

JOINT FLORIDA
Model Task Force & Transportation
Data and Analytics Workshop



Florida Turnpike Enterprise

District Update

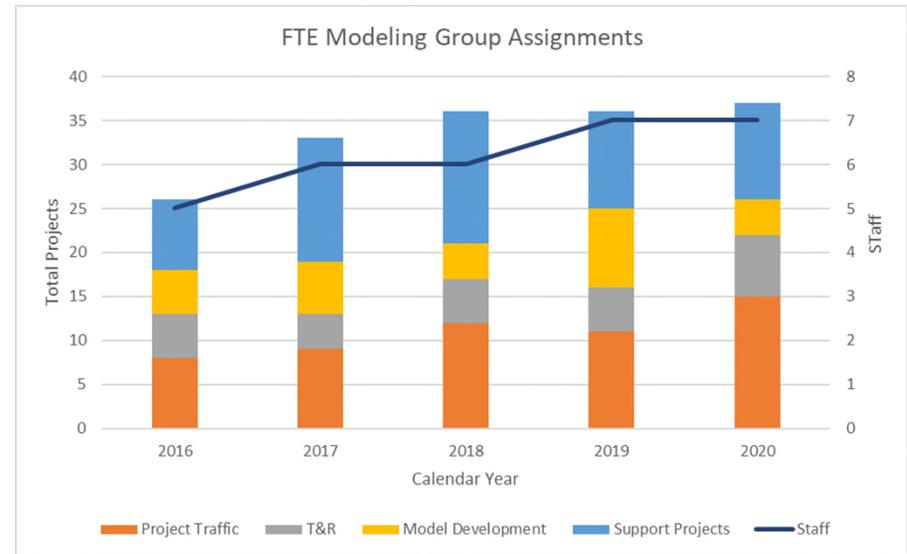




FTE District Report – Projects Since 2016 to Date & More

Current projects & upcoming

US 27 Alternatives: Traffic evaluation, CFRPM v6.3
SR 429 Widening PD&E, CFRPM v6.3
SR 429/Poinciana Pkwy Extension Connector PD&E and T&R - CFRPM v6.3
First Coast Expressway Ph. 2 IG T&R - NERPMAB v3
Central Polk Parkway, West Segment IG T&R, CFRPM v6.1-ToD FTE version
PD&E widening Turnpike from I-595 to Wiles Rd: Traffic forecast - SERPM v7 FTE- ELToD v4
Golden Glades to HEFT: Traffic forecast - SERPM v7 FTE- ELToD v4
Traffic Engineering/Design Concepts support on Palm Beach Mainline
SR821 (HEFT) Express Lanes - Updated Rev forecast - SERPM v7 FTE- ELToD v4
Southern TPK Build out & Sawgrass SW 10th St. alternatives - SERPM 6.54 FTE-ELToD v2
Sawgrass NW 8th St Interchange, Sunrise, Pat Salemo re-evaluations - SERPM v6.54
Central Ticket PD&E Ft Pierce to Yeehaw - TCRPM V5
Ft Pierce Connector IJR traffic development - TCRPM V5
Northern TPK PD&E SR 408 to SR 50 Clermont - CFRPM v6.3
SWCF Connector, no build model/build alts - TSM
Northern Turnpike Connector, no build/build alts model - TSM
Suncoast Connector, no build/build alts model - TSM
SWCF Connector, Hurricane Evacuation no build model/build alts - TIME
Northern Turnpike Connector, Hurricane Evacuation no build model/build alts - TIME
Suncoast Connector, Hurricane Evacuation no build model/build alts - TIME
SWCF Connector, IG T&R - TSM NextGen
Northern Turnpike Connector, IG T&R - TSM NextGen
Suncoast Connector, IG T&R - TSM NextGen
Traffic Trends model support to Planning - TSM and Traffic Trends Tool
Next Generation of TPK Statewide Model (TSM NextGen) calibration validation
Next Generation of TPK Statewide Model (TSM NextGen) future years database (LU and HWY networks)
Next Generation of TPK Statewide Model (TSM NextGen) Multi-Resolution application
ELToD DTA model, CAV application development
ELToD DTA model, new Managed Lanes policies application development
StreetLight analysis, Traffic Engineering support





FTE District Report – Recent Research Papers

TRB 99th Annual Meeting

- Application of a Dynamic Traffic Assignment Model to Estimate CAV Impacts on Managed Lanes Considering Deep Uncertainty Authors: Klodzinski et al.
- Multiple Uses of Big Data for Model Validation and Express Lanes Traffic Forecasts Authors: Sarvepalli et al.
- Potential Changes in Commute Routes with Construction of Managed-Lane Designated Access Points Authors: Chang et al.
- Estimating Door-to-Door Travel Time Savings Provided by Managed Lanes Using Shortest Path Algorithms Authors: Chang et al.

TRB ITM, June 2020

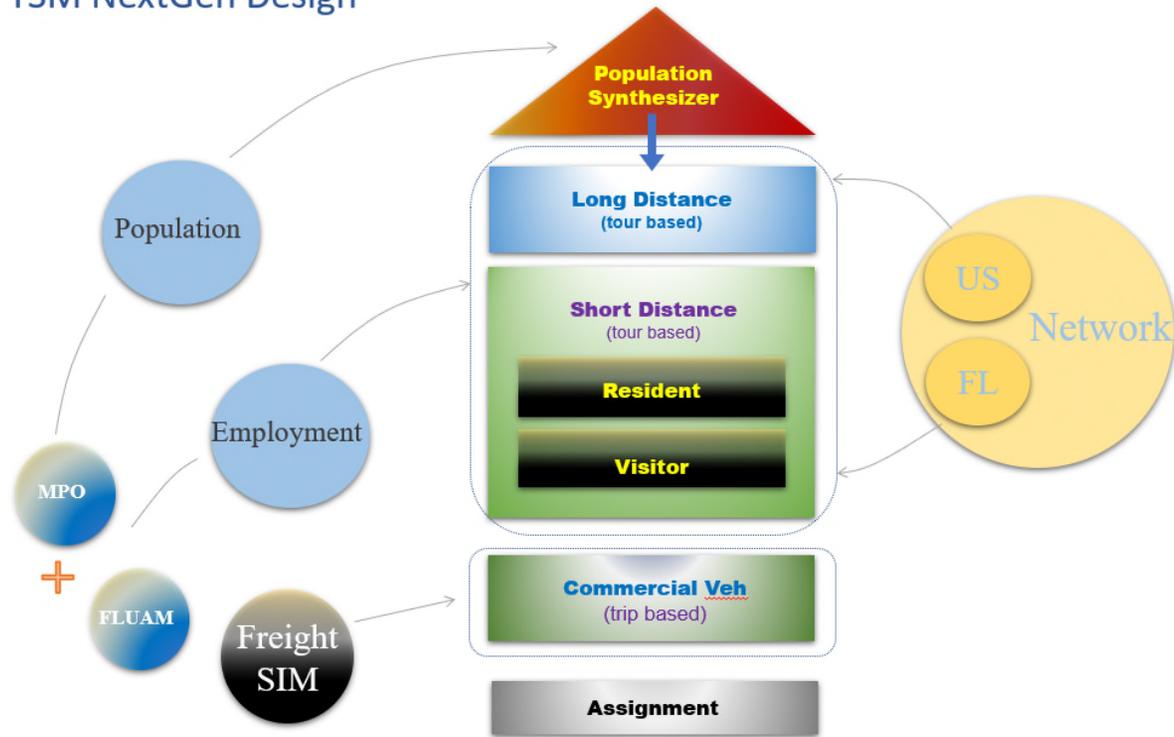
- 1505 - Open Source Dynamic Traffic Assignment (DTA) Visualizer Author: Sarvepalli
- 1361 - A DTA Model for Managed Lanes Network Traffic and Revenue Studies Author: Wang et al.
- 1493 - Application of a Dynamic Traffic Assignment Model to Estimate CAV Impacts on Managed Lanes Considering Deep Uncertainty Author: Klodzinski et al.





FTE District Report – Speaking of Models & Data...

TSM NextGen Design





TSM NextGen Spatio-Temporal Resolution

Spatial Resolution

Census Tracts	-	4,212
TSM Legacy	-	6,400
Statewide	-	8,500
Next Gen	-	10,491
MPO Models	-	26,583

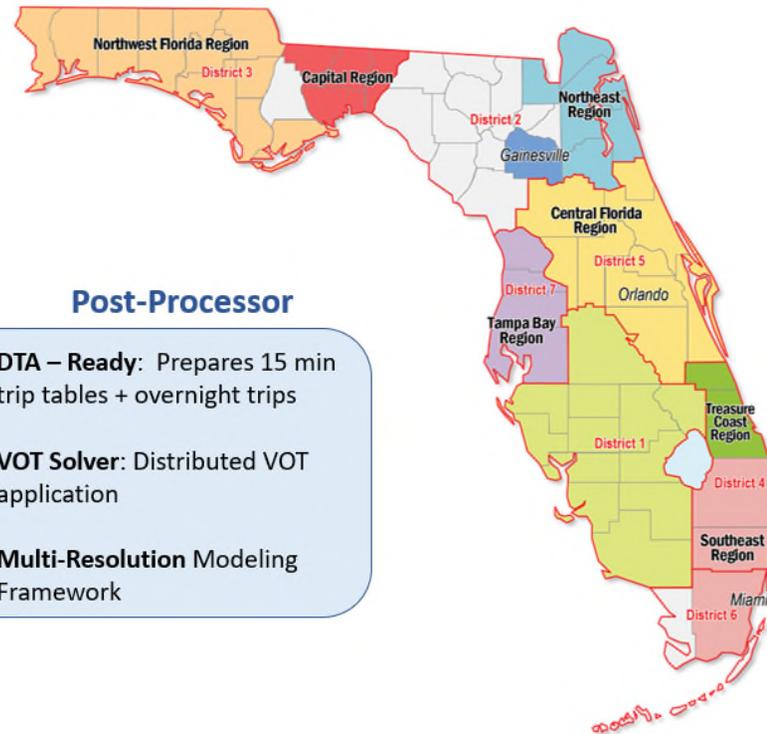
Temporal Resolution

Long Distance Model

Passenger	-	Daily
Freight	-	Daily

Short Distance Model

Visitor	-	30 Min
Resident	-	30 Min
Truck / Com Veh	-	Daily



Post-Processor

DTA – Ready: Prepares 15 min trip tables + overnight trips

VOT Solver: Distributed VOT application

Multi-Resolution Modeling Framework

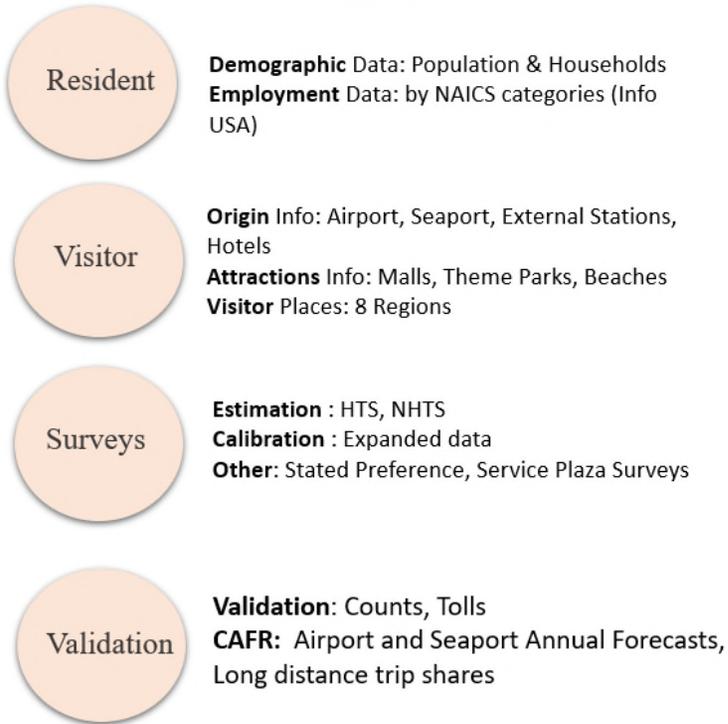




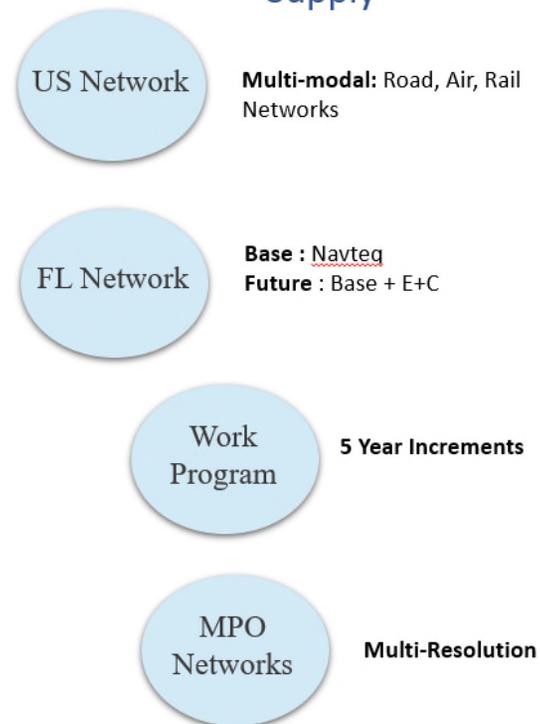
Travel Demand Model Data: Warehouse Needed for...

Databases

Demand



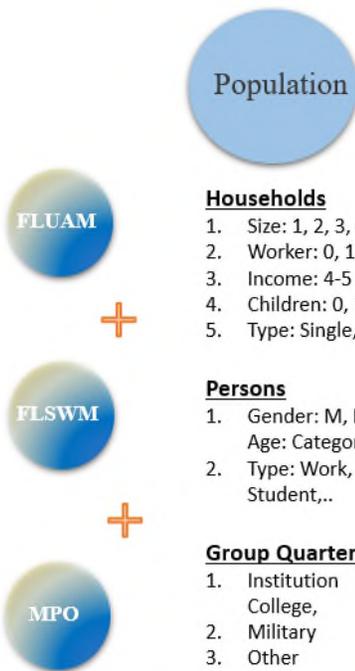
Supply





Data Warehouse: Demand Side

Land Use Databases



Population

Households

1. Size: 1, 2, 3, 4+
2. Worker: 0, 1, 2, 3+
3. Income: 4-5 bins
4. Children: 0, 1+
5. Type: Single, Multi

Persons

1. Gender: M, F
Age: Categories
2. Type: Work, Student,...

Group Quarter

1. Institution
College,
2. Military
3. Other

Employment

NAICS Sectors

1. Management, Business, Science, and Arts
2. White Collar Service
3. Blue Collar Service
4. Sales and Office Support
5. Natural Resource, Construction
6. Products, Transportation, Material Moving
7. Military

Enrollment

1. School
2. College
3. University

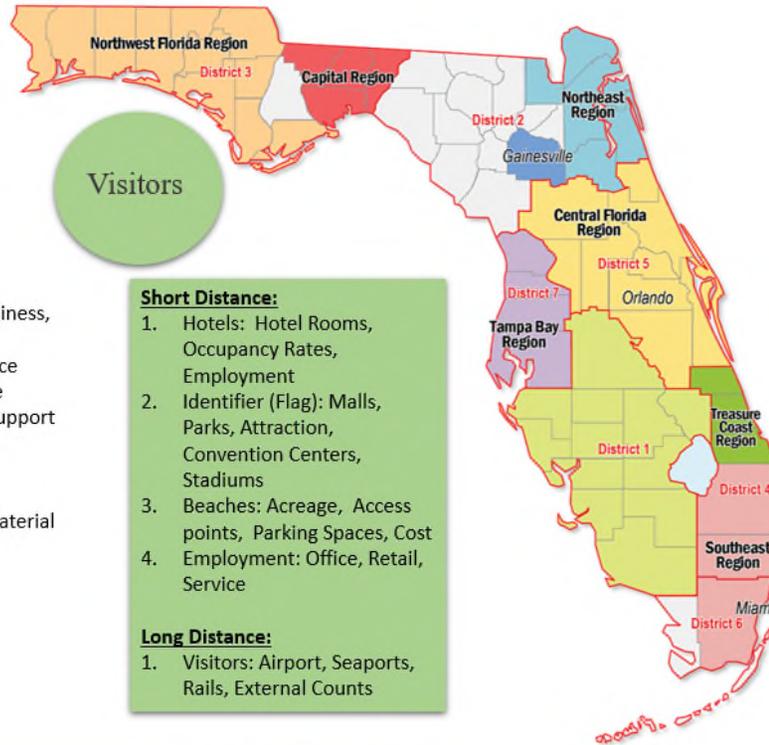
Visitors

Short Distance:

1. Hotels: Hotel Rooms, Occupancy Rates, Employment
2. Identifier (Flag): Malls, Parks, Attraction, Convention Centers, Stadiums
3. Beaches: Acreage, Access points, Parking Spaces, Cost
4. Employment: Office, Retail, Service

Long Distance:

1. Visitors: Airport, Seaports, Rails, External Counts



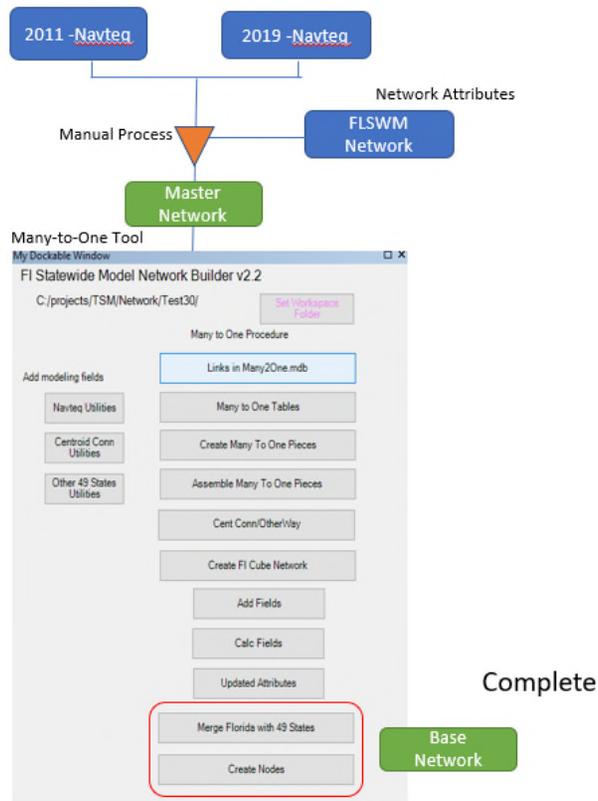
We need this data at TAZ level, not just for base year but for future year as well



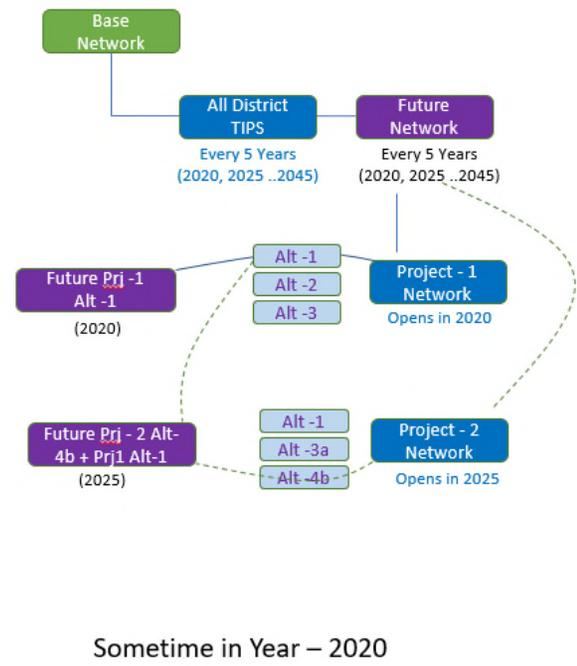


Data Warehouse: Supply Side

Network Development



Network Manager





FTE District Report – Take Home Thoughts

- Data collection, warehousing, and distribution should be designed/implemented/shared: FDOT CO is the well positioned to do this
- Collect data not just to describe existing conditions: We need to be able to estimate/calibrate models to develop forecasts out of that data
- Models will always be different by region and purpose, but data aggregation/disaggregation should serve strategic policy needs (CO), project/corridor specific traffic forecasts (FTE) or general planning prioritization of investments (MPO)





Thank you!