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FMTF Transit Committee Meeting Minutes

**Date: Tuesday, June 14, 2016**

**Time: 2:00 – 3:30 P.M. EST**

**Where: Web conference**

**Attendees:**

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| Scott Seeburger, FDOT District 4  Gabrielle Matthews, FDOT Central Office  Chris Wiglesworth, FDOT Central Office  Bob Crawley, FDOT District 1  Sheldon Harrison, Cambridge Systematics  Makarand Gawade, RS&H  Denise Bunnewith, North Florida TPO  David Schmitt, AECOM  Jeannette Berk, RSG  Hoyt Davis, Gannett Fleming  Elaine Martino, Martino Planning | Steve Polzin, USF/CUTR  Dan Macmurphy, Traf-O-Data  Tom Rossi, Cambridge Systematics  Ashu Kumar, AECOM  Li Jin, Kittelson Associates  Chunyu Lu, Gannett Fleming  Michael Escalante, NCFRPC  Rodney Bunner, ServiceEdge Solutions  Pamela Richmond, Lake-Sumter MPO  Hui Zhao, FDOT District­ 4 |

**Item 1: Administration**

* Next Meeting
  + Will set up the next meeting in September in order to finalize the work of the subcommittees and prepare for December’s Model Task Force (MTF) meeting.
  + Think about presentations that would you would like make at the Model Task Force Meeting, either on the Transit Committee agenda or the main Model Task Force agenda.
* Committee Roster—provide contact updates to Scott or Gabe.

**Action Items:**

* **Notify Scott or Gabe of any contact information changes that need to be made in the committee roster.**
* **Send presentation topics for the MTF meeting to Scott.**

**Item 2: TBEST 4.2**

Chris Wiglesworth, Central Office Transit Office announced that the Florida Transit Data Exchange (FTDE) application is now operational on the Florida Transit Information System site (<http://www.ftis.org/>). The FTDE makes available the General Transit Feed Specification (GTFS) Data and GIS files for all 31 fixed route transit agency’s in Florida.  The Exchange is a one-stop shop, that provides easy access to transit route and stop files that are downloadable by anyone. It provides new functions that will allow transit agencies to maintain their GTFS and GIS information through easy uploads, as well as the agencies contact information and data manager. It will also contain historical GTFS data for reference purposes.

Chris then introduced the TBEST topic and the presenter, Rodney Bunner with ServiceEdge Solutions, contracted by FDOT to develop the software. The following summarizes Rodney’s presentation of TBEST:

* TBEST 4.2 is the current, available version of the program. Version 4.4 will be released in the Summer. The presentation mainly addresses Version 4.2 with Versions 4.4 enhancements also being noted.
* TBEST Team
  + Public sponsorship
  + Research-based methodologies
  + Software development, implementation, and technical support
* Why TBEST?
  + TBEST works best for short- and mid-term planning
  + Fills the gap between Trapeze operational software and FSUTMS/STOPS long-range demand models.
* TBEST Scenario Framework
  + Users develop alternative scenarios using support data and automation tools
  + Scenario alternatives are input into core TBEST analysis engines
* TBEST 4.2 Framework Tools
  + Scenarios Manager
  + Model validation tools
  + Socio-economic data management
  + Transit network editor
  + GTFS import and export tool
  + Performance metric query tool
  + Revised model calibration
  + More exposed model code
  + Parcel land use data editor
  + Access to transit
  + Access via transit
* TBEST 4.4 Features
  + To be released this summer 2016
  + Contains the following features:
    - ArcGIS 10.4, Windows 10, SQL Server 2014
    - Route realignment tool
    - Operations and policy settings
    - Title VI disparate analysis
    - Title VI flex route/jurisdictional analysis
    - Fleet estimates
    - Layover/dwell time
    - Expanded cost formula
* TBEST GTFS Utilization
  + GTFS integration first developed in 2010
  + Streamlines TBEST network coding to be a fraction of manual coding time
  + Opened the door to broad TBEST utilization beyond TDP applications
  + The TBEST GTFS-derived network structure supports key editing, modeling, analysis functions:
    - Network path algorithm
    - Walk access assessment
    - Service-level definition
* TBEST GTFS Interoperability Features
  + Network Import
    - Converts trip-based feed to a time-period based aggregation of trips and service levels
    - Users select service periods and routes to import into TBEST
  + Network Editing
    - Edit service levels, re-align routes, add new routes, add model specific variables (special generators, transfer stations, route type, mode)
  + Network Export
    - Creates a GTFS feed from the service levels in TBEST time periods
    - Synthesizes arrival and departure times based on route pattern headway and service span per time period
  + Requires no ArcGIS extensions or third party tools
* GTFS Obstacles for Transit Modeling
  + GTFS feeds can be complicated: How to determine what is the “average network”?
    - TBEST allows the user to select which Service IDs to build into the network
  + GTFS data files/fields are often optional
    - TBEST GTFS import is not dependent on optional GTFS files/fields
  + GTFS source data can be inaccurate
    - TBEST allows users to visually QA/QC the imported routes/service levels
  + GTFS feed structures can vary greatly between transit agencies
    - TBEST accommodates most structures and exports GTFS to a standard format
  + GTFS source data does not contain some important modeling attributes
    - TBEST networks contain important model attributes
      * Model validation, BRT scoring, route types/modes, stop special generators/amenities, transfer stations
* TBEST GTFS Network Import Workflow
  + Obtain the source GTFS from the agency or other source
  + Determine which GTFS Service IDs will define the network
    - Which Service IDs represent an “average” or “peak” network? May need to ask agency for clarification
  + Extend the GTFS for APC data import or network segmentation
    - Add stop\_ridership.txt and/or timepoints.txt files (optional)
  + Filter the GTFS routes/service from the input Service IDs
  + Select the GTFS routes and import into the target scenario
  + Update Modes
    - Base Network Creation
      * First time creating a network
      * Creates validation collections (route pattern groupings for observed ridership)
    - Network Maintenance
      * Overwrite existing routes – syncs imported routes with TBEST validation collections
      * Insert new routes – adds the GTFS route to the TBEST network
      * Transfer TBEST attributes option – route type, mode, special generators, amenities, transfer stations are transferred from replaced routes to new route service
* TBEST GTFS Network Import Processing
  + Stage source and target files
    - Load GTFS text files into TBEST GTFS staging SQL Server database
    - Copy target TBEST scenario for route loading
  + Aggregate service
    - Maintains GTFS network structure with multiple route patterns per route direction
    - Retains stop name/description, route names, pattern names
    - Selected input GTFS Service IDs are combined and aggregated at the route pattern level
    - Aggregates GTFS scheduled service by time period (trips, IVTT, service span)
    - Information on individual trips is eliminated during import
    - Insert network and service attributes into TBEST scenario database (SQL Server)
  + Build network features
    - Segments route patterns if time points are defined in the GTFS
    - Builds route-able relationship between stop locations, segments, route patterns
    - Insert GTFS stop and route pattern geometry (ESRI personal geodatabase)
* TBEST Network Editing
  + Create the base year development scenario
  + Import base transit agency GTFS
  + Quality check GTFS import
  + Use TBEST network editor to define route types, modes, transfer stations, special generators, and amenities
  + Run a referenced TBEST model
  + Validate TBEST transit system using SE growth rates and observed ridership
  + Alternative Network
    - Create TBEST alternative scenario by copying base network scenario
    - Input new service
    - Modify existing service
* TBEST Network Export to GTFS
  + Export modified TBEST network to GTFS
  + TBEST synthesizes trips with arrival and departure times within each time period
  + Creates a simplified GTFS with only on Service ID per weekday, Saturday and Sunday
    - Simplified GTFS export structure reduces complication in service parsing for external applications
    - TBEST night time period is a twelve-hour span with service in the pre-AM and post-PM peak periods
  + TBEST extends the GTFS export
    - The TBEST GTFS export contains additional data which may add value to modeling applications
    - Consistent with FDOT District 7 GIS architecture
    - Export data can be expanded to support other applications
* TBEST – GTFS editor transit system
  + TBEST transit system created for GTFS editing only
  + Streamlines workflow to focus on network editing only
  + TBEST socio-economic data builds are not required and analysis functions will be inoperable
  + GTFS export would not contain TBEST boarding estimates
  + Will make GTFSEditor.tds file available in TBEST 4.4
* Questions
  + Is any stop aggregation performed in using TBEST?
    - No; however, multiple routes can use the same geographic stop location. In such situations, the program will clean-up any data differences and apply the same stop information for each route that uses that location (ID, lat/long, attributes).
  + What buffer distance is used to do this?
    - A twenty-foot threshold is used to not constrain creation of different individual stops.
  + Is the original GTFS schedule information maintained in exported networks?
    - No. TBEST eliminates the trip-by-trip information and synthesizes the schedule information developed from the user’s route and service specification. This would not be difficult to include in the software; but, currently, the GTFS route schedules are not maintained.

**Item 3: Task Subcommittee Updates**

* STOPS—Chris Wiglesworh, Diane Quigley
  + Education
    - Working on the training for this fall
    - Workshops will include a high-level overview of STOPS and the requirements for use
    - How to use, what to use it for, requirements needed to use it
    - Main focus of the workshop will be how to extract and analyze information out of STOPS
    - Deciphering the many outputs and how to use for decision making information
    - Geared toward non-technical managers and planners
    - How can we use STOPS to rank using the FTA standards?
  + FAQs
    - Will need to convene to work toward putting together an FAQs page, possibly after the training in the fall.
    - Dave Schmitt, Jeanette Berk, and Ashutosh Kumar volunteered to help on this.
    - Once the draft is completed, it will be submitted to the Committee for review.
    - Once complete the FAQs will be posted to FSUTMS Online.
    - The Subcommittee should consider continuing update processes
  + Guidance/usage consistency—not discussion
* Model Update Process Advancement—Jeanette Berk, Denise Bunnewith, Steve Ruegg, Rob Schiffer
  + The PB document summary on how to improve ridership numbers within a model has been put together, just needs to be finalized and formatted
    - Has been written in such a way that it could be included in a scope
    - Addresses both the transit and highway aspects of the model
  + Once finalize, the paper will be submitted to the Committee for review
* GTFS-FSUTMS Transit Networking and Pathbuilding--David Schmitt, Jeanette Berk, Jason Learned, Krishnan Viswanathan, Ashutosh Kumar, Sheldon Harrison
  + Investigating what information is out there regarding importing/exporting GTFS into traditional travel demand models
  + Put together two drafts of activities that warrant further testing
    - TBEST
    - Cube’s GTFS import utility
  + Should have another draft in roughly a month for submittal to the Committee
  + The Committee should consider how to progress with the topic, e.g., presentation to the MTF, review by Central Office
* Modeling of Emerging Technologies—Dan Macmurphy, Tom Rossi, Steve Polzin, Gerry Graham, Santanu Roy
  + Will have to take two tracks
    - ABM and the available data
      * Different terms to be put into logit formulas
    - What can be done with trip-based models to address automated vehicles, Uber services, etc.?
  + Due to time constraints, haven’t produced anything for review yet but will shoot for something to the committee by fall
  + Looking at the research conducted by District 4
  + Autonomous and connected vehicles
  + May want to have a general presentation on this topic at the Model Task Force meeting. Involve the model advancement committee.
  + Two tracks—assemble info for the model task force, create and outline of the presentation
  + What assumptions should we be making for emerging technologies?
  + We should put together an outline of what sort of resources would we like to have available to everyone
  + Matrix of scenarios at levels of deployment, behavioral reactions, etc.
  + Discussion
    - What assumptions should be made for the long-range plan updates
    - Currently only educated guesses and opinions on various aspects--time frames, penetration levels, etc.
    - Range of assumptions and outcomes
    - Tweeking existing tools vs. looking more broadly since there is no clue now on behavior changes—so much we do not know including both supply and behavioral response.
    - Maybe premature to think about 2045 scenarios
    - Start to identify a framework of tools and data sets and model components that might be affected and gather information
    - Cautious about investing in speculative development given the current uncertainty of the future and the many differing opinions regarding it
    - Test some what-ifs to understand potentials, not necessarily planning for specific futures.
    - MPOs are required to look at autonomous technologies so should come up with guidelines on how to approach this
    - Range of speculation is quite “huge” in the implications
    - ABMs are not consistent related to time slices and other aspects
    - A question of modifying ABMs or forging forward with DTA model development
    - How do we plan in the change environment we are in and how do models fit into it. We may be worrying more about short-term issues as a result since 30-year planning may be so uncertain then it is irrelevant so we may be planning in dramatically different ways.
  + Committee will put together an outline of what issues should be addressed and get out to the Committee to be sure relevant issues are addressed, trial
  + Denise Bunnewith and Jeannette Berk added to the subcommittee.

**Action Item:**

* **Subommittees to submit their products to the committee to help determine what would be the next steps to take with said products.**
* **Discuss and determine where the products should be taken to, e.g., Transit Committee review, where should they go next (presentations, special topic subcommittees, Central Office for further development, etc.)**