

# **Freight Modeling System**

#### **Technical Committee Review**

October 1, 2019



### **Overview**

### Project Goal

- Replaces 2001 Truck Model in BMC Travel Demand Model with multimodal Freight Modeling System (FMS)
- Used SHRP2 C20 grant and a consultant (RSG) to create a freight modeling system using existing data sources, several existing freight modeling components and a new commercial vehicle model

#### Project Status

- Working model delivered in August 2018
- MDOT SHA conducting validation on FMS
- BMC working on integration of FMS with InSITE
- Seeking feedback and application suggestions from locals





# **Model Inputs**



#### Business Data

- Establishment Survey: 2003 Ohio Statewide General Establishment Survey
- Logistics Nodes: Intermodal facilities, warehouses and distribution center locations / <u>Leonard's Guide</u>, <u>Bureau of Transportation Statistics</u> (BTS), <u>Center</u> <u>for Transportation Analysis</u> (CTA) & Maryland county planning departments
- Employment: Longitudinal Employer-Household Dynamics (LEHD) / US Census

### Freight Data

- Goods Movement: 2012 Freight Analysis Framework (FAF) / FHWA & BTS

### Modal Data

- Truck Traffic Counts: <u>SHA</u>, <u>MdTA</u> & <u>BMC</u>
- Truck GPS: <u>American Transportation Research Institute</u> (ATRI)
- Port: 2012 State and Port Cargo Movement Data / US Army Corps of Engineers
- Air: 2012 Air Freight Data (<u>T100</u>) / BTS





#### **Model Inputs**





Prepared by Transportation Planning Division Projected Coordinate System - IAD 1983 State Plane (It) Data Source - BNC, & HER 2017, TIGER/Lineŵ, NTAD Printed - Narch 2019

Baltimore Metropolitan Counci

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**BRTB** 4

Miles

1 in = 9 miles

#### **BMC**

### **Model Outputs**









### **Model Outputs**







### FMS Dashboard – 2012







### FMS Dashboard – 2040



**BMC** 



# **Commercial Vehicle Tours – 2012**







# **Commercial Vehicle Tours – 2040**







# Freight Shipments – 2012







# Freight Shipments – 2040











# Implementation

- Passenger Model / Freight Modeling System
  Integration
  - Replace 2001 Truck Model in BMC Travel Demand Model with 2018 Freight Modeling System

### Validation/Scenario Testing

- Continue testing and comparing to 2001 Truck Model outputs
- Develop a traffic count collection plan
- Develop scenarios to test the 2018 Freight Modeling System including:
  - Truck restrictions in East Baltimore (April 2019)
  - Port of Baltimore expansion (future)
  - FAF high, medium and low (future)





### **For More Information**

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