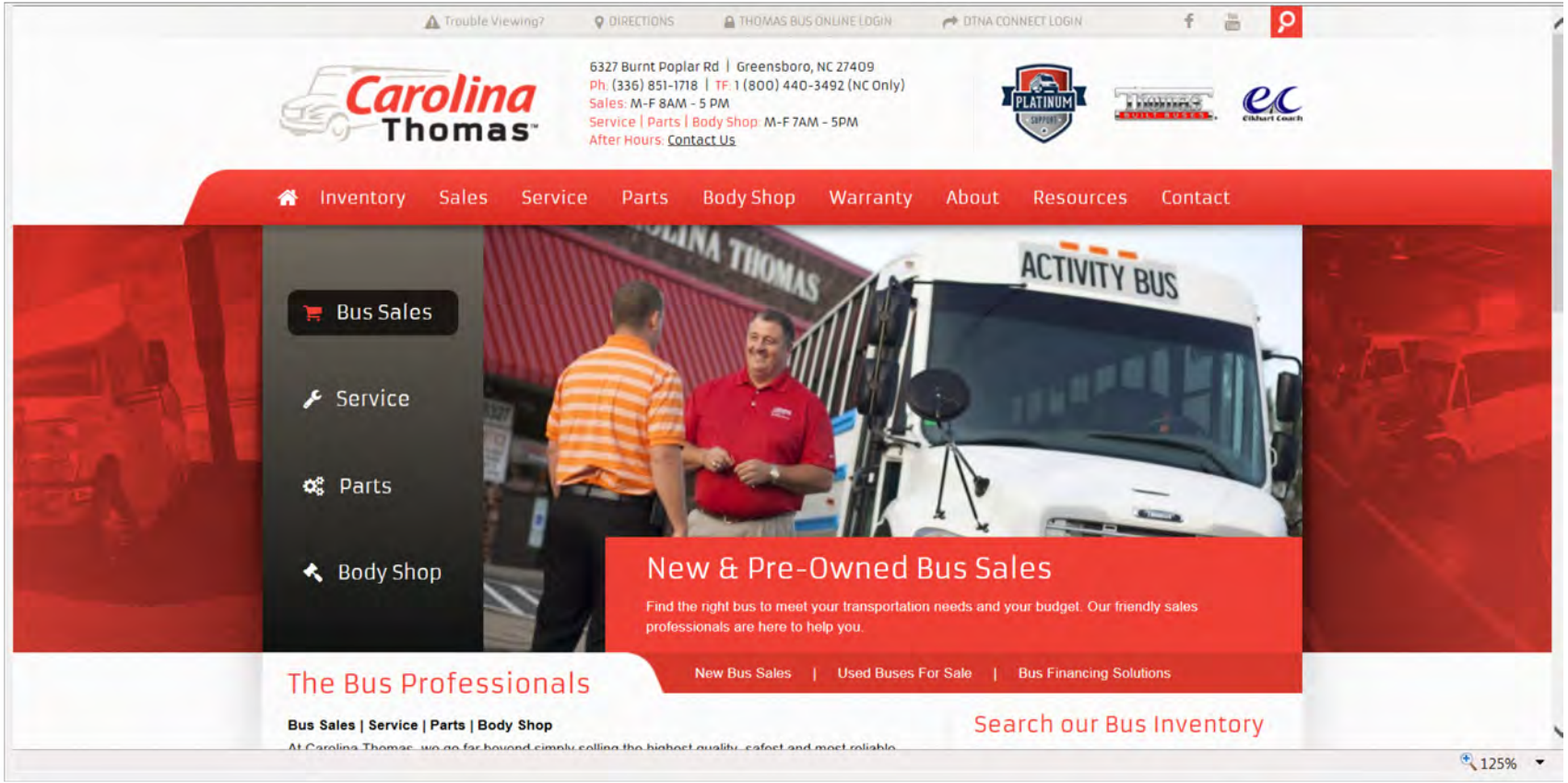
POWERING POSSIBILITIES

December 17, 2108
Asheville, NC

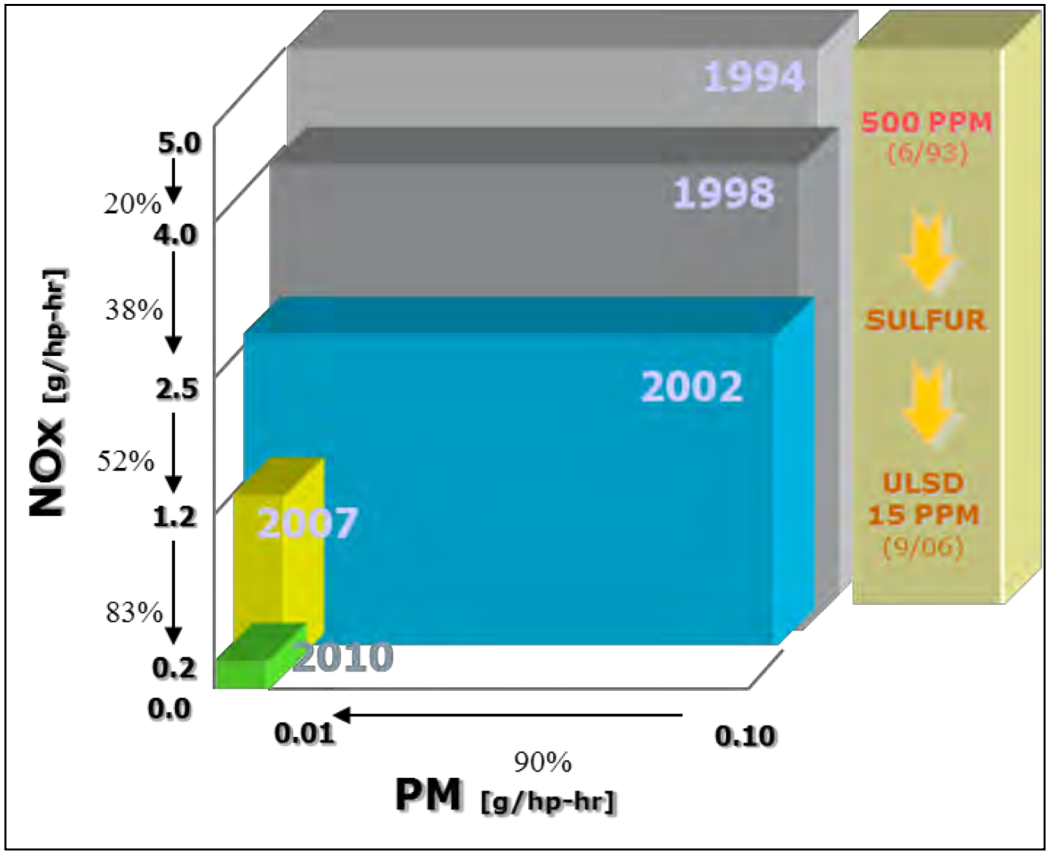
LAND OF SKY REGIONAL COUNCIL

Carolina Thomas™
Bus Sales | Service | Parts | Body Shop

Our Dealership



History of Nox Reduction



A bus with an engine that predates the EPA98 emission standard emits 90% more NOx than trucks with current emissions engines

EPA Engine Certifications

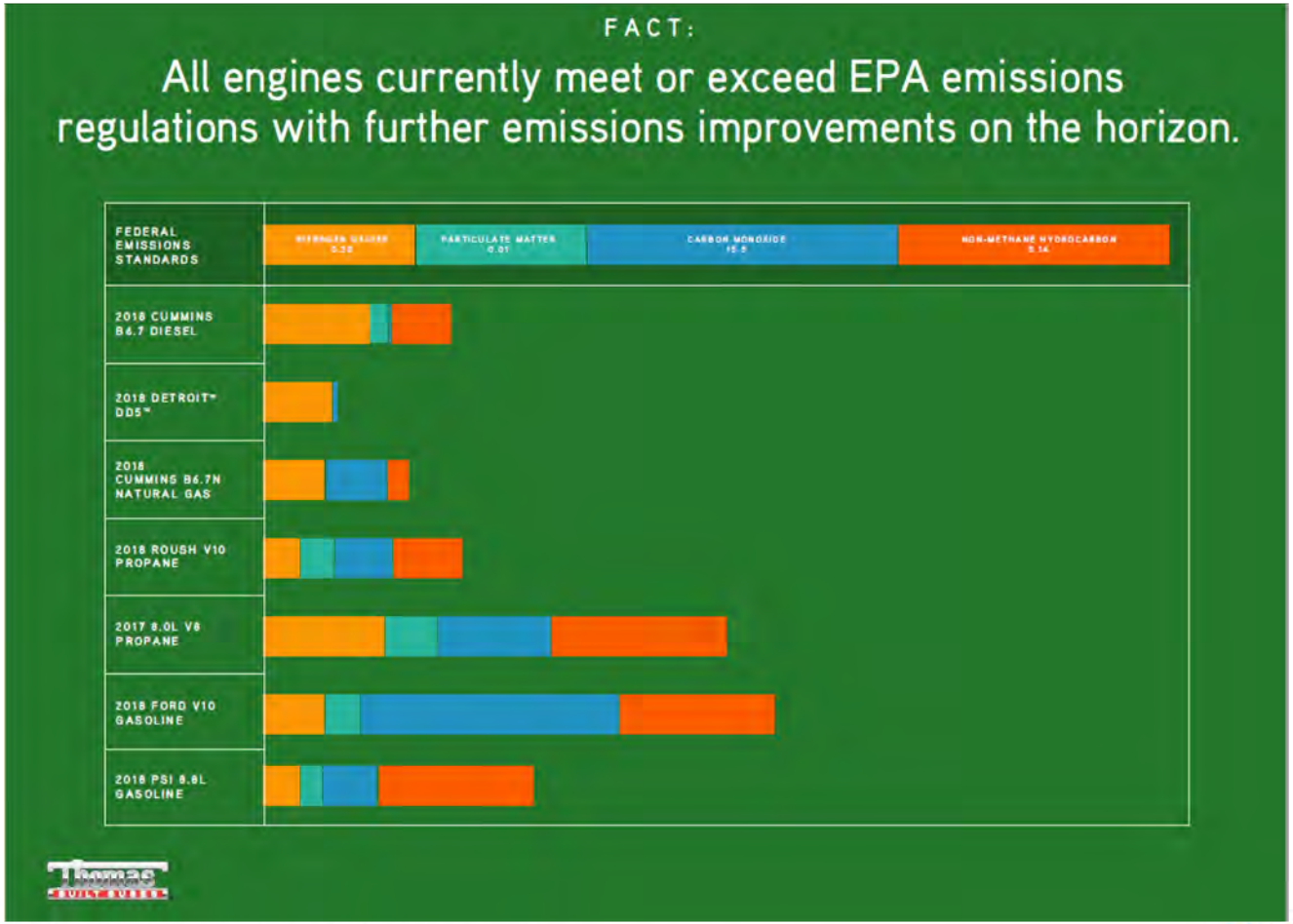
FACT:

All engines today have emissions that are well below federal emissions standards.

		NITROGEN OXIDES (grams per brake hp per hour)	PARTICULATE MATTER (grams per brake hp per hour)	CARBON MONOXIDE (grams per brake hp per hour)	NON-METHANE HYDROCARBON (grams per brake hp per hour)
	2017 FEDERAL EMISSIONS STANDARDS	0.20	0.01	15.5	0.14
DIESEL	2018 CUMMINS B6.7	0.15	0.001	0.04	0.03
DIESEL	2018 DETROIT™ DD5™	0.05	0.000	0.4	0.000
CNG	2018 CUMMINS B6.7N	0.08	0.000	3.00	0.01
PROPANE	2018 ROUSH V10	0.01	0.002	5.0	0.05
PROPANE	2017 8.0L V8	0.16	0.003	5.6	0.09
GAS	2018 FORD V10	0.08	0.002	12.9	0.08
GAS	2018 PSI 8.8L	0.04	0.002	3.7	0.08

*RESULTS ARE BASED ON FEDERAL TEST PROCEDURE (FTP) CYCLE.

EPA Engine Certifications



GHG Emission –CO_2

FACT:

Even though CO_2 is not monitored by the EPA, it is still a greenhouse gas. Over the lifetime of the bus, diesel engines emit less CO_2 than propane or gasoline engines.

	GASOLINE	PROPANE	DIESEL
ENERGY CONTENT/US GALLON	118	98.7	134.5
TOTAL VEHICLE LIFE (MILES)	150,000	150,000	150,000
AVERAGE MILES/GALLON	4.50	4.00	8.50
ENERGY USE/MILE	26.22	24.68	15.82
GALLONS/LIFETIME	33,333	37,500	17,647
CO_2 EMISSIONS/GALLON (LBS)	19.60	12.72	22.40
CO_2 EMISSIONS/LIFETIME (LBS)	653,333	477,000	395,294

Product Portfolio

	Clean Diesel	Propane (LNG)	Natural Gas (CNG)	Electric (ZEV)	Gasoline
 HDX	  				
 EFX					
	 	 		 	
					 

DETROIT DD8

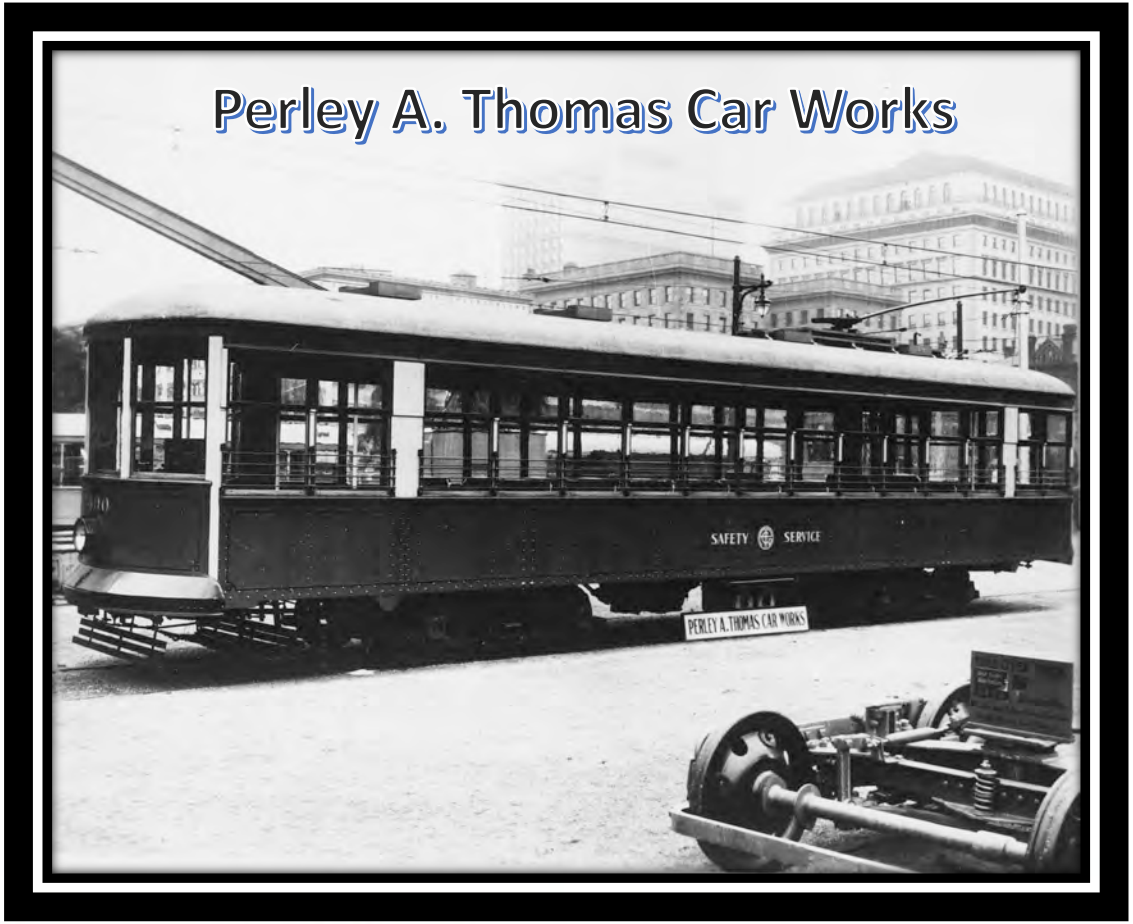
DETROIT DD5

Detroit Connect Virtual Technician

- Engine issues are discovered before they cause downtime
- Analysis is provided by Detroit experts
- Money is saved by servicing vehicles only when needed
- Cost of ownership is improved
- Standard on Thomas Built Buses spec'd with Detroit DD5 and DD8 engines

With Detroit Connect Virtual Technician remote diagnostic service, fleet managers are notified within minutes that a vehicle has experienced a fault event, the severity of the fault, and how to best fix the issue.

History with Electric Vehicles



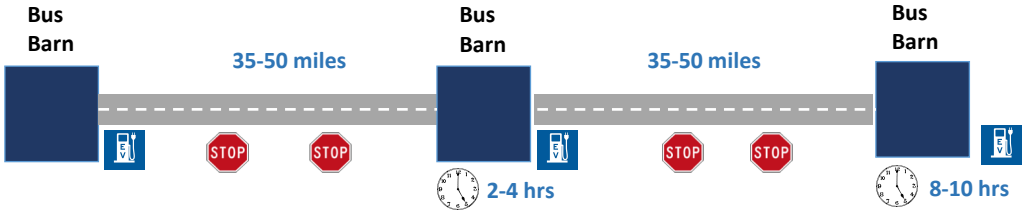
SAF-T-LINER® eC2 ELECTRIC BUS

- **Innovating Pupil Transportation Industry**
- **Innovative** - All-electric bus powered by the Cummins PowerDrive™ 7000EV engine with 155kWh and up of battery energy
- **Expandable Mileage** – up to 120-mile range
- **State-of-the-Art Solutions**
  - Cummins PowerSuite™ - vehicle control software
  - Cummins PowerTracker™ telematics and diagnostics system - tracks bus location and real-time monitoring of potential issues
  - Cummins Power2E™ - exportable power

Charging pattern and infrastructure use case

School Bus

Day Operation with Overnight Charging & Mid-day Recharge



Example: School bus operates morning route with a return to Bus Barn for charging. After period of charging, school bus operates afternoon route with return to Bus Barn. After afternoon route, school bus is charged over night.

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Contact Information

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