



*Express Commuter Transit
Travel Demand Management
Regional Vanpool Program*

MORE CHOICES. BETTER ACCESS.

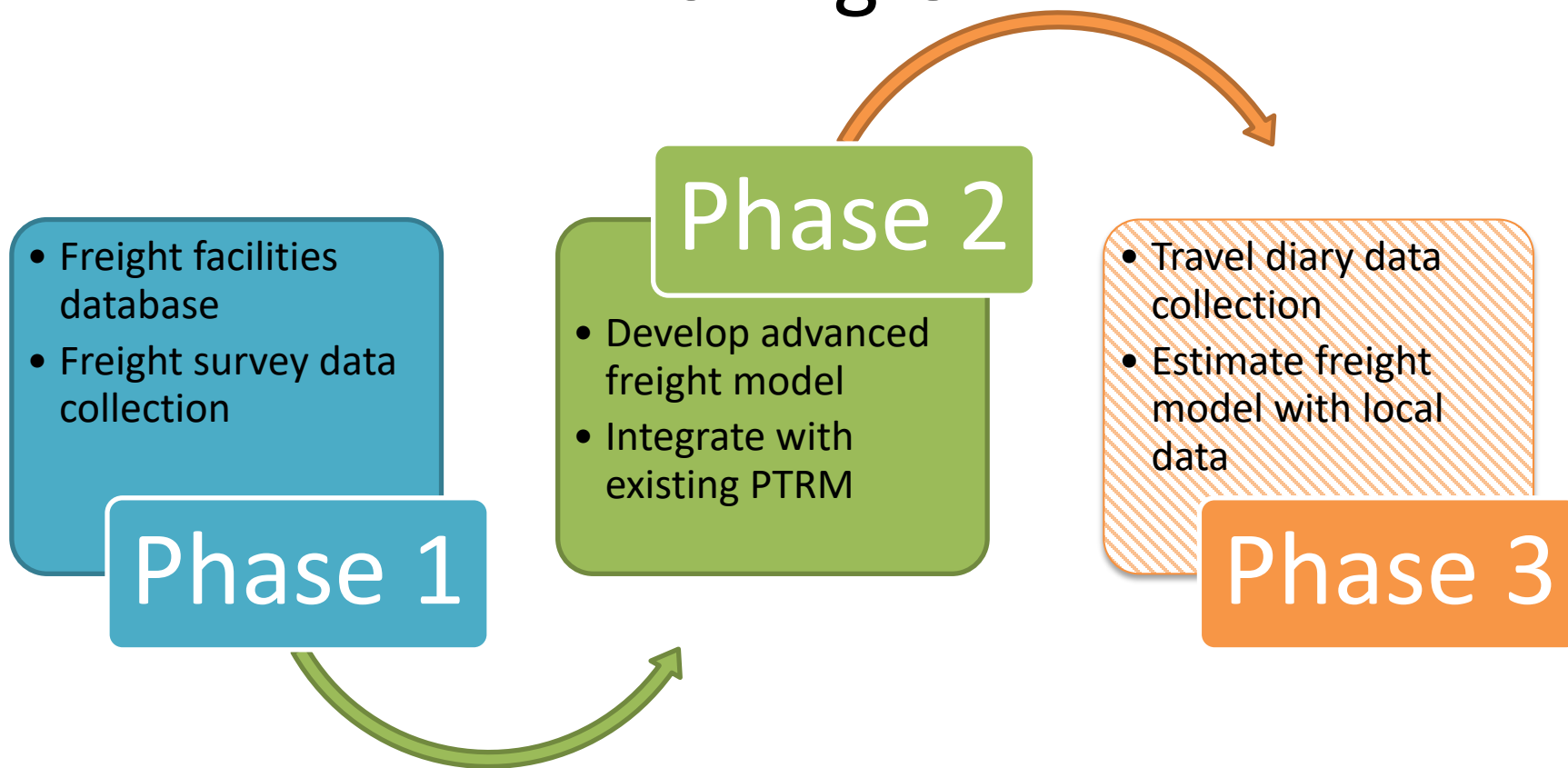
*Regional Transportation Planning
Piedmont Triad Regional Model
Training and Education
Convening and Cooperation*

Piedmont Triad Freight Study

“Where we have been and where we are”

Talking Freight – FHWA Webinar

Moving On



Collection of behavioral data through local sampling and conduct the re-estimation of freight model components as well as full recalibration and validation of entire freight model.

Existing Conditions

- Freight facilities database
- Freight survey data collection

Phase 1

Phase 2

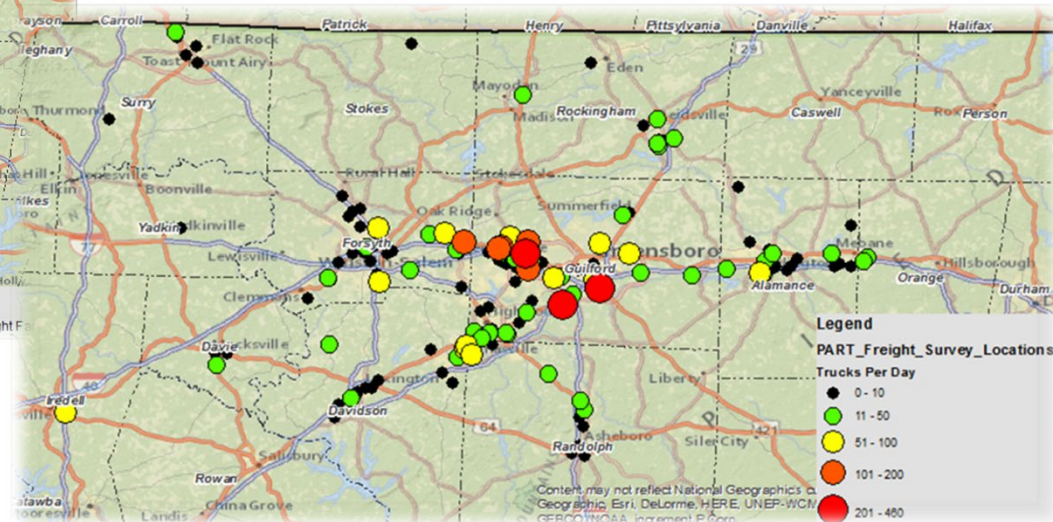
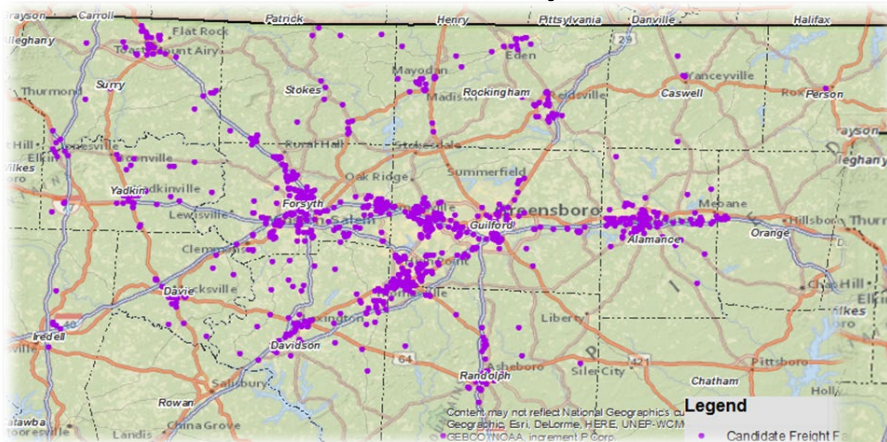
- Develop advanced freight model
- Integrate with existing PTRM

- Travel diary data collection
- Estimate freight model with local data

Phase 3

Freight Facilities Database

- 968 Facilities classified by type
 - Distribution center, intermodal facility, major shipper, retail
- Basic information available for most facilities
 - NAICS classification code, number of truck bays, primary commodity

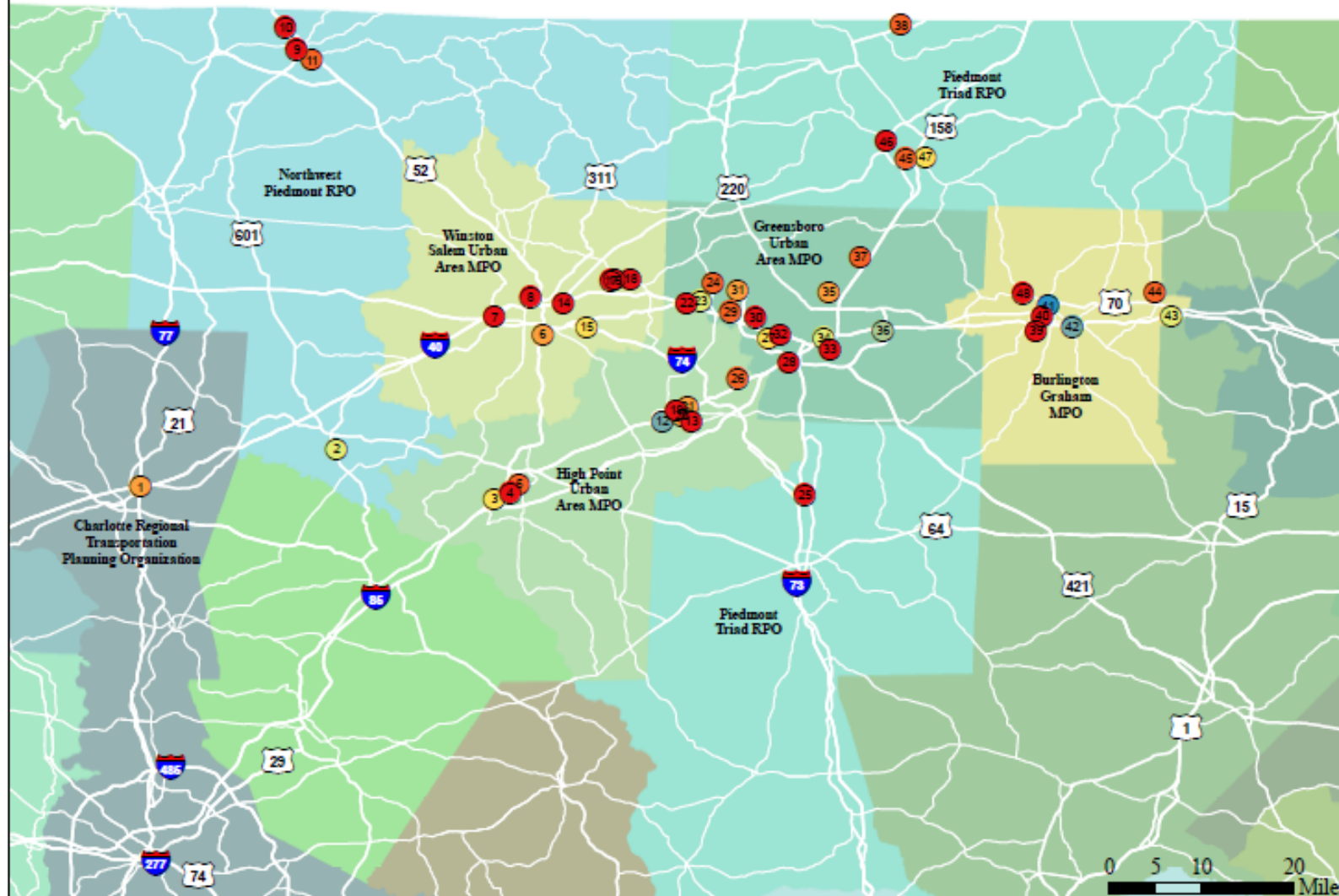


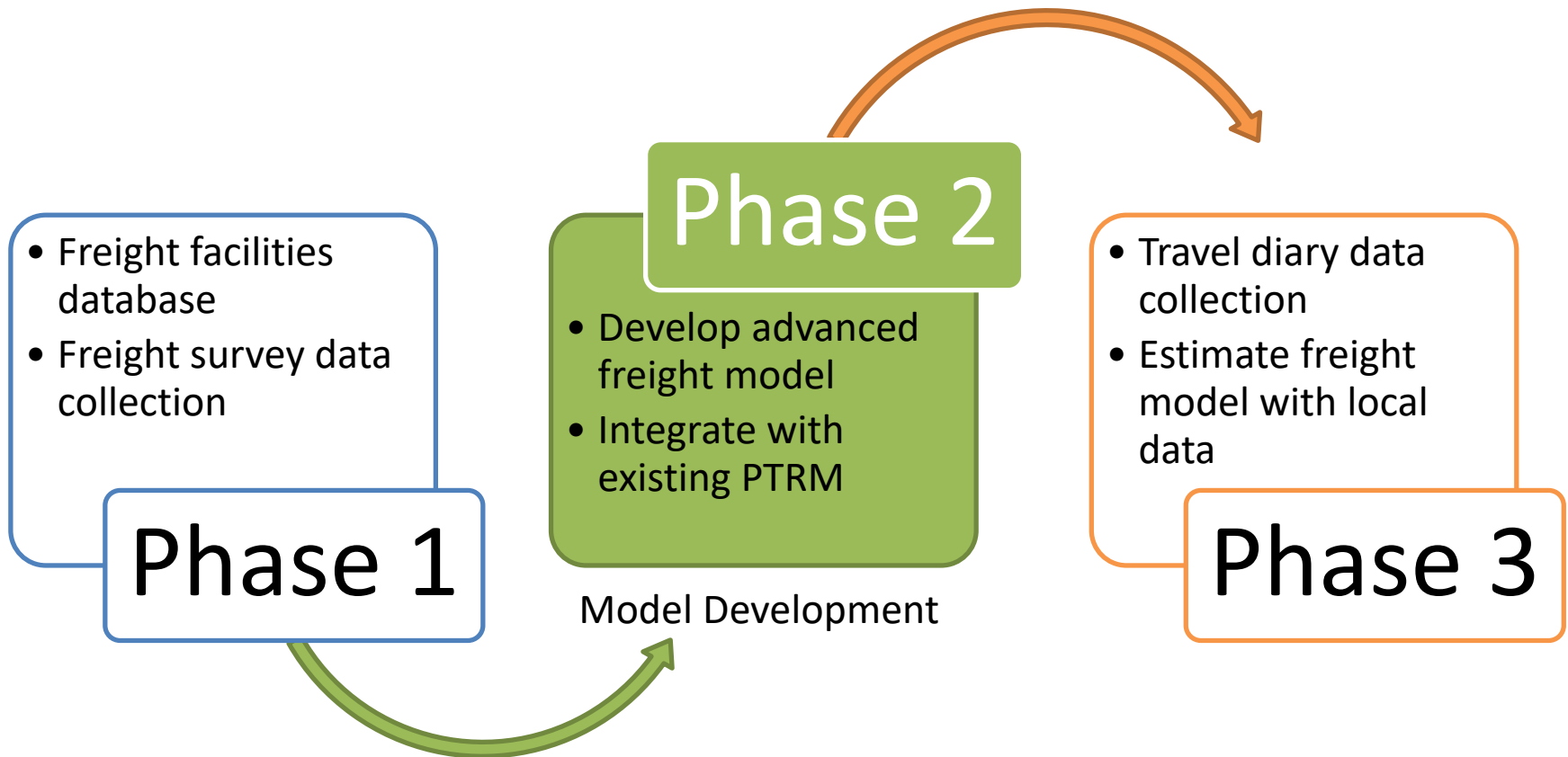
Freight Survey Comments

Out of 158 surveys collected, 48 locations left additional comments/concerns. These concerns were categorized and placed on the map at the facility location or point of concern, depending on the detail of the comment.

Concern

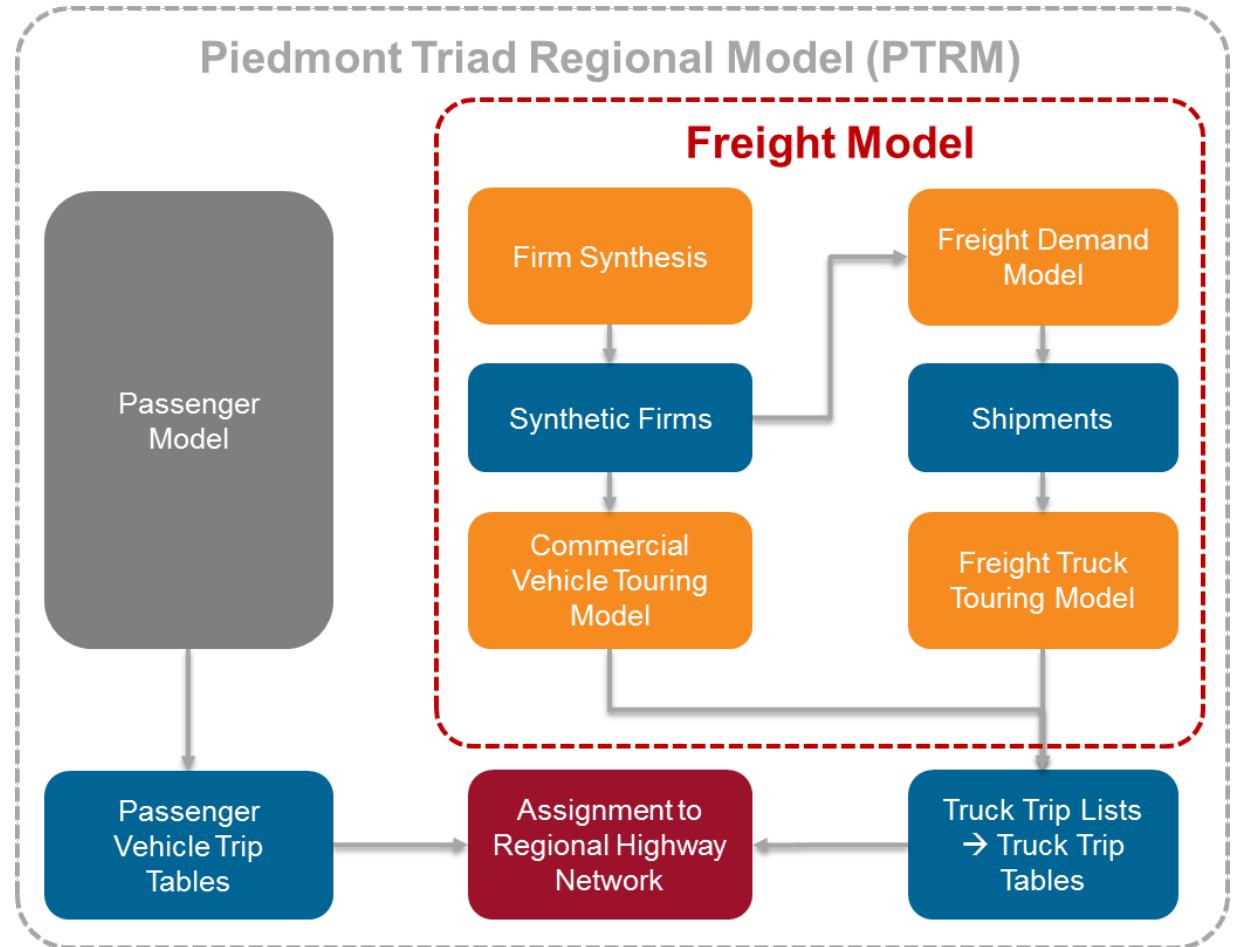
- | | | |
|--|--|---|
| ● Congestion | ● Road Design - Efficiency | ● Regulatory Burden |
| ● Road Design - Safety | ● Poor Road Condition | ● Poor Signage |
| | ● Better Route Needed | ● Lack of Parking |





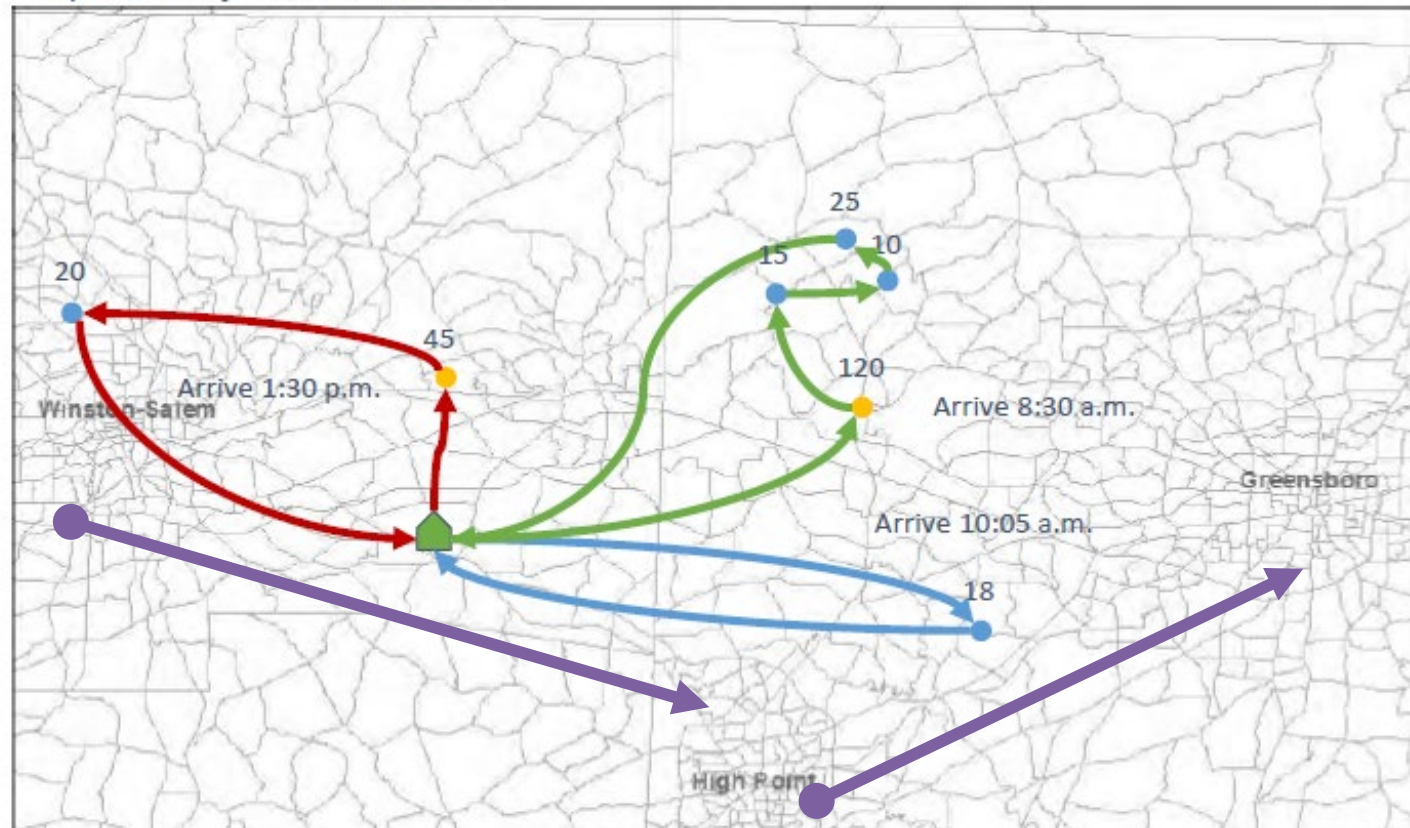
Main model components:

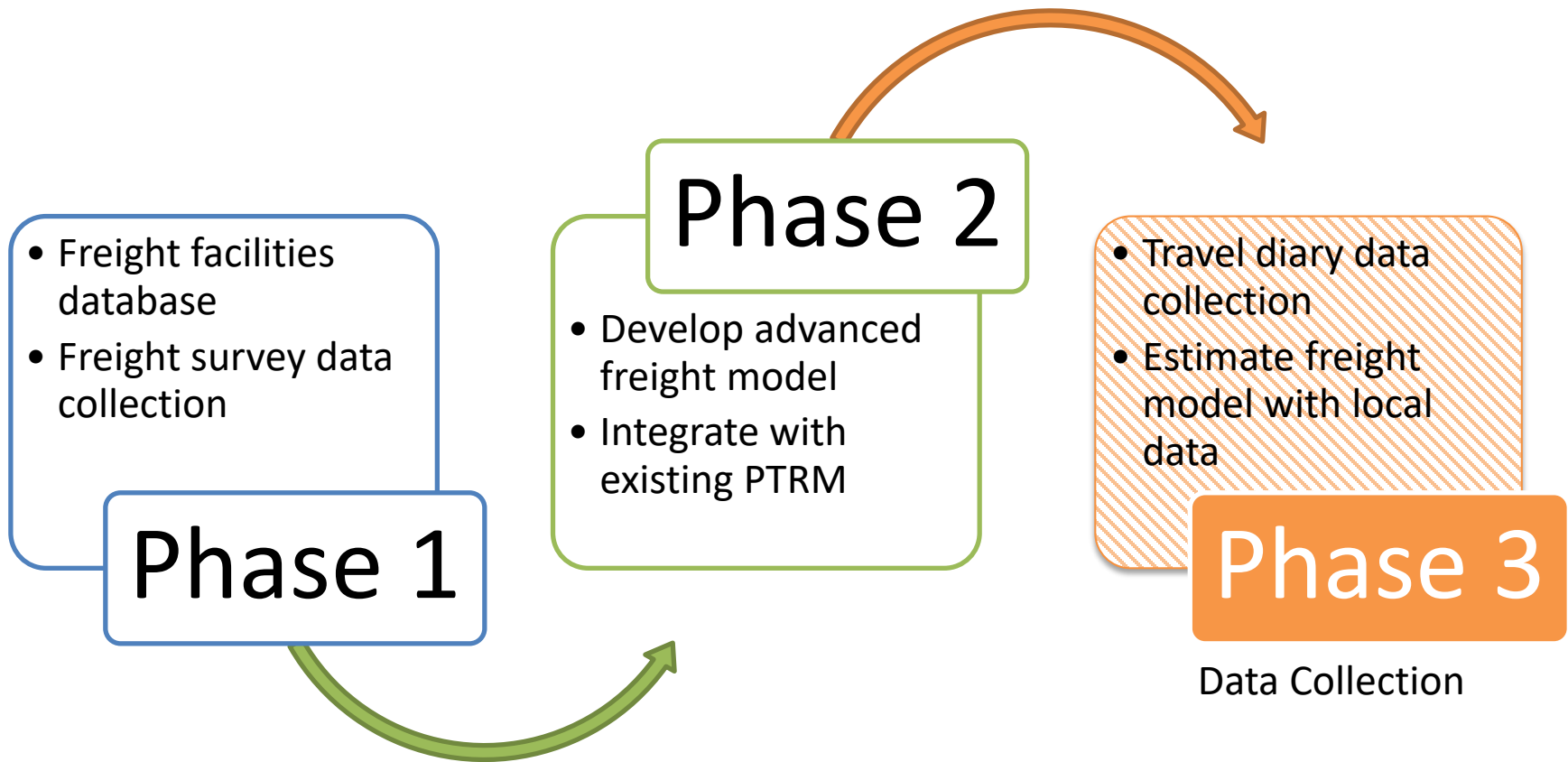
- Firm Synthesis
- Freight Truck Touring Model
- Commercial Vehicle Touring Model



The “Tour Based” Approach

A portion of the model area





Combining Freight Data Sources

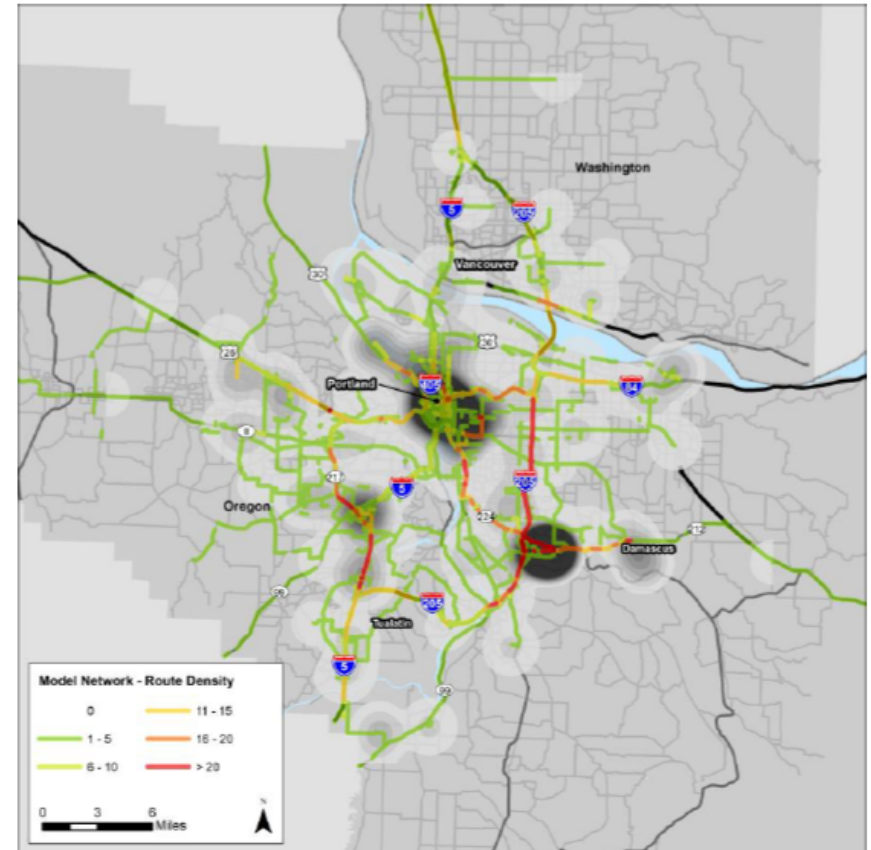
Important for understanding trucks movements is identifying and blending data sources:

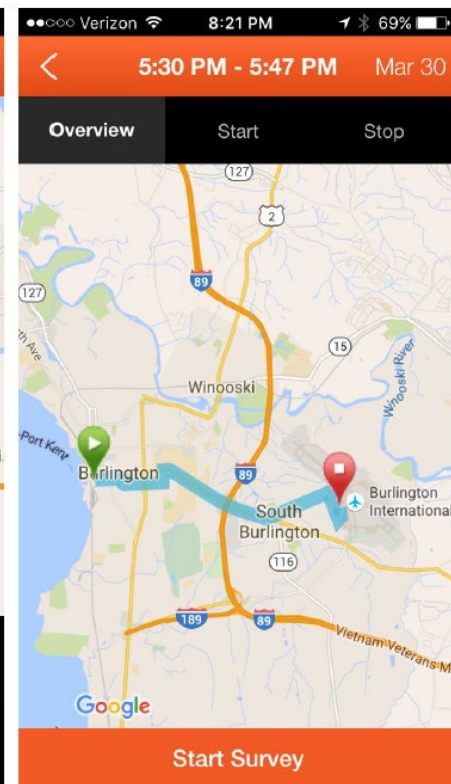
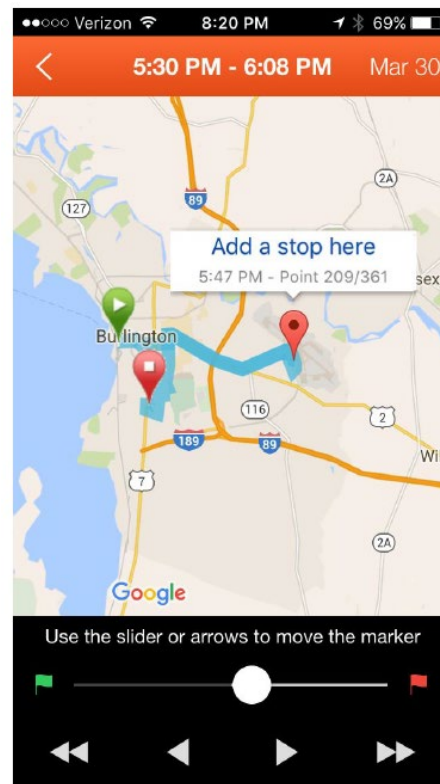
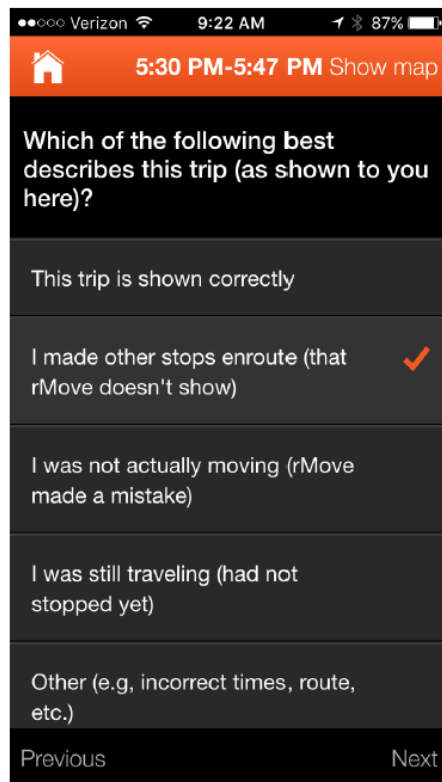
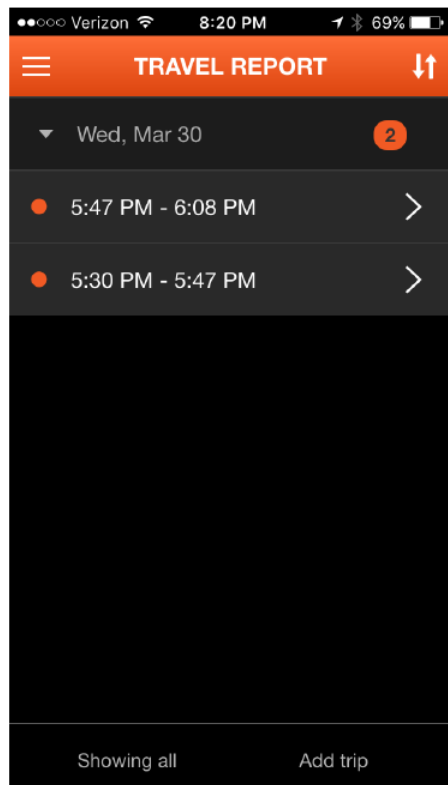
- Smartphone or other types of surveys of truck drivers



- Stakeholder collected data
- Public data sources (FAF, Rail Waybills, etc.)
- Commercial Passive data (ATRI, INRIX)
 - Purchase passive data and match to truckers in rMove to synthesize mode and commodity type

Also important is identifying appropriate approaches to blend data, e.g., combining truck GPS data and surveys, and expansion to truck counts





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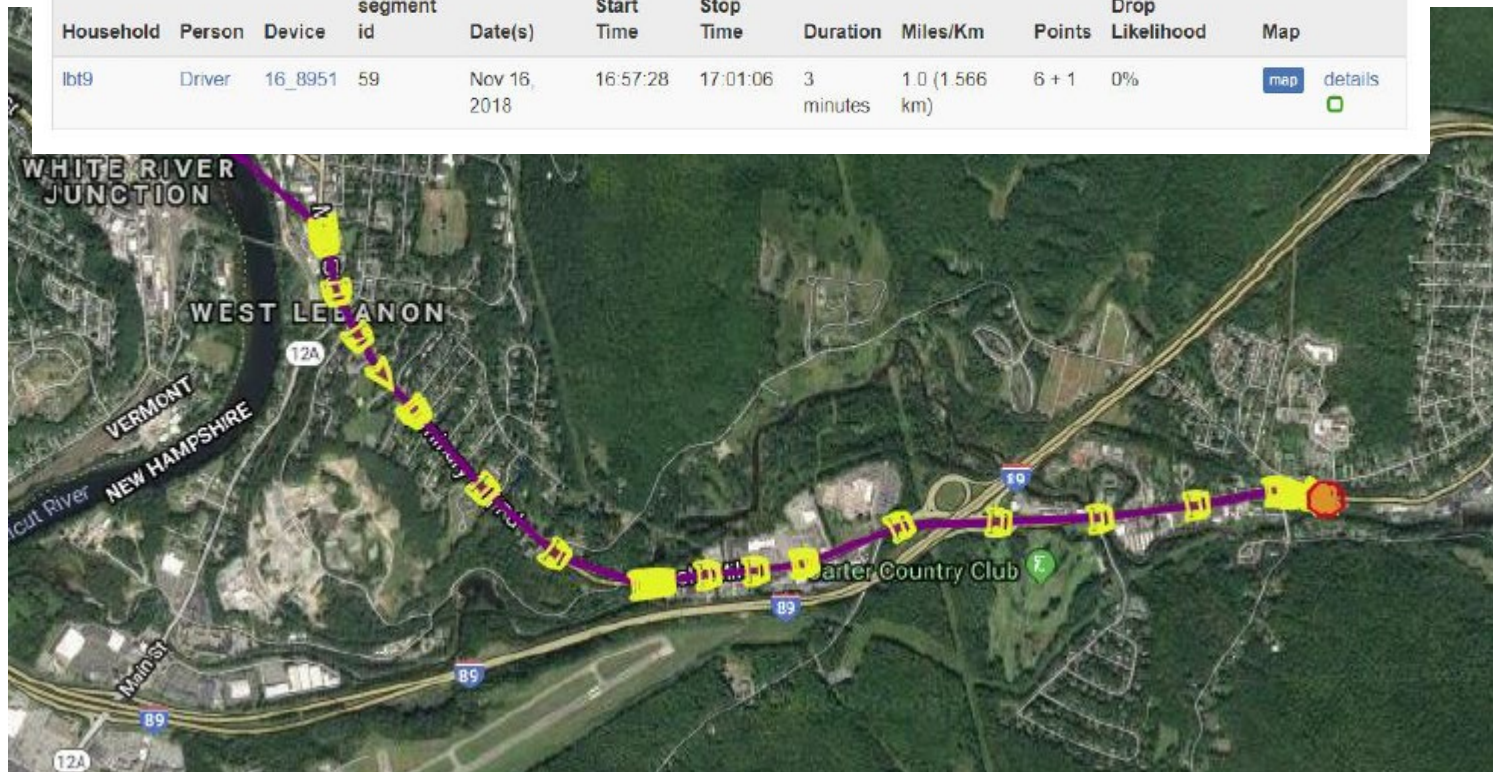
Answers

veh_type	Light Duty: 2 axle, 4 tire commercial (car, pickup truck, or va...
purpose	Return home
work_trip	Yes

sluglify

Segments

Household	Person	Device	Device segment id	Date(s)	Start Time	Stop Time	Duration	Miles/Km	Points	Drop Likelihood	Map
lbt9	Driver	16_8951	59	Nov 16, 2018	16:57:28	17:01:06	3 minutes	1.0 (1.566 km)	6 + 1	0%	map details



Establishment Survey: Overview

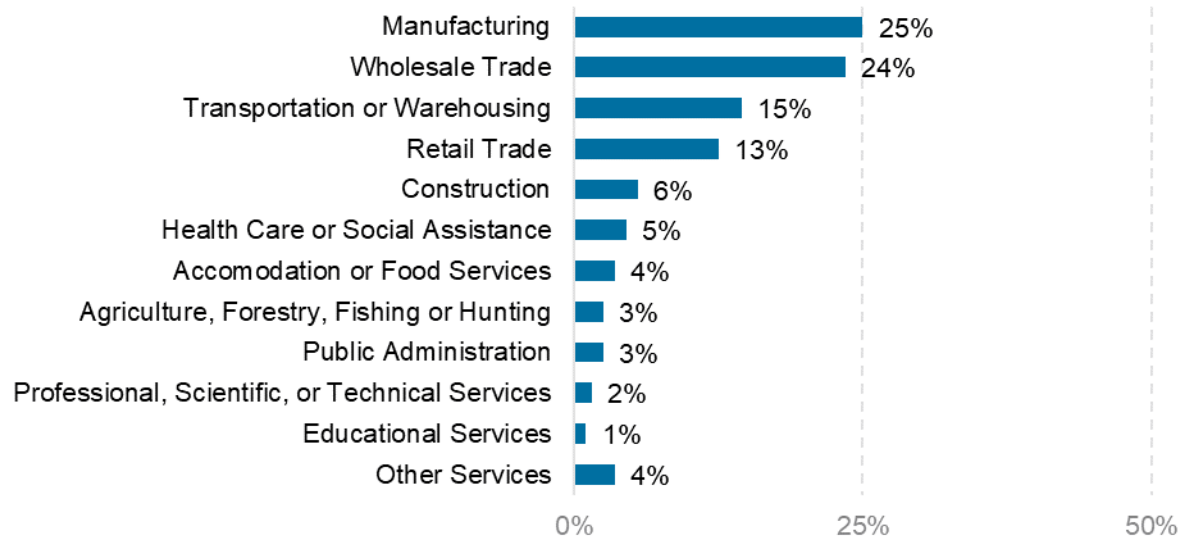
- To collect information about **business behavior** in the region
 - Shipping and receiving of freight shipments
 - Operation of freight trucks or commercial service vehicles
- Data will be used to update components of all **four parts of the model**
- Telephone survey with web completion option
- **Sample of businesses from different industries** in the Piedmont Triad region
- Calling and interviewing done by a call center
- Survey recruited drivers for the truck diary survey

Establishment Survey

Company Primary Customer Offering

PRIMARY OFFERING	COUNT	PERCENT
Just shipping	110	55%
Just provides services	29	15%
Provides both	61	31%
Total	200	100%

Primary Business

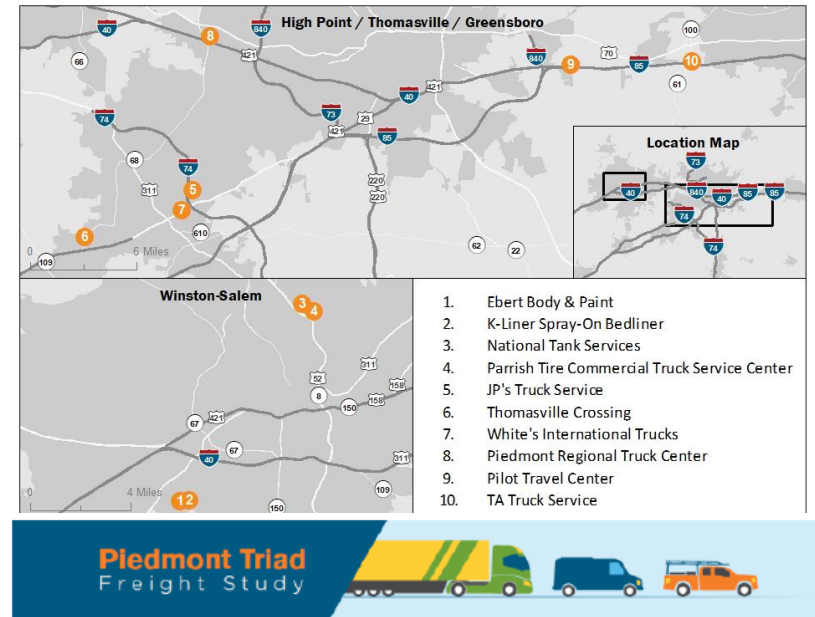


Truck Diary Survey: Overview

- To collect information about **truck travel behavior** in the region:
 - **Tour patterns** (number of tours per day, number of stops per tours, types of tour – out and back, multi-stop)
 - **Commodities carried, delivery quantities, service activities, other stops**
- Data will be used to re-estimate and/or calibrate the truck touring models (in combination with ATRI GPS data from NCDOT)
- Survey used rMove smartphone app (installed from Google Play/Apple store) to record trips and asked drivers details of each trip
- **Sample of drivers** from businesses in the establishment survey and intercepted in person at truck activity locations

What was done the first time...

- 8,000 survey invitations with NCDOT support letter from deputy secretary were mailed.
- *10 Onsite In-Person Intercepts*
- An incentive was offered.
- Reached out to the North Carolina Truckers Association (NCTA).
- Promoted the Truck Diary Survey at a Triad Business Journal event held in Greensboro.
- Attended the North Carolina League of Transportation and Logistics (NCLTL) spring luncheon on March 21, 2019 hosted at the Charlotte Motor Speedway. across the state.
- Promoted the driver survey and distributed recruitment materials at the Piedmont Triad Region Technology and Maintenance Council fleet managers meeting.
- Establishment Mailout and Email Follow-Up



Piedmont Triad Commercial Travel Study for Drivers

The North Carolina Department of Transportation needs to collect information from drivers about how commercial goods are being moved in and around the Piedmont Triad Region.

If you're a driver who picks up or delivers goods in the Piedmont area, we need your input to help us make important decisions about future transportation investments in the region.

If you qualify for and participate in this smartphone-based survey of drivers, you will receive a \$40 electronic gift card to spend.

Please see the reverse of this card for information on how to participate.

For more information
about this study visit
www.ncfreight.org

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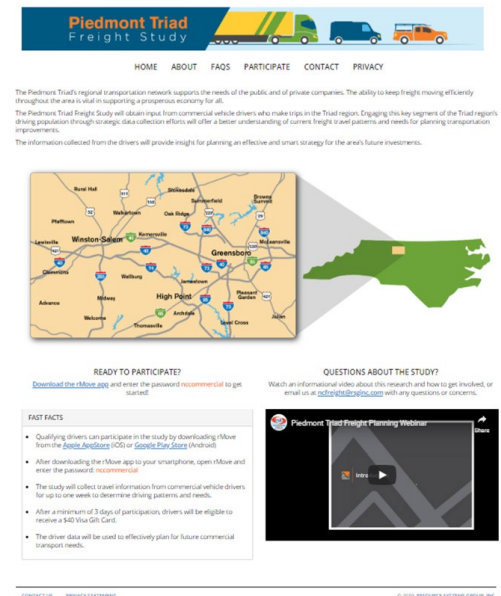
and the Metropolitan Planning
Organizations (MPOs) of
Greensboro,
Winston-Salem,
High Point, and
Burlington-Graham



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The second time...

- Re-connected with companies that completed the Establishment Survey (two emails)
- Webinar held and Video posted on website
- Contacted Triad Chambers
 - Kernersville
 - OD, Best, EPES, Fed EX Ground invited and encouraged to participate
 - EPES and Best attended and commit to participate, FedEx Ground also committed via text to Chamber President
 - Greensboro
 - digital introductions to R&R, GTCC
 - Spoke with R&R Transportation representative, said they would participate
 - High Point
 - Presented to Chamber staff, Chamber Board Chair is Congdon with OD
 - Held an event on Nov. 19th - No one showed up
 - No response from Winston-Salem or Burlington Chambers



The third time...

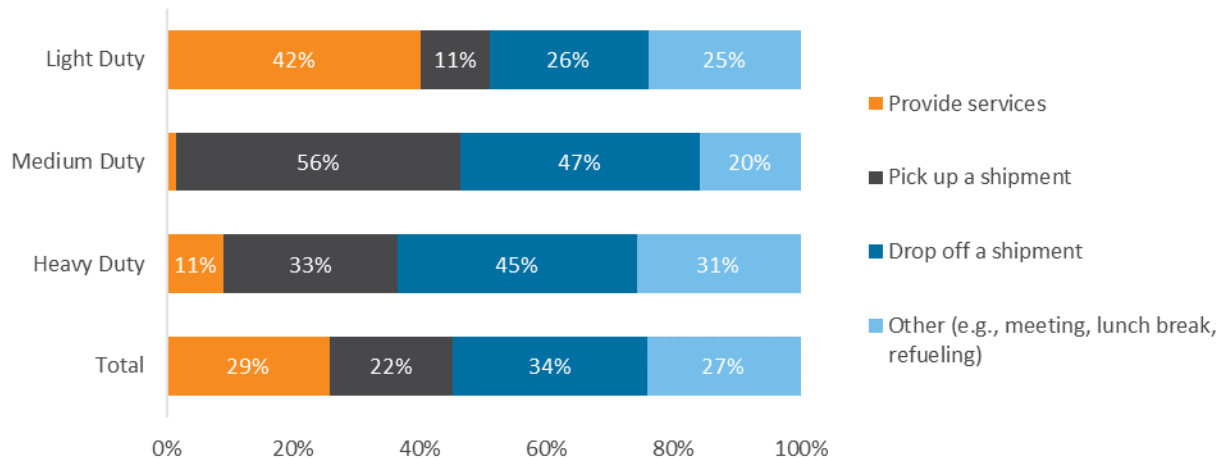
- Issued a Press Release and Posted on Social Media
- MPO's
 - Each MPO sent a reminder to TCC and TA C members
 - High Point Public Works staff participated in Webinar, follow-up Email sent
- Greensboro Field Operations will complete survey with App
- Connected myself the Sam Chinnis at GTCC
- Sent reminders with various prior contacts
 - State ports, NC Trucking Assn., L.J. Rogers Logistics etc.
- Contact with Sandra Collins International Logistics & Trade Compliance Manager at Ennis-Flint through Ahmed and Charles with NCDOT
- Contacted a friend that I recently learned was a truck driver. He pledged to take and share with his co-workers.



Truck Diary Survey

RECRUITMENT TYPE	DRIVERS SIGNED- UP	DRIVERS PROVIDING TRIP DATA	DRIVERS EARNING INCENTIVE	TOTAL DRIVER DAYS
Via Establishment Survey	28	15	14	79
In-Person Intercept	7	2	2	11
Leveraged Outreach	52	19	14	91
Total	87	36	30	181
Targets	200 Drivers			800 Days

Trip Purpose, by Vehicle Type



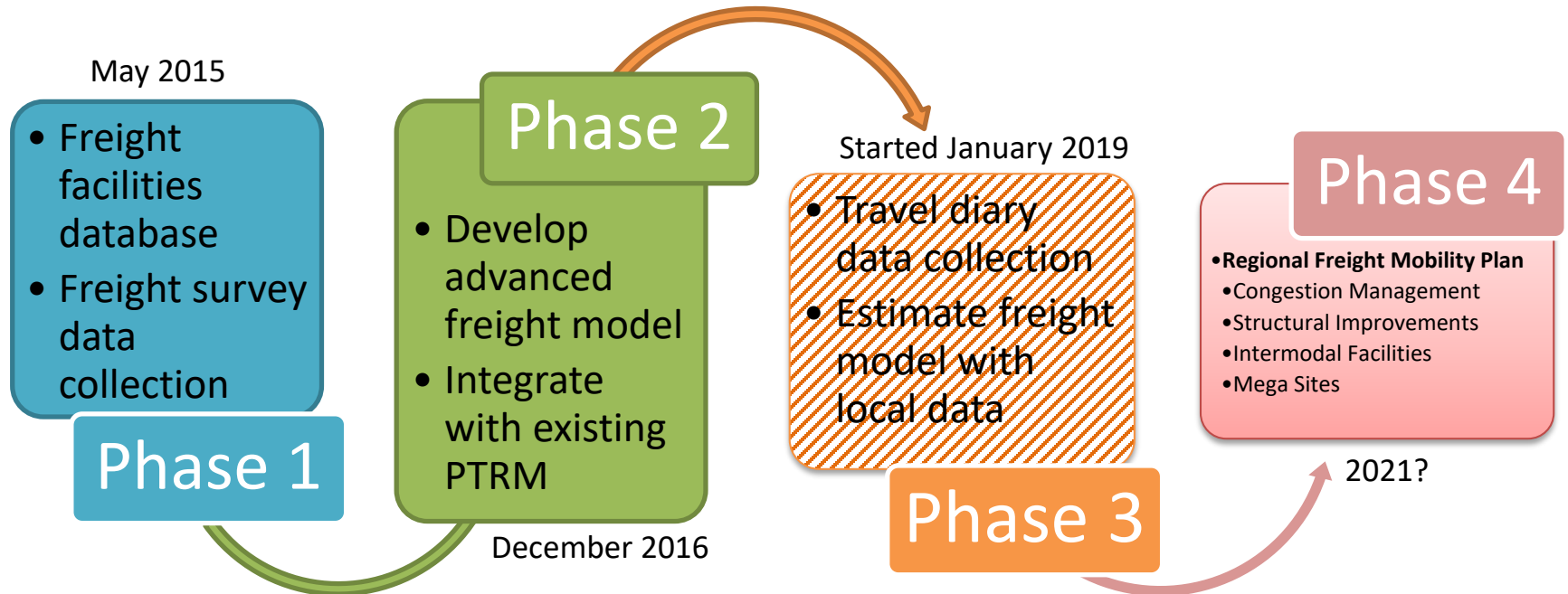
The Technical Report reasons why it didn't work

- **Privacy Concerns** – “This information of very confidential.” / “You’re going to track me.”
- **Safety Concerns** – “I can have my drivers distracted by logging their trips on an App.”
- **Reporting Fatigue** – “We Already have to report that information.”
- **Bottom-up Recruiting**- “Sure, I ask our drivers if they want to do it.”

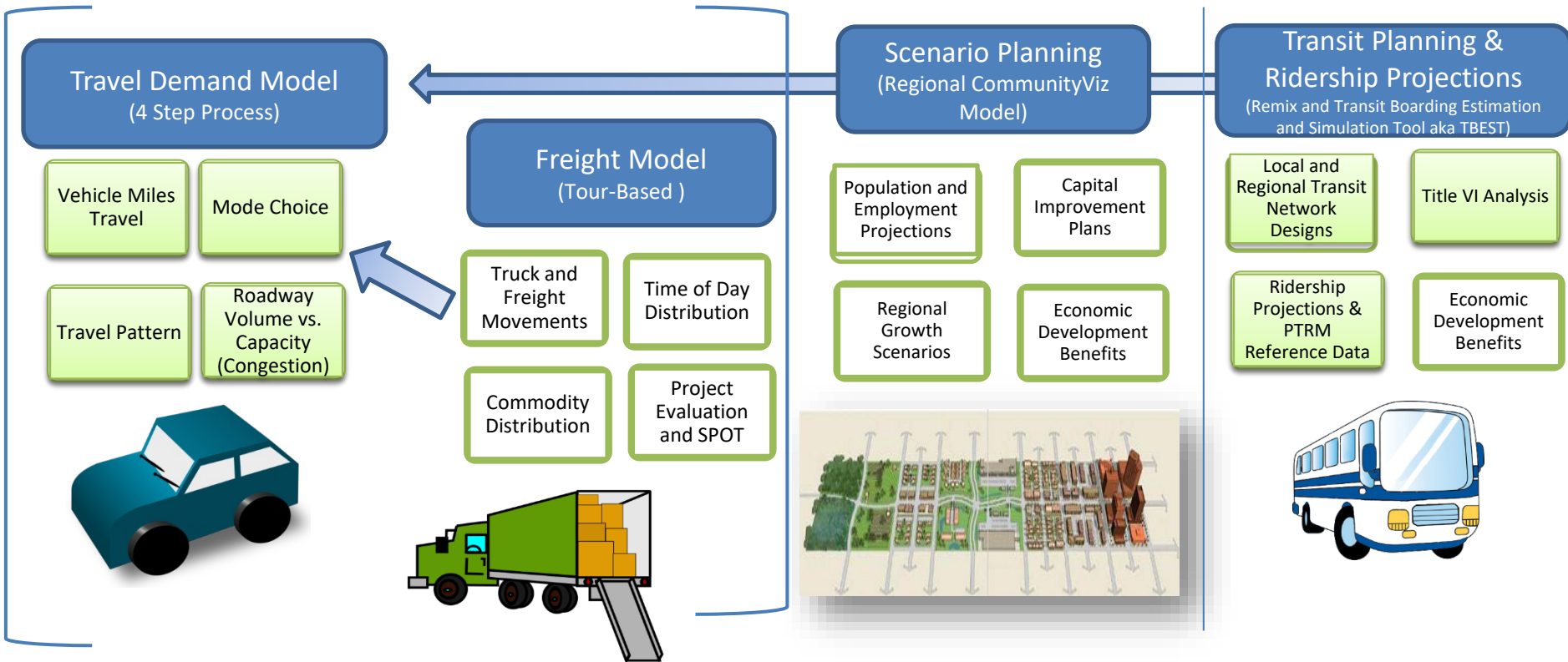
My list...

- **Its not a priority in their world**
 - Truck parking initiative at State level – great participation
 - Never had a forum to fully explain the impacts to the industry beyond having the model
 - Project prioritization
- **I'll do it for you my friend.**
 - We don't have a relationship with the industry
- **Hard to get access to the actual drivers**

Beyond Phase 3...



Piedmont Triad Regional Modeling Program



Where this is headed

What we have

Freight focused
information
system

Big picture benefit

Used to inform land
use planning,
transportation
planning, and project
prioritization

Specific applications

Investigate freight
clusters
Estimate truck trips
Project prioritization
Inform land use and
rezoning decisions
Identify characteristics
supporting freight
clusters

What comes next

Policy scenario
analysis
Mode choice
Understanding of
dynamics between
congestion and freight
Impacts of land use
decisions

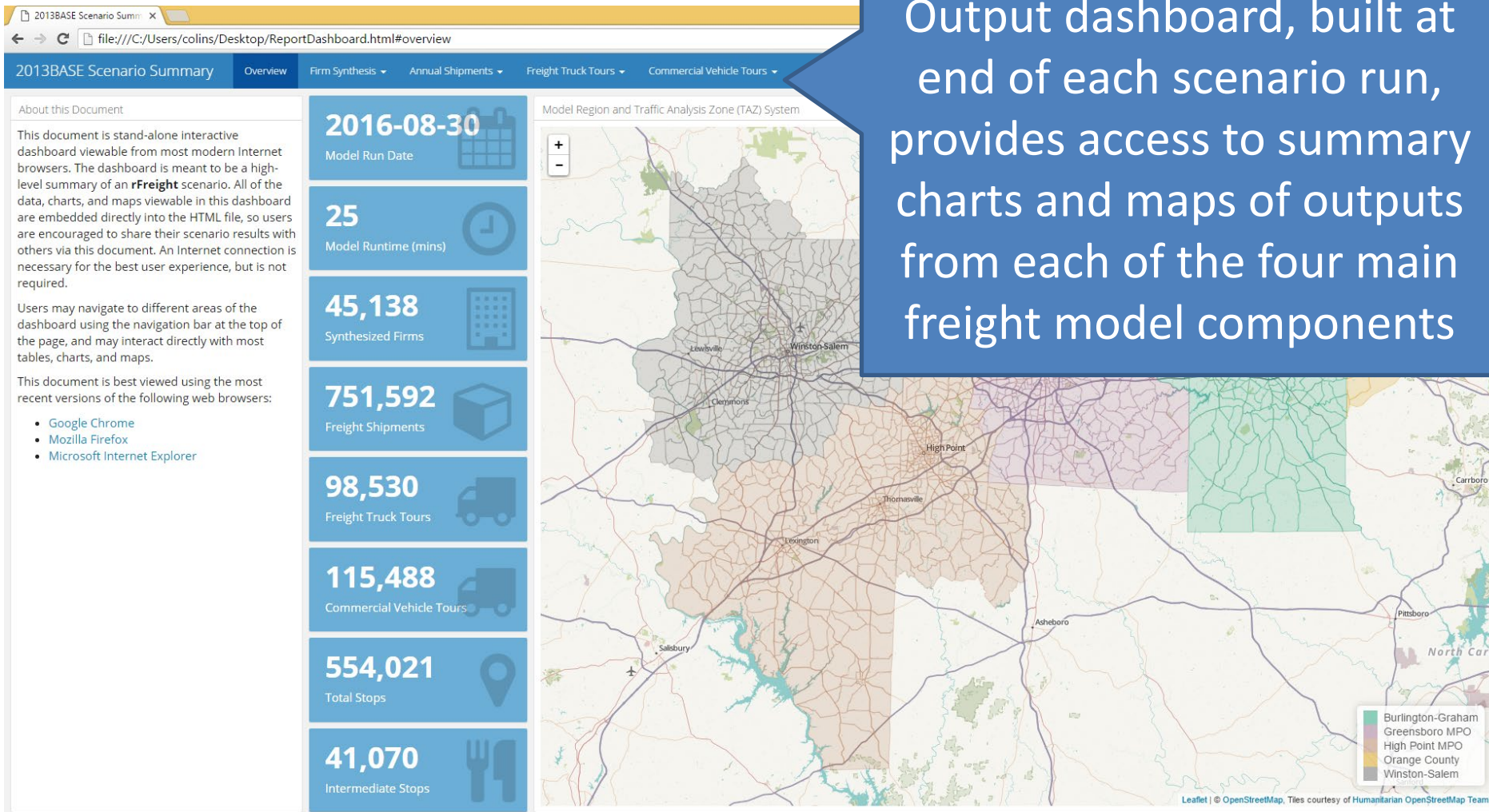
Questions

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Director of Planning
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How can these outputs be visualized?

Output dashboard, built at end of each scenario run, provides access to summary charts and maps of outputs from each of the four main freight model components



How did PTRM handle freight?

PTRM used a typical trip-based process:

- Trip Generation (based on employment by type)
- Trip Distribution (based on trip length)
- Time-of-Day (trips are split into each time period)
- Trip Assignment (auto, single-unit, multi-unit)

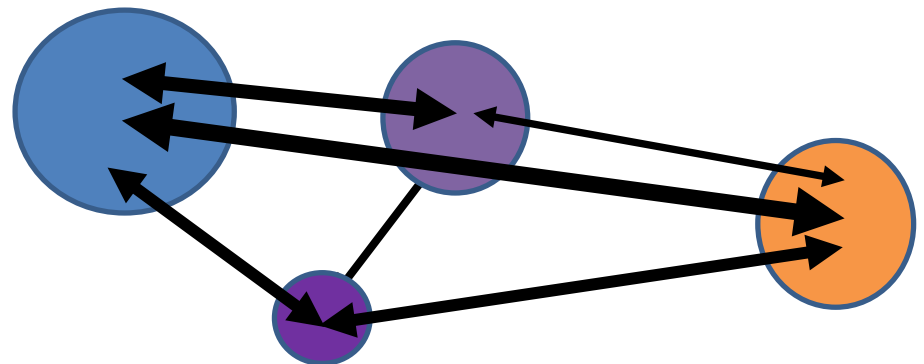


Nearly every model in the US uses a similar methodology.

What was the issue?

The ability to realistically reflect and analyze freight movements was limited.

- 1) Truck trips are not strictly based on employment – commodities are important
- 2) The interaction between distribution centers and businesses were missed
- 3) Trips aren't "linked" – Each trip has no memory

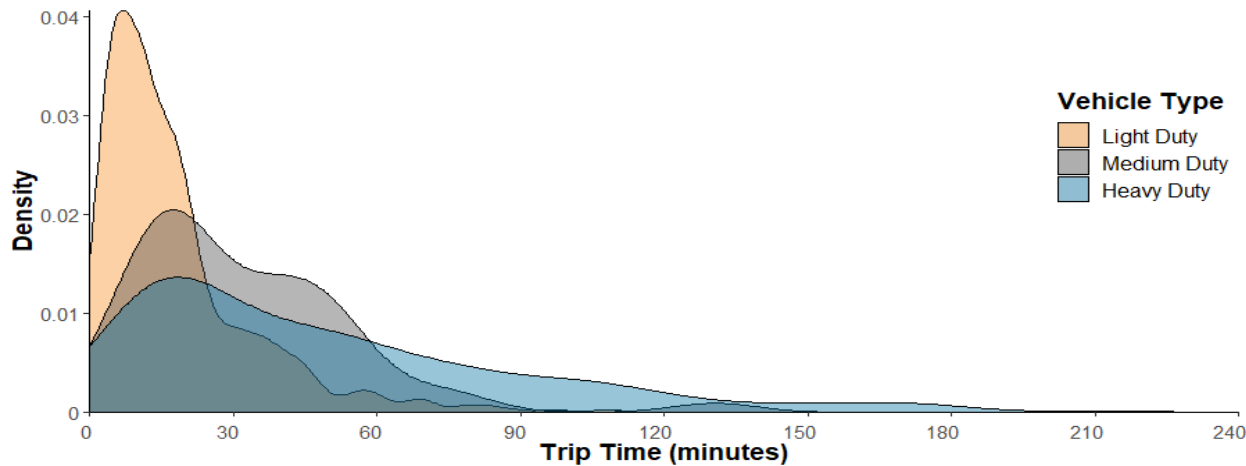


What does Tour Based Freight Model do?

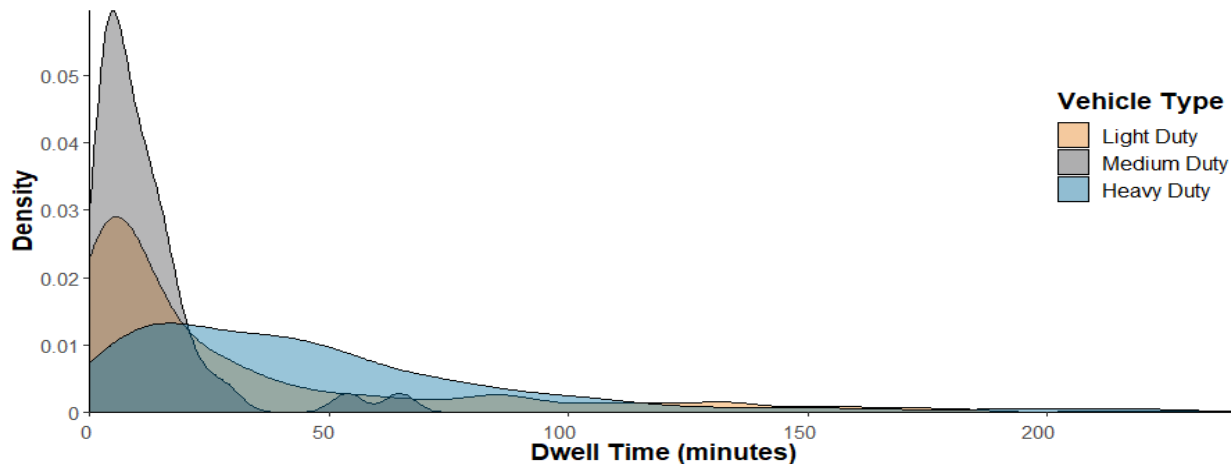
- Represent **characteristics** of firms and shipments
- Represent **supply chains** – link buyers and suppliers
- Capture **trip-chaining** - follow truck “tours” throughout the day
- **Differentiate** freight versus commercial vehicles
 - shipments versus goods and services

Truck Diary Survey

Trip Duration Distribution, by Vehicle Type

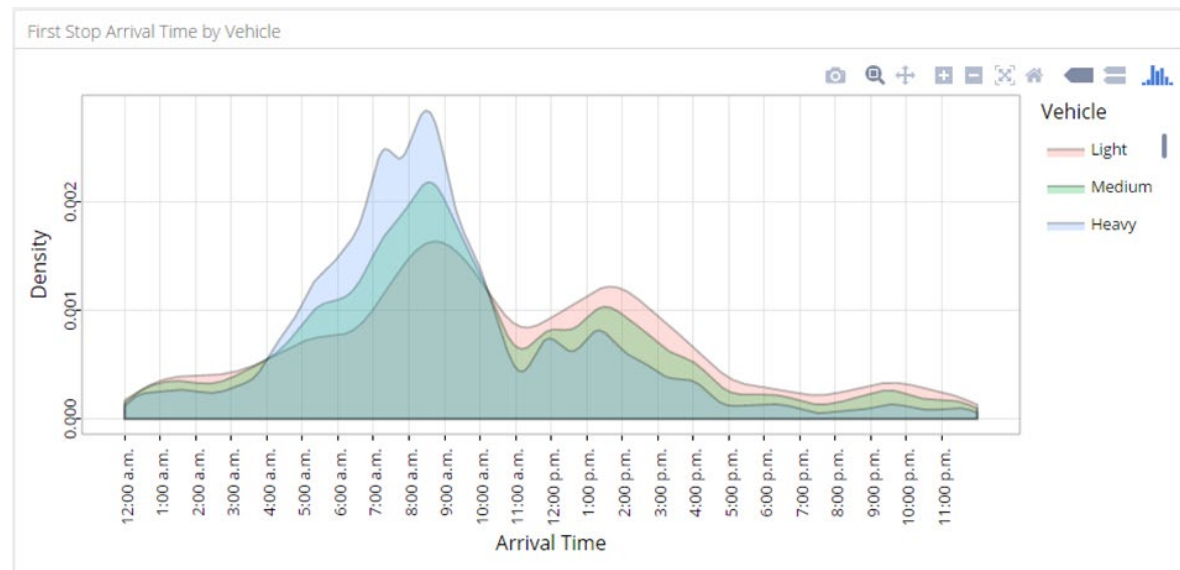


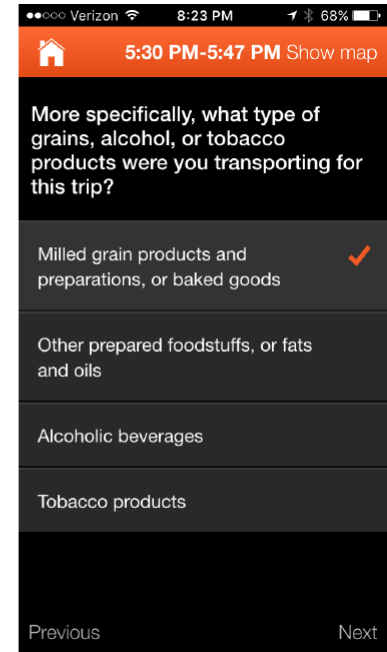
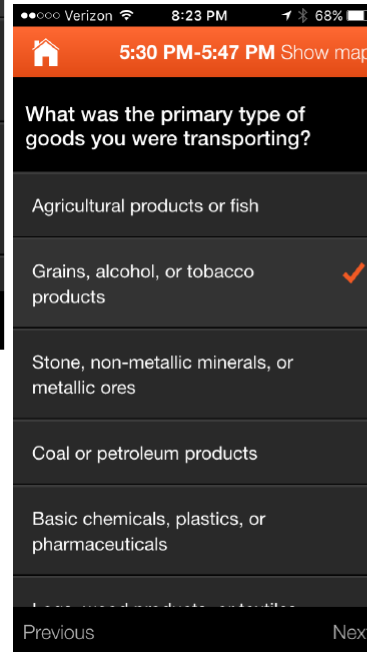
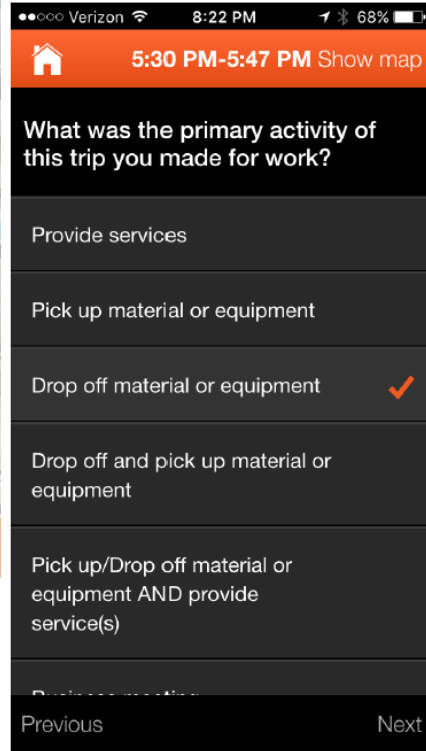
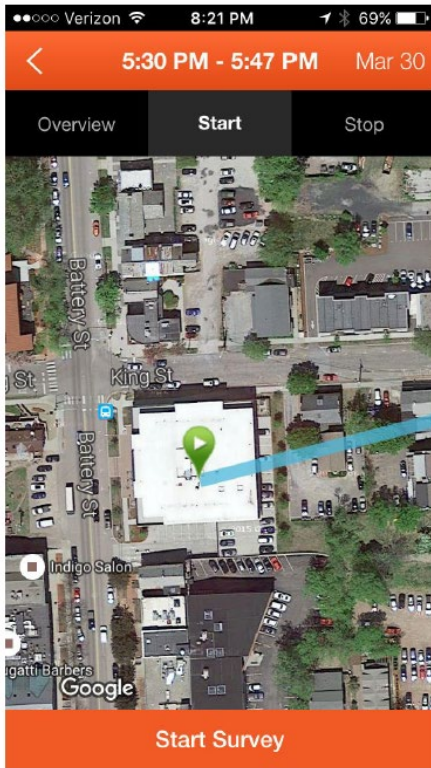
Dwell Time between Trips by Vehicle Type



What can we do with it ?

- Commodity/shipment movement changes under different growth scenarios;
- Analysis of impacts of new freight intensive development;
- Analysis of impacts of new freight distribution centers; and
- Impacts of regional or large scale modal investments that impact freight mode choice to and from the region.





Truck Diary Survey

Trip Purpose, by Vehicle Type

