

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

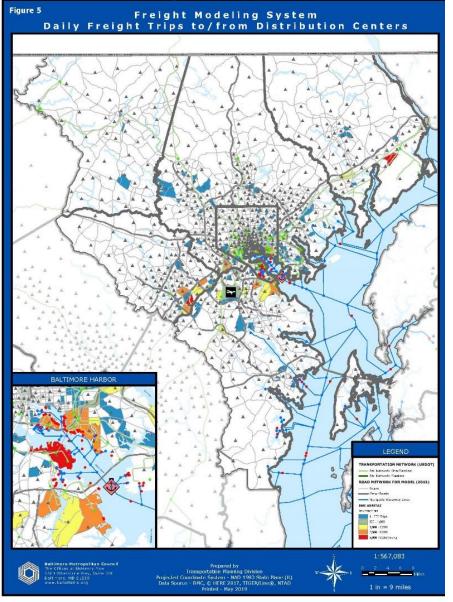
Modal Data

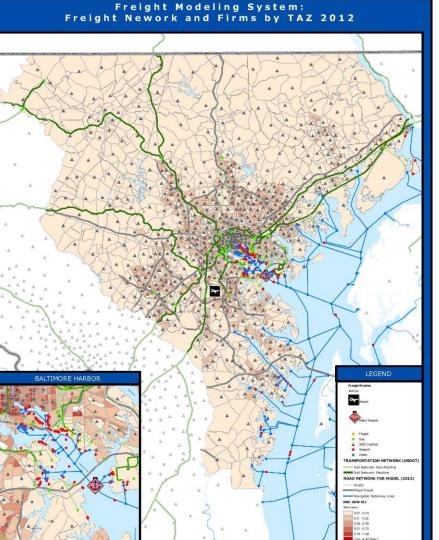
- Truck Traffic Counts: <u>SHA</u>, <u>MdTA</u> & <u>BMC</u>
- Truck GPS: <u>American Transportation Research Institute</u> (ATRI)
- Port: 2012 State and Port Cargo Movement Data / US Army Corps of Engineers
- Air: 2012 Air Freight Data (<u>T100</u>) / BTS





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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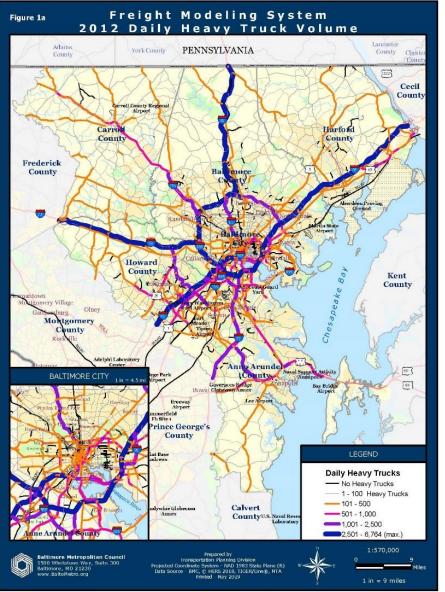
BRTB 4

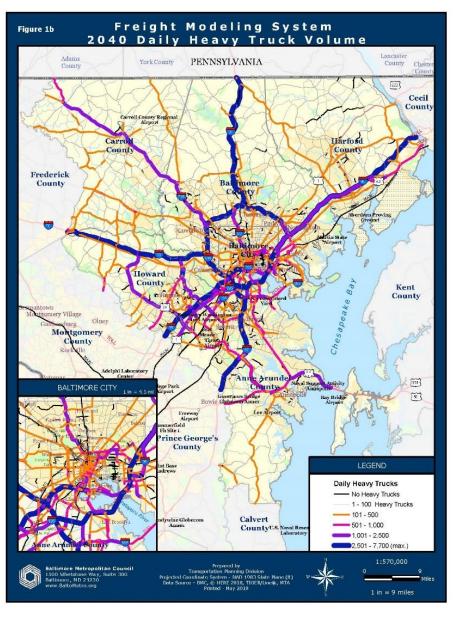
Miles

1 in = 9 miles

BMC

Model Outputs

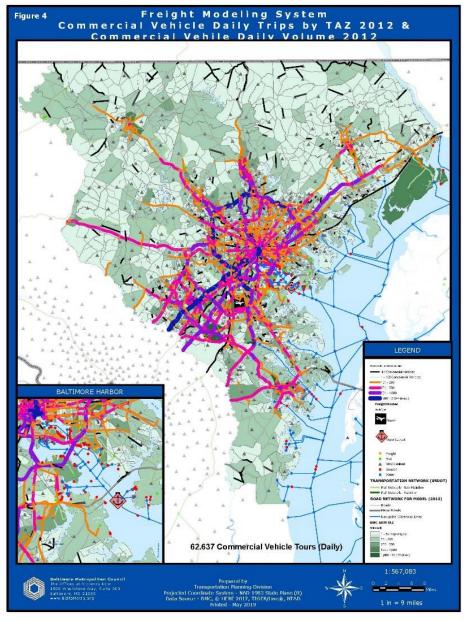








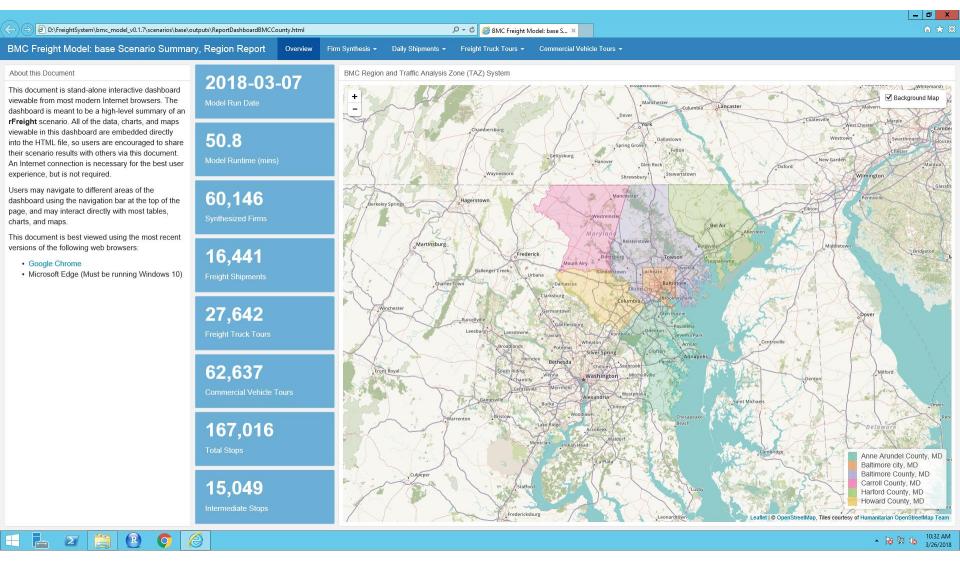
Model Outputs







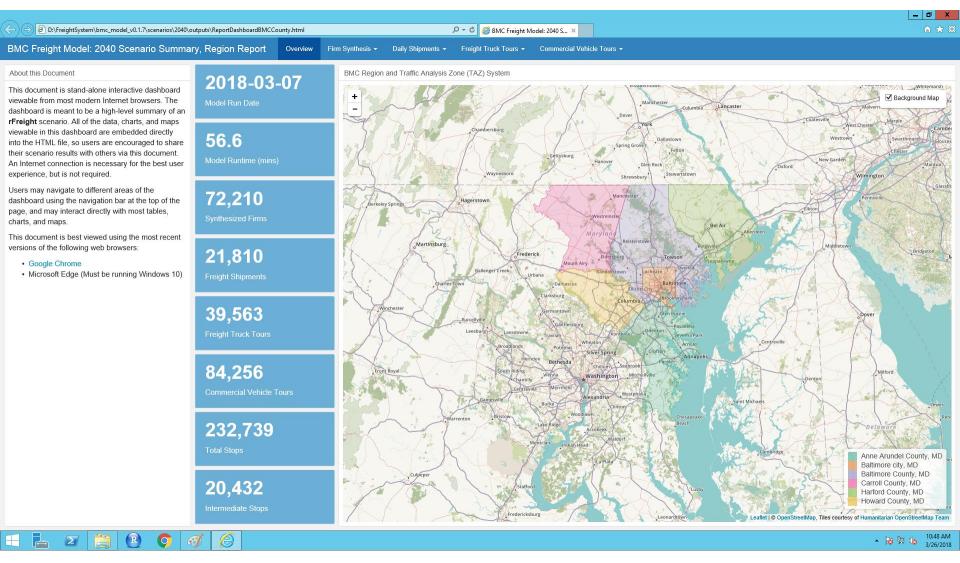
FMS Dashboard – 2012







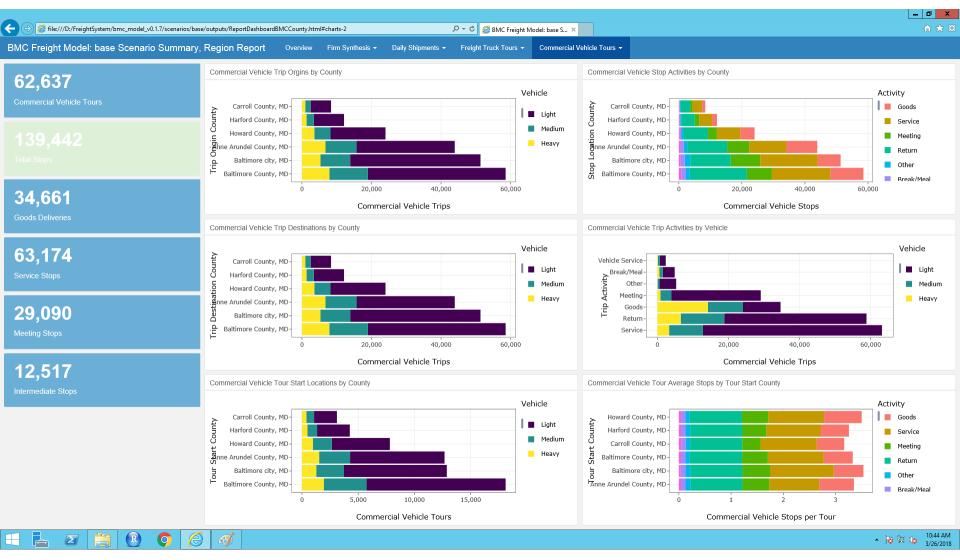
FMS Dashboard – 2040



BMC



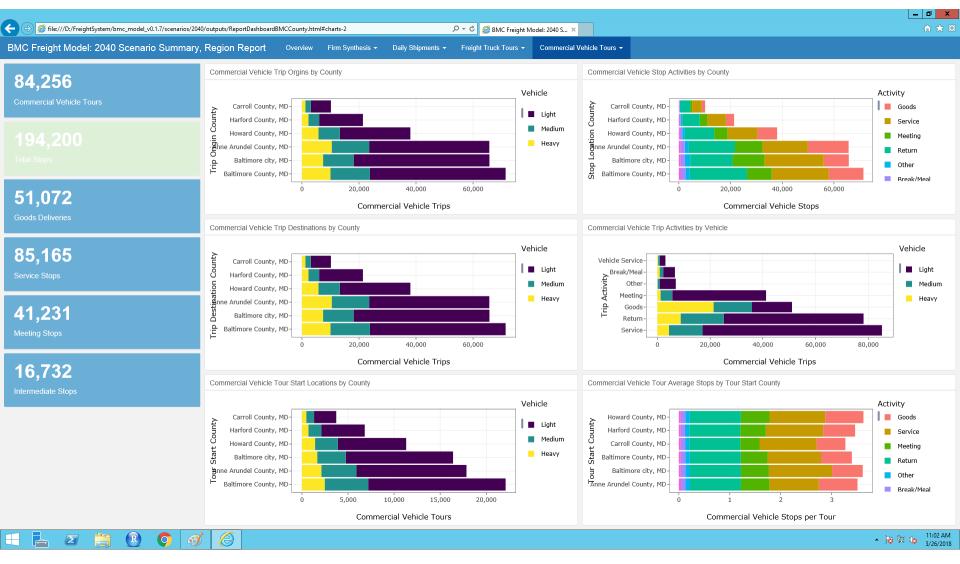
Commercial Vehicle Tours – 2012







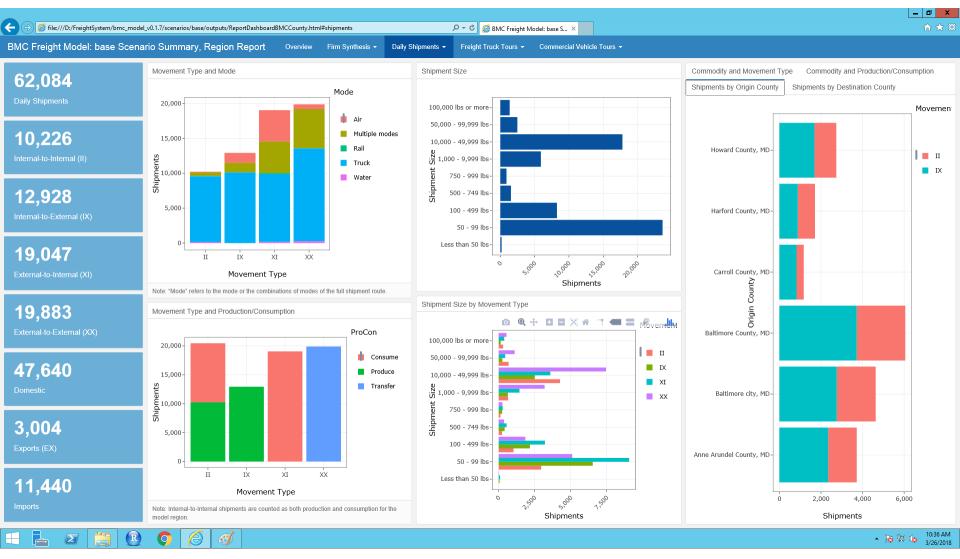
Commercial Vehicle Tours – 2040







Freight Shipments – 2012





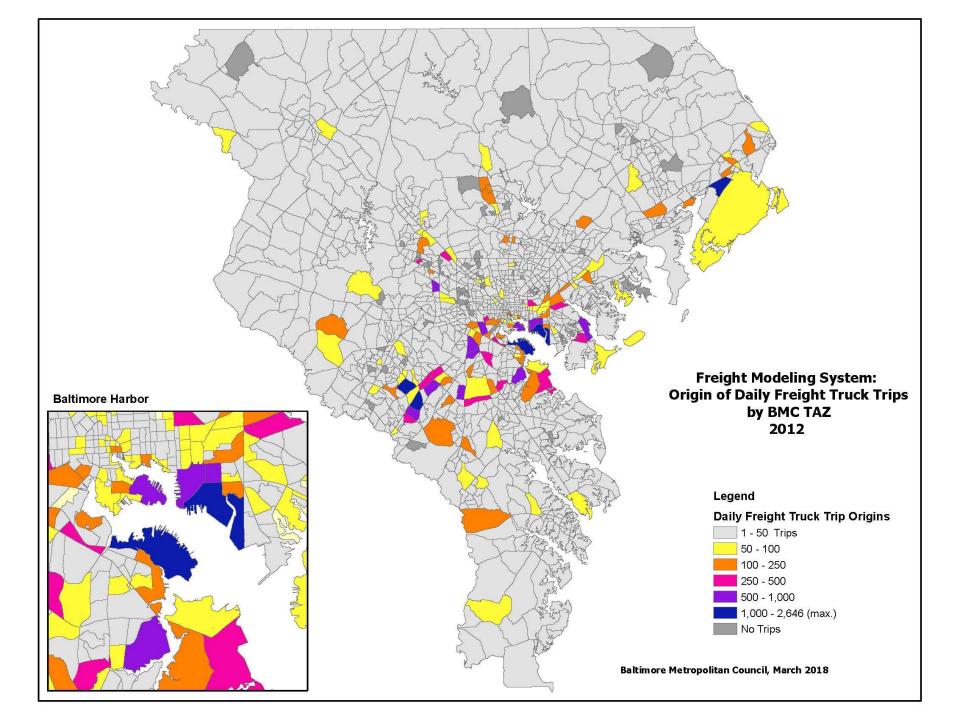


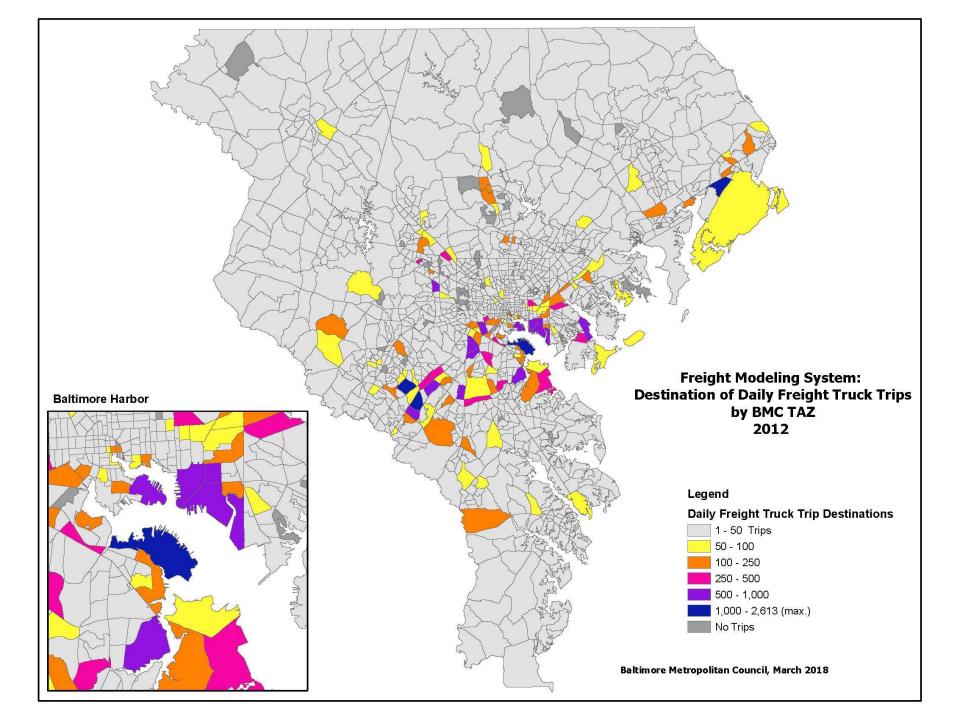
Freight Shipments – 2040











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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