

Phase 3 Comprehensive Transition Plan (CTP)

Heart of Iowa Regional Transit Agency ITS4US Deployment Project

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16. Abstract The Heart of Iowa Regional Transit Agency (HIRTA) is currently in the operations phase (Phase 3) of the ITS4US program for its new program <i>"HIRTA Health Connector: Bridging the Gap Between Healthcare and Transportation"</i> (Health Connector). Per the goals of the program, Health Connector project is focused on improving transportation access to healthcare in Dallas County, Iowa. This document serves as the Comprehensive Transition Plan (CTP) for the Health Connector project. The CTP identifies the concepts, applications, governance framework, agreements, key documents, and equipment to be maintained as elements of routine operational practice after the completion of Phase 3. The CTP also includes relevant frameworks for selecting opportunities for expansion and discusses mechanisms for applying project deliverables to new areas, while also documenting financial models for continued operation. Contingency plans with respect to unidentified post-deployment issues and risks are also included.					
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1. Introduction

The Heart of Iowa Regional Transit Agency (HIRTA) Health Connector, as part of the U.S. Department of Transportation (USDOT) ITS4US Deployment Program, is required to provide a Comprehensive Transition Plan (CTP) during Phase 3 as it prepares to transition into locally funded and managed operations for Health Connector for five years following the end of ITS4US Deployment Program funding.

Health Connector is an innovative solution that addresses bottlenecks associated with transportation access to healthcare for HIRTA's communities. Some of these challenges are key reasons behind missed appointments or unacceptable preventive or as-needed healthcare trips in the HIRTA service area. For this deployment, the HIRTA team has implemented a scalable and replicable solution that enables access, for all users, to non-emergency medical transportation for riders and their caregivers by resolving transportation access barriers with the use of advanced technologies. This solution allows Dallas County residents or anyone traveling to or from Dallas County seeking a medical appointment to explore their transportation alternatives and book medical and transportation appointments simultaneously through smart device (e.g., smartphone, smartwatch) applications or an equally effective alternate method. Further, this solution includes information and wayfinding services to guide them at every step of their trip.

In addition to addressing mobility needs, the proposed deployment will recognize the net impact that access to health services has on patient healthcare outcomes as well as both the financial and health outcomes from the perspective of the healthcare community and Dallas County Health Department (DCHD).



Figure 1. Overview of Health Connector System Concept (Source: HIRTA team)

Figure 1 provides a high level overview of the Health Connector system concept and trip journey. For more information about the key capabilities of the proposed Health Connector technology, refer to the Concept of Operations (ConOps) and System Requirements Specifications (SyRS) documents [1] [2].

There are five main goals for the Health Connector Concept, which include:

- Improved health outcomes through increased access to medical transportation for Dallas County residents
- Self-reliance and spontaneity for all, including underserved groups
- Efficient transportation management capabilities for medical transportation services
- Financial sustainability of medical transportation programs
- Safe medical transportation services

1.1. Purpose

The CTP aims to identify the concepts, applications, governance framework, agreements, key documents, and equipment to be maintained as elements of routine operation practice after Phase 3 is completed. The CTP also includes relevant frameworks for selecting opportunities for expansion and discusses mechanisms for applying project deliverables to new areas while documenting financial models for continued operation. Contingency plans with respect to unidentified post-deployment issues and risks are also included.

This document expands upon previous documents such as the Phase 1 Institutional, Partnerships, and Financial Plan Document (IPFP) and the Phase 2 Integrated Complete Trip Deployment Plan (ICTDP) [4][5].

1.2. System Overview

There are a variety of subsystems and components being deployed as part of Health Connector. The core subsystems are as follows:

- **Traveler-end Subsystem:** includes the tools and technologies (phone/interactive voice response (IVR), mobile/smart devices, web-based tools) to be used by Travelers seeking transportation services for their healthcare appointments as part of their pre-trip, during trip, on arrival, and return trip activities. This includes both a mobility-on-demand (MOD) application for planning, booking, and payment, as well as a wayfinding application for more detailed guidance within care facilities.

This application, provided by Via, the selected (MOD) vendor for Health Connector, also provides real-time status updates for on-demand trips via push notifications and allows Travelers to discover options, plan trips and book rides. Mobile/smart devices will be used as part of the Traveler-end subsystem but are outside the scope of this procurement.

- **HIRTA Transportation Management Subsystem (TMS):** A TMS refers to any subsystems and components related to the operational backend functions involved in service delivery. HIRTA's TMS includes the Mobility-on-Demand TMS (MOD Platform TMS) in addition to other functions that support Health Connector from outside of the MOD platform such as the call center software. The TMS also hosts two interfaces (middleware products) being developed by the HIRTA team and will be made freely and publicly available on GitHub under a permissive license to support interfacing with State of Iowa Medicaid transportation broker(s) and the Electronic Healthcare Record (EHR) system. The initial production codebase is currently available on GitHub, however, development continues to be ongoing to add additional features and integrations.

- **MOD Platform TMS (also referred to as “VOC”)**: Provided by Via and includes the technologies used to assist customer care and operations staff with Traveler registration, eligibility management, reservations, scheduling, dispatching, billing, and administration activities. The MOD Platform TMS is a subcomponent of the HIRTA TMS and refers to the specific platform provided by Via.
- **Vehicle Subsystem**: refers to the technologies deployed on vehicles to support driver-end functions for driver-dispatch communications, manifest management, support just-in-time dispatching, turn-by-turn navigation and Traveler details and location to assist drivers in locating Travelers at the time of pickup, on-board information and fare payments. On all HIRTA-owned vehicles, drivers use tablets running the driver app. On other vehicles, drivers may use the driver app on their tablet or their phone.
- **Wayfinding Subsystem**: refers to the technologies and infrastructure used for providing outdoor wayfinding, indoor positioning, orientation, and navigation on request to travelers. It may also assist with translation functionality. In addition, this category includes components that assist customers with information during the on-board leg and other points on their trip. Multiple commercially available wayfinding systems have been deployed. Health Connector partners providing such technologies include:
 - NaviLens: provider of indoor/outdoor wayfinding.
 - SafeFleet: provider of infotainment devices inside vehicles for providing relevant information during on-board leg of the trip.
 - RedyRef: provider of the wayfinding kiosk for return trip booking, trip status check and other relevant information before or after a trip starts or ends.
- **External Systems**: These systems, external to Health Connector, have been identified for close coordination among HIRTA and partners for providing efficient transportation services for medical trips or for collecting data for performance measurement needs.
 - **Medicaid Transportation Broker**: refers to the State of Iowa Medicaid broker. Currently, Access2Care’s system is used for booking and managing Medicaid trips. HIRTA is one of the providers used by Access2Care. Medicaid trips will continue to be booked by Access2Care when requested by Travelers. Medicaid trips will be ingested in the HIRTA system when assigned to HIRTA. At that point, a Traveler using Medicaid benefits will be able to use Health Connector Traveler tools.
 - **Health Navigator- and Healthcare-end Subsystem**: refers to the limited access MOD platform that is available to health navigators and healthcare customer care staff to request trips, modify trip requests, and check on trip status on behalf of Travelers. Additionally, health navigators and the health administrator at the Dallas County Health Department (DCHD) use a Microsoft Access-based information and referral (I&R) product to track the status of referral activities and for coordination with Dallas County residents’ health navigation/social care services.

- **EHR/Medical Record Subsystem:** refers to the systems used by partner hospitals and clinics for booking medical appointments and maintaining their appointments, including discharge and any subsequent referral activities. Participating healthcare partners use different EHR services. The following bullet points outline participating healthcare partners and the EHR systems they currently employ. Health Connector will develop a new interface with at least one healthcare partner’s EHR system.

- Dallas County Hospital – Currently using Veradigm EHR, transitioning to Epic EHR

Health Connector may look to expand to additional partners overtime, including:

- Mercy One Hospital – Epic EHR, Epic EHR provides a publicly available API
- Other regional clinics – Veradigm EHR

- **Eligibility Management System:** refers to the system that manages traveler registration and funding eligibility. Travelers register for Health Connector directly through HIRTA by completing a registration form hosted on HIRTA’s Health Connector website. Funding eligibility is designated and managed with Via’s system.

- **Other:** Additional relevant details for the system to be deployed are as follows:

Supporting systems: These are existing systems and are not part of Health Connector. However, the TMS exchanges data with these systems, or HIRTA staff may interact with these systems for certain operational functions, as needed. Specifically, this refers to the phone system, payroll, driver or vehicle information management, vehicle maintenance management, customer service management, safety event reporting, and other systems and processes for data collection and reporting.

Table 1 provides more detail on these technologies, with each subsystem broken down into components and subcomponents.

Table 1. List of Subsystems, Components, and Subcomponents

Subsystem	Component	Subcomponent	High Level Description
HIRTA TMS	Hardware Components	HIRTA Supporting Hardware	Includes HIRTA-owned, health navigator, and healthcare partner phones, tablets and computers.
HIRTA TMS	MOD Platform TMS	Scheduling	Allows for advanced and real-time scheduling, driver/vehicle assignment, batch optimization of trips booked in advance, and real-time optimization.
HIRTA TMS	MOD Platform TMS	Manifest Building/Runcutting	Allows for vehicle manifest creation and distribution.
HIRTA TMS	MOD Platform TMS	Dispatch	Allows for shift creation, modification and monitoring, ride assignment, ride status updates
HIRTA TMS	MOD Platform TMS	Cost Allocation and Billing	Allows for trip verification, billing and invoicing, reimbursement and accounting, and reporting.

Subsystem	Component	Subcomponent	High Level Description
HIRTA TMS	MOD Platform TMS	Performance Management and Reporting	Allows for reporting of defined performance key performance indicators (KPIs), custom reporting through direct data access (DDA) and data sharing.
HIRTA TMS	MOD Platform TMS	Notifications	Allows HIRTA staff to receive audio notifications and push notifications to Travelers and drivers.
HIRTA TMS	MOD Platform TMS	Reservations and Customer Service	Allows for Customer Service Representatives (CSRs) to perform traveler registration, customer profile creation, trip booking, and trip cancellation and to assist with broker or third-party contractor trips, self-service tools, and translation services on behalf of travelers. Also allows CSRs to contact Travelers and view Traveler trip history and relevant KPIs.
HIRTA TMS	MOD Platform TMS	Operations Management	Allows for driver manifest management, management of third-party provider and Access2Care trips, dynamic vehicle reassignment, real-time capacity management, and access to real-time trip details.
HIRTA TMS	MOD Platform TMS	Safety Event/Incident Management	Allows users to report and modify details on safety events, as well as assign risk levels to the events.
HIRTA TMS	Health Navigator & Healthcare-end Subsystem	N/A	Provides health navigators and healthcare partners a limited access version of the web-based MOD Platform TMS available to HIRTA operations staff. This subsystem allows health navigators and healthcare partners to perform trip planning, trip booking, trip cancellation, translation services, and appointment management on behalf of Travelers as well as to access real-time trip status and trip feedback.
External System	Health Navigator & Healthcare-end Subsystem	I&R	The product used by DCHD to track the status of referral activities and for coordination with Dallas County residents' health navigation/social care services.

Subsystem	Component	Subcomponent	High Level Description
HIRTA TMS	MOD-EHR Middleware	Electronic Health Record (EHR) Software	Provides platform for partner hospitals and clinics for booking and maintaining medical appointments.
HIRTA TMS	MOD-EHR Middleware	EHR Application Programming Interface (API)	Allows for data exchange between the MOD Platform TMS and EHR software, including confirmed medical appointment data, trip booking confirmation, medical appointment changes or cancellations, and trip status. The current healthcare partner, Dallas County Hospital (DCH), uses Veradigm EHR which does not have an available API. DCH plans to transition to Epic EHR in the future, which will require API integration.
HIRTA TMS	MOD-EHR Middleware	EHR Read-Only Webpage	Allows HIRTA staff and healthcare partner staff to access real-time information through the MOD-EHR middleware.
HIRTA TMS	MOD-Medicaid Middleware	Brokerage	Provides the State of Iowa Medicaid broker, which uses Access2Care, the ability to perform Medicaid trip booking and management.
HIRTA TMS	MOD-Medicaid Middleware	Medicaid API	Allows for data exchange between the MOD Platform TMS and Medicaid broker, including service requests from the Medicaid broker and service confirmations, trip status, and trip performance data from the MOD Platform TMS.
HIRTA TMS	MOD-Medicaid Middleware	Medicaid Read-Only Webpage	Allows HIRTA staff and Access2Care staff to access real-time information on Medicaid-funded trips through the MOD-Medicaid middleware.
HIRTA TMS	Reporting Database	CyBox	Provides file sharing and file storage for performance-related datasets and reports.
Traveler-end Subsystem	Hardware Components	Personal Devices	Includes Travelers' personal web-enabled devices, such as smart phones and tablets to deploy the Traveler mobile application and Traveler web application.
Traveler-end Subsystem	Health Connector Traveler Mobile Application	Registration	Allows Travelers to perform registration and preference management and to input funding eligibility and mobility aid/accessibility needs.

Subsystem	Component	Subcomponent	High Level Description
Traveler-end Subsystem	Health Connector Traveler Mobile Application	Trip Planning	Allows travelers to select pick-up and drop-off locations, trip brokering, and multimodal trip planning.
Traveler-end Subsystem	Health Connector Traveler Mobile Application	Travel Assistance	Provides Travelers with additional assistance in planning/booking trips through a HIRTA contact and FAQ page.
Traveler-end Subsystem	Health Connector Traveler Mobile Application	Trip Booking	Allows travelers to submit on-demand, pre-scheduled, and recurring trip proposals and to access third-party services if no Health Connector rides are available. Also allows Travelers to perform trip cancellation, rebook for modifications, and to input mobility aid/accessibility services needed, requests for personal companions, and number of passengers.
Traveler-end Subsystem	Health Connector Traveler Mobile Application	Translation Services	Allows Travelers with limited English proficiency (LEP) needs to access translation services before, during, and after a trip.
Traveler-end Subsystem	Health Connector Traveler Mobile Application	Payments	Allows Travelers to select from the following payment methods for Health Connector trips: electronic payments/credit cards, account debit, discount codes/coupons, cash or check, and debit account replenishment.
Traveler-end Subsystem	Health Connector Traveler Mobile Application	Traveler Notifications	Allows Travelers the ability to subscribe to receive trip-related notifications and add up to 5 individual contacts to receive notifications on their trip status.
Traveler-end Subsystem	Health Connector Traveler Mobile Application	Trip Information	Allows Travelers to perform vehicle identity verification and Traveler identity verification, obtain real-time trip status information, and share ride status.
Traveler-end Subsystem	Health Connector Traveler Web Application	N/A	Provides the same functionalities and comprises the same components as the Traveler mobile application. Provides additional translation service abilities through Google Translate.
Traveler-end Subsystem	Interactive Voice Response (IVR)	N/A	HIRTA's IVR system allows Travelers to obtain automated Traveler assistance and notifications by phone.

Subsystem	Component	Subcomponent	High Level Description
Vehicle Subsystem	Hardware Components	HIRTA Supporting Hardware	Includes on-board mobile tablets for deployment of driver application, driver terminal GPS receiver and magnetometer for vehicle tracking, and two-way radio for operations communication.
Vehicle Subsystem	Hardware Components	Third-party Driver Devices	Third-party vehicles operating Health Connector trips will use GPS-enabled smart devices, including phones and tablets, to deploy the driver application.
Vehicle Subsystem	Driver Application	Scheduling	Allows drivers to receive trip assignments, Traveler details, trip manifests and waiting locations, as well as contact Travelers and input breaks and break requests.
Vehicle Subsystem	Driver Application	Navigation	Allows drivers to receive turn-by-turn navigation, live support, Traveler information and translation services and track driver locations and manifest updates via cellular data coverage or cached data in the event of lost connectivity.
Vehicle Subsystem	Driver Application	Trip Performance	Allows drivers to input information on pick-up status, no-shows, drop-off status, payment status, and pre-trip and post-trip vehicle checks as well as to send non-medical emergency safety messages.
Wayfinding Subsystem	Hardware Component	Kiosks	Physical, static hardware systems through which Travelers are able to book trips and check trip status.
Wayfinding Subsystem	Hardware Component	NaviLens Codes	Located throughout the healthcare facility to assist with Traveler navigation within the facility and to pick-up locations.
Wayfinding Subsystem	Hardware Component	Personal Devices	Includes web-enabled smart devices for scanning codes and deploying the wayfinding application.
Wayfinding Subsystem	Wayfinding Application	NaviLens/NaviLens GO App	Provides Travelers the ability to perform wayfinding within the healthcare facility, including buildings, offices, check-in desks, referred buildings/offices after discharge, and door entrances.

Subsystem	Component	Subcomponent	High Level Description
Wayfinding Subsystem	Wayfinding Kiosk CMS	N/A	Communicates with the wayfinding kiosks to provide information to Travelers and allows healthcare facilities and other relevant parties to update code content.
Wayfinding Subsystem	NaviLens and Cloud Platform	N/A	Cloud-based server that handles traveler wayfinding requests and traveler wayfinding guidance through the mobile wayfinding application.
Performance Management	ISU Performance Management System	Public Dashboard	Provides an interface for public-facing information regarding Health Connector performance.
External System	Eligibility Management System	N/A	Contains a database that regulates who is eligible for Health Connector rides and the use of discount coupons or credit.
External System	Eligibility Management System	Funding Entities	Organizations funding customer trips that will interface with the system for automated billing and payment processing.
External System	Third-Party Platform	N/A	Platform for managing vehicles and operations available for Health Connector service that are not operated by HIRTA (i.e. TNC platform).
External System	Medicaid Broker System	N/A	The State of Iowa Medicaid broker, which uses Access2Care for booking and managing Medicaid trips.
External System	EHR Medical Record System	N/A	Systems used by partner hospital and clinics for booking and maintaining medical appointments.

These various components make Health Connector operations possible. Key capabilities of the technology solution are as follows:

- Enable the Traveler to use a smart device (e.g., smartphone) application or equally effective alternate methods to schedule and manage transportation services to medical appointments through the Health Connector Traveler app. This app will:
 - Provide Travelers options to choose from available providers.
 - Provide on-demand response if needed by Travelers.
 - Send Travelers an alert before arrival and again when the vehicle is approaching.
 - Keep Travelers informed on trip progress.
 - Provide directions (audible and visual) on where to meet the vehicle/driver. On arrival, drivers should have the ability to automatically confirm Traveler identity.

- Provide the Traveler with wayfinding solutions through indoor and outdoor navigation technologies to provide personal concierge-style travel from origin to destination through a wayfinding app. This will include:
 - Locating the healthcare facility entrance when dropped off by vehicles
 - Locating the desired room when inside the healthcare facility
 - Locating the correct vehicle when boarding
- Allow Travelers to use Health Connector for any contactless payment needs at any point for transportation-related payments.
- Enable Travelers or their caregivers to book and pay for another local trip as an additional leg along with the medical trip.
- Allow healthcare staff to book transportation for patients while medical appointments are made, using the mobility on demand operations center
- Track the status of linked transportation and healthcare appointments using a webpage to ensure that any changes to medical appointments include an accompanying change to transportation services.

1.3. Document Organization

The CTP consists of the following sections:

- 1. Introduction
- 2. Transition Planning
- 3. Post-Deployment Operations Approach and Activities
- Appendix A. Acronyms List
- Appendix B. References

2. Transition Planning

This section outlines the plans to transition out of Phase 3 and into post-deployment operations. This includes a timeline for transition, outlining of roles, responsibilities, and communications that need to be continued post Phase 3.

2.1. Transition Timeline

The transition beyond Phase 3 has several key milestones that will assist the HIRTA team with ensuring ongoing and effective operations. Below are those key milestones that pertain to transition planning.

Table 2. Milestones

Task	Milestone	Estimated Transition (Month Year)
3-E	Transition middleware development to HIRTA's cloud hosting platform (AWS)	June 2025
3-E	Finalize Comprehensive Transition Plan	June 2025
3-E	Collect letters of support for program continuation	October 2025
3-E	Establish Memorandums of Understanding (MOUs) with current and future partners	January 2026
3-E	Additional system components and subcomponents receive ongoing maintenance and review as needed, per agreements	February 2026
3-E	Transition website ownership and access to HIRTA team	February 2026

Source: HIRTA, April 2025

2.2. Technology/System Transitions and Maintenance

The following components are relevant for technology transition considerations as HIRTA moves beyond Phase 3. This section also outlines ongoing recommended maintenance by component. Since most of the technology that has been deployed for Health Connector is software, there is no set life expectancy listed. For hardware, including the kiosk, infotainment system, and wayfinding codes, there is also no set life expectancy for those devices however support agreements may need to be extended to support warranty and replacement as needed. Those details are outlined in the relevant sections below.

2.2.1. MOD Platform TMS (and Health Provider Limited-View TMS)

Limited changes to the MOD Platform TMS should be required beyond Phase 3. All relevant features and subcomponents were adequately tested in Phase 2, and limited issues with the technology have arisen in Phase 3 to date. If changes to the system do need to be made, such as expanding access to the limited-view TMS to additional care facility staff, HIRTA operations and dispatch staff are well-equipped to handle any such modifications. In addition, should there be any issues with the platform or any unexpected performance issues, HIRTA will still have access to the MOD Platform vendor, Via. A vendor support agreement exists between HIRTA and Via that was signed in December 2023 which included up to 5 years of software support. Once HIRTA's Health Connector support agreement has reached its conclusion, any maintenance related items will be covered by HIRTA's ongoing monthly Software-as-a-Service (SaaS) agreement. Because HIRTA also uses Via for its other regular service, support tickets for health connector are also covered under its preexisting SaaS agreement. Any transitions to a new vendor would require redeployment of the system and would be supported by the Flexlynqs team.

2.2.2. Health Connector Traveler Application (Mobile and Web)

Like the MOD Platform TMS, limited changes should be required for the Traveler trip planning and booking tools after Phase 3. Robust testing and verification have ensured application uptime and subcomponents are being met, and overall, the applications have presented few issues. Should Travelers experience any issues with the Traveler application or booking via the mobile app or web portal, HIRTA travel trainers and customer service staff remain well-equipped to assist as needed. In the event there are widespread errors or features that need to be modified or added, the MOD Platform vendor (Via) is available through their vendor support agreement with HIRTA.

2.2.3. Driver Application

As with the MOD Platform TMS and Traveler Application, the driver application used for manifests and navigation has been functioning as expected. Drivers have been trained on the Via system and have not experienced any issues related to performance during Health Connector. In the event any issues arise, the MOD Platform vendor will be responsible for maintenance and addressing tickets, which is covered in the existing vendor support agreement.

2.2.4. MOD-EHR and MOD-Medicaid Middleware

During Phase 3 and the finalization of development per the system requirements, the MOD-EHR and MOD-Medicaid middleware systems will be configured to ensure smooth post-deployment operations. To ensure security of the system, Flexlynqs will use established criteria for prioritizing and categorizing patches based on severity and relevance. This criterion is based on the Common Vulnerability Scoring System (CVSS) used to assess severity based on factors like exploitability and impact. Items to follow up on can then be grouped into categorizations including:

- **Critical:** Vulnerabilities with a high likelihood of affecting middleware success or protection. Includes any potential for significant data breaches, system compromise, or unauthorized access.
- **High:** Significant vulnerabilities with a lower likelihood of affecting success. May still lead to severe consequences if unaddressed.

- Medium: Moderate vulnerabilities that may lead to some compromise but have limited impact on overall system performance.
- Low: Minor vulnerabilities with minimal impact. These may be quality of life issues.

Relevance of the issues will also be considered, factoring in criticality for HIRTA and the sensitivity of data involved. Finally, patches will consider ease of deployment, and dependencies between system components.

Any changes that are made to the middleware after deployment will be tested either in a functional (Flask-based) or installation (AWS) environment. Where appropriate, test data will be used for both MOD-Medicaid and MOD-EHR solutions to retest data flows. Validation will be confirmed by multiple people within the software development team before being deployed to the HIRTA environment for the approval of the CCB. Rollback procedures will be documented in the event of unforeseen issues during deployment.

A HIRTA-owned AWS account has been configured to host both middleware platforms. Upon finalization of the code bases, databases, and cloud configurations in the development environment hosted by the development team, the development AWS account will be transferred to the HIRTA-owned AWS account. This will provide HIRTA full administrative permissions and ownership of the middleware cloud environment. The middleware systems can be redeployed at this stage, and all operations and maintenance procedures can be conducted under HIRTA's supervision. Maintenance procedures may include, but are not limited to, review of the codebase for cybersecurity updates and API integrations. Patches deployed during development, as described above, will be monitored closely to ensure vulnerabilities in the software are addressed. HIRTA will manage the Identity/Access Management protocols of the AWS account and will grant permissions to the O&M team based on access needs. The middleware code will remain on GitHub as an open-source product and can be referred to at any time. If additional support or maintenance should be required for middleware cloud infrastructure or code enhancements, the Flexlynqs team is available for ongoing vendor support. HIRTA may also contract with any other software support teams for additional guidance.

2.2.5. Wayfinding Kiosk

The HIRTA team purchased one kiosk for installation at Dallas County Hospital from RedyRef. One additional kiosk computer from Redyref is kept with the vendor as a backup, per terms of the premium-tier support plan. Any issues with the kiosk hardware that arise until May 2026 should be addressed by RedyRef as they are under contract for two years, at that time, an extension of the vendor support agreement will be required. In addition, IT staff at Dallas County Hospital are equipped and trained to assist with basic troubleshooting of the device as needed.

Content management for the kiosk software is handled through the Engage IoT software platform, which allows for kiosk configuration and monitoring and configuration of kiosk-compliant webpages. The Wayfinding Kiosk Content Management Software (CMS) complements the wayfinding kiosk from RedyRef and is covered by the support package described above.

The wayfinding kiosk runs a custom-built web application for booking trips. It connects to the MOD vendor through the middleware that was developed as part of this project, using APIs to retrieve trip status

information and book new trips, provided they comply with the security requirements of the system and meet the needs required to book on the MOD Platform TMS. This code is publicly available on GitHub and is being transitioned along with other middleware code to HIRTA's AWS environment. Once there, HIRTA will have direct control over the deployment of the code and may contract with software developers as needed for additional support beyond Phase 3 for operation and maintenance.

2.2.6. Wayfinding Application and Cloud Platform

As part of the wayfinding subsystem, HIRTA contracted with NaviLens to provide the wayfinding application. The Wayfinding Application comprises two subcomponent applications, including NaviLens and the NaviLens GO app (version: NVGO 1.3.30). Travelers can use both applications to scan NaviLens codes and obtain wayfinding information on HIRTA vehicles and DCH locations. HIRTA has an agreement with NaviLens to license the customizable codes used onboard HIRTA vehicles, and if there is any need for support related to these codes or the web-based software used to make changes to the content behind the codes, NaviLens is available to support the agency. Any free codes with standard unchangeable language as are used at DCH are not covered explicitly by any support but can be removed or modified at any time. Additional customizable codes for use on HIRTA vehicles or at healthcare facilities would need to be purchased from NaviLens and would include a small monthly fee for deployment. Costs related to HIRTA vehicles would be assumed by HIRTA. Healthcare facilities are expected to cover the cost of any deployment following Phase 3.

2.2.7. Infotainment Devices

One infotainment device is currently onboard a Health Connector vehicle. More may be added in the future after the conclusion of Phase 3. Potential expansion would be considered based on growing demand for Health Connector service and positive feedback from Travelers. Feedback is currently collected through an in-app survey in the Health Connector Traveler application, which could be updated to include infotainment specific questions if desired. These systems are comprised of hardware (a screen and a media player on the bus) and software (a backend content management software (CMS) accessible via the internet). The Infotainment device CMS communicates with the infotainment device media player on vehicles to deliver content to travelers on the screens onboard. While this initial device was procured through Safe Fleet and is under maintenance/warranty through the end of Phase 3, ongoing maintenance and upgrades are expected to be handled through HIRTA's existing IT vendor, Unplugged Wireless. A vendor support agreement with Unplugged Wireless is already in place and is expected to continue beyond Phase 3. Future expansion would require purchasing additional hardware from Safe Fleet (or another vendor) to be installed on additional vehicles and updating the CMS to deliver content to additional screens.

2.2.8. Medicaid Broker System (External)

While external to Health Connector, changes to the current Medicaid broker system have already impacted the availability of MOD-Medicaid middleware solutions. MTM acquired Access2Care in late 2024, altering the available APIs and approach required for the solution to go live. It is expected that an agreement with MTM should cover any additional APIs necessary to enable the middleware and that future changes can be made with this system in mind. However, any further changes to the Medicaid broker system will impact the MOD-Medicaid middleware used for Health Connector.

2.2.9. EHR Medical Record System (External)

Similarly to the Medicaid systems, any transitions to other electronic health records (EHRs), or opportunities to expand to other hospital systems and their EHRs will constitute some required changes to the MOD-EHR middleware code. While most of the code will remain stable in future implementations, some APIs may change and require slight modifications from the HIRTA team. In this case, HIRTA would work with the EHR vendor to understand the integrations required and plans to contract with additional software development support services as needed to implement any changes or expansions to new EHR systems.

2.3. Roles and Responsibilities

In Phase 3, key project staff will continue to lead the team while the transition is ongoing, as identified in Figure 2.

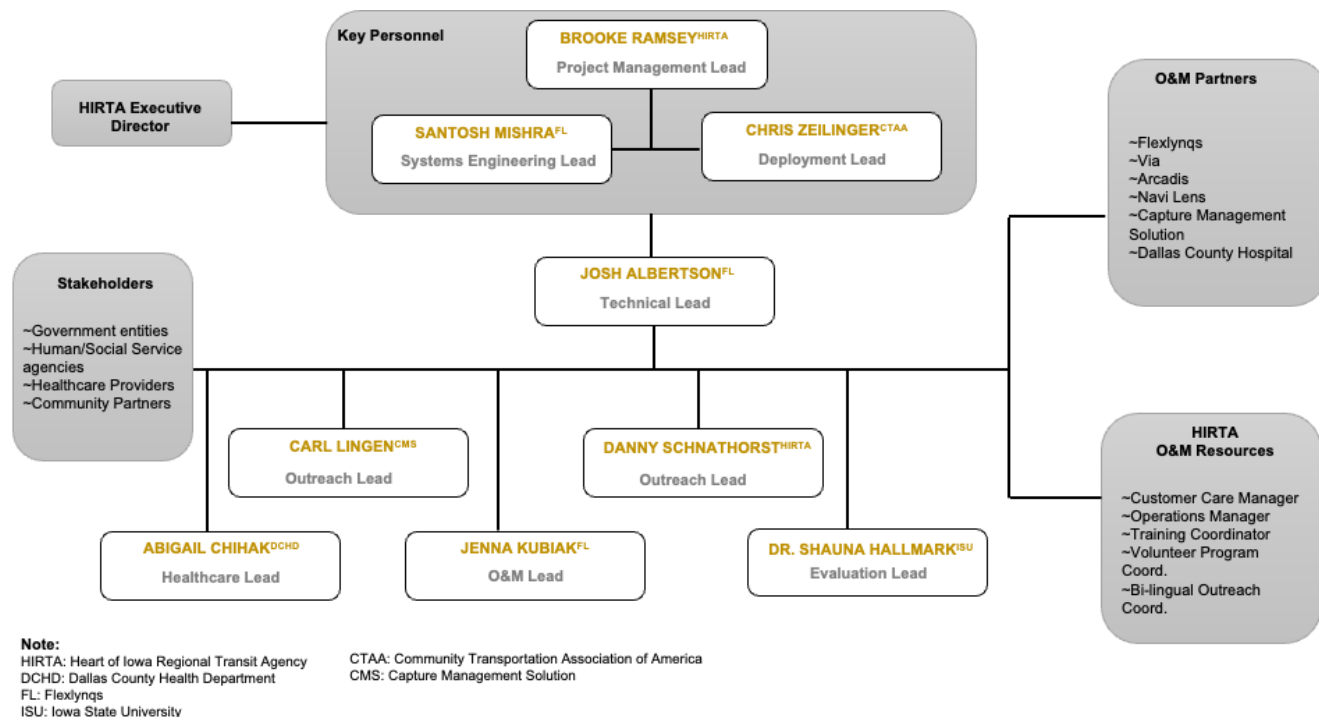


Figure 2. Organizational Chart (Source: HIRTA Team)

Once the transition beyond Phase 3 is complete, the governance framework described in Chapter 3 will be followed.

2.4. Communications

As illustrated by previous documents such as the Phase 2 Outreach Plan [3], communications have been a critical component for project awareness, recruitment, and engagement. Beyond Phase 3, these activities are expected to continue and will be led by the HIRTA team. HIRTA's outreach lead and operations manager are expected to maintain and execute ongoing communications and strategic communications efforts related to the project.

2.4.1. Stakeholder Engagement

HIRTA partners with numerous stakeholder organizations in Dallas County to provide transportation services. In addition, HIRTA partners with many local, state, and federal organizations, such as Iowa DOT, USDOT, and FTA, to provide services in the county and region. Figure 3 shows the various stakeholders that will continue to be engaged in the project and made aware of changes or expansions to the project boundaries. HIRTA will continue to engage with Stakeholders about Health Connector service through their media channels and community events in which standard HIRTA service, as well as Health Connector, will continue to be advertised. HIRTA has received assistance from Capture Management Solutions on stakeholder outreach and will continue to do so through the end of Phase 3. All outreach initiatives handled by Capture Management Solutions will then be transitioned to the outreach lead at HIRTA following the conclusion of Phase 3. Feedback on the service from stakeholders will continue to be accepted by HIRTA via phone, social media, and the in-app deployed through Health Connector. The HIRTA team has also identified individuals who will represent these stakeholders and will continue to maintain a stakeholder registry of those contacts beyond Phase 3.

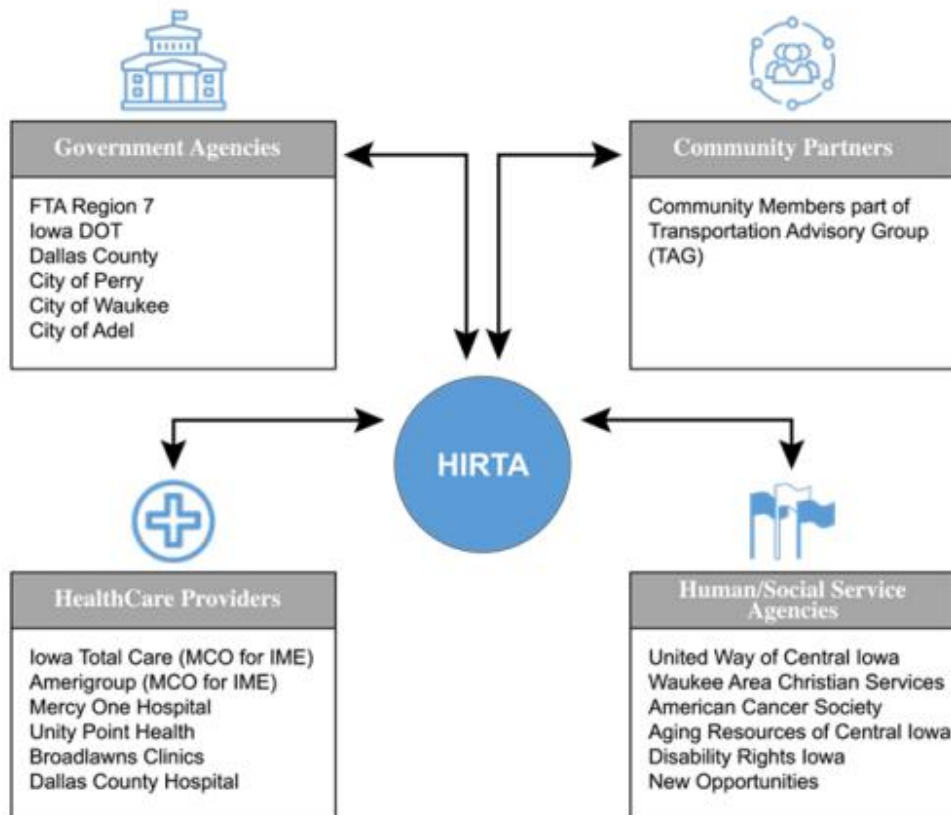


Figure 3. HIRTA's Stakeholders (Source: HIRTA Team)

2.4.2. Public Engagement

2.4.2.1. Website

The project website is currently used to post all documents, videos, collateral, and other materials related to Health Connector. The site features an overview of the project, stage of development, promotional videos, and files for stakeholders or the public to download. The website URL for the site is www.transithealthconnector.org, and it went live during the Phase 1 project. The website will continue to be used beyond Phase 3 as needed to communicate changes or key updates to the project. Capture Management Solutions developed and created a responsive website on the Architect Web Content Management System. Once Phase 3 is complete, management of the website will transition to the outreach lead at HIRTA for ongoing maintenance and supervision. In addition to the transit health connector site, updates about the program are communicated via <https://www.ridehirta.com/its4us>. This includes the link to register for the program as well. Management of this site is already handled by HIRTA's outreach lead.

2.4.2.2. Social Media

The HIRTA team will continue to develop posts about program updates, program performance, upcoming events, informational videos, and written content using social media platforms. As in previous phases of the project, this will take place on HIRTA Facebook and X (Twitter) accounts. Videos can also be hosted using HIRTA's YouTube account.

2.4.2.3. Emails

For ongoing outreach to existing riders, communications may also be disseminated via Constant Contact, which can organize and distribute emails to those enrolled in Health Connector or other HIRTA riders not yet enrolled. This email list may also be used to disseminate rider surveys, though survey questions and rider feedback can be gauged within the MOD Traveler Application.

2.4.3. Training

We anticipate the need for ongoing training for riders, healthcare facility coordinators, health navigators, and others over time. The HIRTA outreach lead has been spearheading these efforts since Phase 2 and will continue to conduct training as needed. We expect this will include:

- **New rider training and orientation:** As a practice, HIRTA contacts new riders and offers travel training and guidance as needed. This will continue for new Health Connector riders. New riders that register for HIRTA services and are also eligible for Health Connector will receive Health Connector specific training as well during orientation.
- **New care coordinator orientation:** Training on how health care facility staff can use the MOD-EHR dashboard to compare appointments and booked trips and training on how to help schedule rides directly using the MOD Platform TMS will likely be needed. In the event Health Connector expands to new facilities, presentations will be adjusted to incorporate elements of the MOD-EHR system that may apply to new organizations. HIRTA can also provide recorded video trainings to new staff for future reference or training refreshers and can conduct in person trainings if required.
- **Ongoing Health Navigator training:** DCHD Health Navigators are already aware of how to use the Health Connector system but may receive periodic refresher training sessions. In addition, new staff being added may receive training materials and presentations previously created by the HIRTA outreach lead. Both training materials and training sessions will be provided by HIRTA staff.

3. Post-Deployment Operations Approach and Activities

This section details the project's features and aspects that have worked well and those that represent areas for continuous improvement. It also covers ongoing performance measurement and evaluation and opportunities for expansion and modification of operations.

3.1. Review of Current System Performance

Health Connector operations have largely mirrored the Concept of Operations [1] document that was last updated in Phase 2. The various operational scenarios that were tested in Phase 2 have continued to be met in Phase 3, and while some slight changes are being made to improve future expansion and deployment of components, none of the applications or components are expected to be removed for post-Phase 3 operations. HIRTA will continue to monitor the applications and components developed after Phase 3 operations have concluded to ensure they continue to act as functional and cost-effective elements to HIRTA's operations. Functionality will be determined by monitoring usage of the components by Travelers, healthcare staff, and HIRTA operational staff, as well as continued gathering of feedback from stakeholders. Information on usage will assist HIRTA in determining whether continuation of individual system components is financially worthwhile to HIRTA. Should certain applications or components be identified as unvaluable to HIRTA or stakeholders, HIRTA may choose to stop maintaining these components. Section 3.1.1 identifies components that can be carried forward post Phase 3 without issue while section 3.1.2 highlights components that are anticipated to require improvements/reimplementation throughout and after Phase 3. Relevant costs are also included for maintenance related to these system components.

3.1.1 Components Working As Expected Per System Operation and Maintenance Summary (SOMS)

Since the start of Phase 3, the HIRTA team has maintained a punch list to track ongoing system performance by component and detail any items that may need attention or fixes throughout the course of operation. Most of these components are working as expected and have experienced little to no attention. These components include:

- MOD Platform TMS
- Limited-View MOD Platform TMS
- Driver Application
- Traveler Application
- Wayfinding Application
- Wayfinding Codes
- Infotainment Devices (Media Player, Screen, CMS, Router)
- Kiosk

- MOD-EHR Middleware

3.1.2. Components Being Reimplemented/Improved

A few components and concepts from the Concept of Operations [1] are being revisited during Phase 3 and still require some attention in order to achieve operational success as intended. These include:

- **MOD-Medicaid Middleware:** Although MOD-Medicaid Middleware was successfully built and tested in Phase 2, changes to the relevant Medicaid broker in Iowa have prevented its successful deployment into a production environment to date. Ongoing contracting with the new broker (MTM) is underway so that the middleware that was developed can be connected to new API endpoints, retested, and made operational. The HIRTA team is working to make progress on this subtask as quickly as possible and hopes that this component, which will automate the communication of trip requests and acceptances between HIRTA and the Medicaid broker, will be live and working as expected before the conclusion of Phase 3. If development related to API integration or software maintenance is needed after the conclusion of Phase 3, related costs would be assumed under HIRTA's operating cost budget.
- **Third-Party Vehicles and Drivers:** Given the limited number of participants and lack of need for after-hours care, a third-party contractor has not yet been selected by HIRTA to provide additional Health Connector Trips. As it stands, HIRTA is able to provide transportation services that cover the primary hours during which frequented healthcare facilities in the service zone provide non-emergency medical services. However, with goals to expand the program as discussed in the section below, there may still be a need for an additional provider. Contracting is currently underway and the HIRTA team hopes to have additional capacity available for Health Connector if it is needed, prior to the conclusion of Phase 3.

3.2. Opportunities for Enhancements

Opportunities for enhancing Health Connector operations lie primarily in expanding the size and scope of the program and scaling operations. To date, rides are being completed as expected, and as discussed previously, most components are working well. Additional geographies and participating healthcare facilities will bolster the program and help make it more relevant for a wider population with increased transportation access for a wider spread of communities. These two opportunities are explored below.

3.2.1 Expanding to Additional Counties

Currently, Health Connector serves trips to, from, or within Dallas County. To reach additional riders, HIRTA has started exploring expanding the program to other counties within its jurisdiction, which includes the counties of Boone, Jasper, Madison, Marion, Story, and Warren. Not only would this make more existing HIRTA riders eligible for Health Connector, but it would also allow Health Connector marketing to be presented alongside other HIRTA services as an option that anyone can sign up for. These changes would increase ridership, expand the number of healthcare facilities accessible through the service and further bolster system performance against key performance measures. With an increased number of rides and riders, HIRTA would have access to additional trip related datapoints, reducing the impact of variation and allowing more accurate identification of trends. This would include

trends/KPIs related to on-time performance, rider satisfaction, among others. Ultimately, the goal of enrolling more riders is reducing missed appointments across all counties.

3.2.2 Expanding to Additional Healthcare Facilities

The HIRTA team has established a strong partnership with Dallas County Hospital which has proven valuable for testing the various components of this project and meeting the needs of HIRTA riders who are also patients at that facility. However, DCH is a relatively small campus in Perry without the same volume of daily trips as some other healthcare facilities. Expanding to MercyOne, Unity Point, and Broadlawns Clinic, among other regional facilities, remains a priority for HIRTA. Factors for expansion to these facilities include continued outreach and engagement on HIRTA's end, as well as willingness to participate by the healthcare facility. Participation would include training health navigators and healthcare staff on how to assist patients with book rides through Health Connector, as well as integration with the healthcare facilities' EHR system to allow use of the MOD-EHR middleware webpage. Not only would this expand the possible locations for novel technology introduced as part of this project (like wayfinding codes and booking kiosks), but it would also help further draw a distinction between Health Connector and other existing HIRTA services. More care coordinators who are trained to book both transportation and appointments at the same time and track trip/appointment alignment, particularly for transit-dependent individuals, will translate to a wider understanding of the benefits of the system and the ease with which rides and appointments can be booked at the same time. This need for distinction between services has been evident in ongoing public engagement throughout Phase 3, which has revealed that currently there is little perceived difference between previously existing HIRTA services and Health Connector, unless going to Dallas County Hospital. Expansion to additional healthcare facilities where care coordinators can provide ride booking, wayfinding, and appointment/ride coordination services would emphasize the additional services made available with Health Connector.

Costs related to the expansion of Health Connector components after Phase 3 (including integration with the MOD-EHR dashboard, Kiosk installations, and NaviLens codes) to additional healthcare facilities will be assumed by the individual healthcare facility. HIRTA will be available to provide support for the deployment of these components and will invoice the facility for any hardware components or subscription services needed to support these systems.

3.3. Ongoing Performance Evaluation

Throughout the course of Phase 3 the performance dashboard will continue to be maintained and reflect several performance measures created at the outset of the project. For continued operations however, maintenance of the performance dashboard and some of the data collection and calculations required for it may not be feasible for the HIRTA team. Performance measures are expected to be streamlined to better reflect metrics readily available within the MOD Platform TMS, and additional limited calculated KPIs for evaluating cost and efficiency. These will more closely mirror KPIs used by the HIRTA team for existing services and include metrics such as:

- Total ride requests
- Met (requests successfully fulfilled) demand rate
- Completed ride rate
- Geographical demand
- Utilization

- Vehicles operated in maximum service (VOMS)
- Vehicle revenue miles (VRM)
- Vehicle revenue hours (VRH)
- Passenger Miles Traveled (PMT)
- Unlinked Passenger Trips (UPT)
- Cost per trip
- Cost per vehicle

The metrics above will assist the HIRTA team with continued monitoring of performance measures that provide HIRTA key operational insights, including demand on the system, reliability to travelers, cost-benefit analysis and vehicle usage information that is key for fleet maintenance and management. These performance measures include, but are not limited to:

- PM-3: Trips Unfulfilled Due to System Unreliability
- PM-5: On-Time Performance
- PM-15: System Productivity
- PM-19: Increased Cost Efficiency

In addition, one of the key measures that has not been addressed by this project to date has been cost savings for care facilities due to the introduction of a new service that reduces missed appointments. The project team has conducted a thorough literature review on research surrounding costs to care facilities for missed appointments. There is currently not model or framework that has been identified that provides a monetary value for such an event that can be tied directly to a lack of transportation. The HIRTA project team has held discussions with academic institutions, including Iowa State University, where interest in this field of research has been identified. HIRTA and project partners will continue to explore this area of research and incorporate KPIs related to this measure as the body of work develops.

3.4. Governance Framework

Figure 4 provides a diagram of the governance structure for HIRTA beyond Phase 3. The diagram identifies the nature of existing agreements and opportunities for future partnerships and MOUs as indicated by the dotted line. HIRTA will still serve as the central agency responsible for ongoing operations, performance monitoring, and marketing.

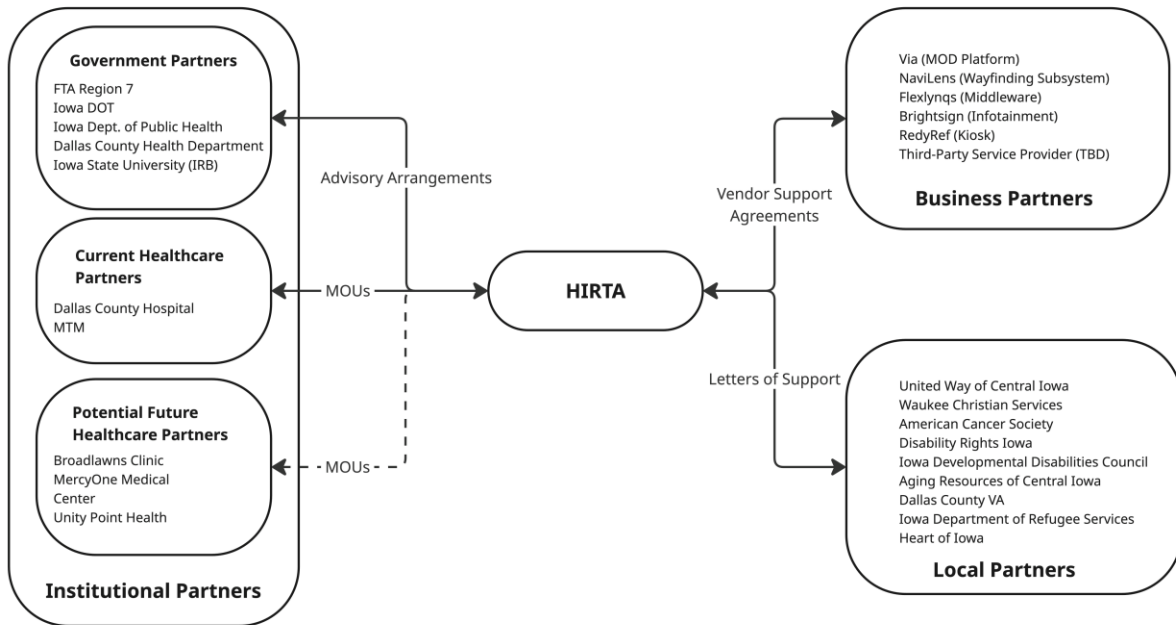


Figure 4. Governance Structure after Phase 3 (Source: HIRTA Team)

As identified in the chart above, several MOUs and Letters of Support will continue to guide Health Connector operations beyond Phase 3. These include MOUs between HIRTA and Dallas County Hospital, and between HIRTA and the Medicaid broker (MTM). As more partners are added, additional MOUs will likely be needed between future healthcare partners and HIRTA. Local partners who lend support to the project include those identified above. The table below provides a summary of the roles key partners will play after Phase 3.

Table 3. Governance Summary Post Phase 3

Partner	Partner Category	Subsystem/Component	Post Phase 3 Role
Via	Business	MOD Platform	Via will continue to provide the MOD Platform, Traveler Application and Driver Application. An existing contract is in place which covers all software maintenance and troubleshooting in these applications under HIRTA’s monthly SAAS agreement with Via.

Partner	Partner Category	Subsystem/Component	Post Phase 3 Role
NaviLens	Business	Wayfinding	NaviLens will provide support for codes purchased before the end of Phase 3 covered by a monthly fee. HIRTA will incur the costs for codes and associated software deployed on their vehicles. Costs associated with the purchase of new codes for expansion at healthcare facilities will be incurred by the healthcare facility themselves.
Flexlynqs	Business	Middleware: MOD-Medicaid, MOD-EHR, Kiosk	Flexlynqs will provide continued support for the middleware products after Phase 3. This includes maintenance and future integrations. Related costs will be covered under HIRTA's operating budget.
Brightsign	Business	Wayfinding: Infotainment	Support for existing Infotainment devices will be covered by HIRTA's radio vendor, existing IT support and Flexlynqs after Phase 3. Expansion of the infotainment system and purchasing of new hardware will be dependent on evaluation of the financial impact of alternative streams of revenue generated from the existing device. Should HIRTA wish to expand the infotainment system to additional vehicles, they will first evaluate the possibility of generating revenue through the infotainment system (e.g., by selling ad space). HIRTA does not anticipate Brightsign having a role in Health Connector after Phase 3 operations and will seek support from internal staff and their IT vendor if needed.

Partner	Partner Category	Subsystem/Component	Post Phase 3 Role
Redyref	Business	Middleware: Kiosk	HIRTA holds a maintenance agreement with Redyref currently. After Phase 3, HIRTA will renew the maintenance agreement with Redyref and all will invoice Dallas County Hospital for all fees related to the maintenance of the Kiosk. HIRTA will maintain ownership of the physical Kiosk. For future expansion, HIRTA will invoice the host of the Kiosk for all maintenance related fees.
Third-Party Service Provider	Business	N/A	No third-party service providers are currently under contract with HIRTA. Should HIRTA sign a vendor agreement with such a provider, all costs incurred would be covered by HIRTA's operating budget.
MTM	Institutional	Middleware: MOD-Medicaid	MTM will become the new Medicaid Broker for Iowa. HIRTA is currently working to integrate the MOD-Medicaid Middleware with an API provided by MTM by the conclusion of Phase 3. Any costs incurred related to this integration after Phase 3 will

Partner	Partner Category	Subsystem/Component	Post Phase 3 Role
Dallas County Hospital	Institutional	Middleware: MOD-EHR, Kiosk Wayfinding	Dallas County Hospital intends to continue to act as a partner facility for the MOD-EHR middleware and Kiosk after Phase 3. Future integrations related to changing EHR providers and maintenance of the existing EHR system will be covered by HIRTA. After Phase 3, Dallas County Hospital will be invoiced for Kiosk related maintenance and additional Navilens codes.
Future Healthcare Partners	Institutional	MOD-EHR Kiosk	Any future healthcare partner wishing to partner with HIRTA on Health Connector after Phase 3 will need to sign an MOU. To gain access to the MOD-EHR Middleware, partners will need to agree to a release of appointment data through their EHR provider. Should a partner wish to install a Kiosk or Navilens codes, HIRTA will provide deployment support and invoice the healthcare facility for associated costs.
Local Partners	Local	N/A	HIRTA will continue to engage with local partners after the conclusion of Phase 3. HIRTA is working to obtain letters of support from these partners, which are written statements expressing support for Health Connector that HIRTA can use in their application for additional grants and funding sources related to the project.

3.5. Financial Resources and Agreements

The ongoing operation of Health Connector will be funded primarily through existing revenue streams. The Federal Transit Administration (FTA) formula grants for rural areas program provides operating assistance to states to support public transportation in rural areas having populations under 50,000. As a

rural transit system, HIRTA's 5311 federal transit assistance comes through the Iowa DOT. Unlike 5307 urbanized funding, 5311 non-urbanized operating funds are required to have a 50/50 match. Matching funds come from a variety of sources, as discussed below:

- HIRTA receives State Transit Assistance from the Iowa DOT in addition to federal funding. Local sources of revenue include county general fund dollars, city general funds, economic development funds, local sales tax option, and health and human service funds.
- Contract services like the mental health regions, Iowa Medicaid Enterprise Non-Emergency Medical Transportation (NEMT) and Health and Community Based Services (HCBS), nursing homes, the local Area Agency on Aging, and CyRide's ADA paratransit service.
- Grant revenues come from a variety of sources (e.g., United Way, local community foundations).
- Some funds are raised through HIRTA's stand-alone 501c3, Heart of Transit, which solicits donations, bestowals, and endowments.
- Passenger revenues are a small portion of HIRTA's overall revenue streams, comprising only 2% of revenues in FY2021.
- HIRTA can use FTA 5311 funding to provide services for Health Connector and will match those funds through a variety of local sources. FTA 5311 funds eligible expenses include operating expenses and the acquisition of public transportation services

While it cannot be planned as a dedicated funding source, HIRTA will also coordinate with healthcare providers on utilizing compassion funds available to them to pay for transportation in form of discount credit/coupon if available. If necessary, further discussion on accounting procedures for such funds will occur with health care providers. Following Phase 3, HIRTA will bill healthcare providers for providing service. These revenue streams will be pursued by the healthcare providers themselves, so timing is unknown to HIRTA.

In addition, HIRTA is exploring opportunities for additional funding by collecting advertising revenue from the installed infotainment screens and kiosk screens when not in use. For example, healthcare facilities or local business could purchase ad space on the Kiosk and/or infotainment devices to advertise. This could be an additional revenue stream not previously identified.

Table 4 below identifies an estimated post deployment plan budget. This projection is based on updated service/ridership assumptions made during Phase 3. HIRTA is currently working to issue an RFP for 3rd party services, which will provide guidance on cost assumptions that should be made for this service. The expectation is that the funding sources identified above will provide sufficient coverage for the service outline in the plan below.

Table 4. Post Deployment Plan Budget

Line Items for Health Connector	Unit Cost	Unit	Number of Units (Base Year)	Year 1	Year 2	Year 3	Year 4	Year 5
HIRTA Vehicles	\$600	Per Vehicle Per Month	2	\$14,400	\$15,840	\$17,424	\$19,166.4	\$21,083.04
3 rd Party	\$5	Per Trip	0	-	-	-	-	-
Voice Services	\$0.005	Per Call	900	\$54	\$59.40	\$65.34	\$71.87	\$79.06
Chat Services	\$0.025	Per Message	360	\$108	\$118.80	\$130.68	\$143.75	\$158.12
NaviLens License	\$2.00		50	\$1,200	\$1,500	\$1,875	\$2,343.75	\$2,929.69
Operational Cost	\$25	Per Trip	180	\$4,500	\$4,950	\$5,445	\$5,989.5	\$6,588.45
Reimbursement for Third Parties	\$0.39	Per Mile	0	-	-	-	-	-
Total	-	-	-	\$20,262	\$22,468.20	\$24,940.02	\$27,715.27	\$30,838.36

3.6. Future Considerations/Risks

HIRTA intends to maintain the risk register beyond Phase 3 and closely monitor any ongoing risks that may affect the performance and longevity of Health Connector service. Each risk that has been identified has been given a probability rating of 1-5 as well as an impact rating of 1-5, with 1 indicating the lowest probability/impact and 5 indicating highest probability/impact. Current risks from the register that remain open and will need to be monitored throughout the transition to the next phase include those listed below. These include some risks that may be closed after further monitoring in Phase 3, as well as some risks that will always exist for revenue operations that should be continuously monitored and addressed as needs arise.

Table 5. Future Considerations and Risks

Risk	Probability	Impact	Mitigation Strategy
Incorrect geocoding of addresses	5	2	A thorough review will be conducted during deployment. Also, periodic review will be planned for new customers for accuracy. Drivers will be trained to report any time they encounter incorrect address location by sending a text message using their terminal.
Funding may not be enough to operate in long term	4	5	<p>Assess funding sources, associated risks and develop contingency plans.</p> <p>Update (8/7/2023): Most of our cost-estimation was done prior to Phase 1 when the project was in only concept phase and requirements for documentation and the extent of required systems engineering was unknown. So, it is likely that HIRTA team may fall short on funds. However, we are monitoring expenses on a monthly basis for all partners and currently any risk is low. HIRTA team also has ~\$100K in contingency funds which would be used in such situation. We may have to use this given we have extended by Phase 2 by 6 months.</p> <p>Update (5/28/2025): Cost estimations have been updated according to current system demand and after evaluation of costs during initial operations in Phase 3. Expenses will continue to be monitored monthly, however, this risk still exists after the conclusion of Phase 3 into continued operations.</p>

Risk	Probability	Impact	Mitigation Strategy
Concept may not be profitable causing funding concerns in the long term	4	5	Maintain a thorough assessment of costs involved and avoid unnecessary features/functions. HIRTA continues to evaluate costs associated with each component of the system to ensure all features/functions are beneficial to the system. HIRTA will not continue supporting features that are unnecessary to the system's functionality.
Traveler registration numbers are lower than expected.	4	5	Ridership will be key to demonstrating the program's effectiveness. Outreach efforts may need to be increased, and additional effort may need to be given to demonstrating the unique benefits of Health Connector. Additional healthcare partners will continue to be explored to identify how the program can be expanded to more people.
Surveillance and driver behavior monitoring system not operational	4	3	Maintenance department will maintain units.
Customers may not be fully aware of feature details causing safety risks	3	4	Training plan will continue to focus on customer training and education and materials should be designed to cover all potential category of users of the system.
Partnerships may not be sustainable in long term	3	3	Conduct regular risk assessment of reliance according to the IPFP developed during Phase 1 for overall project success and take appropriate actions in a timely manner
HIRTA is not able to connect to Access2Care	3	3	Manifests will have to be delivered to HIRTA using another method (email/fax).
Maintenance issues with assigned vehicle	3	3	A list of available vehicles will be provided to Dispatcher before service day starts.

Risk	Probability	Impact	Mitigation Strategy
System not having capability to accommodate all members of the group in the same vehicle	3	3	Scheduling parameters will be defined such that this issue doesn't occur. Any occurrences as reported by Travelers or Drivers will be noted and data will be analyzed to assess the cause.
Data quality is not as expected given either low ridership or incomplete data.	3	3	Small sample size and incomplete data may skew analysis or make some performance measures unhelpful. ISU will work to identify which measures can be reasonably updated to reflect quality data on a monthly basis. PMESP will be revised as needed to identify current metrics and methodology.
Driver not able to log on	3	2	If situation cannot be resolved, Drivers will have to utilize paper manifests and two-way radios.
Outreach materials may need more funds	2	2	Non-federal funds may be pursued.
Severe weather Event	3	1	Actions will be driven by HIRTA SOP. For highly severe weather, when services cannot be operated, trips may get cancelled in advance of a pick-up and Travelers will be notified accordingly. Travelers will be able to book an alternate appointment for both medical care and transportation using Health Connector. For other situations when trip is not cancelled, appropriate information will be communicated to Travelers per the stage of their trip. Focus will be on minimizing the consequence of delays and patients with recurring appointments in the system, typically meant for critical care, may be prioritized.
Traffic incident delay	3	1	System will automatically notify all concerned parties about the delay and appropriate action (e.g., change in appointment time) may be needed.

Risk	Probability	Impact	Mitigation Strategy
Unable to book return trip with HIRTA	3	1	<p>HIRTA will take several actions to ensure the availability of same day service to all travelers. These actions include:</p> <ul style="list-style-type: none"> • Service availability during after-hours. • Engaging third party service providers (e.g., taxi) so needed capacity is available. • Engaging TNC so additional capacity is available. • Engaging volunteer drivers so capacity is available where TNCs and taxis may not be available (e.g., rural areas). • Provision of microtransit service so capacity can be made available through a better coordinated shared ride service. • Provision to allow hospitals to pay for premium fare where appropriate funding sources cannot be identified.
TMS Server Failure	3	1	Paper manifest and two-way radio will be used which will cause severe disruption to real-time service management. Full failure of TMS may limit access to other information and can have major issues. Same-day service may get impacted.
TMS does not have access to real-time information on third party service providers	3	1	SLAs will be developed to have HIRTA access to such data at all times.
Data communication system failure	3	1	Paper manifest and two-way radio will be used which will cause severe disruption to real-time service management. Same-day service may get impacted.
Turn-by-turn navigation not sending to correct destinations	3	1	Geocoding will have to be corrected as mentioned earlier.

Risk	Probability	Impact	Mitigation Strategy
Wheelchair lift non-operational	3	1	Vehicle will be swapped out
Data not sufficient to calculate some performance measures with statistical significance	2	5	Execute the extended operation for additional 6 months as planned.
APIs for middleware either change or are no longer working.	2	4	MOD-EHR middleware is not currently dependent on an API but if APIs are used for this in the future, coordination between vendors would be critical to ensure success. MOD-Medicaid middleware is exploring two different API implementations for redundancy and to ensure most up to date data transmission.
Users may forget the features they were trained on	2	3	Include refresher training where needed.
Driver/Traveler Conflict	2	3	As part of HIRTA's Safety Promotion component of SMS, Driver education and training is required. One of the focuses of this training will be to train Drivers on any expected conflicts and resolution protocols to avoid any safety risks for themselves or for Travelers. Any reported incidents or complaints from Travelers and Drivers will be logged in the ESRP so a focused training can be provided.
Health Navigator/ Caregiver are not able to access TMS	2	3	A multi-party phone call may be arranged either by Health Navigator or HIRTA with Traveler and their caregiver to assist.

Risk	Probability	Impact	Mitigation Strategy
Cellular communication disruption or loss of data connectivity between vehicle and TMS subsystems.	2	3	Paper manifest and two-way radio will be used which will cause severe disruption to real-time service management. Same-day service may get impacted.
Customer profile details incomplete or have changed but not adjusted in the system	2	3	Standard practice of verifying details at trip booking will be implemented.
Manifest details are inaccurate	2	3	Occurrence is rare but will be reviewed and addressed as part of SOP.
Travelers are still unsure how to use the system and may need different training or retraining.	2	3	Training plan will be executed, and retraining will take place as needed. Feedback will be solicited through Traveler surveys to determine if there are any gaps in system performance or understanding.
Vendor support for new development (middleware and kiosk) may be required.	2	3	New improvements to kiosk or middleware code may require new or additional time from vendors. While all code is open source, vendor support agreements will help maintain any cloud infrastructure and code as needed.
New use cases arise that were not considered in Phase 1 or 2	2	3	New use cases will be considered and where possible the system can be adjusted to meet new demands and cover operational needs.
Visualizing location may be impacted if mapping service is not accessible or is slow to load on a device.	2	2	Communication between driver and traveler is possible by coordinating with dispatch. If location is unclear at pickup, either party should reach out to dispatch for assistance.

Risk	Probability	Impact	Mitigation Strategy
Due to lack of a transactional data standard, limited information on third party services may be available, as allowed per their policy and API.	2	2	Fleets for third parties could be added and managed within the MOD platform.
Outreach materials may need more funds	2	2	Non-federal funds may be pursued.
Traveler cannot recognize HIRTA vehicle	2	2	Identification methods will be designed and tested to be reliable. A HIRTA/Health Connector logo will be designed which third party contractors will be required to display on their windshield from where it could easily be read by the wayfinding application. Health Navigators will work with LEP Travelers so they are aware about tools for identifying the right vehicle.
Driver cannot find Traveler waiting to be picked up	2	2	Identification methods will be designed and tested to be reliable. A HIRTA/Health Connector logo will be designed which third party contractors will be required to display on their windshield from where it could easily be read by the wayfinding application. Health Navigators will work with LEP Travelers so they are aware about tools for identifying the right vehicle. Also, Drivers will be trained to assist in such situations.
Inability to communicate with Drivers	2	2	HIRTA will ensure to have one communication method always available (Driver terminal, radio, back-up communication device)
Issues with timely update of manifest details	2	2	Appropriate action may need to be taken by system support team.

Risk	Probability	Impact	Mitigation Strategy
Delivery of changes to Driver manifests do not occur timely	2	2	Appropriate action may need to be taken by system support team.
Vendor response to issues in COTS products may be slower than desired.	2	2	Clear and continuous follow-up from the HIRTA team may be needed to ensure vendors are meeting the support outlined in contracts. Alternatively, other vendors could be explored for future procurements.
Voice communications system failure	2	1	Back-up communication method will have to be instituted for continuity of operations.
Malfunction in wheelchair lift	2	1	Wheelchair lift cycle test is performed at every pull however, mechanical failures may occur during the driver shift. In the event this happens, HIRTA will have to swap vehicle as soon as the issue is discovered.
Weather emergencies disrupt Health Connector service.	1	5	Severe weather events cannot be controlled but SOPs currently in place can be followed to ensure continuation of service or communication with travelers as needed.
Cellular data outage (at system level or carrier level) may impact real-time responsiveness of the system, particularly in the situation of high trip volume.	1	5	Two-way radio along with the standard operating procedures for reduced mode of option will be activated in such situation.
When using APIs for obtaining real-time data from third party service providers, there may be inaccuracies in calculated ETA based on the extent of data available.	1	3	Data will be collected on a monthly basis if needed to supplement available real-time data.

Risk	Probability	Impact	Mitigation Strategy
Driver/vehicle capacity is not as expected given hiring issues or concerns with meeting normal service.	1	3	Staffing is not presently an issue and with current ridership this should not present a challenge. However, if this changes, additional vehicles may need to be designated for Health Connector and/or additional staff hired.
Payment service used by the application could be unavailable. This may result in Drivers resorting to cash or other non-electronic payment methods.	1	2	Will be monitored throughout Phase 3, but there are SOPs in place for collecting payment via cash or processing payment at a later date.
Data for provider resources (e.g., drivers, vehicles) may not be current.	1	2	As demonstrated in the ORD paper manifests and communication channels may be used in the event of an internet outage or data not being transmitted correctly to drivers.
Replenishment functionality may not be functional for prepaid debit accounts at times. This will require Travelers to use alternate methods but does not impact operations in any way.	1	1	Prepaid debit not currently active for Health Connector trips. If it is activated, it will follow the same SOPs as current HIRTA service.

Source: HIRTA, May 2025

Appendix A. Acronyms List

The table below provides an overview of acronyms used in this document.

Table 6. Acronyms

Acronym	Definition
A2C	Access2Care – The State of Iowa Medicaid Broker, previously providing Medicaid funded NEMT trips before acquisition by MTM
ConOps	Concept of Operations
CMS	Content Management Software
CSR	Customer Service Representative
CTP	Comprehensive Transition Plan
DCHD	Dallas County Health Department - One of the project Partners who will lead integration with health care services.
DDA	Direct Data Access – Via platform that provides custom reporting and data sharing capabilities.
DOT	Department of Transportation - The government department responsible for transportation. In this report this generally refers to either the State of Iowa's DOT or the United States DOT referred to as Iowa DOT and USDOT, respectively.
EHR	Electronic Healthcare Record - Refers to the healthcare information management system used by hospitals for patients' healthcare-related appointments, transactions and records management.
FTA	Federal Transit Administration.
HIRTA	Heart of Iowa Regional Transit Agency - Rural, regional public transit agency in central Iowa. HIRTA will serve as Proposer/Applicant for the ITS4US project.
IVR	Interactive Voice Response – System that provides automated assistance and notifications by phone.
KPI	Key Performance Indicators - Represents primary metrics used to assess the success of a project or operations.
LEP	Limited English Proficiency - Refers to individuals who have a limited ability to read, speak, write, or understand English.

Acronym	Definition
MOD Platform TMS	Mobility On-Demand Platform Transportation Management System - The system used by HIRTA provided by Via for booking, managing, and dispatching rides and shifts for the Health Connector.
MOU	Memorandum of Understanding
MTM	Current Iowa NEMT medical transportation broker.
NEMT	Non-emergency Medical Transportation - The provision of transportation to patients for medical appointments, lab visits, and other routine care.
TNC	Transportation Network Company - Encompasses a group of companies that provide on-demand Ridehailing services.
VOC	Via Operations Center – Platform used by HIRTA for dispatching and rider management. Also referred to as the MOD Platform TMS.

Appendix B. References

- [1] Concept of Operations (ConOps): Heart of Iowa Regional Transit Agency ITS4US Deployment Project (FHWA-JPO-21-859) <https://rosap.ntl.bts.gov/view/dot/57469>
- [2] Phase 1 System Requirements Specification (SyRS) — Heart of Iowa Regional Transit Agency ITS4US Deployment Project <https://rosap.ntl.bts.gov/view/dot/61724>
- [3] Phase 2 Outreach Plan — Heart of Iowa Regional Transit Agency ITS4US Deployment Project (FHWA-JPO-21-859) <https://rosap.ntl.bts.gov/view/dot/72349>
- [4] Phase 1 Institutional, Partnership, and Financial Plan: Heart of Iowa Regional Transit Agency ITS4US Deployment Project (FHWA-JPO-21-907) <https://rosap.ntl.bts.gov/view/dot/62315>
- [5] Phase 1 Integrated Complete Trip Deployment Plan: Heart of Iowa Regional Transit Agency ITS4US Deployment Project (FHWA-JPO-22-946) <https://rosap.ntl.bts.gov/view/dot/64709>

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

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