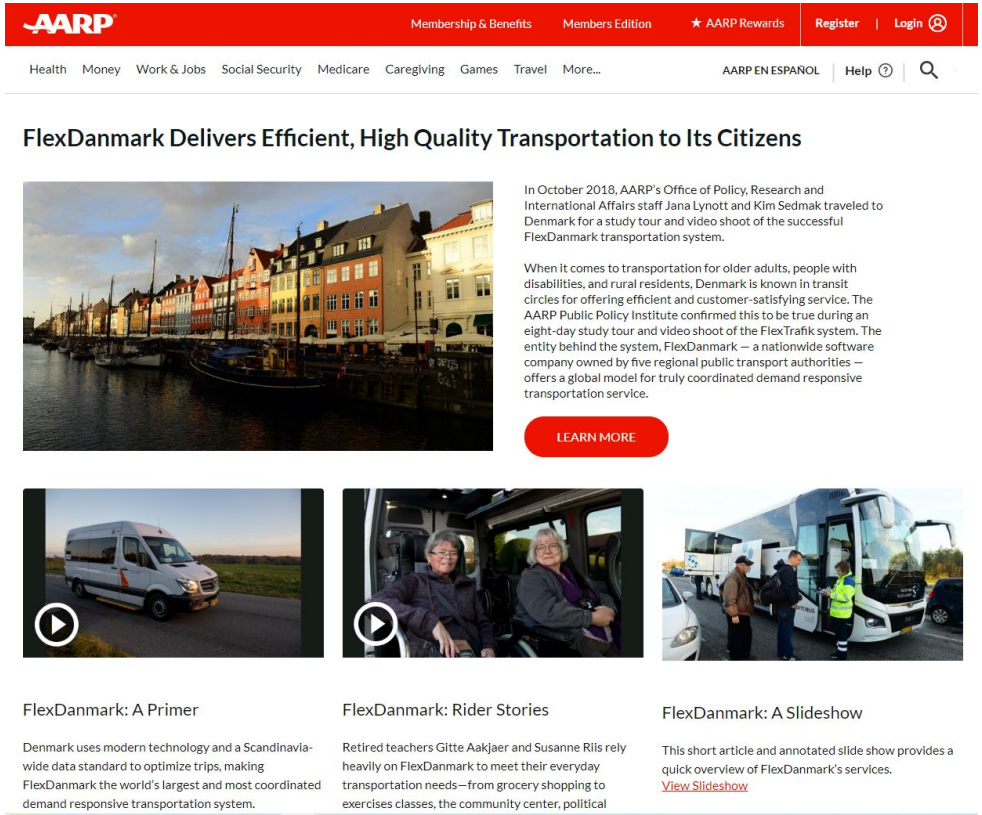
SHARED-USE MOBILITY CENTER

DRT Data Specs **Working Group**

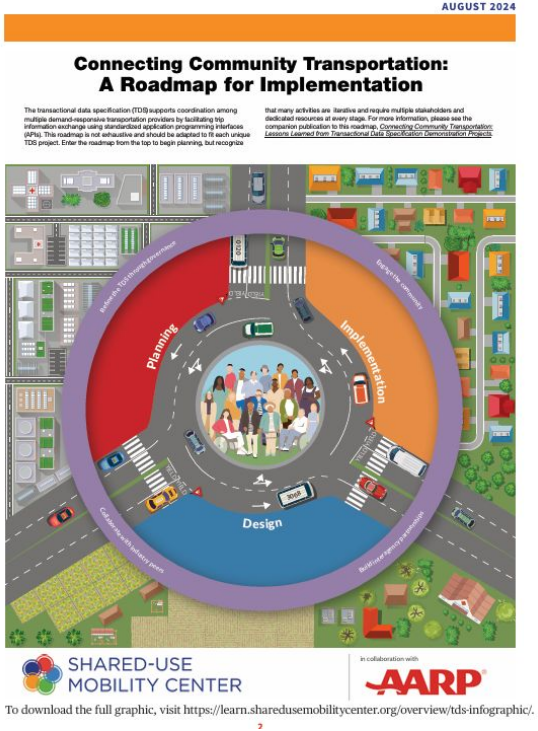
Jana Lynott, former AARP Senior Transportation Policy Advisor, and Al Benedict, Director of Accessibility Programs at the Shared-Use Mobility Center (SUMC), co-founded the Demand-Responsive Transportation Data Specifications Working Group, offering a place for public and private interests to come together to support the advancement open-data solutions most pertinent to DRT.


TCRP
RESEARCH REPORT 210
Development of Transactional Data Specifications for Demand-Responsive Transportation
The National Academies of
SCIENCES • ENGINEERING • MEDICINE
TRB
TRANSPORTATION RESEARCH BOARD
TRANSIT COOPERATIVE RESEARCH PROGRAM
Sponsored by the Federal Transit Administration
100 YEARS MOVING IDEAS: ADVANCING SOCIETY

www.aarp.org/futureoftransportation



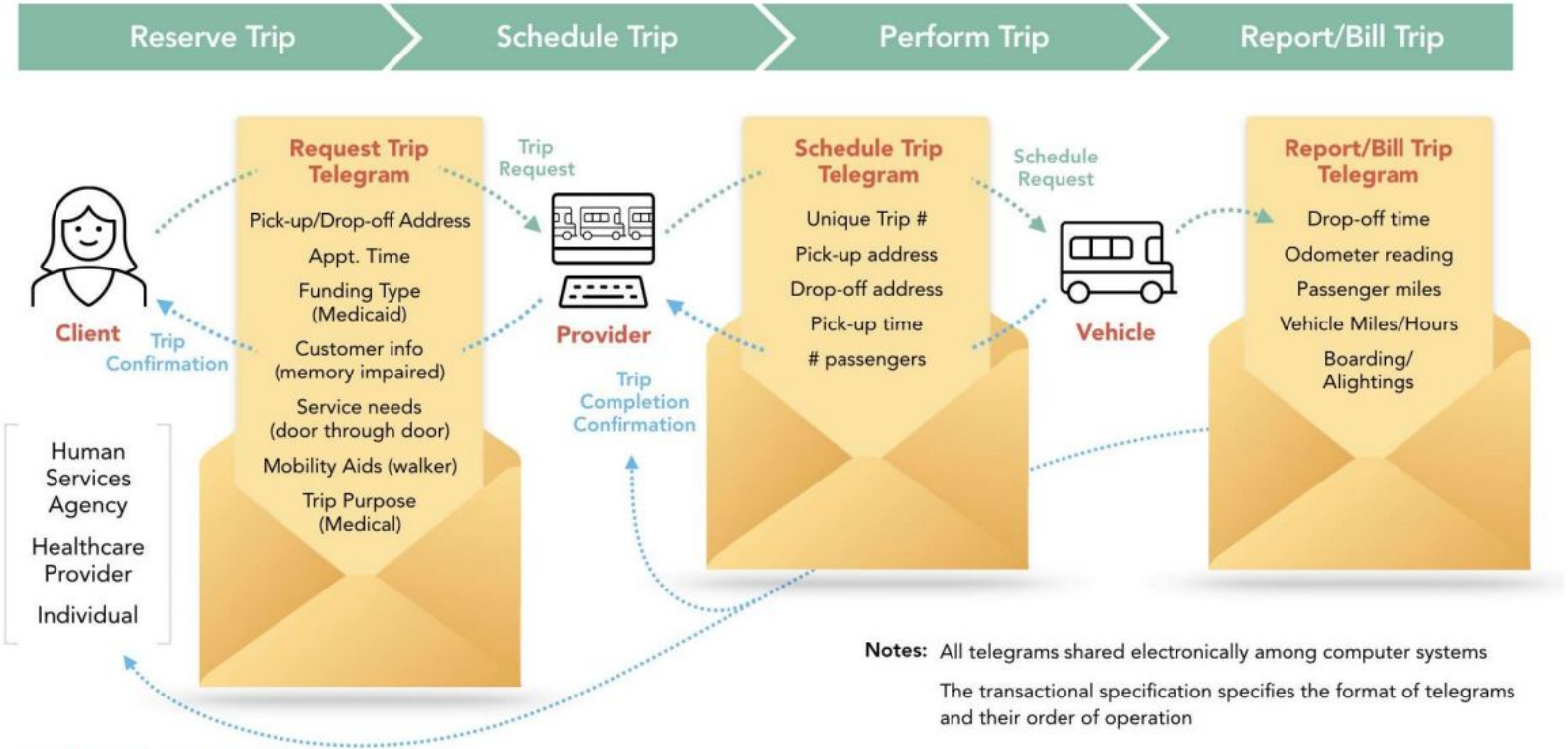
Community Transportation: Lessons Learned from Transactional Data Specification Demonstration Projects



https://bit.ly/ConnectingCommunityTransportation

Transactional Data Spec for DRT

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



AARP® Real Possibilities

Benefits of the TDS

- Enables two or more demand-responsive transportation (DRT) providers to electronically share trip information
- Facilitates transfers between services to address cross-jurisdictional travel needs
- Addresses capacity constraints by supporting a network of providers to meet customer needs
- Provides more options for riders
- Scales to new service areas and transportation providers

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

TDS in Action - Learning from Demonstration Projects

6 projects in planning or implementation phases representing a mix of rural and urban use cases

- North Front Range Metropolitan Planning Organization/RideNoCo, Northern Colorado
- Minnesota Department of Transportation Regional Trip Planning and Scheduling Platform, Southern and Western Minnesota
- NEORide EZConnect, Northeast and Southwest Ohio
- Metropolitan Transportation Commission, Bay Area, California
- RideSheet, Lake County, Oregon
- King County Mobility Coalition, Seattle, Washington*

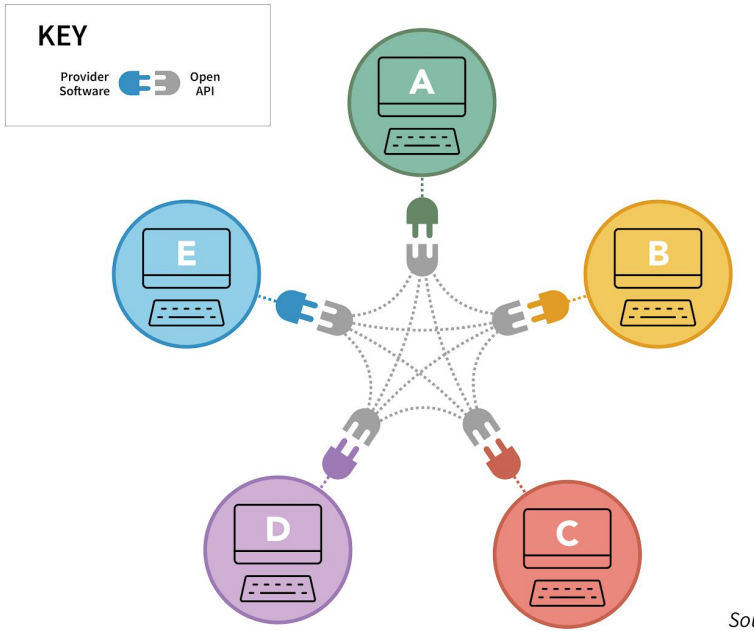
*Future implementation

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 multileg 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)

RideNoCo Interoperability using Transactional Data Specifications (TDS)

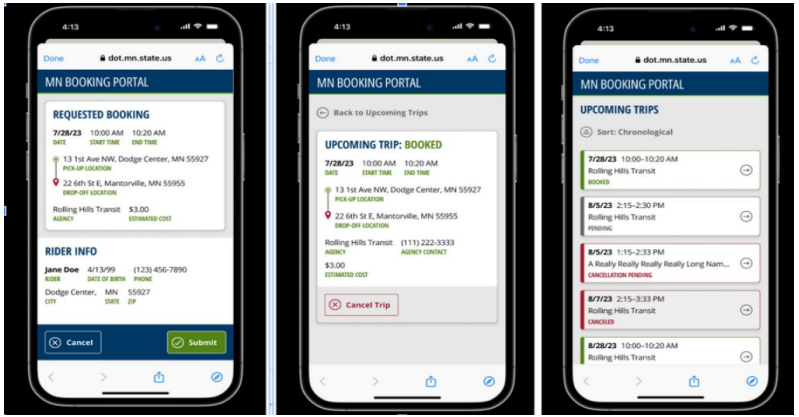


- A: RideNoCo
  - RideSheet
- B: North 40 Mountain Alliance
  - RideSheet
- C: 60+ Ride of Weld County
  - RideScheduler
- D: Berthoud RAFT
  - Spedsta
- E: SAINT
  - Spedsta

Source: Image Adapted from AARP Public Policy Institute

Minnesota Department of Transportation Regional Trip Planning and Scheduling Platform, Southern and Western Minnesota

- **Goal:** Enable rural public transportation and ADA paratransit customers to electronically plan, book, and pay for a trip using a smartphone app or website
- **Use Case:** Create an open-source TDS module to facilitate communication between trip planning applications and the scheduling software of transit agencies.
- **Service Area:** Clay, Otter Tail, Wilkin, Olmsted, Dodge, Fillmore, Houston, and Winona counties (urban, suburban, rural)
- **Target Population:** General population of rural public transportation riders and ADA paratransit customers
- **Project Partners:**
  - MnDOT
  - Rolling Hills, Otter Express, and Rochester Public Transit Agencies
  - Cambridge Systematics
  - Trillium
  - Transit



Source: MnDOT. Note: images are informational. Actual TDS module still under design.

NEORide EZConnect, Northeast and Southwest Ohio

- **Goal:** Increase access to on-demand service for paratransit and microtransit customers by enabling interoperability among partner agency scheduling systems
- **Use Case:** Enable DRT systems to electronically share customer profile and eligibility information, refer trip requests, and confirm booked and completed trips by building a TDS-compliant translator (Middleware), resulting in easier client management and booking. The translator will make it possible for data to be sent to and retrieved from the Via and Trapeze platforms with no required coding changes to those platforms, and will ensure that all relevant data is communicated.
- **Service Area:** Hamilton County and Cincinnati (urban, suburban, rural)
- **Target Population:** General public and those who qualify for ADA paratransit service
- **Project Partners:**
  - NEORide (Lead Implementing Agency)
  - Southwest Ohio Regional Transit Authority (SORTA) (Trapeze PASS software for ADA paratransit and Via for microtransit)
  - Arcadis IBI (system architecture for the EZConnect platform)
  - DemandTrans Solutions (development of the TDS-compliant translator (middleware)

NEORide

EZconnect

Metropolitan Transportation Commission, Bay Area, California

- **Goal:** ADA paratransit customers will experience streamlined multi-jurisdictional and multi-provider trip booking, facilitating rider transfers when a single provider cannot offer point-to-point service, thus improving customer experience.
- **Use Case:** Enhanced TDS message sets will enable communication between two unique paratransit scheduling software.
- **Service Area:** Alameda, Contra Costa, and Santa Clara counties (urban and suburban)
- **Target Population:** ADA paratransit customers
- **Project Partners:**
  - Metropolitan Transportation Commission (lead implementing agency)
  - East Bay Paratransit (Adept software)
  - Valley Transportation Authority (VTA) (Trapeze Pass software)
  - Bay Area Partnership Accessibility Committee (BAPAC) (a regional coordination forum for all paratransit service providers)

Source: Metropolitan Transportation Commission

Takeaways from the Demonstration Projects

- Demonstrated value of TDS:
  - Demonstrated electronic data sharing of messages related to the entire DRT trip life cycle:
    - Streamlined rider intake and eligibility review
    - Data exchange to book and schedule a trip, confirm trip completion, data collected for accurate billing and reporting
  - Electronic data exchange happening but providers retain manual trip acceptance
  - Streamlined coordination of multi-leg/multi-provider trips, especially across jurisdictional boundaries
  - Demonstrated ability for customer to view and book DRT trips through Transit App via seamless back-end TDS-compliant module
- Assortment of TDS use cases for a variety of travel modes
  - Rural transit, ADA paratransit, microtransit, volunteer driver programs

Takeaways from the Demonstration Projects

- Two distinct approaches:
  - *Universal transactional data format*
  - *Data translation middleware*
- Technology vendor involvement crucial
  - Early and ongoing
  - Large legacy software company participation limited
- Education, institution-building and stakeholder involvement is critical
- On-the-ground demonstrations could help to refine the TDS development and its applications (governance needed)

Source: Tri-County Action Program Waite Park, MN, Photo Resource Gallery | NADTC

Need for governance to avoid divergence and reinvention of the wheel

- Software architecture decisions (single endpoint API vs. restful API)
- New messages/refinement to existing messages
- Need for up-to-date validator software
- Opportunity for industry players to offer new specification approach entirely
- For projects that rely on a data translation middleware, can those projects build from a single translation broker?

New Messages	
RideNoCo	**MnDOT**
Customer nickname (preferred name)	Check rider eligibility/retrieve rider ID
Customer middle name	Register a new eligible rider
Customer last name	Retrieve upcoming scheduled rides
Low-income identifier	Get real-time info on ride
Disability identifier	Cancel ride
Language spoken	
Race	
Ethnicity	
Email address	
Veteran status	
Customer emergency contact/relationship w/customer	

DRT Data Specs Working Group Contact Information

For further information please contact the DRT Data Specifications Working Group

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