

# Introduction to ▶ StreetLight Insight®

Kara Aguilar - MaineDOT - June 16<sup>th</sup>, 2020

# What is StreetLight Insight®?

- ▶ An interactive transportation data platform used for measuring and managing transportation
- ▶ Uses anonymized location records from smartphones and navigation devices (probe data) - no need for sensors or surveys

# Subscription Area and Users

- ▶ Interest originated in Portland area
- ▶ Users include:
  - ▶ MTA
  - ▶ MaineDOT
  - ▶ University of Maine
  - ▶ City of Portland
  - ▶ PACTS
  - ▶ BACTS



# What Can StreetLight Do?

StreetLight can be used for a number of transportation planning and traffic engineering and operations studies, including:

- ▶ Active Mode Analytics (bike & ped)
- ▶ Before & After Studies
- ▶ Congestion Studies
- ▶ Infrastructure Prioritization
- ▶ Turning Movements

...and more!

# StreetLight Analysis Types



Origin, Destination, and Route



Top Routes between Origin and Destinations



AADT for Roads



Inferred Trip Purpose



Trip Speed, Duration, Length



StreetLight Demographic Data

# Origin, Destination, Route

- ▶ StreetLight identifies the most prevalent trip routes.
  - ▶ Analyze where trips end or originate.
  - ▶ Analyze all routes between two cities, a downtown and a bridge, or between specific intersections.
  - ▶ Customized O-D (origin-destination) locations - office campus, park, or shopping center.
- ▶ Analyze any day of the week or time of day.

# Top Routes Between Origin- Destination

- ▶ StreetLight's Top Routes analyzes vehicle volume on all routes between Origin-Destination pairs of your choice.
  - ▶ Visualize route choices from point A to point B.
  - ▶ Identify route alternatives or optimal detours for infrastructure projects.
  - ▶ Analyze routes for personal vehicles vs. medium- or heavy-duty truck traffic to solve congestion.
  - ▶ Address neighborhood concerns over cut-through traffic, using empirical data.

# AAADT

- ▶ AAADT for 4.5 million miles of roadway, urban and rural, in the U.S. and Canada.
- ▶ On demand metrics include:
  - ▶ AAADT (Annual Average Daily Traffic)
  - ▶ AAHT (Annual Average Hourly Traffic)
  - ▶ MAADT (Monthly Average Daily Traffic)



# Other Analysis Types

- ▶ Inferred Trip Purpose
  - ▶ Algorithms interpret travel patterns to infer probable work and home locations for composite groups of people
  - ▶ Can infer commuter trips
- ▶ Trip Speed, Duration, Length
  - ▶ Help to measure congestion
- ▶ Demographics Data
  - ▶ Inferred income, race, education, and family status based on the neighborhood level
  - ▶ Can be used to highlight impact on underserved communities and inform social equity goals

# StreetLight Mode Types



Bicycle &  
Pedestrian



Personal Vehicles



Trucks

# MaineDOT Applications



Turning Movements



I-295 Weaving Patterns



Pedestrian and Bicycle Usage



Park and Ride Study

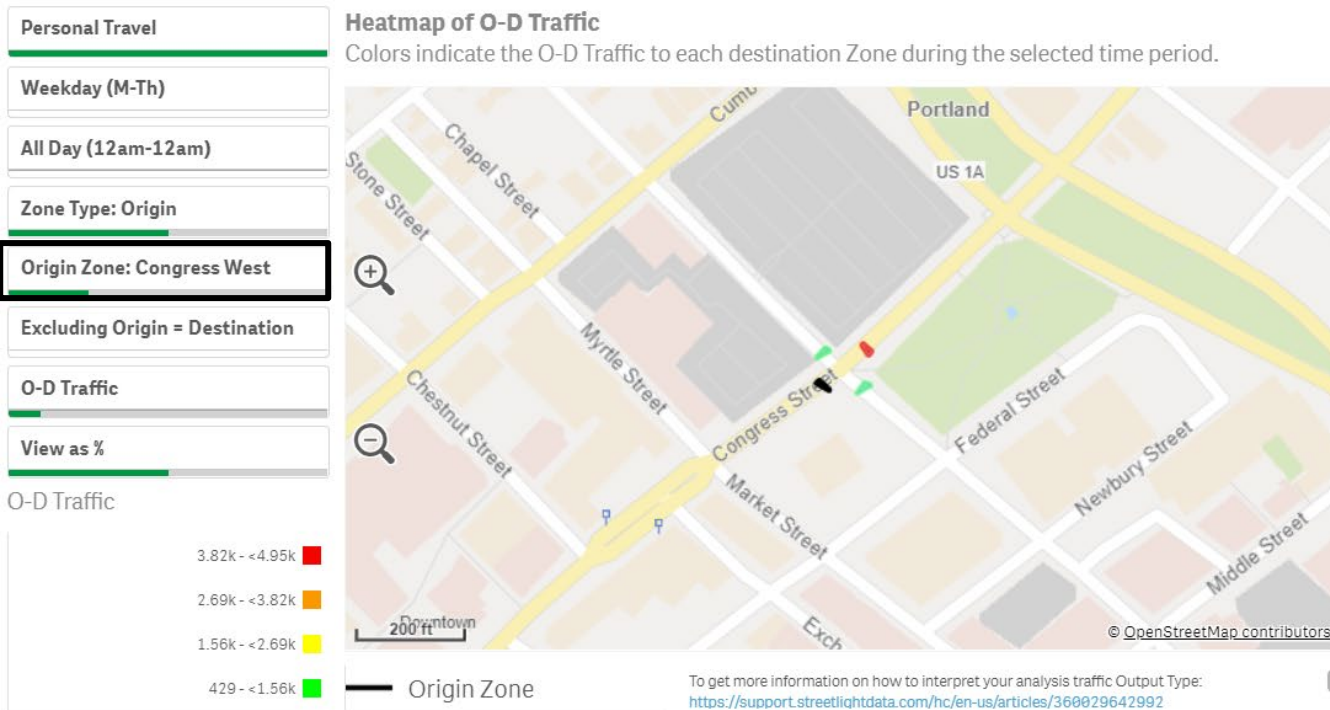


COVID-19 Impacts

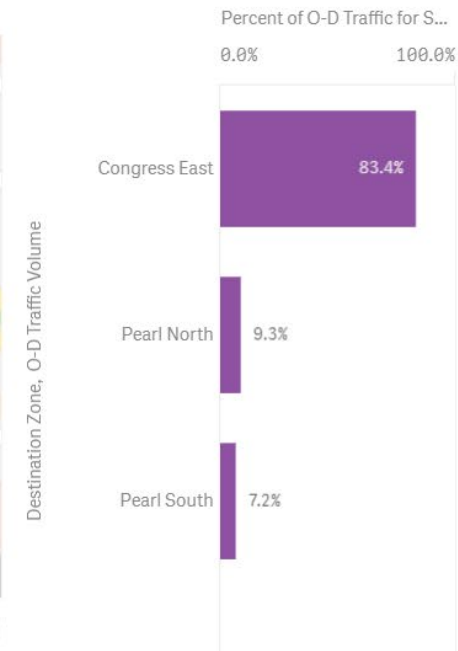


Validation Efforts

# Turning Movements



## O-D Traffic %



# I-295 Weaving Patterns

Personal Travel

Average Day (M-Su)

All Day (12am-12am)

Zone Type: Origin

**Origin Zone: NB295**

Excluding Origin = Destination

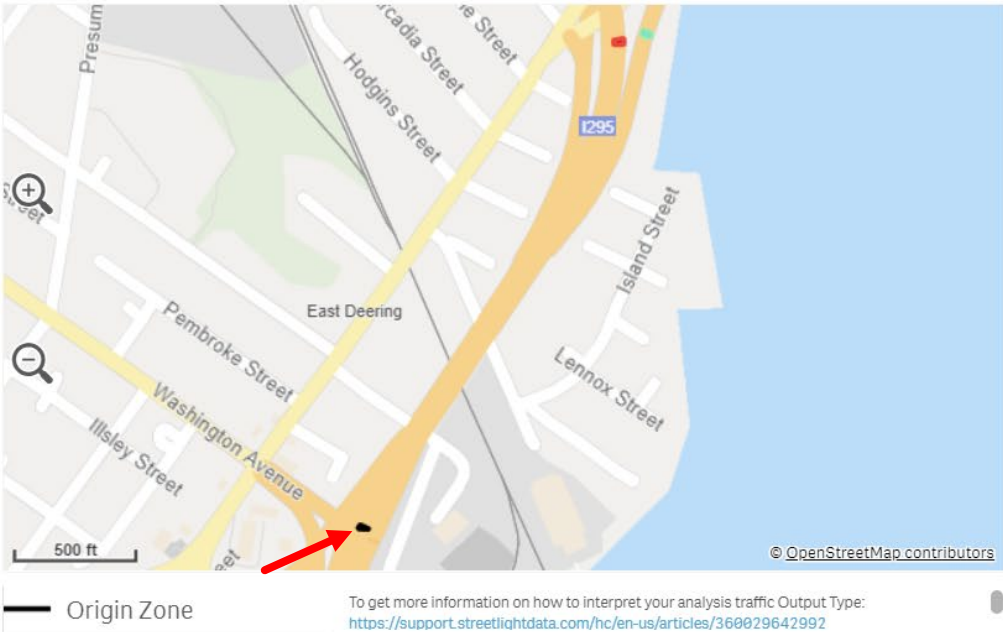
O-D Traffic

View as %

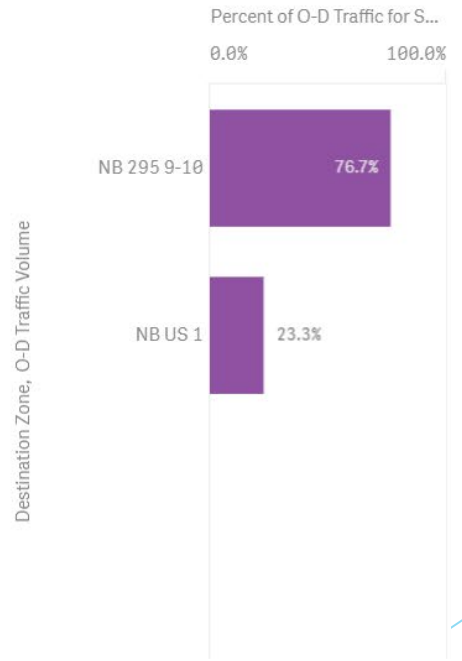
O-D Traffic

- 5.48k - <6.64k
- 4.33k - <5.48k
- 3.17k - <4.33k
- 2.02k - <3.17k

**Heatmap of O-D Traffic**  
 Colors indicate the O-D Traffic to each destination Zone during the selected time period.



**O-D Traffic %**



# Pedestrian and Bicycle Usage

Personal - Pedestrian Travel

Weekday (M-Th)

All Day (12am-12am)

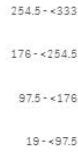
Intersection: Trip Pass-Through

Select Zone(s)

Zone Traffic

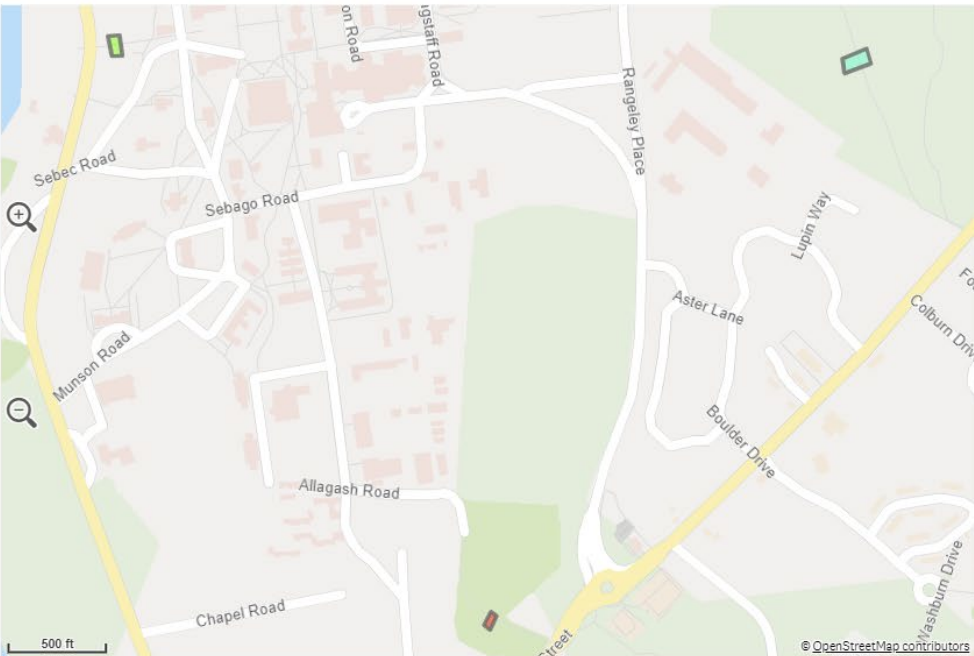
View as StreetLight Index

Zone Traffic



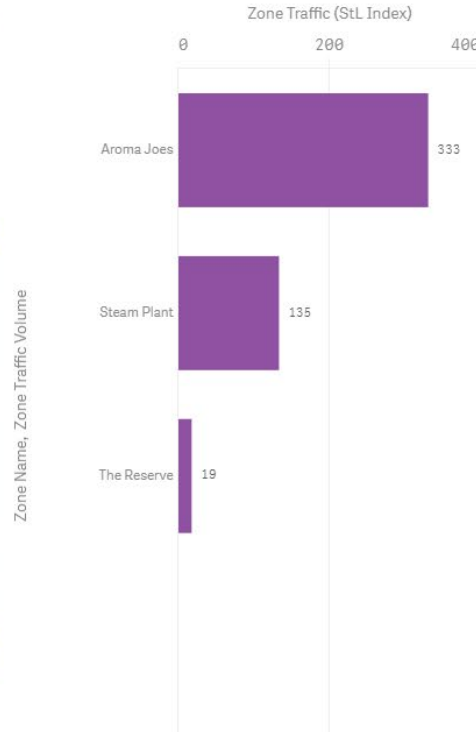
## Heatmap of Zone Traffic

Colors indicate the Zone Traffic to and from each Zone during the selected time period.

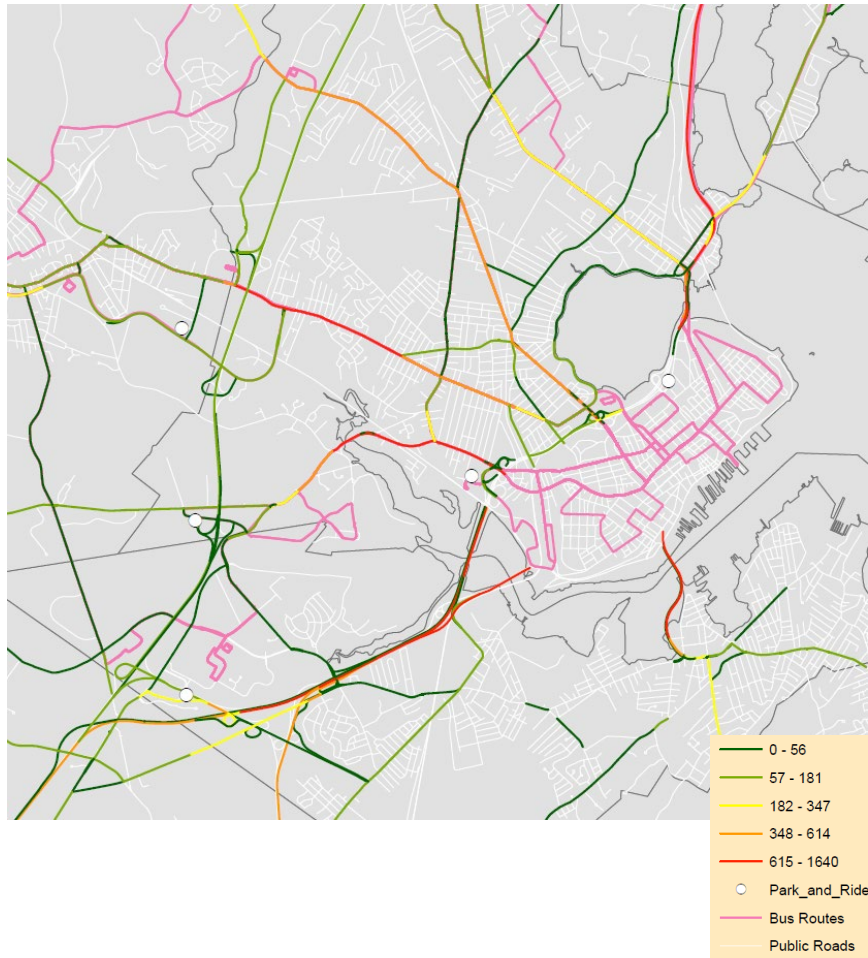


To get more information on how to interpret your analysis traffic Output Type: <https://support.streetlightdata.com/hc/en-us/articles/360029642992>

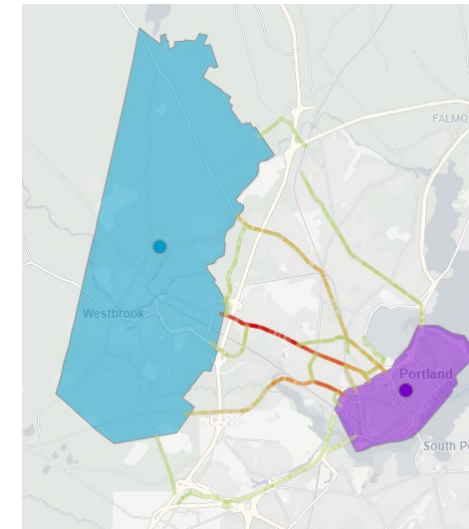
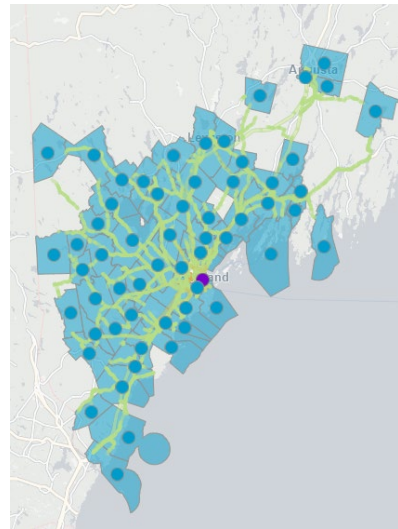
## Zone Traffic Volume



# Park and Ride Study



- ▶ Top routes analysis to determine how commuters are getting to the Portland Peninsula
- ▶ Downloaded the data and uploaded it to ArcMap
- ▶ Overlay with existing infrastructure (bus routes, park and rides, etc.)



# COVID-19 Impacts

- ▶ Use origin-destination analyses and inferred home-work locations to determine origin-state of vehicles entering Maine
- ▶ 2019 data and travel patterns can help inform potential testing facility locations
- ▶ Travel patterns and destinations of tourists and residents can help predict which parts of our state are most vulnerable to COVID spread

Week	Road.Name	Primary.State	DailyAverageTrips
27	US 2	California	5
27	US 2	Colorado	2
27	US 2	Connecticut	20
27	US 2	Florida	27
27	US 2	Georgia	9
27	US 2	Indiana	18
27	US 2	Kentucky	48
27	US 2	Maine	474
27	US 2	Massachusetts	195
27	US 2	Michigan	16
27	US 2	N/A	0
27	US 2	New Hampshire	529
27	US 2	New Jersey	39
27	US 2	New York	75
27	US 2	Ohio	66
27	US 2	Pennsylvania	36
27	US 2	Rhode Island	18
27	US 2	Texas	27
27	US 2	Utah	5
27	US 2	Vermont	79
27	US 2	Virginia	5
27	US 2	West Virginia	18
27	US 2	Wisconsin	23



# Validation Efforts

- ▶ High-level, preliminary validation of StreetLight data
- ▶ Comparison of MaineDOT continuous count station (CCS) AADTs and StreetLight AADT, Volume, and Index metrics
- ▶ More validation to be done in the coming months

2018

	AADT	Vol	Index
Max	133%	140%	61%
Min	67%	69%	11%
Avg	96%	97%	33%

Max-Min 67% 71% 50%

Std Dev 15% 15%

2019

	AADT	Vol	Index
Max	114%	131%	98%
Min	62%	66%	24%
Avg	90%	96%	69%

Max-Min 51% 65% 74%

Std Dev 13% 15%



# Questions?

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