

MaineDOT Bangor Transit Propensity Study

Public Meeting

January 2023



Agenda

- Project Overview
- Existing Travel Markets
- Transit Propensity
- High Level Conceptual Costs

Project Overview

- To understand the travel and potential cost associated with enhanced transit service
- Study Area
 - 130-mile corridor from Portland to Bangor and surrounding areas

- Advisory Committee

MaineDOT

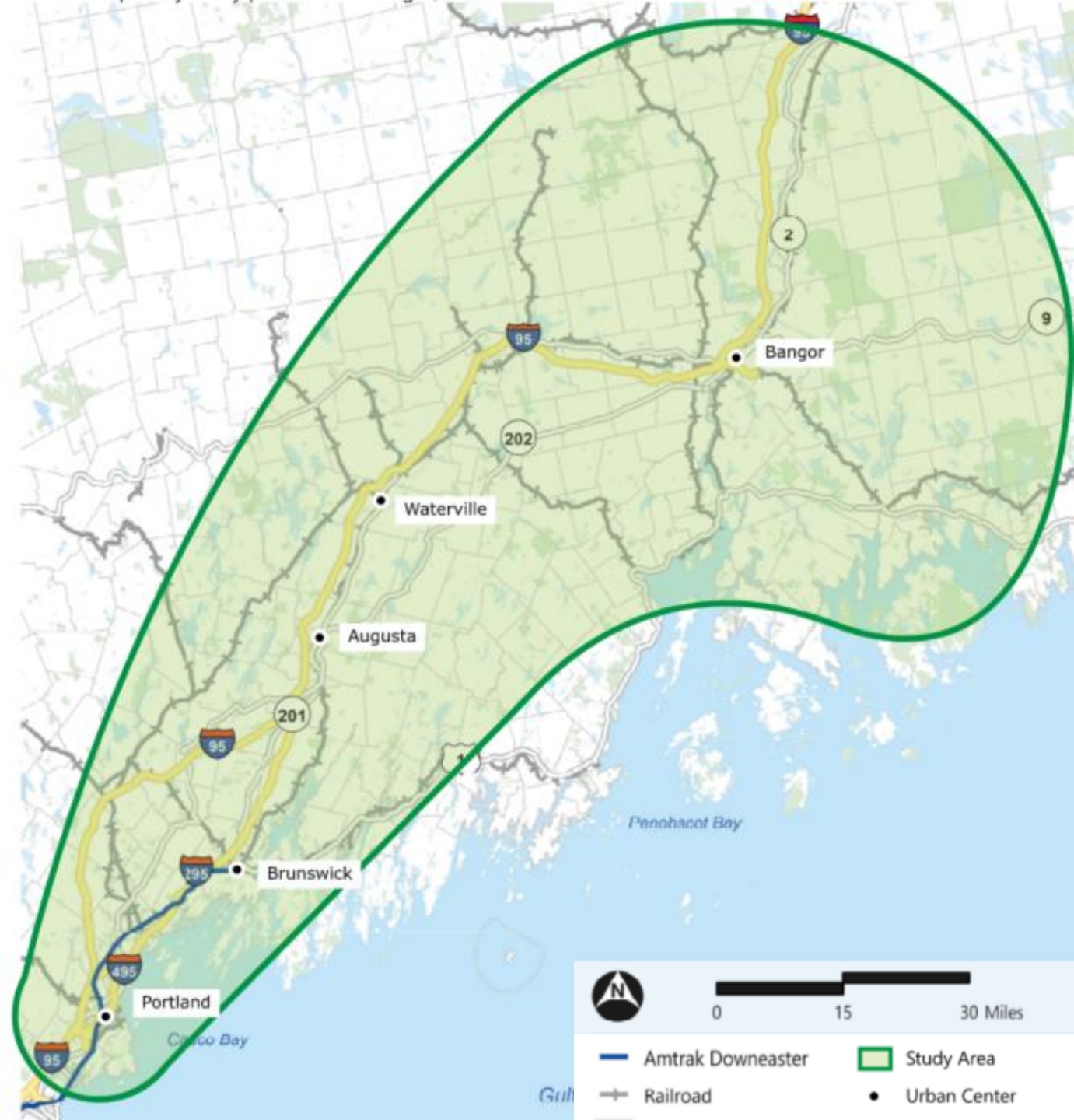
Waterville

Augusta

BACTS

Bangor

Concord Coach Lines



Existing Travel Markets – Demographic Analysis

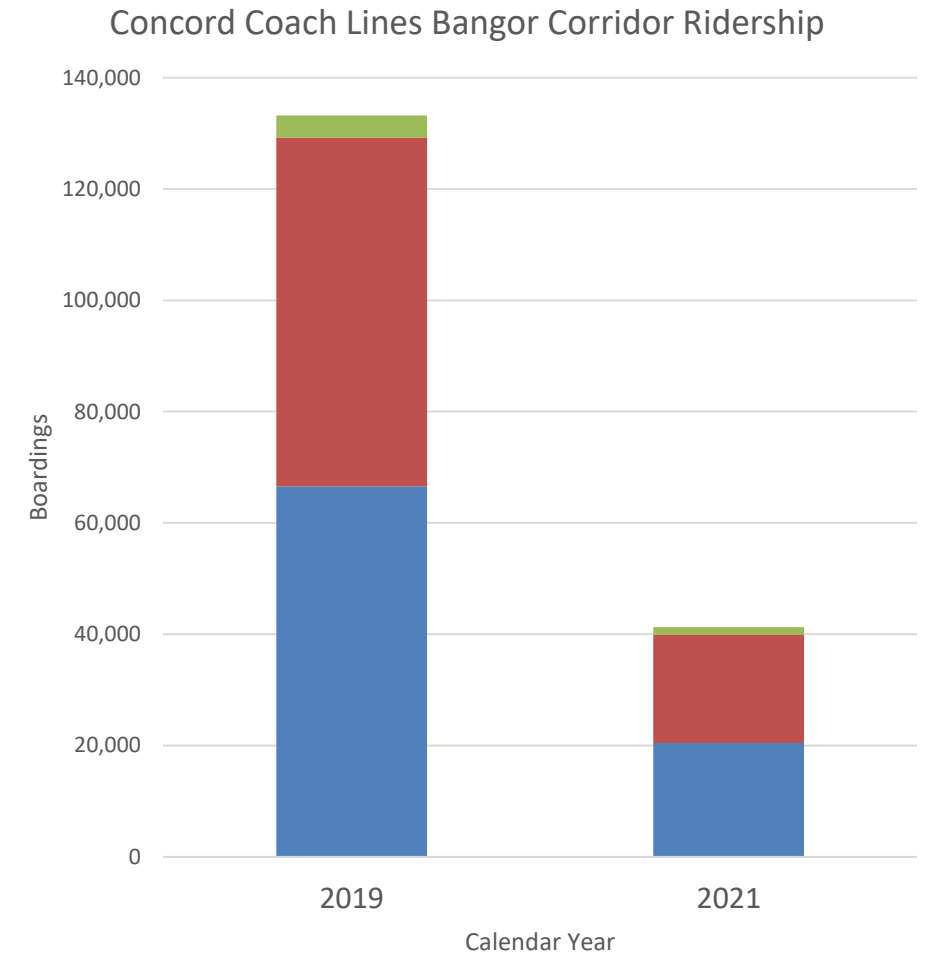
- The following four categories were used to identify the areas with the highest concentration of potential transit users:
 - Population density
 - Employment density
 - Median household income
 - Zero car household density
- Based on this review, Augusta, Waterville, and Bangor had areas within the Study Corridor with the highest concentration of these demographics



Existing Travel Markets –Bus Services

- Concord Coach Lines and Greyhound both offer bus service from Bangor to Portland and Boston
- Majority of existing bus trips beginning in the study area terminate in Portland or Boston

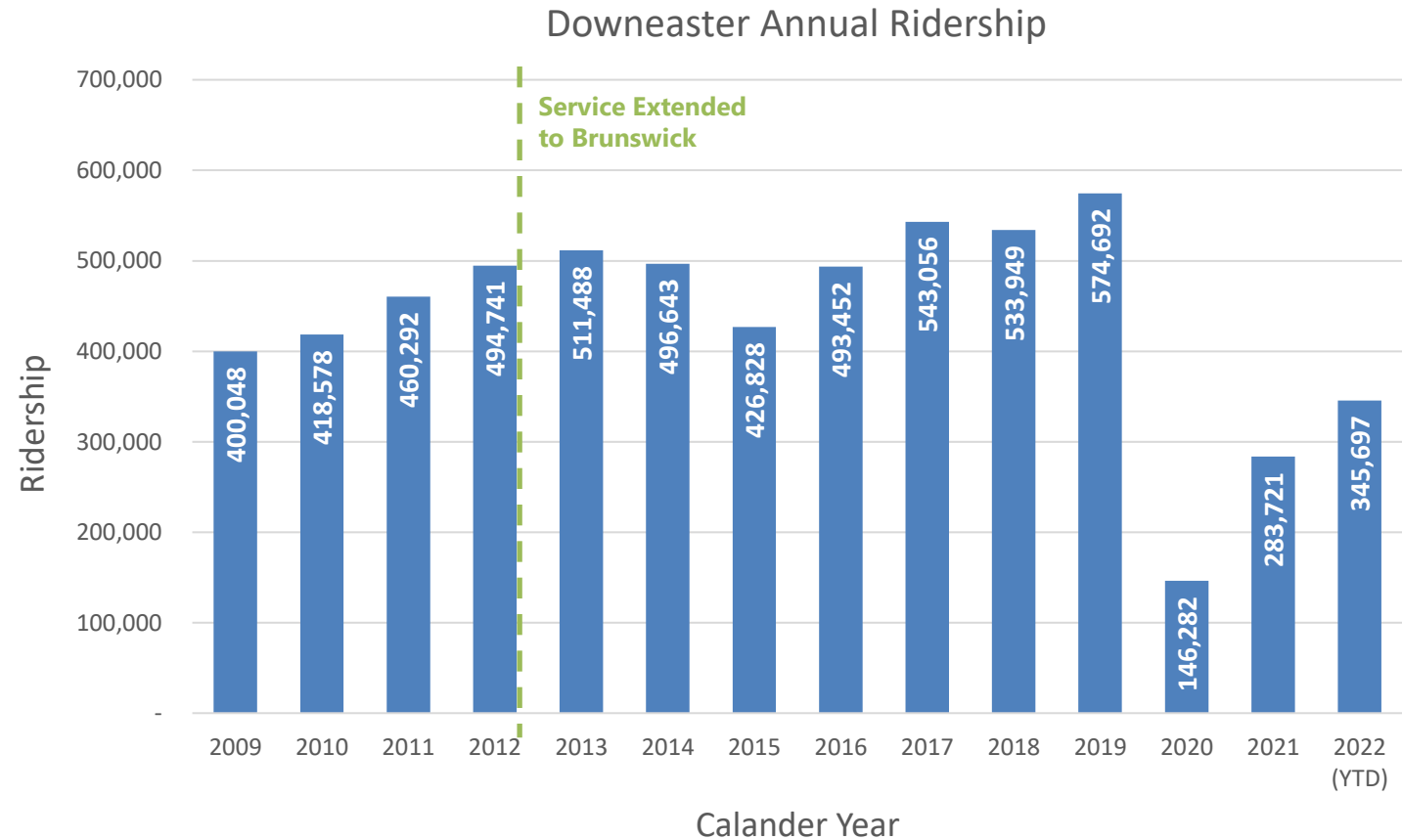
Service	Concord Coach Lines Bus	Greyhound Bus
Trip	Bangor to Portland to Boston	Bangor to Portland to Boston
2019 Round Trips Per Day	5	1
2022 Round Trips Per Day	4	1
2022 Ticket Price	\$30 (to Portland) \$47-50 (to Boston)	\$15-21 (to Portland) \$32-43 (to Boston)
2019 Ridership	130,000	19,000



- Destined for Other (Local Trips)
- Destined for Boston
- Destined for Portland

Existing Travel Markets – Amtrak Downeaster Ridership

- Historic data shows a steady increase in Amtrak ridership each year since service began
- Ridership dropped during the pandemic, but 2021 data and 2022 YTD data shows that ridership is recovering
- From 2011 to 2019, ridership increased by approximately 114,000 riders,
 - Brunswick Extension began service in November 2012
 - Additional round trip

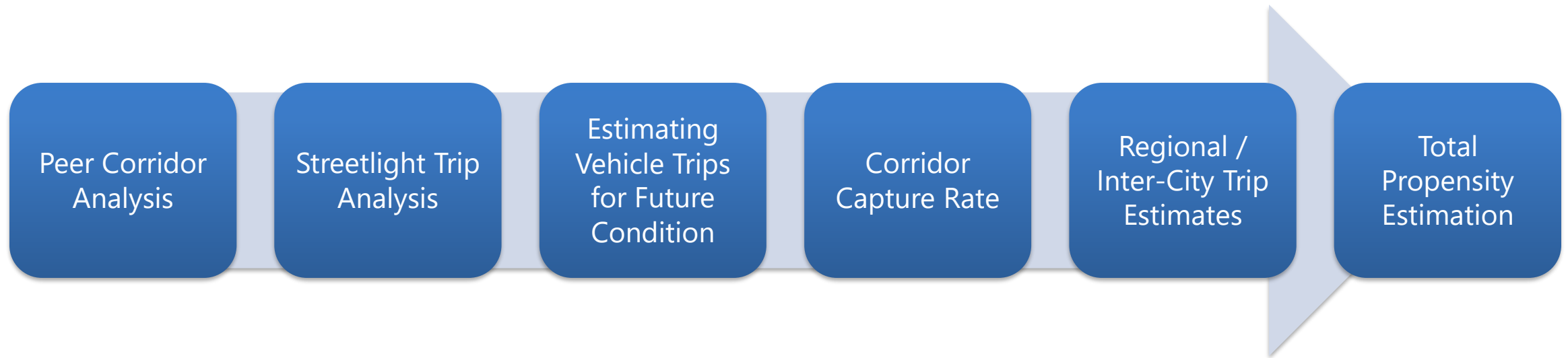


Note: The ridership value for 2022 is year-to-date (YTD), from January 2022-September 2022.

Existing Travel Markets – Vehicle Travel Times

	Personal Vehicle (Cars)	Average Speed (mph)	Concord Coach Lines Bus Service	Average Speed (mph)	Greyhound Bus Service	Average Speed (mph)
Bangor to Portland Peak Hour	1h 50m – 2h	70	2h 10m (Scheduled)	60	2h 55m (Scheduled)	50
Bangor to Portland Off- Peak Hour	1h 50 m – 2h	70	2h 10m (Scheduled)	60	2h 55m (Scheduled)	50
Bangor to Boston Peak Hour	3h 30m – 3h 40m	70	4h 25m (Scheduled)	50	5h 35m (Scheduled)	40
Bangor to Boston Off-Peak Hour	3h 20m – 3h 30m	70	4h 25m (Scheduled)	50	5h 35m (Scheduled)	40

Transit Demand Propensity – Methodology



Transit Demand Propensity – Peer Corridor Analysis


- Capture rates based on boardings and population of transit travel within peer corridors informed an estimated capture rate applicable to the Study Area
- Literature review of corridors similar to Portland-Bangor
 - Similar-sized urban areas
 - Parallel highway access
 - Endpoint Amtrak network connection



Transit Demand Propensity – Peer Corridor Analysis

Ethan Allen Express – Vermont & New York

- Ethan Allen Express runs a daily service from Burlington, Vermont to New York City
 - Total Route Length: 310 miles
 - Total Route Travel Time: 7 hrs and 35 mins
 - Daily Round Trips: 1
- For the purposes of the study, the segment from Rutland to Schenectady was used for ridership and population data
 - Segment Length: 84 miles
 - Segment Travel Time: 2 hrs and 10 mins
 - Average Daily Passengers: 138 (2019)
- Parallel Highway Corridor(s): US-4 and I-87



Burlington, VT
Ferrisburgh, VT
Middlebury, VT
Rutland, VT
Castleton, VT
Fort Edward, NY
Saratoga Springs, NY
Schenectady, NY
Albany, NY
Hudson, NY
Rhinecliff, NY
Poughkeepsie, NY
Croton-on-Hudson, NY
Yonkers, NY
New York, NY

Transit Demand Propensity – Peer Corridor Analysis

Illinois Zephyr and Carl Sandburg – Illinois

- Illinois Zephyr and Carl Sandburg trains run a daily service between Quincy, Illinois and Chicago
 - Route Length: 258 miles
 - Route Travel Time: 4 hrs and 21 mins
 - Daily Round Trips: 2
- For the purposes of the study, the segment from Quincy to Plano was used for ridership and population data
 - Segment Length: 206 miles
 - Segment Travel Time: 3 hrs and 10 mins
 - Average Daily Passengers: 565 (2019)
- Parallel Highway Corridor(s): IL-110, Chicago-Kansas Expressway, I-80, US-24



Quincy, IL
Macomb, IL
Galesburg, IL
Kewanee, IL
Princeton, IL
Mendota, IL
Plano, IL
Naperville, IL
La Grange, IL
Chicago, IL

Transit Demand Propensity – Peer Corridor Analysis

Illini and Saluki – Illinois

- Illini and Saluki trains run a daily service between Carbondale, Illinois and Chicago
 - Route Length: 310 miles
 - Route Travel Time: 5 hrs and 30 mins
 - Daily Round Trips: 3
- For the purposes of the study, the segment from Carbondale to Kankakee was used for ridership and population data
 - Segment Length: 253 miles
 - Segment Travel Time: 4 hrs and 0 mins
 - Average Daily Passengers: 1,045 (2019)
- Parallel Highway Corridor(s): I-57, US-51



Transit Demand Propensity – Peer Corridor Analysis

Peer Review Summary

Comparable Rail Corridor	2019 Average Daily Ridership	2019 Area Population ¹	2019 Capture Rate ²
Amtrak Ethan Allen Express VT & Eastern NY	151	127,586	0.11%
Amtrak IL Corridors – Quincy to Chicago	565	127,785	0.44%
Amtrak IL Corridors – Carbondale to Chicago	1,045	244,905	0.43%
			Average Capture Rate = 0.33%

¹ "Area Population" refers to the population residing within station-area communities not including the major terminus (e.g., New York City, Chicago, and Milwaukee).

² "Capture Rate" is defined as the 2019 average daily ridership divided by the "Area Population"

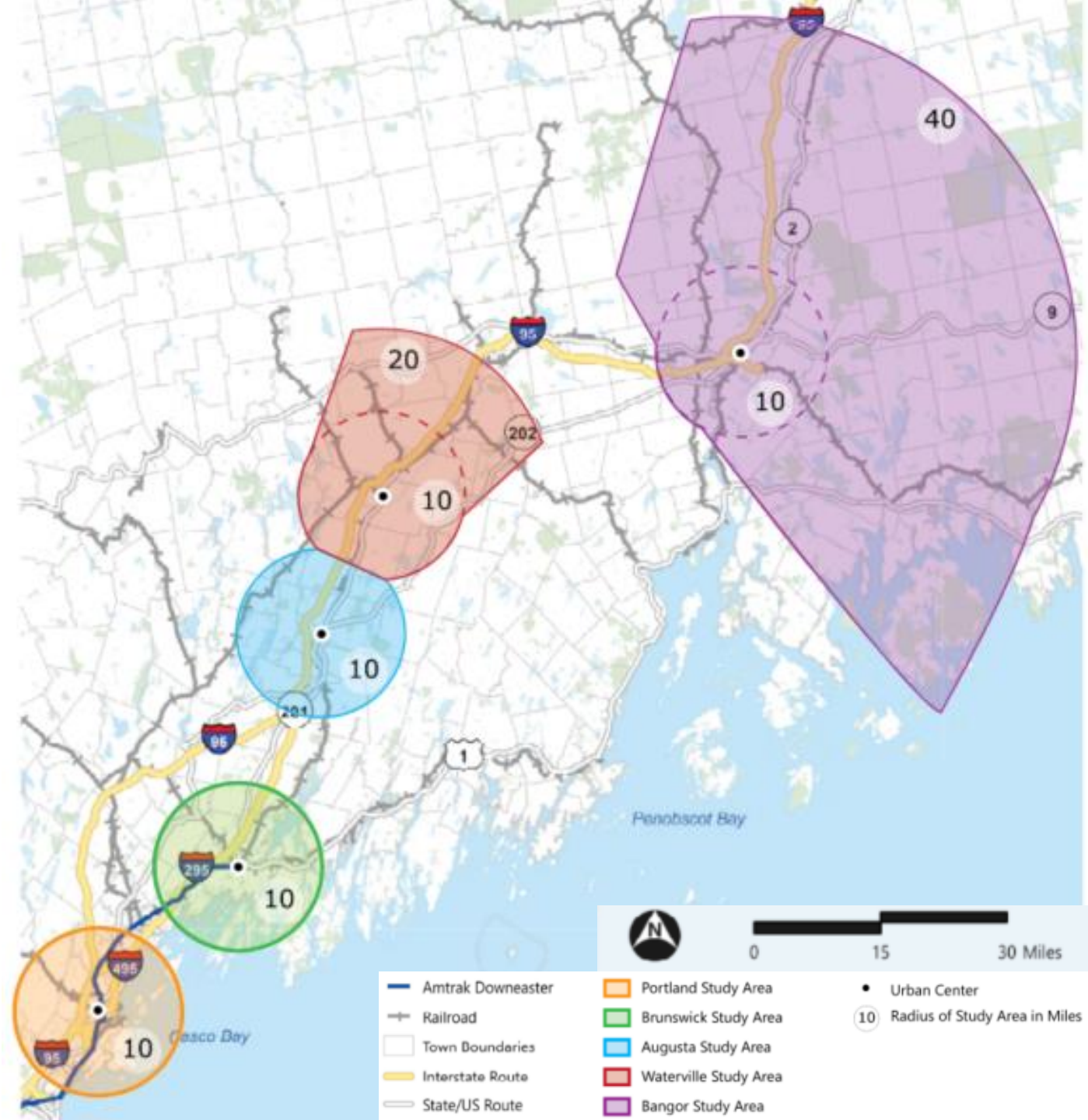
Streetlight Trip Analysis – Existing Trips

- Streetlight is a dataset that provides information on travel trip volumes based on cellular data, GPS location, and traffic counters.
- For the propensity analysis, Streetlight was used to approximate the traffic volumes travelling within the Study Corridor.

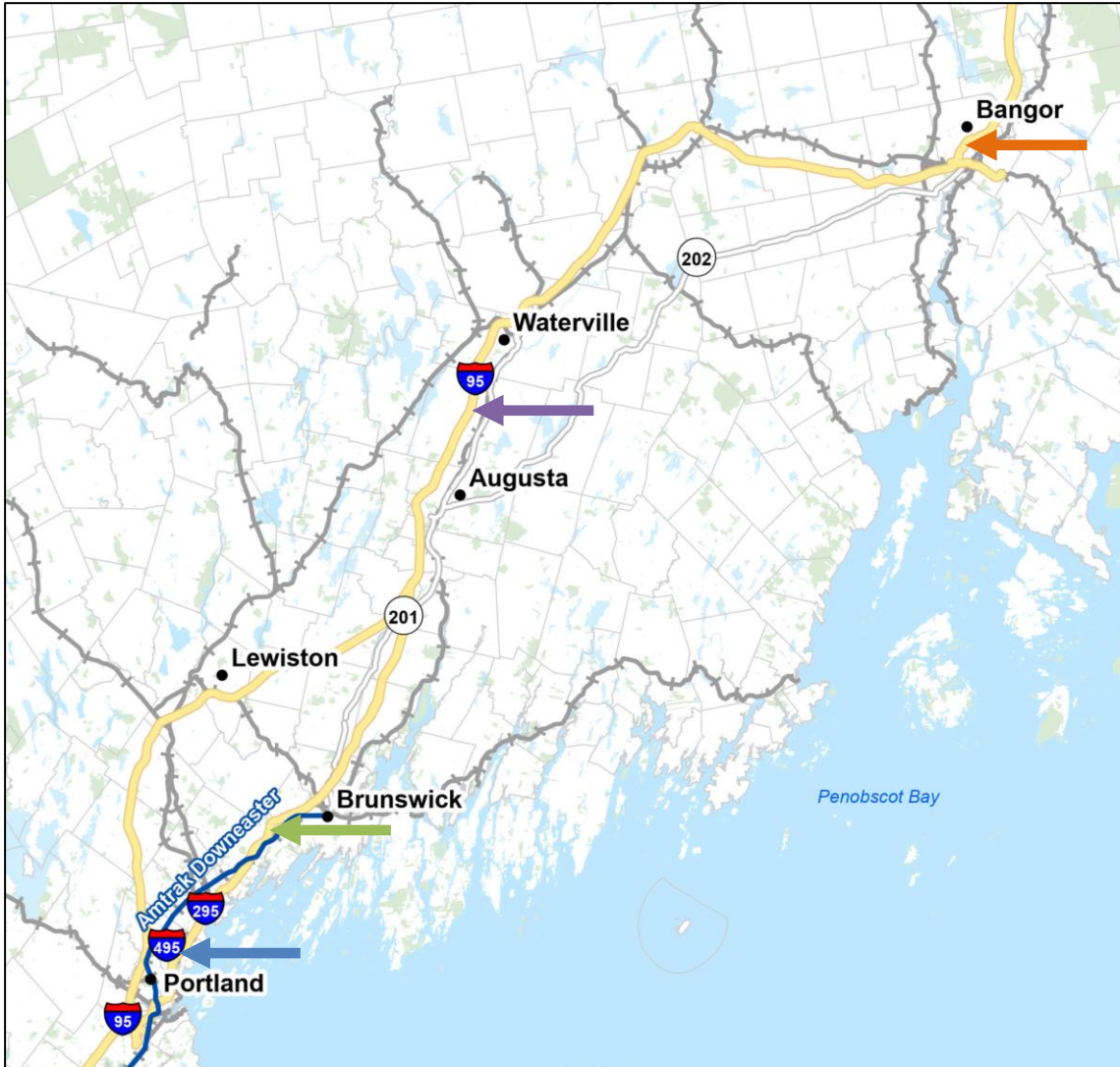
	Total Streetlight Trips in Study Corridor (2021)
Annually	2,219,000
Monthly	182,000

Transit Demand Propensity – Catchment Area Development

- Concentrated in activity centers along existing rail corridor within each municipality
- Origins
 - Directional demand area, with larger catchment area at potential end of line
 - Larger area to account for flexibility in future station placement
- Destinations
 - Smaller, 1-mile radius around dense area considering accessibility



Transit Demand Propensity – Interstate AADT Counts



- Publicly available interstate annual average daily traffic (AADT) count data was used to calibrate the Streetlight model.

2021 AADT Southbound Traffic Volumes

- 10,340 vehicles
- 15,650 vehicles
- 22,890 vehicles
- 23,130 vehicles

Transit Demand Propensity – Ratio of Regional to Intercity Trips

- Streetlight analysis provided an estimate for inter-city trips that occurred fully within the Study Corridor.
- To estimate potential new regional trips that would extend beyond the Study Corridor, existing Downeaster ridership data was analyzed to estimate the ratio of regional trips to inter-city trips.

	Low Estimate	High Estimate
Ratio of Regional Trips to Local Trips	4.5	6.5

Transit Demand Propensity – Results

- Considering both the peer analysis approach and the Streetlight analysis provides an estimated propensity range for the future condition year of 2040.

	Peer Corridor Analysis Propensity	Streetlight Trip Analysis Propensity
Annually	87,300	62,250 – 87,650
Monthly	7,200	5,150 – 7,250

- In 2019, total Downeaster ridership approximately 574,700.

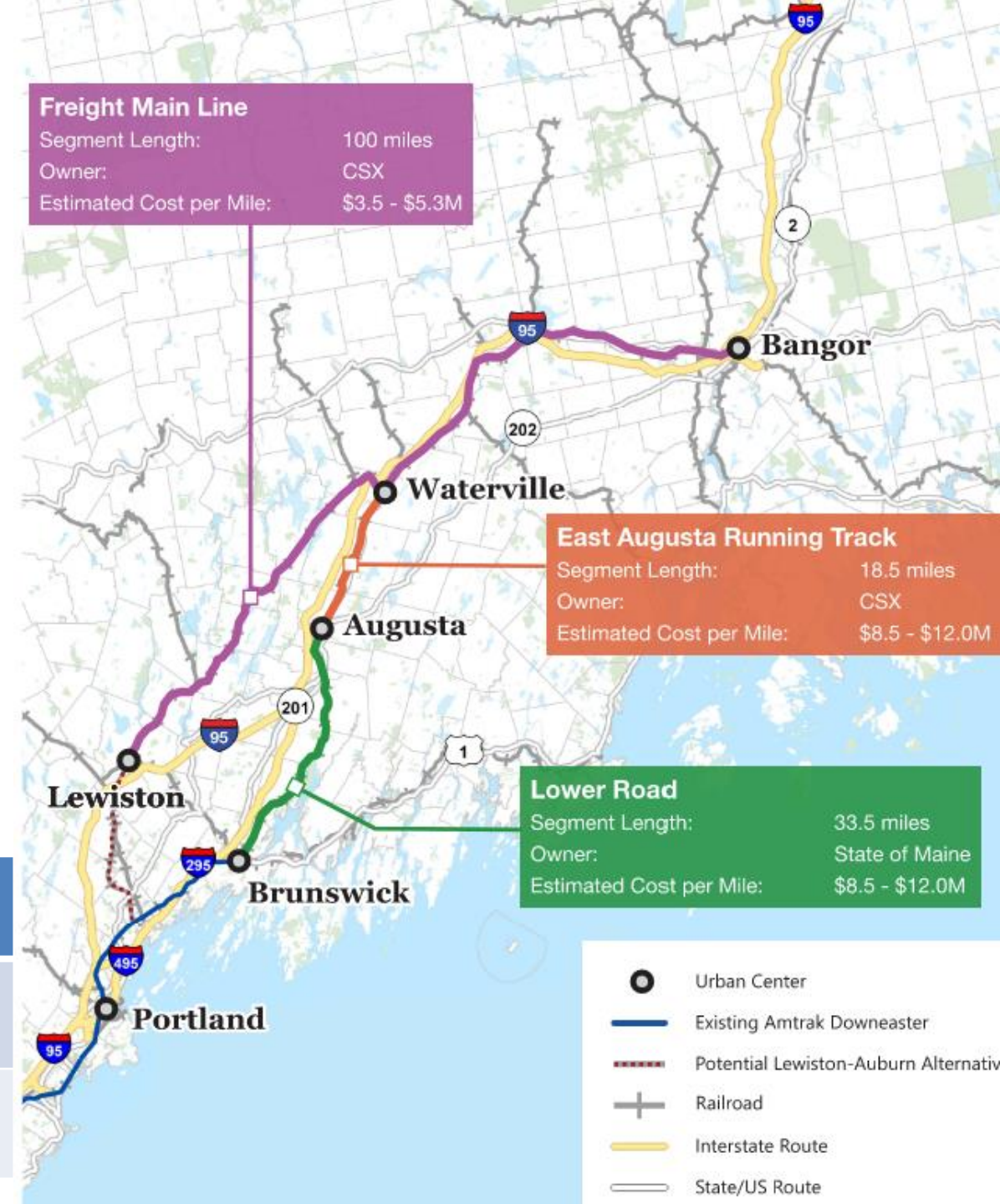
Transit Demand Propensity – Result Considerations

- Trip purpose and frequency – available data provided total daily trips, not considering day of the week, time of day, or trip purpose
- Travel time for potential riders – length of the trip, potential speed, and parallel options, of car/bus services
- No assumed service plan, focused on need of travel trips
- Potential impacts to demand:
 - Alignments
 - Stations site selection and nearby economic development
 - Service plan

High Level Conceptual Costs

- Applied comparable per mile/station unit costs from recent projects
 - \$3.5M - \$5.25/mile for FML
 - \$8.5M/mile - \$12.0M/mile for Lower Road, East Augusta lines
 - \$1.235M/platform – assumed 3 for each alignment
- Assumptions
 - Condition was not assessed
 - Potential unknowns not included such as layover yard, vehicles, property acquisition, parking, station buildings

Alignment	Approximate Length	Low Estimate	High Estimate
Downeaster Extension from Brunswick	100 miles	\$628M	\$902M
L-A Extension from Lewiston	100 miles	\$375M	\$538M



Corridor Transit Cost Considerations

- Rail Corridor Costs
 - Capital \$400M-\$900M depending on rail segment, conditions, number of stations
- Bus Corridor Costs
 - Coach, long distance buses ~\$300,000-500,000/vehicle.
(Ex \$1.2M – \$2.0M for 4 vehicles)
- Existing Bus Service in Corridor
 - Serving many of the potential trips
 - Opportunities to partner with existing operators

MaineDOT Bangor Transit Propensity Study

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How to Provide Comments

Contact Us:

<https://www.maine.gov/mdot/ofps/portland-bangor-study/>

