# **Scope of Services**

# **TBEST Implementation, Validation and Technical Support**

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**TBEST Configuration and Technical Support**

**Problem Statement**

Over the past eighteen years, the Florida Department of Transportation (FDOT) Public Transit Office has endeavored to provide Florida transit agencies with a comprehensive transit planning tool which can be applied to fulfill a variety of service and strategic planning requirements within a transit agency. The Transit Boardings Estimation and Simulation Tool (TBEST) transit planning software provides agencies with a comprehensive, decision support tool which allows planners to effectively communicate complex transportation issues to agency executives, governing bodies, state and federal officials and the public at large.

Windham Region Transit District (WRTD) seeks to utilize for TBEST in-house strategic and services and to provide other Connecticut agencies with access to TBEST data and tools. Under this agreement, ServiceEdge Solutions will provide WRTD with TBEST technical support services to support TBEST utilization at the agency.

The scope of services for this project consists of three (3) TBEST support tasks to be performed over a one-year period.

***Task 1: TBEST Socio-Economic Data Development***

Underlying the TBEST software framework is the integration of socio-economic and land use data for use in all TBEST analytical processes. ServiceEdge will configure TBEST-compatible socio-economic data sources based on Census updates and local data source updates. ServiceEdge will prepare updated socio-economic data packages to be compatible with TBEST analytical engines and that can be accessed within the TBEST interface. The following data products will be constructed based on agency requirements and data availability:

1. **Census/ACS Demographic Data**

Census demographic data can be configured specifically for all Connecticut counties based on 2010 Census and 2019 5-Year ACS estimates. ServiceEdge will download the latest Census and ACS geographic and tabular files for the region and compile the data into TBEST compatible format. ServiceEdge will create the TBEST compatible Census/ACS data for all Connecticut counties.

1. **Employment Data**

ServiceEdge will construct Connecticut state-wide TBEST-compatible Longitudinal Employment Household Dynamics (LEHD) employment data for use within TBEST. Regional data may be supplied by the MPO or retrieved from national data sources such as LEHD.

1. **Socio-Economic Growth Rates**

TBEST incorporates socio-economic (SE) growth as an integral component of market assessment. ServiceEdge will implement system growth rates relative to the local growth for each configured Transit System in Task 2.

***Task 2: TBEST Base Scenario Development and Validation***

Within this task, ServiceEdge will build fully coded, up-to-date base year TBEST scenario which will be used in model validation and subsequent model application, planning support and analysis for the following Connecticut transit agencies: Hartford Area Regional Transit (HART), Windham Region Transit District (WRTD), Estuary Transit, CT Transit, Northeast Connecticut Transit District (NECTD) and South East Area Transit (SEAT)

The Base Scenario Setup task for each agency includes the following steps:

1. **Create Agency Transit System.** ServiceEdge will create the TBEST transit system using the socio-economic data developed in Task 1.
2. **Base Year Network Development.** The TBEST base year network is created through the import of GTFS formatted networks into a TBEST scenario. The following will be performed within this step:
   1. Identify the operations period where available data best supports model development and obtain the GTFS files from the operations department.
   2. Import the base year network from the GTFS using the TBEST GTFS Network Import tool. Once imported, ServiceEdge will quality check the TBEST network and review the default route types and technology designations assigned during the import process and modify as necessary within TBEST network editor.
   3. Identify and import regional connections to other transit providers and include intersecting routes in the core agency TBEST network.
3. **Observed Ridership Data Input.** Observed ridership is collected to support TBEST transit route-level model validation. Route-level observed ridership can be aggregated by route or by route direction depending on available data. For model validation, transit route-level ridership data is summarized by average weekday, Saturday and Sunday over a 2 to 6-month period with the ridership corresponding with the TBEST network and service levels over that same duration. ServiceEdge will input the information into the TBEST model validation tools.
4. **Special Generators and Stop Amenities.** TBEST contains a domain of stop-level special generators and stop amenities which are populated at the stop-level. ServiceEdge will assist WRTD in gathering GIS or other data to support coding TBEST amenities and generators. ServiceEdge will populate the supplied information into the base year TBEST network.
5. **Park-n-Ride.** TBEST supports identifying stops as Park-n-Ride locations through a special generator flag. ServiceEdge will then populate both park-n-ride stop locations and (if available) parking space counts with the base year network.
6. **Transfer Station.** TBEST provides the ability to designate stop locations as transfer stations. The hub can be a downtown station or supporting transfer location within the network. ServiceEdge will assist agencies in gathering appropriate transfer station locations and then code the locations into the TBEST base year network.
7. **Populate Fare.** TBEST allows for the input of both base and transfer fare by route type and mode. If discounted fares are implemented, then an average fare per boarding would be implemented for base fare and transfer fare (if applicable).
8. **Pre-validation Model Testing.** Prior to validating the TBEST model for the WRTD base year, the model runs will be conducted to evaluate ridership at the route, pattern and in some cases at the stop level to determine if any adjustments need to be made to network coding or socio-economic data. This quality control step ensures that model sensitivity and responsiveness is embedded in the validation adjustment factors.
9. **Model Validation.** ServiceEdge will validate each agency TBEST model using the built-in TBEST model validation tools. ServiceEdge will evaluate the results of the validation for consistency with observed ridership**.** The final validated agency TBEST system will be provided to WRTD in TBEST Distribution File format.

Upon completion of Task 2, ServiceEdge will make the WRTD Transit System and Socio-Economic Data available for download via the ServiceEdge TBEST Data Hosting service for a one-year period. The ServiceEdge TBEST Data Hosting service provides easy access to TBEST data products for user both within WRTD and to any potential external users. Due to parcel data unavailability for large areas of the state, ServiceEdge will also provide access to the ServiceEdge TBEST Model structure (SES-TBEST-MODEL). This model structure does not require parcel data as an input and will provide an interim ridership forecasting structure until Connecticut state-wide, TBEST-compatible parcel data is available.

***Task 3: TBEST Technical Support and Troubleshooting***

ServiceEdge will provide on-call TBEST technical support and troubleshooting to WRTD up to the budget limit for this task. This service will include:

* Software troubleshooting
* Installation Support
* Guidance on TBEST utilization
* TBEST Application Scenario Development Support including developing scenario alternatives for service and strategic planning
* TBEST Analytical Support for Ridership Estimation, Market Analysis, Title VI Reporting, Accessibility, COA Reporting and other ad-hoc analytical requirements
* TBEST Setup Configurations such as: metric query development, Title VI default map customization, service area boundary definition and other configuration options requested by WRTD

**Cost Estimate**

The following project budget estimation tables details the cost of TBEST implementation, modeling and analytical support at WRTD for the one-year contract period.

