MISSION STATEMENT

The mission of the Bureau of Public Transportation is for the development, maintenance, and operation of a safe and efficient system of motor carrier, rail facilities and maritime assets for the movement of people and goods, such as Bus Transit, Rail Operations, Ferries, State Pier Facilities and Ridesharing programs.
CONNECTICUT DOT
A MULTIMODAL TRANSIT PROVIDER

**Rail**
MetroNorth, Shoreline East, Hartford Line

**Bus**
CTtransit, including CTFastrak Bus Rapid Transit (BRT)
14 Transit Districts, 12 Paratransit Operators

**Ferries**
Chester - Hadlyme, Rocky Hill - Glastonbury

**CTrides**
Ridesharing, Telework
### RAIL TRANSIT - INFRASTRUCTURE

#### METRO-NORTH
- 243 Track Miles / 106 Route Miles
- 310 Self-Propelled M8 Passenger Cars
- 50 Passenger Coaches
- 22 Locomotives
- 38 Passenger Stations
- 4 Administrative/Maintenance Facilities
- 198 Fixed Bridges / 5 Moveable Bridges

#### SHORELINE EAST HARTFORD LINE
- 68 Track Miles / 55 Route Miles
- 49 Passenger Coaches
- 16 Locomotives
- 13 Passenger Stations
- 1 Maintenance Facility
RAIL TRANSIT - OPERATIONS

New Haven Line / Branch Lines
• 39.0 Million Passenger Trips
• 31 Million Vehicle Revenue Miles / 839 Thousand Vehicle Revenue Hours
• $43.9 Million Operating Expense

Shore Line East
• 720 Thousand Passenger Trips
• 1.5 Million Vehicle Revenue Miles / 34 Thousand Revenue Hours
• $31.7 Million Operating Expense

Hartford Line
• 386 Thousand Passenger Trips
• 613 Thousand Vehicle Revenue Miles / 14 Thousand Vehicle Revenue Hours
• $43.9 Million Operating Expense
BUS TRANSIT - INFRASTRUCTURE

CTTRANSIT

600+ Transit, Articulated & Express Buses
8 Administrative/Maintenance Facilities
CTfastrak Bus Rapid Transit System
• Hartford – New Britain Termini
• 10 Passenger Stations
• 9.4 Miles Dedicated Guideway

TRANSIT DISTRICTS & PARATRANSLIT SERVICES

~200 Transit Buses
450+ Paratransit Vehicles
10 Administrative / Maintenance Facilities
5 Passenger Facilities
BUS TRANSIT - OPERATIONS

CTtransit
• 30.1 Million Passenger Trips
• 17,400 CTfastrak Average Weekday Corridor Ridership
• 18.6 Million Vehicle Revenue Miles / 1.5 Million Vehicle Revenue Hours
• $187.2 Million Operating Expense

Transit Districts
• 11.3 Million Passenger Trips
• 15.4 Million Vehicle Revenue Miles/ 1.2 Million Vehicle Revenue Hours
• $88.4 Million Operating Expense
FERRY, CTRIDES & STATE PIER

Ferry
• 110,000+ Annual Ridership

CTrides
• 52,000+ Participants
• 3.9 Million Shared Rides (Carpool & Vanpool)
• 2.2 Million Transit Trips

State Pier (New London)
• $93 million public-private partnership with wind energy producer to upgrade the pier
STATE OF CONNECTICUT
BATTERY ELECTRIC BUS (BEB)
PILOT PROJECTS IN CONNECTICUT
BATTERY ELECTRIC VEHICLES
THE CONNECTICUT CONNECTION

Columbia & Electric Vehicle Co.
New Haven Carriage/Franklin & Water

Pope Manufacturing
Hartford, CT Assembly (Pope Park)
BEB – POLICY & MANDATES

1. Governors Council on Climate Change (GC3)
2. Federal Air Quality and Transportation Funding Requirements
3. New England Governors and Eastern Canadian Premiers Transportation & Air Quality Subcommittee
4. Governor Lamont Executive Orders #1 & #3
5. Legislation requiring 30% of the bus fleet to be BEB by January 1, 2030 (CGS 4-67d(c))
6. Legislation reducing GHG emissions at least 45% below 2001 levels by 2030 [Public Act 18-82]
TRANSPORTATION IS THE LARGEST SOURCE OF CARBON EMISSIONS IN THE UNITED STATES
BATTERY ELECTRIC BUS - ADVANTAGES

• Better fuel economy – 4 mpg diesel vs. 15 mpg electric
• Fuel price stability – electricity has more stable price than diesel
• Environment – nearly eliminates emissions of major pollutants
• Clean Electric Grid – 40%+ electricity from nuclear, no coal after 2020
• Quiet – much less noise than diesel buses
• Lower Maintenance Cost – about ½ moving parts of diesel buses
• Better acceleration – electric motors have full torque from standstill
BATTERY ELECTRIC BUS - CHALLENGES

• Initial Capital Cost – about twice the cost of diesel (but dropping)
• Battery Capacity – batteries are not a dense energy storage medium
• Bus Weights – heavy batteries may slightly reduce passenger capacity
• Heating – with no engine to use for heating, heat is electrically produced
• Vehicle Charger Installation – expensive, bulky and new technology
• Fire Protection – battery fires must have different types of fire protection
• Electricity Costs – high cost of electricity in CT, including demand charges
What makes an Electric Bus work?

- Battery Cooler
- Battery Assembly (Roof)
- Battery Assembly (Rear)
- Drive Axle With Wheel Hub Drive
- Front Axle, Independent Wheel Suspension
- Power Inverter
- Air Conditioning System with Heat Pump
- Charging Control Unit
- Charging Socket

How Clean is Connecticut’s Electric Grid?

Connecticut Net Electricity Generation by Source, Dec. 2018

- Natural Gas-Fired
- Coal-Fired
- Nuclear
- Hydroelectric
- Nonhydroelectric Renewables

Source: Energy Information Administration, Electric Power Monthly
Electric Rate Components:

Demand charges are based on the highest power draw that month. Some utilities impose an additional charge based on the maximum amount of electricity that is drawn at any one time.

Reference:
https://michaelbluejay.com/electricity/cost.html
CONNECTICUT ELECTRIC BUS DEPLOYMENTS

Where are Electric Buses being deployed?

• Bridgeport (2019) 2 BEBs
  (2020) 3 BEBs
• New Haven/Stamford (2020)-12 BEBs
## CTTRANSIT ELECTRIC BUS BUDGET
### NEW HAVEN / STAMFORD DEPLOYMENT

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<tr>
<th>Item</th>
<th>Qty.</th>
<th>Unit Cost</th>
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STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
STATE OF THE TRANSIT SYSTEM-2019

Bureau of Public Transportation – Office of Program Management

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