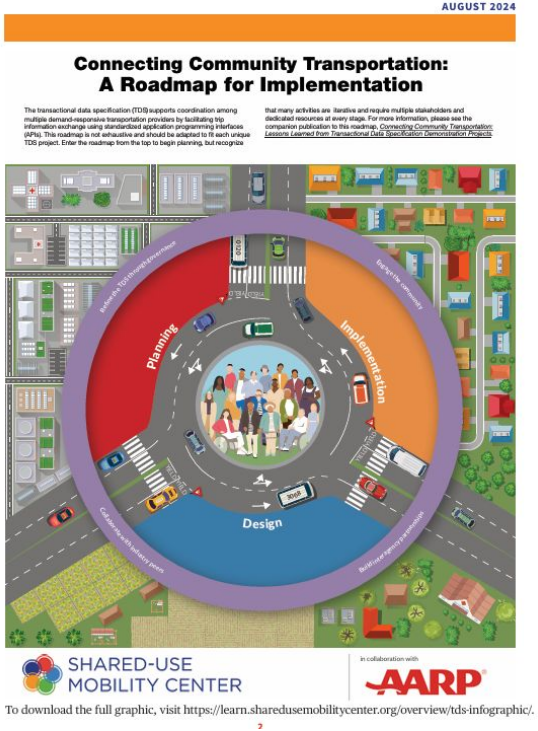
Connecting Community Transportation: Technology Support for Mobility Management

National Rural Transit Assistance Program

December 9, 2025

Austin, Texas

Community Transportation: Lessons Learned from Transactional Data Specification Demonstration Projects



https://bit.ly/ConnectingCommunityTransportation

Presenters

	**Jana Lynott, Independent Consultant (Session Moderator)** An introduction to the transactional data specification for demand-responsive transportation
	**Erica Hamilton, TransitPlus** The facilitator's perspective: managing expectations and competing priorities
	**Kevin Chambers, Full Path Transit Technology** The tech perspective: how data standards and interoperability helped advance mobility management
	**Al Benedict, National RTAP** A roadmap for TDS Implementation

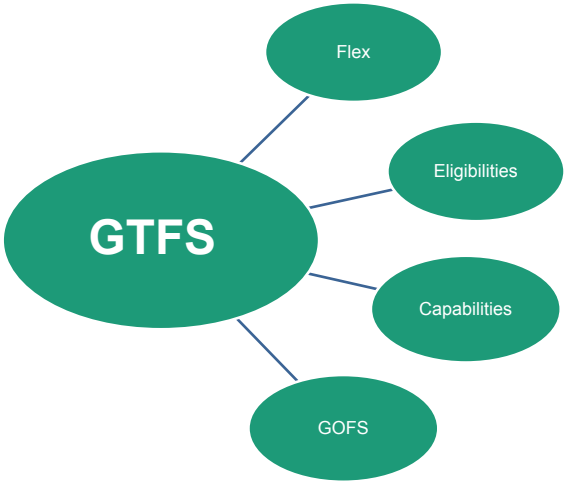
Benefits of the TDS

- Enables two or more demand-responsive transportation (DRT) providers to electronically share trip information
- Less staff time dedicated to manually coordinating and scheduling trips
- Addresses capacity constraints by supporting a network of providers to meet customer needs, providing more travel options for riders
- Fewer empty seats and lower cost per passenger
- Opportunities for private sector involvement
- Accurate billing-related data for trips among different providers
- Facilitates cross-jurisdictional travel where transfers between providers are required
- Scales to new service areas and transportation providers
- Better service for the customer, such as same day rides and more reliable and punctual transportation

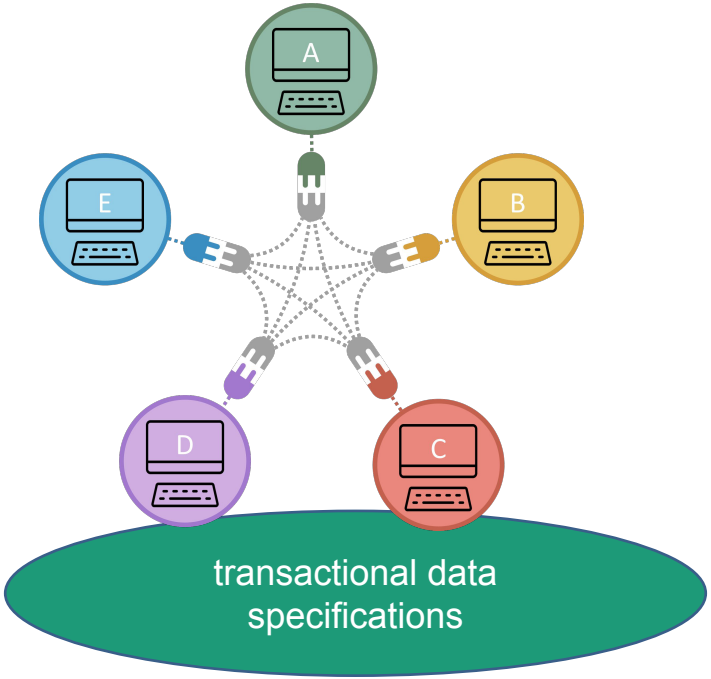
Photo credit: Via Mobility Services

Open and Universal Data Standards

Discovery Data

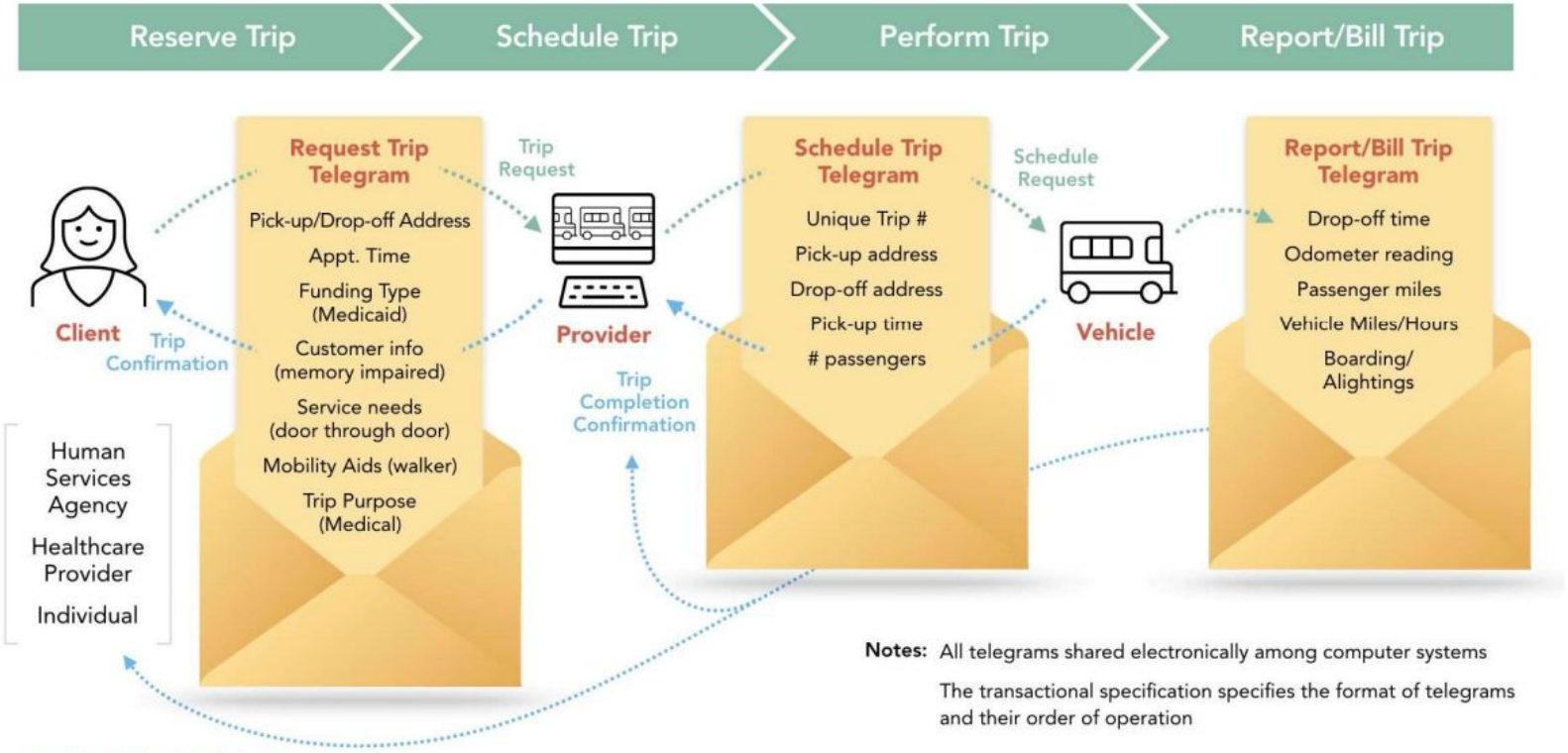


Transactional Data



Transactional Data Spec for DRT

A common data format that allows trip data to be shared electronically



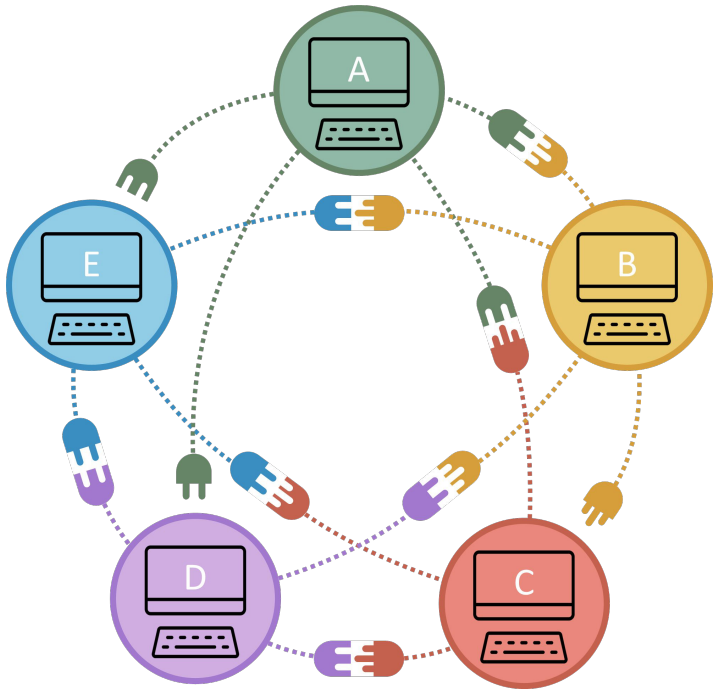
AARP® Real Possibilities

Interoperability Using Proprietary APIs: The Expensive Approach

With proprietary APIs, each provider needs to program its software to be compatible with four different message formats and maintain its own API.

Whenever a software update is made, every provider needs to update its software to accommodate it.

Each plug in the network costs thousands of dollars to develop and maintain, making interoperability with proprietary APIs an expensive proposition.



Source: AARP Public Policy Institute

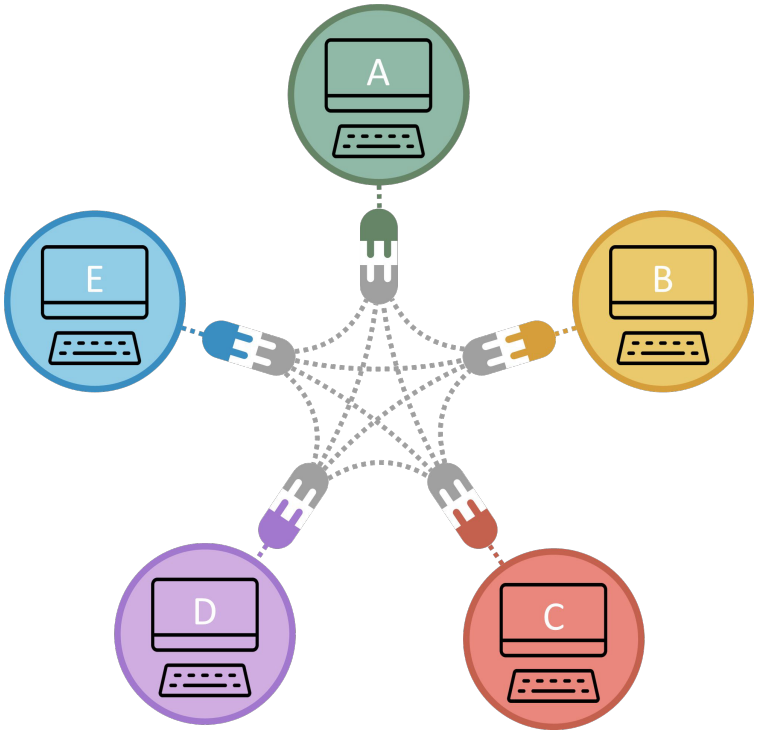
KEY

Provider Software — Provider Software

Interoperability Using the TDS: The Cost-effective Approach

With the TDS, an open, universal API, providers need only program their software to exchange data using one set of message formats.

If software updates are made compatible with the TDS, interoperability with all providers is maintained. Those other providers need not take any action.



Source: AARP Public Policy Institute

KEY

Provider Software — Open API

Data standards define:

- The fields of data
- How the information in each field is to be formatted

Transactional data standards also define:

- The order of operations

Source: MTA Flint, Flint MI | Photo Resource Gallery | Photo Resource Gallery | NADTC

Primary TDS Messages (Telegrams)

Activity	Task Accomplished and Flow of Information	Telegram
Planning	Request Trip (rider/client to service provider)	Telegram 1A
	Confirm Trip Request (service provider to client/rider)	Telegram 1B
Confirm Scheduling Details	Confirm Order (client/rider to service provider)	Telegram 2A
	Rider Details (optional) (client/rider to service provider)	Telegram 2A1
	Confirm Trip Scheduled (service provider to client/rider)	Telegram 2B
	Confirm Vehicle (optional) (service provider to client/rider)	Telegram 2BB
Schedule Vehicle	Route/Trip Task Information (service provider to vehicle)	Telegram 3A
	Confirm Route/Trip Task (vehicle to service provider)	Telegram 3B
Trip Completion	Completed Job Data (service provider to client/rider)	Telegram 4A
	Completed Job Confirmation (service provider to client/rider)	Telegram 4B
Reporting	Vehicle Performance Information (vehicle to service provider)	Telegram 5

The Facilitator's Perspective:
Managing expectations and competing priorities

Erica Hamilton, TransitPlus

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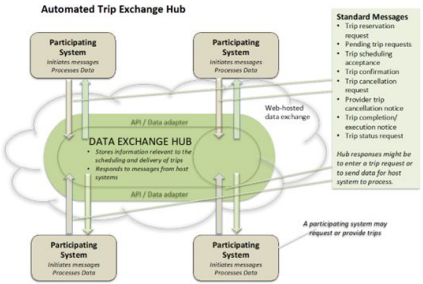
North Front Range Metropolitan Planning Organization (RideNoCo)

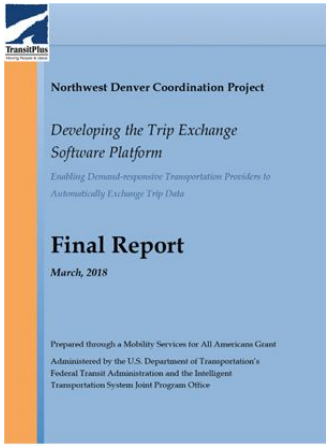
- **Goal:** Improve service by streamlining customer intake and trip requests through RideNoCo, the regional one-call/one-click mobility management center
- **Use Cases:** Developed TDS-Compliant APIs to:
  - Streamline customer intake and eligibility determination
  - Refer trips
  - Coordinate multi leg trips across jurisdictional boundaries and providers
- **Service Area:** Larimer and Weld counties in Northern Colorado (rural, suburban and small urban)
- **Target Population:** Volunteer driver organization customers, particularly older adults
- **Project Partners:**
  - NFRMPO
  - TransitPlus (project facilitator)
  - Volunteer transportation providers
  - Full Path Transit Technology
  - Spedsta
  - RideScheduler

Source: RideNoCo demonstration project. Berthoud Rural Alternative for Transportation (RAFT)

Coordination Project Background

- Veteran Transportation and Community Living Initiative (VTLCI) ~2013
- Mobility Services for All Americans (MSAA) ~2015
  - The Northwest Denver Coordination Project



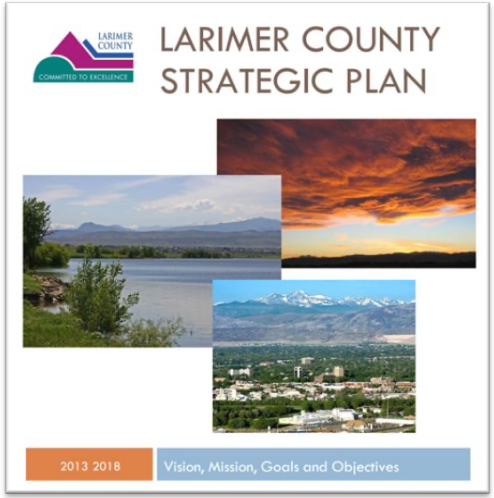


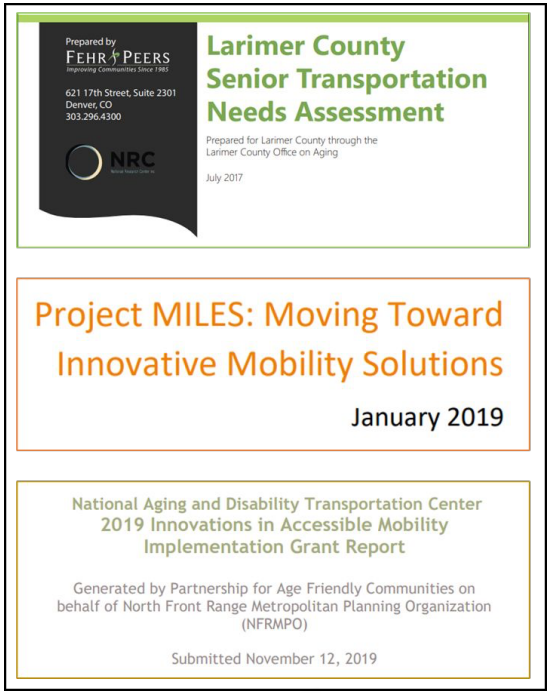
- Transactional Data Specifications (TDS) - TCRP Report 210 ~2020
- Ride Alliance ~2020

RIDE ALLIANCE

drcog
DENVER REGIONAL COUNCIL OF GOVERNMENTS

RideNoCo Background





Phased Roll Out

Website + Call Center

- Introduction of RideNoCo
- Central hub to identify transportation options across region and beyond

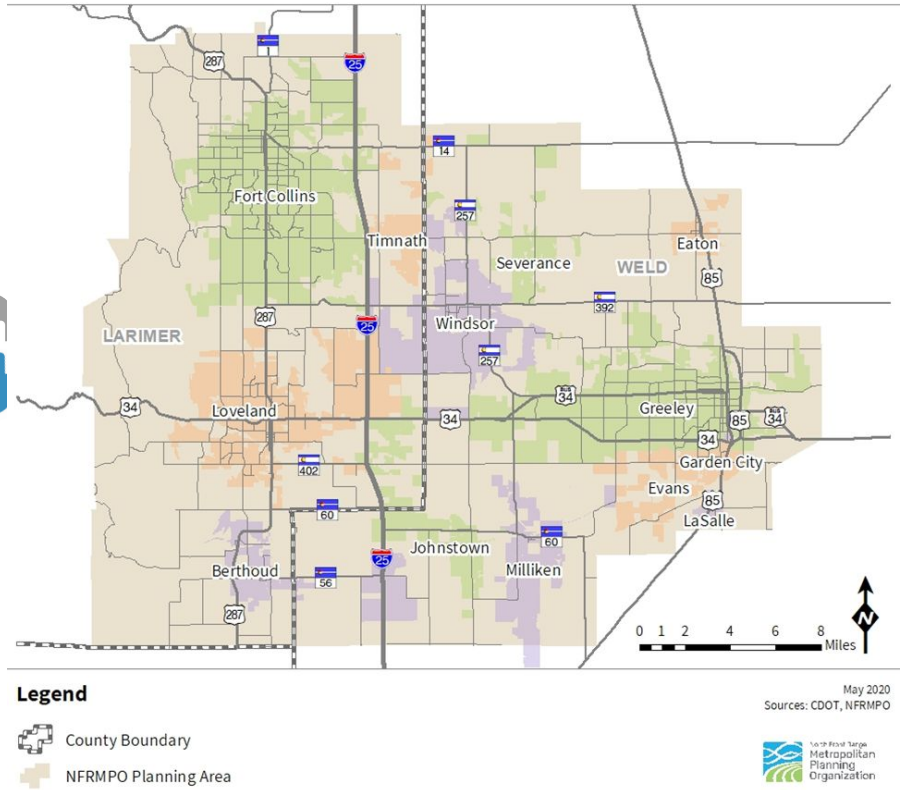
Trip Discovery

- Ability to find and plan trips on public transit and human service providers in region
- Utilizing GTFS-Flex technology

Trip Scheduling

- Long-term vision to find, plan, and book ride in one place across multiple providers
- Laying foundation for coordination as region grows by adopting Transactional Data Specifications (TDS)

North Front Range Metropolitan Planning Organization



- NFRMPO was formed in 1988 and expanded to current boundaries in 2007, covering Weld and Larimer Counties
- 535,000 people, 675 square miles
  - The size of Rhode Island!
- Includes Fort Collins Transportation Management Area (TMA) & Greeley Urbanized Area (UZA)

Project Background

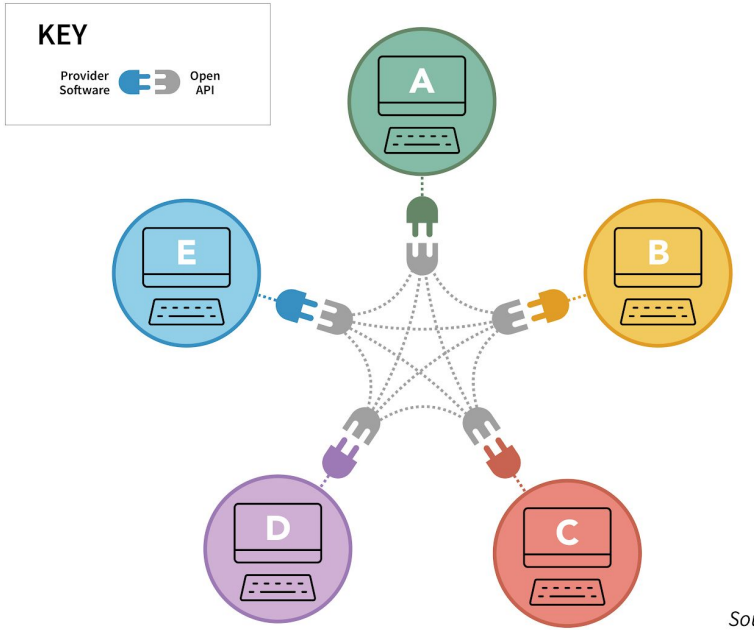
The original vision of phase 3 was for the NFRMPO to purchase, implement and manage one scheduling software system on behalf of volunteer providers in the region.

- Through a Trip Scheduling Steering Committee convened in 2022, staff found that target agencies were happy with what they had in place and wanted to maintain client relationships.

The focus shifted to coordination, rather than centralization, using emerging Transactional Data Specification (TDS) technology:

- Help agencies share and coordinate trips while allowing agencies to remain in control of scheduling and relationships;
- For RideNoCo to assist in determining eligibility and to connect riders to providers that could meet their needs.

RideNoCo Interoperability using Transactional Data Specifications (TDS)



- A: RideNoCo
  - RideSheet
- B: North 40 Mountain Alliance
  - RideSheet
- C: 60+ Ride of Weld County
  - RideScheduler
- D: Berthoud RAFT
  - Spedsta
- E: SAINT
  - Spedsta

Source: Image Adapted from AARP Public Policy Institute

Project Background

- Select pilot agencies
  - 60+ Ride
  - RAFT
  - SAINT
- Contact Vendors to ensure interest
  - FullPath
  - RideScheduler
  - Spedsta
- Issue RFP

Project Use Cases

1.

Client Information
RideNoCo (or another provider) sends a potential rider's client information over to another provider.

2.

Gift
One transportation provider "gifts" a trip to another provider to complete the entire trip from pick up to drop off.

3.

Coordinate
Multiple providers coordinate to deliver a trip across multiple agencies.

Operational Decisions

TDS Expansion

TDS was originally designed for public transit providers that collect very little customer information so we had to expand the spec to include both that and demographic information required by funding agencies.

Parallel Policy Development

Parallel to the technology development was the need to develop policies and procedures to guide participating agencies called Business Rules.

Agencies' Agreement & Standards

Agencies needed to come to agreement on communication standards, timelines and common terminology and language for items such as: Addresses, Service Needs, Mobility Aids.

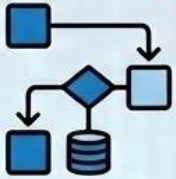
Technical Decisions

COLLABORATION TOOLS

- Swagger
- GitHub
- Google Docs

API SPECIFICATIONS

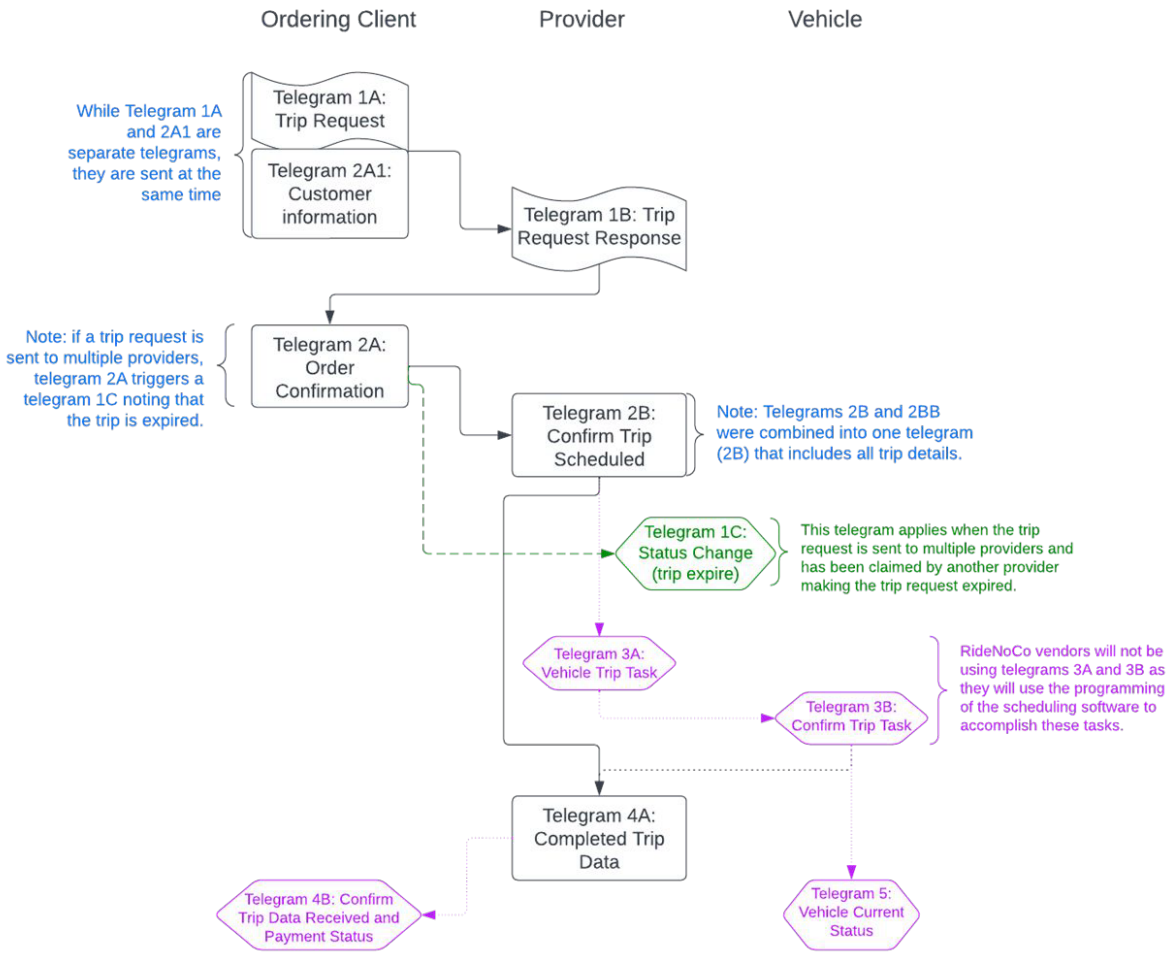
Including type (RESTful) and how systems would integrate



TDS REFINEMENT

Telegram Flow and continuous improvement

Trip Request Telegram Flow



RIDE NOCO
CONNECTING YOU & NORTHERN COLORADO

Diagram Key

- Manual Action Needed by Provider
- Telegram Sent Automatically
- Optional Telegram
- Purple items are not used in the RideNoCo project
- Green items are used if trip requests are sent to multiple providers

Lessons Learned

1. Human service transportation coordination is hard.

2. Everyone has their preferred way of doing things…and they're all right.

3. Transactional Data Specifications weren't nearly as developed as originally thought.

4. Budget way more than you think.

5. Effective technical collaboration, organization, and transparent documentation are essential for enhancing project tracking and ensuring success.

6. Keep the focus on the provider and their clients.

Lesson #3

Transactional Data Specifications weren't nearly as developed as originally thought

- Project partners were tasked with not just implementing an API, but also developing one – which requires very different skill sets
- Initial discussions with vendors are key
- Commitment and understanding are key
- Establish ground rules
- Compromise is key
- Taking detailed meeting notes and recording meetings really helps when things get contentious
- RideNoCo paved the way

And Most Importantly…#7 Be A Champion!

Coordination needs champions! Each party involved needs one person passionate about transit/transportation that understands the need for coordination and is committed to making it happen.

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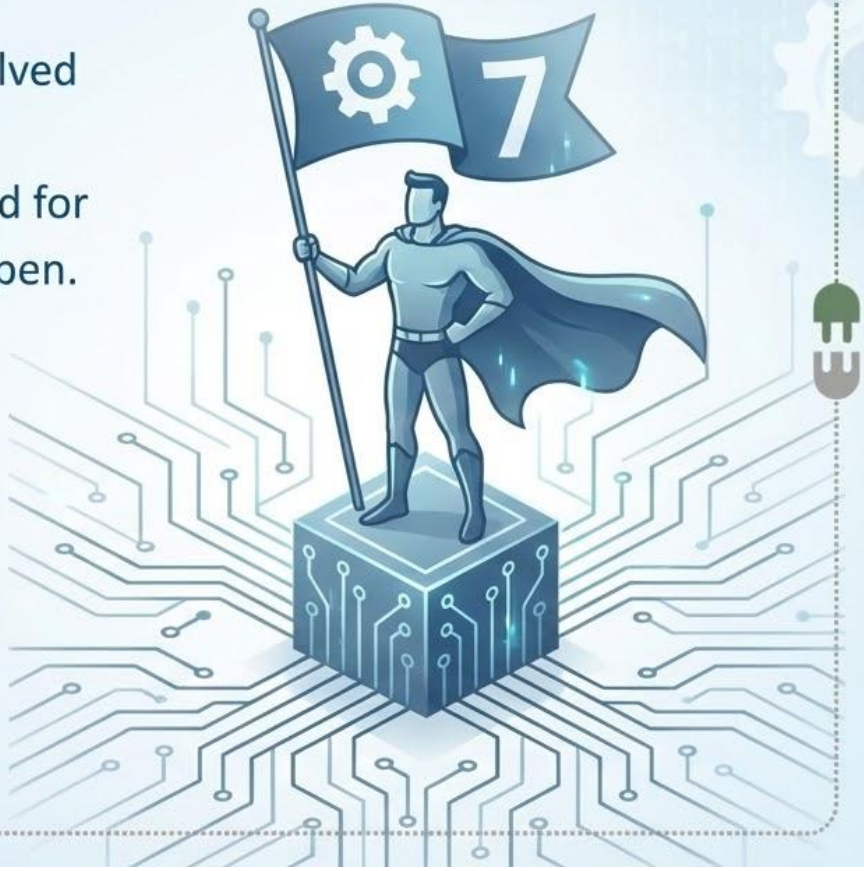

The Tech Perspective:
how data standards and interoperability helped advance mobility management

Kevin Chambers, Full Path Transit Technology

National Rural Transit Assistance Program

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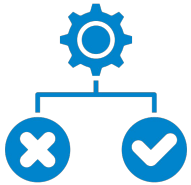
RideSheet and Its Design Priorities

RideSheet is "opinionated software"

✅ **Simplicity**	Simplicity, simplicity
✅ **Openness**	Code is open and available on GitHub
✅ **Approachability**	Spreadsheets are universal
✅ **Collaboration**	Using Google Workspace's collaboration tools
✅ **Data Security**	HIPAA-grade security, version tracking
✅ **Flexibility**	Readily configurable to local needs
✅ **Interoperability**	Easy exports to Excel
✅ **Powerful Reporting**	Using Google Looker Studio



Part 1: RideSheet as a Testing Platform

The goal: have an independent method for validating the implementation of the data exchange between two proprietary systems

- Open source code
- A more neutral party
- Reduced wheel-spinning and finger-pointing

Part 2: Turn RideSheet into “CallSheet”

RideSheet, in a modified form, is used by RideNoCo to track calls made to its Mobility Specialists and to make referrals via the TDS.

- Removed sheets related to customers, trips, drivers, vehicles, etc
- Added sheets for tracking call and referrals
- Added code for sending and receiving API messages according to the TDS spec
- Added custom reports for tracking call demographics

Throughout: a *Lot* of Collaboration

This project relied on:

- **Effective project management and leadership, keeping vendors on track**
  - **Clear communication**
  - **Clear vision on goals and ultimate value**
- **Many, many technical agreements hammered out in meetings**
- **Systems to document all those agreements**
  - **Online collaboration tools: Google Docs, Lucid Charts, etc**
  - **Technical documentation tools: GitHub, Swagger**
  - **Meeting recordings and speech-to-text transcripts**

Takeaways

- The challenges are 90+% institutional and so are the successes
- The best technology vendors will have both technical and “soft” skills
- Document absolutely everything
- Designing an API is VERY different from implementing one
- Strategic use of open systems can reduce costs and risks significantly
  - Standards
  - Software
  - Data

A Roadmap for TDS Implementation

Al Benedict, National RTAP

National Rural Transit Assistance Program

December 9, 2025

Austin, Texas

Interoperability Roadmap :
Planning, Design, Implementation

The ***riders*** are at the center of this process, and should be involved early and throughout.

These steps are ***not*** exhaustive, but rather intend to offer a framework for communities to explore the TDS and other developing open-data solutions in their own communities.

Roadmap for Implementation: Planning

- Identify Transit Needs
  - Conduct community needs assessments to understand the mobility landscape and need
    - Partner with community groups
    - Listen to driver and rider stories
- Understand agency operations and technical capacity
    - Types of service operated, scale of operations, and technology infrastructure/capacity
    - Identify technology trade-offs
- Map out data standardization and identify opportunities

Community engagement with Burmese older adults on the way to the local flea market. Source: Shared-Use Mobility Center

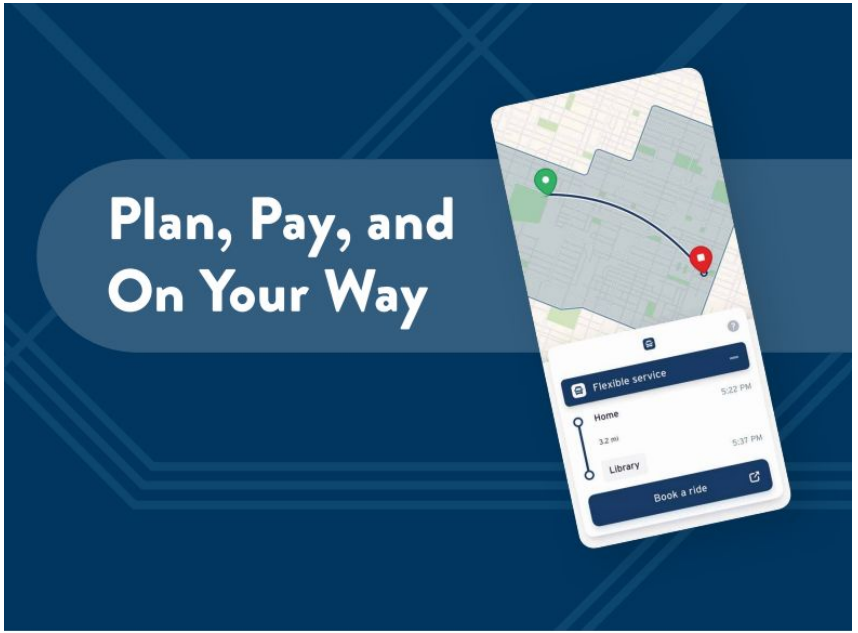
Roadmap for Implementation: Design

- Define project goals, use case, and performance metrics
- Define the demonstration area, target population, scope and budget
  - Start small and create an expansion plan. ***But keep larger vision and data interoperability goals in mind.***
- Engage software vendors and other private sector partners
  - Look to *forward-thinking* private partners that can both support this work and understand its limitations and scalability
  - Be upfront about project goals, needs, and special considerations

Source: RideNoCo Demonstration Project, 60+ Ride

Roadmap for Implementation: Implementation

- Build the TDS Platform
  - Design platform
  - Build the TDS specification
  - Test and validate TDS platform
  - Test with transit customers
  - Implement the demonstration area
  - Learn from the demonstration project
  - Bring to Scale



transit

Scan for free download

Rolling Hills Transit

Source: MnDOT Demonstration Project

Roadmap for Implementation: Ongoing Steps

- Engage community
- Build interagency partnerships
- Collaborate with industry peers
- Refine and scale deployment of the TDS

Source: Metrolina Association for the Blind, Charlotte, NC, Photo Resource Gallery | NADTC

DRT Data Specs Working Group Contact Information

For further information please contact the DRT Data Specifications Working Group

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and

Al Benedict
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Additional TDS Demonstration Project Opportunities

- NEMT
  - Currently, only a few states coordinate Medicaid NEMT trips with other public transportation. The TDS could add to interorganizational coordination.
  - Concerns over complexity of regulatory framework.
- Health Care Coordination
  - The TDS could help coordination between public transit agencies and hospitals/healthcare providers to facilitate trips for patients to and from medical appointments.
  - Potential to reduce missed medical appointments, inappropriate use of emergency services, and hospital readmissions.
- Mobility Management
  - The TDS can mitigate barriers and increase capacity so that mobility managers can access larger networks of transportation providers.

Source: Capacity Builders, Farmington, NM Photo Resource Gallery | NADTC

TCRP

RESEARCH REPORT 210

TRANSIT COOPERATIVE RESEARCH PROGRAM

Sponsored by the Federal Transit Administration

Development of Transactional Data Specifications for Demand-Responsive Transportation

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TRB TRANSPORTATION RESEARCH BOARD

100 YEARS MOVING IDEAS: ADVANCING SOCIETY