

**Research Project Title**

Connecting demand response transit with fixed service transit

**Purpose of the Project**

Fixed routes associated with Fixed Route Transit (FRT) and high costs associated with Demand Response Transit (DRT), flexible transit services is a viable option that acts as a DRT within a low population density and connect the passengers to the nearest transfer point or stop of FRT. Connecting FRT and DRT together, transit agencies can minimize the overall system cost while maximizing the coverage.

**Scope and Significance**

The scope of research includes following tasks.

1. Identify inputs for developing required infrastructure and facilities and origin and destination of FRT and DRT (transfer point) respectively.
2. Extend DRT to provide mobility exclusively to transportation challenged population (TCP) to save on operating costs of a dedicated paratransit service.
3. Encourage interoperability between transit agencies and transportation networking companies (TNCs), where the latter will serve as DRT in low population density areas.
4. To identify underutilized FRT routes and then explore the potentials of converting them into hybrid or flexible routes (serving as DRT during off peak or low demand periods)

**Expected Outcomes**

FRT and DRT when operated independently results in less coverage and high operating costs respectively. This TDOT research proposal will provide a methodological framework for connecting FRT and DRT together. With this research, transit agencies will be able to benefit in the following aspects:

1. Connecting DRT with FRT will provide transit accessibility to a larger population and hence will result in an increase in ridership which in turn will boost the transit revenue.
2. DRT will also be able to provide mobility to elderly and disabled population which in turn will reduce the high operating costs associated with paratransit services.
3. The proposed concept will also provide a framework to convert underutilized FRT routes to DRT which in turn will result in optimal use of transit fleet and will result in cost savings.

**Time Period**

The period of performance of the project is one year (September 2019 – August 2020).

**Contact Information**

<p><b>Principal Investigator (PI):</b>          Name: Sabya Mishra          Department: Department of Civil Engineering          University: University of Memphis          Address: 3815 Central Ave, Memphis, TN 38152          Phone: 901-678-5043          Email: <a href="mailto:smishra3@memphis.edu">smishra3@memphis.edu</a></p>	<p><b>TDOT Lead Staff:</b>          Name: Matthew Cushing          Division: Multimodal Transportation Resources          Phone: 615-741-2586          Email: <a href="mailto:Matthew.Cushing@tn.gov">Matthew.Cushing@tn.gov</a></p>
--	--