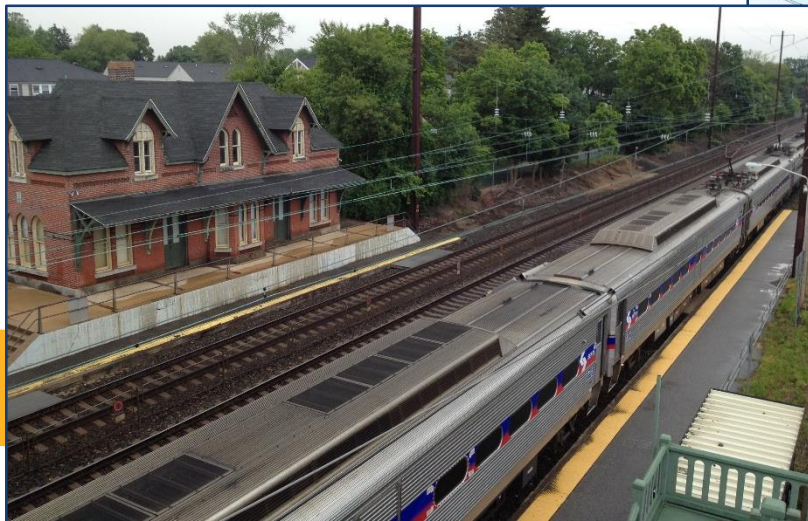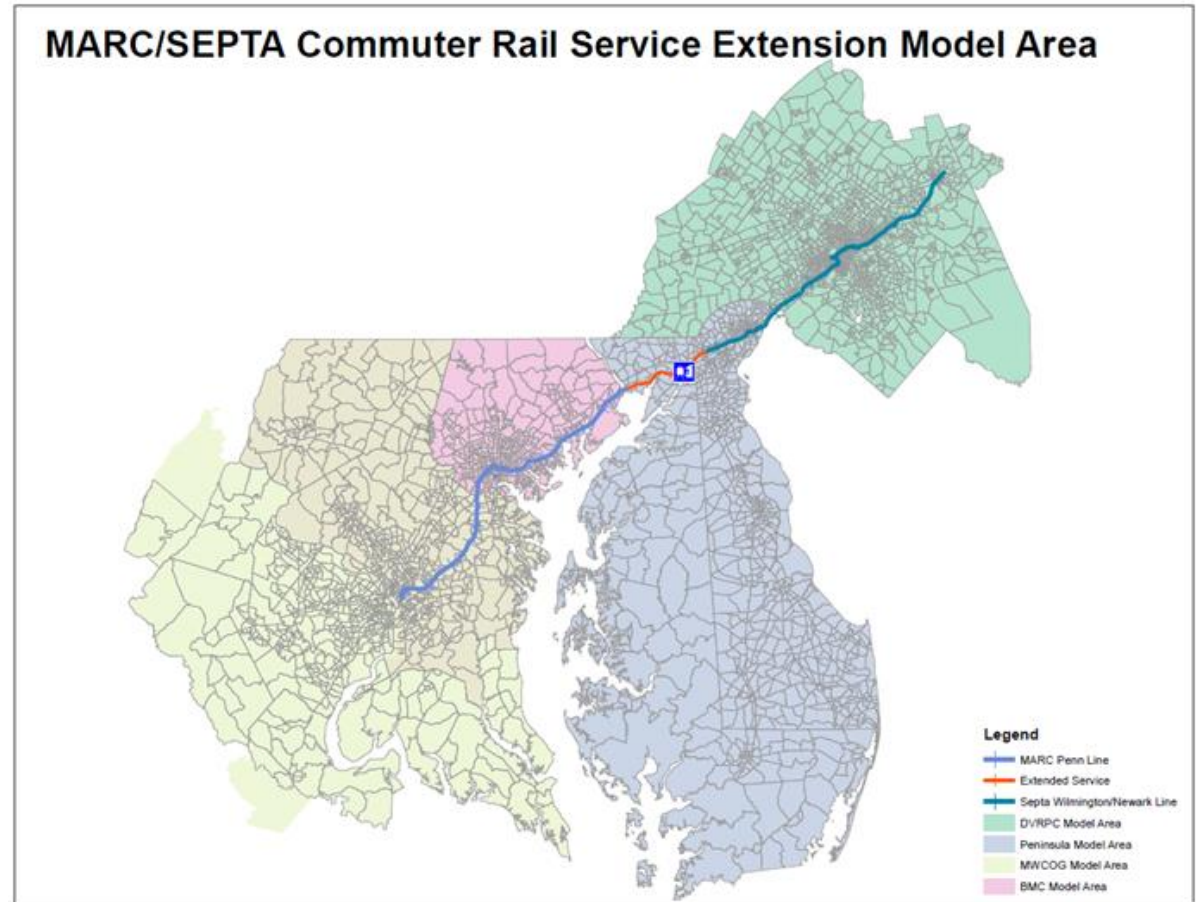# MARC/SEPTA Commuter Rail Service Extension Ridership Analysis

Baltimore Regional Transportation Board
November 28, 2017

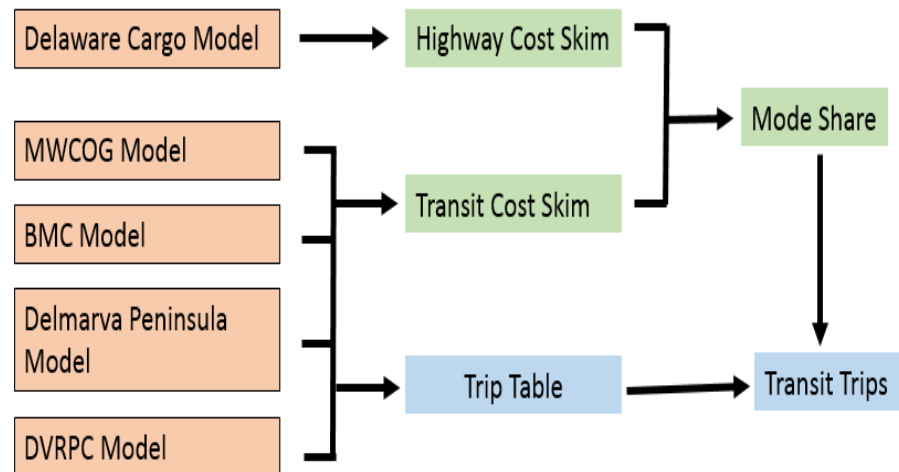# Agenda

- Input Data
- Scenarios
- Reasonableness Checks
- Results

MARC/SEPTA Commuter Rail Service Extension Model Area

Legend
- MARC Penn Line
- Extended Service
- Septa Wilmington/Newark Line
- DVRPC Model Area
- Peninsula Model Area
- MWCOG Model Area
- BMC Model Area

Inputs

- Data derived from existing regional travel demand models
  - Highway cost skims
  - Transit cost skims
  - Personal trip tables for HBW and Non-HBW
- ACS 2009-2013 Journey to work data
- Transit ridership data
  - MARC Penn Line
  - SEPTA Wilmington/Newark Line
- Existing and future Marc/ Septa Service Schedule

Version of Regional Models Used

Region	Model Version	Base Year	Future Year
MWCOG	Version 2.3 (Build 57)	2015	2040
BMC	Version 3.3	2010	2035
Delmarva Peninsula	Current Model	2015	2040
DVRPC	TIM 1.0	2010	2035

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Scenarios

- Base year 2010/2015

- Future year 2035/2040
  - No-build, as coded in regional model
  - Build 1, reduced headway by 50% for peak period (for test only) and no transfer
  - Build 2, schedule is based on existing schedule online and transfer at Newark
  - Build 3, longer headway than Build 1 & no transfer-Provided in Nov 2016

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Scenarios- Schedule

Headway (min)			MARC		SEPTA	
			SB	NB	SB	NB
Current Schedule		Peak	30/60	27.5/110	30	25
		Off-Peak	60/240	60/240	60	60
Model Base Year	MWCOG	Peak	30	20		
		Off-Peak	60	60		
	BMC	Peak	45/60	45/60		
		Off-Peak	60/240	60/240		
	DVRPC	Peak			30	40
		Off-Peak			60	60
Future NB	MWCOG	Peak	30	20		
		Off-Peak	60	60		
	BMC	Peak	29	29		
		Off-Peak	38	38		
	DVRPC	Peak			30	40
		Off-Peak			60	60
Build 1		Peak	15	15	15	20
		Off-Peak	50	50	60	60
Build 2 (transfer)		Peak	65	75	65	80
		Off-Peak	122	180	132	190
Build 3		Peak	30/125	25/55		
		Off-Peak	50/450	50/615		

Result – Ridership Calibration

Stations	2014/2015 Count	2015 Estimation
MARC Penn Line Union Station-Halethorpe	8,192	
West Baltimore	797	1,165
Penn Station	3,136	2,614
Martin	344	275
Edgewood	237	113
Aberdeen	199	97
Perryville	177	137
Segment Total	**4,890**	**4,401**
Newark	793	801
Churchmans crossing	591	1,310
Wilmington	1,859	2,213
Claymont	1,179	523
Segment Total	4,422	4,847
Marcus Hook	918	812
Segment Total	**918**	**812**
SEPTA Newark/Wilmington Highland Ave- Temple University	2,584	

Reasonableness Check - Socio-Economic Growth

Socio-economic		Total Household	Total Population	Total Employ
MWCOG	2015	1,901,075	4,944,859	3,249,768
	2040	2,339,270	5,932,696	4,249,378
	Growth Factor	23%	20%	31%
BMC	2010	2,039,965	5,332,303	3,242,833
	2035	2,477,792	6,206,240	4,275,520
	Growth Factor	21%	16%	32%
Delmarva peninsula	2015	546,339	1,414,505	673,077
	2040	688,847	1,735,736	766,744
	Growth Factor	26%	23%	14%
DVRPC	2015	817,797	2,095,622	1,041,351
	2040	873,326	2,200,571	1,107,700
	Growth Factor	7%	5%	6%

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Reasonableness Check - Forecasting from MPOs Model

Segments	MPO Model Output				MARC/SEPTA Model Output
	MPO Model	Base Year Ridership	Future Year Ridership	Growth Factor	
MARC Penn Line Union Station-BWI	MWCOG	15728	23086	46.8%	
MARC Penn Line	BMC *	112801	137133	21.6%	31.7%
SEPTA Newark/Wilmington Stations in DE	Peninsula Model	470	484**	3.0%	4.3%
SEPTA Newark/Wilmington Stations in PA	DVRPC	8176	8682	6.2%	8.6%

*BMC shows negative ridership growth along MARC Penn line, model review found the existing drive access leg to some stations was removed in the future year modeling. The data list in the table is overall rail trips.

** Peninsula model only cover the Delmarva Peninsula, the ridership is between the stations in DE

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Results – Boardings by Station

MARC/SEPTA Station	Base Year	2040 No-Build	2040 Build Scenario		
			Scenario 1	Scenario 2	Scenario 3
Stations between Union Stations and Aberdeen	23,800	31,100	33,900	33,280	31,550
Perryville	180	480	260	230	140
Elkton	0	0	440	190	430
Newark	790	860	800	1050	780
Churchmans crossing	590	500	590	550	540
Wilmington	1,860	1,850	2,340	2,040	2,200
Claymont	1,180	1,400	1,740	1,510	1,630
Stations between Marcus Hook & University City	5,800	6,300	6,500	6,380	6,350
Total	**34,200**	**42,490**	**46,570**	**45,140**	**43,620**
Growth (2015-2040)		24%	36%	32%	28%
Difference: Build vs. No-build			10%	6%	3%

MARC/SEPTA Commuter Rail Service Extension Ridership Analysis

Questions?

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