

Southeast Florida Regional Activity-Based Model

presented to
Florida Model Task Force

presented by
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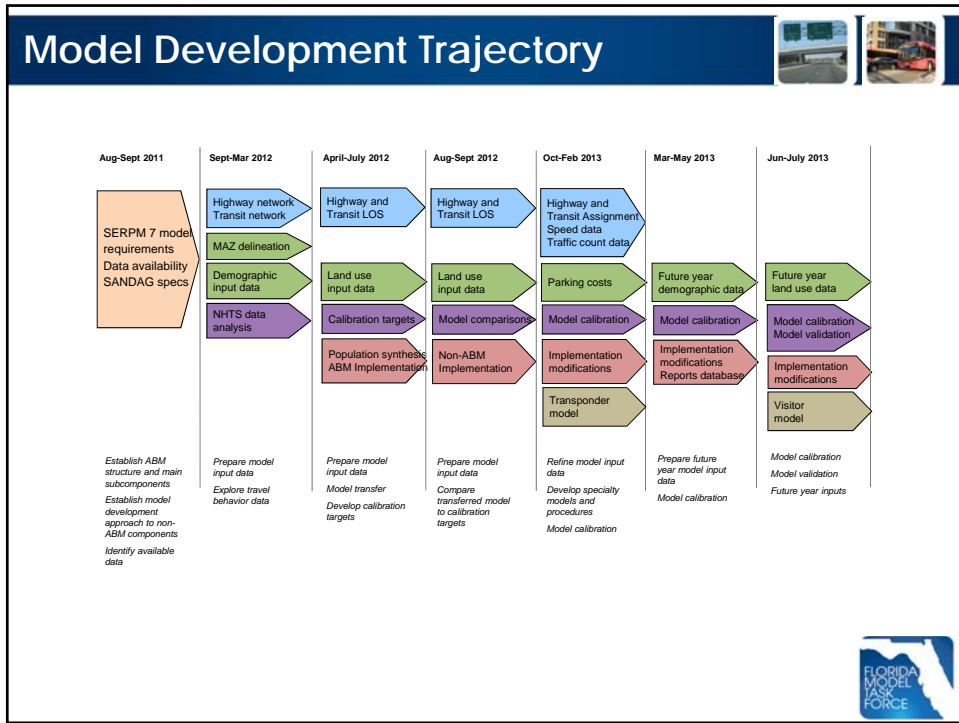


Southeast Florida ABM



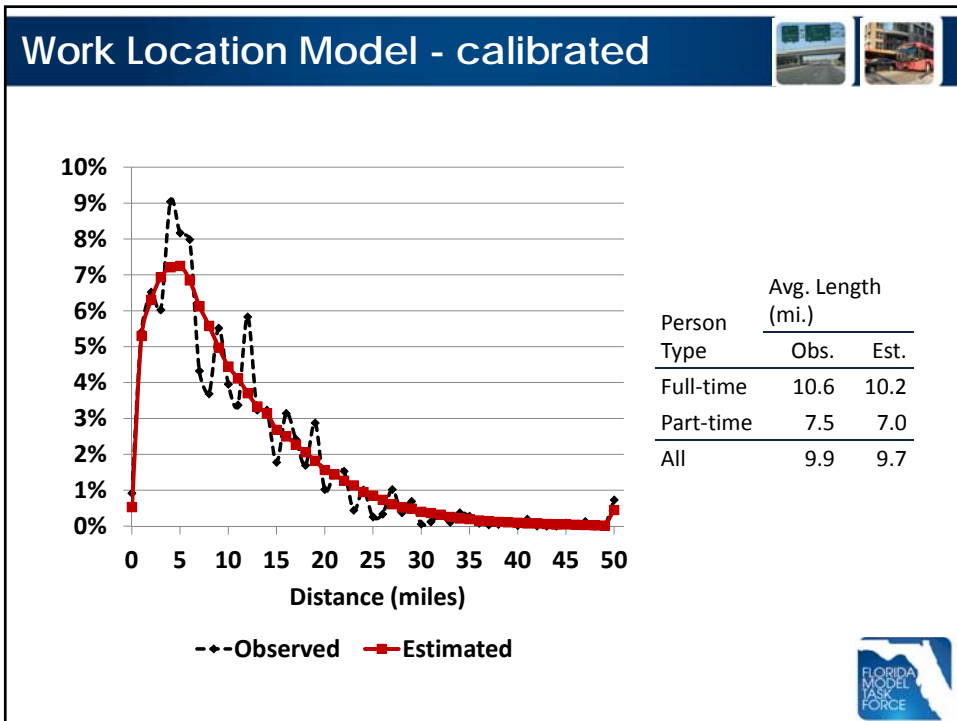
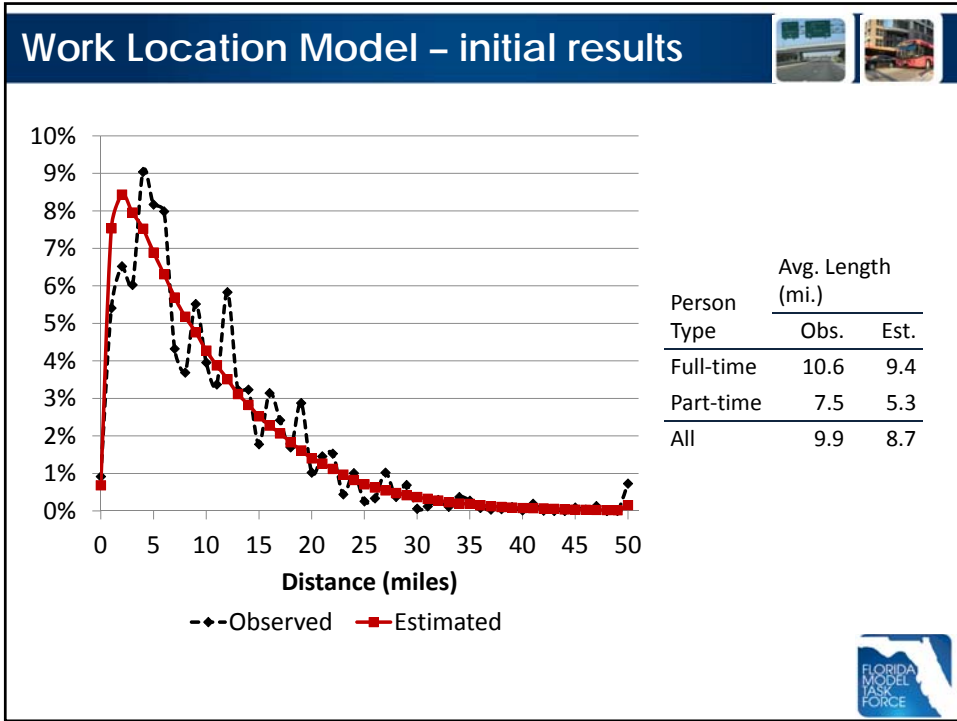
- **C**oordinated **T**ravel – **R**egional **A**ctivity-based **M**odeling **P**latform Family of ABMs (CT-RAMP)
- Main features:
 - Explicit intra-household interactions
 - Continuous temporal dimension (half-hour time periods)
 - Fine spatial dimension (12,000 MAZs)
 - Faithful transit access coding
 - Distributed values of time
 - Integration of location, time-of-day, and mode choice models

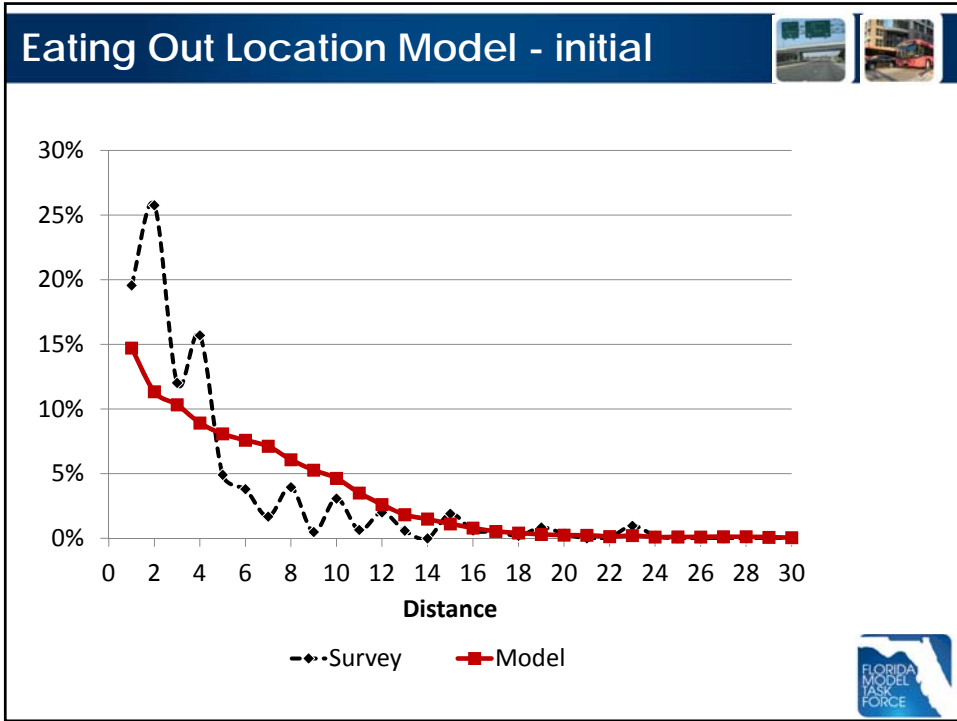




Assessing the Model Transfer


- Evaluate initial estimated travel patterns against model calibration targets
 - Regional targets for important person markets
 - Sub-regional where data allow
- Assess the magnitude of constant or parameter adjustments to match targets
- Importance of model calibration targets
 - Based on NHTS and supplemented with other sources
 - Evaluated for reasonableness
 - Compared to targets from other regions






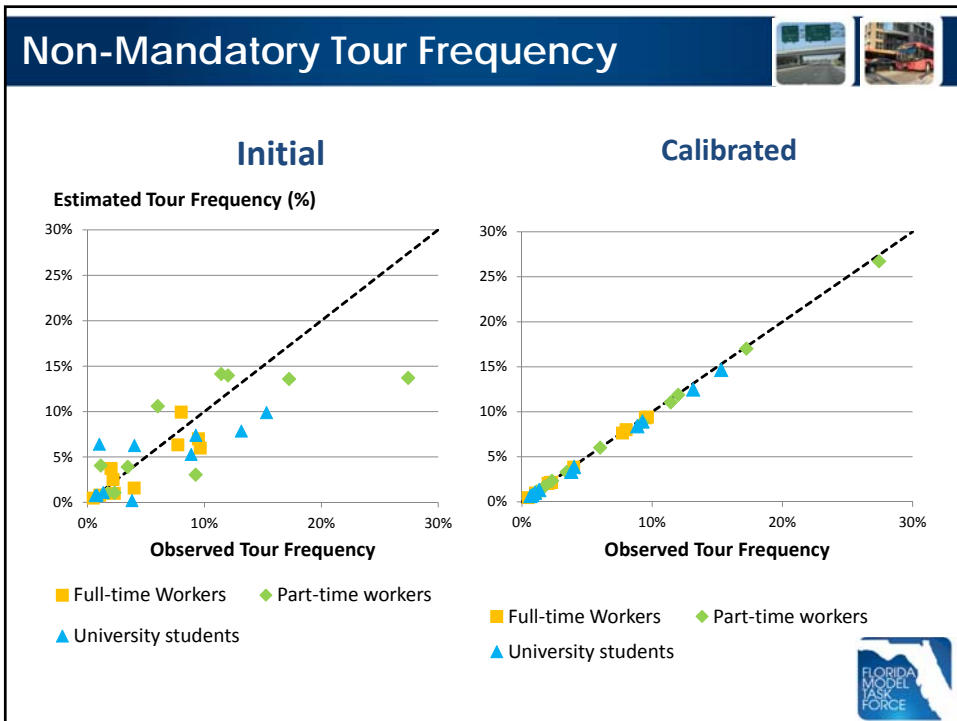
Daily Activity Pattern Model

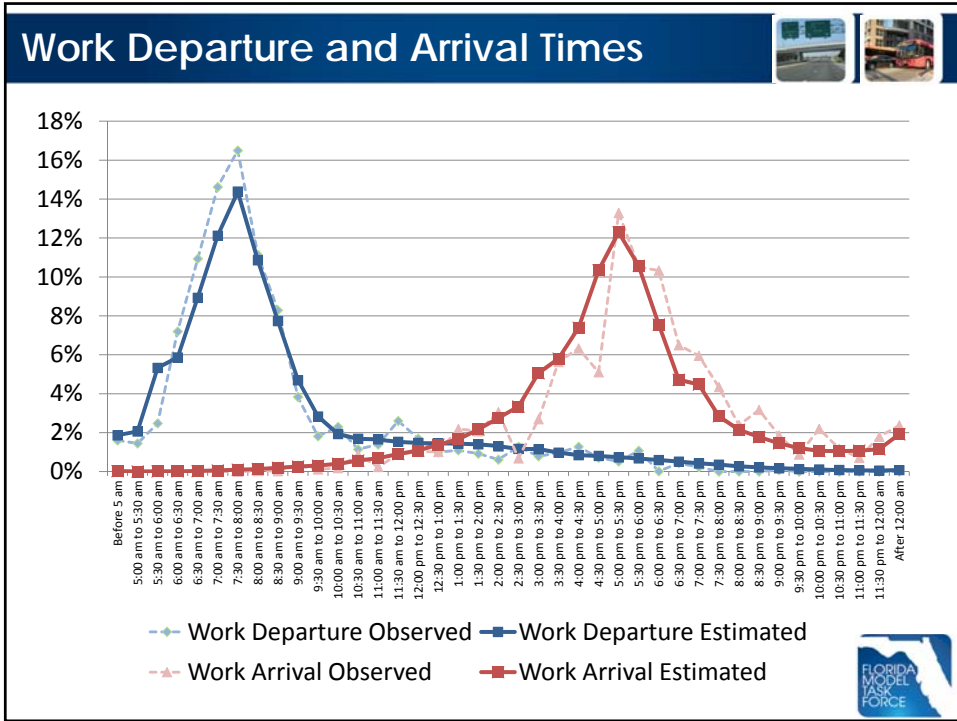
Person type	Target DAP			Model Initial DAP		
	Mandatory	Non Mandatory	Home	Mandatory	Non Mandatory	Home
Full-time worker	80%	14%	7%	81%	12%	7%
Part-time worker	55%	37%	8%	63%	26%	11%
University student	78%	18%	4%	63%	25%	12%
Non-working adult	0%	76%	24%	0%	74%	26%
Non-working senior	0%	72%	28%	0%	75%	25%
Driving age student	89%	4%	6%	92%	3%	5%
Pre-driving student	94%	3%	2%	96%	2%	2%
Pre-school	35%	43%	22%	43%	41%	15%



Daily Activity Pattern Model

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	Mandatory	Non Mandatory	Home	Mandatory	Non Mandatory	Home
Full-time worker	80%	14%	7%	81%	12%	7%
Part-time worker	55%	37%	8%	63%	26%	11%
University student	78%	18%	4%	63%	25%	12%
Non-working adult	0%	76%	24%	0%	74%	26%
Non-working senior	0%	72%	28%	0%	75%	25%
Driving age student	89%	4%	6%	92%	3%	5%
Pre-driving student	94%	3%	2%	96%	2%	2%
Pre-school	35%	43%	22%	43%	41%	15%








Work Tour Mode Choice



Tour Mode	Target				Initial Estimate			
	no veh.	insuf.	suf.	total	no veh.	insuf.	suf.	total
Drive-Along	0%	49%	78%	67%	0%	51%	67%	60%
Shared 2	13%	30%	13%	18%	24%	25%	17%	20%
Shared 3+	8%	11%	6%	8%	12%	13%	13%	13%
Walk	11%	3%	0%	1%	31%	6%	1%	4%
Bike	5%	1%	0%	0%	18%	2%	0%	1%
Walk-Transit	62%	5%	1%	4%	15%	3%	1%	2%
PNR-Transit	0%	1%	1%	1%	0%	0%	0%	0%
KNR-Transit	2%	1%	0%	0%	0%	0%	0%	0%
Toll				13%				14%
Local Bus				68%				51%
Express Bus				5%				9%
BRT				1%				13%
Urban Rail				21%				23%
Com Rail				5%				3%

Initial Highway Validation Results



Facility Type	Observed Volume	Estimated Volume	Volume to Count Ratio	Percent RMSE	Traffic Count Obs.
Freeways	19,828,379	21,956,586	1.11	30%	256
Uninterrupted Roadways	2,001,355	2,273,929	1.14	60%	247
Principal Arterials	50,965,079	47,006,729	0.92	36%	3,431
Collectors	8,612,498	6,348,135	0.74	62%	1,140
Ramps	9,117,774	9,479,447	1.04	69%	878
HOV Lanes	2,322,142	2,510,643	1.08	34%	106
Toll Roads	7,995,233	6,407,068	0.80	31%	203
All Facilities	100,855,159	95,982,537	0.95	46%	6,264



- ## Work Ahead
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- Finalize model calibration
 - Validation to traffic counts and transit boardings
 - Future year forecast and sensitivity tests
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Conclusions & Lessons Learned



- SANDAG CT-RAMP ABM is able to reproduce most regional travel patterns in SE Florida
- Largest differences between observed and initial model forecasts:
 - non-mandatory tour location
 - CDAP and tour frequency for college students, part-time workers, pre-school children
- Modest constant adjustments sufficient to calibrate the model in most cases



Conclusions & Lessons Learned



- Main focus of model calibration:
 - location models
 - mode choice models
- Importance of input data preparation
- Importance of calibration target development
- Supplemental data sources important to validate calibration targets and selected model outputs



Acknowledgments



- FDOT District 4 and 6 Staff
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 - The Corradino Group
 - BCC Engineering



Questions



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