City of Columbus

Solicitation Number: RFQ010584

Request for Proposals for

Prenatal Trip Assistance Platform and Transportation Management

Smart Columbus

Capital Improvements Project No: 530163-100018

Version Dated: October 10, 2018

Response Due Date and Time:

Wednesday, November 7, 2018

1:00 P.M., Eastern Time

Submit Electronic Proposal Package to:

DPSRFP@columbus.gov

PROPOSAL SIGNATURE FORM

This page, signed by an officer of the offering firm or a designated agent empowered to bind that entity in a contract with Smart Columbus, should accompany each proposal submitted for consideration.

I, the undersigned, having carefully examined the Request for Proposals (RFP), propose to furnish services in accordance therewith as set forth in the attached proposal.

I hereby certify that, to the best of my knowledge, this submission is complete and all statements made therein are true and accurate.

I also affirm I am duly authorized to sign and submit this response on behalf of the Offeror named below.

I further acknowledge that by signing this form I am representing that, in the event this proposal is accepted, the Offeror is willing and able to execute a contract in the form shown in the RFP, with the understanding that the scope and compensation provisions will be negotiated and included in the final contract.

By my signature below, I attest that I have read, understand and agree to the terms, conditions and requirements set forth in the RFP, including, but not limited to: Smart Columbus' standard contract terms and conditions and any special terms and conditions incorporated in the solicitation documents.

Failure to sign and return this form may result in the rejection of the accompanying proposal.

OFFEROR INFORMATION:

OFFEROR (Company Name):

_____

ADDRESS:

_____

CITY, STATE, ZIP:

_____

PHONE: _____ EMAIL: _____

AUTHORIZATION TO PROPOSE:

_____ _____

Signature (Manually signed in ink) Date

_____ _____

Printed Name Title

CERTIFICATIONS AND REPRESENTATIONS

(GRANT FUNDS)

1. BYRD ANTI-LOBBYING AMENDMENT COMPLIANCE AND CERTIFICATION

For all orders above the limit prescribed in 2 CFR 215, Appendix A, Section 7 (currently $100,000), the Offeror must complete and sign the following:

The following certification and disclosure regarding payments to influence certain federal transactions are made per the provisions contained in OMB Circular A-110 and 31 U.S.C. 1352, the "Byrd Anti-Lobbying Amendment."

The Offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that:

No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement;

If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer of employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the Offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

He or she will include the language of this certification in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of $100,000 shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance is placed when this transaction was made or entered into. Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person making an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than $10,000, and not more than $100,000, for each such failure.

SIGNATURE: _____

COMPANY NAME:_____

DATE: _____

TERMS AND CONDITIONS FOR OFFEROR

INFORMATION FOR OFFEROR

SUBMISSION OF PROPOSAL

Proposals must be submitted according to this proposal form.

ACCEPTANCE AND REJECTION

This proposal submitted by the Offeror to the City of Columbus will be accepted or rejected within a period of 180 days from proposal due date. The City reserves the right to waive technicalities, and to request new proposals (rebid) on the required material. Each invitation for Bids, Request for Statements of Qualifications, and Request for Proposals issued by the City shall state that the Bid or Request may be cancelled and that any bid or proposal may be rejected in whole or in part when it is for good cause and in the best interests of the City.

WITHDRAWAL OF PROPOSALS

Offerors may withdraw their proposals at any time prior to the time specified in the advertisement as the closing time for the receipt of proposals. However, no Offeror shall withdraw or cancel his/her proposal for a period of 180 calendar days after said advertised closing time for the receipt of proposals.

STATE EXECUTIVE ORDERS AND DIRECTIVES ON OFFSHORE OUTSOURCING

Offeror will comply with all applicable state executive orders or directives governing offshore outsourcing, including Ohio Executive Order 2011-12K, "Governing the Expenditure of Public Funds for Offshore Services (the “Outsourcing Orders”).

APPLICABLE LAWS

The Revised Code of the State of Ohio, the Charter of the City of Columbus, and all City ordinances insofar as they apply to the laws of competitive bidding, contracts, and purchases, are made a part hereof.

CONTRACT

The Offeror to whom an award is made will be required to execute a written contract with the Managed Care Organizations (MCOs) within forty-five days after receiving such contract for execution.

LIABILITY, INSURANCE, LICENSES AND PERMITS

Where Offerors are required to enter or go onto City of Columbus or MCO property to deliver materials or perform work or services as a result of bid award, the Offeror will assume full duty, obligation and expense of obtaining all necessary licenses, permits, and insurance when required. The Offeror shall be liable for any damages or loss to the City and MCOs occasioned by negligence of the Offeror (or his or her agent) or any person the Offeror has designated in the completion of this contract as a result of his bid. Particular attention is directed to the statutory requirements of the State of Ohio relative to the licensing of corporation organized under the Laws of any other State.

TAXES

Federal and/or State Taxes are not to be included in prices quoted. The successful Offeror will be furnished an exemption certificate if needed.

CHANGES AND ADDENDA TO PROPOSAL DOCUMENTS

Questions as to the interpretation of the Request for Proposal shall be submitted in writing to the Office of Support Services at capitalprojects@columbus.gov. In order to receive consideration, questions must be received by the question cut-off date as indicated in the advertisement. Any interpretations of questions so raised, which in the opinion of the City or its representative require interpretations, will be issued by addenda posted on the City’s Consultant Services web site. The City or its representative will not be bound by any oral interpretations which are not reduced to writing and included in the addenda.

CAMPAIGN CONTRIBUTIONS

Offeror hereby certifies the following: that it is familiar with Ohio Revised Code (“O.R.C.”) Section 3517.13; that it is in compliance with Divisions (I) and (J) of that Section; that it is eligible for this contract under the law and will remain in compliance with O.R.C. Section 3517.13 for the duration of this contract and for one year thereafter.

IN THE EVENT OF A CONTRACT

An agreement which may result from this proposal shall not be modified or altered by any subsequent course of performance between parties or by additional terms contained in any subsequent documents unless said additional or differing terms are incorporated by contract modification authorized to be entered into by ordinance.

REMEDIES

All claims, counterclaims, disputes and other matters in question between the MCO, its agents and employees, and the Offeror arising out of or relating to this agreement or its breach will be decided in a court of competent jurisdiction within the County of Franklin, State of Ohio.

CONTRACT COMPLIANCE

The City of Columbus and MCOs encourage the participation of City certified minority, female, and veteran owned business enterprises*.

All Offerors shall identify all subconsultant(s) who will perform any type of contracting on this proposal(s). All Offerors shall include in their proposal response the anticipated scope of work and percentage of work that will be performed by all Sub-Consultant(s), along with their contract compliance number(s).

All Offerors, including subconsultants, who are party to a contract as defined in Columbus City Code 3901.01, must hold valid contract compliance certification numbers.

*While the participation and or partnering of City certified minority and female owned businesses is encouraged the level of minority and female participation will not be a condition of the bid award.

ADDITIONAL CONTRACT TERMS AND REQUIRED DOCUMENTS IN THE EVENT OF A CONTRACT

This section sets forth contract terms and the required contract documents that the successful Offeror must execute following the award of the contract by the contracting authority.

SAVE HARMLESS

The Offeror shall protect, indemnify and save the City and MCOs harmless from and against any damage, cost, or liability, including reasonable attorneys' fees resulting from claim, by third parties for any or all injuries to persons or damage to property arising from the intentional, willful, or negligent acts or omissions of the Offeror, its officers, employees, agents, or Subconsultants in providing goods or services under the terms and conditions of this contract.

SAVE HARMLESS DISCLOSURE OF PROPRIETARY INFORMATION

The Offeror agrees to indemnify and hold harmless the MCOs and City of Columbus, Ohio and their respective officials, employees and other agents and representatives, against loss, claim, liability in tort or by statute imposed, charge, cost or expense, including without limitation, attorneys' fees to the extent permitted; by law, which may be incurred in connection with, or in any manner of any damage or loss arising from disclosure of proprietary information.

CONFIDENTIAL INFORMATION

The director of the agency requesting proposals may choose to keep RFP information in confidence during the evaluation process and until the time a contract is executed. This information may include all proposal documentation, notes, including detailed prices, references, resumes, technical and cost information, etc. Thereafter, proposals and all submissions will become public information, as the City is subject to R.C. 149.43, the Public Records Act.

OFFEROR'S PROPRIETARY INFORMATION

The Consultant acknowledges that the City is subject to chapter R.C.149.43, the State of Ohio Public Records Law. The City agrees to keep any information confidential except as otherwise required to be disclosed by law including but not limited to the contract.

INDEPENDENT CONSULTANT STATUS

The Offeror shall perform its duties as an independent consultant and not as an employee. Neither the Offeror nor any agent or employee of the Offeror shall be or shall be deemed to be an agent or employee of the City of Columbus or MCOs. The Offeror shall pay when due all required employment taxes and income tax on any monies paid pursuant to the contract. The Offeror shall acknowledge that the Offeror and its employees are not entitled to unemployment insurance benefits unless the Offeror or a third party provides such coverage and that the City does not apply for or otherwise provide such coverage. The Offeror shall have no authorization, express or implied, to bind the City or MCOs to any agreements, liability, or understanding except as expressly set forth in the contract. The Offeror shall provide and keep in force worker's compensation (and show proof of such insurance) and unemployment compensation insurance in the amounts required by law, and shall be solely responsible for the acts of the Offeror, its employees and agents.

PROTECTION OF CITY'S AND MCOs' CONFIDENTIAL INFORMATION

The Offeror shall acknowledge that some of the material and information which may come into its possession or knowledge in connection with the contract or its performance, may consist of confidential information, the disclosure of which to, or use by, third parties could be damaging. Therefore, access to information concerning individual recipients of the City's and MCOs' services to individual clients,

among other items, shall not be granted except as authorized by law or agency rule. The Offeror shall agree to hold all such information in strictest confidence, not to make use thereof for other than the performance of the contract, to release it only to authorized employees or subconsultants requiring such information, and not to release or disclose it to any other party. The Offeror shall agree to release such information or material only to subconsultants who have signed a written agreement expressly prohibiting disclosure. The Offeror shall further agree to either destroy or return all such information at the end of the term of the contract.

This section does not impose any obligation on the Offeror if the information is: (1) publicly known at the time of disclosure; (2) already known to the receiving party at the time it is furnished to the Offeror; (3) furnished by the City or MCOs to others without restrictions on its use or disclosure; or (4) independently developed by the receiving party without use of the proprietary information.

HIPAA PRIVACY

Offeror will comply with all applicable privacy Laws in performing the Services, including without limitation, HIPAA. Until such time as Offeror is a "covered entity" under HIPAA, the parties acknowledge and agree that Offeror will not electronically transmit individually identifiable health information in connection with any standard "transaction" (as defined under HIPAA) under this Agreement. Offeror hereby certifies, by its signature on this Agreement, that it does not engage in offshore subcontracting that involves receiving, processing, transferring, handling, storing, or accessing Protected Health Information.

CONTRACT PROVISIONS FOR NON-FEDERAL ENTITY CONTRACTS UNDER FEDERAL AWARDS

In addition to other provisions required by the Federal agency or non-Federal entity, all contracts made by the non-Federal entity under the Federal award must contain provisions covering the following, as stated in 2 CFR 200 Appendix II:

(G) Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended–Contracts and subgrants of amounts in excess of $150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended Act (33 U.S.C. 1251-1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

(H) Mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6201).

(J) Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)–Contractors that apply or bid for an award of $100,000 or more must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

1. Project Information

1.1 Project Name:

Smart Columbus – **Prenatal Trip Assistance**

Capital Improvement **Project No: 530163-100015**

1.2 Project Overview

The City of Columbus (City) is seeking to acquire and implement a web and smartphone based software application from qualified Offerors for the City's Prenatal Trip Assistance (PTA) project. The PTA will be used to facilitate Non-Emergency Medical Transportation (NEMT) trips for expectant mothers enrolled in Medicaid from eight high risk neighborhoods designated by the Mayor's infant mortality reduction initiative, CelebrateOne. These trips will connect the pregnant women with prenatal and post-partum care appointments and accommodate additional needed stops/trips during the pilot as requested (other medical appointments, pharmacy, grocery store, etc.).

Figure 1: CelebrateOne Neighborhoods and their respective zip codes:

- South Side (43206, 43207)
- Linden (43211)
- Near East (43203, 43205)
- Hilltop (43204)
- Franklinton (43222, 43223)
- Morse/161 (43224, 43229)
- Southeast (43227, 43232)
- Northeast (43219)

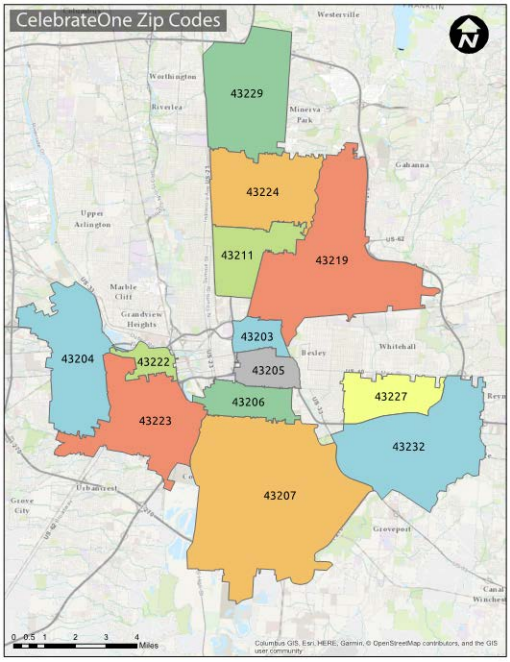


Figure 1: CelebrateOne Neighborhoods

2. Background, Goals, and Scope

In June 2016, the City of Columbus, Ohio won the United States Department of Transportation (USDOT) Smart City Challenge. With this funding, Columbus intends to address the most pressing community-centric transportation problems by integrating an ecosystem of advanced and innovative technologies, applications, and services to bridge the sociotechnical gap and meet the needs of residents of all ages and abilities. Columbus is acting as a laboratory for Intelligent Transportation Systems (ITS) and disseminating lessons learned and best practices to cities across the United States in an effort known as Smart Columbus. The goal of the Smart Columbus program is to connect people by creating opportunity for city residents to better access jobs and services while improving the overall safety and efficiency of the transportation network.

The PTA project recognizes transportation as a need in today's society to ensure a healthy population, especially when it comes to more vulnerable populations. There are a number of factors that can influence someone's health such as clinical care, health behaviors, and social, economic, and physical environment. Transportation is a piece of a complete puzzle that can influence the rates of infant mortality. From 2013-2015, Ohio's infant mortality rate was 7.13 deaths per 1,000 live births; nationally, the rate was 5.9 deaths per 1,000 live births[1]; and in Franklin County, the rate was 7.7 deaths per 1,000 live births in 2015[2]. From October 1, 2016 to September 30, 2017, the infant mortality rate in Franklin County was 8.6 deaths per 1,000 live births[3]. These statistics have drawn the attention of the City of Columbus leadership and they are focused on making changes that are necessary to impact this issue.

The PTA project is seeking a vendor to take the existing, mainly call center based NEMT services delivered by Medicaid Managed Care Organizations (MCOs) today and update the processes and delivery to be more accessible and easy to use through web and smartphone applications as well as a call center. Its purpose is to provide transportation services to pregnant women (travelers), and it will accomplish this by leveraging a blend of resources including a smartphone application, web interface, application programming interface (API) to the Smart Columbus Operating System (OS) and data from external providers such as MCOs and transportation brokers (TBs). PTA will take in requests to schedule NEMT trips through a smartphone application, web portal or call center. The TB and NEMT mobility provider will process reservation information to render services.

The PTA system will provide the main user experience and interface for travelers, MCOs, medical offices, and mobility providers. It will also connect to the OS via an API to provide current and historical non-PII information pertaining to individual trips. The PTA will also provide data identified in Appendix A for the Ohio Department of Medicaid (ODM), MCOs and others involved in tracking prenatal care of Columbus Medicaid recipients.

The Offeror will be expected to provide both technology and transportation (NEMT) services as outlined in Appendix A. The PTA project is expected to enhance usability, safety, communication, customer service and mobility for travelers who use NEMT provided through Medicaid benefits.

The City of Columbus does not provide NEMT services but has created a partnership with two MCOs, Molina Healthcare of Ohio, Inc. and CareSource, to provide this pilot to their qualified members. The MCOs will contract directly with the Offeror. The City of Columbus and the MCOs have also been working with ODM on this project to ensure compliance with Ohio law. The Ohio State University (OSU) is another partner who will be point on the project from a study and data basis. OSU has developed the pilot study protocol attached herein as Appendix B. The City of Columbus, MCOs, ODM and OSU are all concerned about preterm birth, one of infant mortality's main indicators, and are interested in studying whether a technologically advanced, on-demand NEMT service can affect the number of prenatal appointments attended, raising the level of prenatal care which is known to decrease the likelihood of preterm birth. Preterm birth is described as a baby born earlier than 37 weeks gestational age. Information about the current state of NEMT services and participant usage of NEMT services can be found in Appendix C, Concept of Operations for the Prenatal Trip Assistance Project for the Smart Columbus Demonstration Program.

[1] *Centers for Disease Control and Prevention's National Center for Health Statistics, 2013-2015 Data,* NCHS Data Brief No. 295, January 2018

[2] Columbus Public Health VitalView (2015)

[3] https://www.odh.ohio.gov/-/media/ODH/ASSETS/Files/cfhs/OEI/Quarterly-Scorecard/201709/Appendix-A-Ohio-Regional-Scorecards-and-Definitions-201709.pdf?la=en

The PTA has four main goals with respect to positive societal outcomes that tie back to the original intent of the Smart City Challenge:

- Enhanced Mobility
- Increased Opportunity
- Improved Efficiency
- Increased Customer Satisfaction

These goals were developed through collaboration with stakeholders and address the unique needs of the Columbus region. A description of each of the goals is provided below.

Goal #1: Enhanced Mobility

Enhanced mobility within the context of the Smart Columbus program means providing citizens with improved access to transportation services, which in turn leads to an improved quality of life and access to economic and educational opportunities. Within the context of the PTA, enhanced mobility means providing travelers with convenient and reliable scheduling and transportation services.

Goal #2: Increased Opportunity

Providing opportunities for improved access to transportation is of vital importance to Smart Columbus and the PTA project. This goal aims to increase access for underserved communities to transportation solutions focused on increasing access to healthcare. Opportunity is created with the implementation of services that connect people with healthcare and improved quality of life. The PTA will create opportunity by addressing barriers to NEMT that travelers face when using systems that are not technologically advanced or designed to be on-demand.

Goal #3: Improved Efficiency

Smart Columbus will improve the ability of government, transportation, and healthcare to provide services to citizens through integration with PTA. This will allow easier access to real-time data, streamline internal processes to improve communications and information sharing and make internal agency operations more efficient. Agency efficiency includes strategies to enhance agency coordination including improved inter-agency sharing of information and resources to reduce operating costs and/or enhance productivity. Another efficiency will be the reduction of manual processes currently being provided by the Transportation Brokers (TBs). This could free employees to focus on important data collection and analysis.

Goal #4: Increased Customer Satisfaction

Smart Columbus will only be successful if it provides services that are useful, easy to use and embraced by the community. Smart Columbus will improve the user experience for travelers scheduling NEMT trips by allowing same day, on-demand services to and from their medical providers, multiple reminders of their trip pick-up information and access to schedule trips through multiple platforms. By implementing advanced technologies, such as providing fast access to vehicles with same day service for more efficient routing through PTA, the application and services supplied by the pilot will meet or surpass a user's expectation.

3. Objectives

The results of this project will be used to achieve the following overall objectives:

- Facilitate improved access to NEMT trip scheduling
- Increase usage of the NEMT benefits which can indicate increased usage of necessary medical care
- Increase customer satisfaction with NEMT service delivery
- Decrease the number of pre-term (<37 weeks) births
- Examine rates of infant mortality
- Examine adequacy of prenatal care as measured by the Kotelchuck Index

4. Procurement Schedule

RFP Sequence of Events	
Date of Advertisement - RFP/Bid Issued	October 10, 2018
Pre-Proposal Meeting	October 17, 2018
Proposal Inquiry Period Ends	October 29, 2018
Proposals Due/Opened	November 7, 2018
City Council Legislation	December 2018
Notice to Proceed	January 2019

- **RFP Pre-Proposal Meeting**: October 17, 2018 from 1:00 PM – 3:00 PM

  Location: Smart Columbus Experience Center,

  170 S. Civic Center Dr., Columbus, OH 43215

  Webex information:

  Join Webex meeting
  number (access code): 734 871 808
  Meeting password: WArRNZ5i

  Join by phone
  1-650-479-3207 Call-in toll number (US/Canada)

5. Proposal Submittal Instructions

5.1 Proposals shall be submitted as a PDF document online via Bonfire until 1:00 PM Eastern Time on November 7, 2018. Proposals received after this date and time shall be rejected by the City.

5.2 Submit Electronic Proposal Package to:
https://columbus.bonfirehub.com/projects/

5.3 Electronic Submittals:

5.3.1 Proposals shall be submitted as a PDF document. The maximum file size is 100 MB. Please do not embed any documents within the uploaded file as such documents will not be accessible or evaluated. Proposals must be uploaded, submitted, and finalized prior to the Closing Time of 1:00 PM Eastern Time on November 7, 2018. The City strongly encourages

Offerors to allow sufficient time and at least one (1) day before the Closing Time to begin the upload process and to finalize their submissions.

5.3.1.1 Important Notes Regarding Submissions: Proposals will only be visible and accessible to the Department or evaluators after the Closing Time.

5.3.1.2 Uploading large documents may take significant time, depending on the size of the file(s) and Offerors' internet connection speed.

5.3.1.3 Offerors will receive an email confirmation with a unique confirmation number once they finalize their submissions. The date/time stamp on the email confirmation constitutes the official date/time of receipt. Offerors are solely responsible for ensuring their proposals have been successfully uploaded and received by Bonfire before the Closing Time specified in the RFP. Responses cannot be uploaded to Bonfire after the Closing Time specified in the RFP, and any in process uploads cannot be finalized once the Closing Time has been reached.

5.3.1.4 The City cannot see any uploads into Bonfire prior to the Closing Time specified in the RFP. The City is unable to tell you if your upload was successful until after the Closing Time specified in the RFP. However, successful submissions will receive an email as described in 5.3.1.3.

5.3.1.5 Minimum system requirements: Internet Explorer 11, Microsoft Edge, Google Chrome, or Mozilla Firefox. Javascript and browser cookies must be enabled.

5.3.2 **Bonfire Technical Help**

The City of Columbus is using a Bonfire portal for accepting and evaluating proposals digitally. Offerors must contact Bonfire for technical help related to submissions at:

- https://columbus.bonfirehub.com/portal/support
- or Support@GoBonfire.com
- or 1-800-354-8010 (extension 2)

5.4 Questions

Direct questions via e-mail only to:

Contract Manager, **capitalprojects@columbus.gov**

Note: this is a different email address than the email address used to submit requests for proposals.

No contact is to be made with the City other than with the Contract Manager through e-mail with respect to this proposal or its status. The deadline for questions is October 29, 2018. Answers to questions received will be posted on the City's Vendor Services web site no later than November 2, 2018.

5.5 Evaluation

Proposals will be evaluated based on the enclosed selection criteria and in accordance with Columbus City Code, title 3, Section 329. Please be advised that proposals submitted to the City are subject to applicable Federal, State, and local public information disclosure regulations. Requests to view a proposal will be arranged upon receipt by the City of a written request for such; therefore, any proposal may be subject to viewing by the public.

PUBLIC RECORDS REQUESTS

The City of Columbus, as a political subdivision of the State of Ohio, is subject to Ohio Revised Code Chapter 149, known as the Ohio Public Records Law. Consequently, the Offeror understands that ALL documents submitted in response to this RFP are considered public records and WILL be released when a public records request is made by news media, competitors, or other interested parties, in accordance with the law. If you contend that certain CLEARLY MARKED portions of your response constitute an exception to Ohio's public records law, you MUST submit your legal basis in support of that assertion with your response.

If a public records request is made for any portion of the documents that you have submitted and you have NOT clearly marked such documents as information constituting an exception to Ohio's public records law, your information will be released immediately.

If a public records request is made for such information and you HAVE clearly marked portions of your response as information constituting an exception to Ohio's public records law, AND you have submitted the legal basis supporting such claim, the City will release a redacted version of your information to the requestor and notify you that a request was made and that a redacted version of your response was released. Should the requestor indicate that the redacted version is not sufficient for their purposes, you then will be IMMEDIATELY responsible for obtaining an order from a Court of competent jurisdiction in Franklin County, Ohio enjoining release of your clearly marked information constituting an exception to Ohio's public records law.

If a public records request is made for such information and you HAVE clearly marked portions of your response as information constituting an exception to Ohio's public records law, but you have NOT submitted the legal basis supporting such claim, the City WILL RELEASE your information to the requestor and notify you that a request was made and that your response was released.

DO NOT mark your entire response/submittal as information constituting an exception to Ohio's public records law. If your entire response/submittal is so marked, the City of Columbus will not consider your offer.

5.6 Proposal Format

5.6.1 Proposals may not exceed thirty (30) letter-size (8.5" x 11") pages and shall include the information specified in 5.7, 5.8 and Appendix A.

5.6.2 Complete the required Proposal Signature Form. That document shall be signed by a person authorized to obligate the Offeror's firm and included as the front page of the Offeror's proposal. This does not count towards the 30-page limit described in section 5.6.1.

5.6.3 Page numbers must be centered at the bottom of each page.

5.6.4 Font must be 12 pt., Times New Roman or Arial.

5.6.5 Cover letters are not required. If submitted, a cover letter will count against the 30-page limit of the proposal.

5.7 Proposal Content

5.7.1 The Offeror shall limit the proposal to no more than 30 total pages of information (e.g. text, graphics, etc.). A 'page' is one side of a sheet of paper with text, graphics, etc. If only one side of a sheet of paper has text, graphics, etc., then that is one page. If both sides of a sheet of paper have text, that is two pages. The proposal shall include the Proposal Signature Form, which is not counted in the 30-page limit. Proposals exceeding the 30-page limit will be rejected.

5.7.2 Proposals must address each of the following subjects in the order specified below, using the headings provided. These elements correspond to the evaluation criteria noted in Section 5.8. Note that page breaks are not required between sections; however, section tab dividers will not be counted against the page total unless they contain text other than that necessary to identify the section. Failure to provide the information requested may result in the proposal being rejected.

Section A. Past Performance

Address past experience with the topics discussed in Section 5.8.1.

Section B. Solution, Understanding of the Project/Project Approach

Address understanding of the topics and provide technical capabilities related to the areas discussed in Section 5.8.2. through Section 5.8.5, and Appendix A.

Section C. Pricing

Provide cost break outs and base and billable hourly rates for each role proposed. Include licensing costs and new releases options as discussed in Section 5.8.6.

5.8 Evaluation Criteria:

Each proposal will be evaluated using the same criteria and associated point value as identified below. The maximum value that can be assigned to a proposal response is 130 points. The proposal responses will be reviewed by a committee comprised of the City of Columbus, CelebrateOne, and the MCOs. Resultant scores will be based on the proposal and speaking with references.

5.8.1 **Past Performance (Section Maximum Value 30 Points)**:

Responding Offeror will identify a maximum of three specific projects in its portfolio that best encapsulate the breadth of its capabilities, its ability to deliver the solution on time and its ability to send data to the Operating System. These featured projects will include a point of contact that can be called by the selection team as a reference. As the Offeror responds to the RFP, it should be made clear as to how many implementations have been delivered for each desired functional requirement and if they were stand alone or integrated solutions.

5.8.1.1 Offeror should describe the history of its NEMT offerings. This should include any applications, web portals, and call centers provided and agreements with mobility providers to deliver the solution.

5.8.1.2 Offeror should describe its experiences using the proposed technology with disparate populations.

5.8.2 **Solution, Understanding of Project & Approach (Section Maximum Value 50 Points)**:

5.8.2.1 The PTA pilot program is vital to evaluating how enhanced transportation services can affect birth outcomes. The score will be based on completeness of the responses, alignment with the goals and objectives of the program, and alignment with City and its partners' expectations. Increased value is placed on modern innovative concepts that will lead to an advanced solution capable of remaining viable for an extended time period.

5.8.2.2 When submitting the details of your solution, please respond to the items and address the individual functional requirements defined in Appendix A.

5.8.2.3 The Offeror should identify adherence to the schedule and how it intends to meet the required deliverables and dates to fully deploy the pilot project.

5.8.2.4 Offeror should describe its ability to meet the City's and MCOs' objectives.

5.8.2.5 Offeror should describe the ability to meet the needs of the end user, expectant mothers, as well as those of the MCOs. The MCOs need to adhere to strict medical reporting standards in accordance with ODM.

5.8.2.6 Meet the needs of this vulnerable population: Offeror should describe past experience working with vulnerable populations.

5.8.3 **Product Support and Service Warranty (Section Maximum Value 10 Points):**

5.8.3.1 In the response, the Offeror shall describe its proposed solution for developing an effective product support and service warranty and maintenance plan that utilizes the Offeror's staff or Offeror provided subcontractors, resellers or third-party resources, MCO, OSU, City, and Operating System development team and end-users in an integrated service delivery model.

5.8.3.1.1 The Offeror shall describe its proprietary or commercially-acquired platform for service desk/helpdesk incident submittal, management and reporting.

5.8.3.1.2 The Offeror shall describe its helpdesk availability during normal and extended business hours, and whether the City staff and end-user community will have access to dedicated Offeror support resources when the Offeror's helpdesk is closed, and software or data-related incidents occur.

5.8.3.1.3 The Offeror shall describe how the MCOs will obtain direct access to the Offeror's standard Tier-II or Tier-III resources when needed.

5.8.3.1.4 The Offeror shall describe its targeted response times used in Service Level Agreements and include a description of actual response times. The Offeror shall describe its metrics for tracking response times and problem-resolution completion rates.

5.8.3.1.5 The Offeror shall describe decision criteria used to escalate incidents from support tier to tier.

5.8.4 **Training and End-User Development (Section Maximum Value 10 Points):**

5.8.4.1 Offeror should describe its educational approach for training of MCO, OSU, and City staff responsible for managing the Offeror's proposed solution and for using the Offeror's solution as an end-user.

5.8.5 **Organizational Support for Offeror's Solution (Section Maximum Value 10 Points):**

5.8.5.1 In order to support the Offeror's proposed solution, Offeror should provide an overview of the resources MCOs, OSU, and the City should consider as part of the implementation plan. The MCOs will be the contracting agency with the Offeror. Integration will be necessary, as each MCO will provide a database of pilot participants to the Offeror. OSU will be the lead investigator for the pilot study and lead the design, data collection, research, and evaluation efforts. The City will serve as the project manager and support the MCOs and OSU. The organizational support plan should include the following components:

5.8.5.1.1 Provide an overview of the resources MCOs, OSU, and the City should consider as part of the implementation plan.

5.8.5.1.2 Provide a draft table of the Offeror's organization of staff needed to for the proposed solution.

5.8.5.1.3 Provide a job description for each position within the draft table of organization that identifies the roles and responsibilities.

5.8.6 **Price (Section Maximum Value 20 Points):**

5.8.6.1 MCOs and the City will negotiate scope and price with the Offeror prior to contract execution. The MCOs will have the ability to modify the Offeror's contract if changes in scope are agreed upon by all parties. The Offeror will provide the fully burdened

hourly rates for each role. This is a requirement for the key roles and all the roles detailed in Exhibit B located in Appendix D. Also include:

5.8.6.1.1 Total cost of solution for duration of pilot (approximately 18 months). Include the following cost breakouts:

5.8.6.1.1.1 Mobile device application development

5.8.6.1.1.2 Call center setup

5.8.6.1.1.3 Web portal development

5.8.6.1.1.4 Transportation network company interface setup

5.8.6.1.1.5 Data provision to the OS and necessary MCO and Medicaid reports

5.8.6.1.2 Training cost and cost per training participant (MCOs, OSU, and City staff/representatives)

5.8.6.1.3 Any one time and ongoing licensing costs

5.8.6.1.4 Any costs for new releases

5.8.6.1.5 Call center cost/call

5.8.6.2 The Offeror needs to provide a transportation cost for ambulatory trips based on the estimated number of trips in Table 1 below. Also, include in the response the fare schedule and any penalties or fees associated with trips and cancellation of trips.

Table 1: Estimated Number of Trips (One-Way)

Number of Members	Medical Appt.*				Pharmacy*	Food	Total* per member	Total Trips
	Prenatal	Postnatal	Wellness for Child	Dentist, Eye doctor, specialist, etc.				
250	24	4	6	18	24	24	100	25,000

*Denote an average number of trips per member

6. Selection Process:

6.1 The Selection Committee shall evaluate the Offerors strictly upon the submitted proposals and interviews of the Offerors' references.

6.2 Each proposal package received shall be evaluated, scored, and ranked according to the criteria described herein and the Selection Committee will make a recommendation to the City's Chief Innovation Officer and the leadership of the MCOs for final determination. Offerors may be interviewed as a part of the process. Once the selection process is completed, the selected Offeror will be contacted by the MCO and Smart Columbus to participate in a meeting to discuss the final scope of services. Contract execution with the MCOs, individually, will follow. If these services are deemed to be delegated, Offeror will also be required to successfully complete a pre-delegation assessment from each MCO as well as obtain insurance coverage as required by each MCO.

Appendix A: Functional Requirements

Refer to Appendix C, the "Concept of Operations for the Prenatal Trip Assistance Project for the Smart Columbus Demonstration Program", for information regarding the current system, its concept, modes of operation, user classes, description of desired changes, and the system's interactions.

1. Description of Proposed System

The PTA system is a technologically advanced and user-friendly solution for prenatal Medicaid members to schedule NEMT trips. Travelers can download and install the PTA from public app stores and begin using it upon registration to plan trips. They will also be able to visit a website or call into a call center to schedule their NEMT trip. MCOs will be the solution integrator so all payment information will be handled between the MCOs and the technology vendor and/or Transportation Broker.

The PTA system will integrate with the Operating System to share trip data.

The PTA System will also communicate with medical offices to share information on the traveler's trip to help minimize scheduling disruptions.

MCO members eligible to participate in the pilot project will meet the following criteria:

- Pregnant women aged 18+ years
- Less than 32 weeks of gestation
- Enrolled in a participating Medicaid managed care plan
- Needs non-emergency medical transportation (NEMT)
- Lives in a CelebrateOne zip code at the time of enrollment
- No plans to move out of Franklin County prior to delivery
- Able to speak and understand English
- Ambulatory [Not confined to a wheelchair (i.e., able to transfer independently in and out of a standard vehicle)]

For additional study information, refer to Appendix B – Research Design.

2. Project Deliverables

2.1 During the build/development phases:

- 2.1.1 Definition of Ready for each stage
- 2.1.2 Definition of Done for each stage
- 2.1.3 Smartphone application
- 2.1.4 Web portal
- 2.1.5 Call center
- 2.1.6 Operational Integration Plan
- 2.1.7 Operating System Interfaces and Reports

2.2 Prior to operational testing period:

- 2.2.1 Test Plan

2.2.2 Training Plan

2.3 Prior to deployment:

2.3.1 Test Report

2.3.2 Communications Plan

2.4 After deployment:

2.4.1 Operations and Maintenance (O&M) Plan

3. Product Delivery

3.1 The City of Columbus will be organizing a weekly Scrum of Scrums stand up meeting involving a participant from each project delivery team. The Offeror shall report to the Smart Columbus Program team during the Scrum of Scrums meeting. In addition, the Offeror shall report to the project team on a weekly basis to provide updates and coordinate appropriately.

3.1.1 The Offeror shall be responsible for determining the impact of its delivery schedule against the Smart Columbus Program delivery schedule.

3.1.2 The Offeror shall be responsible for escalating any issues that the program creates that will impact their delivery.

4. Requirements

The below requirements identify what the Offeror needs to provide. The identifiers in brackets [ ] provide traceability to the user needs contained within the Concept of Operations found in Appendix C.

4.1. System Accessibility [PTA-UN001-v01; PTA-UN002-v01; PTA-UN017-v01]

4.1.1. The Offeror shall offer a free smartphone application that can be downloaded and installed on user personal devices from public app stores. The application shall be available for both Android and iOS systems.

4.1.2. The application and web portal shall include instructions, support, and frequently asked questions to assist travelers in the use of the app. The instructions shall be written at no higher than a fourth-grade reading level.

4.1.3. The Offeror shall provide a web portal for traveler and administrator use.

4.1.4. The Offeror shall provide a call center.

4.2. Scheduling [PTA-UN002-v02, PTA-UN004-v01; PTA-UN005-v01; PTA-UN008-v01; PTA-UN010-v01; PTA-UN011-v01; PTA-UN026-v01]

4.2.1. The PTA system shall provide the ability to schedule, change, and cancel transportation or change personal information using an application, web portal, text messaging, or call center.

4.2.2. The PTA system shall allow users to input origin and destination and a time of departure for the trip reservation. The system shall allow for an originating trip and a return trip to be scheduled.

4.2.3. The PTA interface shall provide scheduling, up to one month in advance, and transportation options for the NEMT trip to and from appointments.

4.2.4. The PTA system shall allow users to input individual trip needs such as car seats, space for temporary wheelchair or additional passengers.

4.2.5. The Offeror shall contact a member's MCO if during the pilot project the member becomes confined to a wheel chair and requires an accessible vehicle. The MCO will provide wheel chair accessible transportation per the MCO's current NEMT services.

4.3. User Interface [PTA-UN003-v01; PTA-UN004-v01; PTA-UN006-v01; PTA-UN007-v01; PTA-UN009-v01; PTA-UN015-v01; PTA-UN023-v01; PTA-UN-033-v01; PTA-UN037-v01]

4.3.1. The PTA interface shall include an interactive map with real-time movement and location of the transportation prior to pick-up and en route to destination.

4.3.2. The interface shall offer a description of the pick-up vehicle, license plate, driver, driver contact number, and company for identification by the traveler.

4.3.3. At a minimum, the system shall provide notifications to the traveler via the traveler's preferred method of communication (text, application notification, email or call) at the following intervals:

4.3.3.1. 48-hour reminder before travel

4.3.3.2. 24-hour reminder before travel

4.3.3.3. 2-hour reminder before travel

4.3.3.4. When driver is on his or her way

4.3.3.5. Notice of driver arrival

4.3.4. The interface shall be easy to use for a population with a reading level no higher than a fourth-grade education and with varying technology understanding.

4.3.5. The interface shall provide multiple language options for travelers. In addition to English, Spanish and Somali shall be provided.

4.3.6. The interface shall have an option for the traveler to provide feedback on how the application is working for users.

4.3.7. The interface shall solicit feedback following the completion of each trip so the traveler can relay her satisfaction with the transportation, driver and the service.

4.3.8. The interface shall provide a selection to indicate that particular feedback is a complaint so that it can be appropriately routed through the MCO.

4.3.9. The interface shall allow the user to select the reason for the trip and any additional stops requested on the way. The allowable trips shall be classified as:

4.3.9.1. Medical appointment

4.3.9.1.1. Prenatal

4.3.9.1.2. Postnatal

4.3.9.1.3. Wellness for Child

4.3.9.1.4. Dentist

4.3.9.1.5. Eye Doctor

4.3.9.1.6. Specialist

4.3.9.1.7. Other (as permitted by the MCO plan)

4.3.9.2. Pharmacy

4.3.9.3. Food Bank

4.3.9.4. Grocery Store

4.3.9.5. Pregnancy support program (ex: Moms2B)

4.3.9.6. Hospital

4.3.10. The user interface shall alert travelers when their scheduled trip is delayed or canceled via the travelers' preferred method of communication.

4.4. Web Portal and Application Preferences [PTA-UN010-v01; PTA-UN014-v01; PTA-UN019-v01]

4.4.1. Traveler account preferences and information shall be updated in the interface.
4.4.2. Previous trip history shall be accessible. The trip history should tabulate the number of trips taken compared to the allotted trips allowed under the traveler's plan.
4.4.3. Prescheduled trips shall be accessible and changes or cancellations to those trips shall be able to be made.
4.4.4. Travelers should be able to set preference to request a car seat(s) in the vehicle. Further, the user should be able to identify if forward-facing or rear-facing is required so the car seats are set up in advance of arrival.

4.5. Call Center [PTA-UN002-v01]

4.5.1. The call center shall allow the traveler to call and schedule, change, and cancel trips or change personal information using a phone.
4.5.2. The call center shall provide assistance with downloading or accessing the user interfaces and answering general questions about the service.
4.5.3. The call center shall provide services to assist hearing impaired travelers.
4.5.4. The call center shall provide services to assist Limited English Proficiency travelers.
4.5.5. The Offeror's staff shall be available to provide assistance to members through the toll-free call-in system every Monday through Friday, at all times during the hours of 7:00 am to 7:00 pm Eastern Standard Time. Transportation services are required for same day appointments or hospital discharge at all times.
4.5.6. The Offeror shall have a process for tracking all member calls and inquiries.
4.5.7. The Offeror shall ensure there is a defined process for escalation of issues.
4.5.8. The Offeror shall ensure there is an exception process for unusual circumstances.
4.5.9. The Offeror shall have a process for verification of member's eligibility.
4.5.10. The Offeror shall have a process to follow-up on all 'no-shows' and missed trips.
4.5.11. The Offeror shall have a policy and procedure for handling and resolving all member complaints.
4.5.12. The Offeror is required to follow MCO's Vendor Complaint, Grievance and Appeal Policy and incorporate it into its process. Please refer to Appendix E.
4.5.13. The call center toll-free number should be mnemonic and easily remembered by members.

4.6. Transportation [PTA-UN019-v01; PTA-UN-036-v01]

4.6.1. Transportation should be accommodating of the following scenarios:
4.6.1.1. Rider and adult or child passenger
4.6.1.2. Rider with children in need of car seats
4.6.2. The Offeror shall be responsible for performing background checks on drivers consistent with MCO requirements, state, and federal laws.
4.6.3. If a Transportation Network Company (TNC) is used for transportation, the Offeror shall comply with Ohio Revised Code (ORC) 4925.
4.6.4. The Offeror should meet a minimum fleet size in the defined service area (i.e. Franklin County) to provide adequate vehicle coverage to travelers.

4.7. NEMT Drivers [PTA-UN039-v01; PTA-UN040-v01; PTA-UN041-v01; PTA-UN042-v01; PTA-UN043-v01]

4.7.1. The Offeror shall provide an application that is easy to use and easy to train the Mobility Providers' drivers on how to use. The smartphone application can be downloaded and installed on user personal devices from public app stores. The application shall be available for both Android and iOS systems.

4.7.2. The driver shall be able to submit feedback and complaints regarding the passenger. This information will be provided to the MCO.
4.7.3. The system shall provide drivers with real-time routing optimization.
4.7.4. The system shall establish communication between the drivers and the traveler via a phone call.
4.7.5. The system shall provide a status update. The status provided should be:
4.7.5.1. Driver On-time
4.7.5.2. Driver Running late
4.7.5.3. Member in the car
4.7.5.4. Member did not show

4.8. Prenatal Trip Assistance System [PTA-UN016-v01; PTA-UN027-v01]

4.8.1. The system should support an open data policy for non-Personally Identifiable Information (PII) and non-Personal Health Information (PHI) data and allow for integration with the MCOs' systems.
4.8.2. The system should allow for expansion to additional mobility providers in the future with minimal impact to the system itself.
4.8.3. The system shall support offline usage by travelers when internet connectivity is temporarily unavailable for an uninterrupted experience.

4.9. Data Requirements [PTA-UN021-v01; PTA-UN022-v01; PTA-UN027-v01; PTA-UN029-v01; PTA-UN030-v01; PTA-UN031-v01; PTA-UN034-v01; PTA-UN038-v01]

4.9.1. The system shall provide the trip data to the Operating System without Personally Identifiable Information (PII) and Personal Health Information (PHI). Trip data includes:
4.9.1.1. Participant Identifier
4.9.1.2. Trip request
4.9.1.2.1. Time
4.9.1.2.2. Origin
4.9.1.2.3. Destination
4.9.1.2.4. Scheduled route
4.9.1.2.5. Added stop
4.9.1.3. Trip start time
4.9.1.4. Mode
4.9.1.5. Special Requests
4.9.1.5.1. ADA
4.9.1.5.2. Car seat(s)
4.9.1.5.3. Additional passenger
4.9.1.5.4. Travel assistance
4.9.1.6. Trip end time
4.9.1.7. Cancelation Reason (if applicable)
4.9.1.8. Customer satisfaction
4.9.1.9. Cost of trip
4.9.1.10. On-time performance

4.9.1.10.1. The system shall be capable of sending a notification to the MCOs should the arrival time exceed the time requirement listed under 4.13.1.2 for logging purposes.

4.9.2. The data shall also record canceled trips.

4.9.3. Data access should be aggregated into varying levels including MCO, City and City partner, and third-party or public user.

4.9.4. The Offeror shall provide Origin and Destination data that is anonymized and compliant with HIPAA standards.

4.9.5. The Offeror shall provide the following app related data:

4.9.5.1. Number of times the app is downloaded.

4.9.5.2. Usability statistics related to the app.

4.9.5.3. Customer complaints related to the app/transportation services

4.9.6. The system shall provide any data requested by the MCOs, including data that contains PII and PHI.

4.9.7. The Offeror shall provide each MCO with a Monthly Report which will detail monthly mobile application, web portal, and call center activities, utilization data, and quality assurance information. Offeror will send each MCO complaints documentation that it became informed of by a participant or transportation provider. Offeror shall report to each MCO all accidents that involve any MCO participant within twenty-four (24) hours of being informed of such an accident, and shall report to each MCO all incidents that involve any MCO member within forty-eight (48) hours of being informed of such incident.

Unless otherwise indicated, all reports shall be electronic and due to each MCO by the tenth (10th) calendar day of the month immediately following the reporting month. The Monthly report shall include the following:

Trip Summary

a. Line of Business (LOB) Summary (i.e. CFC)
    1. Total Number of Trips Requested (added stops are considered separate trips)
    2. Total Number of Trips Cancelled
    3. Total Number of Trips Completed
    4. MCO Members
    5. Unique Users
    6. Percent of Members Utilizing
    7. Trips per User
    8. Utilization Rate

b. Trip Performance
    1. MCO Member No Shows
    2. Provider No Shows
    3. % of Provider No Shows
    4. Total Completed Trips

c. Grievance Summary
    1. Total Substantiated Complaints
    2. Total Unsubstantiated Complaints
    3. Substantiated Complaints/ Trips

d. Summary of Significant Events
    1. Accidents
    2. MCO Member Injuries
    3. MCO Members Injured – Other

e. Transportation Provider Performance

1. On Time
2. Within 15 minutes
3. 15-30 minutes
4. 30+ minutes

f. Utilization by Vehicle Type

1. Taxi
2. TNC
3. Van
4. Bus Pass
5. Mileage Reimbursement

g. Utilization by Distance

1. Less than 5 miles
2. 5 - 9 miles
3. 10 - 19 miles
4. 20 - 29 miles
5. 30+ miles

Call Summary

a. Total Calls Received
b. Total Calls Answered
c. Percent of Calls Abandoned
d. Average Speed of Answer
e. Calls Answered in 30 Seconds
f. Average Call Length
g. Percent of Blocked Calls

Trips over 10 Miles

a. MCO Member ID
b. MCO Member Name
c. Reason, i.e. Medical, Dental, etc.
d. Miles per Trip

Trips Under 10 Miles

a. MCO Member ID
b. MCO Member Name
c. Reason, i.e. Medical, Dental, etc.

MCO Member Complaints

a. Complaint Number
b. MCO Member ID
c. MCO Member Name
d. Trip Number
e. Provider
f. Complaint Date
g. Incident Date
h. Category
i. Type
j. Incident description
k. Resolution description

Ride Log

a. Vendor Name
b. MCO Member ID
c. MCO Member Name
d. Line of Business
e. Call Creation Date
f. Trip Date
g. Confirmation Date
h. Trip Cost
i. Pickup Address
j. Pickup City

k. Pickup County
l. Pickup State
m. Pickup Zip
n. Drop-off Address
o. Drop-off City
p. Drop-off County
q. Drop-off State
r. Drop-off Zip
s. Transportation Provider
t. Trip Leg, e.g. A or B or C
u. Trip Distance
v. Mobility Type
w. Trip Reason
x. Travel Attendants
y. Cancelled? Yes or No
z. Member No Show? Yes or No
aa. Provider No Show? Yes or No
bb. Benefit Limit, e.g. 100
cc. Benefits Used to date
dd. Benefit Increase
ee. Additional Benefits Given
ff. Additional Benefits Used
gg. Name of Additional Benefits Approver
hh. Date of approval
ii. Scheduled Pick-Up Time
jj. Actual Pick-up Time
kk. Appointment Time
ll. Covered Person's Drop Off Time

Subcontractors
a. Provider Name
b. Provider Owner
c. Service Area
d. Vehicle Type

Mystery Ride Results
a. Provider Name
b. Provider Owner
c. Service Area
d. Results

Annual Vendor Provider onsite audits
a. Results of onsite audit

Special Investigative Unit Reporting
a. Utilization spike report by member, transportation provider and region

Continuous Credentialing
a. Monthly report of the sanctions matches and actions taken
1. GSA SAM (monthly)
2. HHS-OIG (monthly)

Other required reports shall include the following:

Subcontractor Changes (within 24 hours of a change)
a. Provider Name
b. Provider Owner
c. Driver Name
d. Driver's License Number
e. Addition/Removal Reason

4.10. Integration [PTA-UN024-v01; PTA-UN025-v01; PTA-UN032-v01]

4.10.1. The system shall integrate with the MCOs participating in the program and their systems to exchange data and check Medicaid eligibility. Medicaid eligibility shall be verified daily and an alert to the traveler shall be provided if eligibility is not verified.

4.10.2. The system shall require the transportation provider to communicate with medical offices via a phone call to notify any changes or delays for the trip. The notification should indicate member canceled transportation appointment, missed the pick-up, or transportation is running late.

4.10.3. The Offeror shall incorporate acceptable destinations for access to food using the following information:

4.10.3.1. Supplemental Nutrition Assistance Program (SNAP) retailers – https://www.fns.usda.gov/snap/retailerlocator

4.10.3.2. Women, Infants, and Children (WIC) authorized retailers list from the Ohio Department of Health

4.10.3.3. Farmer's markets in or near the study area registered in Produce Perks - https://produceperks.org/locations/

4.10.3.4. Food pantry data from the Mid-Ohio Foodbank

4.11. System Design [PTA-018-v01; PTA-v021-v01; PTA-UN029-v01; PTA-UN044-v01; PTA-UN045-v01]

4.11.1. A certification and accreditation provider should assess the quality, security, and openness of the System. Quality is defined as the state of being free from defects, deficiencies, and significant variations, and is achieved through demonstration of the ability to satisfy user needs. Security is defined as the state of being protected against the unauthorized use or loss of information, especially electronic data, and the measures taken to achieve this. Openness refers to the adherence to open standards and design to ensure the System or aspects of the System are beneficial to other cities as part of the Smart Cities initiative.

4.11.2. The system architecture shall allow for additional NEMT providers in the future with minimal impact to the system itself. This includes reducing the need to redesign or rewrite the application code. Any changes shall have no impacts on the PTA pilot or its participants, such as requiring reinstalling the application.

4.12. Outreach and Training [PTA-UN013-v01; PTA-UN035-v01]

4.12.1. The Offeror shall provide any outreach materials for approval by the MCOs and ODM.

4.12.2. The Offeror shall provide training materials for approval by the MCOs and ODM, including:

4.12.2.1. Web portal training

4.12.2.2. Mobile Application training

4.12.2.3. Call center training

4.12.3. The Offeror shall provide in-person training on the proposed system for the MCOs, City, OSU, and CelebrateOne staff.

4.12.3.1. Two (2) training sessions for MCOs, City, OSU, and CelebrateOne.

4.12.3.2. Two (2) "train the trainer" sessions for the CelebrateOne Connector Corps. Each session would have approximately 25 participants. The CelebrateOne Connector Corp will provide one-on-one training to the pilot participants.

4.13. Ohio Department of Medicaid

4.13.1. Per the Ohio Department of Medicaid Ohio Medical Assistance Provider Agreement for Managed Care Plan:

4.13.1.1. The Offeror shall provide transportation to travelers requesting transportation when the traveler shall travel 30 miles or more from her home to receive a medically necessary Medicaid-covered service provided by the MCO pursuant to OAC rule 5160-26-03 and Appendices G and H of the Medical Assistance Provider Agreement. This required transportation may not be counted toward the MCO's transportation benefit trip limit.

4.13.1.2. The Offeror shall ensure transportation pick-up is completed not more than 15 minutes before or 15 minutes after the pre-scheduled pick-up time. Following a scheduled appointment, transportation pick-up shall be completed no more than 30 minutes after a request for pick-up following a scheduled appointment. The Offeror shall contact the traveler if she does not respond at pick-up.

4.13.1.3. The Offeror shall not leave the pick-up location prior to the pre-scheduled pick-up time.

4.13.1.4. The Offeror shall identify and accommodate the special transportation assistance needs of the traveler (e.g. door-to-door assistance, attendant support, traveler-specific timeliness requirements).

4.13.1.5. The Offeror shall follow MCO plans for the provision of transportation services during winter snow and other weather emergencies.

4.13.1.6. The Offeror shall appropriately safeguard all projected health information (PHI) per The Health Insurance Portability and Accountability Act (HIPAA).

4.13.1.7. The Offeror shall comply with any other applicable Federal and State laws regarding privacy and confidentiality, including Title VI of the Civil Rights Act of 1964, and ORC sections 5101.26, 5101.27, and 5160.45 through 5160.481, as applicable.

4.13.1.8. The Offeror shall meet Delegation requirements as set forth by ODM and the MCOs. Refer to the Managed Care Provider Agreement for additional information: http://medicaid.ohio.gov/Portals/0/Providers/ProviderTypes/Managed%20Care/Provider%20Agreements/ManagedCare-PA-201807.pdf

4.13.1.9. The Offeror shall comply with any applicable federal and state laws that pertain to MCO members' rights and ensure that its staff adheres to such laws when furnishing services to MCO members. Offeror shall adhere to applicable federal and state laws when providing services to MCO members.

4.13.1.10. The Offeror shall possess liability insurance in accordance with State requirements.

4.13.1.11. The Offeror shall have a network in place to provide State-compliant access to travelers located within the pilot study area for which the MCOs are delegating transportation.

4.13.1.12. Offeror shall provide data to the MCOs, OSU, and city on a weekly basis for evaluation and reporting purposes to ODM.

4.13.1.13. If the Offeror fails to comply with the transportation requirements, the MCO shall impose a financial sanction of $1,000 per each violation. Refer to the Managed Care Provider Agreement for additional information: http://medicaid.ohio.gov/Portals/0/Providers/ProviderTypes/Managed%20Care/Provider%20Agreements/ManagedCare-PA-201807.pdf

4.14 Project Schedule

The Offeror should identify how it plans to meet the proposed schedule as identified below.

Project Sequence of Events	
Participant Recruitment Begin	May 2019
Participant Sign-up Begin	May 30, 2019
Application Go-Live	May 31, 2019
Participant Sign-up End	November 30, 2019
End of Transportation Program	November 30, 2020
End of Data Collection	November 30, 2021

Appendix B: Research Design

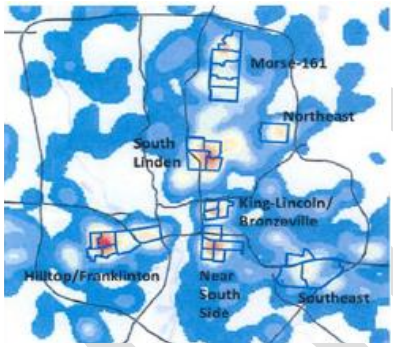
RIDES4BABY:
A RANDOMIZED TRIAL EXAMINING THE EFFICACY OF EXPANDED "SMART" TRANSPORTATION TO IMPROVE CUSTOMER SATISFACTION AND PREGNANCY OUTCOMES AMONG HIGH-RISK WOMEN
PROTOCOL

Background

Franklin County, Ohio, home of the state's capital of Columbus, has one of the highest rates of infant mortality in the U.S. at 8.2 per 1,000 live births. Further, there is a pronounced racial disparity in infant mortality in the county with non-Hispanic black infants nearly three times more likely to die than non-Hispanic white infants (14.8 vs 4.9 per 1,000, 2017). In response to this public health crisis, in 2014, the City of Columbus and Franklin County convened an infant mortality task force that developed recommendations and formed *CelebrateOne*, a dedicated office in the City of Columbus, to carry out the community's plan.

In analyzing patterns of infant deaths in the county, *CelebrateOne* found that the majority of deaths were occurring in eight "hot spots" throughout the community (Figure 1), hereafter referred to as target areas, with all of the hot spots being impoverished neighborhoods. More than half of infant deaths were related to prematurity, with birth defects, and sleep-related deaths being the other most frequently identified causes.

Figure 1. Infant mortality hot spots, Franklin County, Ohio, 2018



Receipt of early and adequate prenatal care is essential for preventing the two main causes of infant mortality, preterm birth (<37 weeks of gestation), and congenital anomalies. Safe and reliable transportation to prenatal care appointments remains a constant challenge for women living in poverty in our community. Bus passes are often outside women's budget and the bus stops are not always conveniently located to women's home and/or prenatal care providers. Most women living in poverty in Greater Columbus have their medical care paid for by a Medicaid Managed Care Plan (MCO). While these plans do provide transportation to and from medical appointments during pregnancy, services may present challenges and as such, some women elect to pursue other transportation options. Further, while all MCOs serving the local community provide non-emergency medical transportation (NEMT) in some form, many do not cover other important health-related trips like trips to the pharmacy, food bank, or grocery store.

There have been many advances in "smart" applications in transportation over the past 10 years. However, despite the fact that the vast majority of impoverished women have a mobile phone, with many having a smartphone (albeit with limited data plans), the transportation providers (predominantly taxis) currently used by the MCOs are low tech with no mobile alerts or two-way communication with the woman. The purpose of the proposed study is to examine the efficacy of providing expanded and "smart" transportation services to increase communications, reliability, and customer satisfaction and reduce adverse pregnancy outcomes among women whose children are at high risk of infant mortality. "Smart" transportation services include:

- Access to on-demand transportation;
- Knowledge of real-time driver location and arrival time;
- Enhanced capabilities for patients to schedule pregnancy-related trips (call center, web portal, and mobile application); and
- Increased communications between NEMT mobility provider, patient, and healthcare providers.

Aims

The primary aim of this randomized controlled trial is:

1) To examine women's satisfaction with transportation services in those assigned to expanded "smart" transportation compared to those assigned to usual transportation services

The secondary aims are:

1) To examine adequacy of prenatal care as measured by the Kotelchuck Index between groups
2) To examine rates of preterm delivery (<37 weeks) between groups
3) To examine rates of infant mortality between groups

Study Design

We will examine the efficacy of providing expanded and "smart" transportation services to increase customer satisfaction and reduce adverse pregnancy outcomes among women whose children are at high-risk of infant mortality using a randomized controlled trial design. The study will be called Rides4Baby, as the investigators have found that having a strong study identity (i.e., catchy title/logo) increases participant retention. Eligible women will be randomly assigned to one of two groups:

1) Usual transportation services from their MCO.
2) Expanded "smart" transportation services, as previously defined. Trips include standard trips provided by MCOs to pregnant or postpartum members, with the addition of freestanding pharmacy trips, and trips to the food bank/grocery store.

Population

We plan to enroll and randomize 500 eligible pregnant women during a 3-6 month recruitment period. Study eligibility criteria include: pregnant women aged 18+ years, less than 32 weeks of gestation, enrolled in a participating Medicaid managed care plan, needs non-emergency medical transportation (NEMT), lives in a CelebrateOne zip code at the time of enrollment (i.e., 43211, 43203, 43205, 43206, 43207, 43204, 43222, 43223, 43224, 43229, 43219, 43227, 43232), ambulatory (i.e., able to transfer independently in and out of a standard vehicle), no plans to move out of Franklin County prior to delivery, and able to speak and understand English.

Recruitment

Women will be recruited through a variety of sources. First, CelebrateOne has a hotline called StepOne that is advertised in target communities that women can call to connect them with a prenatal care provider and to assist with NEMT. All women who call StepOne during the recruitment period who appear to be potentially eligible for participation (i.e., they are enrolled in a participating MCO) will be referred to Rides4Baby staff for formal screening. Since not all women use StepOne to establish prenatal care, we will advertise the study at other sites throughout town where pregnant women living in poverty tend to visit (e.g., The Ohio State University prenatal clinic, Women Infants and Children clinics, Planned Parenthood). Recruitment materials will be placed in these locations and women will be advised to contact Rides4Baby staff should they be interested in screening for participation.

Table 1. Enrollment strata

Race/ethnicity of mother	% of target area births	Enrollment target
Non-Hispanic black	54%	270
Non-Hispanic white	32%	160
Other race/ethnicity	14%	70
Total	100%	500

To ensure that the study sample is representative of women at highest risk of infant mortality, enrollment efforts will be stratified by race/ethnicity as shown in Table 1. Once the recruitment quota in a given stratum is reached, enrollment of women in that stratum will cease. If enrollment appears to lag behind for a given area, efforts will be made to increase outreach efforts in that area.

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The Rides4Baby study will be headquartered at the Ohio State University College of Medicine under the direction of Dr. Courtney Lynch and Dr. Erinn Hade. Study staff will be centrally located and will be responsible for recruitment and enrollment, data collection, data management, and data analysis. The Rides4Baby office and study hotline will be staffed Monday through Friday from 8:30am to 5:00pm. The hotline will be equipped with voicemail so that women can leave a message outside normal business hours. Calls will be returned on the next business day.

Enrollment

Rides4Baby staff will identify potential participants for enrollment via several mechanisms. First, all advertising efforts will drive women who are pregnant and have transportation needs to StepOne who will prescreen women for participation in the project. The prescreening questions will include: pregnant and less than 32 weeks of gestation, enrolled in a participating Medicaid MCO, residence in a CelebrateOne zip code, and English speaking. Women can also self-refer by calling the Rides4Baby hotline. StepOne will send (with permission) the names and numbers of potentially eligible women to Rides4Baby staff for follow-up. All women referred to the study will be fully screened for eligibility by Rides4Baby staff. Should a woman screen eligible, she will be read a brief informed consent/HIPAA script online that will describe the study procedures as well as the risks and benefits of participation. This script will be written at a low reading level as the average literacy level in the target communities is lower elementary school. Women will be told that we wish to follow them through the remainder of their pregnancy and through two months postpartum. Further, they will be asked for permission to track their prenatal appointment adherence (using Ohio Medicaid data) and for us to verify their pregnancy outcomes (using Ohio vital records data). If interested in participating, the woman will be asked to provide verbal informed consent for participation and HIPAA authorization, which will be documented in the study database by Rides4Baby staff. Following enrollment and before randomization, women will be asked to complete a baseline questionnaire as described under Data Collection. Following completion of the baseline questionnaire, OSU Rides4Baby staff will verify Medicaid MCO enrollment status with the woman's reported plan prior to randomization.

Randomization

Following completion of the baseline questionnaire and verification of Medicaid MCO enrollment, women will be randomly assigned to the usual transportation group or the intervention group by Rides4Baby staff using a permuted block randomization scheme stratified by target area using the randomization module in the study's REDCap database. The randomization scheme will be created by the study statisticians and will not be shared with other study investigators.

Each day, during the study recruitment period Rides4Baby staff will transmit an updated notice of enrollment and randomization list to the participating MCOs as well as the transportation broker. The list will include the woman's full name, birth date, and the group to which she has been assigned.

Women will be informed of their study assignment via text message and email. Women will be asked to respond to the text or email to confirm receipt. If Rides4Baby study staff fail to receive confirmation that the participant received the information, they will call the participant to confirm. For women assigned to the intervention group, the notification will include the study transportation broker's hotline number and information about where to download the broker's mobile application. Women will be informed that in addition to the usual MCO-provided trips, the study transportation broker will provide trips to other related services like separate trips to the pharmacy and food bank or grocery store. For women assigned to the usual transportation group, they will be reminded to contact their MCO as needed for transportation and that their continued participation in the study (i.e., answering the surveys) is needed to allow us to evaluate the effectiveness of the perinatal trip assistance project.

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Intervention

Women assigned to the usual transportation group will receive the usual transportation services from their MCO. Women randomly assigned to the intervention will be advised to contact the study transportation broker rather than their MCO should they require transportation services. MCO member call centers will have a list of women enrolled in the study and if contacted by a member assigned to the intervention group, will advise her to contact the study transportation broker for help with transportation.

Women will be able to contact the transportation broker via telephone, website, or the broker's mobile application. In addition to the current trips provided by their MCO, women assigned to the intervention group will be provided with additional transportation to the pharmacy and grocery store or food bank.

When an intervention group participant contacts the study transportation broker, staff will begin by asking the woman where she needs to go (i.e., the doctor, food bank, etc). Staff will then obtain the address to which the woman wishes to travel. Using a database of approved locations that will be curated and developed, staff will check that address against an approved list of travel destinations and will suggest an appropriate alternative, if warranted. For instance, if a woman wishes to go to a food bank across town and there is food bank closer to her that is open at that time, staff will attempt to redirect the woman to the alternative location. Trips will be limited to Franklin and contiguous counties (i.e., Delaware, Fairfield, Licking, Pickaway, Madison, and Union counties) except in cases of medical necessity (i.e., exceptions can be approved by the MCO).

Study Outcomes

The primary outcome for the proposed trial will be satisfaction with enhanced transportation services as assessed by a questionnaire at the end of the study (i.e., two months after delivery). The questionnaire will be adapted from a previously published transportation satisfaction survey (Iman, 2014) and will measure the following domains: time spent arranging a ride, ease of use arranging a ride, satisfaction with communication related to the ride, time spent waiting on the A leg of trips, time spent waiting on the B leg of trips, reliability of the service, journey time, safety of the vehicle, personal security, comfort of the vehicle, friendliness of staff arranging the trip, friendliness of drivers, and a global assessment of satisfaction.

The secondary outcomes will be assessed using Medicaid and Ohio vital records data. Adequacy of prenatal care will be assessed with the Kotelchuck Index using the gestational age at entry into prenatal care, the number of prenatal care visits, and the gestational age at which the child delivered as reported to Medicaid (Kotelchuck, 1994). Infant mortality will be defined as death within the first year of life as measured using the linked live birth and death records.

Data Collection

For eligible women who provide informed consent for participation, Rides4Baby staff will administer a brief baseline questionnaire to collect demographic information as well as information on potential confounders. Women will have three options for completing the baseline questionnaire: 1) online, the participant would be emailed a secure link to complete the form; 2) on the phone, Rides4Baby staff will be happy to administer the baseline questionnaire over the phone if the participant prefers; or 3) in person, if the participant is unable to complete the questionnaire online or over the phone (due to limited mobile phone minutes) staff will arrange to meet the participant at a neutral location (e.g., at a Moms2B session) to complete the questionnaire. For questionnaires completed in person, Rides4Baby staff will use an iPad to log in to the secure study database so that the questionnaire can be completed by the participant herself or via interview. The baseline questionnaire will query women about: gravidity, parity, number of prior preterm births (<37 weeks), number of children currently living in the

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home, due date, educational attainment, employment status, self-rating of overall health, chronic medical conditions (e.g., hypertension, diabetes, sickle cell), access to a car, satisfaction with prior use of MCO transportation services, smoking status, alcohol consumption, marijuana use and other illicit drug use in the past 12 months, age, race/ethnicity, country of birth of mother, monthly household income, household size, address, best telephone number, type of mobile phone (TracFone® versus smart phone), permission to text the participant, and the name and telephone number of a close friend or relative that we can contact if we lose touch with the participant. Randomization will occur immediately after completion of the questionnaire.

Every 30 days following enrollment, women will be texted a couple of questions to assess use of and satisfaction with transportation services. These questions will include: did you use MCO or study-provided transportation services this month (yes/no) and if yes, how satisfied were you with the service (on a Likert scale with 1 being very unsatisfied and 5 being highly satisfied). Despite living in poverty, it is the research team's experience that nearly all women have a mobile phone and the ability to text. If women do not answer the texts, Rides4Baby staff will reach out to them to collect the follow-up data over the phone. Self-reported data collection will cease at two months postpartum or if ten attempts to contact the participant (at varying days/times) fail.

Trip data including the participant ID, randomization assignment, number of trips taken, dates of trips, trip timeliness information, and compliance data will be recorded by the MCOs and the study transportation broker. These data will be incorporated into the study database for analysis.

Following delivery, the study team will obtain pregnancy outcomes from the Ohio Department of Medicaid as well as other data including gestational age at entry into prenatal care, prenatal appointment attendance and adherence, and gestational age at delivery. The study team will also work with the Ohio Department of Health to obtain the index vital records (i.e., birth, fetal death, and infant death certificates) for each participant to verify pregnancy outcomes. The study team has experience with probabilistic matching procedures to locate vital records of women participating in pregnancy studies. While pregnancy outcomes data (including fetal death information) will be immediately available from Medicaid, there will be a year lag in obtaining the infant mortality data as the outcome is defined as death within the first year of life.

Participant Remuneration

To encourage active participation in Rides4Baby, participants will receive monetary and non-cash incentives. Women will be given a $20 gift card for enrolling and completing the baseline questionnaire. Every trimester of active participation thereafter, women will receive an additional $10 gift card. Women will receive a $20 gift card for letting us know by phone or text that they delivered or experienced a pregnancy loss. Participants will receive $30 for completing the final study questionnaire two months after delivery online, in person, or over the telephone. Participant remuneration will vary from $10 (if lost to follow-up right after enrollment) to $100 for those enrolling in the first trimester, delivering at term, and completing postpartum data collection.

Human Subjects Considerations

Investigators will seek approval for human subjects research from both the Ohio State University and the Ohio Department of Health. While this study is the evaluation of a public program, which is exempt from institutional review board approval (IRB) under category 5, the study team intends to publish the study findings both as a report and as peer-reviewed publication(s) in medical or public health journals. The investigators will also pursue obtaining a National Institutes of Health Certificate of confidentiality

for the project, which if granted will protect women against the unauthorized disclosure of their study data, even under court order. Any adverse events associated with study participation will be reported to the IRBs as required.

Data Management

Study data will be collected and managed in a REDCap database, which will be located behind the firewall at the Ohio State Wexner Medical Center. REDCap permits distributed data entry, allowing study staff to enter data concurrently from a variety of research sites. All questionnaire data will be entered directly into REDCap by study staff. Transportation data will be provided by the study transportation broker and incorporated into the study database. Once vital record data are matched to each participant, those data will be imported into the REDCap database as well. Text messages will be facilitate by the security compliant app Twilio, which will link text messages and responses directly to our study database.

Sample Size Considerations

There were over 20,000 transportation grievances (not limited to perinatal transportation) filed with the Ohio Department of Medicaid last year. Therefore, dissatisfaction with currently available transportation services is high. Assuming a baseline satisfaction rate (satisfied or highly satisfied) in transportation services of 30%, with 500 women randomized (250 in each intervention arm), we expect to have 80% power to detect a 13% point increase in satisfaction in the Rides4Baby intervention group (30% versus 43%), with two-sided type one error rate of 5%. These estimates assume approximately 15% non-differential attrition in study participant contact during the course of follow-up. While we will look at the all secondary outcomes, we will likely be underpowered to detect differences, particularly in infant mortality given rarity of the outcome and the modest sample size.

Analytic Plan

To be written.

Study Team

While the overall Enhanced Prenatal Trip Assistance project will be led and managed by **Mr. Andrew Wolpert** at Smart Columbus, the study/evaluation team will be led by **Courtney Lynch, PhD MPH**, a reproductive epidemiologist in the Department of Obstetrics and Gynecology at the Ohio State University College of Medicine with extensive experience enrolling and following pregnant women through pregnancy. The lead faculty biostatistician will be **Erinn Hade, PhD** of the Department of Biomedical Informatics at the Ohio State University College of Medicine who also possesses extensive experience in maternal and child health research and the design and analysis of intervention studies. The database developer and manager for the project will be **Rachel Smith, MPH** in the OSU Department of Biomedical Informatics. Lead data analyst on the project with notable experience in the probabilistic matching of vital records data will be **Jason Benedict, MS**. Both Miss Smith and Mr. Benedict are frequent collaborators of Drs. Lynch and Hade.

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Timeline

The study/evaluation timeline is presented in Figure 3.

Table 3. Rides4Baby study timeline

Study Activity	Aug 18	Sept 18	Oct 18	Nov 18	Dec 18	Jan 19	Feb 19	Mar 19	Apr 19	May 19	June 19	July 19	Aug 19	Sept 19	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	June 20	July 20	Aug 20	Sept 20
Prepare study questionnaires	X	X																								
Obtain human subjects approvals	X	X	X																							
Develop study data collection instruments			X	X	X	X																				
Program REDCap database					X	X	X	X																		
Develop text data collection system					X	X	X	X																		
Test data collection systems								X	X	X																
Staff and MCO/transportation broker training								X	X	X																
Recruitment and enrollment											X	X	X	X	X	X										
Participant follow-up											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Match and merge Medicaid data																								X	X	X
Data analysis																									X	X
Prepare reports and manuscript(s)																									X	X

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Kotelchuck M. The adequacy of prenatal care utilization index: its U.S. distribution and association with low birth weight. American Journal of Public Health 84(9), 1994.

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Appendix C: Concept of Operations for the Prenatal Trip Assistance Project for the Smart Columbus Demonstration Program

Smart Columbus

Concept of Operations for the Prenatal Trip Assistance Project for the Smart Columbus Demonstration Program

www.its.dot.gov/index.htm

Final Report – September 11, 2018

Source: City of Columbus – November 2015

U.S. Department of Transportation

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16. Abstract

This Concept of Operations (ConOps) provides an approach that ensures that the correct system is built to address the needs of Prenatal Travelers in the City of Columbus. It addresses the opportunity to deploy a Prenatal Trip Assistance (PTA) in an operational environment. This document describes needs of the users of the system, what the intended system will do, constraints on the system, and describe potential system operational characteristics, but it does not impose requirements on the system or recommend specific technology solutions for the system. This document provides a connection between program-level visions/goals and project-level concepts. Technical specifications and design details will be developed in subsequent documents.

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Chapter 1. Introduction

This Concept of Operations (ConOps) serves as a high-level view of the Prenatal Trip Assistance (PTA) Project for the Smart Columbus program. The purpose of this ConOps is to clearly convey an elevated view of the system to be implemented from the viewpoint of each stakeholder.

PTA will implement a web and smartphone-based software application to facilitate Non-Emergency Medical Transportation (NEMT) trips for expectant mothers enrolled in Medicaid from designated high-risk neighborhoods. These trips will connect the pregnant women with prenatal and post-partum care appointments and accommodate additional needed stops/trips during the pilot as requested (other medical appointments, pharmacy, etc.).

This document frames the overall PTA system, sets the technical course for the project, and serves as a bridge between early project motivations and the technical requirements. The ConOps is technology independent, focuses on the functionality of the proposed system, and forms the basis of the project. The ConOps also serves to communicate the users' needs and expectations for the proposed system. Finally, this document gives stakeholders the opportunity to provide input as to what the proposed system should do, which will help build consensus and create a single vision for the system moving forward.

1.1 Document Overview

The structure of this document is tailored from the Institute of Electrical and Electronics Engineers (IEEE) Standard 1362-1998 containing the following sections:

- **Chapter 1**. **Introduction** provides a high-level overview of the general concepts and nature of the PTA project.
- **Chapter 2**. **References** identifies all documents referenced and interviews conducted in developing this document.
- **Chapter 3**. **Current System** describes the current and supporting systems and problem(s) to be addressed.
- **Chapter 4**. **Justification and Nature of Changes** describes the features that motivate the project's development.
- **Chapter 5**. **Concept for the New System** provides a high-level description of the proposed system resulting from the features described in **Chapter 4.**
- **Chapter 6**. **Operational Scenarios** presents how the project is envisioned to operate from various perspectives.
- **Chapter 7. Summary of Impacts** describes the impacts the project will have on the stakeholders, users, and system owners/operators.

- **Chapter 8. Analysis of Prenatal Trip Assistance** provides an analysis of the impacts presented in **Chapter 7.**
- **Chapter 9. Notes** includes additional information to aid in the understanding of this ConOps.

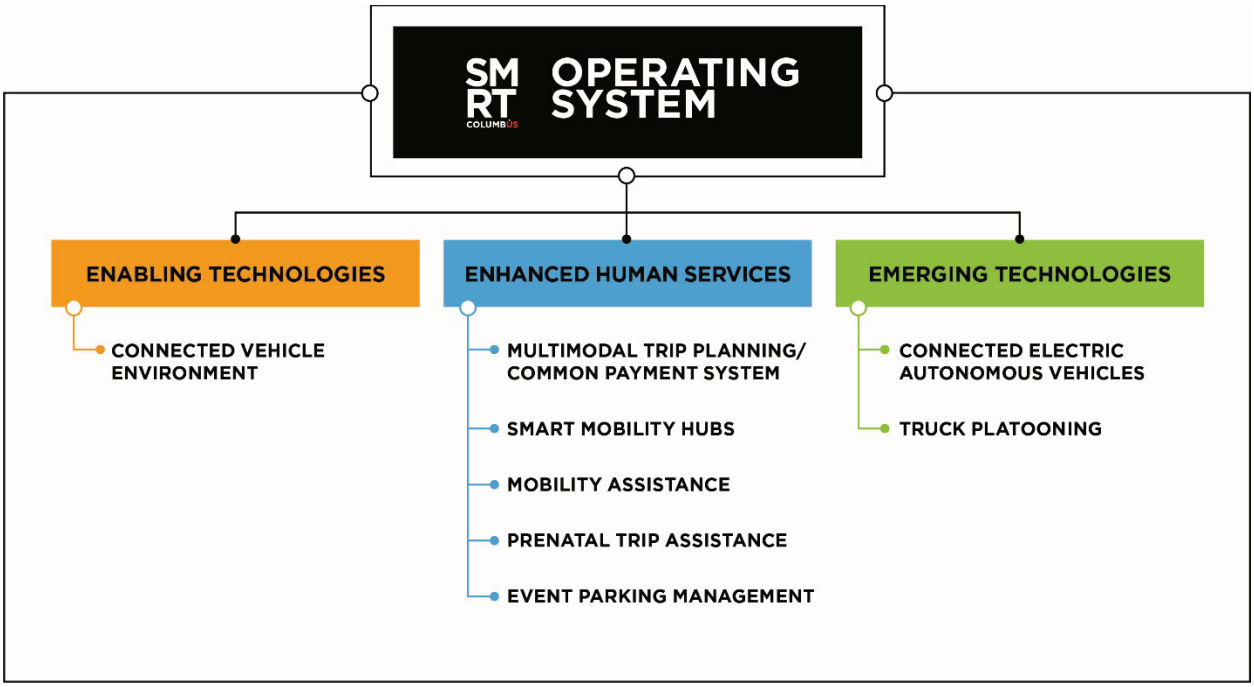
1.2 Project Scope

In 2016, the U.S. Department of Transportation (USDOT) awarded $40 million to the City of Columbus, Ohio, as the winner of the Smart City Challenge. With this funding, Columbus intends to address the most pressing community-centric transportation problems by integrating an ecosystem of advanced and innovative technologies, applications, and services to bridge the sociotechnical gap and meet the needs of residents of all ages and abilities. In conjunction with the Smart City Challenge, Columbus was also awarded a $10 million grant from Paul G. Allen Philanthropies to accelerate the transition to an electrified, low-emissions transportation system.

With the award, the City established a strategic Smart Columbus program with the following vision and mission:

- **Smart Columbus Vision**: Empower residents to live their best lives through responsive, innovative, and safe mobility solutions.
- **Smart Columbus Mission:** Demonstrate how Intelligent Transportation Systems (ITS) and equitable access to transportation can have positive impacts on every day challenges faced by cities.

To enable these new capabilities, the Smart Columbus program is organized into three focus areas addressing unique user needs; enabling technologies, emerging technologies and enhanced human services. This portfolio of technical concepts was divided into nine individual projects shown in **Figure 1: Smart Columbus Projects**. The PTA primarily addresses needs in the enhanced human services program focus area.



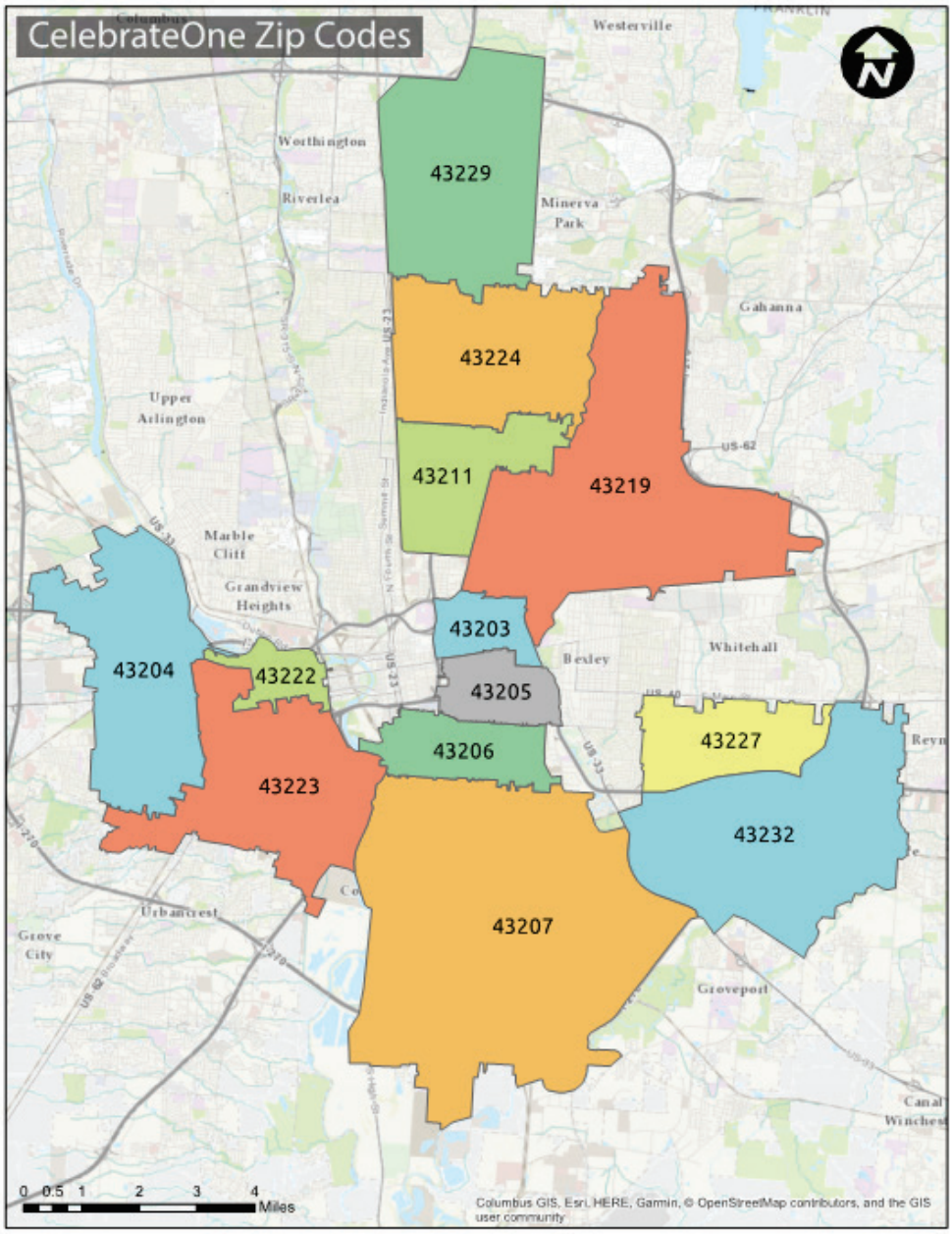
Source: City of Columbus

Figure 1: Smart Columbus Projects

Infant mortality is defined as the number of children who die before their first birthday. The rate is shared as the number of deaths per 1,000 live births. Franklin County, Ohio, home of the state's capital of Columbus, has one of the highest rates of infant mortality in the United States at 8.2 per 1,000 live births. Further, there is a pronounced racial disparity in infant mortality in the county with non-Hispanic black infants almost three times more likely to die than non-Hispanic white infants (14.8 versus 4.9 per 1,000, 2017). In response to this public health crisis, in 2014, the City of Columbus and Franklin County convened an infant mortality task force that developed recommendations and formed CelebrateOne, a dedicated office in the City of Columbus, to carry out the community's plan.

CelebrateOne is a division of the Mayor's Office that works to reduce infant mortality in the City of Columbus. In analyzing patterns of infant deaths in the county, CelebrateOne found that the majority of deaths were occurring in eight "hot spots" throughout the community with all of the hot spots being impoverished neighborhoods. More than half of infant deaths were related to prematurity, with birth defects, and sleep-related deaths being the other most frequently identified causes. These eight neighborhoods with a history of high infant mortality have become CelebrateOne's program focus. To be consistent with their program and to utilize their existing relationships, the PTA deployment will occur in those eight neighborhoods that are shown in **Figure 2: CelebrateOne Neighborhoods**. The neighborhoods and their respective zip codes follow.

- Near South (43206, 43207)
- Linden (43211)
- Near East (43203, 43205)
- Hilltop (43204)
- Franklinton (43222, 43223)
- Morse/161 (43224, 43229)
- Southeast (43227, 43232)
- Northeast (43219)

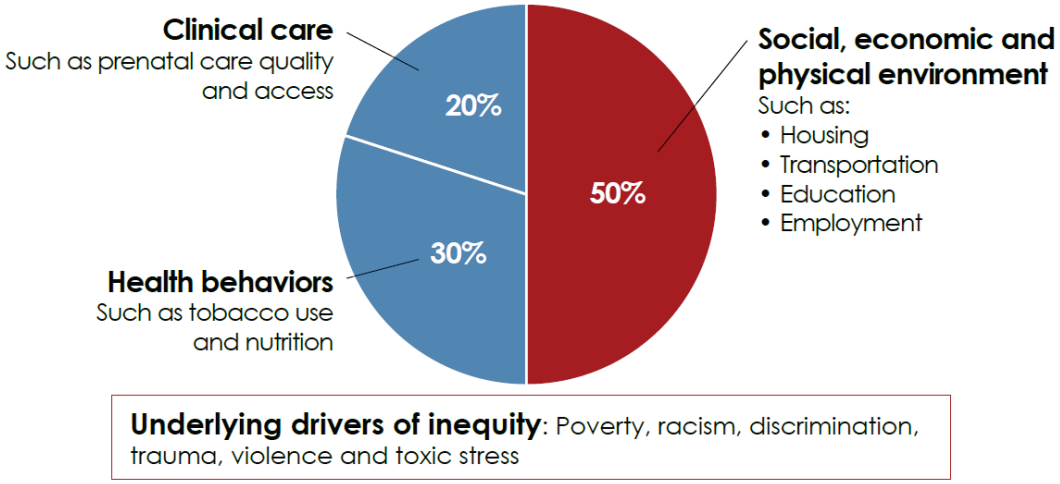


Source: City of Columbus

Figure 2: CelebrateOne Neighborhoods

Receipt of early and adequate prenatal care is essential for preventing the two main causes of infant mortality, preterm birth (<37 weeks of gestation), and congenital anomalies. “Prenatal” is defined as the time during which a woman is pregnant. Prenatal care is extremely important for an expectant woman, from receiving general information about pregnancy to early identification of health concerns. Every pregnancy is different; therefore, prenatal care is needed for each pregnancy. General medical care is

also extremely important to a healthy pregnancy. Dental and regular doctor visits are musts during pregnancy. The overall health of the mother plays a significant role in the birth outcome. Other factors affecting birth outcome are employment, education, living arrangement and complications from other births. Transportation is a piece of a complete puzzle that can help lower the rates of infant mortality. **Figure 3: Modifiable Factors of Health** shows the number of factors that can influence prenatal health.



Source: Health Policy Institute of Ohio, December 2017

Figure 3: Modifiable Factors of Health

Safe and reliable transportation to prenatal care appointments remains a constant challenge for women living in poverty in our community. Bus passes are often outside women's budgets and the bus stops are not always conveniently located to women's homes and/or prenatal care providers. Most women living in poverty in Greater Columbus have their medical care paid for by a Medicaid Managed Care Plan offered by a Managed Care Organization (MCO). While these plans do provide transportation to and from medical appointments during pregnancy, services may present challenges and cause women to use another option. Further, while all MCOs serving the local community provide non-emergency medical transportation (NEMT) in some form, many do not cover other important health-related trips like trips to the pharmacy, food bank or grocery store.

Stress during pregnancy can lead to adverse effects including pre-term birth and even infant mortality. This is especially true for pregnant women who experience chronic and/or additional stress. For those women, easy-to-schedule, safe, reliable transportation to prenatal medical appointments can make a difference in their own health and that of their unborn baby. The Centers for Disease Control and Prevention's National Center for Health Statistics reviewed 2013-2015 data from each state and found the following infant mortality rates: In Ohio, the infant mortality rate was 7.13 deaths per 1,000 live births;

nationally, the rate was 5.9 deaths per 1,000 live births [1]; and in Franklin County, the rate was 7.7 deaths per 1,000 live births in 2015 [2]. From October 1, 2016, to September 30, 2017, the infant mortality rate in Franklin County was 8.6 deaths per 1,000 live births [3]. These statistics have drawn the attention of the City of Columbus leadership and they are focused on making changes that are necessary to impact this issue. During the Smart City Challenge pursuit writing, Columbus leadership wanted to include a project that focuses on their most vulnerable population resulting in a project opportunity around infant mortality and transportation.

There have been many advances in "smart" applications in transportation over the past 10 years. However, despite the fact that the vast majority of impoverished women have a mobile phone, with many having a smartphone (albeit with limited data plans), the transportation providers (predominantly taxis) currently used by the MCOs are very low tech with no mobile alerts or two-way communication with the women. The purpose of the proposed study is to examine the efficacy of providing expanded and "smart" transportation services to increase customer satisfaction and reduce adverse pregnancy outcomes among women whose children are at high risk of infant mortality.

The goal of the Smart Columbus PTA project is to focus on one of the factors that can impact pre-term birth: transportation. The PTA project will enhance mobility and increase opportunity, efficiency and customer service for Prenatal Travelers who use NEMT provided through Medicaid benefits. PTA will provide sources of high-quality data for the Ohio Department of Medicaid (ODM), MCOs and others involved in tracking the prenatal care of Columbus Medicaid recipients.

Many NEMT services exist but the lack of patient-centered technology and service has created gaps for certain prenatal travelers. The improvements that would fill these gaps for prenatal travelers through the PTA project include:

- Reliable transportation to and from medical appointments.
- Access to on-demand transportation.
- Knowledge of real-time driver location and arrival time.
- Enhanced capabilities for patients to schedule NEMT trips.
- Increase communications between NEMT mobility provider, patient and doctor.

1.3 Project Relationship to the System of Systems

The Smart Columbus program has many interrelated systems that work together to provide a System of Systems (SoS). Information from these systems are shared in the Smart Columbus Operating System (Operating System). Both real-time and archived data is maintained in the Operating System for use by other Smart Columbus projects and future applications. The SoS provides Smart Applications (Apps),

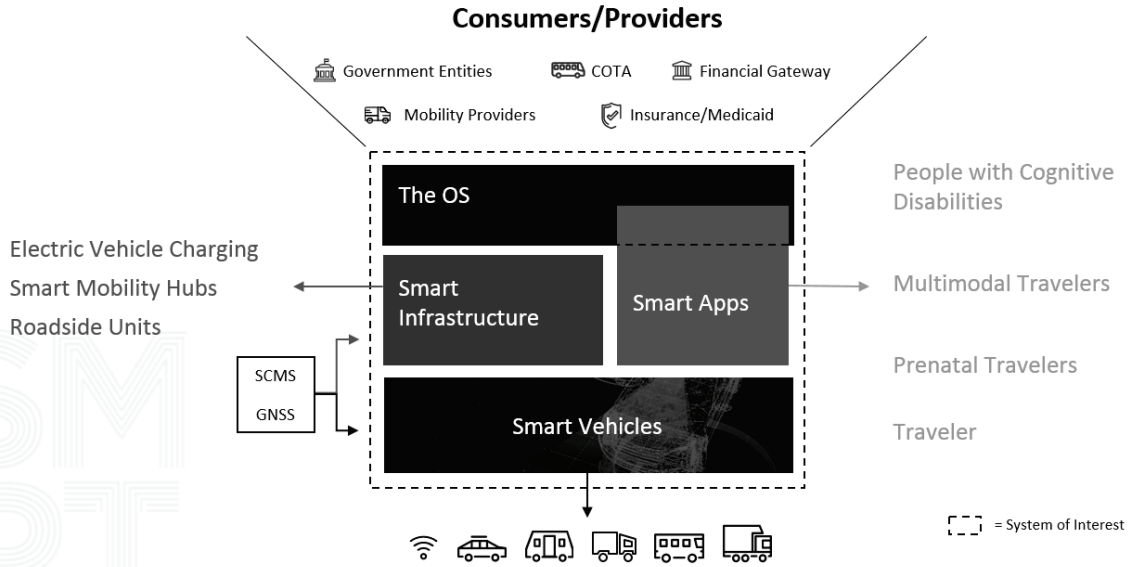
[1] *Centers for Disease Control and Prevention's National Center for Health Statistics, 2013-2015 Data, NCHS Data Brief No. 295, January 2018*

[2] *Columbus Public Health VitalView (2015)*

[3] *https://www.odh.ohio.gov/-/media/ODH/ASSETS/Files/cfhs/OEI/Quarterly-Scorecard/201709/Appendix-A-Ohio-Regional-Scorecards-and-Definitions-201709.pdf?la=en*

Smart Vehicles, and Smart infrastructure to travelers in the Columbus area. The Operating System enables the SoS to share data with many other internal and external systems to provide the framework for the services provided. Smart Infrastructure includes the hardware and corresponding network that enable interactions between the infrastructure and the Operating System. Smart Vehicles include the connected vehicle equipment that will be installed in vehicles. Smart Applications – of which PTA is one - include the software-oriented solutions that will deliver other Smart Columbus project capabilities such as multimodal trip planning, common payment, prenatal trip assistance, etc. The Operating System is the repository for all performance data from the Smart Infrastructure and Smart Vehicles, as well as the microservices platform that allow the Smart Applications to be directly integrated.

Figure 4: System of Systems External Interfaces Context Diagram shows the relationship of the SoS with the external travelers and systems.



GNSS: Global Navigation Satellite System,
SCMS: Security Credential Management System,
COTA: Central Ohio Transit Agency

Source: City of Columbus

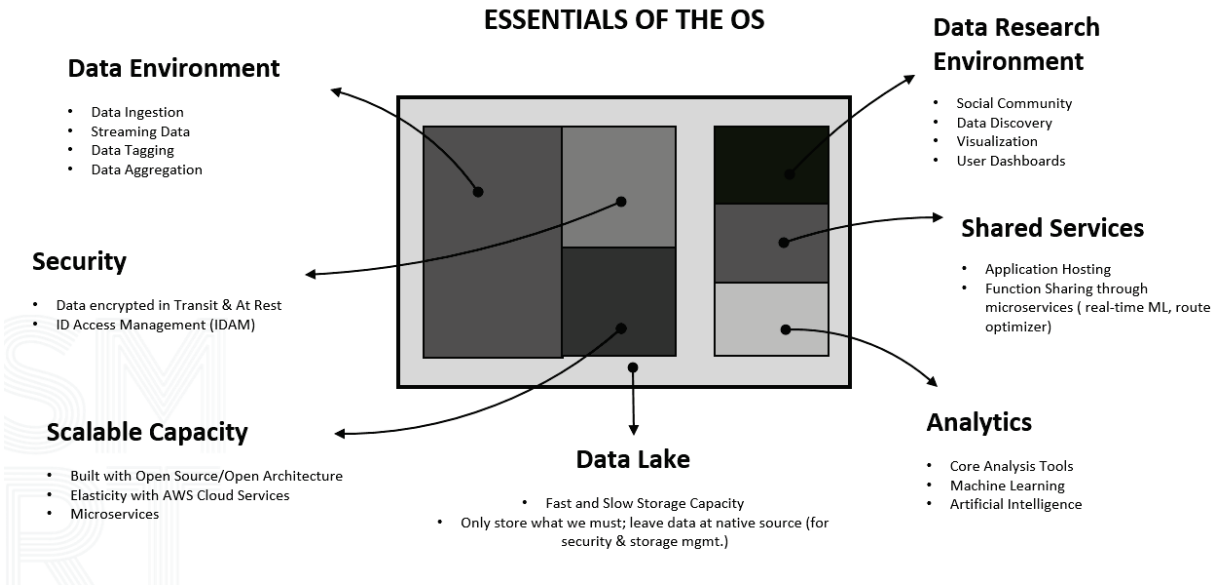
Figure 4: System of Systems External Interfaces Context Diagram

The PTA is one of several Smart Apps in the Smart Columbus SoS. Its purpose is to provide transportation services to pregnant women (Prenatal Travelers), and it will accomplish this leveraging a blend of resources including a Smart App, web interface, application programming interface (API) to the Operating System, call center and data from external providers such as MCOs and transportation brokers (TBs). PTA will take in requests to schedule NEMT trips through an application, web portal and a call center. The application will verify Medicaid and plan eligibility and schedule the trip. The TB and NEMT mobility provider will process reservation information to render services.

1.3.1. Elements of the Operating System

As we described in the previous section, the Operating System is an especially important element of the Smart Columbus smart application solutions including PTA. Given its criticality and impact to these applications and their demonstration, this section provides additional detail about the functionality of the Operating System.

Figure 5: Elements of the Smart Columbus Operating System depicts high-level system elements of the Operating System. Shared Services and Analytics are key components of the PTA system as explained in **Chapter 5. Concept for the New System**.



Source: City of Columbus

Figure 5: Elements of the Smart Columbus Operating System

The Operating System is a platform for Smart Cities development. It consists of several core functions, which can be leveraged across the Smart Columbus program, as well as other functions that will specifically enhance and support "Smart Applications" such as the PTA system (**Figure 4: System of Systems External Interfaces Context Diagram**). The core functions in the Operating System are described below:

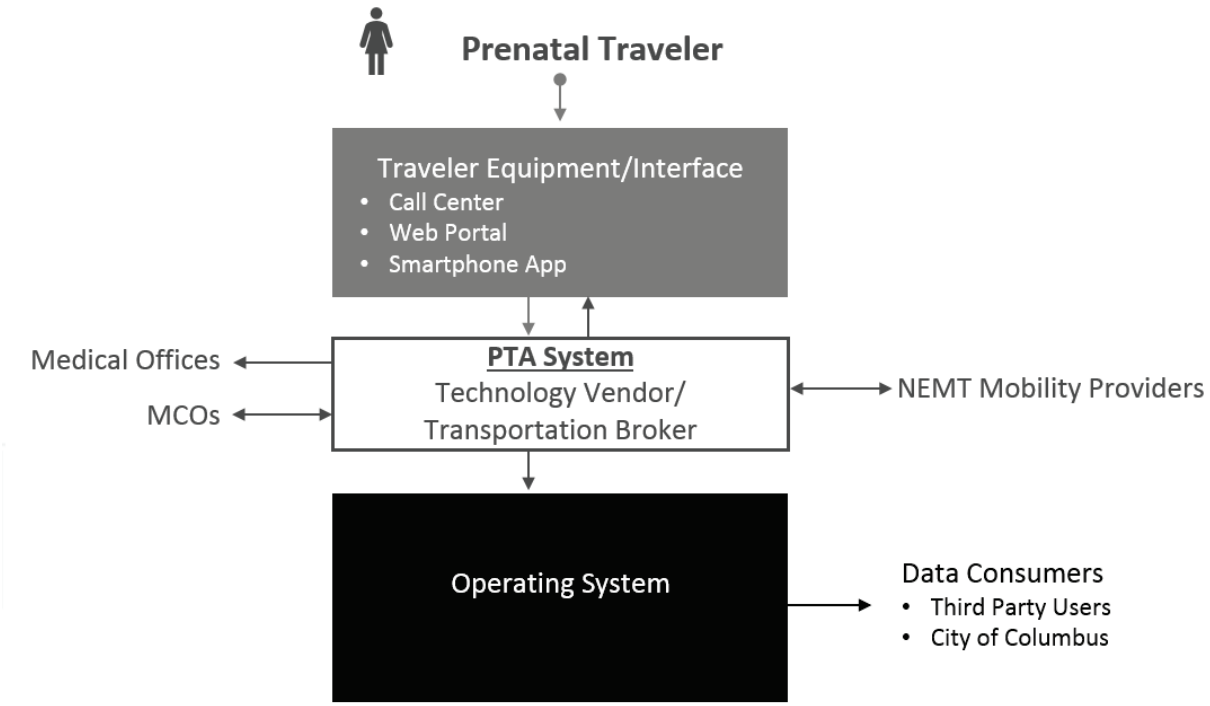
- **Data Environment:** The orderly ingestion, aggregation and tagging of many forms of data from real-time to slow-moving or manually-uploaded data.
- **Data Lake:** A storage repository that holds a massive amount of raw data in a secure way and makes it available to all the other supported operations in the system.
- **Security:** To ensure trust, it is imperative that the Operating System is exceptional at managing the users and systems that have access to it.

- **Scalable Capacity:** The Operating System is “scalable” and “elastic” which means that it can grow and shrink to meet the demand of the system at any given time.
- **Shared Services Environment:** Application components can be housed and made available to any number of applications connected to the Operating System.
- **Data Research Environment:** In a data-rich environment, Columbus and its residents, businesses, nonprofits and visitors will be increasingly able to share, use and leverage previously unavailable datasets to address complex problems and improve current operations and capabilities. Analytics: Analytics will also be used to predict future conditions and the potential benefits of implementing different operational strategies, control plans and response plans coordinated among agencies and Mobility Providers.

The PTA project interface to the Operating System will be discussed in more detail in **Chapter 5. Concept for the New System**.

1.4 Prenatal Trip Assistance System Overview

Figure 6: High-Level Context Diagram shows the relationship of the PTA to the Operating System and to external parties. The PTA system provides the main user experience and interface for Prenatal Travelers, MCOs, Medical Offices and NEMT Mobility Providers. It also connects to the Operating System to store current and historical information pertaining to individual trips, such as origin and destination. Users at the City of Columbus and third-party users will be able to connect to the Operating System to view and analyze PTA data and other performance metrics on system utilization via reports and custom dashboards.



Source: City of Columbus

Figure 6: High-Level Context Diagram

The descriptions below are a high-level overview of the system and users. Additional information on each of the system components and users is available in **Chapter 3. Current System** and **Chapter 5. Concept for the New System**.

1.4.1. Prenatal Traveler

Prenatal Travelers are end users of the PTA platform who live in the defined service area (see **Chapter 1. Introduction**) and schedule NEMT trips. Prenatal Travelers will use the PTA to schedule NEMT services by creating a trip request by entering information about their trip, such as origin and destination address, as well as personal preferences/needs such as a guest traveler.

1.4.2. Prenatal Trip Assistance System

The PTA system will be an account-based system for managing user accounts and arranging transportation for Medicaid MCO members who use NEMT services. For this project, these members will be known as Prenatal Travelers and will be further defined by the geographic boundaries of the zip codes related to the eight CelebrateOne neighborhoods (see **Figure 2: CelebrateOne Neighborhoods**). The PTA system will work with MCOs to create accounts for Prenatal Travelers, allowing the Prenatal Traveler to make a request for NEMT services. That request will be shared with the MCO to check on Medicaid

benefit status through the ODM Benefits System. The ODM Benefits System sends a daily Medicaid membership update to MCOs to assist in service delivery and to prevent fraud.

The PTA system will be developed by a technology vendor who acts in concert with or acts in the place of a TB. This document will refer to this as the technology vendor/transportation broker for the proposed system. The PTA system will act as the TB by taking the reservation request and right-sizing it with vehicles available through NEMT mobility provider contracts. Trip optimization will also be provided as part of the new system.

The PTA system will have a relationship with the medical offices that participate in the project. The PTA system will send a notification to the doctor's office giving information about the Prenatal Traveler's travel status, which will allow the office to move another patient up in line if the Prenatal Traveler is running late or to reach out to a patient who missed her trip to see if she should be rescheduled.

The PTA system will also send multiple notifications to the Prenatal Traveler to remind the individual of the upcoming transportation reservation. There will be an opportunity for the Prenatal Traveler to cancel or reschedule a trip prior to pickup. This information may also be relayed to the doctor's office, so it can initiate a reminder call to see if the appointment also needs to be cancelled or rescheduled.

1.4.3. Managed Care Organizations

MCOs are contracted by the ODM to provide Medicaid services to Ohio residents who qualify for Medicaid benefits. For this project, the MCOs will assist in the development of the RFP, review bid responses and interview possible vendor candidates. After a successful vendor is chosen, the MCOs will contract with a technology vendor/TB to provide the PTA system. Each MCO will work with the technology vendor/TB to easily shift the pilot participants into a separate database to ensure proper collection of the data around their usage of the pilot NEMT. The MCOs will provide this data and other appropriate data as necessary to support the project.

1.4.4. Smart Columbus Operating System

The Operating System is a cloud-based, dynamic, governed data-delivery platform at the heart of the Smart Columbus system. The Operating System also serves as the source for real-time operational data and archived historical data from a combination of data storage sources for use by the City of Columbus and third-party applications/developers. The Operating System is the data platform at the heart of the Smart Columbus data environment that integrates data and data services from multiple sources, including the planned Smart Columbus projects, traditional transportation data, and data from other community partners. The Operating System embodies open-data and open-source concepts to enable better decision-making and problem solving for all users to support a replicable, extensible, sustainable platform.

Specific to PTA, the Operating System will allow the PTA system to provide trip and usage data for use by the City and third-party users.

The ODM, as the administrative department for Ohio's Medicaid program, is responsible for tracking and adhering to federal and state laws surrounding the delivery of Medicaid services. ODM is headquartered in Columbus and contracts with five MCOs to deliver Medicaid (and NEMT) services. ODM also works with and funds each of Ohio's 88 counties' Medicaid NEMT services.

1.4.5. Non-Emergency Medical Transportation Mobility Providers

NEMT Mobility Providers are transportation services in which vehicles are accessed by Medicaid patients to provide NEMT trips to healthcare and other permitted appointments. NEMT Mobility Providers include public transit, Transportation Network Companies (TNCs) or ridesourcing, taxis, limos, and paratransit. NEMT Mobility Providers will contract with the technology vendor/TB to provide NEMT services. The following are examples of NEMT Mobility Providers and their relationships to the proposed system.

1.4.5.1 Transportation Network Companies

TNCs (Lyft or Uber) are ridesourcing companies that utilize smartphone app-based services to connect drivers with riders in exchange for payment. TNCs differ from taxi and limo services in that drivers use their own vehicles (noncommercial) and scheduling is all app-based. TNCs contract with TBs to provide NEMT services.

Relationship to proposed system: TNCs could provide on-demand NEMT services for Prenatal Travelers via contract with the PTA system vendor.

1.4.5.2 Central Ohio Transit Authority

COTA is the regional public transit provider for greater Columbus and central Ohio, offering fixed-route bus service. Public transit is a shared passenger-transport service which is available for use by the public. COTA serves 1.2 million residents and provides more than 19 million passenger trips annually. COTA is a mobility provider contracted by TBs to provide NEMT services.

Relationship to proposed system: TBs currently offer COTA bus passes as a NEMT option through the MCOs and will continue to be an option for Medicaid members in need of NEMT. Data, relevant to this project, on the number and location of NEMT trips serviced will be shared by the technology vendor/TB with the City.

1.4.5.3 Taxi/Limo

TBs contract with taxi and limo services to provide NEMT services to Medicaid MCO members.

Relationship to proposed system: Taxis/limos could provide on-demand NEMT services for Prenatal Travelers via contract with the PTA system vendor.

1.4.6. City of Columbus

The City of Columbus convenes the parties that will be part of the PTA pilot to create the PTA system. The City will be party to contracts with OSU for the pilot study and with the participating MCOs for reimbursement of the MCO contract with the technology vendor/transportation broker. The City is responsible for developing needs and requirements for the system and for deciding the policies and rules necessary to meet the goals and objectives of the overall program. The City has governmental staff with access to performance and usage information through integration with the Operating System. Government staff users will have access to reports and performance measurement data to make informed decisions about future improvements to the system and to support broader transportation policy decisions.

1.4.7. Third-Party Users

Third-party users are members of the public, including researchers and entrepreneurs, who will have limited access to data that is generated by the system for development purposes.

1.4.8. Medical Offices

Medical Offices see Medicaid members for medical care. They currently do not have access to information on a patient's transportation. With PTA, these offices will receive notification(s) when a patient has missed or cancelled a trip or when traffic is going to delay a patient's arrival. This will allow the Medical Office to decide if it wants to reach out to the patient or make the proper adjustments to its schedule.

Chapter 2. References

Table 1: References contains the document number, title, revision and publication date of all documents referenced.

Table 1: References

Document Number	Title	Revision	Publication Date
IEEE 1362-1998	Electrical and Electronics Engineers (IEEE) IEEE Guide for Information Technology System Definition ConOps Document	1998	3/19/1998
USDOT Solicitation No.: DTFH6116RA00002	City of Columbus Smart City Application: Beyond Traffic: The Smart City Challenge Phase 2. "USDOT Application Volume I" www.columbus.gov/smartcolumbus/application/	1	7/29/2016
N/A	Smart Columbus Systems Engineering Management Plan (SEMP) for Smart Columbus Demonstration Program	V0.1	2/2/2017
N/A	Health Policy Ohio: A New Approach to Reduce Infant Mortality and Achieve Equity: Policy Recommendations to Improve Housing, Transportation, Education and Employment	N/A	December 2017
N/A	2016 Ohio Commission on Infant Mortality Committee Report, Recommendations, and Data Inventory http://ouw.org/wp-content/uploads/2016/03/Ohio-Commission-on-Infant-Mortality-Committee-Report-March-2016.pdf	N/A	March 2016
N/A	Ohio Senate Bill 332 https://www.legislature.ohio.gov/legislation/legislation-summary?id=GA131-SB-332	N/A	January 2017
N/A	Sidewalk Labs: Non-Emergency Medical Transport for Linden, Columbus	N/A	9/19/2017
N/A	Ford Greenfield Labs: Columbus Mobility Design Research Report	Final Draft	3/19/2018
N/A	Ohio Administrative Code Medicaid Sections 5160 http://codes.ohio.gov/oac/5160	Multiple	

Document Number	Title	Revision	Publication Date
N/A	Ohio Administrative Code Medicaid Sections 5160:1 http://codes.ohio.gov/oac/5160:1	Multiple	
N/A	Ohio Department of Medicaid Rules, http://www.medicaid.ohio.gov/RESOURCES/Legal-and-Contracts/Rules	N/A	
N/A	Social Security Administration, Title XIX – Grants to States for Medical Assistance Programs https://www.ssa.gov/OP_Home/ssact/title19/1900.htm	Multiple	
N/A	United States Constitution 42 U.S.C. 1396 et seq.	Multiple	
N/A	Health Insurance Portability and Accountability Act of 1996 https://aspe.hhs.gov/report/health-insurance-portability-and-accountability-act-1996	Multiple	8/21/1996
N/A	Ohio Department of Medicaid Managed Care Provider Agreements http://medicaid.ohio.gov/Provider/ManagedCare/ProgramResourceLibrary/CombinedProviderAgreement	Multiple	
N/A	City of Columbus Infant Mortality Task Force Report	N/A	June 2014
FHWA-JPO-17-523	ConOps for the MMTPA/CPS Project for the Smart Columbus Demonstration		5/18/2018

Source: City of Columbus

Table 2: Meetings contains meetings which were relevant to development of the PTA ConOps which are referenced directly or indirectly in the document.

Table 2: Meetings

Meeting Title	Recurring	Date
Molina Healthcare "Meet and Greet" (MCO)	No	12/4/2017
CareSource "Meet and Greet" (MCO)	No	12/5/2017
CareSource Coordination Meeting (MCO)	No	12/20/2017
PTA Weekly Meeting	Yes	2/1/2018 to 6/30/2018
CareSource Coordination Meeting (MCO)	No	2/12/2018
Veyo – Smart Columbus NEMT pilot project (technology vendor/TB)	No	2/13/2018

Meeting Title	Recurring	Date
Kaizen Health NEMT (technology vendor/TB)	No	2/16/2018
Circulation NEMT (technology vendor/TB)	No	2/16/2018
Webinar: Mobile Apps: Considerations for Use in Research Involving Human Subjects	No	2/21/2018
Medicaid Transportation Panel – NEMT	No	2/28/2018
Smart Columbus and Uber coordination (NEMT Mobility Provider)	No	3/2/2018
Yellow Cab and Smart Columbus coordination (NEMT Mobility Provider)	No	3/6/2018
Healthcare Collaborative of Columbus – NEMT Meeting	No	3/8/2018
ODM and Smart Columbus coordination	No	3/20/2018
Circulation Smart Columbus NEMT project (technology vendor/TB)	No	3/21/2018
Kaizen Health NEMT (technology vendor/TB)	No	3/28/2018
Yellow Cab coordination (NEMT Mobility Provider)	No	4/5/2018
Smart Columbus follow-up	No	4/6/2018
NEMT meeting with Franklin County Department of Job and Family Services (FCDJFS)	No	4/10/2018
Smart Columbus NEMT pilot – Care Source (MCO)	No	4/11/2018
United Healthcare – Collaborative Opportunities (MCO)	No	4/13/2018
PrimaryOne Medical Services – Collaborative Opportunities (Medical Office)	No	4/16/2018
Molina/Smart Columbus – Collaborative Opportunities (MCO)	No	4/16/2018
Smart Columbus NEMT pilot – Care Source (MCO)	No	4/25/2018
Smart Columbus coordination with UHC (MCO)	No	5/1/2018
MAS Introduction (technology vendor/TB)	No	5/4/2018
Smart Columbus NEMT Pilot Project Discussion Buckeye Health (MCO)	No	5/4/2018
Smart Columbus NEMT Pilot Project Discussion – OSU Wexner Medical Center Research	No	5/11/2018
UZURV Meeting with City of Columbus (technology vendor/TB)	No	5/14/2018
Smart Columbus PTA MCO Workshop #1	No	6/7/2018
Smart Columbus PTA MCO Workshop #2	No	6/27/2018

Meeting Title	Recurring	Date
OSU Partnership Meeting	No	6/27/2018
Serco Vendor Demonstration	No	7/02/2018
ODM Update Call	No	7/12/2018
SC/OSU/CelebrateOne Strategy Session	No	7/19/2018
ODM Consumer Advocate NEMT Session	No	8/21/2018
ODM NEMT Mobility Provider Session	No	8/21/2018
OhioHealth Women and Infant Care Council	No	8/27/2018

Source: City of Columbus

2.1 Stakeholder Engagement Summary

The following is a summary of end user and stakeholder engagement activities to assess community interest in utilizing a mobile app for NEMT trip planning. Additional stakeholder engagement summaries, as well as survey questions and answers, are provided in **Appendix A. Stakeholder Engagement Summary** and **Appendix B. Sidewalk Labs' Non-Emergency Medical Transport Survey Summary.**

2.1.1. Community Outreach

In June through August of 2017, focus groups and phone interviews were conducted to discover how improved mobility via Smart Columbus could be a strategy to reducing infant mortality rates in Linden, which experiences some of the highest numbers of baby deaths in the nation.

Since lack of access to prenatal services is a contributing factor, this outreach included not only the expectant women and new moms, but also other relevant stakeholders involved. These include the following healthcare and NEMT service providers: The Ohio State University (OSU), Mount Carmel, Kaizen Health, Lyft, Uber, Veyo, ODM, Paramount Advantage, Access 2 Care and CareSource. CelebrateOne, a division of the Mayor's Office that works to reduce infant mortality especially in the Linden neighborhood, also participated.

2.1.1.1 Key Takeaways

Convenience and safety were big concerns for pregnant women and heavily influenced transportation choices. For example, buses were seen as impractical because it can take up to two hours to get to a doctor's appointment and women felt it was too hard to take other children with them. Taxis and ridesourcing services were cited as better suited methods because they allow for car seats (if installed by the Prenatal Traveler) and provide direct routing to a destination.

Additional takeaways:

- Smartphones and data plans are prevalent in this community.

- Accommodations for strollers, car seats, wheelchairs and walkers need to be made.
- Driver issues include: poor customer service, honking once and leaving, and not stopping to have prescriptions filled on the way home from an appointment which requires the scheduling of yet another trip.
- The use of English only presents a language barrier for some.
- Any pilot project will need to have a thorough educational component for successful adoption.
- Healthcare providers cited a 30-50 percent patient no-show rate, half of which may be transport related. They also said a patient's address can change frequently which results in bookings becoming outdated.

2.1.2. Stakeholder Outreach

Due to the "multiple opportunities for system failure"[4], it was important for initial outreach activities to focus efforts on conversations with NEMT and healthcare providers to get the clearest picture possible of the current situation and develop a pilot that better accommodates pregnant women's needs and expectations. Outreach primarily sought to: 1) understand how providers operate 2) become aware of the laws governing their abilities to provide patient services and 3) investigate frequent disconnects between each of the parties involved in Medicaid NEMT services. Examples of disconnects include NEMT drivers not allowing women to stop at a pharmacy on the way home from an appointment while the MCO's preference is for pharmacy trips to be performed after a medical visit rather than incurring the cost of scheduling another trip.

This engagement took place from February through May of 2018 and included the following NEMT stakeholders:

- Physicians' offices caring for expecting moms – Primary One, OSU, Mount Carmel
- MCOs – CareSource, Buckeye Community Health Plan, Molina Healthcare of Ohio, Inc., United HealthCare Community Plan of Ohio, Inc. and Paramount Advantage
- NEMT providers – Taxi companies and brokers including Hands-On Central Ohio, Step One (part of CelebrateOne), Veyo, Circulation, Kaizen Health, Lyft, Uber and Access 2 Care
- County/state agencies – FCDJFS, ODM, Ohio Department of Transportation (ODOT) and Mid-Ohio Regional Planning Commission (MORPC)
- COTA
- Social support groups – CelebrateOne

2.1.2.1 Key Takeaways

More patients are requesting on-demand rides now than ever before. In addition, NEMT providers need automatic patient health insurance eligibility verification to improve their efficiency. Better patient

[4] *Sidewalk Labs*

communications overall are needed. Additionally, ODOT is in the process of developing new regulations for human services transportation because Ohio's current brokerage system needs to be improved.

2.1.3. Additional Relevant Community Outreach

Knowledge gleaned from previous outreach initiatives (conducted prior to the conception of the PTA project) is also being used to craft the PTA pilot. This includes information uncovered during the two-day community dialogue, branded the "Smart Columbus Connects Linden" community planning event held February 10 and 11, 2017, at St. Stephen's Community House, 1500 E. 17th Ave., Columbus. More than 170 Linden community residents shared their views and ideas regarding what will make Linden a "smart" community including several valuable linkages such as the fact that most attendees favored a smartphone app to make travel arrangements – seeing it as a convenient option – and most attendees had privacy concerns with personal information being provided electronically.

Information gathered during the two-day Connect Linden discussions, as well as discussions with Linden leaders, community surveys, and other feedback, is included in **Appendix A. Stakeholder Engagement Summary**.

2.1.4. Field Surveys

Key takeaways from field surveys issued to stakeholders in the Columbus area in 2018 to inform the MMTPA/CPS projects will again serve double-duty in that they will also be used to inform the PTA project.

There were about 100 respondents to the surveys, which are included in **Appendix A. Stakeholder Engagement Summary** and summarized as follows:

- Over 90 percent of respondents stated that they had a cell phone. Of those, over 90 percent said that their cell phone was a smartphone. Most people with smartphones – 87 percent – also have a data plan.
- Text messages are the most popular choice for receiving notifications from an app.
- The most popular features that respondents would like to see in an app (in order of preference) are: 1) Plan/select multiple types of travel, and 2) Find the quickest way to get somewhere.

Chapter 3. Current System

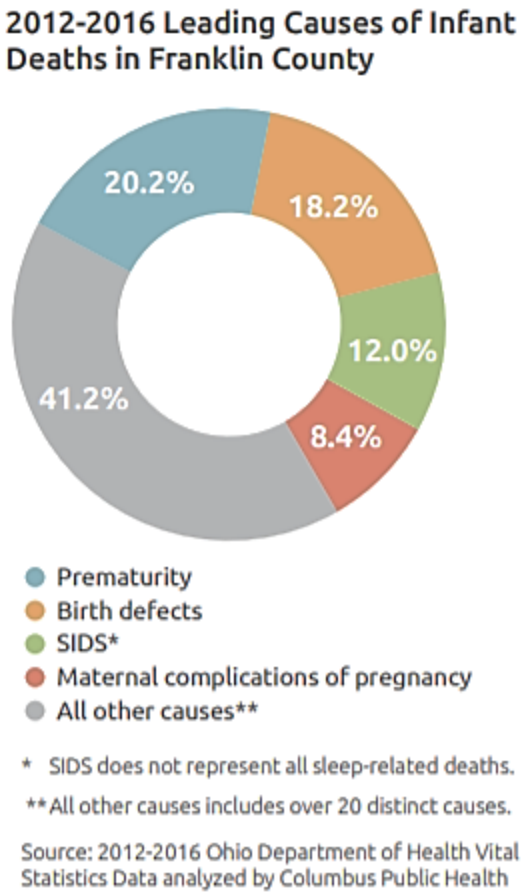
The current system of Medicaid NEMT delivery does not offer reliable transportation to and from medical appointments, customer friendly services like detailed driver information, advanced technology or on-demand services for scheduling NEMT services. Prenatal Travelers, similar to other Ohio Medicaid NEMT users, only have the option to schedule NEMT trips through a call center. On-demand services are considered an emergency and provided on an as available basis. Prenatal Travelers do not get reminded multiple times of their trip and have no portal to access future trip reservations. They also do not know when their driver is about to arrive. With the technology and transportation services that exist in the market, this process can be improved.

3.1 Background and Objectives

CelebrateOne stated that "Infant mortality is not simply a health care issue. It is a complex, systemic problem influenced by a variety of factors and compounded by a range of social and economic conditions in disadvantaged neighborhoods."[5] This complex problem has been a major focus of the City of Columbus, Franklin County and many community and business partners for the past five years. In 2013, the Greater Columbus Infant Mortality Task Force was formed and released a report and implementation plan in 2014 with eight recommendations to reduce the county's infant mortality rate by 40 percent and to cut the racial health disparity in half by 2020.

As described in **Chapter 1. Introduction**, CelebrateOne is the City of Columbus led initiative created to carry out the Greater Columbus Infant Mortality Task Force's list of recommendations and ensure Franklin County meets its ambitious goal to reduce the infant mortality rate to 6 deaths per 1,000 live births and to cut the racial health disparity in half by 2020. The Task Force learned during its research process that eight Columbus neighborhoods were experiencing a higher than average rate of infant deaths. From 2012-2017 the infant mortality rate for Franklin County was 8.3 deaths per 1,000 live births and during the same time period the infant mortality rate for our eight highest risk neighborhoods was 12 deaths per 1,000 live births. When researching causes of infant mortality, one indicator continued to show the highest impact: pre-term births. **Figure 7: Leading Causes of Infant Deaths in Franklin County** shows that prematurity (birth before 37 weeks) is the largest cause of infant mortality in Franklin County.

[5] *CelebrateOne 2016 Annual Report, http://celebrateone.info/wp-content/uploads/2017/08/2016_annual-report_spread.pdf*



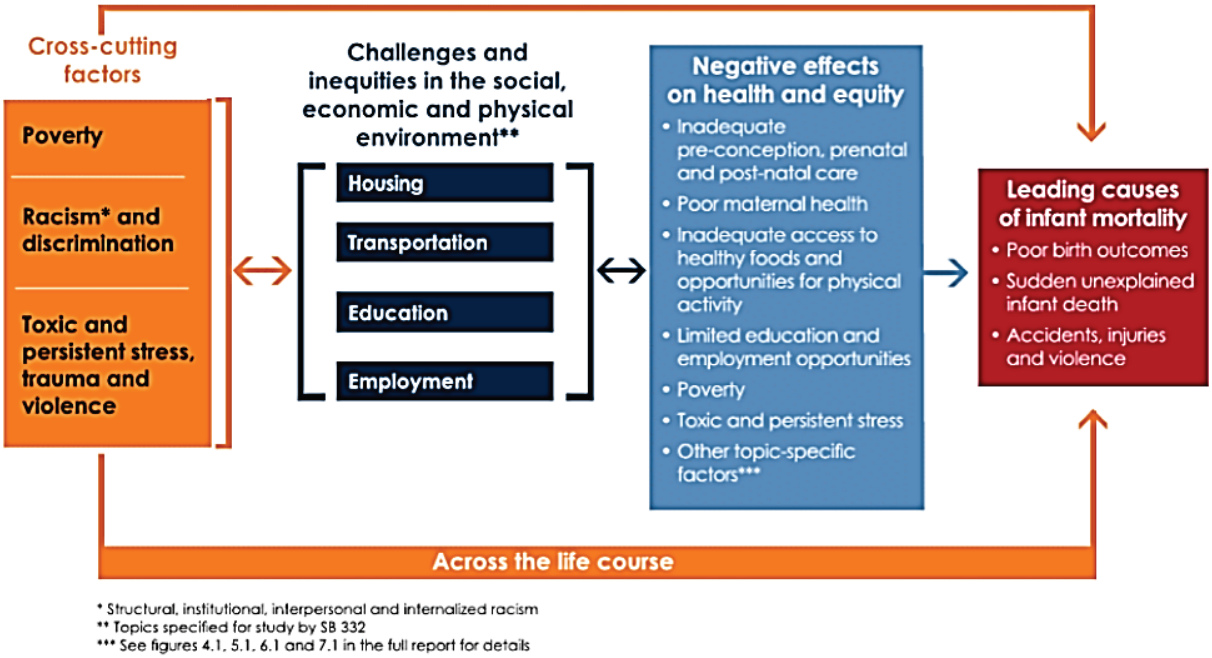
Source: Celebrate One Annual Report 2016

Figure 7: Leading Causes of Infant Deaths in Franklin County

The State of Ohio also took notice of the rising infant mortality rate affecting Ohio. In Senate Bill 322 (2016), legislators called for action against infant mortality. This bill required that a non-profit research this issue and provide recommendations to move Ohio forward in assisting expectant women and their children. The state hired Health Policy Institute of Ohio whose research has also shown pre-term birth to be a leading factor in infant mortality across the state.

Both CelebrateOne and the Health Policy Institute of Ohio agree that there are many factors impacting infant mortality. These factors are often referred to as social determinants of health. Key social determinants of health identified in the Health Policy Institute of Ohio report, *A new approach to reduce infant mortality and achieve equity*, include housing, education, employment and transportation. As this is a USDOT grant, this project will maintain a focus on the transportation issues within pre-term birth, specifically getting expectant women to and from their prenatal appointments.

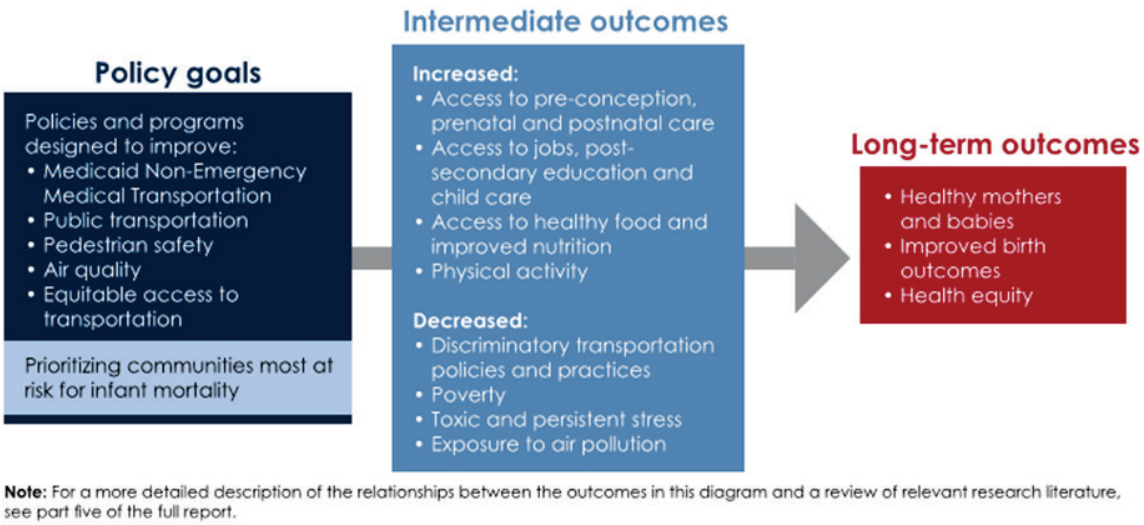
Figure 8: Summary of Relationships Between Social Determinants of Health and Infant Mortality from the Health Policy Institute of Ohio illustrates how social determinants of health challenges and inequities affect infant mortality. Transportation is noted in the second column.



Source: Health Policy Institute of Ohio, December 2017

Figure 8: Summary of Relationships Between Social Determinants of Health and Infant Mortality

When the Health Policy Institute of Ohio focused its research on transportation, it identified the following policy goals, intermediate outcomes and long-term outcomes shown in **Figure 9: Transportation Policy Goals**.



Source: Health Policy Institute of Ohio, December 2017

Figure 9: Transportation Policy Goals

NEMT and prenatal care continue to be on every report and list of recommendations when it comes to tackling infant mortality.

Figure 10: Transportation Policy Goals and Recommendations breaks those policy goals down into next step recommendations which highlight the need for the PTA project.

Transportation policy goals and recommendations

Goal 1	Increase access to health care, particularly for pregnant women and parents of young children, by evaluating and continuously improving Medicaid Non-Emergency Medical Transportation provided through managed care plans
1.1	Medicaid managed care plans can monitor NEMT grievances from members and promptly make changes to improve the timeliness and quality of NEMT, prioritizing infant mortality hot spot areas.
1.2	Medicaid managed care plans can improve the timeliness, responsiveness, and customer service of NEMT provided by vendors (including reduced wait times and improved scheduling process), and increase the overall accountability and transparency of the Medicaid NEMT system.
1.3	Medicaid managed care plans can explore the use of Lyft, Uber or other ride-sharing services and innovative technologies (such as apps) for NEMT.
1.4	The Ohio Department of Medicaid can carefully monitor and enforce managed care plan compliance with NEMT requirements in their contracts.

Goal 2	Increase access to health care, particularly for pregnant women and parents of young children, by evaluating and continuously improving Medicaid Non-Emergency Medical Transportation to be provided through the new state-based brokerage model starting in 2018
2.1	The Department of Medicaid can develop performance metrics and a data tracking system to monitor the effectiveness of the new brokerage model. Metrics to monitor include: a. Passenger information (type of visit, number of passengers, etc., while protecting patient privacy) b. Ride information (on-time rates, no-show rates for drivers and passengers, wait times, etc.) c. Quality of service information (complaints, driver reviews, call volume and responsiveness, etc.) The Department can use this information to monitor performance of vendors, identify trends, increase transparency and accountability, and improve service, particularly in infant mortality hot spot areas.
2.2	The Department of Medicaid can use the results of the performance measurement described above to improve the timeliness, responsiveness, and customer service of NEMT provided by vendors (including reduced wait times and improved scheduling process) and increase the overall accountability and transparency of the Medicaid NEMT system.
2.3	The Department of Medicaid can explore the use of Lyft, Uber or other ride sharing services and innovative technologies (apps) for NEMT.

Source: Health Policy Institute of Ohio, December 2017

Figure 10: Transportation Policy Goals and Recommendations

The ODM has also been focused on this issue. Until May 2018, ODM was moving quickly on creating changes to the county delivered NEMT services. Given the upcoming gubernatorial race and initial push-back from rural counties to a centralized NEMT delivery system, ODM has decided to make this a 2019-2020 issue.

3.2 Operational Policies and Constraints

Operational policies and constraints in this section (see **Table 3: Operational Policies and Constraints of the Current System**) apply to the current situation. Operational policies are predetermined decisions regarding the operations of each component or sub-component of the current system, typically in the form of general statements or understandings that guide development, design and decision-making activities. Constraints are impediments outside of policy that restrict the current system from achieving its goal with respect to objectives.

Table 3: Operational Policies and Constraints of the Current System

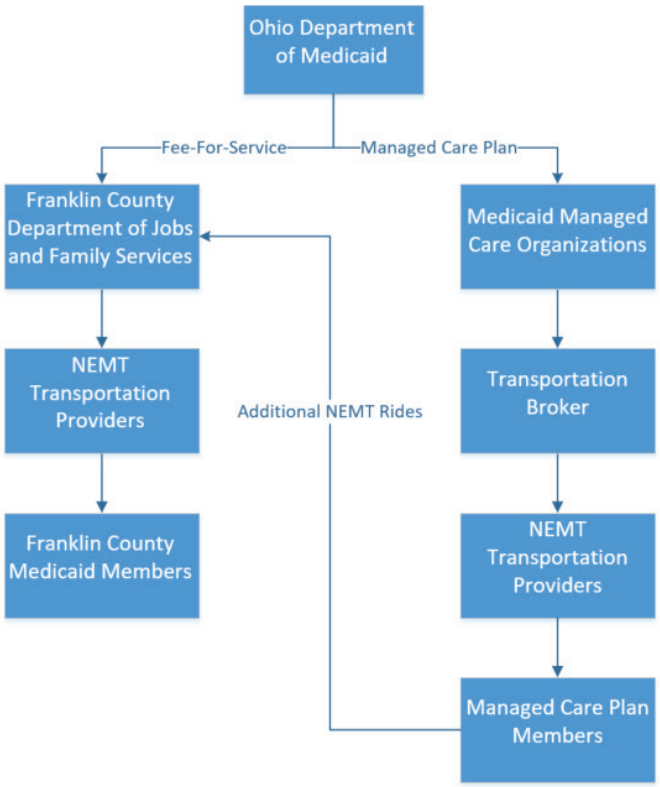
Category	Operational Policies and Constraints
Constraint	Medical offices, MCOs and NEMT Mobility Providers do not have an ability to share information about NEMT trips, i.e. origin and destination, time of arrival, time of departure or a missed trip.
Constraint	Data does not exist in a common format to allow MCOs, ODM or others to make informed decisions on changes to the NEMT services provided to expectant women.
Constraint	Many NEMT Mobility Providers are contracted by multiple entities (TBs, agencies, companies, etc.) to provide NEMT services. Each entity has its own requirements around documentation which can lead to data entry mistakes.
Constraint	It is acknowledged there are existing policies and constraints imposed by Mobility Providers through existing API usage which limit the functionality available to third-party developers. There are Mobility Providers who may not currently share APIs with third-party developers or support open standards and data exchange.
Constraint	There are five MCOs each with their own TB, either in-house or through contract.
Constraint	The City of Columbus does not play a role in the delivery of NEMT services and will need to bring multiple partners, who are competitors in the Medicaid marketplace, on board to work together.
Policy	There are policies at the state (ODM) level and the federal level when it comes to NEMT services that must be followed. These policies, rules and regulations are listed in **Table 1: References**.
Policy	NEMT Mobility Providers have a policy of not providing car seats for riders. They will allow a rider to bring a car seat with her to install but will not assist in the installation.

Source: City of Columbus

3.3 Description of Current System

3.3.1. Organizational Structure

The following section shows how the NEMT transportation system currently flows from ODM to the member. **Figure 11: Current System NEMT Transportation Providers** is a visual representation of the process.



Source: City of Columbus

Figure 11: Current System NEMT Transportation Providers

3.3.2. Ohio Department of Medicaid

ODM is the lead agency governing Medicaid services in the State of Ohio. As of January 2018, Ohio's Medicaid membership was about 2.9 million individuals[6]. Medicaid provides eligible recipients two healthcare delivery options, depending on their eligibility category. They are either enrolled in a managed care plan provided by the MCOs or they access services through the traditional Medicaid (fee-for-service) program. Fee-for-service allows Medicaid recipients to use the state's Medicaid approved network of providers for services and accounts for about 14 percent of Medicaid recipients. Managed care plans allow Medicaid recipients to use the MCO's approved network of providers for services and makes up the remainder, about 86 percent, of Medicaid members. The Medicaid member period is 12 months from the date initial determination was approved and is available for renewal annually based on the month of enrollment.

[6] *Ohio Department of Medicaid.*

The federal government requires transportation to medical care be provided to Medicaid recipients. Transportation is a major benefit that ODM offers through either MCOs or County Departments of Job and Family Services.

NEMT, a frequently used transportation type, is used for Medicaid recipients where the member does not need emergency transportation to attend medical and health related appointments. Some examples of NEMT needs are for regular primary care physician check-ups and dental, eye, vision or Obstetrics and Gynecology appointments. The NEMT benefits provided by the MCOs and the counties will be discussed in greater detail in the following sections.

During the late fall of 2017, ODM issued a request for information as work began to implement a provision from the Fiscal Year 2018-2019 state budget bill that transitions responsibility for Ohio's NEMT from the state's current county-based system to a state-based brokerage model. While this change has been tabled due to the upcoming gubernatorial election, it is likely that a new, regional or statewide system around county delivery of Medicaid services will continue to be a goal for Ohio. This future change is unlikely to affect NEMT service delivery requirements for MCOs.

3.3.3. Managed Care Organizations

In Ohio, five MCOs have contracted with the State to provide Medicaid coverage to eligible residents.

- Buckeye Community Health Plan
- CareSource
- Molina Healthcare of Ohio Inc.
- Paramount Advantage
- United Healthcare Community Plan of Ohio, Inc.

Additionally, Ohio manages dually eligible Medicare-Medicaid individuals residing in 29 counties through health insurance companies called MyCare Ohio Plans (MCOPs). The following five MCOPs in Ohio offer two plans in each of the seven regions.

- Aetna
- Buckeye Community Health Plan
- CareSource
- Molina Healthcare of Ohio Inc.
- United Healthcare Community Plan of Ohio, Inc.

The number of enrolled members through MCOP that could become pregnant is extremely low and therefore, this PTA pilot will focus on the traditional MCOs.

As previously stated, MCOs provide transportation to medically necessary appointments as outlined in the MCO agreement with ODM. For example, MCOs provide NEMT for all medical appointments where members must travel 30 miles or more one way for care. Each MCO may also offer members additional benefits such as rewards programs for attending medical care appointments, completing a health

screening or getting a flu shot. Transportation is another area where the MCOs have decided to offer additional benefits to their members. Four of the five MCOs offer 30 one-way trips per member, per calendar year for appointments that are located within 30 miles of the member's home address. One MCO offers 60 one-way trips per member, per 12-month period for appointments located within 30 miles of the member's home address. All five MCOs allow trips to be used for medical appointments, Medicaid re-determination appointments with the Franklin County Department of Job and Family Services and Women, Infants and Children services. MCOs allow a stop at a pharmacy to pick up prescriptions on the way home from a medical appointment.

Each MCO also has additional pregnancy benefits for Prenatal Travelers including cash reward programs for attending prenatal doctor appointments. Some MCOs have also added transportation benefits for Prenatal Travelers including unlimited trips to prenatal appointments, one additional passenger in the car (additional passengers must be necessary for medical reasons or be children) and same-day transportation.

MCOs contract with TBs to provide transportation services to Medicaid members. The brokers' services include managing authorized trips and hiring NEMT Mobility Providers to conduct the transportation service. These brokers and their providers must comply with state and federal requirements to provide Medicaid transportation services.

NEMT Mobility Providers are the boots or "wheels" on the ground providing the actual transportation to the Medicaid member. NEMT Mobility Providers can come in all shapes and sizes and the TB does their best to right-size the vehicle for the transportation need. Transportation vehicle types include ambulettes (wheelchair vans), shuttles, ambulances, vans, and sedans. MCOs and TBs also use bus passes when it makes sense. Bus passes are normally for daily use but if a member has a certain number of appointments in one month, a monthly bus pass can be requested. Weekly bus passes may also be available if a member has more than two appointments in the same week. Some MCOs also offer mileage reimbursement if a family member or friend can drive the member to their appointment. This benefit needs to be approved in advance. Not all MCOs offer this benefit.

To schedule a trip, the member calls a designated call center phone number at least 48 hours in advance of the medical appointment. Most MCOs allow members to call up to 30 days in advance (period of Medicaid validation) of the appointment to schedule transportation. At the time of the transportation reservation, the member is responsible for sharing any additional/special needs for that trip, i.e. additional passengers, assistance needed from her home to the vehicle, etc. Members traveling with young children who, by Ohio law, require a car seat must supply their own car seat(s). The managed care plans vary on whether the member must be at the Medicaid registered address or another location for pickup and drop-off. The MCOs/TBs typically provide reminder calls to the member for their upcoming transportation reservation. The transportation provider may set a pickup time up to 1 hour in advance of the member's appointment time. For the return trip, the transportation provider typically gives the member a number to call to let it know when the member is ready for a ride home. The transportation provider must pick up the member within one hour of the call. For members who live 30 miles or more away from their medical appointment, the member must be picked up within 30 minutes. When scheduling the ride home, the member needs to notify the driver that an additional stop at a pharmacy is needed to ensure proper time is allotted for the trip. The MCOs would prefer members stop on the way home to receive and begin taking their medication as soon as possible. If a trip changes or cancellation is necessary, the member calls the designated call center to update the reservation.

Currently, no MCO offers an online portal or application to schedule transportation appointments.

3.3.4. Franklin County Department of Job and Family Services

FCDJFS receives funding from ODM to provide services to county residents enrolled in Medicaid, one of which is transportation.

The County provides an unlimited number of transportation rides to Medicaid eligible health appointments through two programs: Non-Emergency Transportation (NET) which focuses on anyone needing NEMT services and pregnancy-related services (PRS), which focuses on pregnant women. This ConOps only discusses the PRS program. The County issues a request for proposals every two years. Most recently, FCDJFS contracted with seven transportation providers: Airport Taxi, Bobcat Taxi, Best Choice, Super Shuttle, Arch Express, Kemper Shuttle and Metro Trans.

To schedule a ride, a member calls the County's Transportation Unit call center at least one business day in advance. The call center is open Monday through Friday from 7 a.m. to 5 p.m. FCDJFS checks the member's eligibility for Medicaid benefits in real-time through the ODM Benefits System. The member is told to be ready for pickup at least one hour prior to her scheduled appointment time. For the return trip, the driver will give the member a return slip with contact information, so the member can alert the driver when she is ready for pickup. Pharmacy pickups need to be scheduled in advance if the member wants to stop on the way home after the medical appointment. All changes and cancellations need to be made through the Transportation Unit call center.

During the last three months of a woman's pregnancy, FCDJFS also allows the member to call the taxi cab company directly after the call center's normally scheduled hours to arrange immediate transportation. This enhanced service is in effect until the baby is 2 months old.

During 2017, FCDJFS reported 120 trips were requested through their PRS program at a cost of $609 for completed trips. FCDJFS does not track the trips by zip code to know how many of those trips were requested in the pilot zone for this project.

3.3.5. Medical Offices

While Medical Offices don't have a technical role in the NEMT service delivery system, they can be significantly affected when NEMT services go wrong and are at a disadvantage from the lack of communication from NEMT Mobility Providers. Medical Offices schedule patients throughout the day based on the type of appointment they have and build an "emergency visit" and last-minute cancellation calculation into their planning. Medicaid no-show rates tend to be around 30-50 percent based on stakeholder feedback. While they could not attribute it to transportation through collected data, anecdotally transportation was to blame when they spoke to members. Medical offices do not have the ability to know if a patient is running late, has cancelled or missed the NEMT trip or to know when the NEMT service will pick the patient up after an appointment. This lack of information can lead to delays for other patients, cancelling a patient's appointment or having an overflowing waiting room while patients are waiting for NEMT pickup.

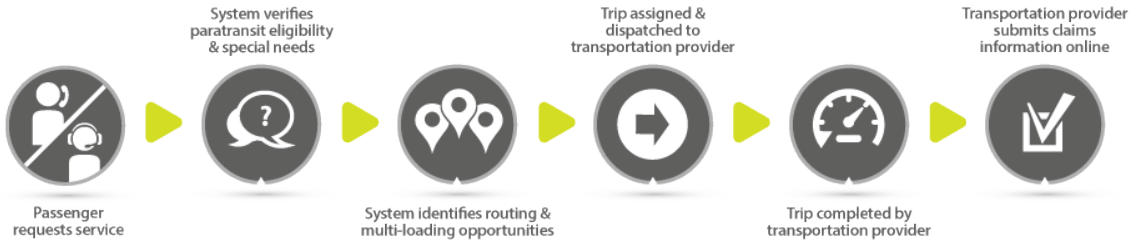
3.3.6. Transportation Broker

TBs are hired by MCOs to deliver the NEMT services prescribed by law and any extra trips offered. The TB will then hire NEMT Mobility Providers to provide the actual transportation. TBs operate the call center where the member calls to make a reservation. They answer the phone on their client's behalf, so the member does not realize she is calling the broker. The TB requests the member's name and MCO member identification then verifies their Medicaid eligibility. Eligibility is verified by the Ohio Benefits System. The MCOs have access to a list created by ODM which the MCOs scrub down to the relevant data and share with the TBs. ODM and the MCOs also have additional changes to the member eligibility list that occur throughout the month (new members), which are shared with the TB. This benefit list transfer is done by emailing a file from the MCO to the TB.

Once eligibility is confirmed, the call center staff collects information about where the member is going, the time of the appointment, any special needs, i.e. guests that might be accompanying the member, and gives the member a confirmation that the ride has been set. The TB takes the NEMT request and right sizes it with the right vehicle and considers other trips scheduled for that day. The member is given the name of the company who will service the ride and the window of time that the ride could pick them up.

The TB has contracts with multiple NEMT Mobility Providers that can provide a variety of vehicles from sedan to ambulance. Complaints and compliments about NEMT services are directed to the MCO, though some complaints do come to the TB first.

Figure 12: Prenatal Traveler NEMT Trip Flow Chart shows the NEMT request and trip flow from the NEMT Mobility Provider's perspective (NEMT mobility provider is shown as transportation providers in this figure).



Source: MTM Transportation

Figure 12: Prenatal Traveler NEMT Trip Flow Chart

3.3.7. Non-Emergency Medical Transportation Mobility Provider

TBs hire NEMT Mobility Providers to service NEMT reservations. NEMT Mobility Providers can have a myriad of vehicles to use for services, but for PTA purposes, sedans are the main types of vehicles used for these trips. These NEMT Mobility Providers are given a list of reservations to service. Some TBs give the NEMT Mobility Providers a software application to use to transfer information or a device for drivers to use to pull up the information.

Once a driver arrives at a destination, if the member is scheduled for a return trip, the driver gives his or her name and phone number for the member to call the driver directly. Members can preschedule a return

trip, but it is discouraged as most appointments do not have predictable end times. The return trip is a time of potential contention if the member wants to stop at a pharmacy to fill a prescription on the way home. Interviews with members have shown that some NEMT Mobility Providers refuse to stop at the pharmacy on the return trip unless it was requested with the initial reservation. During conversations with MCOs, they shared that the member has the right to stop on the return trip and the MCOs prefer it happens in that order, so a new trip is not necessary. Providing that return trip pharmacy stop allows the member to receive the prescriptions in a timely manner and is also more efficient in terms of cost and driver scheduling.

3.4 Modes of Operation for the Current System

This section describes the modes of operation for the current system, including the impacted user classes for each mode as shown in **Table 4: Modes of Operation for the Existing NEMT System of an MCO**.. NEMT service delivery is currently a manual process which starts through a call center. There is no interconnectivity to track failed communications and actions of the parties in this process.

Table 4: Modes of Operation for the Existing NEMT System of an MCO

Mode	Definition
Operational (Regular)	Normal operating condition, the current system is operating as designed. The system is functioning during work hours.
Failure Mode	Failure mode represents a communication failure. Examples follow: • When a Prenatal Traveler does not show up for pickup no information is shared with the medical office (in case the appointment needs to be cancelled or rescheduled), • NEMT mobility provider does not respond to Prenatal Traveler return trip pickup request, and • ODM benefit list does not properly list the Prenatal Traveler even though they have benefits.
Maintenance	The condition of the current system where service is unavailable due to routine or unscheduled maintenance.

Source: City of Columbus

3.4.1. User Classes of the Current System

Table 5: Current System Users describes the user classes of the current system that includes the City, Prenatal Travelers, MCOs, TBs, NEMT Mobility Providers, ODM, FCDJFS and Medical Offices.

Table 5: Current System Users

User Classes	Description
The City/CelebrateOne	The City is comprised of City of Columbus employees who wish to partner with MCO's to facilitate PTA for Prenatal Travelers. The City through CelebrateOne has been collecting information around MCO delivery of NEMT services and has been working with the MCOs as partners in the fight against infant mortality.
Prenatal Travelers	Prenatal Travelers are end users of the current system (Medicaid members who are pregnant) who utilize NEMT services provided by FCDJFS or MCOs. There are about 3,700 Medicaid births per year in the eight CelebrateOne neighborhoods.
MCOs	MCO's are the Medicaid service delivery agents for the ODM. Specific to this project, they are responsible for providing NEMT to Prenatal Travelers. They contract with TBs to handle all aspects of the NEMT service delivery from call center, review and approval/denial of requests and contracting with NEMT Mobility Providers to execute the trip.
TBs	TBs connect NEMT mobility providers to MCOs and their members through the operation of a call center to handle all transportation related needs. TBs contract with the MCOs to deliver NEMT services through contracted NEMT Mobility Providers. When NEMT requests come in, the TB schedules the trip and assigns the appropriate vehicle to meet the needs of the Prenatal Traveler.
NEMT Mobility Providers	NEMT Mobility Providers deliver NEMT services to Prenatal Travelers and other Medicaid members. They can be taxis, limos, shuttles, ambulances or TNCs. They contract with a TB or with FCDJFS directly to deliver services.
ODM	The Ohio Department of Medicaid is the state department responsible for carrying out the state and federal laws, rules and policies around delivering Medicaid services. ODM contracts with MCOs and each of Ohio's 88 counties to deliver NEMT services.
FCDJFS	FCDJFS is a partner with ODM in delivering NEMT services. It receives direct reimbursement from ODM for supplying NEMT services for Medicaid members. Its services are a supplement to the MCO NEMT benefits and are also available to newly accepted Medicaid members before the member selects an MCO plan to join. FCDJFS has a special program for pregnancy related NEMT trips. FCDJFS has a call center that communicates with contracted NEMT Mobility Providers to schedule and execute trips.
Medical Offices	Medical offices do not have an obvious role in the NEMT service current system but the impact of the system on their business is important enough to make them a user. While the office staff can assist a patient by calling for the return trip making them a direct component

User Classes	Description
	of the system, it's the impact of the inefficiencies of the system that is more important. Due to the lack of communication in the current system, the office doesn't know if traffic will be making a patient late, if the patient cancelled the NEMT ride or if the patient was a no-show at the pickup location.

Source: City of Columbus

Chapter 4. Justification and Nature of Changes

NEMT is an important service that has emerged as a leading Smart City application. Columbus has committed to improving transportation for all residents, including access to healthcare. This chapter identifies the user needs developed for the PTA project and the justification of those user needs derived from existing city goals, working group sessions, and the outreach identified in the Stakeholder Engagement (see **Chapter 2 References**).

While the current system satisfies the basic needs for NEMT services, it does not currently provide technology that can improve the expectant woman's experience and thus encourage adherence to doctor visits. Technology can create an easier scheduling experience through more options than just a phone call. Technology can also provide options for customer service feedback, proper data collection, true on-demand services, trip optimization and additional safety features readily available through current TNC vendors in Ohio such as, the location of the vehicle delivering NEMT services or information about the driver's identity and vehicle.

Gaps in the current system may be summarized as:

- Scheduling NEMT trips is only available through a call center with no other options
- Access to on-demand transportation is limited
- City agencies don't control the trip data, and face obstacles when requesting trip data from NEMT Mobility Providers or MCOs
- Trips are not being optimized for real time changes
- There is a lack of communication between the Mobility Provider, Prenatal Traveler, and Medical Office
- Uncertainty in time of return trip makes providing service difficult and reduces Prenatal Traveler's acceptance of the system
- Medical Offices do not have insight into whether a Prenatal Traveler was a "no-show" or a trip has been cancelled which may trigger the need to reschedule the appointment
- Information on the driver of the vehicle is not available to the Prenatal Traveler
- No available real-time information on driver location and arrival time
- MCOs need a reliable method to receive complaints from members

The overarching objective of the PTA is to provide a convenient and easy to use scheduling experience based on the different types of technology available to the target population with a focus on efficiency and safety. These needs are especially prevalent when dealing with pregnant women in these CelebrateOne

neighborhoods. Infant mortality rates in these neighborhoods are almost twice as high as the U.S. average.

Furthermore, the lack of a reliable and easy to use system, can be a deterrent for some expectant women to seek the medical attention they need during their pregnancy.

4.1 Justification for Changes

The PTA will address primary gaps in the current system that are unmet under existing conditions. By satisfying these needs, the PTA will achieve its objective of providing a convenient smartphone application/web portal and call center where Prenatal Travelers can schedule NEMT trips that can be delivered on-demand and with the safety features available with today's existing technologies. Table 6: Justification for Changes outlines the improvements the PTA offers above and beyond the existing system.

Table 6: Justification for Changes

User Class	Current Situation	Benefit of PTA
Prenatal Travelers	Travelers do not have access to a smartphone application or web portal to schedule NEMT trips.	PTA will provide Prenatal Travelers with a free smartphone application, web portal and a call center to schedule NEMT trips.
Prenatal Travelers	Prenatal Travelers do not receive vehicle or driver information when scheduling NEMT trips.	PTA will share details about the driver and his or her vehicle with the Prenatal Traveler to add an extra layer of safety. Driver information would include the driver name. Vehicle information would include make, model, color and license plate.
Prenatal Travelers	Prenatal Travelers must arrange a trip (48 hours is preferred, 24 hours is minimum) in advance from a pre-specified pickup location.	PTA will allow on-demand trip service from the Prenatal Traveler's current location to the Medical Office. PTA will also help with return trips back from the Medical Office.
Prenatal Travelers	Prenatal Travelers cannot see the vehicle location in real-time to estimate when it will arrive.	PTA will provide real-time location information of the Mobility Provider.
Prenatal Travelers	Prenatal Travelers typically receive one phone call reminder one to two days in advance of their trip which may not be adequate.	PTA will provide multiple reminders to Prenatal Travelers based on the method of communication they prefer.

User Class	Current Situation	Benefit of PTA
Prenatal Travelers	Prenatal Travelers do not have a convenient way to give complaints or compliments.	PTA will provide multiple opportunities to leave feedback on the NEMT service.
Prenatal Travelers	Prenatal Travelers do not have NEMT options with car seats available upon pickup.	PTA will provide car seats through the NEMT Mobility Providers.
The City/CelebrateOne	The City/CelebrateOne does not have adequate data on NEMT services for pregnant women in the eight CelebrateOne neighborhoods.	The PTA will provide adequate data on NEMT services for pregnant women in the eight CelebrateOne neighborhoods. The City will have access to detailed travel data through integration with the Operating System. Information can be used to guide public policy decisions.
Ohio Department of Medicaid	ODM does not have adequate data on NEMT services to make policy decisions.	PTA will provide data on NEMT services for pregnant women in the eight CelebrateOne neighborhoods. ODM will have access to detailed travel data through integration with the Operating System. Information can be used to guide public policy decisions.
MCOs	MCOs do not have adequate data on NEMT services to make operational decisions.	• PTA will provide data on NEMT services for pregnant women in the eight CelebrateOne neighborhoods. MCOs will have access to data from the PTA system. • This data will allow the MCOs to see when a reservation request was made, a ride was executed and in the case of a no-show complaint, how long a vehicle waited at the pickup address. • MCOs will have an easier way to gather and address complaints with this information.
NEMT Mobility Providers	NEMT Mobility Providers do not have contact information for the Prenatal Traveler to assist with efficient service delivery.	PTA will provide Prenatal Traveler contact information through anonymized methods to allow the driver to call the Prenatal Traveler if there is a service delivery issue.

User Class	Current Situation	Benefit of PTA
Medical Offices	Medical Offices do not have any information available on the patient's NEMT services.	PTA will share information with Medical Offices when a patient cancels her NEMT reservation, misses the NEMT pickup or when traffic is going to make the patient late for her appointment. This will allow the Medical Offices to make strategic decisions around additional outreach to the patient or moving patients around in the schedule to ensure no one should wait too long or miss her appointment. This information can provide insight into why someone might miss an appointment, i.e. transportation related issue.

Source: City of Columbus

4.2 Description of Desired Changes

The PTA will add new capabilities over the existing system and integrate with the Operating System for improved access to travel data and system performance. The desired outcome of the PTA is to provide reliable, convenient, and efficient transportation services that benefit Prenatal Travelers and data around NEMT services to assist in future policy and business decisions. Enhanced NEMT services should encourage expecting mothers to attend prenatal doctor visits and other health related appointments. Doctor offices should experience lower no-show rates for Medicaid members. MCOs should see improved health care for expectant mothers and newborns. These expected results should help address pre-term birth which is one of the factors that affect infant mortality.

Table 7: User Needs contains user needs of the project as identified by stakeholder meetings, surveys, and use cases. Each need is given a combination of unique identifier and title for reference purposes in **Chapter 6. Operational Scenarios**. All user needs are grouped per User Class as defined in **Chapter 5.**

Background, Objectives and Scope. By meeting these user needs, the PTA will provide value beyond the current system and create a user-friendly transportation experience beginning with scheduling and ending with feedback on the completed trip. This value can be objectively evaluated by focusing on indicators of smartphone application, web portal and call center usage and customer satisfaction with the PTA. The Smart Columbus team will collect survey data directly from PTA users, as well as usage information from the technology vendor/TB, MCOs and the Operating System to better understand how customers are using the PTA, and how satisfied they are with the application. More detailed information on the types of information collected and the statistical analysis used to make inferences about overall application success will be forthcoming in the Smart Columbus Performance Measurement Document.

Table 7: User Needs

Identification	Title	Description	Rationale
PRENATAL TRAVELER NEEDS			
PTA-UN001-v01	Personal Devices	Prenatal Travelers need the PTA system to offer a free account-based smartphone application that can be downloaded and installed on their personal devices from public app stores. The PTA system needs to operate on Android and iOS devices.	To support a range of devices at no charge to encourage downloads and usage.
PTA-UN002-v01	Trip Scheduling	Prenatal Travelers need the PTA system to offer means (smartphone application/mobile friendly web portal/call center) to schedule on-demand and pre-scheduled trips, change and cancel transportation and change personal information.	To provide convenient scheduling options for Prenatal Traveler.
PTA-UN003-v01	Graphic User Interface (GUI) (Transaction Equipment)	• Prenatal Travelers need the PTA system to provide a GUI to interact with the application. The GUI needs to display maps, text and other graphical information to allow effective use of the application. • Prenatal Travelers need the PTA system to offer an interactive map that shows real-time movement of their transportation before pickup.	To allow Travelers to interact with the application.
PTA-UN004-v01	Delay of Arrival or Cancellation of Trip Request	Prenatal Travelers need the PTA system to notify the Medical Office if the travel is delayed or cancelled.	To inform Medical Offices of any delay or cancellation of the Prenatal Traveler's transportation to prompt rescheduling if necessary.

Identification	Title	Description	Rationale
PTA-UN005-v01	Timely Return Pickup	Prenatal Travelers need the PTA system to provide timely pickup for the return trip from the medical office to home.	To provide a timely service.
PTA-UN006-v01	Vehicle and Driver Description	Prenatal Travelers need the PTA system to offer a description of the pickup vehicle (make, model, color) and driver (name).	To inform Prenatal Traveler of driver information for improved safety.
PTA-UN007-v01	Prenatal Traveler Notifications	Prenatal Travelers need the PTA system to provide configurable notifications/reminders before the pickup time.	To remind Prenatal Traveler of upcoming trip.
PTA-UN008-v01	Cancel or Change Option	Prenatal Travelers need the PTA system transportation reservation information notifications to have a cancel or change feature/link.	To account for unforeseen changes and allow for convenience and flexibility when traveling.
PTA-UN009-v01	Multiple Languages	Prenatal Travelers need the PTA system to communicate in English, Somali and Spanish.	To support the Traveler's preferred language.
PTA-UN010-v01	User Preference	Prenatal Travelers need the PTA to store user preferences. User accounts will be password protected and the users will be able to change their passwords. Preferences include a type of communication notification, address of pharmacy or frequently visited medical office. User preferences should be optional configurations in the application.	To reduce or filter unwanted information and to place preferences in the system.

Identification	Title	Description	Rationale
PTA-UN011-v01	Accept Bookings/ Reservations	Prenatal Travelers need the PTA system to accept input of origin, destination, and time of departure to book/reserve trips (both to and from an appointment) using the PTA system in accordance with the policies of individual service providers and to receive confirmation that bookings/reservations have been processed and accepted.	To provide the convenience and flexibility of using a single source to book/reserve NEMT trips.
PTA-UN012-v01	Delay/ Cancellation Notification	Prenatal Travelers need the PTA system to notify them if a reserved trip is delayed or cancelled.	To be informed of changes to a scheduled trip and to adjust as needed.
PTA-UN013-v01	Access to Instructions and Educational Material	Prenatal Travelers need the PTA system to provide access to limited instructions to facilitate understanding and adoption. Instructions will be accessible, such as help with navigation or how to access account information. Prenatal Travelers will have access to educational material, such as frequently asked questions or how-to videos. Access to instructions and educational material does not constitute training, either web-based or in-person.	To offer guidance on how to operate the application or website.
PTA-UN014-v01	Trip History	Prenatal Travelers need the PTA system to provide the ability to view the number of trips allotted under their benefits and their trip history (how many trips have been taken) to have a complete record of all travel.	To have a complete record of all travel.

Identification	Title	Description	Rationale
PTA-UN015-v01	Feedback	Prenatal Travelers need the PTA system to provide the ability to submit feedback on the smartphone application. This information will be used by the MCOs and the City to determine whether the application is working as intended and to make enhancements.	To communicate likes and dislikes while using the app.
PTA-UN016-v01	Offline Usage	Prenatal Travelers need the PTA system to provide the ability to continue using the application when internet connectivity is temporarily unavailable to allow for uninterrupted use. This ability may be limited to static data or map cache for the current trip.	To allow for limited, uninterrupted use when there is no internet connectivity.
PTA-UN017-v01	Trip Optimization	Prenatal Travelers need the PTA to provide trip optimization services (routing engine) to determine the best route options.	To determine the best route options for Travelers based on available data from Mobility Providers and user preferences.
PTA-UN018-v01	Security and Encryption	Prenatal Travelers need the PTA system to encrypt communications to hide information from those not authorized to view it.	To protect Traveler information from those not authorized to view it.
PTA-UN019-v01	Car Seat	Prenatal Travelers need the NEMT Mobility Providers to offer car seats in their vehicles.	To allow safe rides for children passengers.
PTA SYSTEM NEEDS (TECHNOLOGY VENDOR/TB)			
PTA-UN020-v01	Open Standards	The Operating System needs the PTA system to support exchange of data through open APIs.	To share data with the Operating System.

Identification	Title	Description	Rationale
PTA-UN021-v01	Account Ownership	The PTA system needs to retain "ownership" of Prenatal Traveler accounts that are registered with it to protect participant information. In other words, if a customer registers an account with the PTA system, the account is owned by the System. "Ownership" is defined as the single point of entry for the customer.	To protect participant information.
PTA-UN022-v01	Trip Data	The PTA system needs to provide trip data to allow the City and MCOs to make informed decisions regarding future improvements to the pilot itself and to support broader transportation policy decisions. Trip data should consist of, at least, the following and pertains only to an executed trip: trip request (time, origin, destination, route), trip start time, mode, and trip end time. The trip should reference all trip activity. Trip data will not contain personally Identifiable Information (PII) that could potentially identify a specific individual.	To allow for policy making around NEMT service.
PTA-UN023-v01	Driver and Vehicle Info	The PTA system needs NEMT Mobility Providers to provide driver and car details to allow Prenatal Travelers to identify cars and drivers during pickup. NEMT Mobility Providers will be responsible for performing background checks to ensure drivers have clear driving records to ensure Prenatal Traveler safety.	To provide additional safety measures for the Prenatal Traveler.

Identification	Title	Description	Rationale
PTA-UN024-v01	PTA-MCO Integration	The PTA system needs to integrate with the MCOs to transfer data and check Medicaid eligibility.	To ensure the Prenatal Traveler is still an MCO member and eligible to receive benefits.
PTA-UN025-v01	Medical Office Integration	The PTA system needs to integrate with the Medical Offices to send notification information about a Prenatal Traveler's NEMT service.	To allow Medical Offices to take additional scheduling steps based on Prenatal Traveler's information.
PTA-UN026-v01	Request Accessible Vehicles	The PTA system needs to provide qualifying Prenatal Travelers with disabilities the ability to request an accessible vehicle. The PTA system needs to store this information to prevent having to re-enter the same request for each subsequent trip.	To accommodate special vehicle needs for qualifying Prenatal Travelers with disabilities.
OPERATING SYSTEM NEEDS			
PTA-UN027-v01	Access to Data	The City needs access to data generated by the PTA system.	To guide public policy decisions.

Identification	Title	Description	Rationale
PTA-UN028-v01	Certification and Accreditation	The City needs a certification and accreditation provider to assess the quality, security, and "openness" of the System, to ensure the System meets user needs. Quality is defined as the state of being free from defects, deficiencies and significant variations, and is achieved through demonstration of the ability to satisfy user needs. Security is defined as the state of being protected against the unauthorized use or loss of information, especially electronic data, and the measures taken to achieve this. Openness refers to the adherence to open standards and design to ensure the System or aspects of the System are beneficial to other cities as part of the Smart Cities initiative.	To ensure the PTA system meets the user needs and the goals of Smart Columbus demonstration project.
PTA-UN029-v01	Open API for Data Transfer	The Operating System needs data provided through open APIs to be structured and machine readable and follow the open data standards and schema defined by data.gov (https://www.data.gov/opendata/).	To transfer data from the PTA system to the Operating System for City and Third-Party use.
OHIO DEPARTMENT OF MEDICAID NEEDS			
PTA-UN030-v01	ODM Data Access	ODM needs access to data (records/reports) from this project.	To guide policy decisions.
MCO NEEDS			
PTA-UN031-v01	MCO Data Needs	MCOs need the PTA system to allow access to all data (scheduled, modified and cancelled trips, missed trips, number of times a member visits) via a portal (phone or website).	To guide policy and business decisions.

Identification	Title	Description	Rationale
PTA-UN032-v01	MCO-PTA Integration	MCOs need the PTA system to provide easy integration with their current system and with their NEMT Mobility Provider's System.	To keep implementation costs down.
PTA-UN033-v01	PTA System Easy-to-Use	MCOs need the PTA system to be an easy-to-use program for Medicaid members of varying levels of education and technology understanding.	To ensure all eligible participants will be able to use the system.
PTA-UN034-v01	Fraud Prevention	MCOs needs the PTA system to prevent fraud and abuse of NEMT services through data collection of trips taken and pickup and drop-off locations.	To protect Prenatal Traveler information.
PTA-UN035-v01	MCO Training	MCOs need the PTA system to offer training for their case workers and call centers on new system.	To ensure case workers can use the system and can assist Prenatal Travelers with questions about the system.
PTA-UN036-v01	Proper Licensing	MCOs need TB and NEMT Mobility Providers to have any required certifications or licensing by the state or federal government.	To ensure TB and NEMT Mobility Providers have been properly vetted to provide these services.
PTA-UN037-v01	MCO Complaints	MCOs need the PTA system to capture transportation complaints from members and drivers.	To guide policy and business decisions.
CELEBRATEONE NEEDS			
PTA-UN038-v01	CelebrateOne Data	CelebrateOne needs access to the pilot data.	To guide policy decisions.

Identification	Title	Description	Rationale
NEMT MOBILITY PROVIDER NEEDS			
PTA-UN039-v01	Driver Training	NEMT Mobility Providers need the PTA system to provide easy to use, easy to train applications for their drivers to use or use their existing on-demand routing applications through APIs.	To ensure usage by the NEMT Mobility Providers.
PTA-UN040-v01	Driver Feedback	NEMT Mobility Providers need the PTA system to provide an easy to use feedback feature (how was the Prenatal Traveler during the ride).	To guide policy and business decisions.
PTA-UN041-v01	Driver Routing	NEMT Mobility Providers need the PTA system to provide real-time routing optimization.	To make efficient transportation decisions.
PTA-UN042-v01	Driver Communication and Preference	NEMT Mobility Providers need the PTA system to establish a way to communicate with a member through the preferred means of communication set up by member (phone, app alert, email or text).	To ensure last minute transportation issues can be communicated effectively.
PTA-UN043-v01	Driver Situation	NEMT Mobility Providers need the PTA system to know when they have the member in the car, are running late or member did not show.	To allow the PTA System to notify the Medical Office of a delay or cancellation of the Prenatal Traveler's trip.
MEDICAL OFFICE NEEDS			

Identification	Title	Description	Rationale
PTA-UN044-v01	Medical Office Notification	Medical offices need to receive notice from the PTA System if a member cancels her appointment for transportation, misses a pickup* or is running late. *Just because someone misses a pickup does not mean she isn't coming to her appointment; however, this allows the office to decide if extra communication with the patient is necessary.	To guide business decisions around patient scheduling.

Source: City of Columbus

4.3 Priorities Among Changes

The following priorities among changes listed in **Table 8: Priorities Among Changes** are classified as essential or desirable. Essential items are considered essential to the success of the PTA solution and must be included as part of the final solution. Desirable items are important to the overall system but may be excluded from the final solution on a case by case basis.

Table 8: Priorities Among Changes

Rank	Title	Priority Classification	User Need
1	Personal Devices	Essential	PTA-UN001-v01
2	Trip Scheduling	Essential	PTA-UN002-v01
3	Graphic User Interface (GUI) (Transaction Equipment)	Essential	PTA-UN003-v01
4	Delay of Arrival or Cancellation of Trip Request	Essential	PTA-UN004-v01
5	Timely Return Pickup	Essential	PTA-UN005-v01
6	Vehicle and Driver Description	Essential	PTA-UN006-v01
7	Prenatal Traveler Notifications	Essential	PTA-UN007-v01
8	Cancel or Change Option	Essential	PTA-UN008-v01
9	Multiple Languages	Essential	PTA-UN009-v01
10	User Preference	Essential	PTA-UN010-v01
11	Accept Bookings/ Reservations	Essential	PTA-UN011-v01
12	Delay/ Cancellation Notification	Essential	PTA-UN012-v01
13	Access to Instructions and Educational Material	Essential	PTA-UN013-v01

Rank	Title	Priority Classification	User Need
14	Trip History	Essential	PTA-UN014-v01
15	Feedback	Essential	PTA-UN015-v01
16	Offline Usage	Essential	PTA-UN016-v01
17	Trip Optimization	Essential	PTA-UN017-v01
18	Security and Encryption	Essential	PTA-UN018-v01
19	Open Standards	Essential	PTA-UN020-v01
20	Account Ownership	Essential	PTA-UN021-v01
21	Trip Data	Essential	PTA-UN022-v01
22	Driver and Vehicle Info	Essential	PTA-UN023-v01
23	PTA-MCO Integration	Essential	PTA-UN024-v01
24	Medical Office Integration	Essential	PTA-UN025-v01
25	Request Accessible Vehicles	Essential	PTA-UN026-v01
26	Access to Data	Essential	PTA-UN027-v01
27	Open API for Data Transfer	Essential	PTA-UN029-v01
28	ODM Data Access	Essential	PTA-UN030-v01
29	MCO Data Needs	Essential	PTA-UN031-v01
30	MCO-PTA Integration	Essential	PTA-UN032-v01
31	PTA System Easy-to-Use	Essential	PTA-UN033-v01
32	Fraud Prevention	Essential	PTA-UN034-v01
33	MCO Training	Essential	PTA-UN035-v01
34	Proper Licensing	Essential	PTA-UN036-v01
35	MCO Complaints	Essential	PTA-UN037-v01
36	CelebrateOne Data	Essential	PTA-UN038-v01
37	Driver Training	Essential	PTA-UN039-v01
38	Driver Feedback	Essential	PTA-UN040-v01
39	Driver Routing	Essential	PTA-UN041-v01
40	Driver Communication and Preference	Essential	PTA-UN042-v01
41	Driver Situation	Essential	PTA-UN043-v01
42	Medical Office Notification	Essential	PTA-UN044-v01
43	Car Seat	Desirable	PTA-UN019-v01

Rank	Title	Priority Classification	User Need
44	Certification and Accreditation	Desirable	PTA-UN028-v01

Source: City of Columbus

4.4 Changes Considered But Not Included

4.4.1. Franklin County Department of Job and Family Services Inclusion

As discussed above, FCDJS provides NEMT services for both Medicaid Fee for Service members' and MCO Medicaid members who exhaust their MCO allocated trips. Including the PRS program NEMT trips from FCDJFS in the pilot was evaluated to ensure all prenatal NEMT trips were included. In 2017, there were only 120 trips given through the county's PRS program county wide. That number is significantly lower than was expected. The City decided not to include FCDJFS in the project because the cost to integrate the County outweighs the need for additional participants. The pilot was expanded from one neighborhood to eight for MCO members to fulfill that need.

4.4.2. Ohio Department of Medicaid Inclusion

Initially, partnering with ODM on this pilot seemed the best path forward during the planning phase. Upon meeting with ODM, it shared that a meaningful change in NEMT services provided by Ohio's 88 counties would be taking place in the next year. ODM would be moving to a centralized, statewide system with the goal of creating efficiencies and delivering the same services no matter which county a member lived in. They were unable to share additional details about the coming changes which will now take place under Ohio's new Governor. The PTA project will not include ODM as the lead partner in this project. ODM will be kept apprised of the project process and milestones and may share data to assist with the study protocol.

4.4.3. Smartphone Only Solution

A major component of this pilot is the smartphone application which puts scheduling an expectant mother's next ride in the palm of her hand 24/7. While studies have been done to show that many of the Medicaid recipients or CelebrateOne zone residents have cell phones, they may not have a smartphone, only have limited minutes/data available or they may not have the same phone number from month to month. The City is scoping the PTA project to ensure that the new system will benefit all pilot participants regardless of smartphone availability by having a web portal and pilot specific call center available.

4.4.4. Timeline Expansion

Pre-term birth is any birth prior to 37 weeks of gestation which will be covered by the pilot timeline. Infant mortality, as discussed above, has many factors and can be viewed as a 22-month endeavor. Given the purpose of this pilot is to focus on prenatal trips to see if a more on-demand service could impact a Prenatal Traveler's likelihood of going to her prenatal visits, the timeline was set to focus on the soon to be mother's health through pregnancy and two months of post-natal care. The City decided to add two

months of infant care in as well based on input from CelebrateOne and the MCOs. MCOs pregnancy programs run through two months after birth.

4.4.5. Scope Expansion

The City and MCOs evaluated the extra burden on the Prenatal Traveler to continue to use existing MCO information for the rest of her family for NEMT while using a special process/phone number for her own NEMT needs. The City decided that the cost would be too hard to estimate for varying family sizes and medical needs and therefore the pilot will cover only a Prenatal Traveler through her pregnancy plus two months after birth and the infant through the first two months.

Chapter 5. Concept for the New System

This chapter provides an overview of the proposed PTA system including its relationship with data sources, NEMT Mobility Providers and related Smart Columbus projects. This section also includes the goals for the new system, modes of operation, classes of users, and interfaces with other systems. A description of key concepts and the rationale for decisions is included. In addition to the scope of the new system, connections to the other Smart Columbus applications are described in detail.

5.1 Background, Objectives and Scope

The USDOT's Smart City Challenge, launched in December 2015, was designed to encourage mid-sized cities to develop ideas for an integrated smart transportation system that would use data, applications, and technology to help people and goods move more quickly, cheaply, and efficiently. As part of Columbus's overall response to the Smart City Challenge, Mayor Ginther and other city leaders focused part of their efforts on how an integrated smart transportation system could be a ladder of opportunity and elevate transportation services for Prenatal Travelers. Increasingly, citizens in urban areas view mobility as a service, and expect on-demand services. Motivation for the PTA project focused around this discussion, as well as gaps that are present in the current system, such as the delays in pickup times, lack of multiple reminders and communication between users and ability to schedule from a smartphone application or computer, and integration with a trip optimization system. The PTA will provide this functionality and improve upon the existing functionality that is available to users of the current system.

The PTA has four main goals with respect to positive societal outcomes that tie back to the original intent of the Smart City Challenge:

- Enhanced Mobility
- Increased Opportunity
- Improved Efficiency
- Increased Customer Satisfaction

These goals were developed through collaboration with USDOT and address the unique needs of the Columbus region. A description of each of the goals is provided below.

5.1.1. Goal No. 1: Enhanced Mobility

Enhanced mobility within the context of the Smart Columbus program means providing citizens with improved access to transportation services, which in turn leads to an improved quality of life and access to economic and educational opportunities. Within the context of the PTA, enhanced mobility means providing Prenatal Travelers with convenient and reliable scheduling and transportation services.

5.1.2. Goal No. 2: Increased Opportunity

Providing opportunities for improved access to transportation is of vital importance to Smart Columbus and the PTA project. This goal aims to increase access for underserved communities to transportation solutions focused on increasing access to healthcare. Opportunity is created with the implementation of services that connect people with healthcare and improved quality of life. The PTA will create opportunity by addressing barriers to NEMT that Prenatal Travelers face when using systems that are not technologically advanced or designed to be on-demand.

5.1.3. Goal No. 3: Improved Efficiency

Smart Columbus will improve the ability of government, transportation, and healthcare agencies to provide services to citizens through integration with PTA. This will allow easier access to real-time data, streamline internal processes to improve communications and information sharing and make internal agency operations more efficient. Agency efficiency includes strategies to enhance agency coordination including improved inter-agency sharing of information and resources to reduce operating costs and/or enhance productivity. For example, implementing data sharing within the Operating System will provide a method to improve efficiency within user agencies by supporting communications and facilitating the usage of data and access to NEMT providers in agency programs to provide more efficient operations. Another efficiency will be the reduction of any manual processes currently being provided by the TBs. This could allow employees to focus on other important data collection and analysis.

5.1.4. Goal No. 4: Increased Customer Satisfaction

Smart Columbus will only be successful if it provides services that are useful, easy to use and embraced by the community. Smart Columbus will improve the user experience for Prenatal Travelers scheduling NEMT trips by notifying them of their appointments and allowing same day on-demand service to and from their medical provider. By implementing advanced technologies, such as providing fast access to vehicles through on-demand service through PTA, the products or services supplied by the City will meet or surpass a user's expectation.

5.1.5. Objectives

The objectives of the PTA are to facilitate access to easily schedule NEMT trips through advanced technology and to reduce the pickup time for a Prenatal Traveler by providing more on-demand, optimized transportation with real-time availability of the driver's location.

The objectives listed in **Table 9: Objectives of the Proposed System** address barriers to pregnant women attending prenatal appointments that the PTA project can influence. The overarching hypothesis behind these objectives is that by making scheduling NEMT easier, PTA can encourage more Prenatal Travelers to attend their prenatal appointments which means less risk to the unborn children which could lead to reduction in infant mortality.

Table 9: Objectives of the Proposed System

Objective	Hypothesis
Facilitate improved access to NEMT trip scheduling	The PTA will allow Prenatal Travelers to easily access NEMT trip scheduling via smartphone or website 24/7. Call center hours will be set by each MCO through their contract with the PTA system vendor.
Increase usage of the NEMT benefit	The PTA will result in increased ridership for NEMT services by affording Prenatal Travelers access to on-demand services.
Increase customer satisfaction	The PTA will increase customer satisfaction by providing an on-demand mobile and web-based application to schedule NEMT services, as well as, on-demand transportation services.

Source: City of Columbus
Note: The Smart Columbus Performance Measure Plan includes additional information to meeting objectives such as indicators, methodology and timeframe.

5.1.5.1 Strategy

The strategy to realize these objectives is to issue an RFP, in partnership with the MCOs to obtain a PTA solution from a private sector partner that addresses all of the primary gaps in the current system that motivate the project (**Table 6: Justification for Changes**). This ConOps document will drive the development of functional requirements for a minimal viable product that can be detailed in an RFP.

5.1.5.2 Pilot Execution

As discussed above the study design of this transportation project specifically targets improving access to prenatal care and the reduction of pre-term births, the leading cause of infant mortality in Franklin County. The study approach around pre-term birth is encouraged by Dr. Courtney Lynch and Dr. Erinn Hade at OSU. Their insight indicates that infant mortality is a difficult metric to track changes on due to the multiple contributing factors and the overall small number of women impacted by it. The main issue at hand is that the expected effect size of the planned transportation intervention is expected to be relatively small. When we try to measure small differences in very rare outcomes like infant mortality, a study would need tens of thousands of women to have the statistical power to see the effect. This is why there aren't many infant mortality studies, especially around transportation. Dr. Lynch also noted that this project will still be able to track rates of infant mortality and report them when the records are available [at the latest, a child's first birthday (12-month lag)]. If a change in infant mortality was not observed, the project data would verify that the project was statistically underpowered to detect a change. However, if a decrease in preterm birth is seen, that would suggest an eventual impact on infant mortality (given that preterm birth is the primary cause) due to PTA.

To properly study the effects of the PTA project, the City has planned a pilot consisting of both an exposed and unexposed group. The exposed group will receive enhanced NEMT services and the unexposed will continue to receive their MCO specified NEMT services. Both groups will contain women who are less than 32 weeks pregnant, enrolled in Medicaid, need NEMT services and live in the CelebrateOne

neighborhoods at the time of enrollment. The unexposed and exposed groups will be asked to opt-in to the pilot and will be tracked throughout their pregnancies and two months after delivery.

Table 10: CelebrateOne Neighborhood Births by Payer Source and Average Prenatal Visits, 2012-2017* shows the number of Medicaid births and total births that occurred in the CelebrateOne neighborhoods from 2012-2017.

Table 10: CelebrateOne Neighborhood Births by Payer Source and Average Prenatal Visits, 2012-2017*

CelebrateOne Areas	Zip Code(s)	# Births (Total)	# Births (Medicaid)
Linden	43211	2,616	1,697
Near East	43203, 43205	2,170	1,345
South	43206, 43207	6,114	2,989
Hilltop	43204	4,175	2,266
Franklinton	43222, 43223	3,583	2,368
Morse/161	43224, 43229	10,941	5,677
Northeast	43219	3,600	1,987
Southeast	43227, 43232	7,077	3,683
Total		**40,276**	**22,012**

Source: Ohio Department of Health Vital Statistics Data Analyzed by Columbus Public Health
** 2017 data are preliminary and subject to change.*

Participants in the exposed group will be provided with a new PTA system to request NEMT services. They will also be asked to download and use the PTA system smartphone application if they have a smartphone. If they do not have a smartphone but have access to a computer, they will be asked to schedule their NEMT needs through a web portal or by contacting a call center. NEMT services will extend beyond just prenatal medical appointments and will be inclusive of all NEMT services provided by MCOs during the pilot period. During the pilot period, the exposed group will have their NEMT and prenatal appointment attendance data collected. They will also be asked to respond to surveys to discuss their NEMT experiences.

Participants in the unexposed group will continue to schedule their NEMT needs through their MCO as they have always done. During the pilot period, the unexposed group will have their NEMT and prenatal appointment attendance data collected. They will also be asked to respond to surveys to discuss their NEMT experiences.

To ensure the pilot population is aware of this opportunity, this pilot will use focused, grassroots messaging and outreach. Initiating outreach through the MCOs would be difficult because the MCOs are not immediately notified that a member is pregnant. MCOs have shared that it could take a month or more before their maternal health team is notified of a pregnancy. Therefore, a focus on community events, local medical offices, churches and outreach through partners involved in the fight against infant mortality will be the first line of communication.

A main partner in this pilot will be a program called StepOne. StepOne is a one-stop resource for providing various services for pregnant women. It is an entry point for many women to learn about safe and healthy pregnancies, get enrolled in Medicaid and get an appointment with an obstetrician scheduled. When women call StepOne, they will be asked if they have Medicaid coverage from one of the two MCO partners, are less than 32 weeks pregnant and are interested in learning about a pilot opportunity around transportation. If the woman says yes, her information will be shared with the research team at OSU for a screening. If the woman meets the qualifications and completes the baseline questionnaire, she will be admitted to the pilot and will be randomized into the exposed or unexposed group.

The pilot will last 16-18 months, depending on the delivery dates of the participants. Data will also be collected on Ohio's vital records for one year past the last participant's birth to review infant mortality data.

Based on feedback from the MCOs and CelebrateOne, incentives will be necessary for the participants in both the exposed and unexposed groups.

Data collection will be extremely important to make informed policy decisions on the future of NEMT delivery. With the help of City of Columbus Public Health epidemiologists, the following data types have been identified for collection:

- Number of trips taken
- Prenatal vs. other NEMT trip
- On-time performance of trips
- Number of missed trips
- Number of rescheduled/cancelled trips
    - Reason for cancellation
- How trip was scheduled
- Satisfaction
    - App feedback and surveys for drivers and members
- Prenatal appointments (Number attended vs. total number of prenatal appointments suggested by medical professionals)
- Cost of each trip
- Zip code of member and zip code where she delivered

5.2 Operational Policies and Constraints

Operational policies and constraints in **Table 11: Operational Policies and Constraints** apply to the proposed system. Operational policies are predetermined decisions regarding the operations of each component or sub-component of the current system, typically in the form of general decisions or understandings that guide development and decision-making activities. Operational policies will inform

decisions made to integrate with the PTA. Constraints are impediments outside of policy that restrict the PTA project from achieving its goal with respect to user needs and objectives.

Table 11: Operational Policies and Constraints

Type	Description
Constraint	The PTA must pass through data to the Operating System and adhere to the policies and technical requirements put forth by the Operating System team in order to share project data.
Constraint	Each MCO has its own TB, either in-house or through contract.
Constraint	PTA system vendor must be willing to integrate with the Operating System through open standards.
Constraint	MCOs and TBs generally are not willing to share cost comparison with potential competitor services. TNCs will only provide trip data (origin/destination) to public agencies that are subsidizing part of the trip. Discussions are underway to understand these constraints in more detail.
Constraint	The City needs the PTA system to be maintained and operated external to the City (because the City does not provide NEMT services).
Policy	Most NEMT Mobility Providers will not include car seats as an option for travel. Any use of car seats must come from and be installed by the Prenatal Traveler and must be taken with her to an appointment, so it does not stay in the vehicle.
Policy	The Operating System prefers that any third-party application deployed within the Operating System Microservice environment be open source, so that the Operating System as a whole can be replicable for other cities and not tied to specific third-party licensing and costs. Vendor applications and components will need to be evaluated on a case-by-case basis as to whether the Operating System will allow non-open-source applications.
Policy	The Operating System will restrict access to PII. PII data must be separated from trip data stored in the Operating System.
Policy	The City does not wish to be responsible for financial transactions related to PTA. It will grant the money necessary for the pilot to the MCOs to take on this role as a Grantee.
Policy	CelebrateOne and the MCOs will need to review and approve outreach or training literature that uses their logos.
Policy	ODM must approve all information related to the pilot that will be given to the potential and eventual pilot participants.
Policy	The pilot must be compliant with all ODM policies, regulations and/or rules[7] around NEMT delivery.

[7] *Detailed references are available in* ***Chapter 2. References****.*

Type	Description
Policy	ODM and MCO contractual terms around NEMT delivery must be followed.

Source: City of Columbus

5.3 Description of Proposed System

The PTA system is a technologically advanced and user-friendly solution for prenatal Medicaid members to schedule NEMT trips. Prenatal Travelers can download and install the PTA application from public app stores and begin using it immediately to plan trips. They will also be able to visit a website or contact a call center to schedule their NEMT trip. MCOs will be the solution integrator so all payment information will be handled between the MCOs and the technology vendor/TB.

The PTA system will integrate with the Operating System to share trip data.

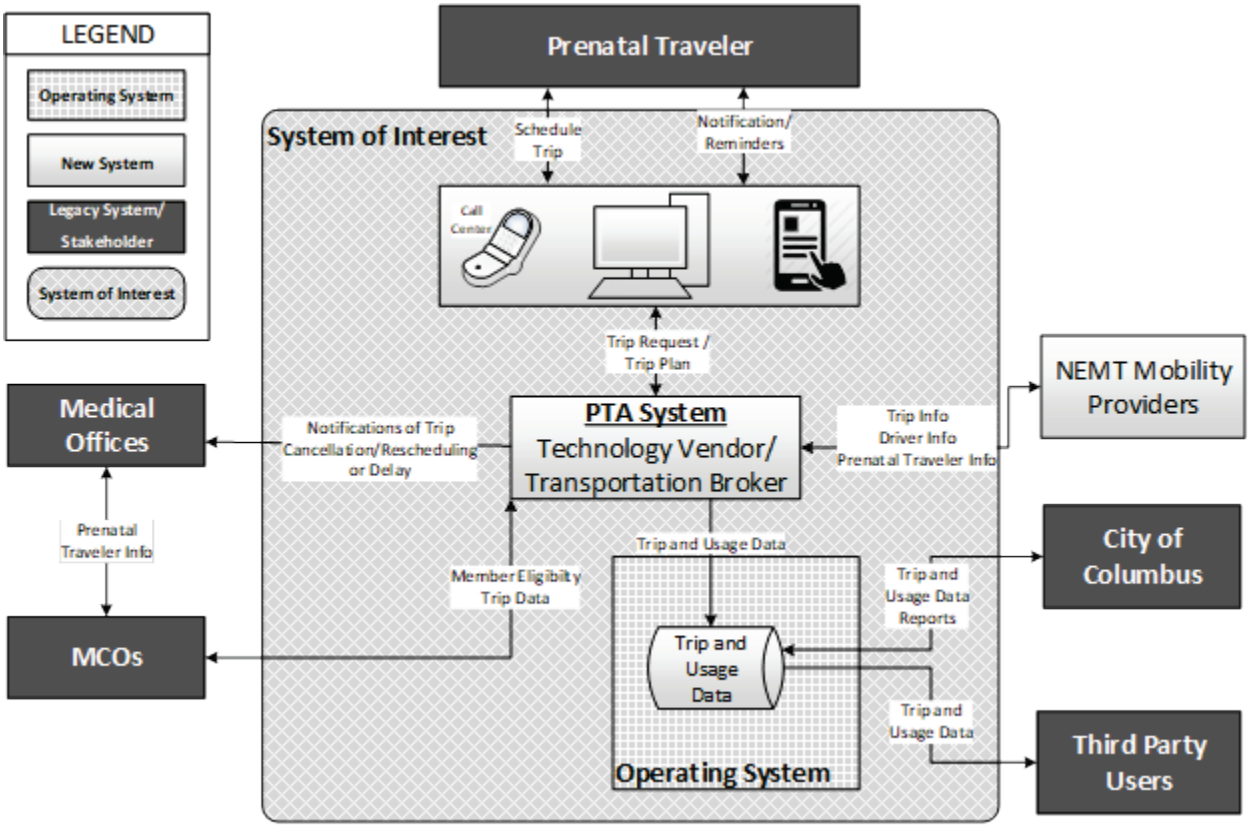
The PTA system will also integrate with medical offices to share information on Prenatal Traveler location and pickups to help minimize scheduling disruptions.

The Proposed System, as shown in **Figure 13: PTA Proposed System Context Diagram** , is organized into the following categories, starting with the PTA system as the central enabling technology for the entire system.

- PTA SYSTEM (Technology Vendor/Transportation Broker)
  - Trip Data
  - Interface with the Operating System
  - Interface with Medical Offices
  - Interface with MCOs
  - User Interface
  - Prenatal Traveler User Preferences
- Operating System
  - Trip Data
- MCOs
  - Trip and Payment Data
  - Member Eligibility
- Medical Offices
  - Trip Data
- NEMT MOBILITY PROVIDERS
  - On-demand Mobility Providers
- TRANSACTION EQUIPMENT

- Smartphone Application
- Prenatal Traveler Web Portal
- Call Center

Figure 13: PTA Proposed System Context Diagram provides an overview of components and interconnections in the proposed system. Reference to external systems or procedures are included if applicable. The capabilities, functions, and features of each major component are described in this section. The PTA will be developed to optimize throughput, response time, and availability of all major system components as defined this section. **Figure 13** depicts the PTA as the System of Interest within the context of other Smart Columbus projects, external systems, and entities.



Source: City of Columbus

Figure 13: PTA Proposed System Context Diagram

5.4 Smart Columbus Operating System

The Operating System is the data platform at the heart of the Smart Columbus data environment that integrates data and data services from multiple sources, including the planned Smart Columbus projects, traditional transportation data, and data from other community partners. The Operating System embodies

open-data and open-source concepts to enable better decision-making and problem solving for all users to support a replicable, extensible, sustainable platform.

5.4.1. Service Layer Application Programming Interfaces

The Operating System Service Layer will be comprised of open APIs and an API Builder, allowing for creation of customized data feeds. City of Columbus users and third-party users will have filtered access to PTA trip and anonymized payment data stored in the Operating System through APIs.

5.4.2. Trip Data

Trip data generated by the PTA will reside in a “big data” environment within the Operating System that is comprised of data storage and data retrieval systems and functions. Trip information will be collected into the Operating System in real time as generated and periodically archived to a historical database. Trip information will consist of at a minimum the following: origin, destination, whether trip was scheduled in advance or on-demand, trip start time, trip end time, type of trip and vehicle identification.

5.5 Transaction Equipment

Transaction equipment includes any interface allowing a traveler to access the PTA services. This includes: web portal, call center and mobile application to support trip planning.

5.5.1. Prenatal Traveler Smartphone Application

Prenatal Travelers will be able to access their PTA accounts and schedule NEMT trips through a smartphone application.

5.5.2. Prenatal Traveler Web Portal

Prenatal travelers will be able to access their PTA accounts and schedule NEMT trips through a web portal. The web portal should be mobile friendly.

5.5.3. Prenatal Traveler Call Center

Prenatal Travelers will be able to access their PTA accounts and schedule NEMT trips through a call center.

5.5.4. Interface with Smart Columbus Operating System

The PTA will interface directly with the Operating System to send and receive trip planning information. PTA will pass along location information, such as origin and destination, as well as preferences to determine how results should be weighted and returned to the user as results.

5.5.5. Prenatal Traveler User Preferences

Prenatal Traveler user preferences can be selected by the users for the various methods of communications for reservation notifications, preferred pharmacy location, doctor's office location and home address. For Medicaid NEMT trips, most MCOs will only allow the member to be picked up from their listed member address.

5.5.6. Incentives/Rewards

Prenatal Travelers may receive incentives and rewards for qualifying attendance at prenatal appointments through their MCO. This is an existing practice and will continue through the PTA demonstration. Other incentives are being reviewed for both the test and the control group as participation in this transportation pilot will involve extra work on the expectant mothers' part whether it's responding to a survey or ensuring that they use a different phone number or smartphone application to schedule their rides versus the rest of their family using the existing method of communication and transportation. Incentives may include COTA bus passes, baby needs – diapers, stroller or car seat or gift cards for grocery stores.

5.6 Managed Care Organizations

The MCOs will continue their existing NEMT services and transfer of information with Medical Offices and ODM for those MCO members who are not involved in the pilot. For the pilot program, MCOs will contract with the PTA system technology vendor/TB to provide the PTA services described in this ConOps. They will transfer the ODM Benefits System list to the PTA system, so the PTA system can validate eligibility.

MCOs will receive NEMT trip data from the PTA system for verification of services and payment.

5.7 Prenatal Trip Assistance System

The PTA system is the main component of the PTA pilot. The PTA system will be a web and smartphone-based software application that will be used to facilitate NEMT trips for expectant mothers enrolled in Medicaid from eight high risk neighborhoods. These trips will connect the pregnant women with prenatal and post-partum care appointments and accommodate additional needed stops/trips during the pilot as requested. This project will create NEMT efficiency, better customer service through reliable and convenient scheduling and vehicle driver and location information to boost the data available to allow government entities, MCOs and NEMT Mobility Providers to make better informed decisions.

The PTA system will ingest the NEMT reservation request through a web portal, smartphone application or call center input process. It will ensure the eligibility of the MCO member through a connection with the MCO who receives the information from the ODM Benefits System. It is unlikely that a direct connection from the ODM Benefits System will be available as the information that is passed to the MCO contains all Medicaid information on members including protected health information, most of which is not necessary to provide transportation. The necessary information will be transferred to the PTA system. Should any issues arise with the smartphone application or the web portal, the Prenatal Traveler will be able to call into the call center to receive service.

The PTA system will act in place of an MCO's current TB and transfer approved reservation requests to the appropriate NEMT Mobility Providers. In return, the PTA system will receive information about the assigned driver, their vehicle and general trip data.

The PTA system will send a confirmation of the transportation reservation and multiple notifications to the Prenatal Traveler to remind her of the upcoming transportation reservation. The methods of notification will be text, email or phone call. The reminder notifications will share the NEMT Mobility Provider's information, i.e. vehicle type and driver name. The reminder notifications will also allow for a quick touch text, return email or phone call response to cancel or change the reservation based on a changed appointment or need. This information would be relayed by the PTA System to the Medical Office, so it can initiate a reminder call to determine if the appointment also needs to be cancelled or rescheduled or if the Prenatal Traveler simply received another ride.

Finally, the PTA system will send email alerts to Medical Offices to share whether a patient has cancelled the NEMT trip, not shown up for an appointment or is on her way and stuck in traffic. This information will allow the Medical Office to decide if it should reach out to the patient to ensure she is on her way or, in the case of a traffic delay, adjust its schedule to take a patient who arrived early.

Trip optimization will be provided by the technology vendor/TB to ensure the most efficient route is taken for the Prenatal Traveler.

5.8 Non-Emergency Medical Transportation Mobility Providers

NEMT Mobility Providers will contract directly with the technology vendor/TB who will be the provider of the PTA system to deliver NEMT trips. The PTA system will send the NEMT mobility provider trip assignments based on the Prenatal Travelers' reservation requests. The means for communicating the trip request to the Mobility Provider will be defined by the technology vendor/TB through the RFP process. The NEMT Mobility Providers will receive information on the Prenatal Traveler such as pickup location, drop-off location, time of scheduled appointment, special needs and number of guests.

In turn, the NEMT Mobility Providers will share their vehicle and driver information with the PTA system so it can be shared with the Prenatal Traveler. The System will also have access to vehicle location data to share with the Prenatal Traveler.

The NEMT Mobility Provider's driver can use the PTA system to give feedback on the Prenatal Traveler.

5.9 Medical Offices

Medical Offices that are part of the PTA pilot will receive email notifications from the PTA system if a Prenatal Traveler changes, cancels or is running late during their NEMT trip. This notification is to assist the efficient scheduling taking place in medical offices. If a Prenatal Traveler changes or cancels her NEMT trip, it does not automatically mean that her appointment should also be changed or cancelled because it may be that she just found another ride. This notification would allow the medical office to take further outreach action with the Prenatal Traveler. It could call to check in to see if the appointment needs to be rescheduled. If it receives a notice of a delayed arrival, the Medical Office would be able to adjust its

schedule appropriately and try to serve patients who arrived early and still manage to fit the Prenatal Traveler in seamlessly upon arrival.

The Medical Offices' connection to the MCOs is for payment and health data transfer.

5.10 Modes of Operation for the Proposed System

The modes of operation for the PTA are defined in **Table 12: Modes of Operation for the Proposed System**. The PTA will include alert processes to make sure the problems are identified quickly, and the cause of the alert can be easily analyzed. Watchdog processes, used to detect and report failure or anomalies, will reside on separate servers from the process being analyzed.

Table 12: Modes of Operation for the Proposed System

Mode	Definition
Operational (regular)	Normal operating condition, the System is operating as designed and all processes are running as intended. The system is intended to function during all hours of the day. Watchdog processes are not activated when PTA data are within expected parameters.
Degraded Conditions	Represents a situation where primary functionality is lost due to nonfunctioning process or equipment, but an alternative (though less precise) means of accomplishing the function exists. This could be from back-up servers or processes.
Failure Conditions	Represents a situation where the application is not operating as designed and processes are not performing as intended. This could be from diminished communications between one or more external systems, diminished data quality, or the inability to process data in a timely manner. Failure conditions include situations that require temporary shutdown of the System. Watchdog processes will provide alerts for these failure conditions.
Diminished Communications	• Loss of Communication with Mobility Provider(s) – Loss of communications between PTA and NEMT Mobility Providers or end user. Loss of Ohio Benefits system resulting in loss of real-time benefit information. • Loss of Communications with the Operating System – Loss of communications between the PTA and the Operating System preventing transfer of data. Heartbeats will monitor the connection.

Mode	Definition
Deficient Data Quality	• Inaccurate Data – Inaccurate real-time vehicle location and availability from NEMT Mobility Providers. The application depends on the accuracy of this information to effectively plan routes and determine if services are running late. Inaccurate service data will greatly reduce the system's effectiveness. Actual trip data will be compared to estimates to determine data quality from each source. • Inability to Process Data in a Timely Manner – The amount of data requested to be processed in the PTA is greater than its processing capability, resulting in delays and/or unacceptable performance.
System Health Monitoring	• API Monitoring – Diagnostic health monitoring processes to ensure proper communication with NEMT Mobility Providers. Failure messages from these processes will alert required personnel. • Process monitoring – Diagnostic health monitoring processes to determine that Back Office processes are running as intended.
Maintenance	Condition in which equipment and/or systems are under repair or preventative maintenance.
Offline	Offline mode describes a situation where internet connection is lost, and the application is unable to retrieve real-time updates or operate as intended.

Source: City of Columbus

5.11 User Classes and Other Involved Personnel

A user class is distinguished by the ways in which users interact with the PTA. The PTA is comprised of all components and subcomponents that make up the PTA, providing Prenatal Travelers with the ability to schedule NEMT using a call center, web portal or smartphone application. Factors that distinguish a user class include common responsibilities, skill levels, work activities, and modes of interaction with the system. Different user classes may have distinct operational scenarios for their interactions with the system. **Table 13: Proposed System Users** describes the proposed PTA system users.

Table 13: Proposed System Users

User Classes	Definition
Prenatal Travelers	Prenatal Travelers are end users of the PTA who interact with the PTA to plan NEMT trips as provided by their MCOs.
The City/CelebrateOne	• The City is the facilitator of the PTA and is responsible for control of standards, regulations, and agreements between all stakeholders of the PTA. The City is responsible for developing needs and requirements for the PTA, and for deciding the policies and rules necessary to meet the goals and objectives of the overall Smart Columbus program. The City is responsible for establishing equal partnership with MCOs to ensure the best vendor is selected for the MCOs. The City is comprised of governmental staff with access to performance and usage information through integration with the Operating System. These users will have access to reports and performance measurement data to make informed decisions regarding future improvements to the System and to support broader transportation policy decisions. • CelebrateOne is a program within the City that is focused on reducing infant mortality. The program will use the data from the PTA to make policy decisions about future projects and spending. • The City is comprised of staff within the following departments as well as others: Mayor's Office, Columbus Public Health, Department of Development and Department of Public Service employees.
MCOs	MCOs will continue to service the Prenatal Travelers in the same capacity except as it relates to transportation for the test group. The test group will be placed in a separate category and their data will be shared with the PTA to schedule and execute NEMT. The MCOs will contract with the technology vendor/TB to use its PTA solution.

User Classes	Definition
Operating System (Smart Columbus PMO)	• The Operating System is the data platform at the heart of the Smart Columbus data environment. The Operating System is responsible for integrating data and data services from Mobility Providers, including Smart Columbus projects, traditional transportation data, and data from other community partners. The Operating System will store trip and usage data (non-PII) to support analytics and performance measures by the City of Columbus and third parties. • The Operating System will be operated by the Smart Columbus PMO. The PMO will continually monitor the operational performance and consider adjustments to the various systems to ensure that they are operating as expected. Further, the city will ensure that all performance measures and available data requested by the Independent Evaluator, and overall monitoring of the system, are being collected as documented and as required.
NEMT Mobility Providers	NEMT Mobility Providers are companies that provide transportation services to Prenatal Travelers. These companies provide location and trip data to the System through integration with the Operating System. NEMT Mobility Providers include public transit (COTA), TNCs and taxis.
ODM	• ODM will continue to maintain and allow access to its Ohio Benefits Portal for MCOs to check eligibility. ODM will also continue to make payments to the MCOs based on existing contracts to cover non-pilot and pilot participants. • ODM will receive the same data from the MCOs as it currently does but will also be receiving any data that comes into the Operating System.
Medical Offices	Medical Offices will accept notifications from the PTA system to allow for information around trip scheduling and en route status of the Prenatal Traveler.

User Classes	Definition
PTA System (Technology Vendor/TB)	• The PTA system technology vendor/TB will be responsible for developing and implementing the PTA and hence must have a clear understanding of all system requirements, interfaces, and data flows and installation configurations for appropriate implementation. The PTA system technology vendor/TB will provide on-going support and maintenance for the PTA and ensure that security standards are maintained. The PTA system technology vendor/TB will also maintain relationships with the MCOs, Medical Offices and NEMT Mobility Providers to ensure proper support of the system. • The Technology Vendor/TB will contract with the MCO to provide NEMT trips for MCO members and will contract with NEMT Mobility Providers to provide those trips.
Third-Party Users	Third-party users are members of the public, including researchers and entrepreneurs, with limited access to data that is generated by the PTA for development purposes. Third-party users access information through integration with the Operating System.

Source: City of Columbus

5.12 Support Environment

The support environment for this cloud-based PTA project consists of two main groups. The first is application solution providers that hold maintenance and service contracts with the MCOs. The second group is operations and maintenance staff from the Smart Columbus PMO. Both groups are described below.

Application solution providers will design, test, integrate, operate, and maintain one or more aspects of the PTA system. These private companies will be under contract with the MCOs and be responsible for providing a pre-determined level of maintenance and support in accordance with the terms of the contract. It is anticipated that the maintenance contract will include continuous agile development to update the user experience as needs are identified. No facility support is expected to be required.

The Smart Columbus PMO operation and maintenance staff will be responsible for monitoring public usage of the PTA via integration with the Operating System. They will also be responsible for maintaining the microservices in the Operating System and the operational and archived data in the system. The Smart Columbus PMO will be responsible for controlling access to the system data and processes, and for maintaining system security.

5.13 Security and Privacy

The PTA will be developed in accordance with best practices in data security and privacy. Data security refers to the tools, policies, practices, and procedures used to protect data from being accessed,

manipulated or destroyed or being leveraged by those with a malicious intent or who are unauthorized to do so. Further, data security encompasses the corrective actions taken when data breaches are suspected or have been identified. Data privacy is the reasonable expectation that data of a sensitive nature will be kept confidential, sanitized and/or encrypted, and respectfully and responsibly maintained by all users, managers, and collectors of the data while adhering to applicable laws and regulations, policies, and procedures. Detailed system security as it pertains to the PTA will be documented in the Data Management Plan.

5.13.1. Personally Identifiable Information

The issue of PII security and management is critical to the PTA. The necessity to maintain data security across all components of the system is crucial to its success, and so protecting the PII of Prenatal Travelers needs to be a key priority.

The end user may wish to create an account within the PTA to store preferences that could simplify planning subsequent trips. Account information may include user name, e-mail address, work address, school address, home address, the address of other frequented destinations, and a preference for how to communicate notifications. The end user may also allow the PTA to know her current location to simplify entering her origin when scheduling an on-demand trip. Requirements for storing PII in the PTA will be addressed in the Data Privacy Plan. End user account information will not be distributed outside of the PTA. The PTA will utilize industry standard security mechanisms to protect the account information and the end user's privacy. Account information cannot be accessed or utilized without the end user's authorization.

To schedule NEMT trips, a Prenatal Traveler will open their PTA account with the option to remember her password, as well as home address, phone number and email to help with communicating reminders and notifications. This information will not be stored within the PTA to protect the end user's privacy. Account information cannot be accessed, utilized, or distributed without the end user's authorization.

Trip Activity Summaries generated by the PTA are sent to the Operating System for performance measurement and usage monitoring, and will not contain end user's PTA account information, but may contain user statistical data. These summaries will not identify individual travelers. While the City of Columbus may have access to origin and destination (O/D) information for internal use and federal reporting, access to this data by third-parties will be spatially anonymized to hide O/D.

5.13.2. Smart Columbus Operating System Security

The Operating System approach to security is to make sure that security is designed into applications, infrastructure and processes. The following standards provide guidance for that approach: the CIS standards found at CISecurity.org, The Open Web Application Security Project (OWASP) standards found at OWASP.org and the concepts of security in depth espoused by MIT. The OWASP framework is the most appropriate and recognizable reference point. http://owasp.org. Specifically, the "OWASP Proactive Controls" is a superb resource written by developers for developers.
https://www.owasp.org/index.php/OWASP_Proactive_Controls.

The Operating System approach to security strategy aligns with OWASP's Top 10 Proactive Controls. Throughout our software development lifecycle, we will implement these safeguards within our code:

- Verify for Security Early and Often
- Parameterize Queries
- Encode Data
- Validate All Inputs
- Implement Identity and Authentication Controls
- Implement Appropriate Access Controls
- Protect Data
- Implement Logging and Intrusion Detection
- Leverage Security Frameworks and Libraries
- Error and Exception Handling

Chapter 6. Operational Scenarios

This section presents scenarios that capture how the system serves the needs of users when the system is operating under various modes of operation. An operational scenario is a description of a sequence of events that includes the interaction of products or services with its environment and users, as well as an interaction among its product or service components. The PTA system interacts with the users and the other systems in the following ways:

- **Prenatal Travelers**
  - Pre-trip
    - Establishes PTA account
    - Sets travel preferences
    - Accesses instructional and educational materials
    - Reviews trip history
    - Schedules/cancels/reschedules the trip
    - Receives notifications/reminders prior to trip
  - During trip
    - Gets assistance during trip
  - Post-trip
    - Provides feedback/complaints (right after trip or later)
- **Third-Party Users**
  - Post-trip
    - Accesses trip and usage data
- **Smart Columbus Operating System**
  - Post-trip
    - Shares trip and usage data
- **Medical Offices**
  - Pre-trip
    - Receives notification of trip cancelation/rescheduling
- **MCOs**
  - Pre-trip
    - Verifies member eligibility

    - Post-trip
        - Shares trip data
- **NEMT Mobility Providers**
    - Pre-trip
        - Receives prenatal traveler information
        - Receives trip info
        - Receives trip schedule/cancel/reschedule requests
        - Confirms trip requests
        - Provides driver info

Operational scenarios are developed to capture the above interfaces. The scenarios are grouped into use cases, which correspond to the proposed system. Scenarios for each use case describe various modes of operations that are expected: normal operating conditions and degraded and/or failure conditions, as necessary. Each use case is accompanied by a process diagram that represents the exchange of information between actors, devices, and systems.

The following operational scenarios are included in this section:

- **Table 14: UC1-S1: Prenatal Traveler Installs and Launches the PTA**
- **Table 15: UC2-S1: Prenatal Traveler Establishes an Account and Sets User Preferences**
- **Table 16: UC3-S1: Prenatal Traveler Plans a Trip**
- **Table 17: UC3-S2: Prenatal Traveler Takes a Trip**
- **Table 18: UC4-S1: Users Connect to the Operating System for Data**
- **Table 19: UC5-S1: Failure Condition – Loss of Communications with the Operating System**
- **Table 20: UC5-S2: Failure Condition – Temporary Loss of Communications**

UC1-S1 discusses the pre-condition required for the PTA system interface with the Users.

UC2-S1 discusses the pre-trip planning interfaces including establishing a PTA account, setting up user preferences, reviewing previous trip history, and accessing information and educational material. This scenario also describes the pre-trip interfaces with the MCOs to verify eligibility.

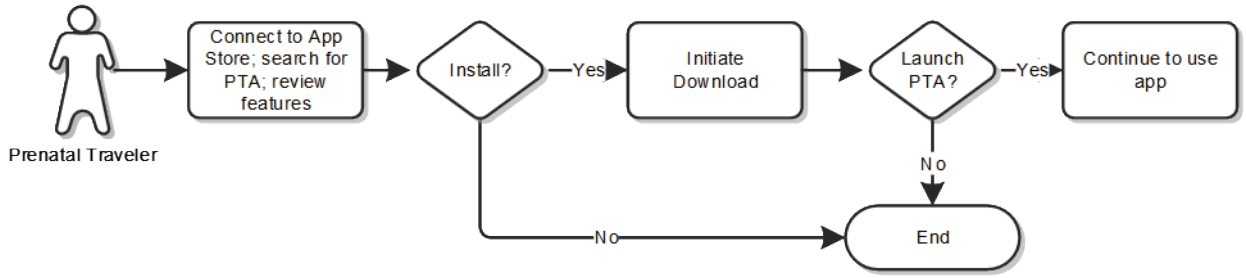
UC3-S1 discusses the pre-trip planning interfaces including scheduling, canceling, and rescheduling the trip, and trip notification. This scenario also includes a scenario for interfacing with NEMT Mobility Providers to reserve the trip and share the traveler and driver information.

UC3-S2 discusses the interfaces during the trip including notification, interfaces with Medical Offices for notification of a trip cancelation or reschedule, and NEMT Mobility providers to share traveler and driver information. This scenario also includes a scenario for providing feedback and complaints.

UC4-S1 discusses interfacing with the third-party to provide trip and usage data.

UC5-S1 and UC5-S2 discuss failure conditions.

Prenatal Traveler could potentially interface with the PTA through a mobile phone, website, or a landline phone (using IVR). The operational scenarios are developed based on the assumption that the Prenatal Traveler will use a mobile phone for the interface. We have identified the implications of the Prenatal Traveler using the website or landline phone in the "Comments" column.



Source: City of Columbus

Figure 14: UC1-S1: Prenatal Traveler Installs and Launches the PTA

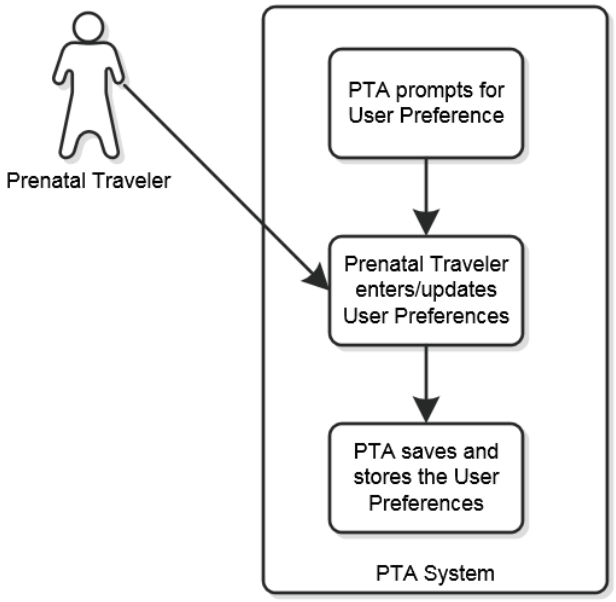
Table 14: UC1-S1: Prenatal Traveler Installs and Launches the PTA

Use Case	**Prenatal Traveler Installs and Launches the PTA**			
Scenario ID and Title	**UC1-S1: Prenatal Traveler Installs and Launches the PTA**			
Scenario Objective	Prenatal Traveler connects to a public app store to download and try the app			
Operational Event(s)	Install PTA, launch PTA			
Actor(s)	Actor	Role		
	Prenatal Traveler	End user of the system		
	PTA	Application (PTA could be smartphone, webpage or call center)		
	App Store	Public app store providing ability to download and install PTA		
Pre-Conditions	Prenatal Traveler owns a smartphone and it can download apps (turned on) Prenatal Traveler has access to app store Smartphone is connected to the Internet			
	Actor	Step	Key Action	Comments

Use Case	Prenatal Traveler Installs and Launches the PTA			
Scenario ID and Title	**UC1-S1: Prenatal Traveler Installs and Launches the PTA**			
Key Actions and Flow of Events	Prenatal Traveler	1	Prenatal Traveler connects to public app store and searches for Columbus PTA.	Prenatal Traveler has an Android phone and connects to the Google Play store. Travelers who have Apple phones would connect to the iOS App store.
	App store	2	The App store displays list of search results.	
	Prenatal Traveler	3	Prenatal Traveler selects PTA from list of search results.	
	App Store	4	The App store displays PTA landing page with short description of app and links to “Read More”. Also displayed are User Reviews, ability to “Rate this App”, and option to Install.	Experience may vary depending on which App Store is required based on device type.
	Prenatal Traveler	5	Prenatal Traveler clicks on the Install button.	
	App Store	6	The App store commences download and installs on Prenatal Travelers’s smartphone. When complete, prompts the Prenatal Traveler to “Open”.	
	Prenatal Traveler	7	Prenatal Traveler selects Open.	
	PTA	8	The PTA displays a brief loading page and Terms and Conditions for use.	Regardless of device type, experience is the same for all smartphones.
	Prenatal Traveler	9	Prenatal Traveler accepts Terms and Conditions.	
	Prenatal Traveler	10	Prenatal Traveler closes the app.	

Use Case	Prenatal Traveler Installs and Launches the PTA
Scenario ID and Title	**UC1-S1: Prenatal Traveler Installs and Launches the PTA**
Post-Conditions	The PTA is installed on the Prenatal Traveler's device and ready for use
Policies and Business Rules	N/A
User Needs Traceability	PTA-UN001-v01 Personal Device PTA-UN003-v01 Graphic User Interface (GUI) (Transaction Equipment)
Inputs Summary	N/A
Output Summary	N/A

Source: City of Columbus



Source: City of Columbus

Figure 15: UC2-S1: Prenatal Traveler Establishes an Account and Sets User Preferences

Table 15: UC2-S1: Prenatal Traveler Establishes an Account and Sets User Preferences

Use Case	**Prenatal Traveler Establishes an Account and Sets User Preferences**			
Scenario ID and Title	**UC2-S1: Prenatal Traveler Establishes an Account and Sets Up User Preferences**			
Scenario Objective	Prenatal Traveler establishes an account, adds user preferences to the app to customize the search results based on those preferences, reviews trip history and accesses informational and educational material.			
Operational Event(s)	Establishes an account, adds preferences, reviews trip history, accesses informational and educational material			
Actor(s)	Actor	Role		
	Prenatal Traveler	End user of the system		
	PTA	Application (PTA could be smartphone, webpage or call center)		
Pre-Conditions	Prenatal Traveler owns a smartphone Prenatal Traveler has downloaded and installed the PTA Prenatal Traveler has the PTA open Prenatal Traveler has access to a computer with internet Prenatal Traveler has access to a telephone			
Key Actions and Flow of Events	Actor	Step	Key Action	Comments
	Prenatal Traveler	1a	Prenatal Traveler opens the app in the smartphone.	
	Prenatal Traveler	1b	Prenatal Traveler opens the reservation webpage portal.	
	Prenatal Traveler	1c	Prenatal Traveler calls the call center number.	
	Prenatal Traveler	2	Prenatal Traveler establishes her PTA account and sets preferences.	Prenatal Travelers without access to smartphone or website may not be able to store the user preferences. PTA owns the accounts.

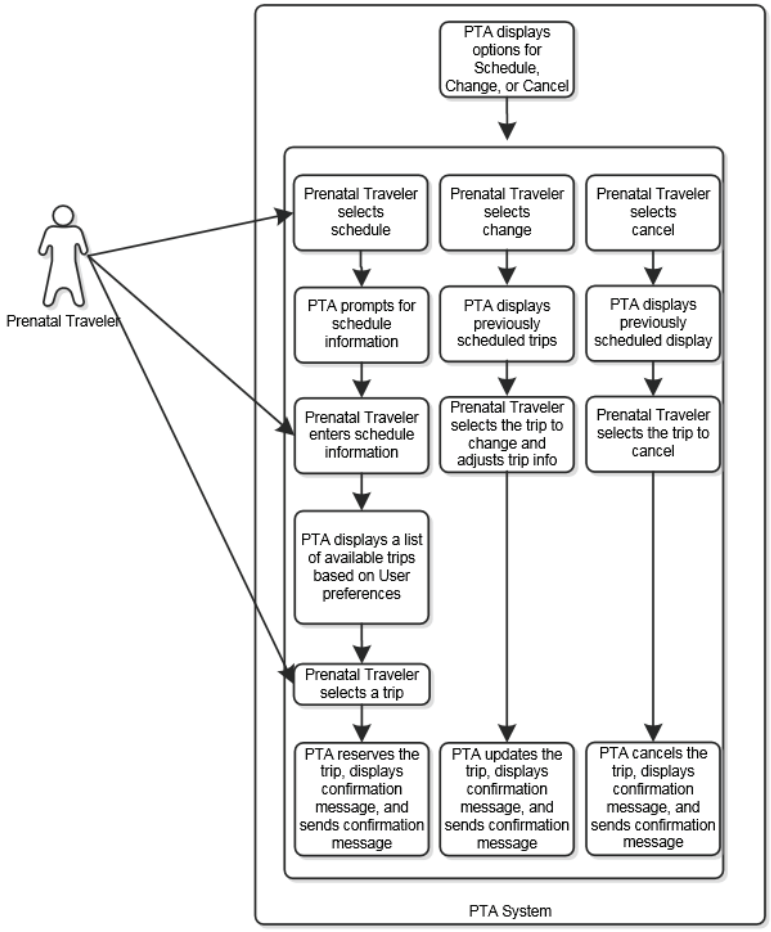
Use Case	Prenatal Traveler Establishes an Account and Sets User Preferences			
Scenario ID and Title	**UC2-S1: Prenatal Traveler Establishes an Account and Sets Up User Preferences**			
	PTA	3	PTA authenticates the user with appropriate credentials.	The PTA encrypts communications to hide information from those not authorized to view it for both the app and website. In case of a phone call, call center agent will authenticate the user credentials.
	PTA	4	The PTA validates member eligibility with the MCO.	The PTA is integrated with the MCOs to transfer data and check Medicaid eligibility. In case of a phone call, call center agent validates the member eligibility through a database sent to them by the MCO.
	Prenatal Traveler	5	To enter preferences, the Prenatal Traveler clicks on the “Configure” button.	

Use Case	Prenatal Traveler Establishes an Account and Sets User Preferences			
Scenario ID and Title	**UC2-S1: Prenatal Traveler Establishes an Account and Sets Up User Preferences**			
	PTA	6	The PTA displays favorite pickup locations, favorite pharmacies, and medical providers. Options for requesting language preference, an accessible vehicle, children's car seat(s), and how many children will be joining the mother for the trip. The User's preferred contact method for alerts/notifications will be displayed for the user to set up.	There will be two levels of preferences. One level will include general preferences and the second level will be preferences for an individual trip request. The Medicaid account information will be validated before trips are registered.
	Prenatal Traveler	7	The Prenatal Traveler clicks a link to return to the main screen.	
	Reviews Trip History			
	Prenatal Traveler	8a	The Prenatal Traveler selects Trip History option from the PTA.	
	PTA	8b	The PTA displays the number of trips allocated under Prenatal Traveler benefits and the trip history.	Prenatal traveler could alternatively call the call center to get the trip history information.
	Prenatal Traveler	8c	Prenatal Traveler exits the PTA.	
	Accesses Instructions and Education Materials			

Use Case	Prenatal Traveler Establishes an Account and Sets User Preferences			
Scenario ID and Title	**UC2-S1: Prenatal Traveler Establishes an Account and Sets Up User Preferences**			
	Prenatal Traveler	8a	Prenatal Traveler selects Instructions and Education Materials option from the PTA.	The PTA will share any outreach or training materials that reference ODM and Medicaid for approval, specifically, outreach from MCOs to Medicaid members.
	PTA	8b	The PTA displays the accessible instructions and educational materials including but not limited to PTA navigation, how to access education material, frequently asked questions or how-to videos.	This is not applicable to call center users since they won't access the app/website. They could call the call center to receive the information.
	Prenatal Traveler	8c	Prenatal Traveler exits the PTA.	
Post-Conditions	Prenatal Traveler has established a user account, added user preferences to the PTA to create reservations faster (except for telephone users), reviewed trip history and accessed informational and education materials.			
Policies and Business Rules	User preferences are included in each PTA transaction			
User Needs Traceability	PTA-UN001-v01 Personal Devices PTA-UN009-v01 Multiple Languages PTA-UN010-v01 User Preference PTA-UN013-v01 Access to Instructions and Educational Materials PTA-UN014-v01 Trip History PTA-UN018-v01 Security and Encryption PTA-UN021-v01 Account Ownership PTA-UN024-v01 PTA-MCO Integration PTA-UN026-v01 Request Accessible Vehicles PTA-UN032-v01 MCO-PTA Integration			

Use Case	Prenatal Traveler Establishes an Account and Sets User Preferences
Scenario ID and Title	**UC2-S1: Prenatal Traveler Establishes an Account and Sets Up User Preferences**
Inputs Summary	User preferences
Output Summary	None

Source: City of Columbus



Source: City of Columbus

Figure 16: UC3-S1: Prenatal Traveler Plans a Trip

Table 16: UC3-S1: Prenatal Traveler Plans a Trip

Use Case	**Prenatal Traveler Plans a Trip**			
Scenario ID and Title	**UC3-S1: Prenatal Traveler Plans a Trip**			
Scenario Objective	Prenatal Traveler schedules, changes or cancels a pre-planned on-demand trip			
Operational Event(s)	Schedules a trip, changes a trip, cancels a trip and provides feedback			
Actor(s)	Actor	Role		
	Prenatal Traveler	End user of the system		
	PTA	Application (PTA could be an app in the smartphone, webpage portal or call center)		
Pre-Conditions	Prenatal Traveler has internet on the smartphone Prenatal Traveler has access to a computer with internet Prenatal Traveler has access to a telephone Prenatal Traveler has downloaded and installed the PTA Prenatal Traveler has established a PTA account			
Key Actions and Flow of Events	Actor	Step	Key Action	Comments
	Prenatal Traveler	1a	Prenatal Traveler opens the app in the smartphone.	
	Prenatal Traveler	1b	Prenatal Traveler opens the reservation webpage portal.	
	Prenatal Traveler	1c	Prenatal Traveler calls the call center number.	
	PTA	2	The PTA authenticates the user with appropriate credentials.	
	PTA	3	The PTA checks member eligibility with the MCO.	
	PTA	4	The PTA provides options to schedule a trip, change a previous scheduled trip, or cancel the previous scheduled trip	
	Schedules a Trip			
	Prenatal Traveler	5a	Prenatal Traveler selects schedule a trip option.	

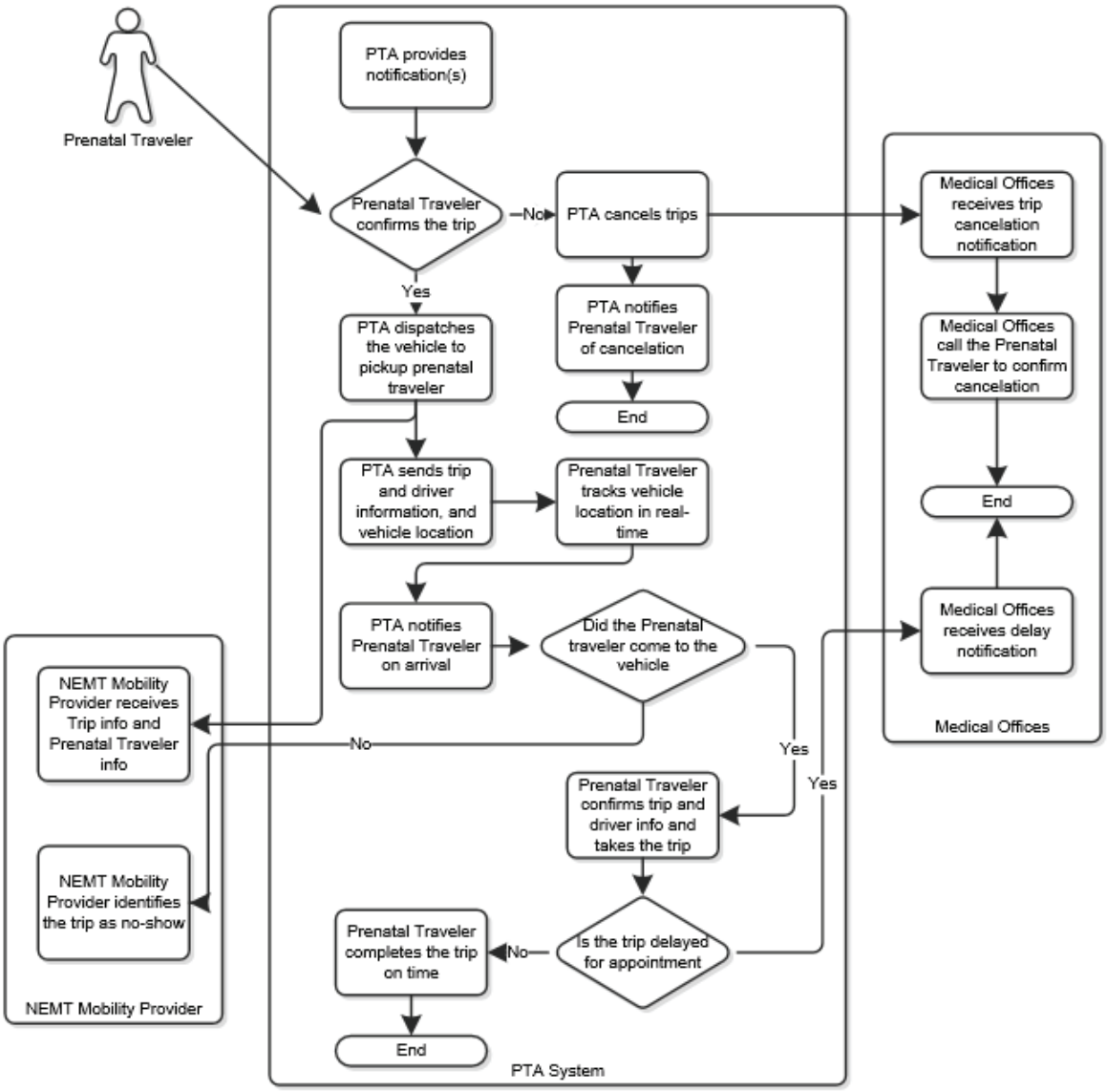
Use Case	Prenatal Traveler Plans a Trip			
Scenario ID and Title	**UC3-S1: Prenatal Traveler Plans a Trip**			
	PTA	6a	The PTA displays a map image and prompts the Prenatal Traveler for doctor's office or other destination, date and time of appointment and pickup location.	Travel start time could be either on-demand or could be up to a month in advance. The defaults of these parameters will be displayed based on user preference settings.
	Prenatal Traveler	7a	Prenatal Traveler enters the requested information and requests reservation.	
	PTA	8a	The PTA automatically adjusts the trip results based on the Traveler's preferences.	
	PTA	9a	The PTA displays the reservation opportunity.	PTA interfaces with the NEMT Mobility provide for the reservation. PTA shares the traveler information and trip data.
	Prenatal Traveler	10a	Prenatal Traveler confirms the reservation.	
	PTA	11a	The PTA reserves the selected trip and sends confirmation message to the user preferred communication method.	PTA interfaces with the NEMT Mobility provide for the confirmation.

Use Case	Prenatal Traveler Plans a Trip			
Scenario ID and Title	**UC3-S1: Prenatal Traveler Plans a Trip**			
	PTA	12a	Th PTA displays a confirmation message.	When the time for the trip has come the traveler will be prompted to confirm the vehicle request. (See UC3-S2)
	Prenatal Traveler	13a	Prenatal Traveler exits the PTA.	
	Changes a Trip			
	Prenatal Traveler	5b	Prenatal Traveler selects change a trip option.	
	PTA	6b	The PTA displays pre-scheduled trips for selection.	PTA interfaces with the NEMT Mobility provide for obtaining the schedule.
	Prenatal Traveler	7b	Prenatal Traveler selects a previous scheduled trip for change.	
	PTA	8b	The PTA displays the doctor's office or other destination, date and time of appointment and pickup location.	
	Prenatal Traveler	9b	Prenatal Traveler adjusts the pickup location and requests reservation.	
	PTA	10b	The PTA automatically adjusts the trip results based on the Traveler's preferences.	
	PTA	11b	The PTA reserves the schedule and sends the confirmation message to the user preferred communication method.	PTA interfaces with the NEMT Mobility provide for the confirmation.
	PTA	12b	The PTA displays a confirmation message.	
	Prenatal Traveler	13b	Prenatal Traveler exits the PTA.	

Use Case	Prenatal Traveler Plans a Trip			
Scenario ID and Title	**UC3-S1: Prenatal Traveler Plans a Trip**			
	Cancels a Trip			
	Prenatal Traveler	5c	Prenatal Traveler selects cancel a trip option.	Trips can also be canceled or changed by selecting the appropriate link in the alert sent to the traveler via email or text.
	PTA	6c	The PTA displays pre-scheduled trips for cancelation.	PTA interfaces with the NEMT Mobility provide for obtaining the schedule.
	Prenatal Traveler	7c	Prenatal Traveler selects a previous scheduled trip for cancelation.	
	PTA	8c	The PTA cancels the selected trip and sends the confirmation message to the user preferred communication method.	TB & Medical Provider are also notified of the cancelled trip. Medical Office may decide to contact the traveler to see if she has arranged other transportation.
	PTA		The PTA displays a confirmation message.	
	Prenatal Traveler	9c	Prenatal Traveler exits the PTA.	
	Provides Feedback			
	Prenatal Traveler	5f	Prenatal Traveler selects feedback and/or complaint from the PTA.	

Use Case	Prenatal Traveler Plans a Trip			
Scenario ID and Title	**UC3-S1: Prenatal Traveler Plans a Trip**			
	PTA	6f	The PTA displays the feedback and/or complaint form.	Feedback could be potentially provided on the trip, driver, vehicle, or PTA in general. PTA will forward the complaints and feedbacks appropriately.
	Prenatal Traveler	7f	Prenatal Traveler provides feedback and/or complaint and exits the PTA.	In case of call center, call agent will register the feedback and complaints.
Post-Conditions	The Prenatal Traveler schedules, updates, or cancels the trip. She also provides feedback.			
Policies and Business Rules	N/A			
User Needs Traceability	PTA-UN001-v01 Personal Devices PTA-UN002-v01 Trip Scheduling PTA-UN003-v01 Graphic User Interface (GUI) (Transaction Equipment) PTA-UN008-v01 Cancel or Change Option PTA-UN011-v01 Accept Bookings/Reservations PTA-UN015-v01 Feedback PTA-UN037-v01 MCO Complaints PTA-UN040-v01 Driver Feedback PTA-UN028-v01 Certification and Accreditation			
Inputs Summary	Trip Preference			
Output Summary	Personalized trip itineraries			

Source: City of Columbus



Source: City of Columbus

Figure 17: UC3-S2: Prenatal Traveler Takes a Trip

Table 17: UC3-S2: Prenatal Traveler Takes a Trip

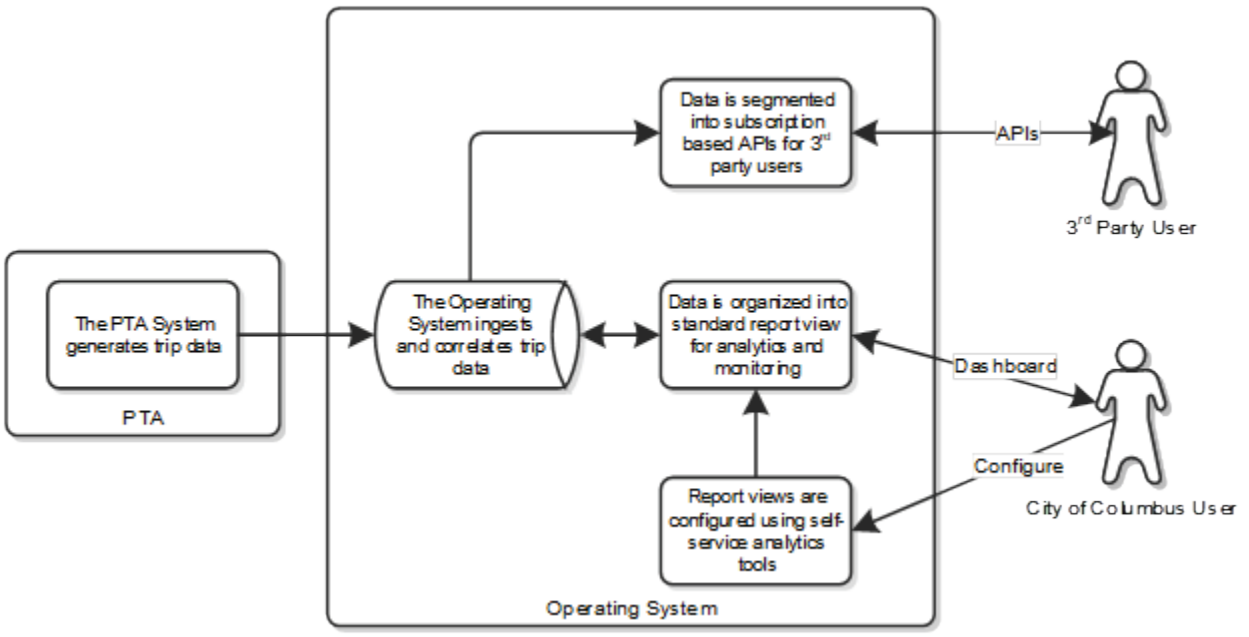
Use Case	**Prenatal Traveler Takes a Trip**			
Scenario ID and Title	**UC3-S2: Prenatal Traveler Takes a Trip**			
Scenario Objective	Prenatal Traveler receives notification, gets picked up, takes a trip, gets dropped off, notifies medical office			
Operational Event(s)	Receive notification, take a trip, get dropped off, notify medical office			
Actor(s)	Actor	Role		
	Prenatal Traveler	End user of the system		
	PTA	Application (PTA could be an app in the smartphone, webpage portal or call center)		
	Medical Offices	Receive notification		
	NEMT Mobility Provider	Provides transport services		
Pre-Conditions	Prenatal Traveler has downloaded the app on the smartphone Prenatal Traveler has internet on the smartphone Prenatal Traveler has access to a computer with internet Prenatal Traveler has access to a telephone Prenatal Traveler has downloaded and installed the PTA Prenatal Traveler has established a PTA account			
Key Actions and Flow of Events	Actor	Step	Key Action	Comments
	PTA	1	The PTA provides notification by email, text and/or phone for (as applicable) based on pre-defined schedules including confirmation alert at dispatch time.	PTA determines time needed for NEMT to reach pickup location. As part of the notification, availability of Car Seat is confirmed (if requested by the Prenatal Traveler).
	Prenatal Traveler	2	Traveler confirms pickup at time required for NEMT to be dispatched.	

Use Case	Prenatal Traveler Takes a Trip			
Scenario ID and Title	**UC3-S2: Prenatal Traveler Takes a Trip**			
	PTA	3	Prior to driver arrival, the PTA dispatches the vehicle, sends trip and driver info along with the location of the vehicle (updated in real-time) to Prenatal Traveler.	Prenatal Traveler opens the PTA on her phone to see the driver location on a map. Only trained drivers are assigned.
	Prenatal Traveler	4	Prenatal Traveler tracks the location of the vehicles.	Location could be tracked either in the app or the webpage.
	PTA	5	On arrival, the PTA sends notification to the Prenatal Traveler.	NEMT Mobility Provider and the Prenatal Traveler will also have an option to communicate with each other based on her user preferences.
	Prenatal Traveler	6a	On notice of driver arrival, Prenatal Traveler confirms the trip and driver information prior to getting into the vehicle.	
	NEMT Mobility Provider	6b	If the Prenatal Traveler doesn't come to the vehicle within certain time, NEMT mobility provider identifies the trip as a "No-Show".	NEMT Mobility Provider's interface will have a "No-Show" option.
	Prenatal Traveler	7a	Prenatal Traveler continues the trip.	
	PTA	7b	The PTA notifies Medical Office that the Prenatal Traveler didn't take the trip.	
	PTA	8a	If the PTA determines that the Prenatal Traveler will miss the appointment (due to traffic or other reasons), it notifies the Medical Office about the trip delay.	

Use Case	Prenatal Traveler Takes a Trip			
Scenario ID and Title	**UC3-S2: Prenatal Traveler Takes a Trip**			
	Medical Offices	8b	Medical Office contacts the Prenatal Traveler to confirm that the Prenatal Traveler is still on schedule for the appointment.	
	Prenatal Traveler	9a	Prenatal Traveler completes the trip and attends the appointment.	
	Prenatal Traveler	9b	Prenatal Traveler finds another ride or cancels appointment and therefore no longer needs the NEMT trip.	
	Prenatal Traveler	10a	Following the appointment, Prenatal Traveler schedules a trip for return pickup. Prenatal Traveler stops by the pharmacy to pick up the medicine on the way back home.	Prenatal Traveler doesn't depend on Medical Office's staff or phone to schedule trips for their patients. Prenatal Traveler will be picked up within reasonable time after the appointment so that she won't wait at the doctor's office.
	Prenatal Traveler	10b	Prenatal Traveler attends or reschedules appointment.	
	PTA	11	Prenatal Traveler takes return trip. (On-demand return trip commences at steps 3 to 6 above)	
	Prenatal Traveler	12	Prenatal Traveler completes the return trip.	
	PTA	13	PTA shares the trip information with the Operating System.	
Post-Conditions	Prenatal traveler completes the trip			
Policies and Business Rules	N/A			

Use Case	Prenatal Traveler Takes a Trip
Scenario ID and Title	**UC3-S2: Prenatal Traveler Takes a Trip**
User Needs Traceability	PTA-UN001-v01 Personal Devices PTA-UN003-v01 Graphic User Interface (GUI) (Transaction Equipment) PTA-UN004-v01 Delay of Arrival or Cancellation of Trip Request PTA-UN005-v01 Timely Return Pickup PTA-UN006-v01 Vehicle and Driver Description PTA-UN007-v01 Prenatal Traveler Notifications PTA-UN012-v01 Delay/Cancelation Notification PTA-UN019-v01 Car Seat PTA-UN022-v01 Trip Data PTA-UN023-v01 Driver and Vehicle Info PTA-UN025-v01 Medical Office Integration PTA-UN039-v01 Driving Training PTA-UN041-v01 Driver Routing PTA-UN042-v01 Driver Communication and Preference PTA-UN043-v01 Driver Situation PTA-UN044-v01 Medical Office Notification
Inputs Summary	N/A
Output Summary	N/A

Source: City of Columbus



Source: City of Columbus

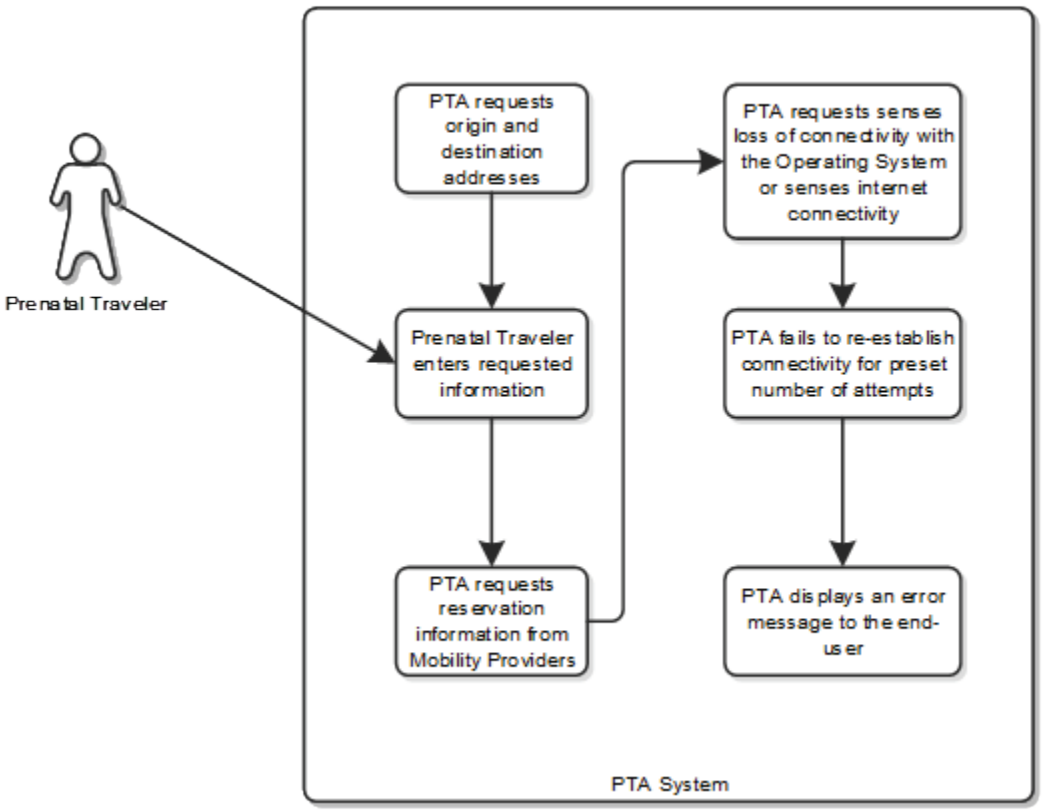
Figure 18: UC4-S1: Users Connect to the Operating System for Data

Table 18: UC4-S1: Users Connect to the Operating System for Data

Use Case	**Users Connect to the Operating System for Data**	
Scenario ID and Title	**UC4-S1: Users Connect to the Operating System for Data**	
Scenario Objective	City of Columbus and third-party users connect to the Operating System to receive data	
Operational Event(s)	View reports, configures reports, accesses data through APIs	
Actor(s)	Actor	Role
	PTA	Responsible for creating the data
	Operating System	Responsible for collecting and preparing data to support analytics and performance measures by the City of Columbus and third parties
	City of Columbus	Members of the City with unrestricted access to data for reporting and analytics purposes
	Third-Party Users	Members of the public with restricted access to data for development purposes
Pre-Conditions	City of Columbus and Third-Party Users have access to the Operating System data	

Use Case	Users Connect to the Operating System for Data			
Scenario ID and Title	**UC4-S1: Users Connect to the Operating System for Data**			
Key Actions and Flow of Events	Actor	Step	Key Action	Comments
	PTA	1	PTA creates data by providing multimodal trip planning and payment services to Travelers.	
	Operating System	2	The Operating System collects the data that is generated by the PTA and prepares it for analytics.	Access to third party and the City will be based on their data access rights. Data is shared with ODM, CelebrateOne, MCO. Data will be based on open standards.
	City of Columbus	3	City of Columbus users access the data through web-based dashboards which display performance metrics. City users can configure the reports that are available on the dashboards.	
	Third-party users	4	Third-party users access the data through an application interface, which are developed by the Operating System team.	
Post-Conditions	Third-party users and the City access the data.			
Policies and Business Rules	Data does not include PII			
User Needs Traceability	PTA-UN019-v01 Open Standards PTA-UN022-v01 Trip Data PTA-UN027-v01 Access to Data PTA-UN028-v01 Open API for Data Transfer PTA-UN030-v01 ODM Data Access PTA-UN031-v01 MCO Data Needs PTA-UN038-v01 CelebrateOne Data			
Inputs Summary	N/A			
Output Summary	Data for development and reporting/analytics			

Source: City of Columbus



Source: City of Columbus

Figure 19: UC5-S1: Failure Condition – Loss of Communications with the Operating System

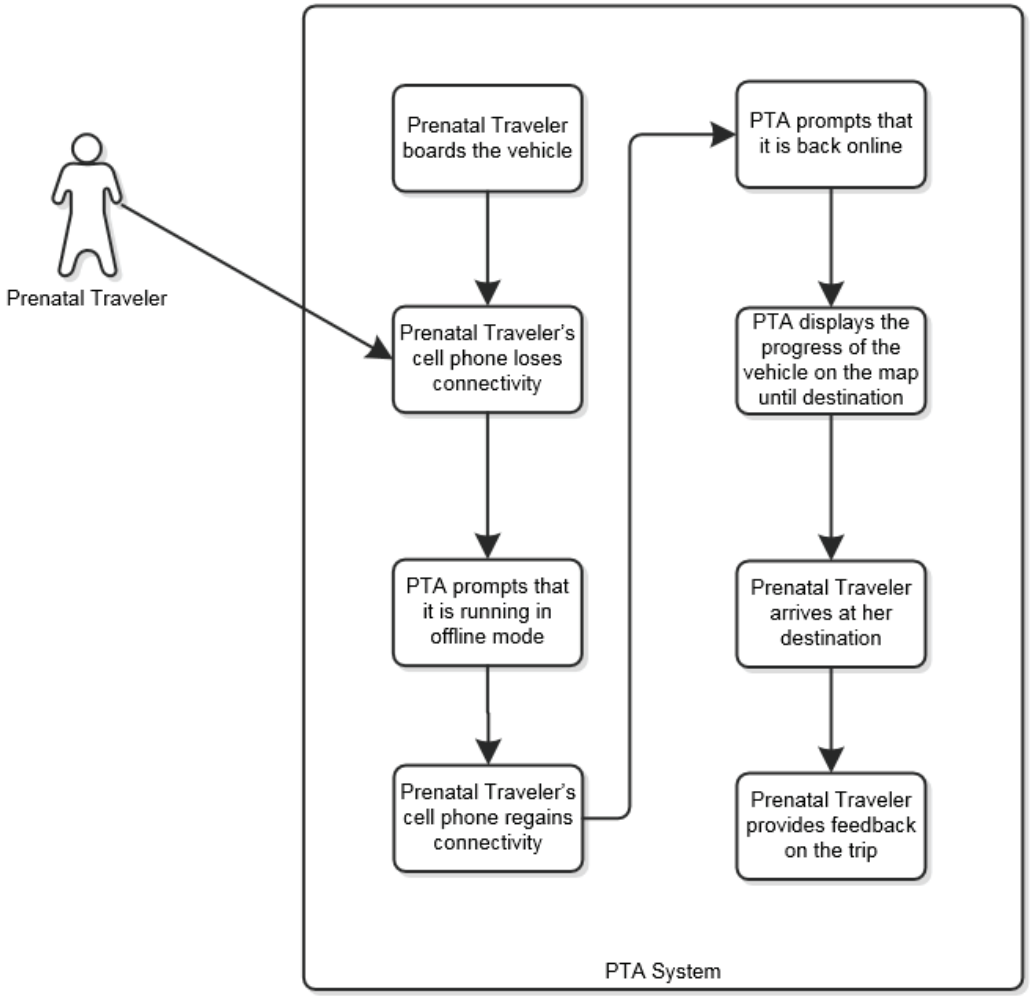
Table 19: UC5-S1: Failure Condition – Loss of Communications with the Operating System

Use Case	**Failure Condition – Loss of Communications with the Operating System**	
Scenario ID and Title	**UC5-S1: Failure Condition – Loss of Communications with the Operating System**	
Scenario Objective	Prenatal Traveler wishes to schedule trip using NEMT services	
Operational Event(s)	Loss of connectivity	
Actor(s)	Actor	Role
	Prenatal Traveler	End- user of the system
	PTA	Application (PTA could be an app in the smartphone, webpage portal). This scenario is not applicable for call center users.
	Mobility Providers	Provides transport services

Use Case	**Failure Condition – Loss of Communications with the Operating System**			
Scenario ID and Title	**UC5-S1: Failure Condition – Loss of Communications with the Operating System**			
Pre-Conditions	PTA system has agreements in place with participating NEMT Mobility Providers Prenatal Traveler owns a smartphone Prenatal Traveler's smartphone has internet access and knows its location [has global positioning system (GPS) capabilities] Prenatal Traveler has downloaded the PTA to their smartphone and accepted the PTA Terms and Conditions			
Key Actions and Flow of Events	Actor	Step	Key Action	Comments
	PTA	1	The PTA requests origin and destination addresses from the end user.	
	Prenatal Traveler	2	Prenatal Traveler enters origin and destination addresses in response to PTA prompt.	
	PTA	3	The PTA requests reservation information from Mobility Providers.	
	PTA	4a	The PTA senses loss of connectivity with the Operating System.	
		4b	The PTA senses loss of internet connectivity.	
	PTA	5	The PTA tries to re-establish connectivity for a preset number of attempts or time period.	
	PTA	6	The PTA displays an error message to the end user indicating loss of communication connectivity. The PTA requests the user to use the call-in number.	The error message is a default message displayed by the PTA.
	PTA	7	The PTA displays a message to the end user indicating the error has been reported.	The error message is a default message displayed by the PTA.
Post-Conditions	Prenatal Traveler is unable to use the PTA.			

Use Case	Failure Condition – Loss of Communications with the Operating System
Scenario ID and Title	**UC5-S1: Failure Condition – Loss of Communications with the Operating System**
Policies and Business Rules	N/A
User Needs Traceability	PTA-UN001-v01 Personal Devices PTA-UN016-v01 Offline Usage
Inputs Summary	Prenatal Traveler provides origin and destination information
Output Summary	PTA provides error message to user

Source: City of Columbus



Source: City of Columbus

Figure 20: UC5-S2: Failure Condition – Temporary Loss of Communications

Table 20: UC5-S2: Failure Condition – Temporary Loss of Communications

Use Case	**Failure Condition – Loss of Communications**			
Scenario ID and Title	**UC5-S2: Failure Condition – Temporary Loss of Communications**			
Scenario Objective	Prenatal Traveler experiences temporary loss of connectivity on smartphone while on route to destination			
Operational Event(s)	Temporary loss of communications			
Actor(s)	Actor	Role		
	Prenatal Traveler	End user of the system		
	PTA	Application (PTA could be an app or a webpage in the smartphone). This scenario is not applicable for call center users.		
	Operating System	Trip optimization		
Pre-Conditions	Prenatal Traveler has downloaded the app on the smartphone Prenatal Traveler has internet on the smartphone			
Key Actions and Flow of Events	Actor	Step	Key Action	Comments
	Prenatal Traveler	1	The Prenatal Traveler boards the vehicle.	
	PTA	2	The Prenatal Traveler's cell phone suddenly loses network connectivity and the PTA prompts that it is running in offline mode.	
	PTA	3	The Prenatal Traveler's cell phone suddenly regains its network connectivity. The PTA prompts the Prenatal Traveler that it is back online.	Trip details that were stored in the PTA while offline are transmitted to the Operating System.
	PTA	4	The PTA displays the progress of the vehicle on a map until the Prenatal Traveler reaches her destination.	
	Operating System	5	The trip details are stored in the Operating System.	
	Prenatal Traveler	6	The Prenatal Traveler exits the vehicle and arrives safely at her destination. The Prenatal	

Use Case	Failure Condition – Loss of Communications			
Scenario ID and Title	**UC5-S2: Failure Condition – Temporary Loss of Communications**			
			Traveler clicks a link in the PTA to provide positive feedback.	
Post-Conditions	Prenatal Traveler completes the trip			
Policies and Business Rules	N/A			
User Needs Traceability	PTA-UN001-v01 Personal Devices PTA-UN003-v01 Graphic User Interface (GUI) (Transaction Equipment) PTA-UN015-v01 Feedback PTA-UN016-v01 Offline Usage			
Inputs Summary	N/A			
Output Summary	N/A			

Source: City of Columbus

Chapter 7. Summary of Impacts

This section describes the anticipated operational and organizational impacts of the proposed system on the City during all stages of the proposed system, from development through implementation, support, and maintenance of the proposed system.

7.1 Operational Impacts

Changes in procedure regarding support and maintenance of the new system are anticipated, however, the solution will dictate the extent of additional support needed. Considerations include business owner(s), software development and database resources in a primary and backup capacity, server, and security concerns. Data Privacy and Data Management plans will be identified and refined during development to address operational impacts and changes in data retention requirements. This will likely fall under departmental owner data retention requirements or new requirements will be made since new services are being offered. If usage reports or historical information are identified as a requirement, retention policies will need to be reviewed and changed as needed.

Most of the PTA project will exist outside of the City's purview. Operational impacts for the MCOs will be necessary. MCOs will need to create a new category in their member database so that the PTA pilot participants can have their profiles moved to this new category to ensure their information, benefits and communications are shared with the pilot technology vendor/TB and NEMT Mobility Providers.

The PTA system impacts would be focused on ensuring contracts are let with enough NEMT Mobility Providers to fulfill the pilot needs. As well, there will have to be training for any organization (MCOs, NEMT Mobility Providers) new to their technology and processes.

NEMT Mobility Providers under contract with the technology vendor/TB will also need training and access to the new technology software. It is anticipated that the solution provider will provide a cloud-based solution that doesn't require physical hardware. This may or may not result in a need for additional hardware, i.e. computers, servers, in-vehicle devices.

It is anticipated that Medical Providers will receive alerts via email. Medical offices may need training and access to technology software if something beyond their business email provider is necessary. If the pilot includes email communication only to the medical offices and not a web portal, it is unlikely that there will be a need for additional hardware.

7.2 Organizational Impacts

Once a vendor and/or systems integrator is selected, it is anticipated to result in added responsibilities for the City of Columbus. An intradepartmental Memorandum of Understanding (MOU) will be established to define responsibilities. This agreement will at a minimum define staffing levels and positions, funding

responsibilities, define responsibilities for each department and organization point of contact and decision-maker.

The Operating System will be operated by the Smart Columbus PMO. The PMO will continually monitor the operational performance and consider adjustments to the system to ensure it is operating as expected. Further, the City will work with the Independent Evaluator to provide requested data. Other organizational impacts are expected for the MCOs and technology vendor/TB. The MCOs will continue their relationship with the existing TB to fulfill all non-PTA NEMT services. The PTA system will act like a broker which could impact future relationships with TBs.

7.3 Impacts During Development

There are several projects and coordination tasks that could affect the ability of the system to provide all the services that have been conceptualized for it. ODM can change its rules and processes as it applies to both the MCOs and the counties and their delivery of NEMT services. The State of Ohio Infant Mortality Task Force is looking at changes it can make which could impact transportation for Prenatal Travelers. CelebrateOne continues to affect change by working on pilots that impact Prenatal Travelers. COTA's C-pass may have an impact on working Medicaid members. C-pass is a free bus pass for employees who work in a selected downtown area. This pass can be used every day for any route and therefore could be used for NEMT trips without the MCO being notified.

Data collection and coordination with the five (two for the pilot and the other three for data sharing) MCOs could prove challenging and will have to be handled through data sharing agreements and MOUs. The PTA system vendor will begin with its own existing NEMT relationship. The ability to collect trip information within the Operating System is a required component of the PTA – these interfaces will need to be developed, and the parameters and expectations for integration defined through agile development processes.

Chapter 8. Analysis of Prenatal Trip Assistance

An analysis of the PTA is summarized below under Summary of Improvements.

8.1 Summary of Improvements

Table 21: Summary of Improvements provides a summary of improvements that result from the proposed system.

Table 21: Summary of Improvements

Improvements	Summary
New Capabilities	• A website and smartphone application for scheduling NEMT trips • Additional notifications of the upcoming NEMT trip with driver and vehicle information • Access to on-demand NEMT services • An email to Medical Offices to notify them of the Prenatal Traveler's missed pickup, cancellation or delay in traffic • Reliable feedback collection • Integration with the Operating System for and access to data
Enhanced Capabilities	MCOs and PTA system can track NEMT Mobility Providers real-time
Deleted Capabilities	No capabilities deleted
Improved Performance	• Improved mobility for Prenatal Travelers • Improved data for City of Columbus, ODM, MCOs and third-party users

Source: City of Columbus

8.2 Disadvantages and Limitations

The constraints in **Chapter 5. Concept for the New System** under Operational Policies and Constraints may be considered disadvantages of the proposed system in terms of needing to be overcome to achieve the goals and objectives for the PTA.

8.3 Alternatives and Trade-Offs Considered

The main alternatives considered for PTA were the lead partner for the pilot. Given ODM's role in overseeing Medicaid in Ohio, it was the first choice as a partner. As the City researched ODM's role as it related to NEMT service delivery, it was clear that its impact was more on policy than delivery of services; its main NEMT service delivery was through the counties. The City reached out to Franklin County next to understand its role and whether the County would be a good partner. As discussed previously, Franklin County does deliver NEMT services for pregnant women under a program called PRS. The County program numbers were so small that any pilot based on its numbers would not have been a good gauge of the impact of the new system. Therefore, the MCOs were chosen as the best partner for this project.

Table 22: Alternatives and Trade-Offs Considered

Trade-Offs/Alternatives	Description	Decision	Rationale
ODM as Lead Partner	ODM was the first choice for partnership with this pilot as it leads the implementation and operation of the Medicaid program in Ohio.	Do not pursue	MCOs are direct providers of the NEMT services. ODM is also considering major changes to NEMT delivery.
FCDJFS as Partner	Add FCDJFS as a partner for the PTA program due to its PRS NEMT delivery service.	Do not pursue	FCDJFS does not provide enough prenatal NEMT services to conduct or add to a pilot.
Higher Level Integration with Medical Offices	Create a web portal interface for each medical office that is treating a pilot participant. This interface would connect to the medical office's scheduling and records system.	Do not pursue	This is not feasible due to the number of medical offices that could be involved, timeline and the costs of connecting to various systems.

Source: City of Columbus

Chapter 9. Notes

No notes applicable.

Appendix A. Stakeholder Engagement Summary

This summary of end user and stakeholder engagement activities assessed the current environment and challenges Prenatal Travelers, in eight CelebrateOne neighborhoods, face when scheduling non-emergency medical transportation (NEMT) for medical visits during pregnancy.

End users and stakeholders involved in the engagement process included:

- Expectant moms, new moms – Linden residents, Moms2B
- Physicians caring for expecting moms – Primary One, Ohio State University Wexner Medical Center (OSU), Mount Carmel
- Managed Care Providers (MCPs) – CareSource, Buckeye Health, Molina, United Healthcare, Paramount Advantage
- NEMT providers – Taxi company and TBs: Veyo, Circulation, Kaizen Health), Lyft, Uber, Access 2 Care, MAS Ohio, Yellow Cab
- County/State agencies –FCDJFS, ODM, ODOT, MORPC
- Transit providers – Dayton RTA, Central Ohio Transit Authority (COTA)
- Social support groups – CelebrateOne

1. Event: Sidewalk Labs/Linden Focus Groups Research
    a. When: June – August 2017
    b. Where: Grace Baptist Church and phone interviews
    c. Who participated: Prenatal Travelers, new moms, CelebrateOne, OSU, Mount Carmel, Kaizen Health, Lyft, Uber, Veyo, ODM, Paramount Advantage, Access 2 Care, CareSource
    d. Why: To discover how improved mobility via Smart Columbus can be a strategy to reducing high infant mortality rates by learning transportation pain points, challenges and desires of expectant and new moms.
    e. Key Takeaways:
        i. Accommodations for strollers, car seats, wheelchairs and walkers need to be part of the approach.
        ii. Smartphones and data plans are prevalent in this community
        iii. Convenience and cost influence which mode when there's no car access.
            1) Transit takes 2 hours to get to appt; waiting 3 hours for a ride home isn't practical.

2) Drivers honk once and leave.
3) Driver wouldn't stop for RX on way home from the doctor.
4) Cabs and Uber are better suited for car seats and direct routing to a destination, but cost is a concern.
5) English-only language is barrier for some.

i. The project will need to have an important education component for successful adoption.
ii. Healthcare providers: 30-50 percent no-show rates, half may be transport related, patients' addresses change so bookings outdated, stretched too thin to provide patient transport assistance

The following is a summary of end user and stakeholder engagement activities to assess community interest in utilizing an online/mobile app for multimodal trip planning and payment but is relevant to PTA. While the audiences did not consist solely of Prenatal Travelers, the target location of Linden is one of the eight CelebrateOne neighborhoods and some of those surveyed were pregnant moms.

End users and stakeholders involved in the MMTPA/CPS engagement process included:

- Expecting moms
- Older adults
- Linden residents
- People who work in Linden
- Bicyclists
- Pedestrians

A.1 End-User Engagement Events Summary

1. Event 1: Smart Columbus Focus Groups
   a. When: June 21, 2017
   b. Where: St. Stephens Community House, Linden
   c. Who participated: 10 Low-income individuals who are part of Moms2B program
   d. Why: To learn about the pain points, challenges, and desires of the target beneficiaries (expectant and new moms)
   e. Key takeaways
      i. NEMT services arrive late, forcing people to miss appointments – appointments can get rescheduled to all the way at the end of the day.
      ii. Bus delays can cause transfers to time out.
      iii. 8/10 members had smartphones, some with sufficient data plans, and were very comfortable with using theme in general

iv. Around 50 percent of the focus group members did not have credit cards

v. Many did not know how reliable Uber/Lyft was and so were therefore less comfortable using them

vi. Despite lower socioeconomic profile, participants would be willing to pay a premium because of importance of doctor's appointments and significant discomfort of riding bus

vii. People are willing to pay a premium for speed, but distrust giving out credit card info, more comfortable with debit card, which is how they currently shop online

2. Event 4: Linden Moms2Be Focus Group
   a. When: June 21, 2017
   b. Where: Grace Baptist Church, Linden
   c. Who participated: 11 female community members (expecting and new moms) volunteered to attend
   d. Why: Focus group of community volunteers to gain additional, more directed insight on specific user needs
   e. Key takeaways:
      i. The large majority of participants had smartphones and access to Wi-Fi/data. None of the participants pay for apps.
      ii. There is concern with putting bank/credit card information into an app because of security concerns. The preference is to have a prepaid card to put into the app for payment of transportation services.
      iii. The ability to both plan the trip in the app and also pay for it in the app was attractive to most participants

A.2 Linden Community Outreach for the Multimodal Trip Planning Application/Common Payment System Project

While the below outreach was not specifically conducted for the PTA project, the MMTPA/CPS outreach did contain questions and answers that help make decisions for the PTA project. Here is an excerpt of the outreach with specific questions focusing on smartphone availability and how these residents of the Linden neighborhood (one of the eight CelebrateOne neighborhoods) like to receive information. Only select questions are noted below.

A.2.1 Survey Results

The following are the results of survey questions posed to residents in Linden about transportation services in general. These questions were meant to identify current patterns of transportation usage and obstacles preventing transportation usage in accordance with ideal outcomes envisioned by the residents. While these questions do not directly address the goals of the PTA project, they were meant to uncover gaps in the current condition that could possibly be overcome when considering design of the PTA.

Of the 68 total surveys collected, 14 participants (21 percent) did not provide an answer to any of the eight questions on the Smart Apps survey. It should be noted that some participants gave more than one response to a question and not every participant answered each question. All percentages are calculated with a denominator of the sum of the number of individual responses received for that question, so percentages equal to 100 percent.

SURVEY QUESTION 2: How do you currently get information about these services if you use them today?

Of the 65 individual responses, most get their information from the internet/website (29 percent), smartphone/apps (15 percent), and Google Maps (15 percent).

Table 23: How do you currently get information about these services if you use them today?

Preference	Number of Responses	% of Respondents
Internet/website	19	28%
Smartphone/apps	10	15%
Google Maps	10	15%
COTA schedules	5	7%
Others	4	6%
Call information	4	6%
Social service agency	3	4%
Other	3	4%
COTA info center	2	3%
Public meetings	2	3%
Email	2	3%
Columbus biking page	1	1%

Source: City of Columbus

SURVEY QUESTION 3: How would you like to get information?

Of the 72 individual responses, most residents would like to get their information from a phone/app (50 percent), or a kiosk (24 percent).

Table 24: How would you like to get information?

Preference	Number of Responses	% of Respondents
Phone/app	36	53%
Kiosk	17	25%
Text alerts	6	9%
Paper version	5	7%
Signage	5	7%
Information center	2	3%
Other	1	1%

Source: City of Columbus

SURVEY QUESTION 5: What are the obstacles to getting all the information in one place?

Of the 38 individual responses, most participants mentioned that a lack of Wi-Fi access (32 percent), kiosks/information centers (16 percent), and inter-business cooperation are the highest obstacles.

As previously mentioned, internet connectivity will be a prerequisite for using the MMTPA. Other Smart Columbus projects such as Mobility Hubs and Smart Street Lighting are meant to partially alleviate the lack of internet connectivity reported by residents.

Table 25: What are the obstacles to getting all the information in one place?

Obstacles	Number of Responses	% of Respondents
Wi-Fi access	12	18%
No kiosks/physical info centers	6	9%
Lack on inter-company cooperation	6	9%
Fees	5	7%
Lack of multi-lingual options	3	4%
No smartphone	3	4%
Not enough options	2	3%
No app	1	1%

Source: City of Columbus

SURVEY QUESTION 9: What are the obstacles?

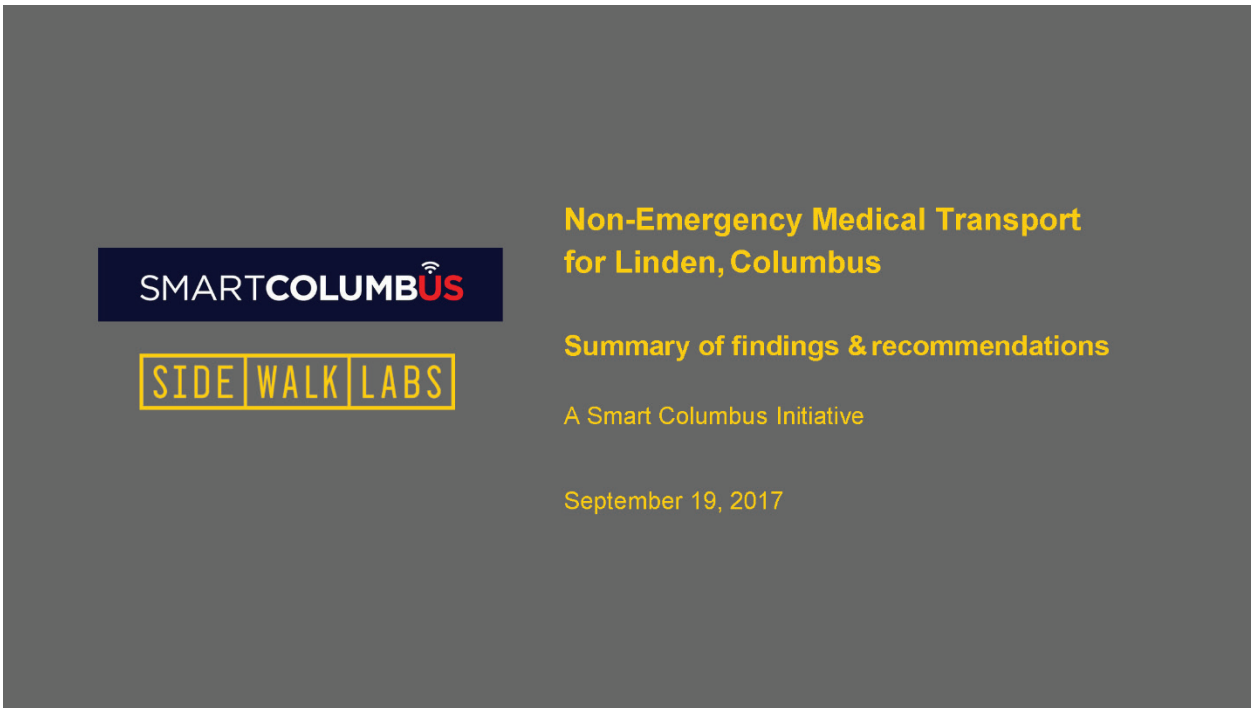
Of the 12 responses received, obstacles include the lack of a common payment method (5 responses), lack of discounts (2 responses), lack of Wi-Fi (2 responses), education (2 responses), and lack of a loan program (1 response).

Table 26: What are the obstacles?

Obstacles	Number of Respondents	% of Respondents
Lack of common payment method	5	7%
Lack of discounts	2	3%
Wi-Fi	2	3%
Education	2	3%
Lack of loan programs	1	1%

Source: City of Columbus

Appendix B. Sidewalk Labs' Non-Emergency Medical Transport Survey Summary



Executive Summary

- NEMT involves **coordination of three key user groups** – patients, healthcare providers, and NEMT service providers (brokers & drivers);
- The **complexity creates multiple opportunities for system failure**, felt most acutely by the patients, but the status quo is also sub-optimal for healthcare providers and NEMT brokers;
- Innovation opportunity lies primarily in **changing service delivery model:** added focus on **user experience**, leveraging **additional supply**, and utilization of **real-time monitoring features**;
- **2 existing implementation models of innovation:** A) technology licensing; B) full-stack tech brokerage. Both can support the necessary features and capabilities, though Model B offers a more "white glove" experience;
- Next steps: choose innovation model first, then bring on innovation partners (tech vendor, managed care plan, and hospital/clinic) to devise pilot plan

1

Overview

- Executive Summary
- Sidewalk Labs – Smart Columbus collaboration overview
- Problem diagnosis & opportunities for innovation
- Capabilities & features – wish list vs. vendor offerings
- Innovation models
- Further considerations & next steps

2

Sidewalk Labs – Smart Columbus collaboration

Objectives

- Assess current pain points and underlying causes for Linden moms and infants in accessing healthcare services
- Provide Smart Columbus with insights and tools to implement a pilot program for non-emergency medical transportation (NEMT)

Deliverables

- A summary of existing NEMT demands and options, stakeholder pain points
- A recommended set of strategy, program design, and necessary technical capabilities of the NEMT solution, for Linden
- A recommended pilot implementation strategy

Presentations & demo during one of our trips to Columbus (July 2017)

3

Problem diagnosis / Opportunities of innovation

4

Strong frustrations heard from patients and care providers

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Healthcare Providers

- Our appointment no-show rates: ~30-50%; half of which may be transport related
- Patients' addresses often change, so it's hard to ensure booking is up to date
- We are stretched too thin to provide much transportation assistance to patients

Patients

- Taking transit isn't really an option, it takes 2 hours to get to an appointment
- I waited 3 hours for my ride home, while my child was at home alone.
- If I bring my other kids with me, I need car seats
- Sometimes the driver will just honk once and then leave
- I wanted to stop by Kroger to pick up my meds on the way home, but driver wouldn't do it. I had to go home, call for another ride for 2 days later.

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Current NEMT access model

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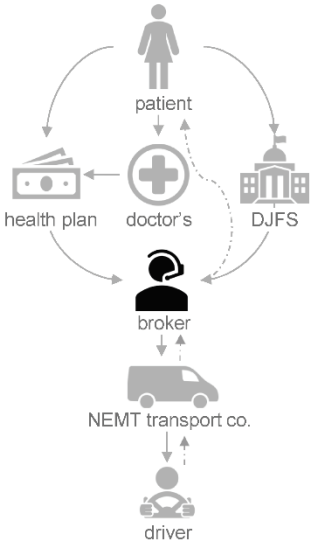
Patient calls their health plan or Franklin County DJFS, or

Patient calls doctor's office (which may have the resources to call the health plan)

Health plan / DJFS calls NEMT broker

Broker finds an NEMT transport company with available taxi / van

Transport company dispatches ride to and communicates with patient.



6

Anatomy of current pain points

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Industry issues	Provider issues	User Pain Points
Fragmentation Inadequate technology Complex processes	Lack of direct, user-centric interfaces	• Patient unfamiliar with entitled benefits, number to call, or English proficiency to navigate the request process • Doctor's office too short-staffed to call broker on patient's behalf
	Lack of monitoring tools / accountability	• Brokers & transportation companies do not rectify service shortfalls • Fraud & misuse à High cost of subsidy
	Limited vehicle availability and flexibility	• Must book in advance • Long wait time • Drivers sometimes don't show up

7

Three key innovation opportunities

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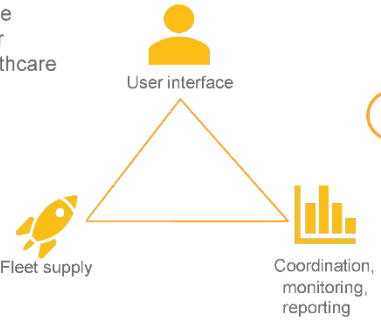
1. Request, access, and manage NEMT benefits effortlessly for NEMT patients and their healthcare providers



2. Offloads logistical burdens from healthcare & transportation providers

   Active, real-time monitors and rectifies service shortfalls

   Provides analytics on usage, cost, & health outcomes

3. Leverages additional & more flexible vehicle supply

8

The ideal experience

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An intuitive experience
- Easy to request rides
- Provides assuring information to patients
- Does not require high-tech to access benefits

A reliable ride
- Minimal wait time
- Shows up promptly
- Assures sense of safety

An effective system
- Cost efficient
- Track outcomes
- Prevents fraud & misuse

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Capabilities & features wish list vs. vendor offerings

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We conducted user testing with local moms

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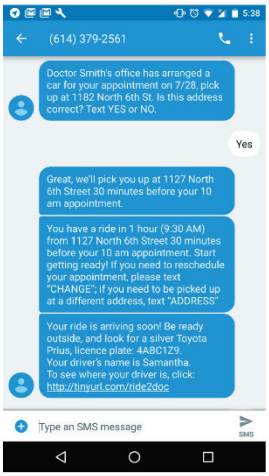
User testing with moms @ Mom2B meeting



Testers evaluated the SMS-based NEMT experience

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Program design features – for patients

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	Request	Pick-Up	Ride
"Must Haves"	Full functionality that does not require a smartphone Ability to modify pick-up location up to 24 hours before appointment	Pick-up tailored to appointment time, no excessive wait time Description of vehicle & driver, notice of driver arrival 5-minute wait at pick-up before driver declares "no-show"	
"Nice-to-Haves"	Allow for intermediary stops (e.g. pharmacy)	Privacy compliant way for driver to contact patient in case of no-show	Browser-based map with tracker and ride ETA

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Program design features – healthcare providers & health plans

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	Request	Pick-Up	Ride
"Must Haves"	Automatic health insurance eligibility verification		Monitoring and alerts for healthcare provider to prevent fraud / abuse
"Nice-to-Haves"	Call center support Integration with appointment booking software	Alerts to healthcare provider if patient does not show up at pick-up location	

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Circulation's, Veyo's, & Kaizen's current NEMT offerings support most must-have capabilities

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● Well-enabled ◐ Partially enabled ○ Limited

	Lyft	Circulation	Veyo	Kaizen
Full functionality that does not require a smartphone	●	●	●	●
Access to numerous, flexible vehicle supply to reduce wait time & unreliability	●	●	◐	●
Offloads burdens from healthcare administrators (e.g. call center, insurance verification)	◐	●	●	●
Ability for patient to modify pick-up location up to 24 hours before appointment	◐	◐	●	●
Description of vehicle and notice of driver arrival in advance	●	●	●	●
5-minute wait time at pick-up location before declaring "no-show"	●	●	●	●
Monitoring and alerts to healthcare provider and health plan to prevent fraud / abuse	○	◐	●	●

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Similarly for "nice to have" features

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Well-enabled Partially enabled Limited

	Lyft	Circulation	Veyo	Kaizen
Accommodates intermediary stop (e.g. pharmacy stop on way from doctor's)	○	●	●	●
Call center for patient support	○	●	●	●
Phone call/text from driver to patient, if	●	●	●	● patient not at pick-up location
Browser-based map with tracker and ride	●	●	●	● ETA

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Innovation models & discussion

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Innovation partnership archetype

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A – Technology licensing

Technology companies license technology and/or new fleet supply to traditional NEMT brokers, which remains the coordinator of ride requests & providers

E.g. LogistiCare in process of integrating **Lyft**'s supply into its dispatch system, in 276 US cities

B – Full-stack brokerage

Tech-integrated brokers manage the entirety of a health plan's transportation benefit, user experience, and new fleet supply

E.g. Veyo administers Idaho's state-wide NEMT brokerage contract

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Innovation partnership archetype

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A – Technology licensing

Pros:
- Enhanced service flexibility (enables on-demand dispatch)
- Cost efficiency
- Ease of implementation

Cons:
- Does not address user pain in requesting service
- Insufficient support for healthcare providers
- Relies on the NEMT brokers to make the change

B – Full-stack brokerage

Pros:
- Increased service efficiency & flexibility
- Cost efficiency
- Improved user experiences
- Faster resolution in case of service shortfalls à more seamless user experience
- Better management of resources due to monitoring/analytics support

Cons:
- Institutional commitment and investment in systems integration

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Integration & customer support handled by externally, in either model

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	Model A	Model B
Communication with Patient		
➢ **Routine communications (via SMS / call center)**	Handled by NEMT broker partner	Vendor offering
➢ **Assistant / troubleshooting**	Handled by NEMT broker partner	Vendor offering
Benefit eligibility verification	Relies on HCPs / NEMT brokers	Handled by vendor
Training for healthcare administrators	N/A	Provided by tech vendor
Ongoing system maintenance	Provided by tech vendor	Provided by tech vendor

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Integration Considerations (as of 9/19/17)

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● Well-enabled ◐ Partially enabled ○ Limited

	Lyft	Circulation	Veyo	Kaizen
Integration with appointment scheduling system	N/A	N/A	In development	
Communication with Patient				
➢ Routine communications (via SMS / call center)	Handled by NEMT broker partner	●	●	●
➢ Assistant / troubleshooting	Handled by NEMT broker partner	●	●	●
Benefit eligibility verification	Relies on HCPs / NEMT brokers	Handled by NEMT partner	● ● broker	
Training for healthcare administrators	N/A	N/A	●	●
Ongoing system maintenance	●	●	●	●

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Next steps

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Next Steps on Road to Pilot

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Action Item	Description	Key Considerations
1 Select innovation model	Choice of innovation archetype will drive partner selection & pilot implementation decisions	• Full-stack model preferred in the July 26 key stakeholders meeting • Ohio Statewide NEMT Reform (starting July 2018)
2 Discuss with shortlist tech vendors, identify partner	Co-develop pilot plans with the selected tech partner	• See deliverable for assessment of companies' capabilities
3 Identify hospital/ clinic partner	Tech system integration and updates in administrator work flow	• Executive buy-in from critical to overall success • Shortlisted NEMT tech companies all experienced in working with healthcare partners
4 Partner with managed care plan(s)	For funding of the NEMT services, and to enable seamless eligibility verification	• Managed care plans already working with several innovation partners, which can expedite partnership and integration

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Open Questions

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	Question	Early Hypotheses
Metrics for Success	How will success be defined for a pilot?	Success to be measured primarily by a reduction in transportation-related no show rate
Car Seat Availability	Should car seats be mandated?	While Ohio law waives car-seat requirement for for-hire ride services, the lack of car-seats in vehicles is currently a pain point for many moms. Require a % of vehicle fleet to be equipped with car-seats, and consider charging a small surcharge going towards the drivers
Common Payment System	Should NEMT program design be anchored to Common Payment System integration?	Deprioritize until after Common Payment System and NEMT systems independently operational

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Appendix C. Acronyms and Definitions

Table 27: Acronym List contains project specific acronyms used throughout this document.

Table 27: Acronym List

Acronym/Abbreviation	Definition
API	Application Programming Interface
CFR	Code of Federal Regulations
CIS	Center for Internet Security
COTA	Central Ohio Transit Authority
ConOps	Concept of Operations
CPS	Common Payment System
DSRC	Dedicated Short Range Communications
FCDJFS	Franklin County Department of Job and Family Services
FHWA	Federal Highway Administration
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GTFS	General Transit Feed Specification
GTFS-RT	General Transit Feed Specification – Real-Time
GUI	Graphical User Interface
IEEE	Institute of Electrical and Electronics Engineers
ITS	Intelligent Transportation Systems
MCO	Managed Care Organization
MCOP	MyCare Ohio Plans
MMTPA	Multimodal Trip Planning Application
MORPC	Mid-Ohio Regional Planning Commission
NEMT	Non-Emergency Medical Transportation
NET	Non-Emergency Transportation
ODM	Ohio Department of Medicaid
ODOT	Ohio Department of Transportation

Acronym/Abbreviation	Definition
OSU	The Ohio State University
OWASP	Open Web Application Security Project
PII	Personally Identifiable Information
PRS	Pregnancy Related Services
PTA	Prenatal Trip Assistance
RFP	Request for Proposal
RFQ	Request for Quote
SC	Smart Columbus
SCC	Smart City Challenge
SCMS	Security Credential Management System
SEMP	Systems Engineering Management Plan
SoS	System of Systems
TB	Transportation Broker
TNC	Transportation Network Company
USDOT	United States Department of Transportation

Source: City of Columbus

Appendix D. Glossary

Table 28: Glossary contains project specific terms used throughout this document.

Table 28: Glossary

Term	Definition
Agile	A method of project management that is characterized by the division of tasks into short phases of work and frequent reassessment and adaptation of plans
App	Software application
Application solution providers	Private companies that design, test, integrate, operate, and maintain one or more aspects of the CPS
CelebrateOne	A City of Columbus and Franklin County initiative to fight infant mortality and racial disparity
Data privacy	The reasonable expectation that data of a sensitive nature will be kept confidential, sanitized and/or encrypted, and respectfully and responsibly maintained by all users, managers, and collectors of the data
Data retention	The continued storage of data for compliance or business reasons
Data security	The tools, policies, practices, and procedures used to protect data from being accessed, manipulated or destroyed or being leveraged by those with a malicious intent or without authorization, as well as the corrective actions taken when data breaches are suspected or have been identified.
Data sharing policies	Adopted plan around the practice of making data available to others
Enabling Technologies	An innovation that alone or paired with an existing solution produces a better end user solution at a rapid rate
Graphical User Interface	A type of interface that allows a user greater interaction, i.e. icons, menus
Managed Care Organization	Insurance companies that contract with Ohio Department of Medicaid to offer Medicaid as an insurance care plan to eligible Medicaid members (services include NEMT)
Non-Emergency Medical Transportation	Transportation provided for Medicaid members for appointments that are not needed for an emergency
Ohio Department of Medicaid	The State of Ohio's department which focuses on the delivery of Medicaid services

Term	Definition
Ohio Department of Medicaid Benefits System	Ohio Department of Medicaid's membership database
Open-data	Information that is freely available for anyone to use and republish as they wish
Open-source concepts	The notion of open collaboration and voluntary contribution for software development by writing and exchanging programming code
Performance metric	A measurement used to determine how a project is performing
Personally Identifiable Information (PII)	Information used in security and privacy laws that can be used to identify an individual, such as vehicle, driver, and payment information
Real-time data	Information that is delivered immediately after collection
Sidewalk Labs	A Google company and a national partner in the USDOT Smart City Challenge
Third-party	Organizations not affiliated with the Smart Columbus Program
Transportation Network Companies (TNCs)	Private businesses, non-profits, and quasi-governmental agencies that offer one or more types of transportation for use in exchange for payment

Source: City of Columbus

U.S. Department of Transportation
ITS Joint Program Office – HOIT
1200 New Jersey Avenue, SE
Washington, DC 20590

Toll-Free “Help Line” 866-367-7487

www.its.dot.gov

U.S. Department of Transportation

Appendix D: Exhibit B Estimate of Labor Hours by Task Activity

EXHIBIT B
ESTIMATE OF LABOR HOURS BY TASK ACTIVITY

PROJECT:

PRIME CONSULTANT

FIRM:

TASK	SCOPE OF SERVICE SECTION	CLASSIFICATION & LABOR HOURS Job1	Job2	Job3	*	*	*	*	*	*	TOTAL HOURS
											0
											0
											0
											0
	Total Hours	0	0	0	0	0	0	0	0	0	

SUBCONSULTANT No.: 1

FIRM:

TASK	STAFF	CLASSIFICATION & LABOR HOURS			*	*	*	*	*	*	TOTAL HOURS
											0
											0
											0
											0
	Total Hours	0	0	0	0	0	0	0	0	0	

SUBCONSULTANT No.: 2

FIRM:

TASK	STAFF	CLASSIFICATION & LABOR HOURS			*	*	*	*	*	*	TOTAL HOURS
											0
											0
											0
											0
	Total Hours	0	0	0	0	0	0	0	0	0	

SUBCONSULTANT No.: 3

FIRM:

TASK	STAFF	CLASSIFICATION & LABOR HOURS			*	*	*	*	*	*	TOTAL HOURS
											0
											0
											0
											0
	Total Hours	0	0	0	0	0	0	0	0	0	

TEAM

TASK	STAFF	CLASSIFICATION & LABOR HOURS									TOTAL HOURS
											0
											0
											0
											0
	Total Hours	0	0	0	0	0	0	0	0	0	

EXHIBIT B

ESTIMATE OF LABOR HOURS BY TASK ACTIVITY

Instructions
List Project name, as found on RFQ Bidding information List name of Prime Consulting Firm Subconsultant No#/Team: List each respective subconsulting firm/team Classification & Labor Hours List each Job Classification and estimated hours for each task The titles should directly correspond to those listed on Exhibit C The totals will auto populate

PROCEDURE

Grievance & Appeals – Vendor Policy for Member Grievances and Appeals

State:	Ohio	**Product Line**:	Medicaid
Department:	Grievance & Appeals		

Description/Purpose

To define the procedure for CareSource Vendors to follow when members or their authorized representatives report a grievance or appeal directly to the Vendor. This policy is specific to any problem, concern, or dissatisfaction with the Vendor's services, operations, or behavior.

DEFINITIONS

1. **Action –** As defined in 42 CFR 438.400(b), the:

    a. Denial or limited authorization of a requested service, including the type or level of service;
    b. Denial, in whole or in part, of payment for a service;
    c. Failure of an MCP to act within the timeframes required by 42 CFR 438.408(b); or
    d. For a resident of a rural area with only one MCP, the denial of a Medicaid enrollee's request to exercise his or her right, under 42 CFR 438.52(b)(2)(ii), to obtain services outside the CareSource Network.

2. **Appeal –** The request for a review of CareSource's action to:

    a. Reduce, suspend, or terminate services prior to a member receiving services previously authorized by the plan.
    b. Denial, in whole or part, of payment for a service.
    c. Failure to provide services in a timely manner according to applicable state requirements.
    d. Failure to act within the appeal timeframes applicable to state requirements.

3. **Authorized representative:**

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a. A person to whom a covered person has given express written consent to represent the covered person in an external review.
b. A person authorized by law to provide substituted consent for a covered person.
c. If the covered person is unable to provide consent, a family member of the covered person or the covered person's treating health care professional.

4. **CFA** – Center for Analytics (formerly DSI)
5. **Covered benefits –** Health care services which the member is entitled to receive under the terms of the Summary of Benefits and Evidence of Coverage.
6. **Grievance –** An expression of dissatisfaction with any aspect of CareSource, CareSource's providers, CareSource's delegates/vendors, operations, provision of health care services, activities, or behaviors. Complaints are considered grievances.

7. **MCP/MCO** – Managed Care Plan or Managed Care Organization
8. **Vendors –** For the purpose of this policy, vendors are contracted agencies providing services directly to members on behalf of CareSource.

PROCEDURE

General Guidelines

1. Contracted vendors will ensure members and/or their authorized representatives are informed, as defined in this policy, of their right to file complaints, grievances, and appeals with CareSource.
2. CareSource members will be transferred back to CareSource Member Services to file their grievance after the Vendor addresses issues pertaining to the delegated service.

3. The vendor will document and report complaints and grievances received by their employees or the sub-contractor's employees.
4. Reports will be submitted to CareSource that include the member ID, member name, date of inquiry/call, nature of the complaint or grievance, and any action taken on the vendor's part to address the member's issue, resolution, and date of resolution.
5. All written complaints, grievances, and appeals received by the vendor will be sent to CareSource's Grievance and Appeal department by fax at 937-531-2421.
6. CareSource management staff responsible for vendor oversight will monitor the reports to determine the need for corrective action.
7. CareSource's internal Member Services and Grievance and Appeal departments review vendor complaints, grievances, and appeals to ensure resolution.
8. The vendor may request complaint and grievance data from the Plan regarding their services.

Process

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1. CareSource Medicaid members will be transferred back to CareSource to file grievances and appeals after the contracted vendor addresses issues pertaining to the delegated service.

    a. Complaints, grievances, or appeals received telephonically will be transferred to CareSource Member Services..
    b. If the member is expressing dissatisfaction in person while the vendor is providing a service, the member will be directed to call CareSource.

2. The vendor will have an internal procedure to address CareSource member issues related to their organization.

3. Vendor requests for complaint and grievance data

    a. Delegates/vendors can request their complaint and grievance data by contacting the CareSource contact managing their delegate/vendor agreement.
    b. The CareSource contact will submit a report request to CFA requesting complaints and grievances filed against the delegate/vendor.
    c. CFA will run the report and forward it back to the CareSource contact.
    d. The CareSource contact will submit the report to the vendor.

SOURCE DOCUMENTS

1. Ohio Administrative Code 5160-26-03 (A) (4)
2. CMS Medicare Managed Care Manual Chapter 13

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