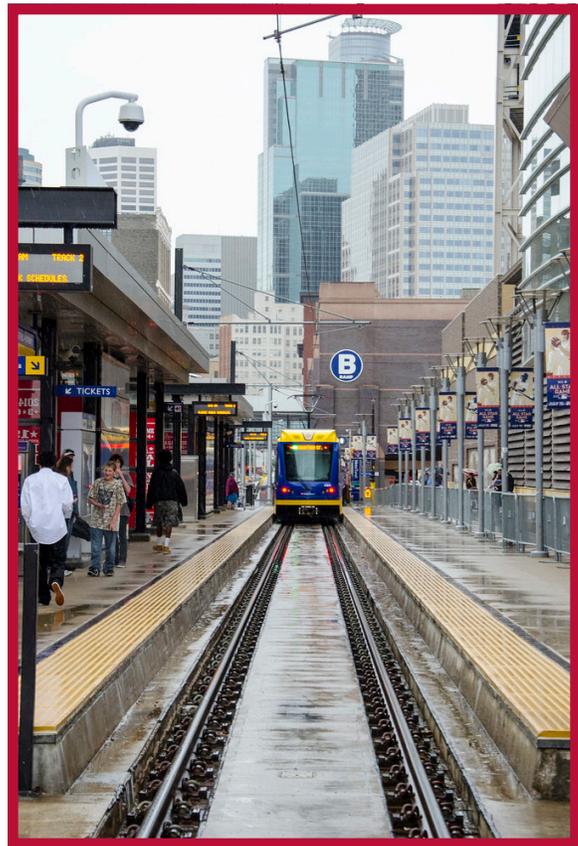
Given the context above, this new project aims to develop and implement FlexPass program to manage parking demand and reduce vehicle miles traveled. The program hopes to achieve these two aims by delivering maximum commute mode flexibility to a variety of commuters and align cost incentives that encourage frequent transit use or another form of non-SOV commuting.

To carry out the work, the University of Minnesota (UMN) has formed an interdisciplinary research team consisting of representatives from the Humphrey School of Public Affairs, the School of Public Health, and the Department of Mechanical Engineering. The University team is coordinating with MnDOT, the City of Minneapolis—Parking Services, Metro Transit, Move Minneapolis, Daynamica, and the Center for Transportation Studies. This Project Team is then supported by an Advisory Group consisting of various public and private agencies relevant to the Twin Cities commuting landscape.

The overall goal is to work with major employers or benefit administrators in downtown Minneapolis, Metro Transit, the ABC Ramps Operations team, and relevant software developers to develop a product that can be distributed throughout the Twin Cities region. There is potential for this one program to provide access to multiple mobility options (e.g., parking, public transit, HOURCAR, Nice Ride, etc.). The FlexPass program will be refined throughout the initial pilot based on user feedback and continued research.

COVID-19 Update:

The COVID-19 epidemic and the resulting stay-at-home orders have considerably changed the commuting landscape. It is difficult to test new commuting products when very few people are in fact commuting. Parking rates at ABC Ramps have dropped by over 90 percent. There are details of how this study is responding to the epidemic at the end of the report. Otherwise, this report addressed the commuting landscape that existed prior to the epidemic.

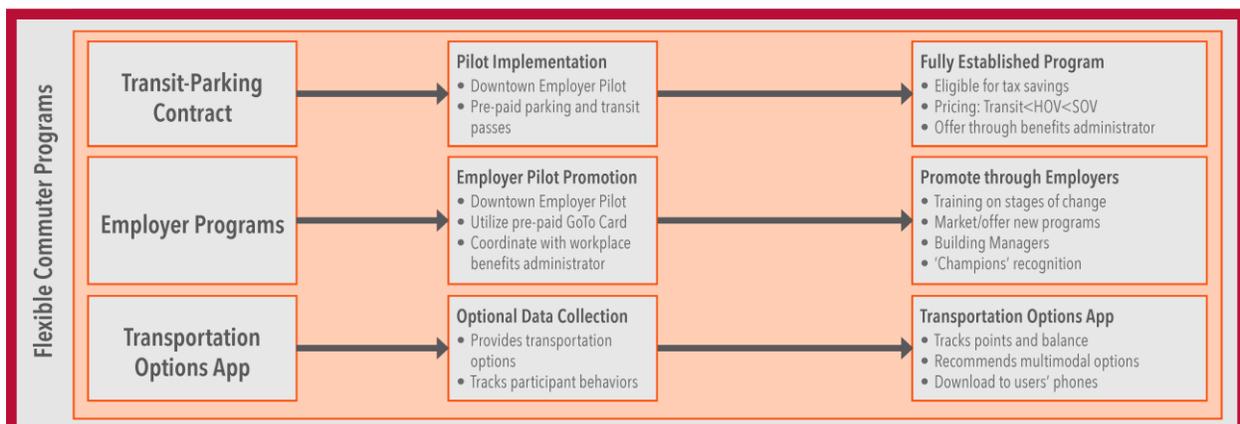


Source: Metro Transit

Preliminary FlexPass Design

ABC Ramps Transportation Options study details a [preliminary outline and implementation plan](#) of the FlexPass, completed by SRF Consulting Group in partnership with Alta Planning + Design and Zan Associates.

- “Employer benefits programs typically present employees with a binary choice between parking and transit. These are generally established between the employer and benefits administrators and reflect the transportation products and services available in the local market” (SRF Consulting Group, 2019, p. 31).
- “Promotion and support of new programs will be best achieved with employers as the conduit to reach commuters, since many procure their transportation services through work” (SRF Consulting Group, 2019, p. 31).
- FlexPass will combine parking and transit. “Commuters will be able to choose how many parking days and how many transit days they want per month. They will have the freedom to change the allocation each month, and unused parking or transit credit will carry over to the next month” (SRF Consulting Group, 2019, p. 32).
- The price should fall within the cost of a monthly transit pass and a monthly parking contract. The Metropass is \$83 through an employer. The Monthly contract at ABC Ramps is currently between \$145 and \$165 depending on the ramp.
- The product should be eligible for commuter tax benefits. Many commuters pay for commuting costs with pre-tax income.
- Reduced parking could free up currently reserved parking and improve management efficiency. “The promotion of reservations for Parking FlexPass users will further ensure parking is available on days they choose to drive” (SRF Consulting Group, 2019, p. 32).
- “A long-term goal is to have a mobile phone transportation app that could combine trip planning with transportation choices, integrated with payment and gamification” (SRF Consulting Group, 2019, p. 32).



Preliminary Implementation of FlexPass program. Source: SRF Consulting Group, 2019

FlexPass development is guided by these seven primary goals:

1. Available through employer benefit programs, compliant with tax regulations
2. Provide flexibility on the amount of driving and transit use, with variability from month to month
3. Available to commuters lacking employer benefits, or available for purchase with post-tax dollars
4. Available to individuals who do not have access to traditional financial institutions
5. Incentivize transit use over daily parking through pricing
6. Pleasant and simple user experience



Overall, the project hopes for the FlexPass to reach these three objectives for downtown Minneapolis:

Primary Objectives

Reduce SOV commute trips

Increase equity and access of commute benefits

Increase high-occupancy vehicle travel

Literature Review

Transportation Demand Management

The [Traveler Response to Transportation System Changes Handbook](#) provides an extensive review on “the travel demand effects of alternative urban transportation policies.” Transportation Demand Management (TDM) strategies are those that seek to limit the demand for travel by drive-alone private car through employer and institutional policies. [Chapter 19 of the Handbook](#) details a comprehensive info on common strategies as of 2010. TDM works to achieve a variety of transportation, environmental, conservation and sustainability benefits.

The nature of TDM strategies make them difficult to measure discrete effects. Multiple TDM strategies are often implemented simultaneously by employers, making it difficult to isolate effects; and the surveys are the primary assessment tool, limiting the amount of information gathered to improve response rate and often limiting the scope of analysis to general travel needs and attitudes (TCRP, 2010). In addition, each employer’s situation can have unique circumstances (e.g., the amount of subsidy, the availability of parking, work schedules). Despite these drawbacks, the supply and pricing of parking has been demonstrated to be one of the most important factors for effective TDM.

Khordagui (2019) demonstrates the impact of marginal increases in parking cost for commuters in California using the state household travel dataset. Liu, Yang, & Yin (2014) illustrate how the proportion of reserved and unreserved parking spaces can affect how commuters time their own commute to avoid predictable delays. Hamre and Buehler (2014) demonstrate how free car parking severely limits the effectiveness of other commuter benefit incentives. The cost and supply of parking are primary considerations in the design of FlexPass.

Although, FlexPass differs from common TDM strategies. FlexPass is a commuter product generated by MnDOT, not a single employer, that seeks to integrate regional parking and transit technology to benefit commuters at a variety of employers. The ABC Ramps Transportation Options Plan identified several cities that are enacting robust TDM techniques, many of which are multifaceted; however, they typically offer a variety of programs (e.g., carpool matching, awareness events, telecommuting, transit incentives) that are minimally integrated and offer little flexibility from month to month. FlexPass is informed by research and programs that offer an integrated model of several commute options; these sources include an innovative parking pricing demonstration at ABC Ramps; a new integrated commuter program at MIT; commuter research of UMN employees; a flexible program pilot for ABC Ramps contract holders; and an integrated transit and parking card.

ABC Ramps Innovative Parking Pricing Demonstration

A year-long study (Lari et al., 2014) from March 2010 to July 2011 investigated pricing models that would incentivize the mode shifting from SOV parking to an alternative mode, primarily focusing on public transit use among ABC ramp contract holders. The study consisted of four test modules, each lasting for four months at a time. The Buying Flexibility module offered participants a heavily discounted unlimited transit pass for \$20 per month (from \$83 for

Metropass) creating a scenario for participants to pay more in addition to a monthly contract for the benefit of commute mode flexibility. The Marginal Rebate module offered participants a free unlimited transit pass and provided a refund on days they took transit for the difference (\$2.00) between the cost to park (\$7.00) and the cost of a daily transit fare (\$5.00), creating a scenario where participants are offered an incentive only for taking transit and no other alternative.

The PayGo Flex-Pass (PayGo) module offered a free unlimited transit pass and a “credit” for the amount of the parking contract such that participants were charged per use. Participants were given the marginal rebate (\$2.00) on days they took transit and saved the entire cost of parking (\$7.00) on days they did not drive or take transit (e.g., biked, walked, or telecommuted instead). Participants were given a rebate for their remaining credit at the end of each month, not exceeding over half of the calculated cost of the monthly parking contract. The last module, Disincentive Removal, provided only the free unlimited transit pass and no other benefits.

Overall, the study found that the Marginal Rebate and the PayGo modules were the most effective at influencing commute mode switching. The other modules that did not compensate for the sunk cost of parking contracts were not able to significantly shift commute mode choice away from driving. The Marginal Rebate module shifted driving behavior for an average of two weekdays per month, while the PayGo module shifted driving behavior for an average of four to five weekdays per month. These results indicate that a pay-per-use program that provides cost savings relative to the cost for the monthly parking contract would be the most effective at reducing SOV commuting.

The study has limitations in the participation rate among the modules. Thirty-eight people participated in the Marginal Rebate module and 31 participated in the PayGo module for one four-month period. Twenty-two and 27, respectively, continued in the program for a second four-month period. However, 139 people participated in the Disincentive Removal module which did not show an influential effect on commute mode choice. Simply giving contract holders a free transit pass does not seem to be enough to significantly affect commute choice. This research points towards the importance of cost-savings upon current cost scenarios.

Integrating parking and transit benefits typically occurs within an institution or single employer where there is one entity overseeing parking management and managing the transit contracts. These examples serve as comparisons for the effect of the integration but do not provide a complete picture of the multi-institutional effort intended with FlexPass.

Access MIT

Motivated by the potential cost of maintaining and replacing above-ground parking ramps, MIT implemented a new commuting program for its benefits-eligible employees. The AccessMIT program began in the 2016-2017 academic year and includes several aspects. A report (Rosenfield, 2018) completed at MIT describes the design and the effects of the program.

Change to Parking Management

All gated parking ramps were shifted to daily pricing. Employees are no longer able to purchase annual unlimited contracts for these spots. Employees wishing to park, pay an annual \$100 fee and \$10 per parking day. The annual parking cost is capped at the cost of an annual contract

(\$1,760 in 2016-2017) available for non-gated surface lots. Users that parked less than 3.3 days per week on average experience marginal savings. The cap and annual contract was raised to \$1,900 for the 2017-2018 school year to create slightly more savings.

Change to Transit Subsidy

Free universal MBTA bus and subway transit passes were loaded onto new employee ID badges. The subsidy for MBTA transit was previously 50 percent. MIT and MBTA negotiated a contract such that MIT would only pay for the cost of transit use that each employee incurred, rather than purchasing an unlimited pass for each employee. MBTA revenues were not adversely impacted by this contract and MIT saved money from the alternative pass scenario.

The commuter rail monthly pass subsidy was increased from 50 percent to 60 percent of the total price. Employees were also given a new 50 percent subsidy for parking fees at MBTA park and ride lots. The subsidy is limited to \$100 total per month.

User Dashboard

MIT launched a new online commuter dashboard that integrated with their existing employee service portal. The dashboard includes a trip planner which includes the carbon emissions associated with each trip type. The dashboard also includes a carpool matching program and a travel log. The log automatically tracks transit and parking use through account tracking.

Behavioral Science Strategies

MIT relied on these key concepts from behavioral sciences to implement and design the program.

- They developed a variety of messengers for the new program.
- The “power of free” with the transit pass can drastically change purchasing behavior.
- They used marketing campaigns to shift perception of employee commuting norms and appeal to personal morals.
- They loaded the transit pass onto employee ID badges to avoid an opt-in system.
- They increased cost salience for parking and removed it for transit.
- Primed employees to consider alternatives by communicating reductions in parking availability, with the potential and actual closure of ramps.
- Demonstrated the emotions of the issue by including personal interviews in marketing materials.
- Demonstrates institutional commitment to environmental issues by implementing this program, “walking the talk.”

To measure program impact, the report used the biennial MIT transportation survey which was amended to include more questions about behavior changes related to AccessMIT, and it used disaggregated parking use data and disaggregated transit use data. These data sources were not linked.

The research found slight increases in transit use and decreased parking use from the year before Access MIT was implemented and the year after. While encouraging, this finding is not definitive. There were changes to the supply of parking and an increase in the total number of staff at MIT between the two periods. The research does not investigate disaggregate mode switching behavior, instead presenting the changes in transit or parking behavior independently.

UMN Transportation Options Plan

A recent study conducted by the University of Minnesota (UMN) used the Daynamica smartphone application to observe the commuting behavior of parking contract holders at UMN (Fan, working report). Daynamica was also used to recommend alternative modes for each vehicle trip to participants and gather surveys on whether participants found these recommendations reasonable. The initial findings indicate that commuters who make a stop on their way to work are not likely to consider transit trips reasonable while commuters that leave before 7 a.m. are likely to consider transit trips reasonable. This working report points to the importance of understanding commute trip details in developing strategies to reduce SOV rates.

In addition, the TOP study distributed free transit passes to participants that were mostly interested in using transit more; however, few participants actually used transit. There were no modifications made to their parking contracts.

Fall 2019 Move Minneapolis FlexPass Pilot

A FlexPass pilot conducted by Move Minneapolis, the TMO for downtown Minneapolis, in the fall of 2019 had similar findings. Move Minneapolis delivered free, unlimited, three-month transit passes to 48 ABC Ramps contract holders interested in occasionally taking transit. The goal was to learn if drivers would be interested in flexible commute choices, and how they would respond when freed from the need to spend additional money to commute via transit. At the end of the pilot, 26 participants (54 percent) used their pass for at least one day while 17 (35 percent) used their pass more than 2 days (Move Minneapolis, 2020). Top barriers to using a different commute mode included the sunk cost of a monthly parking contract and transit taking too long. The low transit usage and barriers cited add to the interest of further studying how parking contracts can be leveraged to encourage transit use and reduce SOV rates.

San Francisco Clipper Card

The three local examples of FlexPass research (Lare et al., 2014; Fan, Working Report; and Move Minneapolis, 2020) use an additional transit card, provided to the participant. Access MIT (Rosenthal, 2018) integrated the employee ID card with the transit benefit, circumventing a barrier of use (parking was charged with license plate imaging). The San Francisco Clipper Card provides another example of a single card to use both parking and transit.

The San Francisco Clipper Card functions similarly to how the Go-To model of the FlexPass could operate. The card can be used on several public transit operators and BART parking at park and ride lots. The transit fares can be managed all under one account and can process both passes and stored value. The Clipper Card even grants access to parking at BART stations but as a credential for a separately managed account, the EZ Rider parking account.

This is a lone example of a card that grants access to parking and transit. This scenario is not quite like the design of FlexPass because it is not fully integrated. An individual must make separate payments for transit fares and parking fares, without a combined contract option. The Clipper Card is also not tailored toward a commuter driving the full commute on some days and using transit for the commute on other days.

The Go-To card can currently operate across multiple providers. There are fewer transit agencies in the Twin Cities, limiting the needed variety, but it can perform at a similar level. It currently acts as a credential for HOURCAR accounts and we have found that the card can act as credential with parking accounts at the ABC ramps.

Case Study—Seattle, Washington

According to a survey conducted by Commute Seattle in 2017, 47 percent of all commute trips to downtown Seattle made between 6 and 9 a.m. were made by transit (Commute Seattle, 2017). Only 24 percent of commuters drove alone. The drive alone rate fell by about 10 percentage points since they first started collecting data this commute data in 2010.

By comparison, a survey of businesses in the Warehouse District and individuals subscribed to the Move Minneapolis email list, conducted in 2017, found that 60 percent commuters drive alone while 27.4 percent use transit (Douma et al., 2019). The Minneapolis survey is based on 115 responses while the Seattle survey is based on 1,784 responses.

It is difficult to attribute the mode share in Seattle to any one feature. Washington state first adopted Commute Trip Reduction (CTR) legislation in 1991 implementing several TDM requirements for large employers. Downtown Seattle also has a limited supply and high cost of parking, caused by parking development restrictions. Beyond integrated technology, Seattle provides an example on the impact of integrated TDM policies on regional commuting (e.g., land use policies, business regulation, tax incentives).

The CTR legislation affects companies and government organizations with 100 or more employees in the nine most highly urbanized counties in 1991 (Lovrich et al., 1999, p.9). The law, updated in 2006 and 2009, requires that companies, regional government organizations, and government agencies create single-occupancy vehicle (SOV) trip reduction goals and plans. Affected companies are required to appoint a staff member to promote and manage their CTR plan. In addition, the state helps institute a survey each year to determine the progress of various participants on their CTR goals and offers a tax credit to those providing incentives for alternative transportation.

A qualitative research study of employees in Washington State that were mandated to participate in the CTR program began to define a profile of the circumstances and traits that will lead an individual to switch to a non-SOV mode of travel. Those that switch:

- valued the offered incentives
- worked in a supportive environment of the CTR programs
- valued choices to improve and protect the environment
- had a more flexible commute schedule
- perceived the alternatives positively

Software Systems Review

There are several technology considerations in order to develop an integrated and simple parking and transit product.

Software Systems at the ABC Parking Ramps

There are currently two primary methods to access and park at the ABC Ramps that are relevant to the development of FlexPass: through an individual Monthly Contract or a Single Reservation. **Figure 1**, on the following page, illustrates how cash and data flow through each method to grant access to the ramps. There are several key features that must be considered for the FlexPass program.

For a monthly contract, there are three distinct methods to obtain and pay for one. An employer can provide parking contracts to their employees by paying for and managing an account. An employee can obtain a contract independently, managing the account, but use pre-tax commuter benefits offered by their employer to pay for the contract (i.e., pre-tax income). The benefit provider could manage the payment for the employee or give the employee a debit account with their pre-tax deductions for the employee to manage the payment (tax benefits are described in greater detail starting on page 19). Lastly, an individual, regardless of employment, can obtain and manage a monthly parking contract independently.

MPLS Parking manages the receipt of account information and payments for all monthly contracts. MPLS Parking is comprised of ABM Parking, which operates the day-to-day of ABC Ramps, and the City of Minneapolis—Parking Services, which oversees ABM Parking. Many accounts can be paid for online at MPLSParking.com but some are paid through check, sent to MPLS Parking. Integrapark offers the online payment portal while SKIDATA offers the parking access software. MPLS Parking manages both Integrapark and SKIDATA, though Integrapark communicates directly with SKIDATA. The monthly contract card stored in SKIDATA is then the credential allowing access to and egress from the ramp. If an account is not paid for, then access is denied.

Single Reservations can be paid for either with the MPLS Parking mobile app or website (powered by ParkMobile); the ParkMobile mobile app or website; or a third-party reservation aggregator like ParkWhiz; this must be done before the driver enters the ramp. The MPLS Parking and ParkMobile app also support “Zone Parking,” which allows payment for an existing parking stay at any time between entry and exit; the fee for this is calculated at the time of exit.

Drivers can use a PayPal account to pay for reservations on the ParkMobile systems. PayPal provides a method for unbanked individuals to digitize cash. Users can visit common retail locations, such as CVS, Walgreens, or Walmart, and load cash onto their accounts. Although, there is a \$3.95 service fee. Single use reservations are communicated to SKIDATA through another software, Parkonect. The QR Code stored in SKIDATA is then the credential allowing access to and egress from the ramp.

ABC Ramps Systems

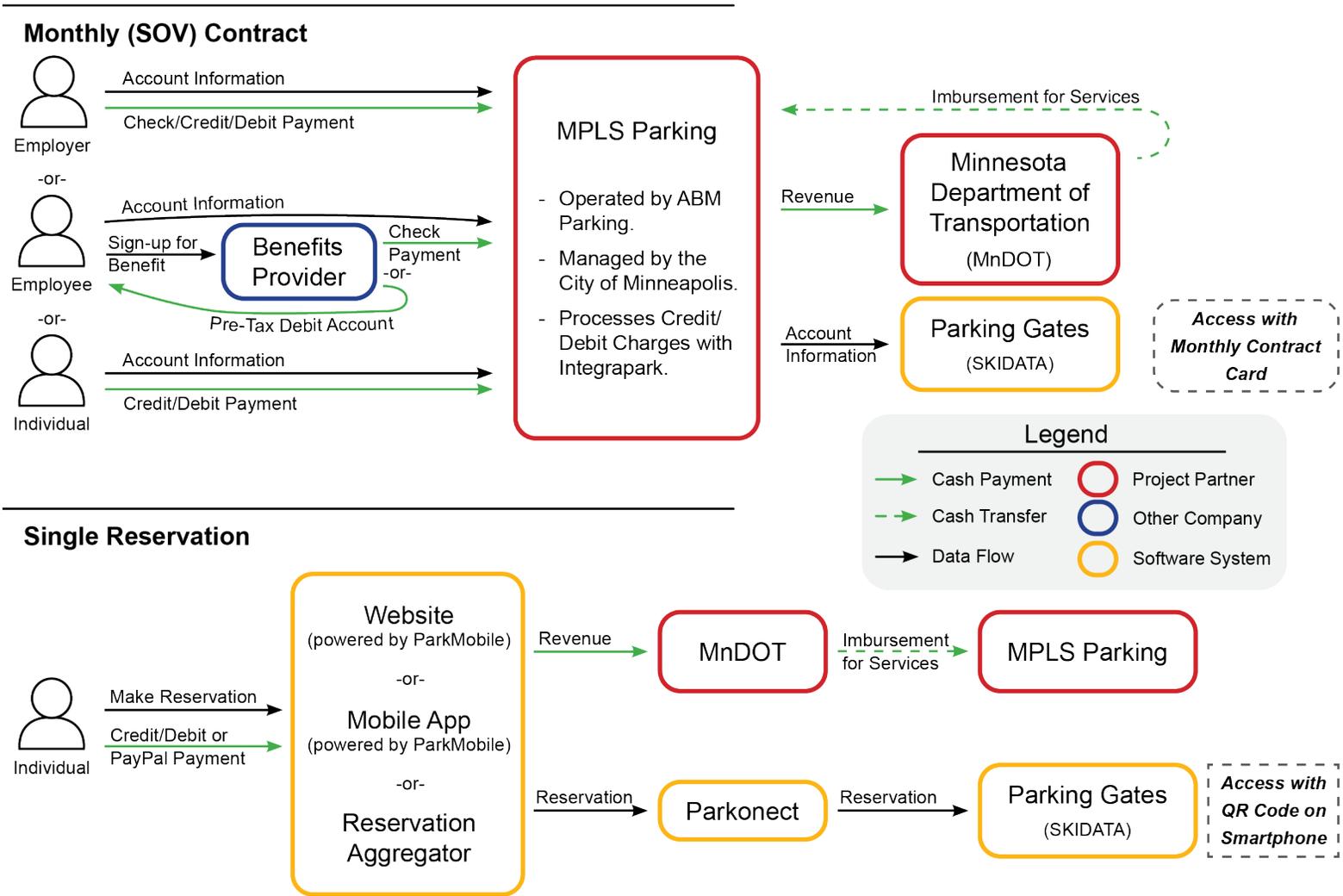


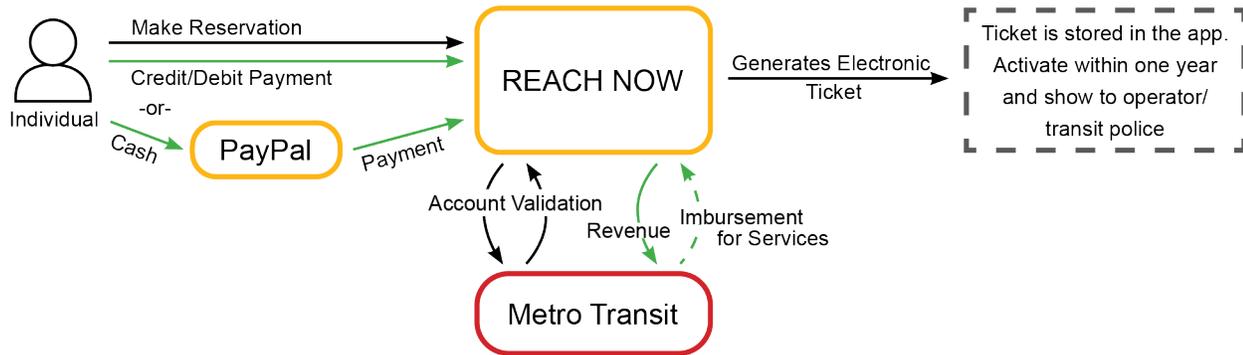
Figure 1: Cash and Data Flows at ABC Ramps

All of the funds collected for parking at ABC Ramps are sent to MnDOT, the owner and strategic manager. MnDOT then sends imbursements to MPLS Parking for their services; MPLS parking oversees ParkMobile operations and together, they operate other municipal-owned ramps in Minneapolis as well.

SKIDATA allows MPLS Parking to limit the number of days associated with a particular monthly contract. There is no automatic system to charge parking accounts per use. The parking card is not directly linked to a means of payment and the ramps could only manually charge accounts retroactively dependent on their use, a method difficult to scale.

Metro Transit Systems

Mobile Application



Go-To Card

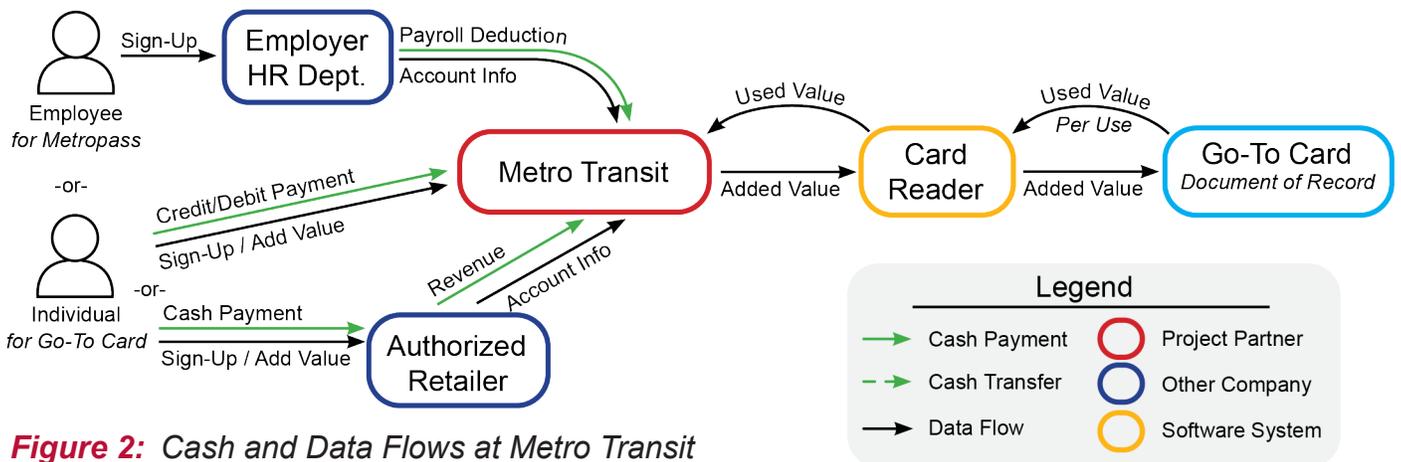


Figure 2: Cash and Data Flows at Metro Transit

Software Systems at Metro Transit

There are two methods of acquiring and using fares for Metro Transit that pertain to the FlexPass program. These methods are the Go-To Card and the Metro Transit mobile application. These two systems do not interact with one another. Metro Transit riders can also acquire a ticket with cash (or with credit at station ticket machines) but these transactions are too isolated to be integrated well into the FlexPass program.

The Go-To Card (illustrated in *Figure 2*) operates as the document of record for the transit user. You can load value onto the card with a debit/credit card at the Metro Transit website, obtain an unlimited monthly Go-To Card (Metropass) through your employer, or use ticket machines and select retail locations (e.g., Cub Foods) to load value onto the card. You can also add value at select retail locations. All the funds arrive are directed to Metro Transit. The Metro Transit sends the information associated with the card number to the Card Reader which then transfers the value to the Go-To Card. The Go-To Card and the Card Reader then interact with one another as the rider uses their card. The Go-To Card always holds the most up-to-date information of the value stored on the card.

The Metropass program provides an unlimited Go-To Card and is managed in partnership with an employer and Metro Transit. The Employer is responsible for offering the Metropass and managing the active accounts. Metro Transit bills employers monthly based on the list of that the employer maintains and activates the Metropass cards accordingly. Third-party benefit providers can play a role in helping employers manage the Metropass program. The Metropass costs \$83, much less than the regularly priced 31-day pass of \$120 available to suburban commuters. Employers are able to offer pre-tax benefits and subsidies with the program.

The Metro Transit mobile application (also illustrated in **Figure 2**) is operated by Moovel, now known as REACH NOW. You can pay for tickets with a traditional debit/credit card, a pre-tax benefits card, or with PayPal. Braintree provides the software for processing transactions. Braintree then sends the money to Metro Transit and that data to REACH NOW. Users of the mobile app must have create an account that is managed by Metro Transit. At the time of purchase, the app generates the ticket which must be used within one year of purchase. Transit riders simply show the bus operator or Transit Police their phone with the activated ticket to validate their fare. The mobile app system is account based while the Go-To card system uses the card as the most up-date document of record.



Source: Metro Transit

In February 2020, REACH NOW announced it was ceasing operations in North America with existing contract services ending in 2021. Metro Transit is in the process of replacing its mobile software provider.

Technology Implications

The Go-To Card technology is similar to the parking contract card technology. It can be used as a key or credential for ABC Ramps and the document of record for public transit. Unfortunately, neither the parking system nor transit system can actively charge a credit/debit card, requiring that uses are paid for ahead of time.

An account-based system, such as in both the parking and transit apps, is the preferred schematic for FlexPass. It provides much of the data needed to develop gamification in the FlexPass program, providers and agencies may wish to reward users for frequent transit commute trips. An account-based system also positions the program to be suitable for a mobile application in the future.

With mobile applications managed by third-parties and the change in app provider at Metro Transit, the Go-To Card is most readily available and suitable to pilot the FlexPass program. In addition, the Go-To Card is increasingly providing access to other mobility options. The Go-To Card currently acts as the credential for the HOURCAR system. The FlexPass program could incorporate other mobility providers with the Go-To Card in the future.

FlexPass Development

Pricing Research

The preliminary outline of FlexPass developed by the consulting group determined that the price point for FlexPass should be between the cost of the standard Monthly parking contract at the ABC ramps and the unlimited monthly transit pass for Twin Cities employees, Metropass. (SRF Consulting Group, 2019)

The price of the Monthly contract varies at ABC Ramps depending on at which ramp the contract holder parks: \$145 at Ramp A, \$165 at Ramp B, and \$160 at Ramp C.

Metro Transit offers a variety of monthly unlimited passes. The passes differ in price by the fare amount they cover and to whom they are offered. The Metropass, for \$83, covers fares up to \$3.25, and is available only to employees of participating organizations. The 31-Day Pass Local Peak, for \$90, covers fares up to \$2.50, and is available to anyone. The 31-Day Pass Express, for \$120, covers fares up to \$3.25, and is available to anyone.

To consider flexible pricing dependent on individual use, the Project used the early-bird pricing at ABC Ramps and single-ride fares during rush hour for Metro Transit.

Standard early bird rates for single occupant vehicles is available between 6 a.m. and 9 a.m. \$8 at Ramp A, \$9 at Ramp B, and \$9 at Ramp C.

Previous pricing goals set by MnDOT have desired the early bird rate and the Monthly contract rates to be a similar price (based on 21 days of parking) but the Monthly contracts are slightly cheaper. MnDOT would like the prices to be equal in order to remove the incentive for buying a contract.

Metro Transit has a few daily fares that differ depending on the commuter. The rush hour fares are charged between 6–9 a.m. and 3–6:30 p.m. \$2.50 per trip on Local Bus / METRO and \$3.25 per trip on Express Bus. One trip provides unlimited transfers (equal to or lower than the fare) for 2.5 hours. The All-Day Pass, for \$5, provides unlimited rides until 2 a.m. valid on Local Bus / METRO, available at ticket machines and on the mobile app.

ABC RAMPS MONTHLY Contract Rates

\$145 at Ramp A

\$165 at Ramp B

\$160 at Ramp C

Daily Early Bird Rates

\$8 at Ramp A

\$9 at Ramp B

\$9 at Ramp C

.....

METRO TRANSIT Monthly Passes

\$83 for Metropass

\$90 for 31-Day Local Peak

\$120 at 31-Day Express

Rush Hour Fares

\$2.50 for Local Bus / METRO

\$3.25 for Express Bus

All-Day Pass

\$5 for Local Bus / METRO

Example Cost Scenario for Per-Use Pricing:

Resident Morgan lives nearby the METRO C Line. Morgan commutes by transit about 2 days per week, 8 days per month. They drive the other days and park at Ramp B. Using the MPLS Parking App, operated by Park Mobile, Morgan can reserve and purchase parking days for \$9 each. Using the Metro Transit mobile app, Ann can purchase All-Day Passes for \$5 each, covering any additional trips outside the typical commuting time frame.

Assuming 22 days of commuting in a typical month, Morgan pays \$166 per month for these commuting costs, approximately the same cost as the current Monthly contract at Ramp B. If Morgan used an Express Bus instead, the total commuting costs would be \$12 more.

Someone consistently parking at ABC Ramps may not be attracted to a similar monthly cost scenario with much more complexity, detailed above. FlexPass pricing should be cheaper than the current cost scenarios, responding to other research about the potential influence of cost savings on commute mode switching (Lari et al., 2014; Fan, working report; Move Minneapolis, 2020). Both ABC Ramps and Metro Transit do not currently have systems to lower rates of individual and variable uses for the subset of potential FlexPass users.

A monthly cost allows the Project to drop the price of FlexPass and allows the project to take advantage of the Go-To card as the FlexPass media for parking, transit, and possibly more micro mobility options (e.g., HOURCAR, Nice Ride). A monthly cost for a single card also simplifies management complexities

Setting the Price:

Project Partners met regularly to determine the price points of FlexPass.

- Assumed 22 commuting days in a typical month
- Discounted the cost of a Monthly contract at Ramp B (\$165) by 10 percent and then calculated the cost per day. The same rate is applied to each ramp.
- Calculated the per day cost of the Metropass (\$83) which is already significantly discounted assuming the standard price is \$120 for the 31-Day Pass Express.

Table 1, on the following page, depicts the sliding scale as the ratio of parking to transit changes, with the cost per day increasing with the days of parking in a month.

With the monthly pricing model for FlexPass, ABC Ramps can limit the number of guaranteed parking days associated with a parking card, but Metro Transit cannot limit the number of transit uses on the Go-To card, priced similar to the Metropass. Therefore, the Go-To card would be loaded with an unlimited monthly pass, equivalent to the Metropass, assuming that the card holder would use the approximate number of transit days associated with the determined ratio.

Project Partners decided to select a few different ratios and price points to test, instead of offering the full range of combinations. Two or three options are easier to manage and expand for a pilot study and beyond.

Table 1: Pricing Scale for FlexPass, based on discounted parking and transit contracts.

Days of Transit	Days of Parking	Percent of Parking	Per Day Cost	Transit Cost	Parking Cost	Total Cost
22	0	0%	\$ 3.77	\$ 83.00	\$ 0.00	\$ 83.00
20	2	9%	\$ 4.04	\$ 75.45	\$ 13.50	\$ 88.95
18	4	18%	\$ 4.31	\$ 67.91	\$ 27.00	\$ 94.91
16	6	27%	\$ 4.58	\$ 60.36	\$ 40.50	\$100.86
14	8	36%	\$ 4.86	\$ 52.82	\$ 54.00	\$106.82
12	10	45%	\$ 5.13	\$ 45.27	\$ 67.50	\$112.77
10	12	55%	\$ 5.40	\$ 37.73	\$ 81.00	\$118.73
8	14	64%	\$ 5.67	\$ 30.18	\$ 94.50	\$124.68
6	16	73%	\$ 5.94	\$ 22.64	\$108.00	\$130.64
4	18	82%	\$ 6.21	\$ 15.09	\$121.50	\$136.59
2	20	91%	\$ 6.48	\$ 7.55	\$135.00	\$142.55
0	22	100%	\$ 6.75	\$ 0.00	\$148.50	\$148.50

Tax Benefits Legislation and Management

The FlexPass program hopes to take advantage of pre-tax commuter benefits offered by many downtown Minneapolis employers.

In 2020, employers or employees are allowed to deduct up to a limit of \$270 per month for both qualified parking expenses and qualified public transportation expenses. Qualified parking expenses include parking near one's workplace or near public transit to their workplace. Qualified public transportation expenses include fares for public transit, defined as vehicles that seat at least six people not including the driver who is paid for their transportation services. Public transit expenses also include Commuter Highway Vehicles (vanpool), and only cover fares for transportation to and from one's workplace (IRS, 2020). These two categories each have their own, separate, \$270 monthly limit.

An employer can pay for these commuting costs and deduct the amount from their FICA (payroll) taxes, up to the limit. An employee can use pre-tax income to pay for these costs, deducting the amount from their taxable income and FICA taxes, up to the limit; the employer also saves on their FICA taxes for the amount the employee deducts. An employer and employee can simultaneously cover these costs but the shared deductible cannot exceed the limit.

Employer Paid Expense

The employer pays the value of the transit or parking expense and can deduct that value from their payroll taxes. The employee receives the transit or parking benefit at no-cost to them, it does not come out of their paycheck.

Employee Paid Expense

The employee pays the value of the transit or parking expense from their pre-taxed income. The employee saves on both income and FICA taxes for the amount and the employer saves on FICA taxes.

Shared Expense

A combination of the previous two. The employer will save on payroll taxes for the portion provided to the employee and the portion the employee contributes. The employee saves on income and payroll taxes for the portion they contribute and receive the employer portion at no cost.

(United States Environmental Protection Agency, 2005)

The expenses need to be explicitly tracked for parking and transit benefits separately to ensure benefit qualification. It is most commonly tracked by the vendors listed in transactions and ensuring vendors only provide one benefit.

A 2005 meta-analysis found that in general, tax benefits for transit expenses can encourage transit use, for both commuting and non-commuting, and encourage mode switching among drive alone commuters; however, these effects depend on transit system quality and the offered benefits (TCRP, 2005). Although, Hamre and Buehler (2014) demonstrate the limits of this effect if paired with free car parking.

The most common method of paying for commuter tax benefits is to pay a set price each month for a monthly contract. The payment is made directly from the employer or by a pre-tax benefits administrator with a single physical check or electronic transfer.

Pre-tax debit accounts are available for commuting benefits similar to a Health Savings Account (HSA) but with more flexibility. Each month, employees can deduct up to \$270 from their income to a pre-tax parking account that can be used for qualified parking expenses and to a pre-tax transit account that can be used for qualified public transit expenses. Funds in the account roll over from month-to-month and year-to-year, and deductions can be adjusted from month-to-month (providing opportunity from payroll managers).

The debit card is restricted to ensure that parking funds are only used at qualified parking providers and the same with transit/vanpool expenses. These cards are offered by third-party payroll managers that offer a variety of pre-tax and payroll services. Some providers offer a single debit card for each pre-tax account; while others can provide multiple pre-tax accounts on a single debit card. Pre-tax debit accounts can be used to provide flexibility in commuting expenses and choices from month-to-month.

The drawbacks are that deductions to the accounts are locked and cannot be withdrawn for other purposes. When an employee leaves the employer, the funds are lost entirely. In addition, it creates two more accounts for the employee to manage (i.e., the balance, deductions, and expenses).

A final option to pay for commuting costs is to use a reimbursement method, primarily for when the employer is covering the expenses. However, a reimbursement program is not eligible in regions where voucher programs or monthly passes exist (i.e., Monthly contract parking or the Metropass), because the IRS prefers benefits to be pre-paid. In addition, pre-paid programs are more simple to manage for employers than various individual reimbursement schedules.

FlexPass Contracts

The Project has developed two contracts to offer during a pilot to observe strength and weaknesses of the FlexPass concept. Two contracts were chosen to provide different commute mode ratios to pilot participants.

FlexPass10 offers:

- Ten days of guaranteed parking—about 2.25 days per week
- If the user always parks on the same two days, the user will typically have at least one floating park day per month
- An unlimited monthly pass on all bus and light rail service, with discounted Northstar rates
- In-and-out privileges on days the user parks
- For \$110 per month

FlexPass14 offers:

- Fourteen days of guaranteed parking—about 3 days per week
- If the user always parks on the same three days, the user will typically have at least one floating day
- An unlimited monthly pass on all bus and light rail service, with discounted Northstar rates
- In-and-out privileges on days the user parks
- For \$125 per month



The only difference between the two contracts is the guaranteed number of parking days each month. Once the contract holder uses all of their guaranteed days, they will no longer be guaranteed entry to ABC Ramps when they are marked as full. They must pay out-of-pocket as a daily parker to use ABC Ramps on additional days (The MPLS Parking mobile app can be useful to reserve additional days). The number of daily parking days resets each month. Leftover guaranteed parking days will be lost at the end of the month.

The unlimited monthly transit pass gives unlimited rides on all bus and light rail service, covering fares up to \$3.25. It also provides a discount on Northstar which requires additional funds for trips originating or ending at the Ramsey station or farther north. The FlexPass card (built onto the Go-To Card) will act as the single access card for both ABC Ramps and Metro Transit.

The contracts were developed to fit within current software limitations and tax regulations. The model recommended by the consulting group, for complete flexibility to pay only for what parking and transit is used, was explored, but this option was not feasible within the project time frame from two reasons: the truly flexible model is tedious to fit within current IRS regulations and it presented technical challenges for both ABM and Metro Transit to manage without extensive software development.

The monthly unlimited pass is the easiest pass to load onto the Go-To Card and allows the maximum amount of transit flexibility. Metro Transit receives \$46 for FlexPass10 contracts and \$35 for FlexPass14 contracts. The cost sharing is based on calculated per day rate of the Metropass and the anticipated amount of transit use with the contract.

We determined general feasibility of the FlexPass contracts through an Interest Survey, two Focus Groups, and 7 HR interviews.



Source: Metro Transit

Interest Survey

In spring 2020, the Project conducted an interest survey and Focus Group with ABC Ramp contract holders to gauge the viability of FlexPass.

The interest survey was sent in February to the available emails for Monthly contract holders at ABC Ramps, about 2,000. We received a total of 385 responses. Respondents represented 150 different employers downtown and 90 different residential cities, with a majority living in the West Metro. **Appendix A** on page 29 summarizes all of the results from the Interest Survey.

- **94%** park at ABC Ramps at least 3 days per week, with the majority parking at least 5 days
- **72%** indicated interest in a pass that gives cost savings for flexible commuting options
- The majority expressed interest in telecommuting and public transit as an alternative commute mode, with fewer selecting carpool and biking/walking
- **70%** indicated they would use an alternative mode 1–2 days per week
- **42%** percent were interested in participation in a Focus Group meeting to provide more input on the design of the pass

Focus Groups

Move Minneapolis led two Focus Group meetings with ABC Ramps contract holders that responded to the Interest Survey. We talked to 25 people across two meetings. We asked participants about their commute and how they learned about their commuting options. Most heard about their options through their employer, typically on that first day or through periodic announcements.

Participants were supportive of the FlexPass10 and FlexPass14 designs with slightly more interest in the contract with more guaranteed parking. The design of the contract would grant flexibility with minimum complexity.

We presented the alternative of using pre-tax debit accounts and variable pricing based on actual use. Some participants expressed interest in this option while others did not. The Focus Group meeting supported the decision to first explore the use of the monthly design before navigating a more complex variable pricing system.

HR Interviews

Move Minneapolis conducted interviews with 7 large employers in downtown Minneapolis and confirmed that there are a variety of methods to offer commuting benefits.

The employers thought that their transit-users and part-time telecommuting employees would be most interested in FlexPass, rather than drive alone commuters. This does not reflect the finding of the ABC Ramps Transportation Options study. However, the employers were interested in offering FlexPass, wanting to validate the interest among their employees.

About half of the employers interviewed offer their employees the option to use pre-tax income for their commuting costs. These employers used a third-party to manage commuter benefits (e.g., Health Equity (WageWorks)).

Almost all of the employers offered a subsidy for commuting costs. Some covered all of the costs, some offered a maximum amount to be used at the employee's discretion for either parking or transit, and some offered different amounts for parking or transit.

While each employer does it differently, FlexPass is designed for simplicity of use, hoping that employers can offer the product to interested employees. The preliminary outline of FlexPass notes that employer benefit programs tend to reflect what products are available on the market.

Commuting Observation Study

The University of Minnesota (UMN) is conducting an observation study to determine the effect FlexPass could have on SOV commuting, particularly if users drive alone less for their commutes.

Surveying With Daynamica

TDM studies commonly use surveys and travel diaries to measure travel behavior. These methods rely heavily on recall memory, requiring participants to remember their past week or past day. This observation study seeks to improve data collection for travel behavior with the use of a smartphone application that can automatically collect travel behavior, called Daynamica.

Daynamica is an innovative, research-grade smartphone application that collects and processes highly detailed human activity and travel behavior data with minimal user burden, and allows users to view and annotate that data at their convenience. It delivers richer, more accurate data than existing solutions more efficiently, and at lower cost.

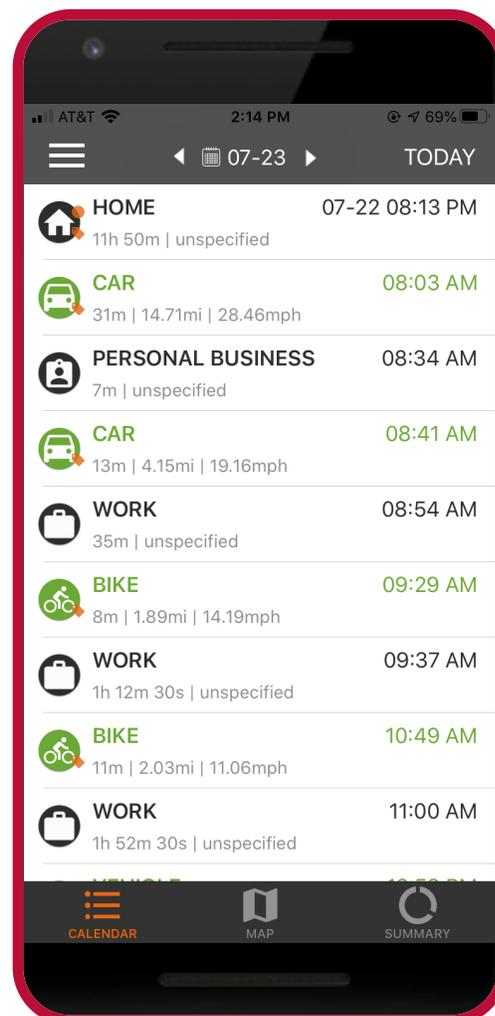
Using GPS technology on the participant's smartphone, Daynamica automatically tracks when the participant is traveling (making a Trip) and when they are stationary (during an Activity). The app uses speed to predict the mode the participant is using. In addition, participants are asked to label their activities which are automatically populated when the participant returns to that same location, for example to their home.

Daynamica takes away the burden of memory recall for travel behavior studies, allowing the study to further investigate the attitudes and decisions that are involved in trips. Each recorded trip is associated with a short survey to gather this additional information about trip characteristics and the potential influence of the FlexPass.

Study Design

The FlexPass contracts will be offered to current Monthly contract holders at ABC Ramps or people that recently canceled their Monthly contract during Minnesota's Stay-At-Home order due to COVID-19.

The study will use an enrollment survey to verify eligibility of interested participants and collect baseline demographic and travel behavior data. The study will collect historic rates of parking



Recorded Activities and Trips displayed on the mobile app.

use and transit use (if applicable) for enrolled participants going back to October of 2019 to gain more detail on baseline travel behavior. Participants will be asked to download Daynamica and use it for 14 days to collect tips and activity data during their participation in the study. Participants will receive a \$40 gift card for completing 14 days' worth of data.

The study will collect parking and transit use data from ABC Ramps and Metro Transit associated with the participant's FlexPass card, throughout the study period, in order to observe approximate travel behavior beyond the 14 days collected with Daynamica.

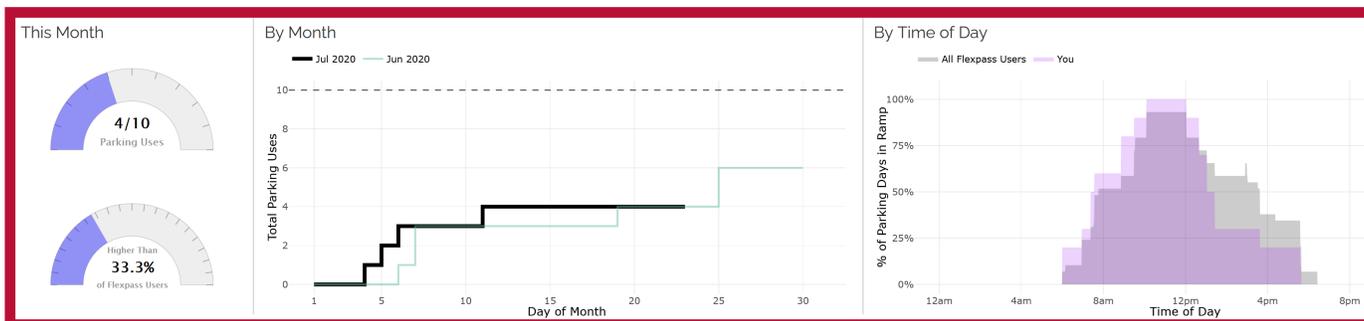
The study is anticipated to end May 1, 2021. At this time the FlexPass contracts could be extended (without observation) or the FlexPass contracts could be terminated to provide time to refine its design. If the FlexPass contracts are terminated, participants will have the opportunity to purchase another monthly contract at ABC Ramps. They could also have the opportunity to enroll in a Metro Transit pass program if there is interest.

At the end of an individual's participation in the FlexPass study, they will be sent a final exit survey to gain final comments on travel behavior during the observation period and attitudes toward FlexPass. All of data collected will be use to inform the viability of FlexPass at ABC Ramps and determine if FlexPass is a valid program to reduce SOV commuting. UMN will submit a report to MnDOT and Metro Transit about the aggregate findings of the observation study, which will be available to the public.

FlexPass User Dashboard

UMN, in partnership with Daynamica, has created a FlexPass User Dashboard to allow participants to keep track of their monthly parking use. ABC Ramps can limit the number of guaranteed parking days associated with a contract card but the system cannot readily display the number of days used or remaining in a given month. The Dashboard will allow FlexPass participants to check their use and remove this responsibility from the participant.

Also with the Dashboard, the participants will be able to view their transit use data (which they could also view at the Metro Transit Web Store) and the travel behavior data collected with Daynamica (which they could also view on the Daynamica app), making it a one-stop-shop. In addition, the Dashboard will provide participants with a reference of how their individual parking and transit use compares to the other participants with their same contract (i.e, the average frequency and occurrence of uses). The comparison implements a behavior modification strategy to potentially establish a new norm.



Parking Use and Comparisons displayed on the FlexPass User Dashboard.

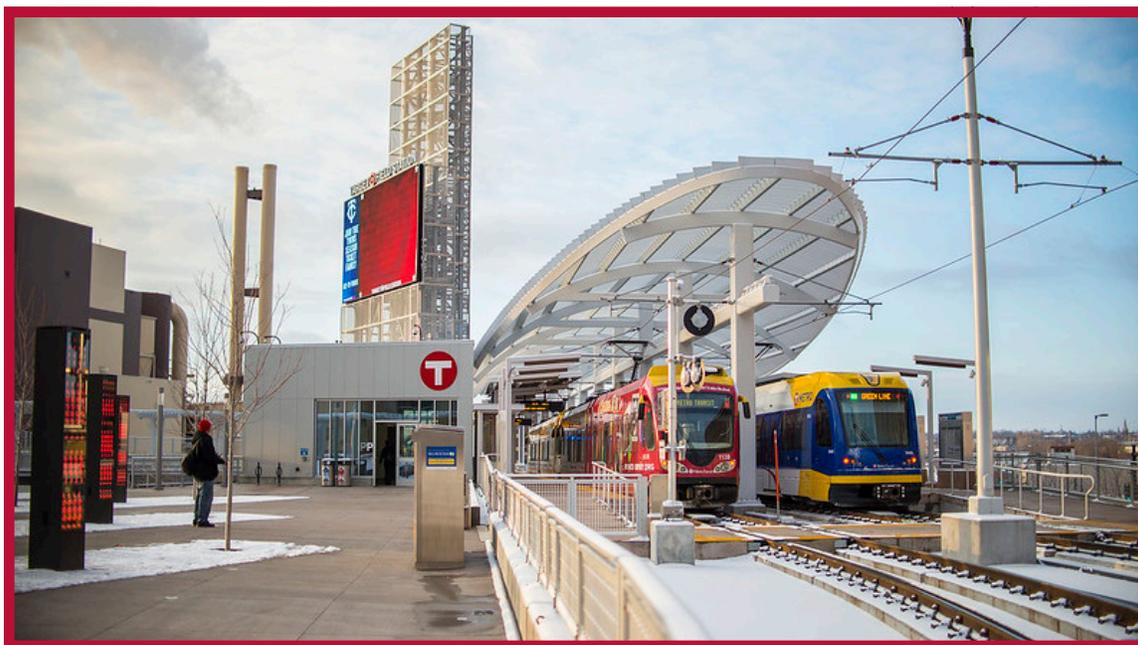
COVID-19 Update

The coronavirus pandemic has had a substantial effect on commuting nationwide, Minneapolis is no exception. The Stay-At-Home order from Governor Walz and decreased transit service for essential trips only by Metro Transit have led to drastic reductions in parking and transit use.

These reductions were sustained throughout April, May, June, July, and August. As travel and social gathering restrictions are lifted, travel behavior is expected to slowly return to pre-pandemic levels. However, many offices are maintaining work-from-home policies through the fall and telecommuting may become more common as offices institute policies that rotate the staff members in the office. The reduced price and limited parking contract does incentivize telecommuting more, even if the user is not regularly taking transit.

The study cannot wait for travel behavior to return to travel conditions that more closely mimic pre-pandemic levels; we plan to launch the study during the fall of 2020 and end in the spring of 2021.

The study hopes to offer FlexPass primarily to eligible participants that will regularly need to commute downtown on a weekly basis. It is probable that differences in commuting can be attributed to the pandemic response. The effects of FlexPass will be difficult to isolate but FlexPass can play a role in sustained commuting changes due to altered work conditions.



Source: Metro Transit

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Appendix A: Interest Survey Results

The Interest Survey was sent to known emails of standard Monthly (SOV) contract holders during the last week of February. We asked respondents to provide input to help design a new commuter program for the ABC Ramps and indicate interest in attending a focus group about the program. This sheet provides a summary of the survey results.

ABC Ramps Overview		Parking Stalls	Monthly (SOV) Contracts	Carpool Contracts
<i>Ramp A</i>		over 3,500	1,332	501
<i>Ramp B</i>		over 1,600	949	287
<i>Ramp C</i>		over 1,500	906	105
<i>Total</i>		over 6,600	3,187	893

There are 1,895 known email addresses for Standard Contract holders. Missing contacts are housed within an account associated with only one email.

385
Total Respondents

~ 20%
Response Rate
based on number of emails

over 150
different employers

- 1) Target
- 2) Wells Fargo
- 3) Jack Link's
- 4) U.S. Bank
- 5) Colle & McVoy

Over **50** of the employers subsidize parking costs

over 90
different cities

- 1) Minneapolis
- 2) Plymouth
- 3) St. Louis Park
- 4) Maple Grove
- 5) Edina

Location of Parking Contract

- 46% at Ramp A
- 30% at Ramp B
- 24% at Ramp C

38% indicated that they receive a parking subsidy

Of all respondents surveyed:

2% park less than 1 day per week	Greater interest in the pass among people who park less than 5 days per week.
4% park 1–2 days per week	
30% park 3–4 days per week	
64% park at least 5 days per week	

72% of respondents indicated an interest in a new pass product.

103 are very interested | **172** are somewhat interested

When those interested in the pass were asked what alternative mode they'd use:

- 14% selected Carpooling
- 69% selected Taking Transit
- 22% selected Biking/Walking
- 72% selected Telecommuting

Respondents could select multiple modes.

- 43% mentioned transit and telecommuting together.
- Greater interest in the pass and knowledge of nearby transit options among people choosing transit as an alternative mode.

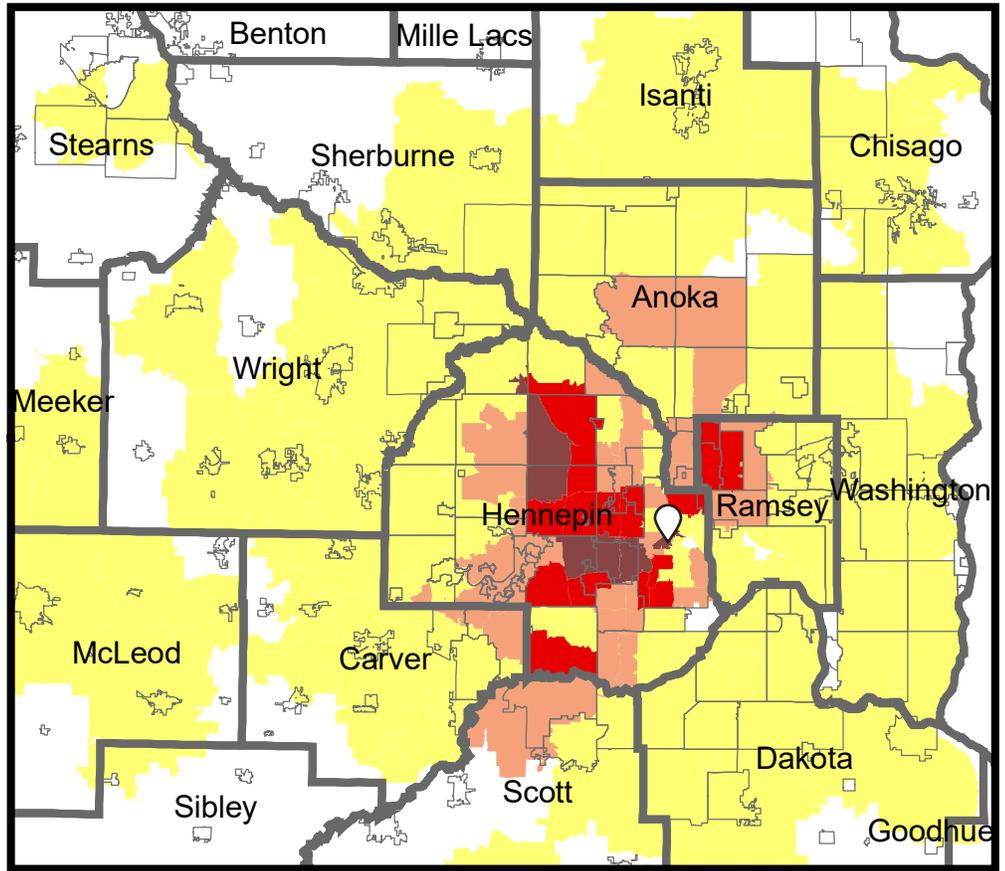
When those interested in the pass were asked how often they could take the alternative mode:

12% said less than 1 day per week	Greater interest in the pass among people willing to use alt mode more than 2 days per week.
70% said 1–2 days per week	
15% said 3–4 days per week	
2% said at least 5 days per week	

Distribution of All ABC Ramp Contract Holders by Zip Code and Cumulative Percentage

*Not all zip codes displayed. Distribution of contract holders is approximate since some zip codes are associated with multiple card holders that could live in various places.

- 25 Percent
- 50 Percent
- 75 Percent
- 100 Percent



Distribution of Survey Respondents by City and Cumulative Percentage

*Two residents with home cities in Wisconsin are not included.

Location of ABC Ramps

