Mid-South Region Freight Flows & Industry Analysis

Update

TPB & ETC Presentation

May 19th, 2022

Memphis MPO
METROPOLITAN PLANNING ORGANIZATION
Strengthening Regional Transportation

TN TDOT Department of Transportation

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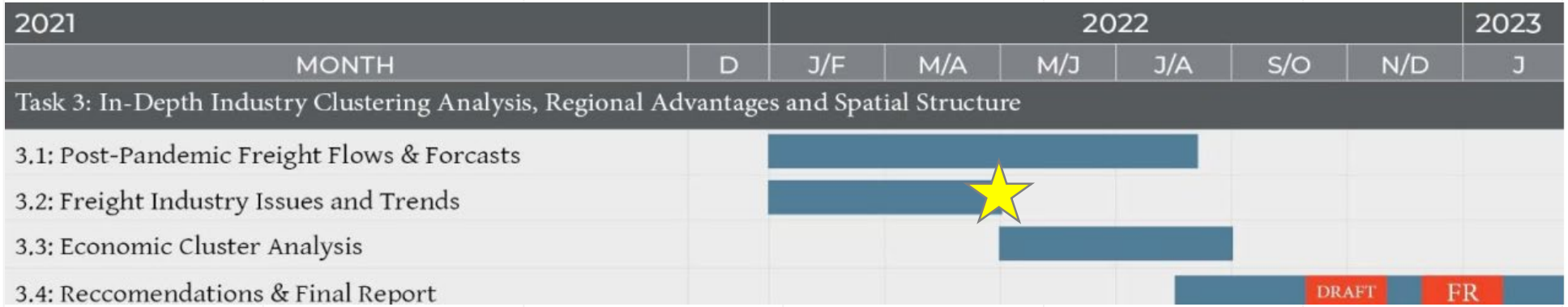
Agenda

1. Project Objective
2. Preliminary Freight Flows and Forecasts
3. Key Logistics Trends and Issues

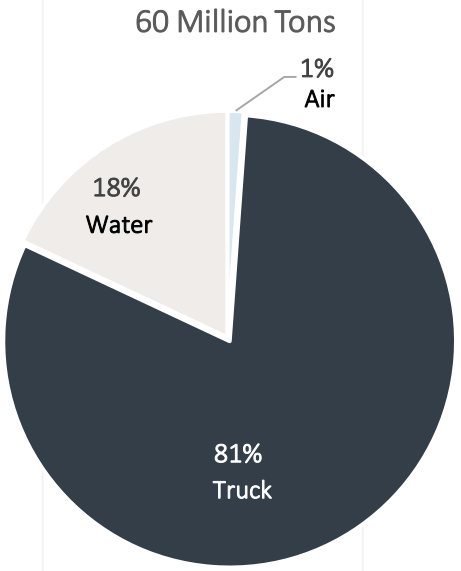
Project Objective

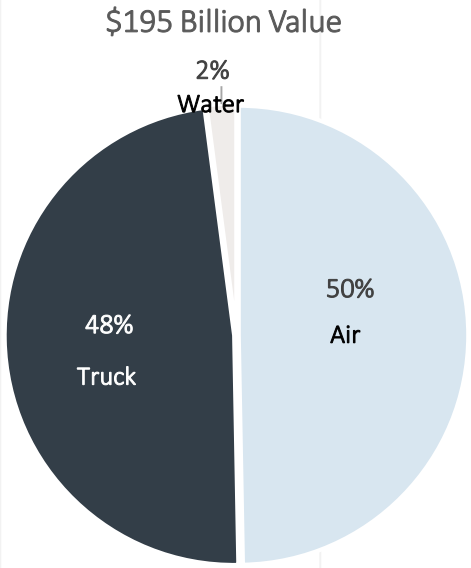
- Support and expand the logistics sector in the Mid-South region
  - *trucking, railroad, air cargo, waterways, warehousing, and pipelines.*
  - *forecast freight activity*
  - *understand trends and issues*
  - *Improve competitive advantage*



Preliminary recommendations: Sep 2022
Draft Final Report: Oct 2022
Final Report: Jan 2023

Trucks move the most freight, but air is as important in terms of value





- 2019 freight flows to/from study region, excluding rail
  - *IHS Transearch data*
- Truck is the backbone:
  - *81% of tons and 48% of value*
- Air (Memphis Int. Airport) moves as much value as truck
- Water (Port of Memphis and Port of West Memphis) move 18% of tonnage
- Rail is likely to move substantial tonnage and value

*** Excludes Rail (being analyzed)**

Study Region: Shelby (TN), Fayette (TN), Tipton (TN), Marshall (MS), DeSoto (MS), and Crittenden (AR)

Warehousing and drayage (secondary traffic) drives freight flows

Tonnage Share

Ranked	Commodity Group (STCC-2)	%
1	50 Secondary Traffic	33%
2	1 Farm Products	15%
3	29 Petroleum or Coal Products	15%
4	14 Nonmetallic Minerals	11%
5	32 Clay, Concrete, Glass or Stone	6%
	Other	*21%*
	Total	*100%*

Value Share

Ranked	Commodity Group (STCC-2)	%
1	50 Secondary Traffic	36%
2	37 Transportation Equipment	17%
3	28 Chemicals or Allied Products	13%
4	38 Instrum, Photo Equip, Optical Equipment	10%
5	36 Electrical Equipment	6%
	Other	*18%*
	Total	*100%*

- 1/3 of tonnage and value involves secondary traffic (warehousing and drayage)
- Top 5 commodity groups account for 79% of tonnage and 82% of value.

*** Excludes Rail (being analyzed)**

Study Region: Shelby (TN), Fayette (TN), Tipton (TN), Marshall (MS), DeSoto (MS), and Crittenden (AR)

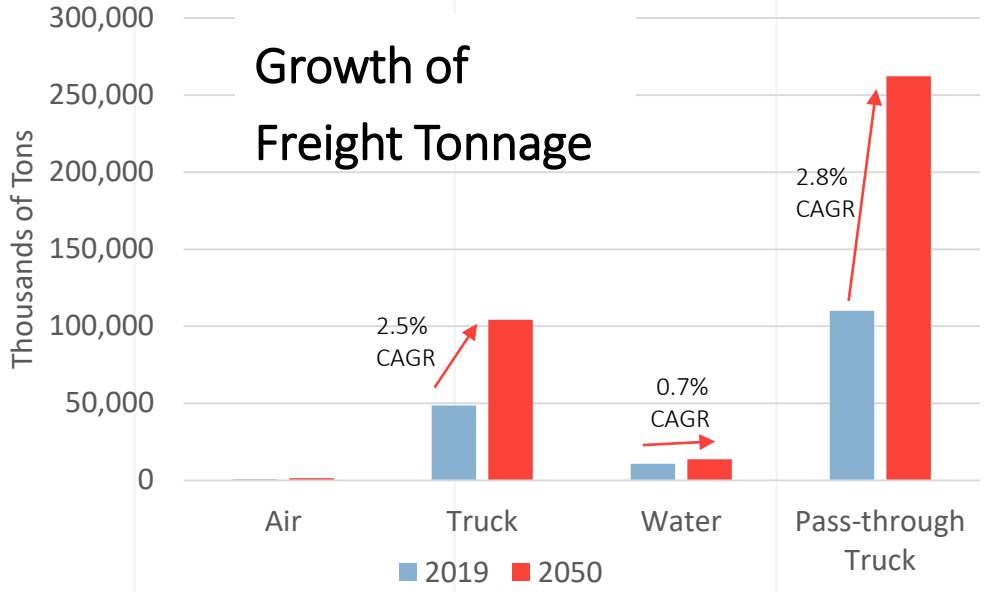
As a national and global hub, a large volume of freight passes through the region

- Passthrough **truck** on major North American corridors: I-55/I-69 from Chicago/Midwest/Canada to Gulf, I-40 coast-to-coast, I-22 to Southeast
  - *110M Tons and $240B Value*
- Passthrough **air** at Memphis Int. Airport from FedEx hubbing operations
  - *Now the largest air cargo airport in the world*
- Passthrough **rail** as one of the nation's main east-west rail gateways
- Passthrough **water** down the Mississippi River

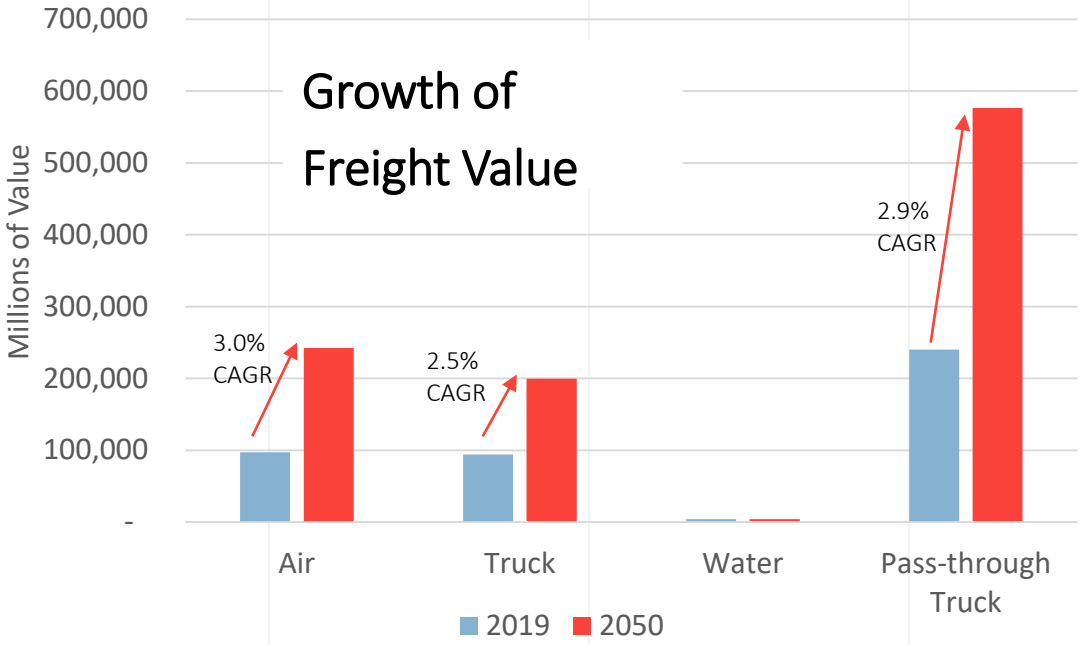
Inbound Logistics

FedEx Corp.

Substantial pressure from freight growth on all modes in coming decades



- Demand-driven forecasts
- Account for COVID-19 pandemic disruptions



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Analysis of Key Trends and Issues affecting Mid-South

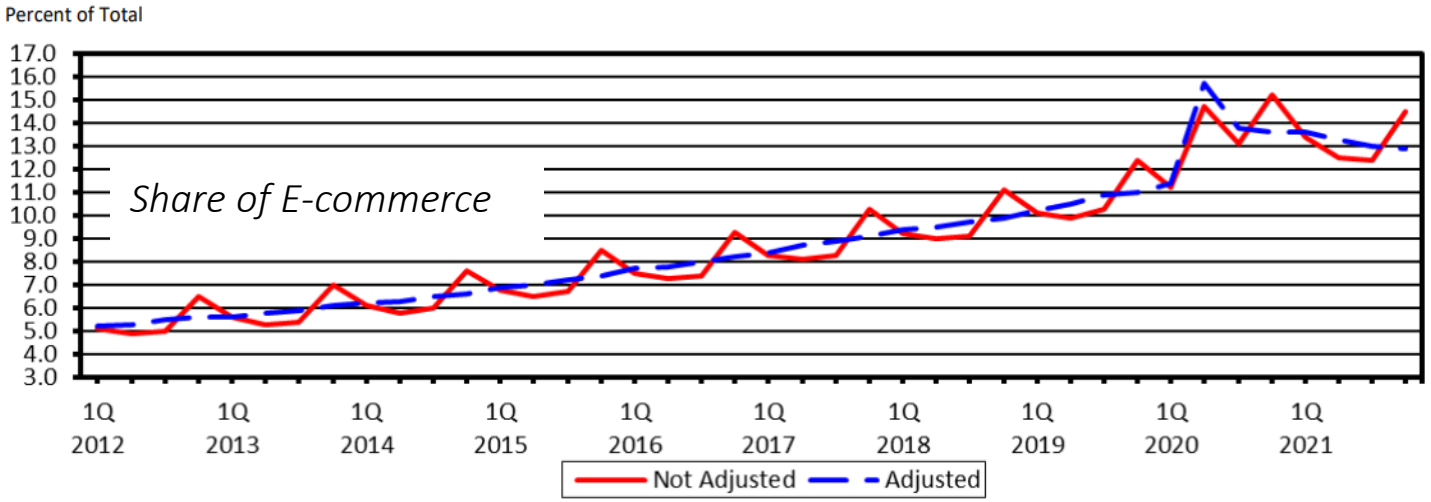
High Impact

TREND OR ISSUE	MODE	OPPORTUNITY	STRENGTH	WEAKNESS	THREAT
E-commerce	Multimodal	X			X
Truck Roadway Safety	Truck/Highway			X	
Pavements and Structures	Truck/Highway				X
Truck Electrification	Truck/Highway	X			
Driver Shortage	Truck/Highway			X	
Rail Bridges and Structures	Rail			X	
Rail At-grade Crossings	Rail			X	
Rail and Economic Development	Rail	X			
Water Multimodal Access	Water			X	
Industrial Land Development on Water	Water	X			
Parcel Industry Developments	Air	X			
Growth in Warehousing and Distribution	Warehousing and Distribution		X		

Medium Impact

TREND OR ISSUE	MODE	OPPORTUNITY	STRENGTH	WEAKNESS	THREAT
COVID-19 Pandemic	Multimodal	X			X
Truck Congestion and Bottlenecks	Truck/Highway			X	
Truck Parking	Truck/Highway			X	
Rail Network Bottlenecks	Rail			X	
Precision Scheduled Railroading	Rail	X			X
Intermodal Network Restructuring	Rail				X
Improvements in Rail Technology	Rail	X			
Condition of Port Facilities and Assets	Water			X	
Barge Expansion (empty containers or trailers)	Water	X			
Barge Expansion (loaded containers)	Water	X			
Water Industrial Growth Opportunities	Water	X			
Accessibility of Memphis International Airport	Air			X	
Diversification of Warehousing and Distribution	Warehousing and Distribution	X			
Extensive Pipeline Infrastructure	Pipelines			X	

E-commerce emphasis on delivery speed benefits FedEx/UPS, but also increases decentralization of fulfillment

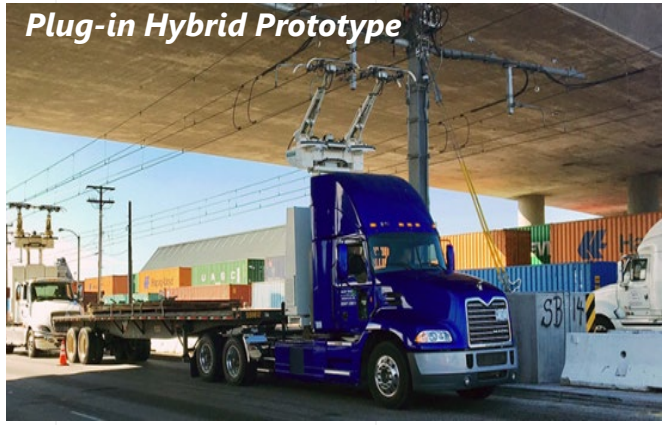


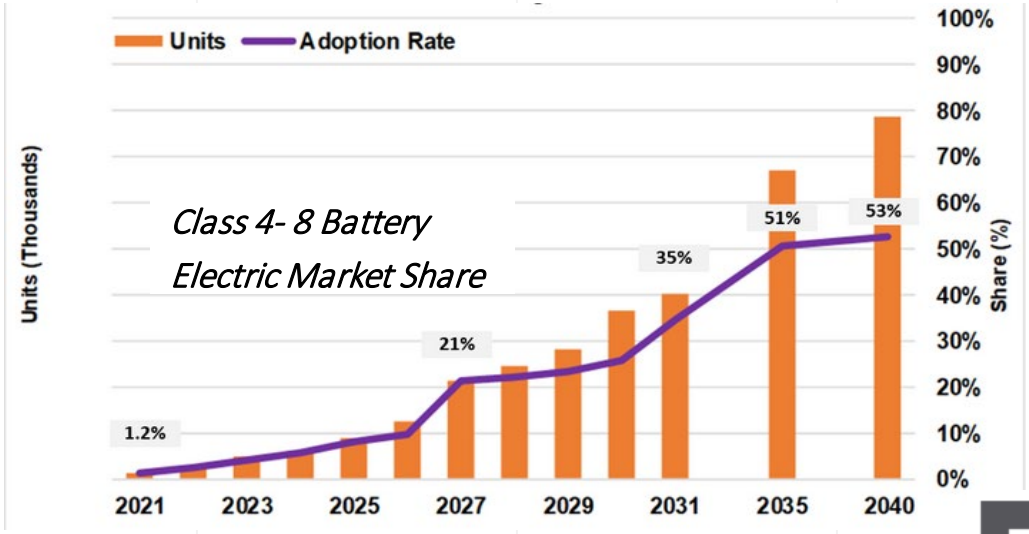
Source: U.S. Bureau of the Census, Quarterly Retail E-Commerce Sales. 4th Quarter 2021.

- COVID-19 pandemic accelerated e-commerce market share
- Customer expect fast and reliable deliveries
  - *"Amazon Effect"*
- Significant opportunity for air cargo/FedEx and UPS
- Decentralization of fulfillment away from national hubs to closer-to-market facilities
- Significant local transportation and land use impacts.
  - *Residential delivery trucks*
  - *e-commerce requires 3x more warehousing than traditional retail*

Opportunity to lead in truck electrification deployment and related businesses

- Currently 2-4x higher capital costs, however total costs of ownership are becoming more competitive
  - *significant backlogs*
- Medium-term competitiveness depends on govt incentives, regulations, and investments
  - *Recharging infrastructure*
- Numerous applications in Mid-South
  - *Drayage, urban delivery, in-house fleets (e.g. FedEx)*
- Build of, Ford Blue Oval City to attract truck electrification businesses
- Other technologies can play a role
  - *CNG (300-400 mi trips), LNG (500-600 mi), hydrogen fuel cell (500mi+).*





Source: ACT Research Co. LLC, 2021

Next Steps

1. Finalize trends and issues report
2. Freight Flows and Forecasts Report

Thanks

Sebastian Guerrero, PhD

Sebastian.Guerrero@wsp.com

Mary Connelly

mary.connelly@wsp.com