MOD

MOBILITY ON DEMAND

MOD SANDBOX DEMONSTRATIONS INDEPENDENT EVALUATION

PSTA - PUBLIC-PRIVATE-PARTNERSHIP FOR PARATRANSIT MOBILITY ON DEMAND DEMONSTRATION EVALUATION PLAN

U.S. Department of Transportation

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Front Cover Image: Pinellas Suncoast Transit Authority, October 2018

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16. Abstract

The Mobility on Demand (MOD) Sandbox Demonstration Program provides a venue through which integrated MOD concepts and solutions – supported through local partnerships – are demonstrated in real-world settings. For each of the 11 MOD Sandbox Demonstration projects, the MOD Sandbox Independent Evaluation includes an analysis of project impacts from performance measures provided by the project partners, as well as an assessment of the business models used.

This report constitutes the Evaluation Plan for the Pinellas Suncoast Transit Authority (PSTA) Public-Private-Partnership for Paratransit Mobility on Demand Demonstration (P4-MOD) Sandbox project. It includes the following chapters: project overview; evaluation approach and process; evaluation schedule and management; and data collection and analysis plan.

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Project Overview

This chapter provides a brief introduction to the Pinellas Suncoast Transit Authority (PSTA) Mobility on Demand (MOD) Sandbox project that will be evaluated through this independent evaluation.

Introduction

Pinellas Suncoast Transit Authority (PSTA) is partnering with Lyft, United Taxi, CareRide, Wheelchair Transport, the Center for Urban Transportation Research (CUTR), and Goin' Software to develop and demonstrate an innovative business model aimed at increasing the efficiency and cost effectiveness of paratransit services while providing flexible and responsive transportation.

Project Scope

PSTA has assembled a unique multi-partner service with the goal of demonstrating an innovative approach to more effective and efficient paratransit by utilizing new technology available through transportation network companies (TNCs) to provide on-demand service. Leveraging the growing influence and demand for these types of services in Pinellas County, PSTA will expand its existing partnerships with United Taxi, Wheelchair Transport, and CareRide and a develop a new key partnership with Lyft, to develop and demonstrate a model that will provide more cost-effective, on-demand, door-to-door paratransit service.

Through the grant, PSTA will create three new partnerships with CUTR, Lyft, and Goin' Software. CUTR will develop performance measures, gather data, and evaluate the effectiveness of transportation provider partnerships both leading up to and throughout the demonstration. Lyft will participate as an additional on-demand ambulatory platform to complement the other existing three partners. Goin' Software will be used as a demonstration systems integration platform, aimed at creating a single-user interface for PSTA staff to deploy paratransit trips to multiple providers from one software platform.

The primary goal of the Public-Private-Partnership for Paratransit MOD (P4-MOD) demonstration is to deploy and demonstrate a more cost-effective and efficient means for paratransit customers with disabilities to gain access to activities throughout Pinellas County. PSTA currently provides service to over 12,500 eligible Americans with Disabilities Act (ADA) paratransit customers, performing over 275,000 annual paratransit trips through its Demand Response Transportation (DART) Program. As reported in the *2017 – 2022 Pinellas County Transportation Disadvantaged (TD) Service Plan*, over 10 percent of the total Pinellas County population has a disability and qualifies for TD services. A smaller subset of this population—those who meet the more restrictive requirements—also qualifies for DART services.

The proposed P4-MOD demonstration will decrease paratransit costs while greatly improving DART riders' mobility by providing on-demand trips.

Key Partners

The Pinellas Suncoast Transit Authority (PSTA) is partnering with Lyft, United Taxi, CareRide, Wheelchair Transport, CUTR, and Goin' Software.

Project Timeline

The following timeline presents the main project milestones. Note that the timeline for the evaluation is provided in a later chapter of this report. The demonstration start and end dates depict the period over which demonstration data collection is expected to occur. This data would be shared with the Independent Evaluation (IE) team for evaluation purposes.

1. **January 27, 2017**- Execution Date
2. **November 2018** – Demonstration Start/Begin Data Collection
3. **May 2019** – Preliminary and Interim Analysis/Conduct Final Surveys and Interviews
4. **November 2019** – Demonstration Complete/Complete Data Collection
5. **January 2020** – Final Data Analysis/Complete Independent Evaluation
6. **February 2020** – Expert Interview Summary/Complete IE Reporting and Data Submission

The PSTA team will collect data relevant to this MOD Sandbox Demonstration (as outlined in this Evaluation Plan) between November 2018 and November 2019, and will share the data with the IE team for conducting the evaluation. Chapters 3 and 4 of this report provide more details on the data collection planning.

Evaluation Approach and Process

For each of the 11 MOD Sandbox Projects, the IE team developed an evaluation framework in coordination with each project team. The framework is a project-specific logic model that contains the following entries:

1. **MOD Sandbox Project** – Denotes the specific MOD Sandbox project.
2. **Project Goals** – Denotes each of the project goals for the specific MOD Sandbox project. The project goals capture what each MOD Sandbox project is trying to achieve.
3. **Evaluation Hypothesis** – Denotes each of the evaluation hypotheses for the specific MOD Sandbox project. The evaluation hypotheses flow from the project-specific goals.
4. **Performance Metric** – Denotes the performance metrics used to measure impact in line with the evaluation hypotheses for the specific MOD Sandbox project.
5. **Data Types, Elements, and Sources** – Denotes the data types, elements, and the data sources used for the identified performance metrics.
6. **Method of Evaluation** – Denotes the quantitative and qualitative evaluation methods used.

This chapter details the evaluation approach and process, as finalized in the evaluation logic model for the PSTA MOD Sandbox project. This includes listing project goals, evaluation hypotheses, performance metrics, data types, elements and sources, and methods of evaluation.

Project Goals

The project goals denote what PSTA aims to achieve through the MOD Sandbox demonstration. These project goals include the following:

1. Improve mobility of paratransit users with the PSTA system
2. Improve satisfaction of paratransit users with the PSTA system
3. Reduce spending on paratransit trips
4. Reduce wait times for paratransit services
5. Improve quality of life for users
6. Improve (or do not worsen) travel times of users
7. Make payments of paratransit easier for a broader population
8. Improve paratransit travelers' accessibility to the region
9. Improve the accessibility and mobility of persons using wheelchairs
10. Diversify trip purpose of system users

11. Diversify travel times of users
12. Comply with ADA equivalent level of service requirements
13. Obtain lessons learned about project implementation.

The project goals set the foundation for the evaluation hypotheses.

Evaluation Hypotheses

The evaluation hypotheses flow from the project-specific goals and denote what should happen if each project goal is met. These evaluation hypotheses include the following:

1a. Users of the PSTA system report that they have greater mobility with the new system.

1b. The number of rides rises as a result of the project.

2. Users of the PSTA system report that they are more satisfied with the new system.
3. Calculated or projected spending on paratransit declines by the end of the project.
4. Wait times decline for users.
5. The quality of life improves due to the new system.
6. Travel times decline or do not change.
7. E-wallet payments for paratransit improve the ease of paying for paratransit.
8. The spatial diversity of locations to which users travel increases.
9. The accessibility and mobility of persons using wheelchairs improves.
10. The trip purpose of system users is diversified to include a greater number of trip purposes than before the system implementation (people do more diverse things with new mobility).
11. The spread of travel times increases as a result of the system.
12. Service to passengers with disabilities is equivalent to that provided to passengers without disabilities.
13. Lessons from project implementation can inform future project and system designs and implementation.

The success of each evaluation hypothesis is measured by the performance metrics below.

Performance Metrics

The performance metrics are used to measure impact in line with the evaluation hypotheses for the PSTA IE. These performance metrics include the following:

- Ordinal scale response to mobility questions (compare before and after survey)
- System activity data (frequency of use by user and location) before and after new system deployment

- Number of trips before and after implementation
- Ordinal scale response to satisfaction questions (compare before and after survey)
- Paratransit operating expenses before and after deployment
- Measured wait times
- Wait times reported in surveys (compare before and after survey)
- Ordinal scale response to quality of life questions (compare before and after survey)
- Measured travel times
- Ordinal scale response to ease of payment questions (compare before and after survey)
- Payment collected via E-payment and cash over time
- Spatial distribution of destinations traveled by users
- Ordinal scale response to accessibility and mobility questions among persons using wheelchairs (compare before and after survey)
- Count of trip purposes across the population
- Distribution of travel times
- Measured response and travel times among persons with and without disabilities
- Fare payment collected by persons with and without disabilities
- Number of wheelchair accessible vehicle (WAV) trip requests
- Number of trips provided with WAV.

The performance metrics will draw from a set of data sources that are specific to the project.

Data Types, Elements, and Sources

The following data types and elements are used for the performance metrics that are defined for the PSTA IE.

Data Types and Elements

Survey data includes:

- Demographics and socioeconomics
- Vehicle ownership
- Individual travel patterns
- Travel needs and mobility before P4-MOD
- Travel needs and mobility after P4-MOD
- Location of home and work
- Impacts of P4-MOD on travel behavior, mobility, and accessibility

- Transit ridership and broader mode split of travel
- Recent paratransit trip attributes and alternative modes of travel
- Perceptions of mobility and accessibility
- Satisfaction with the P4-MOD system
- Travel costs
- Impact on quality of life
- Ease of payments and using E-wallet
- Trip purpose of most recent trip
- Perception of first-mile and last-mile access, wait times, and travel times
- Disability status.

Travel activity data of users and participating mobility suppliers include:

- De-identified passenger ID
- Provider ID
- Vehicle ID
- Requested passenger origin
- Requested passenger destination
- Timestamp of passenger request
- Location of driver acceptance
- Timestamp of driver acceptance
- Fetch distance
- Timestamp of passenger pickup
- Location of passenger pickup
- Timestamp of passenger dropoff
- Location of passenger dropoff
- Passenger trip distance
- Trip cost to passenger
- Trip cost to agency (may be $0)
- Passenger with a disability requiring WAV (yes/no) [WAV requested]
- WAV sufficient to provide service (yes/no/NA)
- Cancelled (yes/no)
- Timestamp of cancellation
- Who cancelled (passenger/driver/system)
- Written reason for cancellation

- Never accepted (yes/no)
- Vehicle ID (separate table)
- Vehicle make (separate table)
- Vehicle model (separate table)
- Vehicle year (if available) (separate table)
- WAV (yes/no) (separate table).

Ridership data include:

- Paratransit and transit ridership.

Paratransit operating expenses include:

- Cost of paratransit operations.

Payment data include:

- E-wallet transactions
- Cash payments.

Stakeholder interview data include:

- Qualitative documentation from stakeholder interviews.

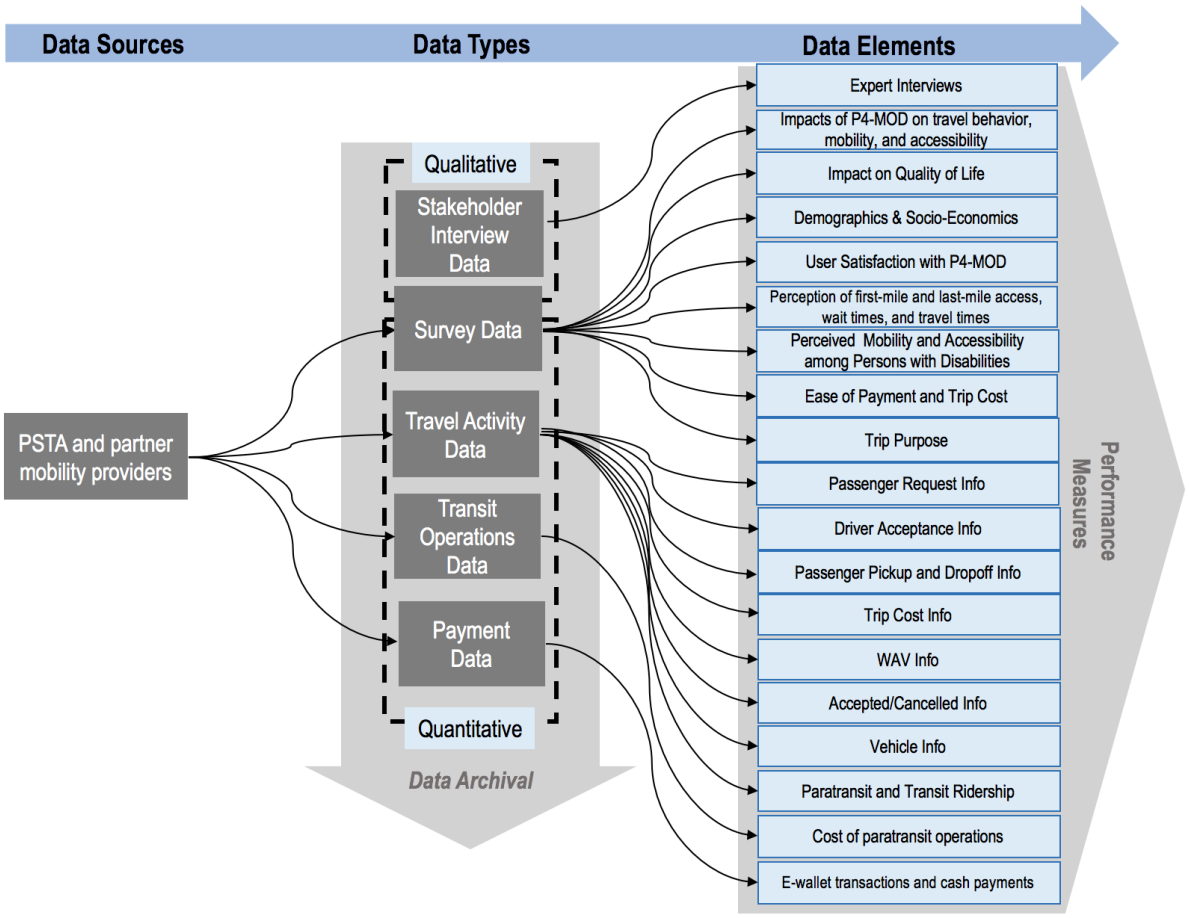
The following data sources are used to collect the above-mentioned data elements.

Data Sources

Data sources include PSTA, partner mobility providers, surveyed travelers, and interviewees.

Data Sources Mapping

The following diagram shows the mapping of data sources, data sets, and performance measures that will be used in the IE of the PSTA MOD Demonstration. As shown, the datasets include both quantitative and qualitative data, and will be submitted to the U.S. Department of Transportation (USDOT) ITS Public Data Hub.



Source: Booz Allen Hamilton, October 2018

Figure 1. Map of Data Sources, Data Sets, and Performance Measures

Methods of Evaluation

The quantitative and qualitative evaluation methods used in the PSTA IE include the following:

- Sign test and t-test on before and after mobility measures from survey and activity data
- Activity data analysis
- Data analysis
- Sign test on before and after satisfaction measures
- Survey analysis
- User cost analysis
- Survey and payment data analysis
- Categorical distribution tests (possible Chi-square)

- Mann-Whitney test or similar distributional comparison tests
- Stakeholder interview summaries

Further details about the analysis methods by evaluation hypothesis are provided in Chapter 4.

Evaluation Logic Model

Table 1 represents an extract from the final PSTA evaluation logic model. Building on the project goals, the logic model lists evaluation hypotheses, performance metrics, and data types and sources for the PSTA project.

Table 1. Project Goals, Evaluation Hypotheses, Performance Metrics, and Data Types and Sources for the PSTA Sandbox Project

Evaluation Hypothesis	Performance Metric	Data Elements	Data Sources
1.a. Users of the PSTA system report that they have greater mobility with the new system	Ordinal scale response to mobility questions (compare Before and After survey) System activity data (frequency of use by user and location) before and after new system deployment	Survey Data Travel Activity Data Ridership Data	PSTA, mobility providers, and surveyed travelers
1.b. The number of rides rises as a result of the project	Number of trips before and after implementation	Travel Activity Data	PSTA and mobility providers
2. Users of the PSTA system report that they are more satisfied with the new system	Ordinal scale response to satisfaction questions (compare Before and After survey)	Survey Data	PSTA (surveyed travelers)
3. Calculated or projected spending on paratransit declines by the end of the project.	Paratransit Operating Expenses before and after deployment	Paratransit operating expenses	PSTA
4. Wait times decline for users	Measured wait times, wait times reported in surveys (compare Before and After survey)	Survey Data Travel Activity Data	PSTA, mobility providers, and surveyed travelers
5. The quality of life will be improved due to the new system	Ordinal scale response to quality of life questions (compare Before and After survey)	Survey Data	PSTA and surveyed travelers
6. Travel times decline or do not change	Measured travel times	Travel Activity Data	PSTA and mobility providers
7. E-wallet payments for paratransit improve the ease of paying for paratransit	Ordinal scale response to ease of payment questions (compare Before and After survey) Payment collected via E-wallet and cash over time	Survey Data Payment Data	PSTA and surveyed travelers

Evaluation Hypothesis	Performance Metric	Data Elements	Data Sources
8. The spatial diversity of locations to which users travel increases	Spatial distribution of destinations traveled by users	Travel Activity Data	PSTA and mobility providers
9. The accessibility and mobility of persons using wheelchairs improves	Ordinal scale response to accessibility and mobility questions among persons using wheelchairs (compare Before and After survey)	Survey Data	PSTA (surveyed travelers)
10. The trip purpose of system users is diversified to include a greater number of trip purposes than before the system implementation	Count of trip purposes across the population	Survey Data	PSTA (surveyed travelers)
11. The spread of travel times increases as a result of the system	Distribution of travel times	Travel Activity Data	PSTA and mobility providers
12. Service to passengers with disabilities is equivalent to that provided to passengers without disabilities	Measured response and travel times among persons with and without disabilities, fare payment collected by persons with and without disabilities, number of WAV trip requests, number of trips provided with WAV	Travel Activity Data	PSTA and mobility providers
13. Lessons from project implementation can inform future project and system designs and implementation	N/A	Qualitative documentation from stakeholder interviews	PSTA and project partners (interviewees)

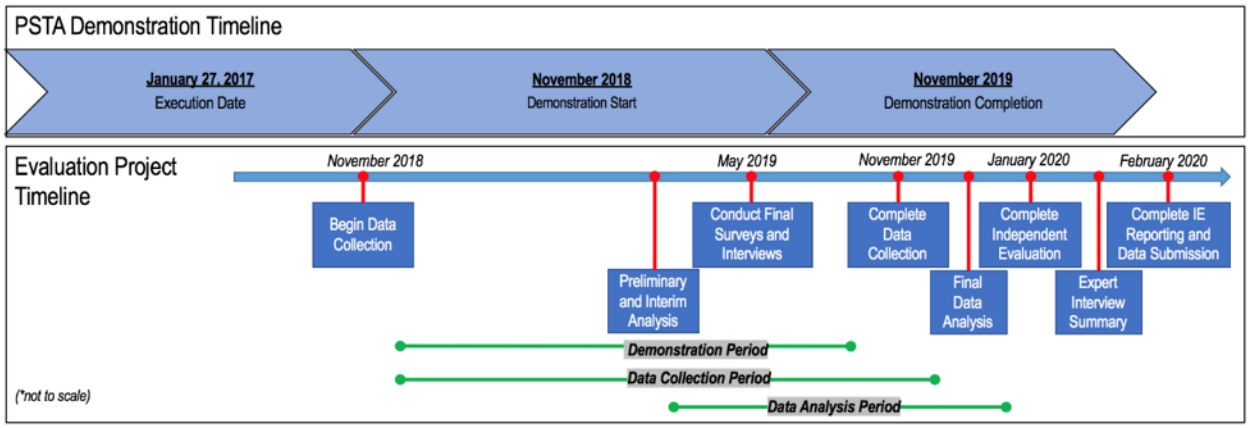
Documentation and Reporting

The IE Team will develop an evaluation report for this MOD Sandbox demonstration project. The report will include a summary of major findings of the project in an Executive Summary section, followed by multiple sections providing details of the demonstration, evaluation hypotheses, data collected, analysis performed, findings, and results. The results will be reported through a mix of exhibits including tables, graphs, and charts.

Evaluation Schedule and Management

Evaluation Schedule

Figure 2 shows the IE schedule from the beginning of quantitative and qualitative data collection that spans throughout the demonstration period and leads to the analysis, the results of which are included in the site-specific evaluation report. Note that interim data spot checks and sample analyses will be performed during the demonstration period to proactively mitigate data-related risks.



Source: Booz Allen Hamilton, October 2018

Figure 2. MOD Sandbox Evaluation and Demonstration Schedule

Data relevant to the program will be collected between November 2018 and November 2019. This data will be shared with the IE team for evaluation purposes. More details on the data types, elements, and collection timeframes are provided in Chapter 4.

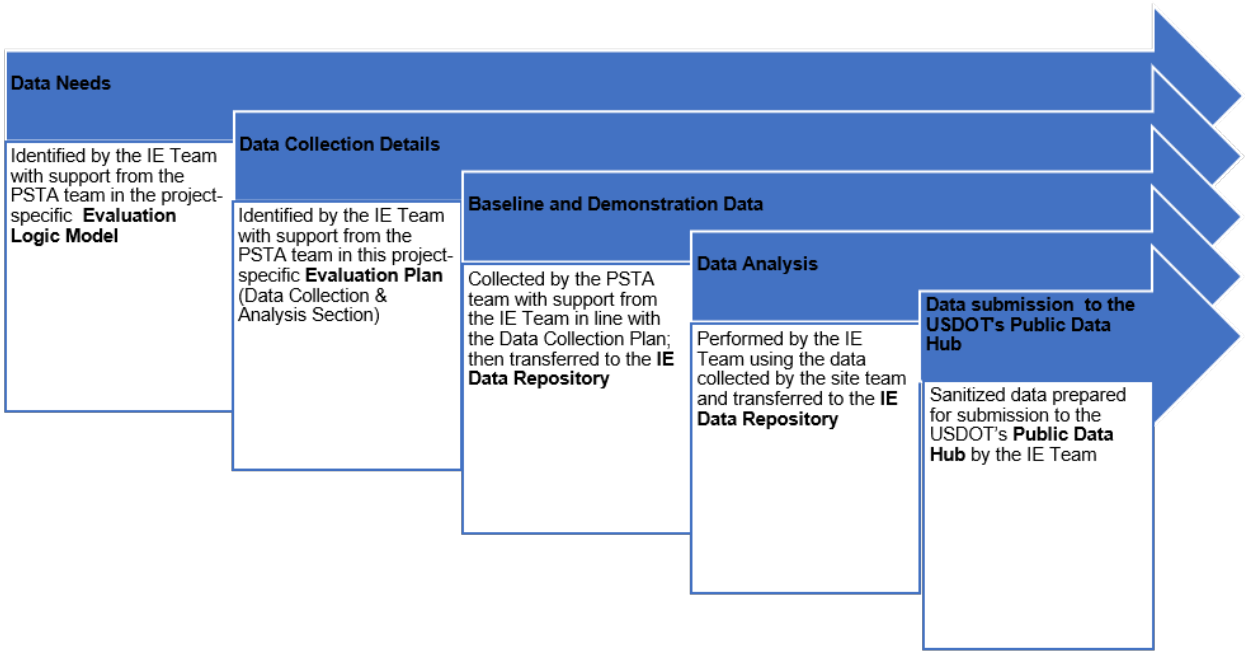
Roles and Responsibilities

The three main entities involved in the evaluation and their corresponding high-level roles are as follows:

- **The site (project) team** coordinates the collection of the requested evaluation data from the various project partners throughout the demonstration period, and transfers the data to the IE team.
- **The IE team** supports the site team in the definition of the requested data elements, and performs the analysis using the data provided by the site team.
- **The USDOT team** supervises the work and provides support for topics that encompass more than one site (e.g. coordination with TNCs who are partnering with several Sandbox sites).

Data Transfer and Storage

Various types of qualitative and quantitative data sources are involved in the evaluation, as specified in Chapter 2. Figure 3 shows the overall data collection framework, including the steps and parties involved in data design, collection, transfer and storage.



Source: Booz Allen Hamilton, October 2018

Figure 3. PSTA Data Collection Framework

Data Collection Responsibilities

Table 2 denotes the data collection responsibilities for the various data types required for the evaluation.

Table 2. Data Type and Data Collection Responsibilities for PSTA Sandbox Evaluation

Data Type	Data Collection Responsibilities
Survey Data	● Survey questions are developed by the IE team in collaboration with the PSTA Team ● Surveys links are sent out via email by the PSTA Team and responses are collected by the Qualtrics platform, which is operated by the IE team
Travel activity data of users and participating mobility suppliers	● Collected by the PSTA team and transferred to the IE team
Ridership Data	● Collected by the PSTA team and transferred to the IE team
Paratransit operating expenses	● Collected by the PSTA team and transferred to the IE team
Payment Data (E-wallet and cash)	● Collected by the PSTA team and transferred to the IE team
Stakeholder Interview Data	● Interviewees are identified by the IE Team in collaboration with the PSTA Team ● The IE Team is connected to the interviewees by the PSTA Team ● The IE Team conducts the expert interviews via phone or in person

Risk Management

The IE Team will continually monitor risk in an ongoing process throughout the demonstration period and identify the best resources within the team to address each risk. Some of the main risks involved in the evaluation are included below.

Schedule: The IE team will maintain a demonstration tracking schedule to track and contact the demonstration teams for data and documentation. The team will keep an up-to-date integrated schedule that reflects updates from the site teams on a constant basis. Components of the evaluation reports will be created throughout the demonstration period, as the data and documentation for the project becomes available. The site team should inform the IE team of any changes in schedule that could affect the overall evaluation schedule (e.g., delays in the demonstration schedule).

Data Quality Assurance: The IE team will perform spot checks on the data as it is being collected throughout the demonstration period to proactively manage risks related to data quality. This will allow the following:

- Avoiding insufficient data on performance of MOD demonstration to reliably estimate impacts and/or benefits
- Addressing challenges in empirical data including lack of consistency, biases, and incompleteness
- Identifying and controlling sources of error
- Consideration of quality and quantity issues in data collection

- Ensuring data privacy and proprietary protections in line with human subjects' protections
- Consideration of confounding factors.

Table 3 includes risk mitigation strategies that will be employed to ensure the availability of the requested data types for the evaluation.

Table 3. Data Type and Risk Mitigation Strategies PSTA Sandbox Evaluation

Data Type	Potential Risks	Risk Mitigation Strategies
Survey Data	• Low survey response rate does not lead to statistically significant results	• The PSTA team will ensure that participants in the pilot are willing to take the surveys
Travel Activity Data of Users and Participating Mobility Suppliers	• Inaccessible or insufficient data does not allow for performance metric computation • Data reveals PII and violates the rules regarding sensitive information	• The PSTA team has access to travel activity data from partner mobility providers through the Goin' Software and can provide the data to the IE team • All data shall be de-identified using an ID that does not contain PII or connection to user identity
Ridership Data	• Inaccessible or insufficient data does not allow for performance metric computation	• The PSTA team has access to the transit and paratransit ridership data and can provide it to the IE team
Paratransit Operating Expenses	• Inaccessible or insufficient data does not allow for performance metric computation	• The PSTA team has access to the paratransit operating expenses and can provide them to the IE team
Payment Data (E-wallet and cash)	• Inaccessible or insufficient data does not allow for performance metric computation	• The PSTA team has access to the payment data (E-wallet and cash) and can provide it to the IE t
Stakeholder Interview Data	• Inadequate number of interviews does not lead to a holistic view of pilot outcomes from different perspectives	• The PSTA team will ensure that engaged stakeholders in the pilot are willing to take the interviews

Data Collection and Analysis Plan

This chapter describes the plan for data collection and analysis for the PSTA Sandbox Project. It summarizes the data that needs to be collected by the project team, and how that data should be processed in delivery to the evaluation team. Where possible, the Evaluation Team will take it upon itself to process data to conduct calculations necessary for the evaluation. The Evaluation Team will require data processing from the Project Team to produce the requested data format. The Project Team may also have to process data to remove any personally identifiable information (PII).

The data collection and analysis plan follows the logic model at the time of the plan composition. Each data field discussed is associated with a hypothesis and a performance metric. Certain types of data collected will address multiple hypotheses. In cases where the data structure is the same, the plan will refer to the data plan for a hypothesis that is already described.

Most pilot-based data (i.e. data provided by project partners) should be provided from the beginning of the pilot demonstration period. The evaluation team also requests that some data from the PSTA, such as ridership, paratransit activity, costs, be provided back to 2015 if possible. The request for longer time series of activity is motivated by the need to help discern potential background trends that could have been present before the project and then continue through it. Naturally, any data collected as a result of the project itself, can only be produced from the beginning of data collection by systems implemented by the project.

The evaluation team does not know the data structures that are available for specific data types. In the plan below, the team presents the structure that would be preferred, if possible. Other structures may be capable of delivering the same or similar insights and these structures can be discussed with the PSTA team. The evaluation team has specified the ideal structure where possible in the sections that follow. Further detail will be produced in subsequent discussions.

Table 4 summarizes the data types, data elements, collection periods, collection responsibility and mechanisms, and hypothesis alignment for the PSTA Sandbox project evaluation. The table is followed by a more detailed data collection and analysis plan for each evaluation hypothesis.

Table 4. Data Type, Data Elements, Period of Collection, Collection Responsibility and Mechanisms, and Hypothesis Alignment for PSTA Sandbox Project Evaluation

Data Type	Data Elements	Period and Frequency of Data Collection	Hypothesis Alignment
Survey Data	*Before-After* survey questions addressing: ● Demographics and socioeconomics ● Vehicle ownership ● Individual travel patterns ● Travel needs and mobility before P4-MOD ● Travel needs and mobility after P4-MOD ● Location of home and work ● Impacts of P4-MOD on travel behavior, mobility, and accessibility ● Transit ridership and broader mode split of travel ● Recent paratransit trip attributes and alternative modes of travel ● Perceptions of mobility and accessibility ● Satisfaction with the P4-MOD system ● Travel costs ● Impact on quality of life ● Ease of payments and using E-wallet ● Trip purpose of most recent trip ● Perception of first-mile and last-mile access, wait times, and travel times ● Disability status *Recent Trip* survey addressing: ● The mode that would have been used in the absence of P4-MOD ● Trip purpose	● The Before survey will be staggered, sent to users as they are added to the program but before their first trip using the new system ● The After survey will ideally be implemented after the majority of users have used the new system for six months or more ● The Recent Trip survey will be sent after each trip	1.a., 2, 4, 5, 7, 9, 10

Data Type	Data Elements	Period and Frequency of Data Collection	Hypothesis Alignment
	Previous travel surveys conducted by PSTA (if relevant and available) mainly to capture trip purpose (baseline)		
Travel Activity Data of Users and Participating Mobility Suppliers	● De-Identified Passenger ID ● Provider ID ● Vehicle ID ● Requested passenger origin ● Requested passenger destination ● Timestamp of passenger request ● Location of driver acceptance ● Timestamp of driver acceptance ● Fetch distance ● Timestamp of passenger pickup ● Location of passenger pickup ● Timestamp of passenger dropoff ● Location of passenger dropoff ● Passenger trip distance ● Trip cost to passenger ● Trip cost to agency (may be $0) ● Passenger with a disability requiring WAV (yes/no) [WAV requested] ● WAV sufficient to provide service (yes/no/NA) ● Cancelled (yes/no) ● Timestamp of cancellation ● Who cancelled (passenger/driver/system) ● Written reason for cancellation ● Never accepted (yes/no) ● Vehicle ID (separate table) ● Vehicle make (separate table) ● Vehicle model (separate table) ● Vehicle year (if available) (separate table) ● WAV (yes/no) (separate table)	The data collection period would cover activity from 2015 to the end of the evaluation period	1.a.b., 4, 6, 8, 11, 12

Data Type	Data Elements	Period and Frequency of Data Collection	Hypothesis Alignment
Ridership Data	● Daily ridership data by operator (paratransit) within the PSTA system. (*Data at a greater disaggregation; i.e., data that describes the details of the rides, such as origins, destinations, time of trip, cost would be great*)	Ridership data is requested from 2015 to the end of the evaluation period	1.a.
Paratransit Operating Expenses	Costs (preferably by month and by categorical type) associated with paratransit to PSTA and any subsidies that PSTA provides to other MOD operators to complete the project, including: ● labor ● operations ● capital ● administrative ● overhead costs ● subsidy payments	Agency cost data is requested from 2015 to the end of the evaluation period	3
Payment Data (E-wallet and cash)	Daily aggregates of E-wallet transactions and cash payments from participating operators	The data collection period for the E-wallet and cash payment data is requested from 2015 to the end of the evaluation period	7
Stakeholder Interview Data	Qualitative documentation from stakeholder interviews	The data collection for stakeholder interviews should occur at least six months after the launch of the demonstration, but it may be conducted later, as long as it is within a maximum of two months after the end of the demonstration period.	13

Detailed Data Collection and Analysis Plan by Evaluation Hypothesis

Hypothesis 1.a.: Users of the PSTA system report that they have greater mobility with the new system

Performance Metric: Ordinal scale response to mobility questions (compare Before and After survey), System activity data (frequency of use by user and location) before and after new system deployment

Data Types:

Survey of System Users: The survey of system users will be implemented in collaboration with PSTA. The survey will probe users about the impacts of the P4-MOD system on traveler behavior. There survey will follow a Before-After design as described in Table 4. The Before and After survey will ask similar questions about user:

- Demographics and socioeconomics
- Vehicle Ownership
- Individual travel patterns
- Travel Needs and Mobility before P4-MOD
- Travel Needs and Mobility after P4-MOD
- Location of Home and Work
- Impacts of P4-MOD on travel behavior, mobility, and accessibility
- Transit ridership and broader mode split of travel
- Recent paratransit trip attributes and alternative modes of travel
- Perceptions of mobility and accessibility
- Satisfaction with the P4-MOD system
- Travel Costs
- Impact on Quality of Life
- Ease of Payments and using E-wallet
- Trip purpose of most recent trip
- Perception of first-mile and last-mile access, wait times, and travel times
- Disability Status

The Recent Trip survey will probe users directly after trips to gain a more direct measure of mode shift as a result of the system. The Recent Trip survey will include 1 to 2 questions and asks only about 1) the mode that would have been used in the absence of P4-MOD, and possibly 2) trip purpose. De-IDs are used to produce backwards links to other data. The Recent Trip survey can be a useful supplement to the broader Before and After surveys.

Activity Data of System (paratransit and transit ridership): System activity data in this case is paratransit and transit ridership data. The evaluation team can work with this in multiple forms. The specific objective of this hypothesis is to evaluate whether mobility is increased in the form of increased paratransit and transit ridership. Daily ridership data by route and operator (paratransit) within the PSTA system would be requested. Data at greater disaggregation is also fine, and even preferred if it is available. Data that describes the details of the rides, such as origins, destinations, time of trip, cost, etc

is welcome. Trip routes are too detailed and not needed, but basic attributes of the trip, that can be summed up to ridership would be useful.

Data Collection Period:

The period of data collection will be from the start to the end of the project evaluation period for the survey. The survey will be implemented in accordance with the project timeline. The Before survey will be staggered, sent to users as they are added to the program but before their first trip using the new system. The After survey will ideally be implemented after the majority of users have used the new system for six months or more. The Recent Trip survey will be sent after each trip. The precise timeline is naturally dictated by the pace of the project and in coordination with the project team.

The ridership data is requested from 2015 to the end of the evaluation period.

Analysis Procedure:

The evaluation of this hypothesis will focus on survey responses, which will probe the degree to which the P4-MOD system impacted their mobility. Specific questions will evaluate perceptions of mobility and the attributional impact of the P4-MOD system on it.

The ridership data will be evaluated for trends over time. Trends will be evaluated to ascertain whether changes in ridership of the system (or of subcomponents of it) experienced substantive changes in ridership as a result of system launch and operation.

Hypothesis 1.b.: The number of rides rises as a result of the project

Performance Metric: Number of trips before and after implementation

Data Types:

Travel Activity Data of Users and Participating Mobility Suppliers: Travel activity data of participating mobility suppliers would consist of available data from the Goin' platform describing the travel behavior of users of the system. The data structure that has been developed by the IE and project team is structured as follows:

- De-Identified Passenger ID
- Provider ID
- Vehicle ID
- Requested Passenger Origin
- Requested Passenger Destination
- Timestamp of Passenger Request
- Location of Driver Acceptance
- Timestamp of Driver Acceptance
- Fetch Distance
- Timestamp of Passenger Pickup
- Location of Passenger Pickup
- Timestamp of Passenger Dropoff
- Location of Passenger Dropoff
- Passenger Trip Distance

- Trip Cost to Passenger
- Trip Cost to Agency (may be $0)
- Passenger With a Disability Requiring WAV (yes/no) [WAV requested]
- WAV Sufficient to Provide Service (yes/no/NA)
- Cancelled (yes/no)
- Timestamp of Cancellation
- Who Cancelled (passenger/driver/system)
- Written Reason for Cancellation
- Never Accepted (yes/no)

In a separate table that links to the activity data, we have the vehicle information:

- Vehicle ID
- Vehicle Make
- Vehicle Model
- Vehicle Year (if available)
- WAV (yes/no).

Data Collection Period:

The data collection period would cover activity from 2015 to the end of the evaluation period. The historical data prior to project implementation will likely have a different data structure since the Goin' platform was not used. In this case, the IE team will work with the project team to get disaggregated historical data that follows this structure as closely as possible. Depending on the data availability, certain before and after comparisons may not be possible.

Analysis Procedure:

The analysis of this hypothesis will simply evaluate the trends in trips of mobility providers to determine whether the number of rides increased as a result of the project. Where possible, the analysis will evaluate if trips by individuals increased and/or whether the number of overall users increased. Data is requested well before the start of the project to ascertain whether trends exhibit a change as a result of the project or whether they are simply a continuation of previous trends.

Hypothesis 2: Users of the PSTA system report that they are more satisfied with the new system

Performance Metric: Ordinal scale response to satisfaction questions (compare Before and After survey)

Data Types:

Survey of System Users: The survey will be implemented as described in Hypothesis 1.a.

Data Collection Period:

The data collection period of the survey is as described in Hypothesis 1.a.

Analysis Procedure:

The survey will contain questions that probe user satisfaction with the P4-MOD system. The survey will contain questions that assess satisfaction with mobility overall, and will have questions that ascertain whether the system caused increased satisfaction with their mobility. Results will be disaggregated by demographics and general location of home.

Hypothesis 3: Calculated or projected spending on paratransit declines by the end of the project.

Performance Metric: Paratransit operating expenses before and after deployment

Data Types:

Paratransit Operating Expenses Before and After Deployment: Operating expenses consist of all costs associated with paratransit to PSTA as well as any subsidies that PSTA provides to other MOD operators to complete the project. For example, this would include labor, operations, capital, administrative, and overhead costs as well as any subsidy payments. Other relevant categories can be considered within these if they are relevant. The preferred structure of the cost data is to define costs by month and by categorical type. The evaluation team can aggregate disaggregate data as long as it is comprehensive to agency costs.

Data Collection Period:

The cost is requested from the beginning of 2015 to the end of the evaluation period.

Analysis Procedure:

The analysis will evaluate whether the calculated costs to PSTA declined by the end of the project. The analysis will evaluate different categories of costs to make this determination. Some costs, such as capital costs, overhead, and even labor may be insensitive to the outcome of the project. The project will evaluate cost trends by categories to ascertain whether a cost reduction likely resulted from the project.

Hypothesis 4: Wait times decline for users

Performance Metric: Measured wait times, wait times reported in surveys (compare Before and After survey)

Data Types:

Records of Dispatch Times And Pick Up Times: This data can be derived from activity data defined in Hypothesis 1.b.

Origin and Destination Data: This data can be derived from activity data defined in Hypothesis 1.b.

Survey of System Users: The survey will be implemented as described in Hypothesis 1.a.

Data Collection Period:

- The data collection period for the time and location data is as defined in Hypothesis 1.b.
- The data collection period of the survey is as described in Hypothesis 1.a.

Analysis Procedure:

The analysis procedure will calculate the average wait times across services over time. The average wait times will be statistically compared over periods defining before and after the launch of the P4-MOD system. The analysis will determine if wait times are statistically different, and whether those differences amount to a decline in average wait times. The analysis will consider the evaluation of longitudinally calculated wait times of individuals and specific locations to control for confounding factors such as location diversity and individual vehicular needs that may vary across the population. This analysis will be supplemented by a comparison of the wait times reported by users from the Before and After surveys.

Hypothesis 5: The quality of life will be improved due to the new system.

Performance Metric: Ordinal scale response to quality of life questions (compare Before and After survey)

Data Types:

Survey of System Users: The survey will be implemented as it is described in Hypothesis 1.a.

Data Collection Period:

The data collection period of the survey will be as described in Hypothesis 1.a.

Analysis Procedure:

Questions will be included in the survey that evaluates respondent quality of life (QoL). The questions will explore the current satisfaction of the respondent with quality of life and evaluate whether the respondent feels the output of the project has improved their overall quality of life.

Hypothesis 6: Travel times decline or do not change

Performance Metric: Measured travel times

Data Types:

Records of Dispatch Times and Pick Up Times: This data can be derived from activity data defined in Hypothesis 1.b.

Origin and Destination Data: This data can be derived from activity data defined in Hypothesis 1.b.

Data Collection Period:

The data collection period for the time and location data is as defined in Hypothesis 1.b.

Analysis Procedure:

The analysis is as defined in Hypothesis 4, but with an analysis of measured travel times instead of wait times.

Hypothesis 7: E-wallet payments for paratransit improve the ease of paying for paratransit

Performance Metric: Ordinal scale response to ease of payment questions (compare Before and After survey), Payment collected via E-wallet and cash over time

Data Types:

Survey of System Users: The survey will be implemented as it is described in Hypothesis 1.a.

E-wallet and Cash Payments: E-wallet and cash payment data comprises aggregate records of E-wallet and cash payment transactions with participating operators. The evaluation team would like daily aggregates of E-wallet transactions and cash payments, to evaluate the degree to which transactions shift from one form to another.

Data Collection Period:

- The data collection period for the survey will be as described in Hypothesis 1.a.
- The data collection period for the E-wallet and cash payment data is requested from 2015 to the end of the evaluation period.

Analysis Procedure:

The survey will ask questions of respondents about their use of e-wallet payments versus cash to pay for paratransit trips. The survey questions will probe experience and the ease of use that the e-wallet may enable. The survey will probe preferences regarding payments and whether e-wallet payments improve the ease of paying for paratransit.

The payment data requested will be used to evaluate the trends in payment types over time. If the balance of payments (percentage) shifts towards e-wallet payments over the course of the project, this would be taken as an indicator that e-wallet payments are considered an improvement over cash payments.

Hypothesis 8: The spatial diversity of locations to which users travel increases

Performance Metric: Spatial distribution of destinations traveled by users

Data Types:

Origin And Destination Data Before And After System Deployment: This data can be derived from activity data defined in Hypothesis 1.b.

Data Collection Period:

The data collection period for the O/D data would be consistent with that defined in Hypothesis 1.b.

Analysis Procedure:

The analysis of the spread of destinations will use the locations of the destinations as points on a Euclidean plane. The spatial spread will be calculated using spatial statistics with QGIS and/or ArcGIS. These statistics will be calculated over time to evaluate whether the spread of locations accessed by users increased with the performance of the project.

Hypothesis 9: The accessibility and mobility of persons using wheelchairs improves

Performance Metric: Ordinal scale response to accessibility and mobility questions among persons using wheelchairs (compare Before and After survey)

Data Types:

Survey of System Users: The survey will be implemented as described in Hypothesis 1.a.

Data Collection Period:

The data collection period of the survey is as described in Hypothesis 1.a.

Analysis Procedure:

The analysis of this hypothesis will evaluate the response to the survey questions. Respondents will be identified as wheelchair users, and the questions probing perception of change in accessibility and mobility will be evaluated.

Hypothesis 10: The trip purpose of system users is diversified to include a greater number of trip purposes than before the system implementation (people do more diverse things with new mobility)

Performance Metric: Count of trip purposes across the population

Data Types:

Survey of System Users: This survey is as described in Hypothesis 1.a. The recent trip survey would be particularly useful for evaluating this hypothesis, because it would obtain a large set of trip purposes.

Previous Travel Surveys Conducted by PSTA (if relevant and available): The evaluation team does not have a readily apparent way to capture trip purposes of paratransit travelers before the

implementation of the project. However, if previous surveys conducted by PSTA are available and have trip purpose information, they could be effective in generating a baseline distribution of trip purposes.

Data Collection Period:

The data collection period will generally align with that described in Hypothesis 1.a.

Analysis Procedure:

The analysis of trip purposes will evaluate the distribution of trip purpose as reported by the survey respondents. The recent trip survey will provide the best data for evaluating trip purposes and any change in distribution over time. The analysis will look to pre-existing data, such as previous travel surveys or travel diaries to establish a baseline for trip purposes prior to the implementation of the P4-MOD system.

Hypothesis 11: The spread of travel times increases as a result of the system

Performance Metric: Distribution of travel times

Data Types:

Activity Data of System: The activity data is defined as a subset of that described in Hypothesis 1.b. The data point of interest is the start time of travel. This is travel time that captures the hour in which the trip began.

Data Collection Period:

The data collection period is consistent with that defined in Hypothesis 1.b.

Analysis Procedure:

The analysis of the spread of travel times will evaluate the variance of travel times (start time) in the data over time. That is, the travel start times have a variance and this variance may change over time. The trend or comparison of this variance will be explored over the period of collected data.

Hypothesis 12: Service to passengers with disabilities is equivalent to that provided to passengers without disabilities

Performance Metric: Measured response and travel times among persons with and without disabilities, fare payment collected by persons with and without disabilities, number of WAV trip requests, number of trips provided with WAV

Data Types:

Travel Activity Data of Users: This travel activity data is as specified in Hypothesis 1.b. The subset of parameters needed is defined by the performance metrics listed above, which are included in the structure defined in Hypothesis 1.b.

However, this data will require activity beyond paratransit passengers. Taxi and TNC data would need to cover non-paratransit riders within the Hypothesis 1.b. dataset.

Data Collection Period:

The data collection period is as specified in Hypothesis 1.b.

Analysis Procedure:

The analysis of this hypothesis will compute the metrics defined above for travelers with and without reported disabilities. The comparison of metrics between the two populations will also consider co-located travelers that have similar origins and destinations. Comparative statistics will be computed for average response time, travel time, fare, number of WAV trip requests and trips provided by WAVs. The analysis will evaluate the magnitude of difference in these metrics between the disabled and non-disabled population using transportation services by the operators.

Hypothesis 13: The project produces a series of lessons learned that will be documented through expert interviews with project stakeholders.

Performance Metric: Qualitative documentation from stakeholder interviews

Data Types:

Expert Interviews, which Will Include the Evaluation of Operational Components: This data is qualitative in nature. The Project Team will identify members that can be available to interview with the Evaluation Team. The Project Team should specify a minimum of three people with enough knowledge on the project to talk candidly about its successes and challenges. The Evaluation Team will interview these candidates to understand the lessons learned from project implementation.

Data Collection Period:

The data collection for stakeholder interviews should occur at least six months after the launch of the demonstration, but it may be conducted later, as long as it is within a maximum of two months after the end of the demonstration period.

Analysis Procedure:

An expert interview protocol will be developed. The interviews will be conducted and synthesized from notes and recordings into a summary describing key insights from experts directly involved in the project.

Appendix A. Before-After Survey

This section presents the finalized Before survey, which will be distributed to those who use paratransit via the PSTA. The After survey will contain similar questions, with the noted addition of causality questions that ask respondents to attribute any changes to the new P4-MOD system. The Before survey will be staggered, sent to users as they are added to the program but before their first trip using the new system. The After survey will ideally be implemented after the majority of users have used the new system for six months or more. Project partners provided substantial input on the Before survey content and design and will also do so for the development of the After survey. It is intended that questions will be supported by activity data provided by participating operators.

The Recent Trip survey is presented following the Before survey.

Before Survey

Note: Branching and skip logic are used, so not everyone will see every question or every option

1. Including yourself, how many people live in your current household?
    - 1
    - 2
    - 3
    - 4
    - 5
    - 6
    - More than 6

>>>>>>>>>>>>>>>>>>>>>>>>**Branch Rule: HOUSEHOLD**>>>>>>>>>>>>>>>>>>**START**

IF (Response > 1) THEN NEXT

>>>

2. How would you describe the other people in your current household? (e.g., if you live with your mother, select "Parent/Guardian(s)").

    Please check all that apply.
    - Parent/Guardian(s)
    - Other Relatives (e.g., siblings, etc.)
    - Friends/Roommates/Group Home/Facility
    - Partner/Significant Other/Spouse
    - Children (who are under your guardianship)

>>>>>>>>>>>>>>>**Branch Rule: HOUSEHOLD**>>>>>>>>>>>>>>>**END**

Now, we will ask you about how you've traveled in the Pinellas County and Tampa region over the past 12 months.

3. Which of the following modes of transportation have you used in the **Pinellas County and Tampa region during the last 12 months**?

   Please check all that apply.

   NOTE: This question defines the universe modes that get used by the respondent. From here, the number of modes that they see reduces to only those relevant as questions proceed.

   - o Drive alone
   - o Drive/Ride with family/friend (non-commute)
   - o Carpool or Vanpool (for commuting)
   - o Walk (to a destination)
   - o Bicycle
   - o Public Bus/Trolley
   - o Private Pay Wheelchair Service
   - o PSTA DART Services - ADA Paratransit (e.g., Care Ride)
   - o PSTA Transportation Disadvantaged (TD) Services (Late Shift, Urgent Day)
   - o PSTA Direct Connect
   - o Uber/Lyft
   - o Taxi
   - o Water Taxi or Ferry
   - o Motorcycle or Scooter
   - o Employer provided transportation (for commuting)
   - o Car Rental within the Pinellas County and Tampa region
   - o Other, please specify: _____

4. Please indicate how frequently you **currently** use the following modes**.**

	Not available to me or not in my area	Never in the last year	Once a year	Once every 6 months	Once a month	Twice a month	1 to 3 times per week	4 to 6 times per week	7 to 13 times per week	2 to 4 times per day	More than 4 times per day
<Mode that was selected in Q4>											
<Mode that was selected in Q4>											
<….>											

5. Have you used PSTA DART Services - ADA Paratransit (e.g., Care Ride) in **Pinellas County during the last 12 months**?
    - Yes
    - No

6. Please indicate how frequently you **currently** use PSTA DART Services - ADA Paratransit (e.g., Care Ride).
    - Once a year
    - Once every 6 months
    - Once a month
    - Twice a month
    - 1 to 3 times per week
    - 4 to 6 times per week
    - 7 to 13 times per week
    - 2 to 4 times per day
    - More than 4 times per day

>>>>>>>>>>>>>>>>> Branch Rule: USES PARATRANSIT SERVICES >>>>>>>>>>>>START

IF (Person uses DART paratransit services in the Pinellas County)

**>>>>>>>>>>>>>>>>

"Never" is selected by default, if you do not use this service for a particular trip purpose, just skip it.

	Never in the last year	Once a year	Once every 6 months	Once a month	Twice a month	1 to 3 times per week	4 to 6 times per week	7 to 13 times per week	2 to 4 times per day	More than 4 times per day
Get to/from a restaurant/bar	☒									
Go to/from other social/recreational activities (not a restaurant/bar)	☒									
Commute to/from work	☒									
Commute to/from school	☒									
Go to/from public transit	☒									
Go to/from work-related meetings during the day	☒									
Go to/from grocery shopping	☒									
Go to/from other shopping (non-groceries)	☒									
Run non-shopping errands	☒									
Go to/from healthcare services	☒									
Go to/from airport	☒									
Go to/from gym	☒									
Go to/from place of worship	☒									
Transport pets	☒									
Other, please specify: _____	☒									

When using this service, on average, about how long do you wait for the vehicle? This is the time that passes between your scheduled pickup time (the beginning of your 30-minute pickup window) and when the vehicle actually departs.

<Can be drop down menu>

- The vehicle arrives before my scheduled pickup time
- The vehicle is always there exactly at my scheduled pickup time
- 30 seconds or less
- 1 minute
- 2 minutes
- 3 minutes
- 4 minutes
- 5 minutes
- 6 minutes
- 7 minutes
- 8 minutes
- 9 minutes
- 10 minutes
- 11 minutes
- 12 minutes
- 13 minutes
- 14 minutes
- 15 minutes
- 16 minutes
- 17 minutes
- 18 minutes
- 19 minutes
- 20 minutes
- 21 minutes
- 22 minutes
- 23 minutes
- 24 minutes
- 25 minutes
- 26 minutes
- 27 minutes
- 28 minutes
- 29 minutes
- 30 minutes
- More than 30 minutes
- I don't know

8. When using this service, on average, about how long does it take to get to your destination? This is the time spent in the vehicle.

   <Can be drop down menu>

   - Less than 5 minutes
   - 5 minutes
   - 10 minutes
   - 15 minutes

- 20 minutes
- 25 minutes
- 30 minutes
- 35 minutes
- 40 minutes
- 45 minutes
- 50 minutes
- 55 minutes
- 60 minutes
- 1 hour and 5 minutes
- 1 hour and 10 minutes
- 1 hour and 15 minutes
- 1 hour and 20 minutes
- 1 hour and 25 minutes
- 1 hour and 30 minutes
- 1 hour and 35 minutes
- 1 hour and 40 minutes
- 1 hour and 45 minutes
- 1 hour and 50 minutes
- 1 hour and 55 minutes
- 2 hours
- More than 2 hours
- I don't know

Now think about your **most recent trip** when you last used PSTA DART Services - ADA Paratransit (e.g., Care Ride). If there was an associated return trip using the same service, please restrict your answers to the initial trip (non-return trip). We will ask about the return trip in a different section of this survey.

9. What was the **origin** of this trip?

   Please indicate two streets that cross near this location, and the city.

   City: _____
   Street #1: _____
   Street #2: _____

10. What was the **destination** of this trip?

    Please indicate two streets that cross near this location, and the city.

    City: _____
    Street #1: _____
    Street #2: _____

11. What was the purpose of this trip?
    - Get to/from a restaurant/bar
    - Go to/from other social/recreational activities (not a restaurant/bar)
    - Commute to/from work
    - Commute to/from school
    - Go to/from public transit

- Go to/from work-related meetings during the day
- Go to/from grocery shopping
- Go to/from other shopping (non-groceries)
- Run non-shopping errands
- Go to/from healthcare services
- Go to/from the airport
- Go to/from the gym
- Go to/from place of worship
- Transport pets
- Other, please specify: _____

12. What day was this trip?
    - Monday
    - Tuesday
    - Wednesday
    - Thursday
    - Friday
    - Saturday
    - Sunday

13. What was your scheduled pickup time (the beginning of your 30-minute pickup window) for this trip? If you do not remember the exact time, please approximate to the best of your ability.

    Hour: _____
    Minute: _____
    AM/PM: _____

14. At what time did the vehicle actually depart (from your origin)? If you do not remember the exact time, please approximate to the best of your ability.

    Hour: _____
    Minute: _____
    AM/PM: _____

15. About how long did it take to get to your destination? This is the time that was spent in the vehicle.

    <Can be drop down menu>

    - Less than 5 minutes
    - 5 minutes
    - 10 minutes
    - 15 minutes
    - 20 minutes
    - 25 minutes
    - 30 minutes
    - 35 minutes
    - 40 minutes
    - 45 minutes
    - 50 minutes
    - 55 minutes

- 60 minutes
- 1 hour and 5 minutes
- 1 hour and 10 minutes
- 1 hour and 15 minutes
- 1 hour and 20 minutes
- 1 hour and 25 minutes
- 1 hour and 30 minutes
- 1 hour and 35 minutes
- 1 hour and 40 minutes
- 1 hour and 45 minutes
- 1 hour and 50 minutes
- 1 hour and 55 minutes
- 2 hours
- More than 2 hours
- I don't know

16. Was there an associated return trip using the same paratransit service? This would only include a trip that was booked at the same time as the initial trip (even if the pickup time was not yet known).
    - Yes
    - No

>>>>>>>>>>>>>>>> Branch Rule: RETURN TRIP >>>>>>>>>>>>START

IF (Person had a return trip)
**>>>>>>>>>>>>>>>

- 20 minutes
- 25 minutes
- 30 minutes
- 35 minutes
- 40 minutes
- 45 minutes
- 50 minutes
- 55 minutes
- 60 minutes or more
- I don't know

>>>>>>>>>>>>>>>**Branch Rule: LATER THAN DESIRED** >>>>>>>>>>>>>>>**END**

>>>>>>>>>>>>>>>**Branch Rule: RETURN TRIP** >>>>>>>>>>>>>>>**END**

18. How did you pay for this trip?
    - Cash
    - DART ticket
    - I don't know/someone else paid
    - Other, please specify: _____
19. If PSTA's DART Services - ADA Paratransit had not been available, then how would you have made the trip otherwise?
    - I would not have made the trip
    - Private pay customer using Care Ride
    - Private pay customer using Wheelchair Transport
    - Private pay customer using another paratransit service, please specify: _____
    - Non-private pay customer using another paratransit service, please specify: ____
    - I would have driven all the way
    - Public bus
    - Ride from friend or family
    - Uber/Lyft
    - Taxi
    - Bicycle
    - Walk
    - Other, please specify: _____

>>>>>>>>>>>>>>>**Branch Rule: USES PARATRANSIT SERVICES**>>>>>>>>>>>>>>>**END**

20. Currently, how would you characterize your travel needs (even those that are not being met)?

    Please check all activities that impose significant travel needs on your monthly activity.
    - Commuting to work or school
    - Socializing with friends
    - Shopping for food
    - Taking kids to and from school and activities
    - Shopping for other things
    - Going on recreational trips

- Physical exercise
- Going to medical appointments
- Going to places of worship
- Other, please specify:_____

21. Currently, how would you rate your quality of life? Please rate on a scale of 1 to 10, where 10 is Excellent, and 1 is Very Poor.
    - 1 (Very Poor)
    - 2
    - 3
    - 4
    - 5
    - 6
    - 7
    - 8
    - 9
    - 10 (Excellent)

22. Overall, how easily are you able to get around? This question refers to your access and use of personal, private, and public transportation services, **not** your physical capabilities.

    Overall, I currently consider myself to be…
    - Very mobile
    - Somewhat mobile
    - Not very mobile
    - Not mobile at all

23. Overall, do you consider your wait times to be acceptable? This question refers to the average time you wait for vehicles to pick you up. Please rate on a scale of 1 to 10, where 10 is Excellent, and 1 is Unacceptable.

    Overall, I currently consider my wait times to be…
    - 1 (Unacceptable)
    - 2
    - 3
    - 4
    - 5 (Acceptable)
    - 6
    - 7
    - 8
    - 9
    - 10 (Excellent)
    - Not applicable

24. Overall, do you consider your travel times to be acceptable? This question refers to the average time you spend traveling in vehicles. Please rate on a scale of 1 to 10, where 10 is Excellent, and 1 is Unacceptable.

    Overall, I currently consider my travel times to be…
    - 1 (Unacceptable)
    - 2

- 3
- 4
- 5 (Acceptable)
- 6
- 7
- 8
- 9
- 10 (Excellent)

25. Currently, how would you rate your ability to access desired areas and locations within the Pinellas County and Tampa region? Please rate on a scale of 1 to 10, where 10 is Excellent access, and 1 is Very Poor access.

    - 1 (Very Poor)
    - 2
    - 3
    - 4
    - 5
    - 6
    - 7
    - 8
    - 9
    - 10 (Excellent)

26. Currently, how would you rate your ability to access desired areas and locations **specifically using PSTA services**? Please rate on a scale of 1 to 10, where 10 is Excellent access, and 1 is Very Poor access.
    - 1 (Very Poor)
    - 2
    - 3
    - 4
    - 5
    - 6
    - 7
    - 8
    - 9
    - 10 (Excellent)
    - I don't know

27. Currently, how would you rate the process of **scheduling** trips using PSTA DART Services - ADA Paratransit (e.g., Care Ride)? Please rate on a scale of 1 to 10, where 10 is Excellent, and 1 is Very Poor.
    - 1 (Very Poor)
    - 2
    - 3
    - 4
    - 5
    - 6
    - 7
    - 8
    - 9
    - 10 (Excellent)

- I don't know

28. Currently, how would you rate the process of **paying** for PSTA DART Services - ADA Paratransit (e.g., Care Ride)? Please rate on a scale of 1 to 10, where 10 is Excellent, and 1 is Very Poor.
    - 1 (Very Poor)
    - 2
    - 3
    - 4
    - 5
    - 6
    - 7
    - 8
    - 9
    - 10 (Excellent)
    - I don't know

29. Currently, how **satisfied** are you with PSTA DART Services - ADA Paratransit (e.g., Care Ride)? Please rate on a scale of 1 to 10, where 10 is Highly Satisfied, and 1 is Not Satisfied At All.
    - 1 (Not Satisfied At All)
    - 2
    - 3
    - 4
    - 5
    - 6
    - 7
    - 8
    - 9
    - 10 (Highly Satisfied)
    - I don't know

Now, we will ask you questions about your demographic profile.

30. What is your gender?
    - Male
    - Female
    - Other, please specify: _____
    - Prefer not to answer

31. In what year were you born?

    Drop-down <years>

32. Do you use a wheelchair?
    - Yes
    - No

33. Do you have other disabilities that require specialized accommodations for transportation?
    - Yes
    - No

34. Do you require transportation vehicles and infrastructure that are ADA compliant (wheelchair or scooter accessible) to get around?

- Yes
- No

35. What is the highest level of education you have completed?
    - Less than high school
    - Currently in high school
    - High school/GED
    - Currently in 2-year college
    - 2-year college degree
    - Currently in 4-year college
    - 4-year college degree
    - Currently in post-graduate program
    - Post-graduate degree (MA, MS, PhD, MD, JD, etc.)
    - Other, please specify: _____
    - Prefer not to answer

36. What is your race or ethnicity?

    Please check all that apply.
    - African American
    - American Indian or Alaskan Native
    - Asian
    - Caucasian/White
    - Hispanic or Latino
    - Middle-Eastern
    - Native Hawaiian or Pacific Islander
    - South Asian (e.g., Indian, Pakistani, etc.)
    - Southeast Asian
    - Other, please specify: _____
    - Prefer not to answer

37. Approximately what was **< your/your household >** gross (pre-tax) income last year?
    - Less than $10,000
    - $10,000 to $14,999
    - $15,000 to $24,999
    - $25,000 to $34,999
    - $35,000 to $49,999
    - $50,000 to $74,999
    - $75,000 to $99,999
    - $100,000 to $149,999
    - $150,000 to $199,999
    - $200,000 or more
    - Prefer not to answer

38. What is your employment status?

    Please check all that apply.

    - o Employed full-time
    - o Employed part-time
    - o Student
    - o Stay-at-home parent
    - o Unemployed, active job seeker
    - o Unemployed, not currently seeking a job
    - o Retired

>>>>>>>>>>>>>>>Branch Rule: WORKS>>>>>>>>>>>>>>>START

IF (Person is working full or part-time)

**>>>>>>>>>>>>>>>

Appendix B. Recent Trip Survey

The recent trip survey is a simple survey that asks two or three questions about the recent trip. It asks about mode shift and trip purpose. The recent trip survey is valuable because it captures high resolution mode shift, ideally tied to a specific trip. The recent trip survey will be sent to users after each trip. The questions asked would appear roughly as follows:

Draft Survey

1. If PSTA's DART Services - ADA Paratransit had not been available, then how would you have made the trip otherwise?
    - I would not have made the trip
    - Private pay customer using Care Ride
    - Private pay customer using Wheelchair Transport
    - Private pay customer using another paratransit service, please specify: _____
    - Non-private pay customer using another paratransit service, please specify: ____
    - I would have driven all the way
    - Public bus
    - Ride from friend or family
    - Uber/Lyft
    - Taxi
    - Bicycle
    - Walk
    - Other, please specify:_____

2. What was the purpose of this trip?
    - Get to/from a restaurant/bar
    - Go to/from other social/recreational activities (not a restaurant/bar)
    - Commute to/from work
    - Commute to/from school
    - Go to/from public transit
    - Go to/from work-related meetings during the day
    - Go to/from grocery shopping
    - Go to/from other shopping (non-groceries)
    - Run non-shopping errands
    - Go to/from healthcare services
    - Go to/from the airport
    - Go to/from the gym
    - Go to/from place of worship
    - Transport pets
    - Other, please specify: _____

Addendum. Documentation of Evaluation Plan Variance Following Demonstration Deployment

The evaluation plans for the MOD Sandbox Demonstration projects were developed in the planning phase of the project, prior to the execution of the demonstration. As part of this process, data structures and data availability were anticipated. As project implementation proceeded, certain elements of the project and data availability changed.

This addendum presents differences between the planned and executed analyses for the independent evaluation of the PSTA Public-Private-Partnership for Paratransit project. Due to changes to pilot operations, data availability issues, and other unforeseen circumstances, some of the hypotheses proposed as part of the original scope of work were modified or their analyses were adjusted to better encompass these changes. In this addendum, changes that were made to each hypothesis (if any) and the key reasons why study methods may have differed from what was planned are identified and discussed. Many hypotheses and their proposed analytical approaches did not change significantly or at all. In these cases, it is noted that there were no differences between the proposed and executed analyses.

Hypothesis 1 (a):	Users of the PSTA system report that they have greater mobility with the new system.

Proposed analysis: The analysis outlined in the evaluation plan proposed analyzing survey responses that evaluate perceptions of mobility and the attributional impact of the PSTA MOD system on it. The planned analysis also proposed analyzing historical paratransit ridership data and PSTA MOD ridership data to evaluate any significant changes in ridership resulting from system launch and operation.

Executed analysis: User ratings of general mobility within Pinellas County from before survey data and user perceptions of mobility after using PSTA MOD from after survey data were analyzed to evaluate the effect of the new system on mobility. The executed analysis did not analyze the change in general paratransit ridership as a result of introducing the PSTA MOD system due to the lack of historical paratransit ridership data. Instead, the analysis evaluated changes in PSTA MOD ridership and user activity throughout the duration of the pilot.

Hypothesis 1 (b):	The number of rides rises as a result of the project.

Proposed analysis: The analysis outlined in the evaluation plan proposed analyzing historical paratransit ridership data and PSTA MOD ridership data to evaluate whether the number of rides or overall users changed as a result of the pilot or whether they were simply a continuation of previous trends.

Executed analysis: Due to the lack of historical paratransit ridership data, the executed analysis did not analyze the change in the overall number of rides or users as a result of introducing the PSTA MOD system. Instead, the analysis evaluated changes in PSTA MOD ridership and user activity throughout the duration of the pilot and analyzed after survey responses to evaluate the effect of the pilot on the number of trips taken by users.

Hypothesis 2:	Users of the PSTA system report that they are more satisfied with the new system.

There were no differences between the proposed and executed analyses for Hypothesis 2. Before and after survey questions gauged user ratings of mobility and their satisfaction with paratransit services before and after the pilot. Results were disaggregated by gender to evaluate any correlations.

Hypothesis 3:	Calculated or projected spending on paratransit declines by the end of the project.

Proposed analysis: The analysis outlined in the evaluation plan proposed analyzing paratransit operating expenses before and after the pilot, using historical paratransit data and PSTA MOD data, to evaluate trends by cost categories and whether a cost reduction resulted from the pilot.

Executed analysis: Due to the lack of detailed historical paratransit cost data and the lack of PSTA MOD cost data in specific, the executed analysis did not analyze the change in operating expenses as a result of introducing the PSTA MOD system. Instead, the analysis evaluated trends in different paratransit operation metrics, including operating expenses, for systemwide paratransit services from 2015 to 2019.

Hypothesis 4:	Wait times decline for users.

Proposed analysis: The analysis outlined in the evaluation plan proposed analyzing historical paratransit wait time data and PSTA MOD wait time data to evaluate any significant declines in wait times as a result of system launch and operation. The planned analysis also proposed analyzing survey responses that evaluate perceptions and estimations of wait times and the attributional impact of the PSTA MOD system on them.

Executed analysis: The executed analysis did not analyze the change in wait times as a result of introducing the PSTA MOD system due to the lack of historical paratransit wait time data. Instead, the analysis evaluated distributions of wait times for the PSTA MOD system over the duration of the pilot. Also, the analysis studied before and after survey responses of user estimations, ratings, and perceptions of wait times to evaluate the effect of the new system on them.

Hypothesis 5: The quality of life will be improved due to the new system.

There were no differences between the proposed and executed analyses for Hypothesis 5. Before and after survey questions gauged user ratings and perceptions of quality of life before and after the pilot.

Hypothesis 6: Travel times decline or do not change.

Proposed analysis: Similar to Hypothesis 4, the analysis outlined in the evaluation plan proposed analyzing historical paratransit travel time data and PSTA MOD travel time data to evaluate any significant declines in travel times as a result of system launch and operation. The planned analysis also proposed analyzing survey responses that evaluate perceptions and estimations of travel times and the attributional impact of the PSTA MOD system on them.

Executed analysis: The executed analysis did not analyze the change in travel times as a result of introducing the PSTA MOD system due to the lack of historical paratransit travel time data. Instead, the analysis evaluated distributions of travel times for the PSTA MOD system over the duration of the pilot. Also, the analysis studied before and after survey responses of user estimations, ratings, and perceptions of travel times to evaluate the effect of the new system on them.

Hypothesis 7: E-wallet payments for paratransit improve the ease of paying for paratransit.

Proposed analysis: The analysis outlined in the evaluation plan proposed analyzing survey responses that evaluate perceptions of paratransit payment processes in general and e-wallet payments in specific and the attributional impact of the PSTA MOD system on the payment process. The planned analysis also proposed analyzing paratransit e-wallet and cash payment data before and after the pilot, using historical paratransit data and PSTA MOD data, to evaluate trends by payment type and whether e-wallet payments improved the ease of paying for paratransit.

Executed analysis: User ratings of the payment process for paratransit from before survey data and user perceptions of e-wallet payments using PSTA MOD from after survey data were analyzed to evaluate the effect of the new system on the ease of paying for paratransit. The executed analysis did not analyze the trends in payment types over time due to the lack of paratransit e-wallet and cash payment data.

Hypothesis 8: The spatial diversity of locations to which users travel increases.

There were no differences between the proposed and executed analyses for Hypothesis 8. PSTA MOD trip activity data was used to calculate spatial statistics and evaluate whether the spread of locations accessed by users increased throughout the pilot. The after survey questions also gauged user perceptions of traveled distances as a result of using the PSTA MOD system.

Hypothesis 9:	The accessibility and mobility of persons using wheelchairs improves.

There were no differences between the proposed and executed analyses for Hypothesis 9. Before and after survey questions gauged wheelchair user ratings and perceptions of accessibility and mobility before and after the pilot.

Hypothesis 10:	The trip purpose of system users is diversified to include a greater number of trip purposes than before the system implementation.

Proposed analysis: The analysis outlined in the evaluation plan proposed analyzing survey responses that evaluate the distributions of paratransit trip purposes before and after the implementation of the PSTA MOD system. Also, the planned analysis proposed analyzing historical data, if available, such as previous travel surveys or travel diaries to establish a baseline for trip purposes before the pilot.

Executed analysis: There were no significant differences between the proposed and executed analyses for Hypothesis 10. Before and after survey questions gauged user trip purposes and travel needs before and after the pilot. However, the analysis did not analyze historical data such as previous travel surveys or travel diaries due to the lack of any.

Hypothesis 11:	The spread of travel times increases as a result of the system.

Proposed analysis: The analysis outlined in the evaluation plan proposed analyzing historical paratransit travel start time data and PSTA MOD travel start time data to evaluate the variance of travel start times as a result of system launch and operation.

Executed analysis: The executed analysis did not analyze the variance in travel start times as proposed due to the lack of historical paratransit travel activity data. Instead, the analysis compared distributions of travel start times reported in the before survey and available in the PSTA MOD travel activity data. The analysis also studied after survey responses of user perceptions of the flexibility of departure using the PSTA MOD system.

Hypothesis 12:	Service to passengers with disabilities is equivalent to that provided to passengers without disabilities.

Rather than strictly defining “equivalence” of service between those who require the use of a Wheelchair Accessible Vehicle (WAV) and those who do not, an analysis of the wait and travel times experienced by those using WAVs, compared to those traveling in standard vehicles was presented.

Hypothesis 13:	Lessons from project implementation can inform future project and system designs and implementation.

There were no differences between the proposed and executed analyses for Hypothesis 13. Expert (stakeholder / project partners) interviews were conducted and summarized to describe key insights about the pilot.

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