

Usage of StreetLight Data by HRTPO

VAPDC/VAMPO Training Conference
June 14, 2019
Holiday Inn Charlottesville
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HRTPO Analyses

1. Bicycle Trips in Hampton Roads (HR)
2. Home Location of Trail Users in HR
3. Highway Gateways used by HR Port Trucks
4. River Crossings used by Portsmouth-Norfolk Trips

StreetLight Data

- StreetLight gathers data from:
 - “**GPS devices** (mobile phones, connected cars, truck tracking systems)”
 - “**smartphone applications** that use location data”
 - “e.g. weather notifications when a storm is approaching the users’ location”

1. Bicycle Trips in Hampton Roads

1. Bicycle Trips in HR

- Question:
 - **Where are people using bikes in Hampton Roads?**
- Solution:
 - “Zone Activity Analysis”
 - “allows users to get the volume of trips that **originate** in, have **destinations** in, or **pass through** the zones.”*

Zones

Project: Bicycle Usage in Hampton Roads | Type: Zone Activity Analysis

General Information

Info

Name: Bicycle Usage in Hampton Roads

Country: US

Folder: HRTPO- Rob Case

Type: Zone Activity Analysis

Data Source (Travel Type): Location-Based Services with Pass-through (Personal - Bicycles)

Calibration Type: Without Calibration

Zones

Search

Zone Name	Pass-through	Direction	Bi-directional
HRTPO CBGs - Polygon Set with 1141 Zones.			
510731001001	No		No
510731001002	No		No
510731001003	No		No
510731002011	No		No

Options

Standard

Data Period(s)
May'17, Jun'17, May'18, Jun'18

Specific Date(s)
All Days

Day Types
Average Day: M-Su
Average Weekday: M-Th
Average Weekend Day: Sa-Su

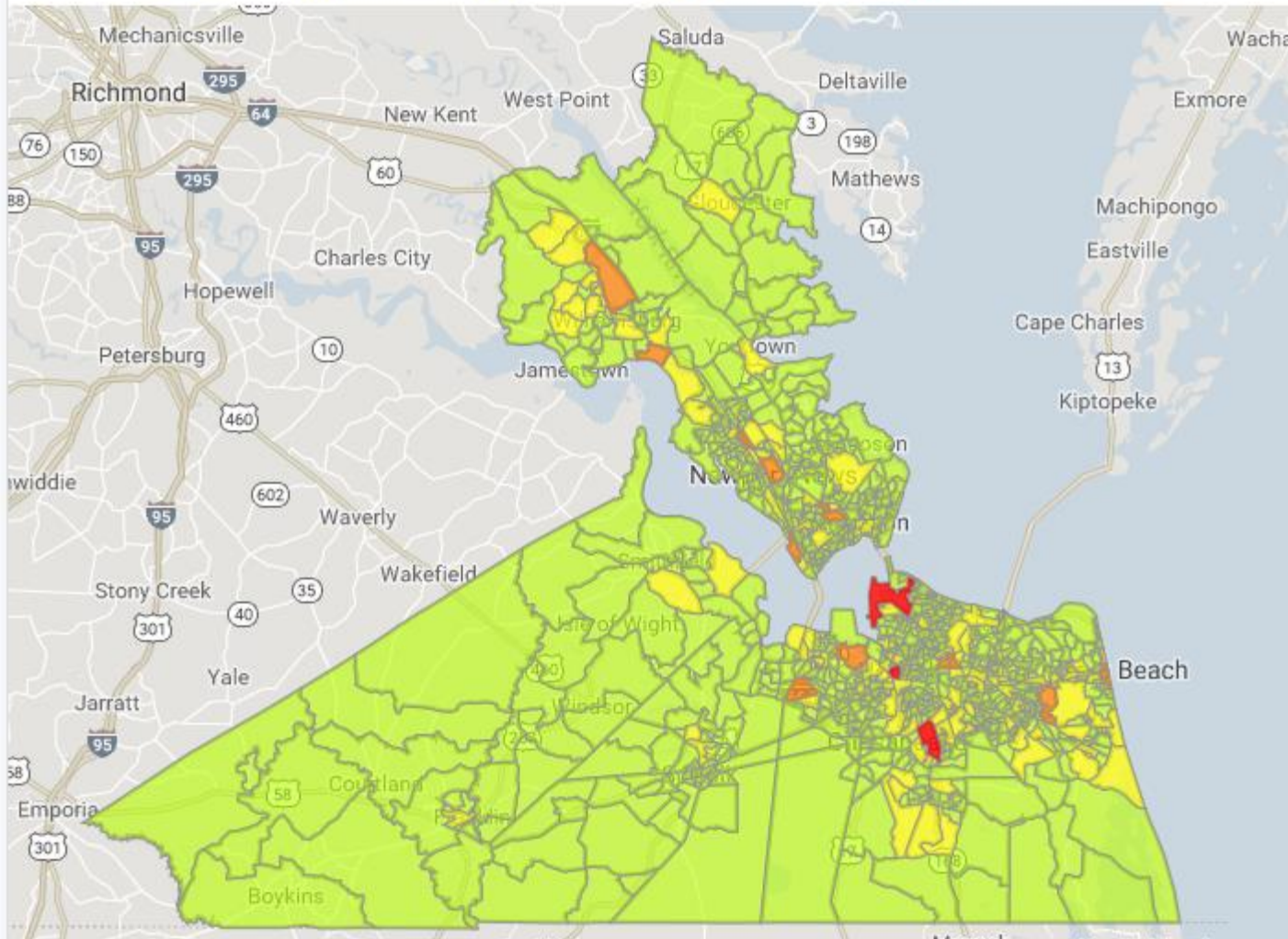
Zoom to enable OSM Show OSM Layer

Bicycle Usage in Hampton ... | Zone Activity Analysis

Average Day (M-Su) | All Day (12am-12am) | All Devices | Zone Activity StreetLight Trip Index

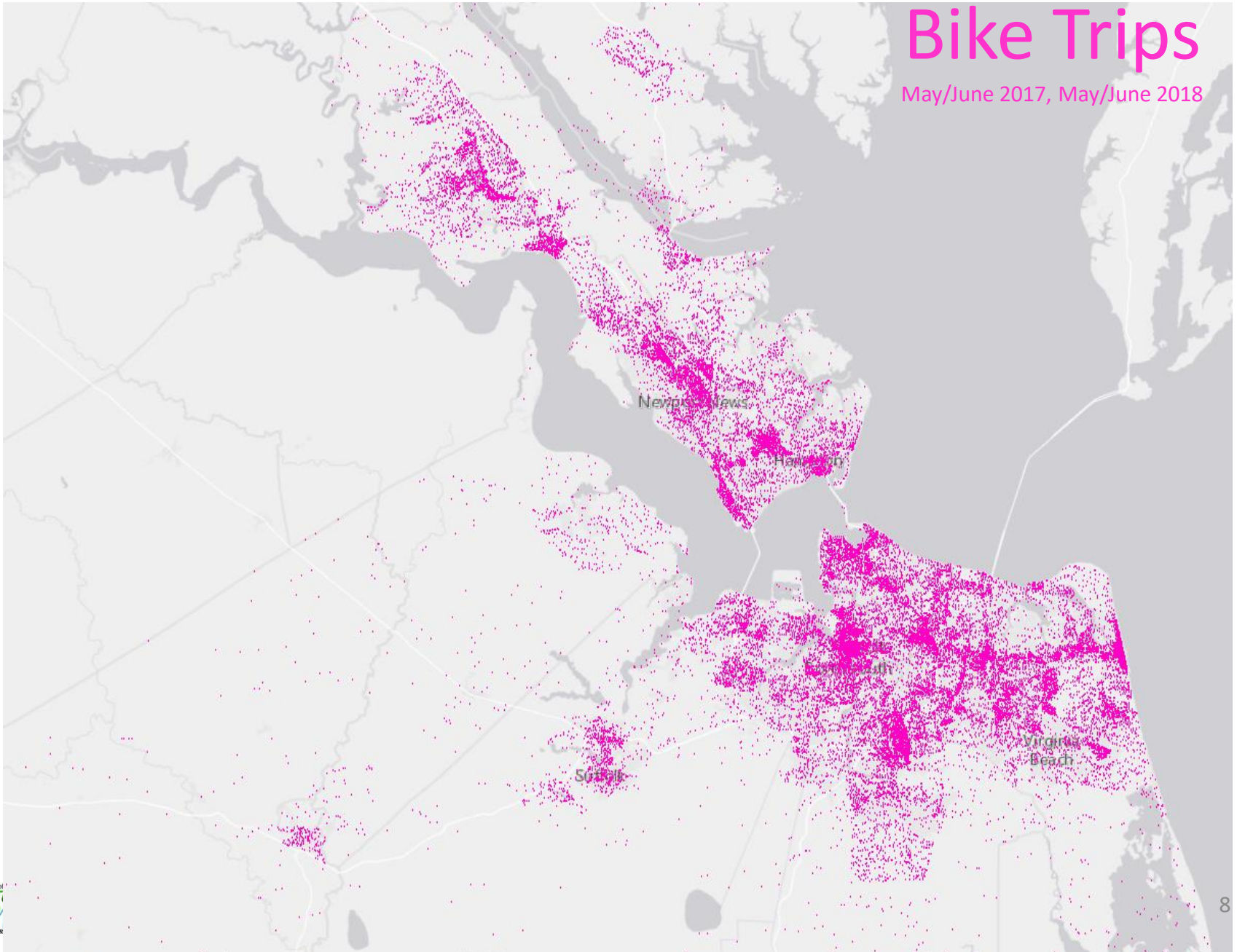
Colors indicate the StreetLight Trip Index to and from each Zone during the selected time period.

Insufficient Trips 1 - 1,115 1,116 - 3,634 3,635 - 7,562 7,563 - 15,045



Bike Trips

May/June 2017, May/June 2018



Bike Trips

May/June 2017, May/June 2018

Marketplace at Hilltop
Chesterfield Station Apts

Oceanfront

Atlantic Ocean

2. Home Location of Trail Users in HR

2. Home Location of Trail Users in HR

- Question:
 - **Are Hampton Roads trails attracting people (and their money!) from out of town?**
- Solution:
 - **“Visitor Home and Work Analysis”**
 - “Analyze the **home and work locations** of visitors to a Zone”

Visitor Home and Work Analysis

- “Visitor Home and Work Analysis” only worked at trip **ends**.*
- “A trip is defined as **ending** when a vehicle turns off, or when a device is **stationary for more than a few minutes**.”

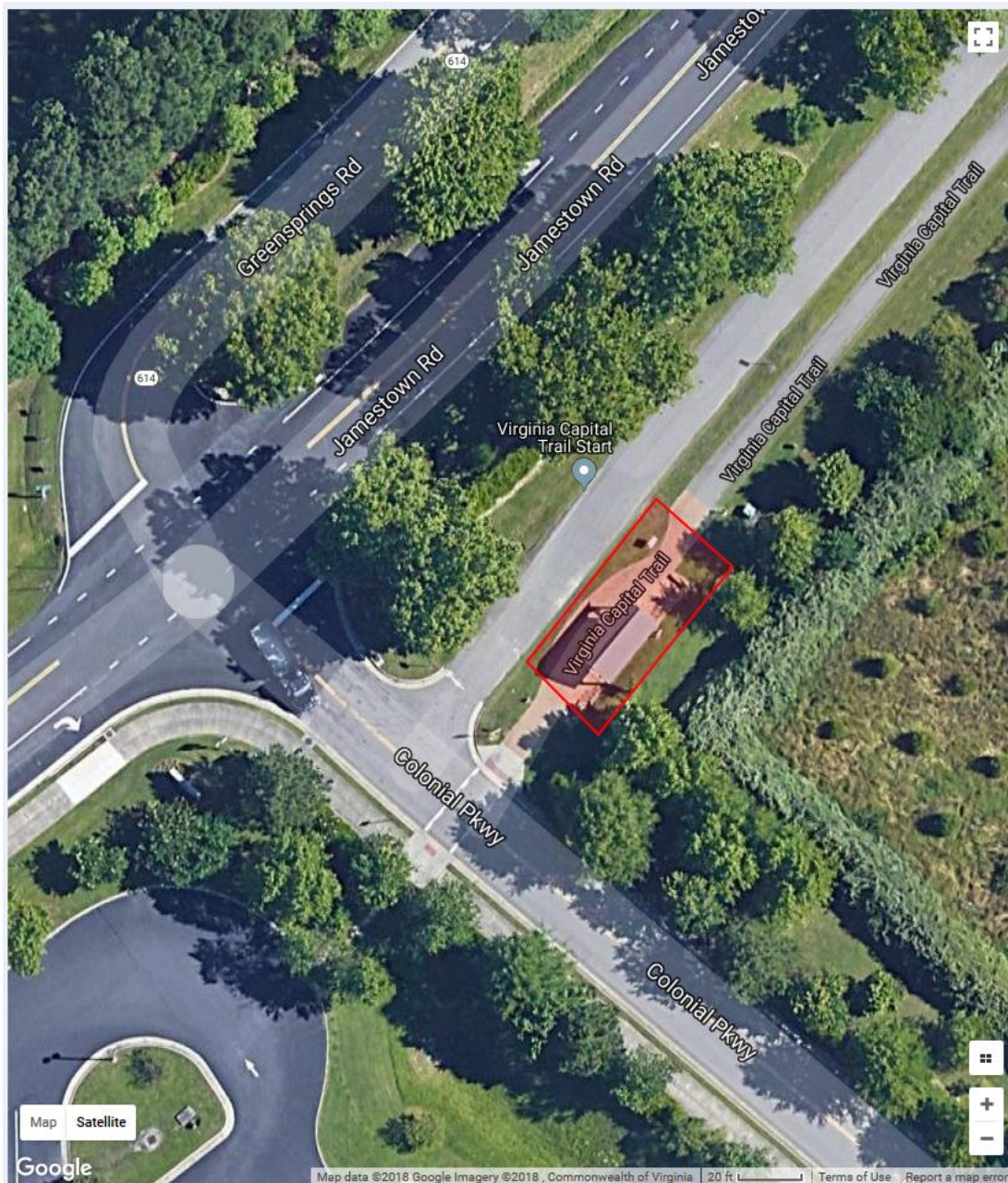
*may work now for trips passing through a zone or segment

Virginia Capital Trail (VCT)

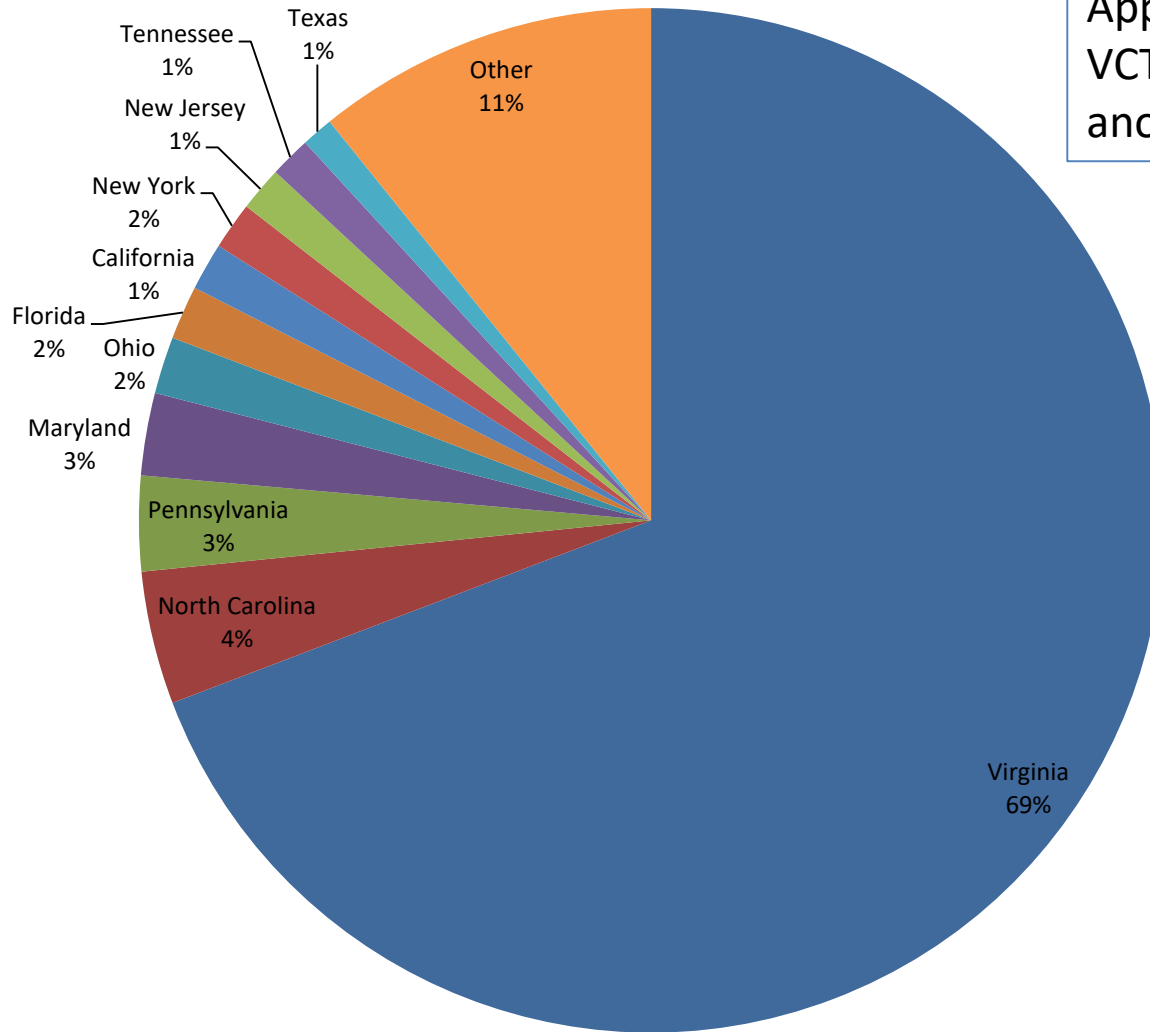
- Some VCT users **rest or repair bikes at the trailhead gazebo** near Jamestown Settlement.



Zone



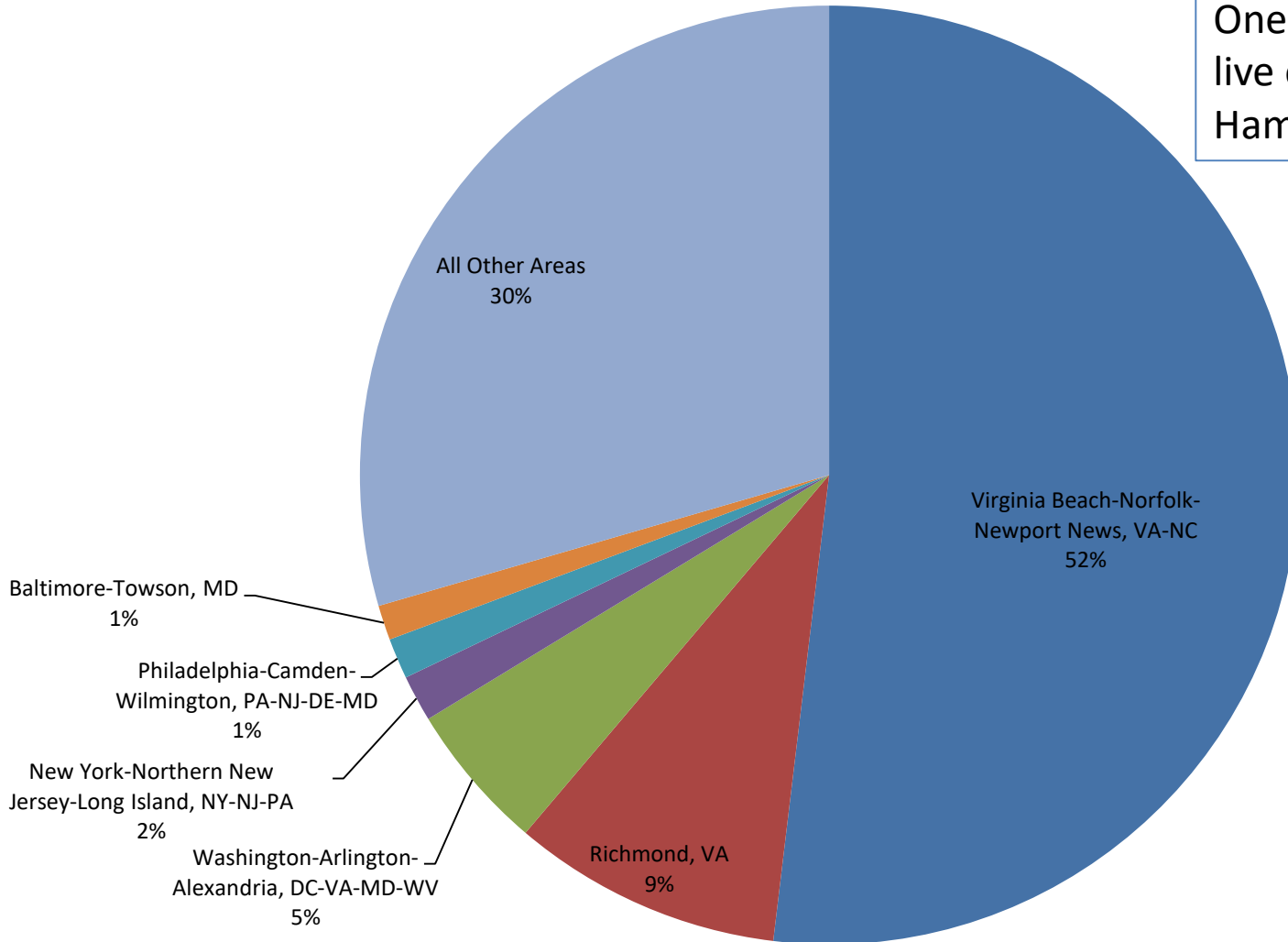
Home State of Va. Capital Trail Users, StreetLight Data, 2017



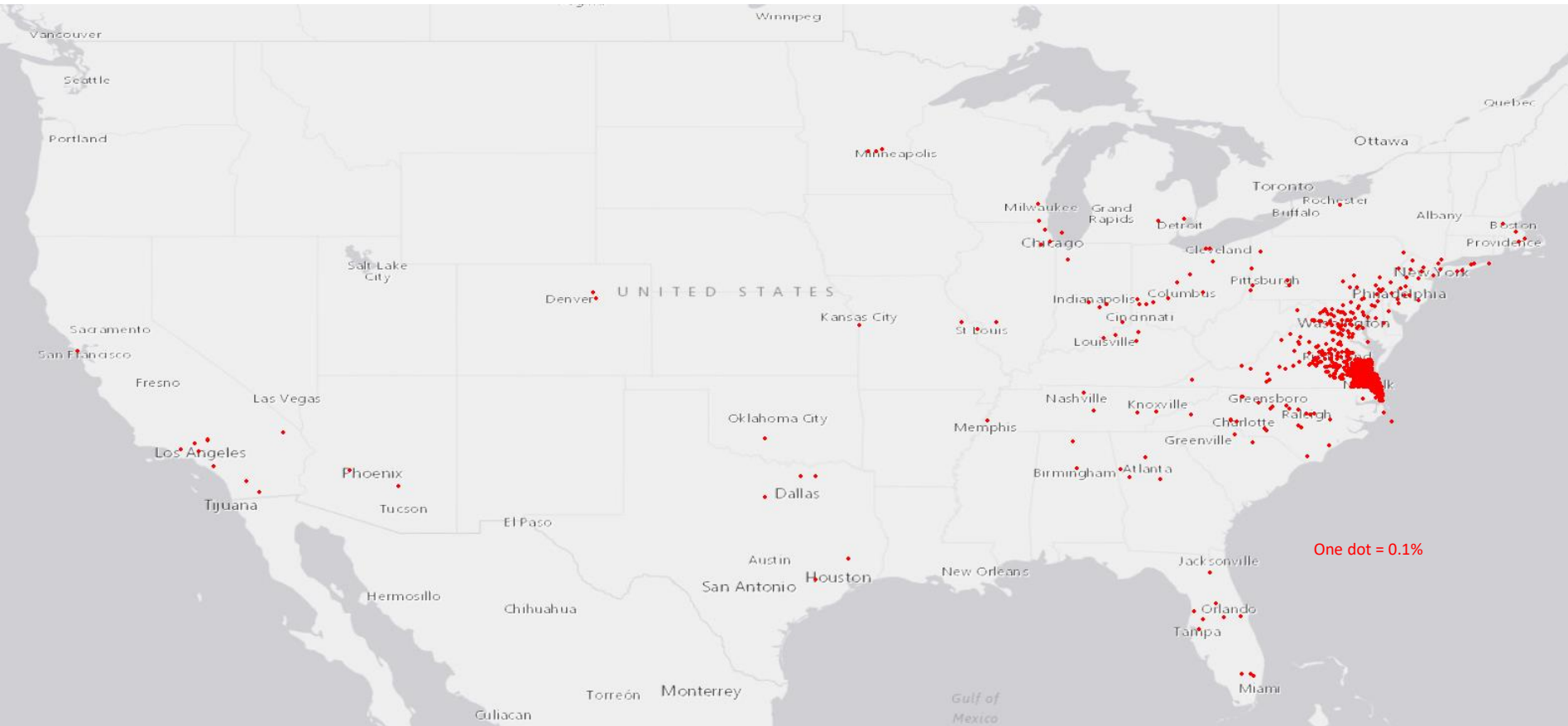
Approx. one-third of VCT users came from another state.

Home Location of Va. Capital Trail Users, StreetLight Data, 2017

One-half of VCT users live outside of Hampton Roads.



Home Locations of Users of Va. Capital Trail, 2017



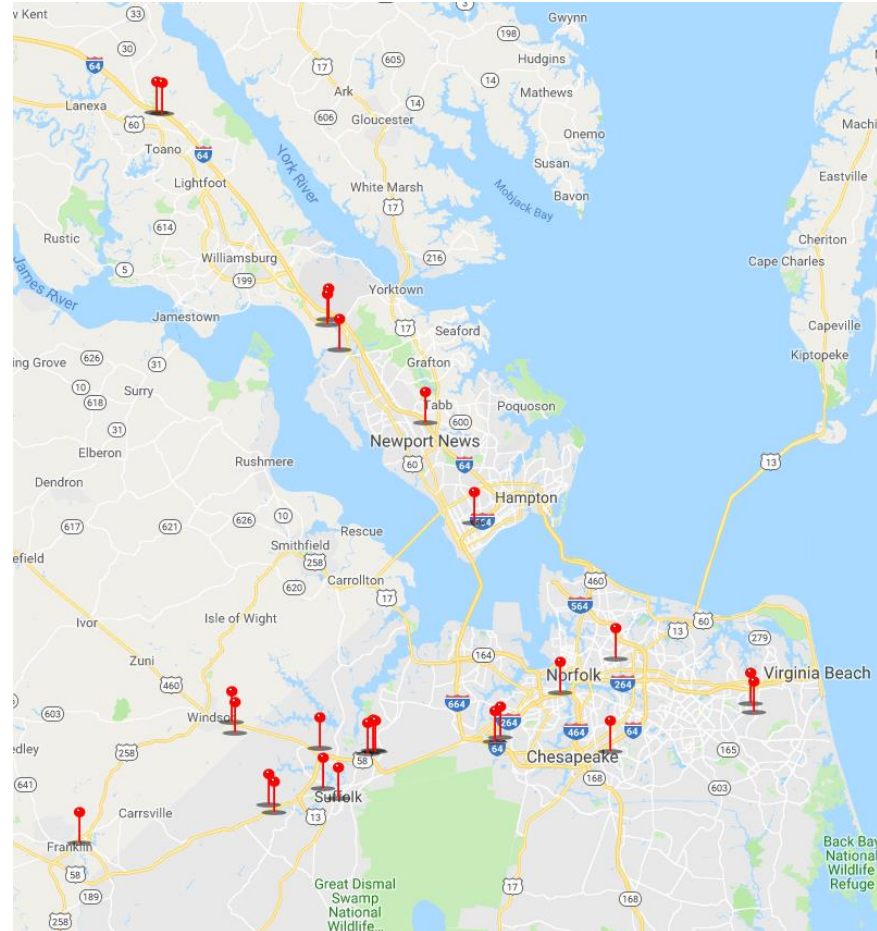
3. Highway Gateways used by HR Port Trucks

3. Highway Gateways used by HR Port Trucks

- Question:
 - Which highway gateways do trucks use to travel from distribution centers in Hampton Roads?
- Solution:
 - “O/D to Preset Geography”
 - “analyze trips between **each zone** and a **standard geography** such as Zip Codes, Census Block Groups, or Traffic Analysis zones (TAZs)”
 - “O/D Analysis”
 - “trip volumes and flows between **origin and destination zones**” i.e. zones defined by the user

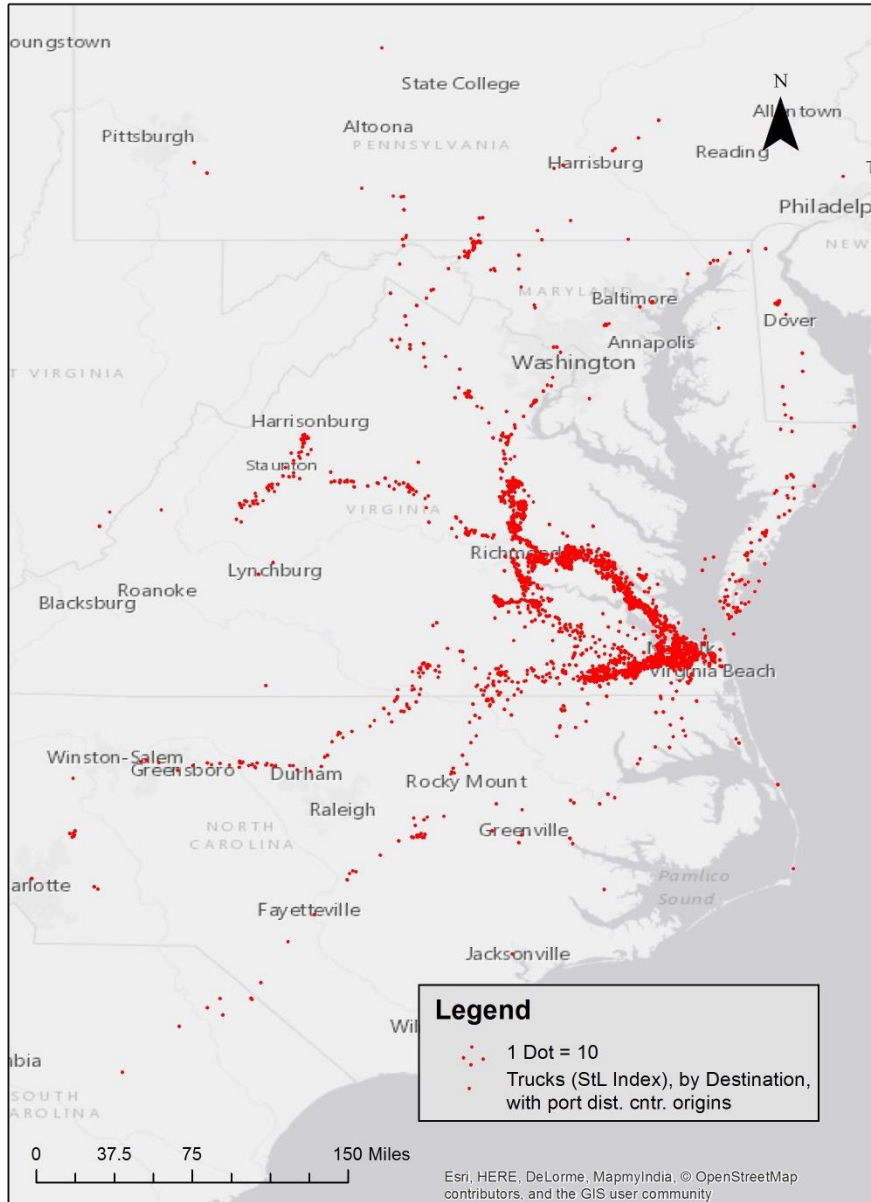
Origin Zones for O-D to Preset Geography

- Canon Virginia
- Liebherr
- High Liner Foods
- Bauer Compressors
- Stihl
- Massimo Zanetti Beverage
- USUI Intl.
- Sumitomo
- Dollar Tree
- Lumber Liquidators
- Haynes Furniture



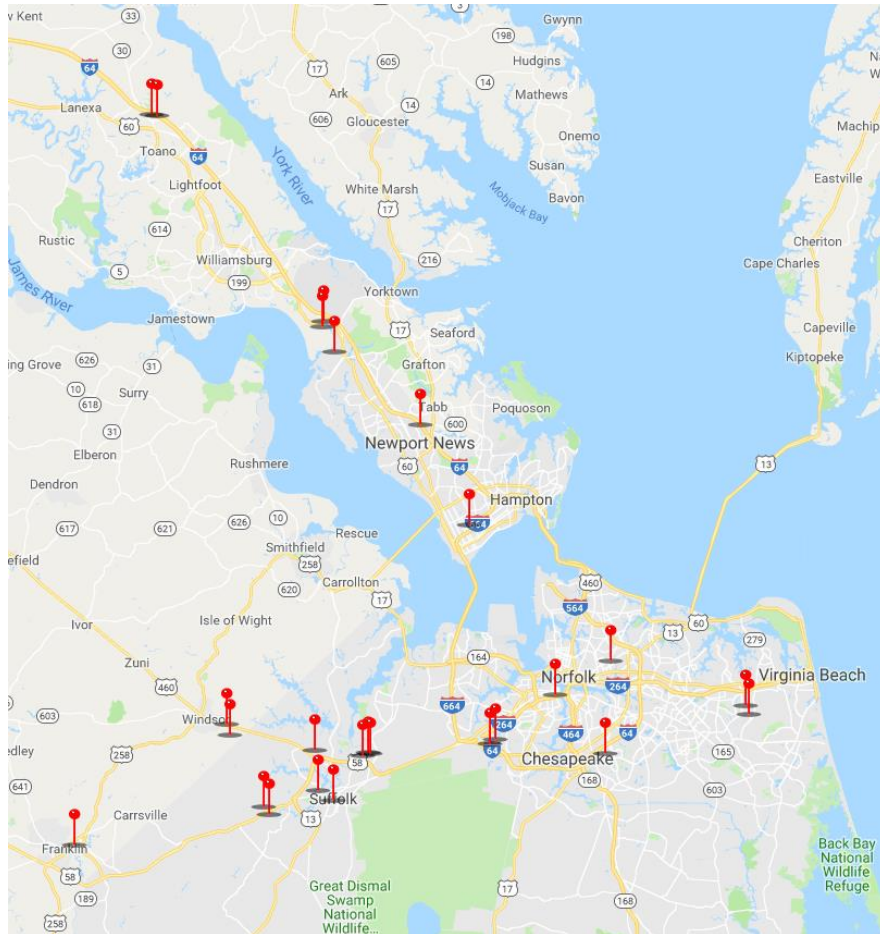
- Target Stores
- Caspari
- Ace Hardware
- J.M. Smucker
- Unilever / Lipton
- Kraft / Planters
- QVC Network
- Intl. Paper
- Cost Plus World
- Safco
- Wal-Mart
- La Tienda

O/D to Preset Geography



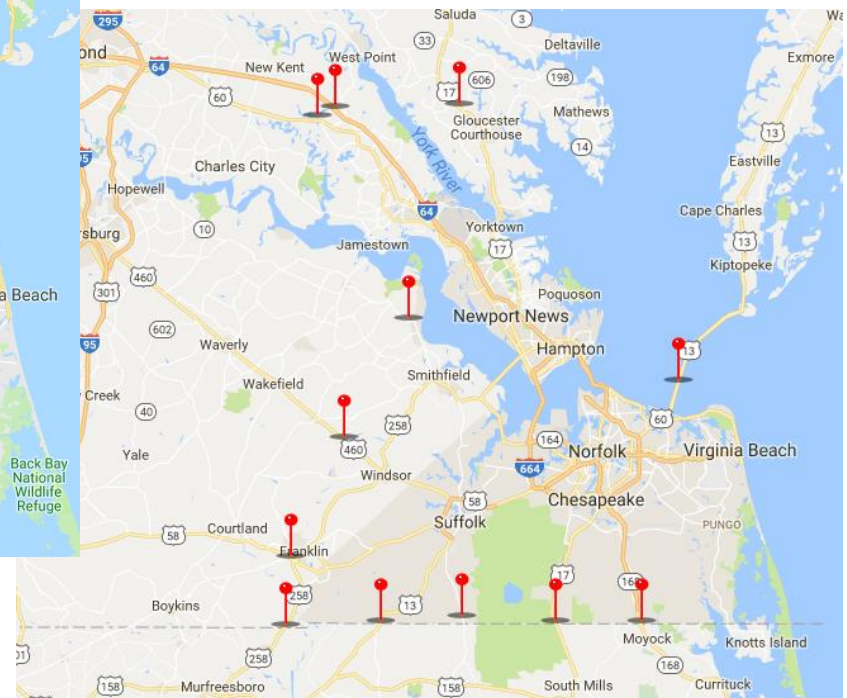
Distribution centers as **origin** zones
Census block groups as **destination** zones

Zones for O-D Analysis



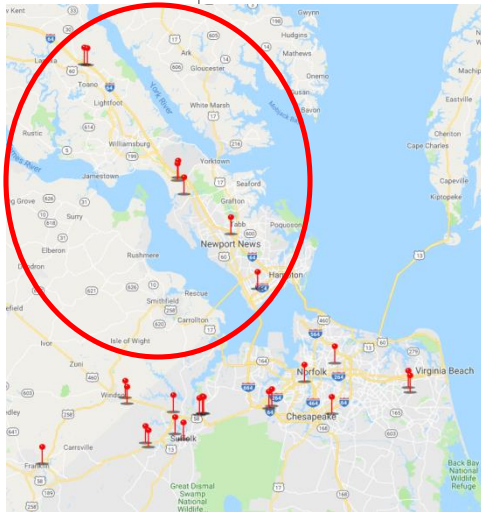
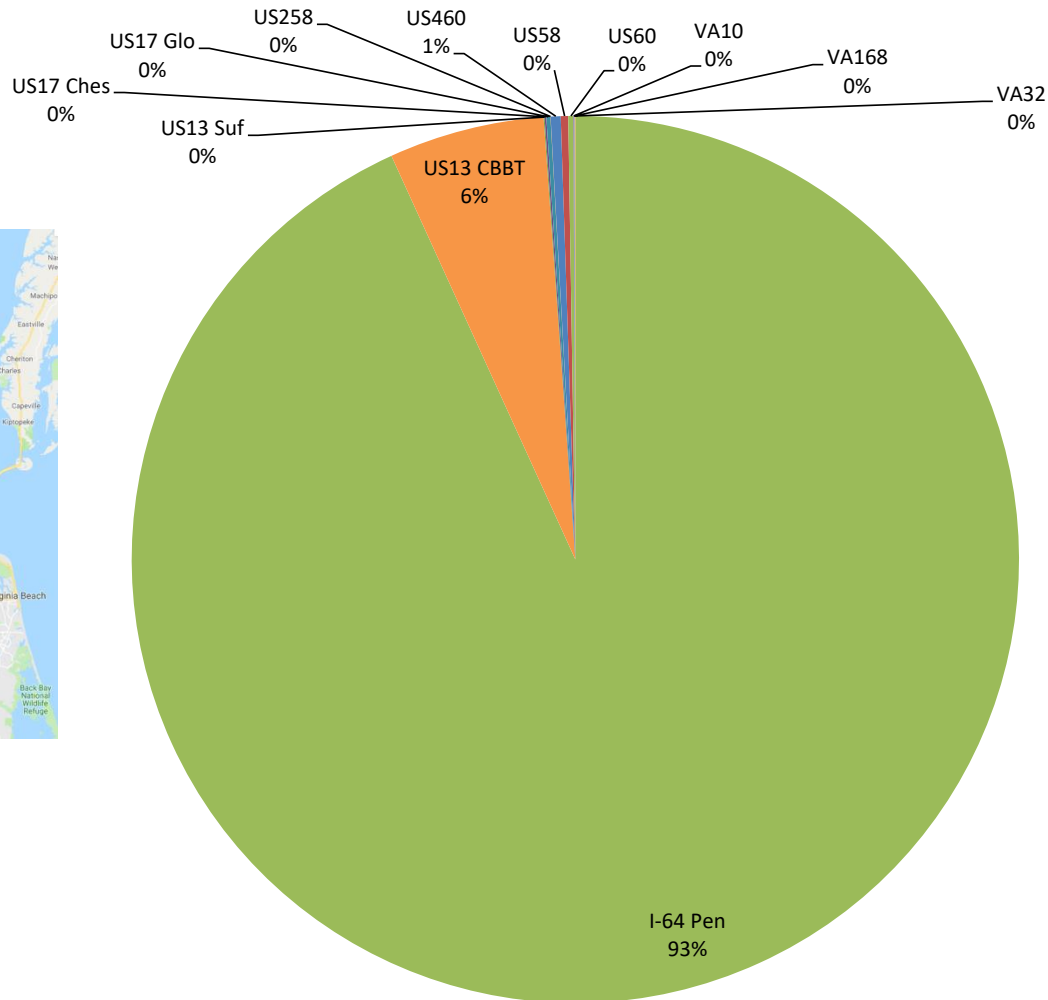
Distribution Centers (as origins)

Gateways (as destinations)



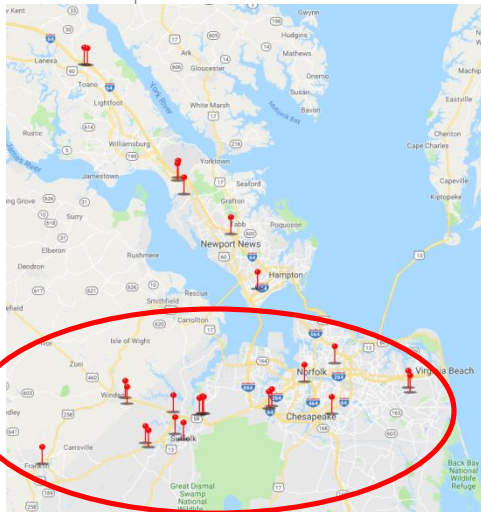
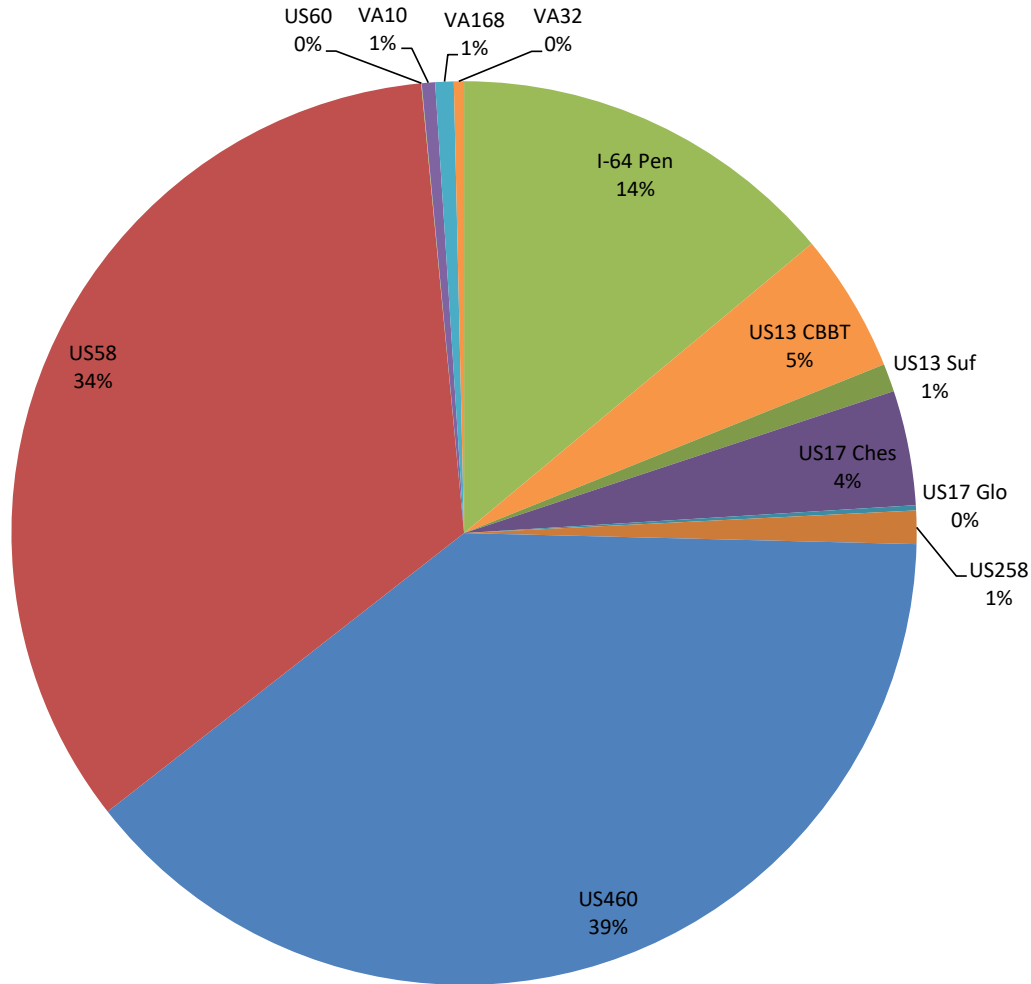
Peninsula Distribution Centers

Gateways, by portion of all **Peninsula** port distribution center trucks thru gateways, average weekday, 7/2016-6/2017 (Source: HRTPO via StreetLight)



Southside Distribution Centers

Gateways, by portion of all **Southside** port distribution center trucks thru gateways, average weekday, 7/2016-6/2017 (Source: HRTPO via StreetLight)



4. River Crossings used by Portsmouth-Norfolk Trips

4. River Crossings used by Portsmouth-Norfolk trips

- Question:
 - Home many people drive out of their way to avoid paying tolls at the tunnels?
- Solution:
 - “O-D Analysis with Middle Filter”
 - “assess trip flows and volumes that go from or through an **origin zone**, through a **middle filter**, and to or through a **destination zone**.”

Origin and Destination zones

Project: ERC evasion with HRTB and Dominion | Type: O-D Analysis with Middle Filter

General Information

Info

Name: ERC evasion with HRTB and Dominion

Country: US

Folder: Unassigned

Type: O-D Analysis with Middle Filter

Data Source (Travel Type): Location-Based Services with Pass-through (Personal - All Modes)

Calibration Type: Without Calibration

Zones

Origin Zones | Middle Filters | Destination Zones

Search

Zone Name	Pass-through	Direction	Bi-directional
ERC Evasion - Polygon Set with 2 Zones.			
Norfolk	No		No
Portsmouth	No		No

Options

Standard

Data Period(s)
Jan'18, Feb'18, Mar'18, Apr'18, May'18, Jun'18, Jul'18, Aug'18, Sep'18, Oct'18, Nov'18, Dec'18

Specific Date(s)
All Days

Day Types
Average Day : M-Su
Average Weekday : M-Th
Average Weekend Day : Sa-Su

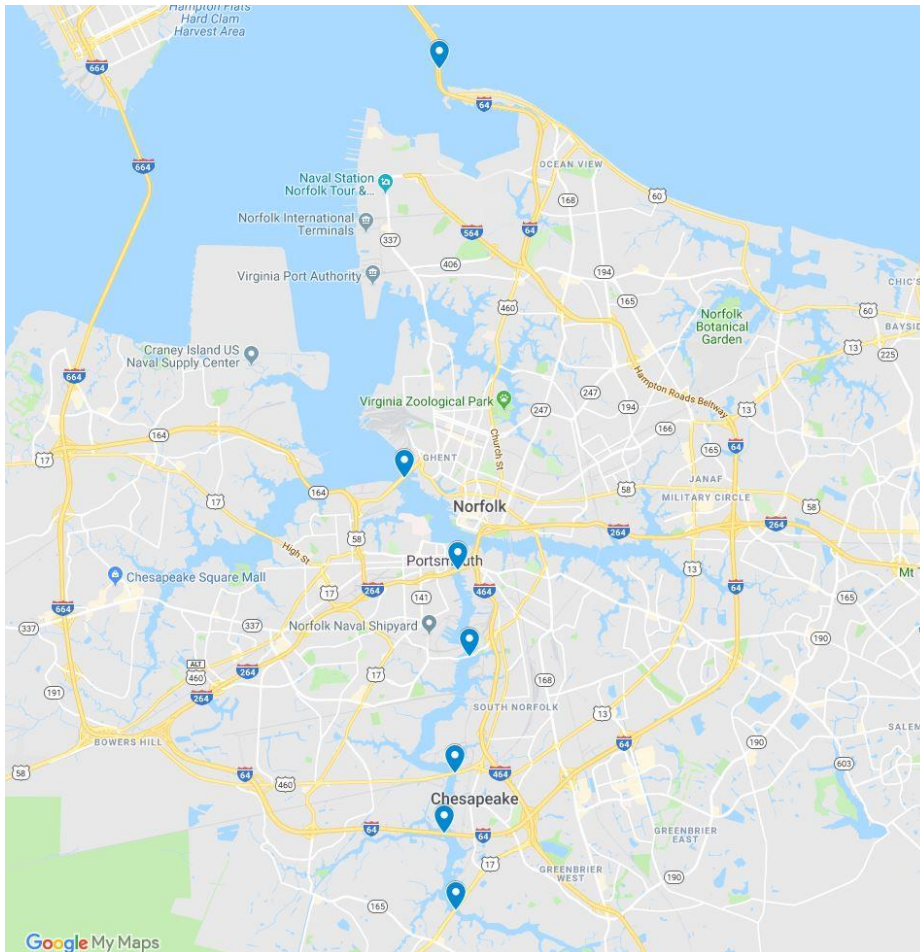
Day Parts

(Zoom to enable) OSM Layer Vehicle

Map | Satellite

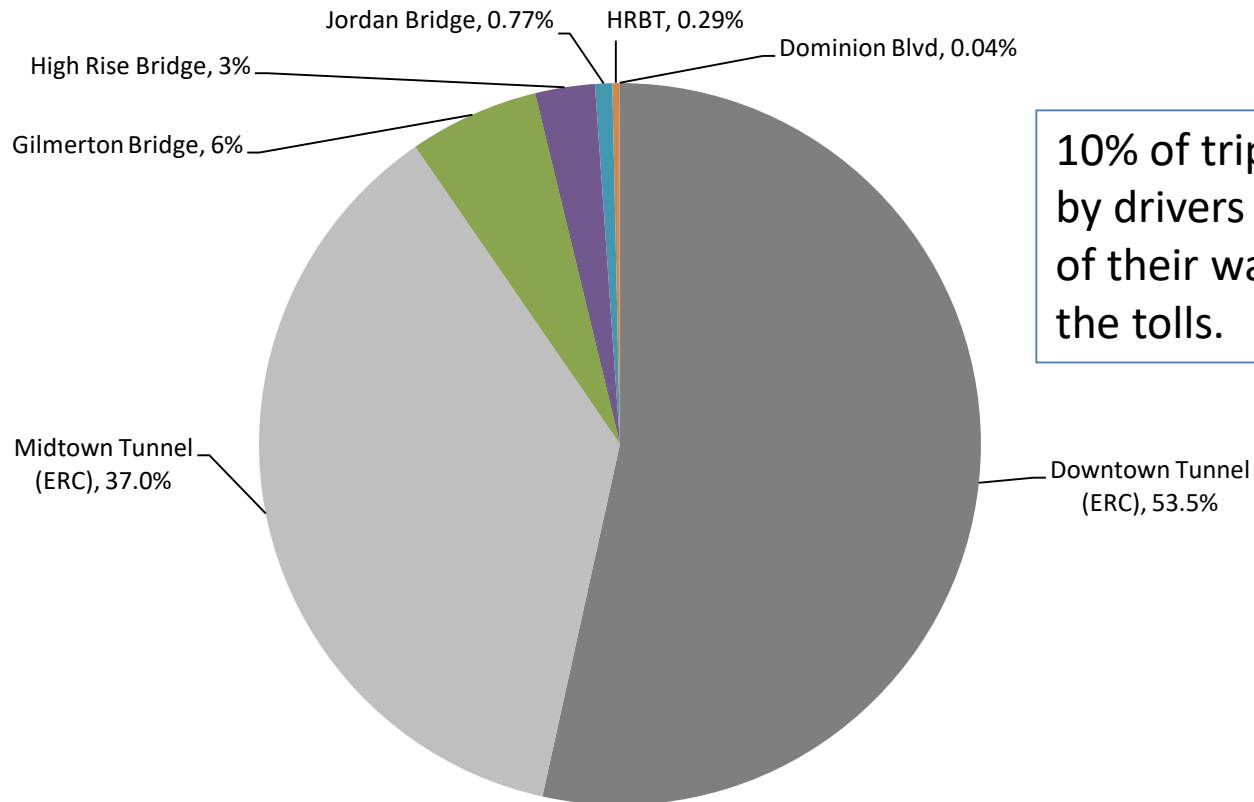
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Middle Filter zones



1. HRBT
2. Midtown Tunnel
3. Downtown Tunnel
4. Jordan Bridge
5. Gilmerton Bridge
6. High Rise Bridge
7. Dominion Blvd

River Crossings used for Trips between Portsmouth & Norfolk (Monday to Sunday), 2018



10% of trips are made by drivers driving “out of their way” to avoid the tolls.