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| **TCRP G-16 [Active]**  **Development of Transactional Data Specifications for Demand-Responsive Transportation**   |  |  | | --- | --- | | **Project Data** | | | **Funds:** | $250,000 | | **Staff Responsibility:** | Dianne S. Schwager | | **Research Agency:** | DemandTrans Solutions | | **Principal Investigator:** | Roger Teal | | **Effective Date:** | 11/16/2016 | | **Completion Date:** | 5/15/2018 | |

**BACKGROUND**

Demand-responsive transportation includes current and emerging mobility options including, but not limited to, services that may be (1) traditional general public, human service, taxi, and private providers; (2) emerging single- and shared-use options such as bike- and vehicle-sharing, and Transportation Network Companies (TNCs); and (3) scheduled in advance and on demand. These mobility options have been growing and, for decades, communities have been pursuing their improvement. Demand-responsive services are often characterized by complex, multiparty engagement and interactions for each trip. Other industries have experienced the benefits of sharing data to improve everyday business practices. In the transit industry, the General Transit Feed Specifications (GTFS) has already shown the benefits of sharing fixed-route transit data. The lack of common specifications for transactional data for demand-responsive transportation has negatively impacted business practices and the cost, quality, and availability of these services, to the detriment of communities and customers. The development of transactional data specifications will enable the transportation industry to adapt to current technology and continue to innovate.

**OBJECTIVE**

The objective of this research is to develop technical specifications for transactional data for entities involved in the provision of demand-responsive transportation. The technical specifications should build on the framework presented in Table 2 of *TCRP Web-Only Doc 62: Standardizing Data for Mobility Management*, <http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_w62.pdf>, but should recognize changes that have occurred since the completion of this research and emerging trends. This research should be a collaborative effort that engages stakeholders, including public, private, and nonprofit entities; software developers; and academics. The research should:

* Develop specifications that may evolve, at some future time, to standards for transactional data.
* Consider privacy and security in the transmission and storage of transactional data.
* Identify key strategies to encourage adoption of the proposed specifications.
* Propose and carry out an approach for testing the specifications.
* Create an open source tool for data producers to validate their data against the specifications.
* Create and convene a forum for consensus-based refinement of the technical specifications. This forum should have the potential to continue following the completion of this research project to support implementation of the research results.

**STATUS:** The research will be completed in 2019.

**Table 2. Proposed Data Elements for an Initial Standard**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Category and Data Item** | | **Required Input?** | | **Required Output?** | | **Comments** | |
| **Passenger Header Record** | | | | | | | |
| Passenger ID | | Y | |  | |  | |
| First name | | Y | |  | |  | |
| Last name | | Y | |  | |  | |
| Street address | |  | |  | |  | |
| City | |  | |  | |  | |
| Zip code | |  | |  | |  | |
| Telephone number | | Y | |  | |  | |
| Ambulatory status | | Y | |  | | Ambulatory or uses mobility aids | |
| Mobility aids indicator | |  | |  | | List of mobility aids if indicator present, null acceptable and means no aids needed | |
| Companion flag | | Y | |  | | Number of companions could be substituted for flag | |
| Service animal indicator | | Y | |  | | Type of service animal if indicator present | |
| Disability indicator | |  | |  | | List of disabilities if indicator present | |
| Extra boarding time indicator | | Y | |  | | Amount of extra time needed if indicator present | |
| Medicaid eligible flag | |  | |  | | Depends on application whether required | |
| ADA eligible flag | |  | |  | | Depends on application whether required | |
| Agency affiliation | |  | |  | | Depends on application whether required, list of 0 to N agencies | |
| **Trip Record** | |  | |  | |  | |
| Trip ID | | Y | |  | |  | |
| Vehicle ID | |  | | Y | |  | |
| Passenger ID | | Y | |  | |  | |
| Origin street address | | Y | |  | |  | |
| Origin city | | Y | |  | |  | |
| Origin zip code | | Y | |  | |  | |
| Destination street address | | Y | |  | |  | |
| Destination city | | Y | |  | |  | |
| Destination zip code | | Y | |  | |  | |
| Requested pick-up time | | Y | |  | |  | |
| Promised pick-up time | |  | | Y | |  | |
| Pick-up time min | |  | | Y | |  | |
| Pick-up time max | |  | | Y | |  | |
| Requested delivery time | |  | |  | | Nullable if P/U time requested | |
| Estimated delivery time | |  | | Y (?) | | Nullable if P/U time requested? | |
| Space type required | | Y | |  | | Seat, wheelchair space | |
| Vehicle entry type needed | | Y | |  | | Lift, ramp, driver assistance, etc. | |
| Trip fare | | Y | |  | | Fare paid by passenger | |
| Trip distance | | Y | |  | | O-D distance in miles (from GIS) | |
| **Organization Record** | | | | | | | |
| Agency ID | | Y | |  | |  | |
| Agency type | | Y | |  | | Sponsoring agency or service provider organization or both | |
| Agency name | | Y | |  | |  | |
| Agency street address | |  | |  | |  | |
| Agency city | |  | |  | |  | |
| Agency zip code | |  | |  | |  | |
| Agency phone number | | Y | |  | |  | |
| **Financial Record** | | | | | | | |
| Trip ID | | Y | |  | |  | |
| Sponsoring Agency ID | | Y | |  | | Need convention for when no sponsoring agency, as in general public service | |
| Provider Agency ID | | Y | |  | |  | |
| Trip Price Bid | | Y | |  | | Price agency willing to pay for trip | |
| Trip Price Offered | | Y | |  | | Price at which provider willing to provide trip | |
| Trip Price Final | |  | | Y | | Price at which parties agree to transact for trip transportation | |
| **Vehicle Record** | | | | | | | |
| Vehicle ID | | Y | |  | |  | |
| Agency ID | | Y | |  | | Agency ID for service provider | |
| WC space type capacity | | Y (?) | |  | | Needed only by service provider | |
| Seat space type capacity | | Y (?) | |  | | Needed only by service provider | |