



InSITE

Initiative to Simulate Individual Travel Events

September 3, 2019



Path Forward – Adoption of Regional Travel Simulation Tools

- **Technical Committee Meetings**
 - September – Introduction to disaggregate modeling
 1. Demographics
 2. Travel Behavior
 - October – C20 Freight Modeling System
 - November - InSITE Validation
 - December - InSITE Forecasts

Aggregate Versus Disaggregate Modeling

Trip Based Model - Aggregate	Activity Based Model - Disaggregate
Model 44 c	InSITE
<ol style="list-style-type: none"> 1) Model Design 2004/MTA New Start 2) Estimated using 2001 HH Travel Survey 3) Calibrated using 2008 HH Travel Survey 	<ol style="list-style-type: none"> 1) Model Design 2014 2) Estimated using 2008 HH Travel Survey
<p>4 - Step Model</p> <p>Households - Unit of Analysis</p>	<p>Micro Simulation – Activities Beyond the Household that Require Travel</p> <p>Person – Unit of Analysis</p>
<p>Cooperative Forecast</p> <ol style="list-style-type: none"> 1) TAZ Household Stratification 	<p>Cooperative Forecast</p> <ol style="list-style-type: none"> 1) TAZ Synthetic Household/Population
<p>Trip Tables - Household Person Trips by Purpose</p>	<p>Person Trip Roster</p>
<p>Time of Day – 4 Periods</p>	<p>Time of Day – ½ hour</p>
	<p>Explicitly Capture</p> <ol style="list-style-type: none"> 1. School/Day Care Escorting 2. Full Joint Non-Mandatory Travel
	<p>Parcels – MD Property View</p>

TBM Demographics –Aggregate

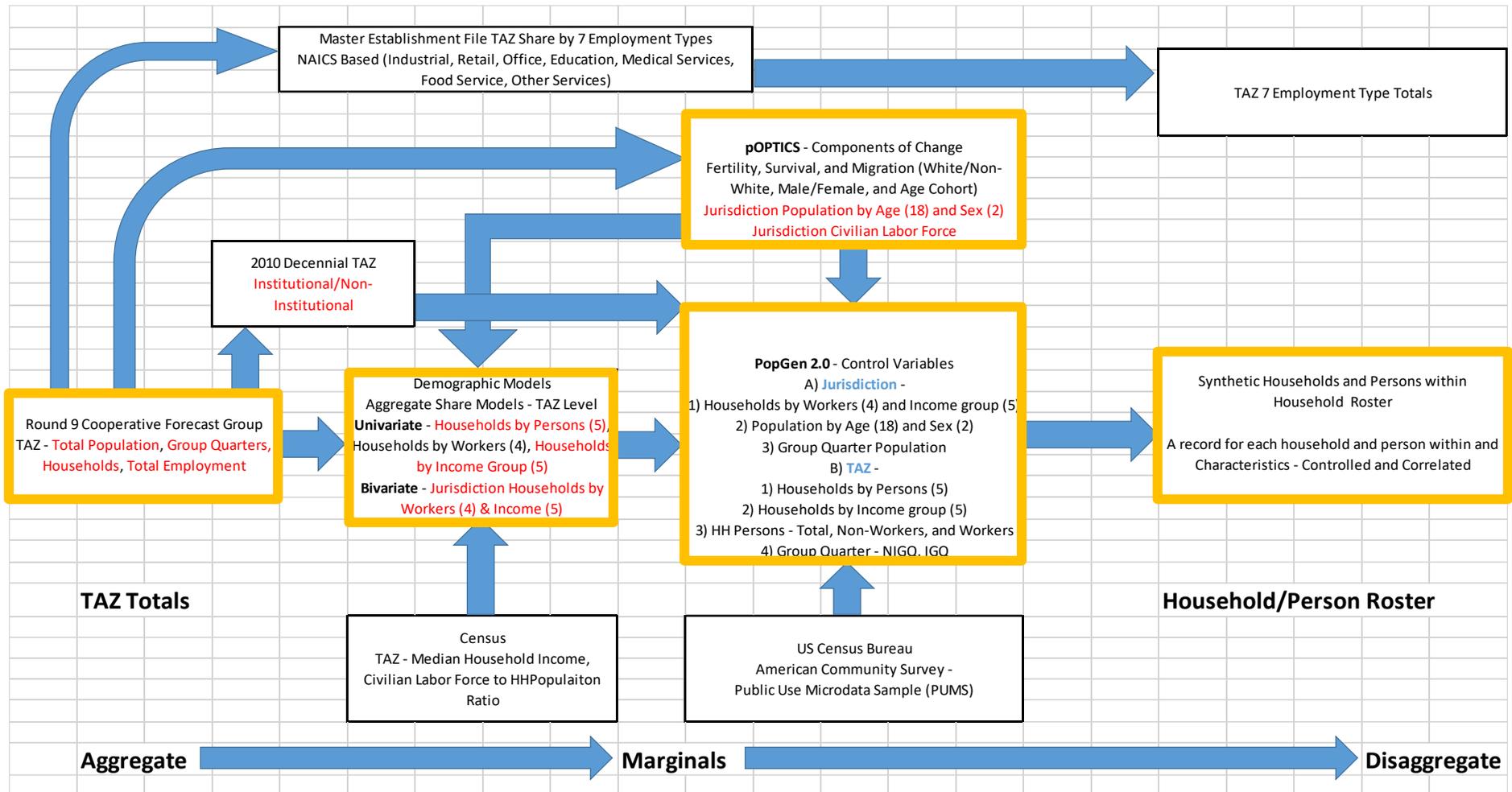
Cooperative Forecast

TAZ10	RPD	Tpop	IGQ	NIGQ	HH	MedInc	Workers	RE	OFF	IND	OTH
480	210	764	48	0	284	101973	413	152	163	71	103
481	210	2738	0	7	1004	97655	1475	152	369	219	392
482	210	1184	19	3	438	101756	641	87	471	125	639

		InGrp1	InGrp2	InGrp3	InGrp4	InGrp5	Total		Workers
482	Wkr0	15	10	8	11	19	63		0
	Wkr1	1	9	22	63	64	159		159
	Wkr2	0	0	2	60	110	173		346
	Wkr3+	0	0	0	11	31	42		136
	Total	16	19	32	147	224	438		641

		InGrp1	InGrp2	InGrp3	InGrp4	InGrp5			Persons
482	HHPerson1	16	11	12	24	24	87		87
	HHPerson2	0	6	13	55	77	151		303
	HHPerson3	0	2	5	29	48	84		251
	HHPerson4	0	0	2	23	48	73		292
	HHPerson5+	0	0	1	15	26	43		228
		16	19	32	147	224	438		1162

InSITE Demographics - Disaggregate



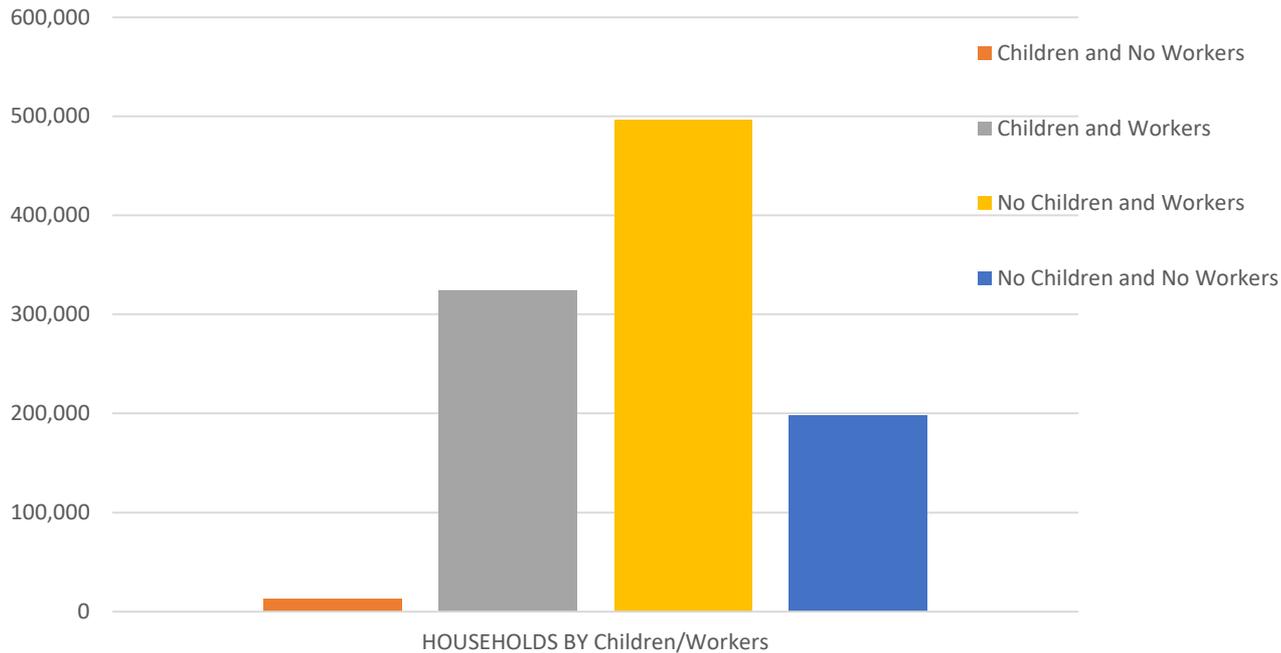
InSITE Demographics – Synthetic Households/Population

hhId	hhInc5s	hhZon	hhSize	hChildren	hWorkers	hAdults	nCars
396722	4	482	4	2	2	2	2
	personId	hhId	age	gender	empStatus	pType	
	915400	396722	38	Female	1	FullTimeWorker	
	915401	396722	55	Male	1	FullTimeWorker	
397015							2
	pe						
396875	3	402	3	1	2	2	3
	personId	hhId	age	gender	empStatus	pType	
	915790	396875	55	Female	1	FullTimeWorker	
	915791	396875	18	Female	1	PartTimeWorker	
	915792	396875	16	Female	0	Child3 (age 16-17)	
397142	2	482	1	0	0	1	1
	personId	hhId	age	gender	empStatus	pType	
	916460	397142	75	Female	0	Senior	
397026	1	482	1	0	0	1	2
	personId	hhId	age	gender	empStatus	pType	
	916163	397026	76	Male	0	Senior	

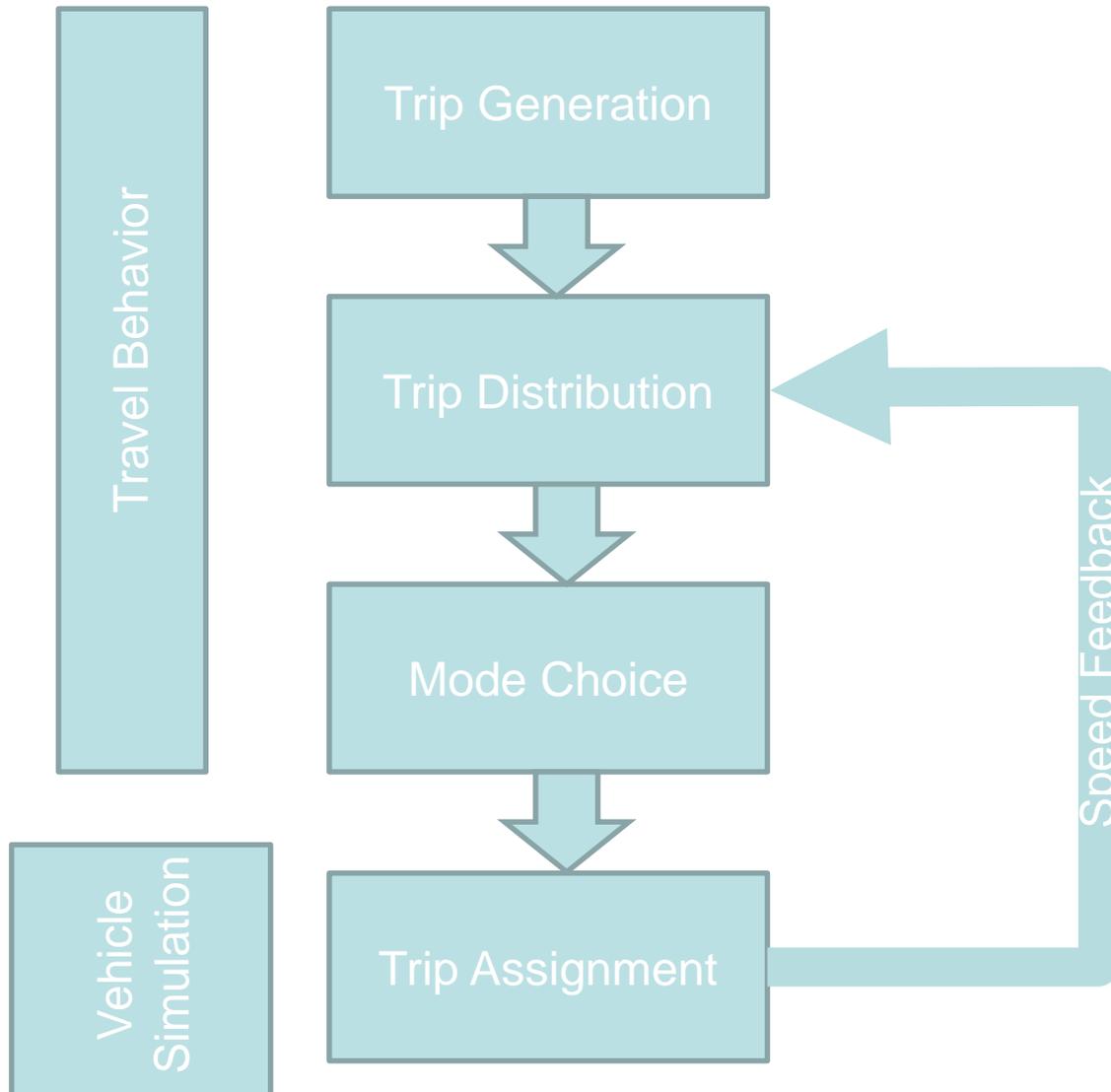
Trivia – In 2010, what Share of the Baltimore Region’s Households had at Least One Child?

Synthetic Households/Population Output

Baltimore Region
Households by Children/Workers



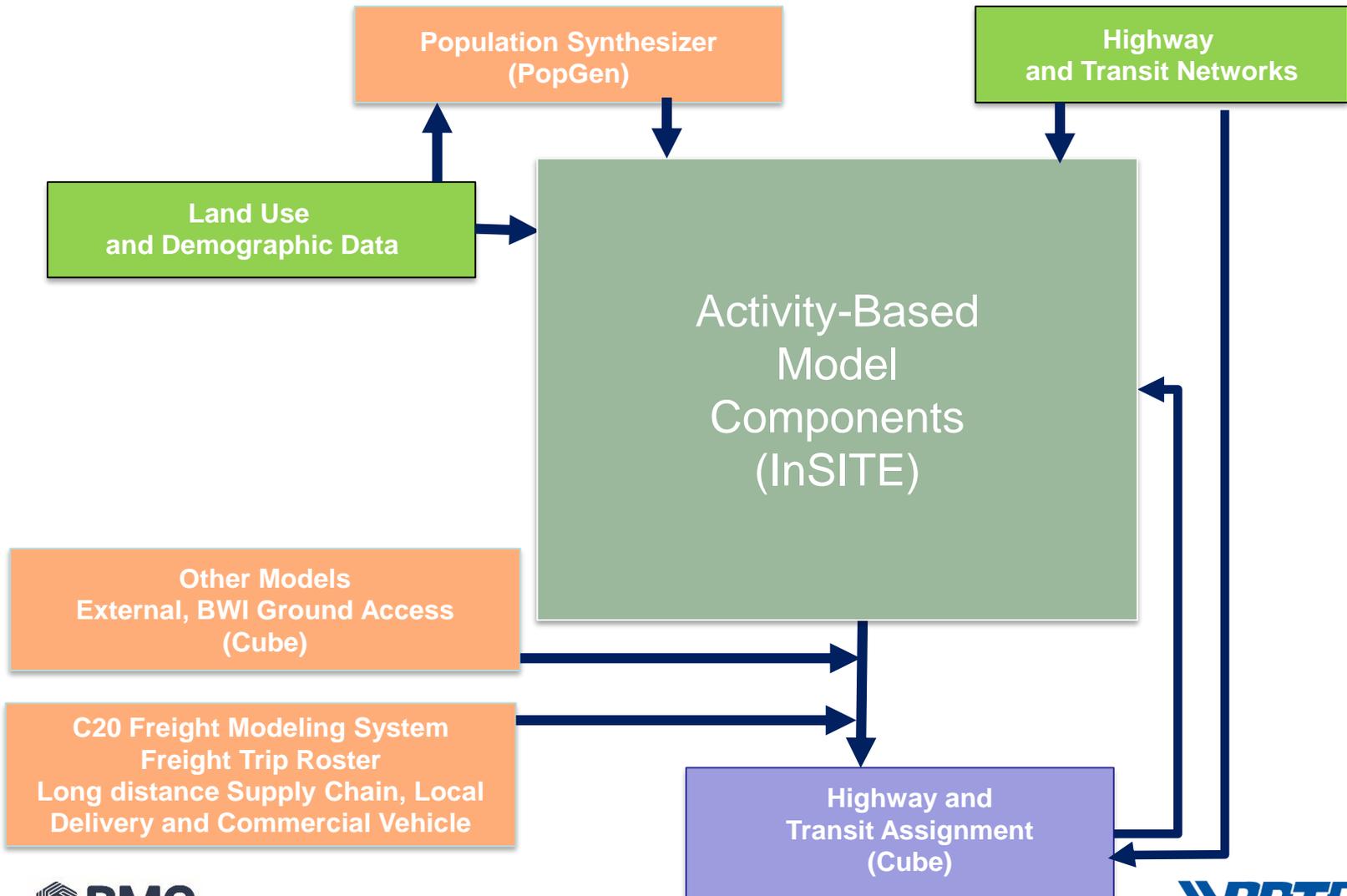
4-Step TBM – Model 44 C



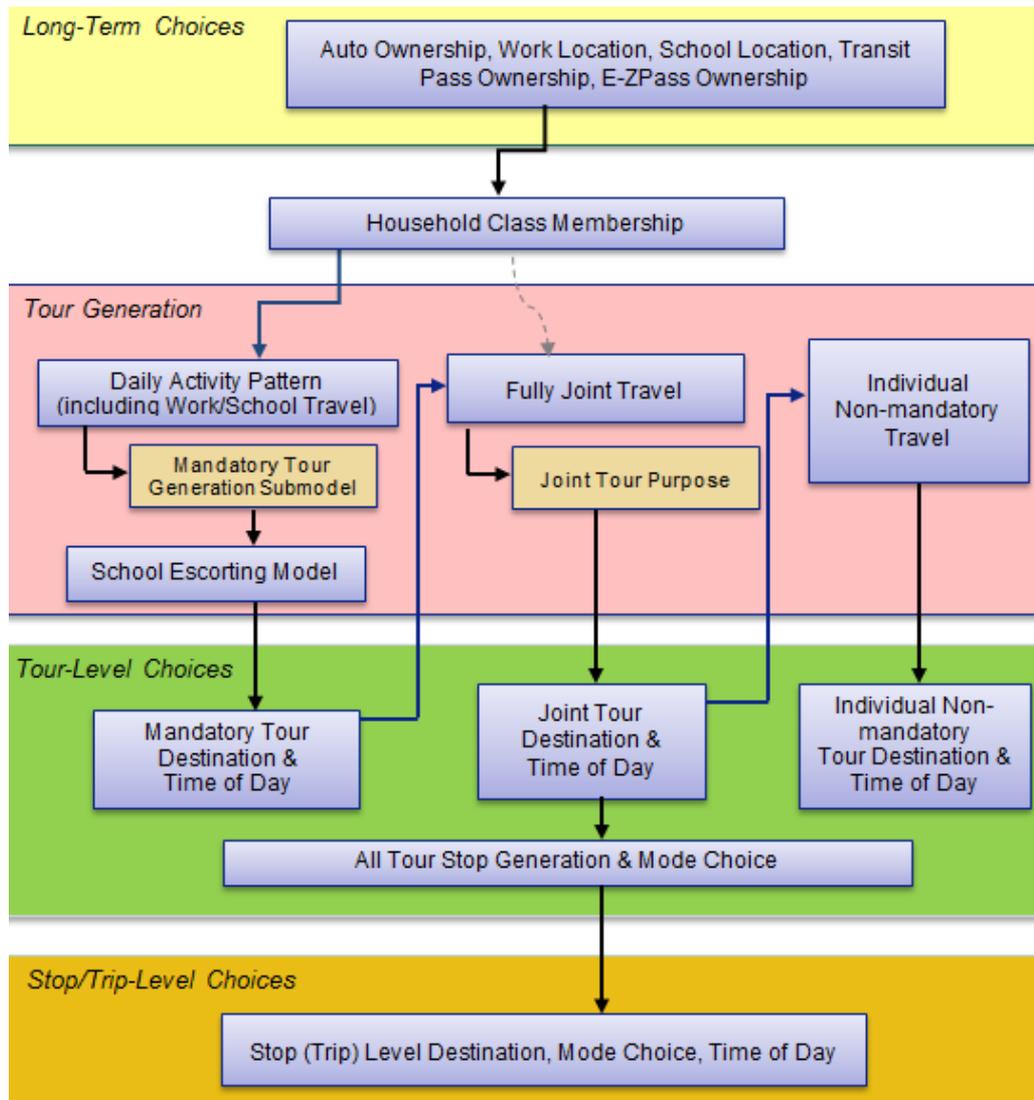
TBM – Trip Tables

		Home-Based Work Person Trips						
		Production/Attraction or Origin/Destination						
		1	2 ...	480	481	482 ...	2934	
1		3	4	0	2	1	0	
2		4	2	1	0	0	0	
...								
480		0	1	5	1	3		
481		1	2	0	4	2	0	
482		1	0	2	6	4	0	
...								
2934		0	0	1	2	6	2	

InSITE – Overall Model Design



InSITE – Model Components

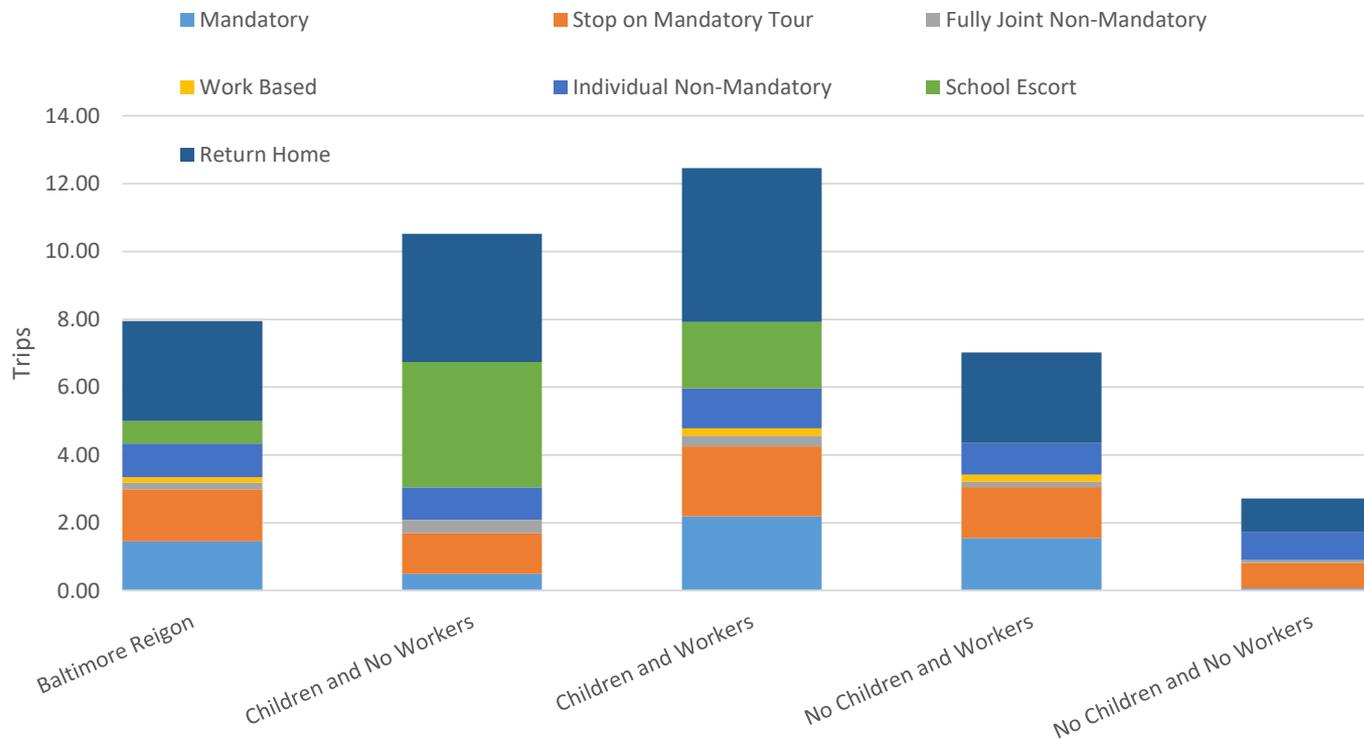


InSITE – Person Trip Roster

hhId	personId	purpose	tripMode	origZone	destZone	origTime	destTime
397015	916134	SchoolEscort	ShareRide3	482	544	7.5	7.5
397015	916134	ReturnHome	DriveAlone	544	482	7.5	7.5
397015	916134	SchoolEscort	ShareRide2	482	427	9	9
397015	916134	ReturnHome	DriveAlone	427	482	9	9
397015	916134	PersonalBusiness	DriveAlone	482	490	11.5	11.5
397015	916134	ReturnHome	DriveAlone	490	482	13	13
397015	916134	SchoolEscort	DriveAlone	482	427	15.5	15.5
397015	916134	Shop	ShareRide2	427	498	15.5	15.5
397015	916134	ReturnHome	ShareRide2	498	482	15.5	15.5
397015	916135	Meal	DriveAlone	482	469	3	12
397015	916135	Work	DriveAlone	469	490	12	12
397015	916135	ReturnHome	DriveAlone	490	482	16.5	16.5
397015	916136	School	ShareRide3	482	544	7.5	7.5
397015	916136	ReturnHome	ShareRide3	544	482	14	14
397015	916137	School	ShareRide3	482	544	7.5	7.5
397015	916137	ReturnHome	ShareRide3	544	482	15.5	15.5
397015	916138	School	ShareRide2	482	427	9	9
397015	916138	Shop	ShareRide2	427	498	15.5	15.5
397015	916138	ReturnHome	ShareRide2	498	482	15.5	15.5

InSITE – Household Trip Rate

Baltimore Region
 Person Trips by Household Composition and Purpose



Source: TIP2019-2022 Round9 2012

For more information

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