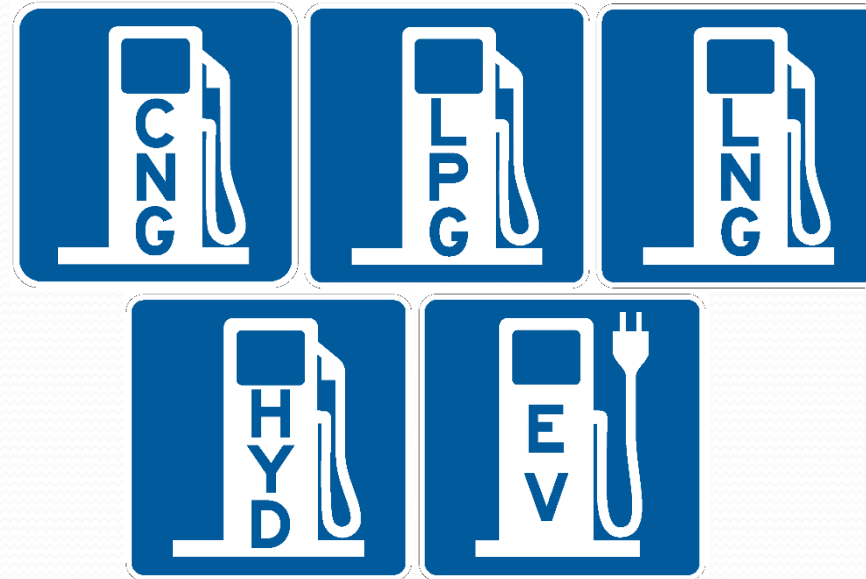


Southeast Region Designated Corridors and Infrastructure Gap Analysis



Mike Scarpino & Stephen Costa
USDOT – Volpe Center
September 25, 2018

Alternative Fuel Corridors Infrastructure Analysis & Round 3 Designation Recommendations

- ✓ **Gap Analysis for States Using Existing Stations**
 - ✓ **Focused on LPG for AL, GA, NC, SC**
- ✓ **VMT & Freight Data**
 - ✓ **2012 and 2045 projections for AL, GA, NC, SC**
- ✓ **Summary**



U.S. Department of Transportation
Federal Highway Administration

**LPG AFC's:
Rounds 1 & 2**



Alternative Fuel Corridors

- LPG - Corridor Ready
- LPG - Corridor Pending

0 30 60 90
Miles

Alternative Fueling Station Locator

Find alternative fueling stations in the United States and Canada. For U.S. stations, see [data by state](#). For Canadian stations in French, see [Natural Resources Canada](#).

Public Stations

Advanced Filters

U.S. and Canada

GA



Propane (LPG)



Include stations with limited vehicle fueling

These stations have fuel available for use in vehicles but limited vehicle-specific fueling services.

Map a Route

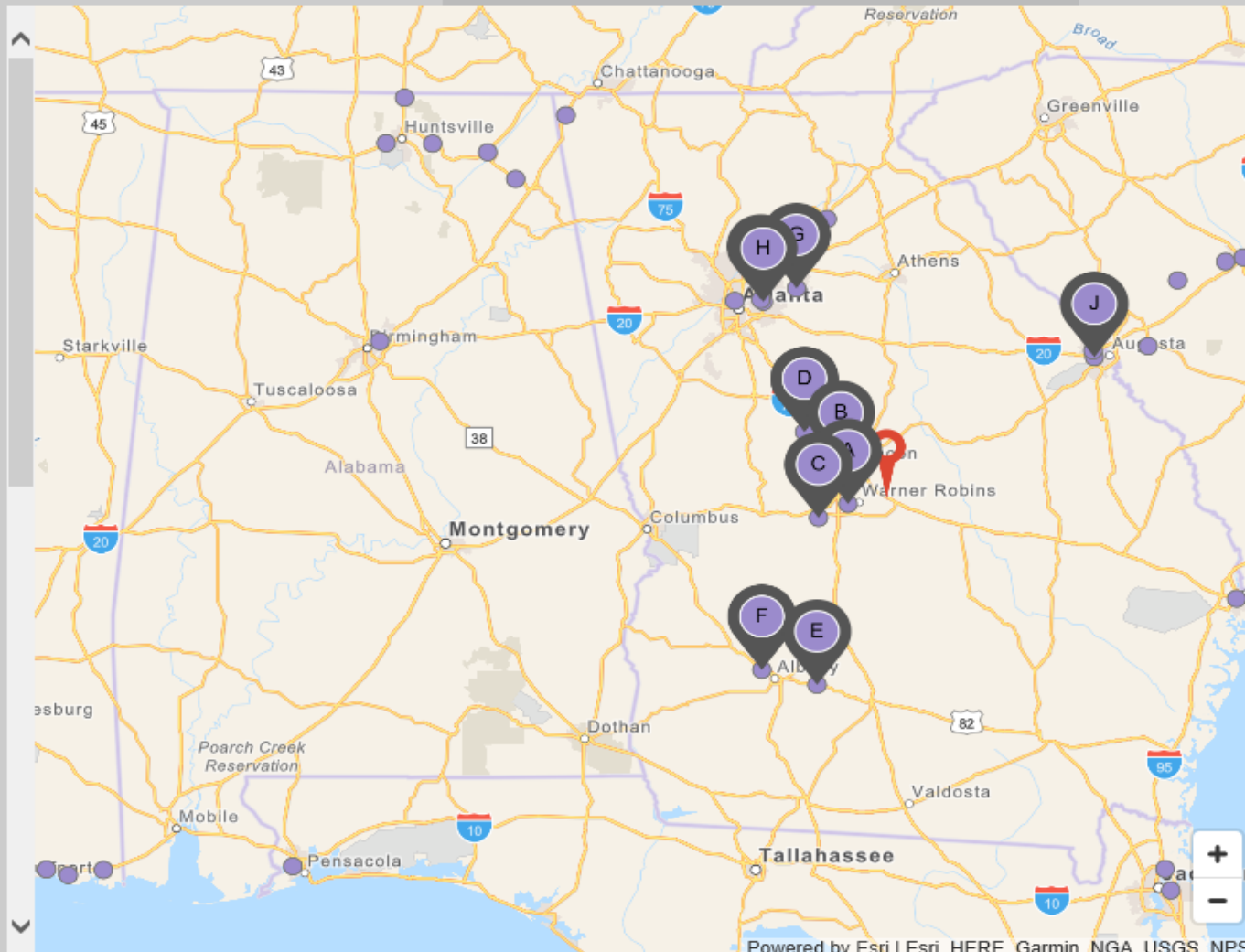
A **Evergreen Propane** 14.9 mi
331 S Houston Lake Rd
Warner Robins, GA 31088

B **Evergreen Propane** 22.0 mi
149 Macon W Dr
Macon, GA 31210

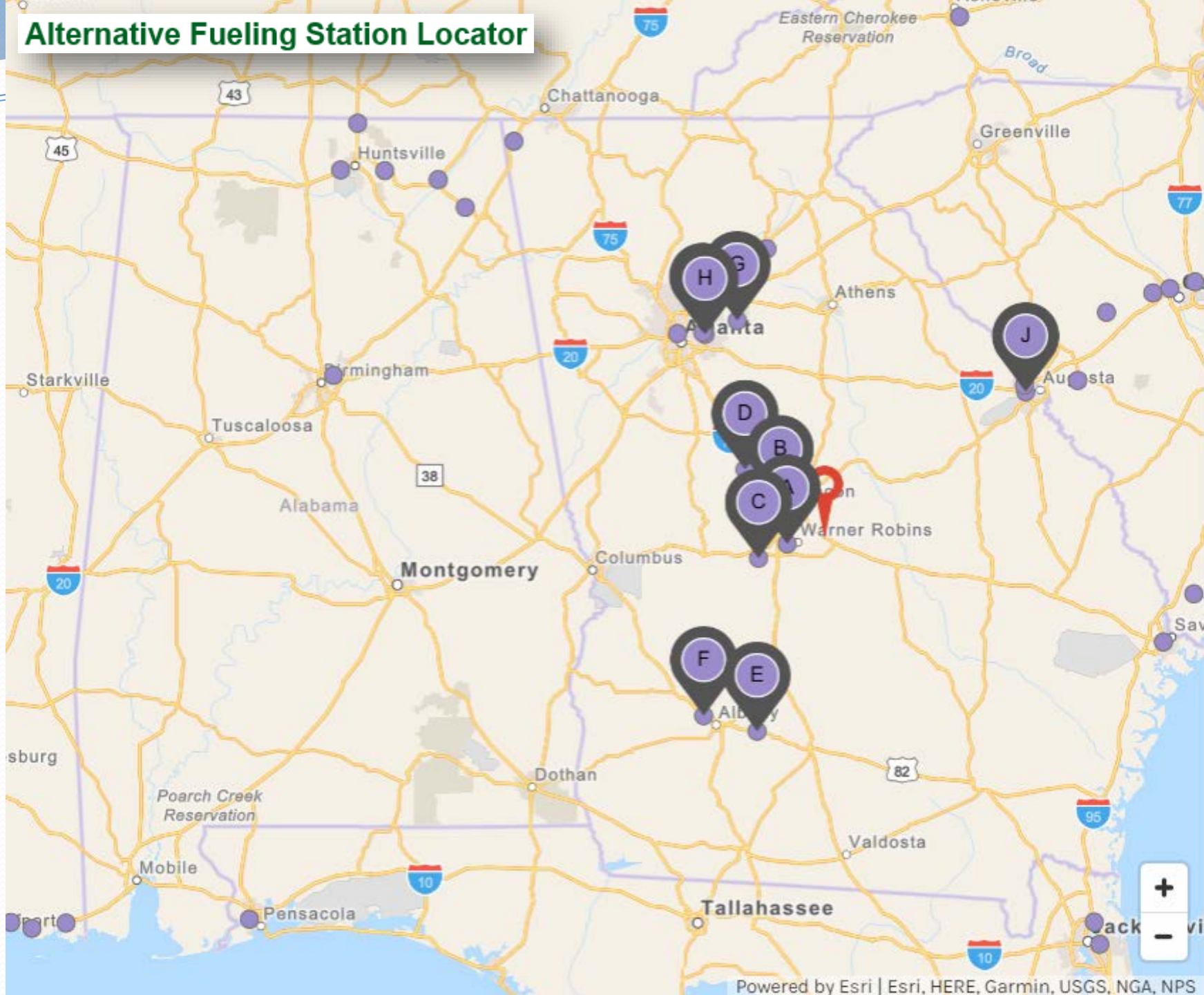
C **LA Gas** 27.0 mi
5720 US Highway 341 S
Fort Valley, GA 31030

D **Evergreen Propane** 41.4 mi
1002 W Main St
Forsyth, GA 31029

E **Conger LP Gas** 80.0 mi
2840 US Highway 82 W
Sylvester, GA 31791



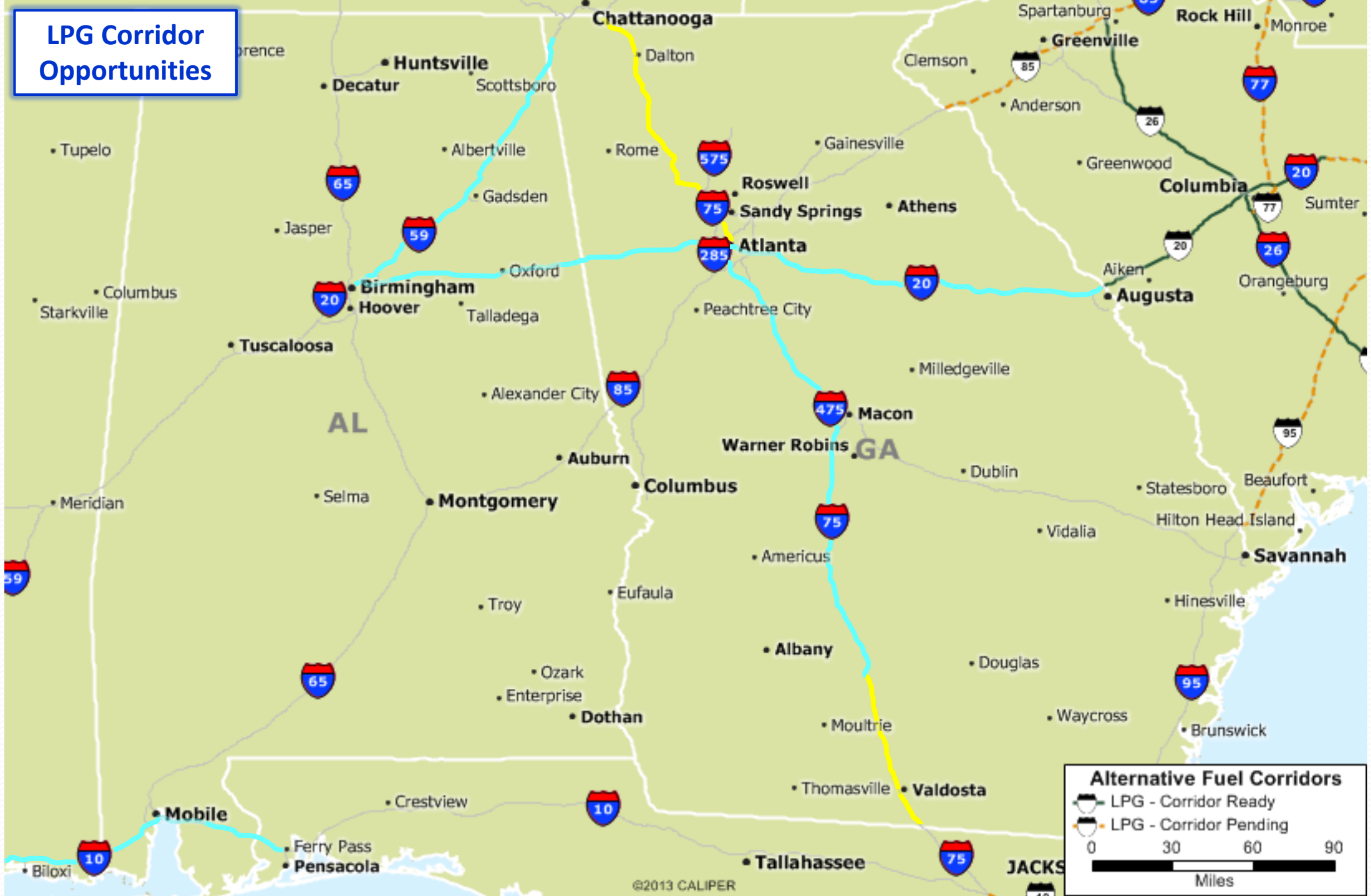
Alternative Fueling Station Locator



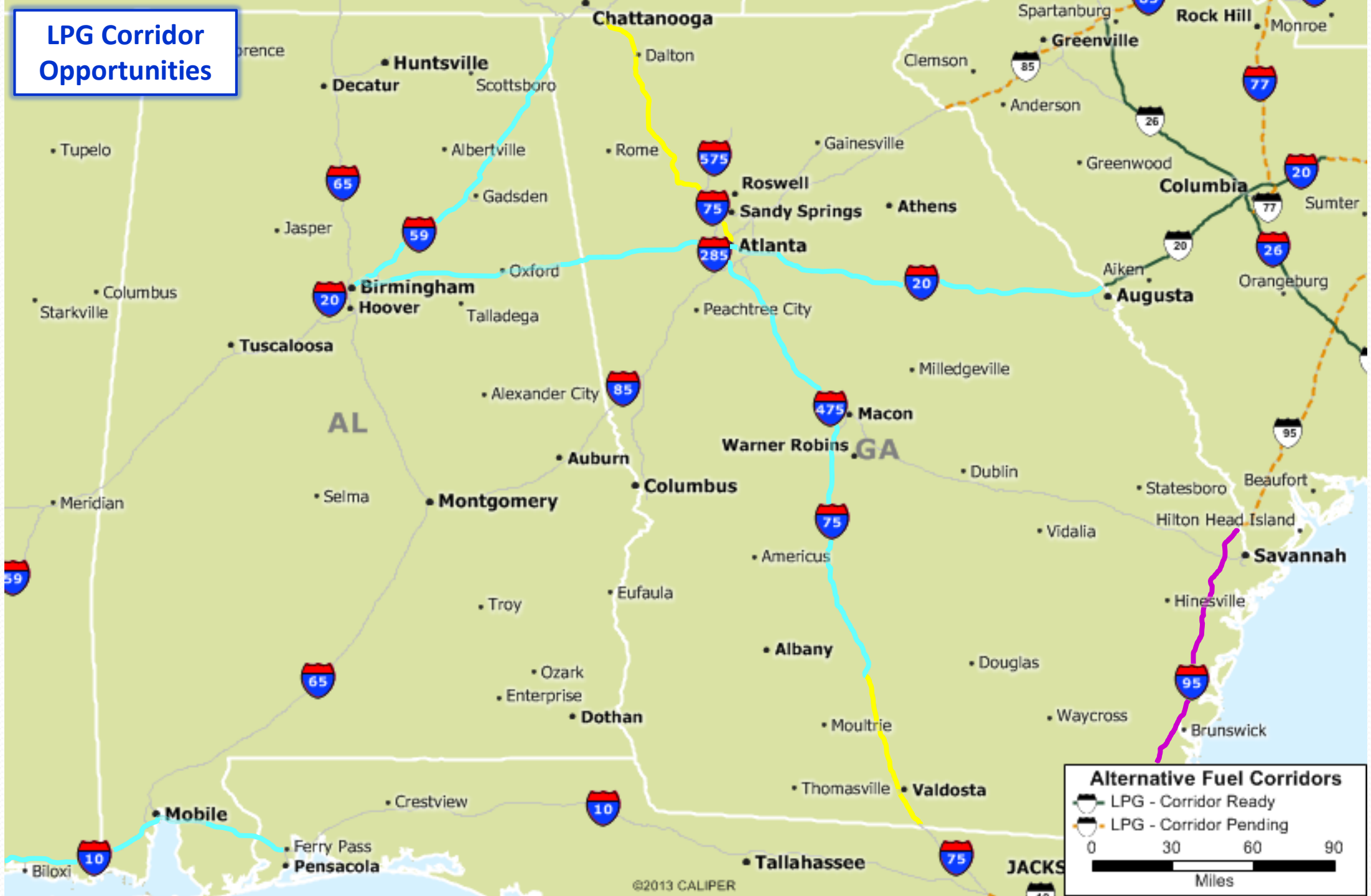
**LPG AFC's:
Rounds 1 & 2**



LPG Corridor Opportunities



LPG Corridor Opportunities



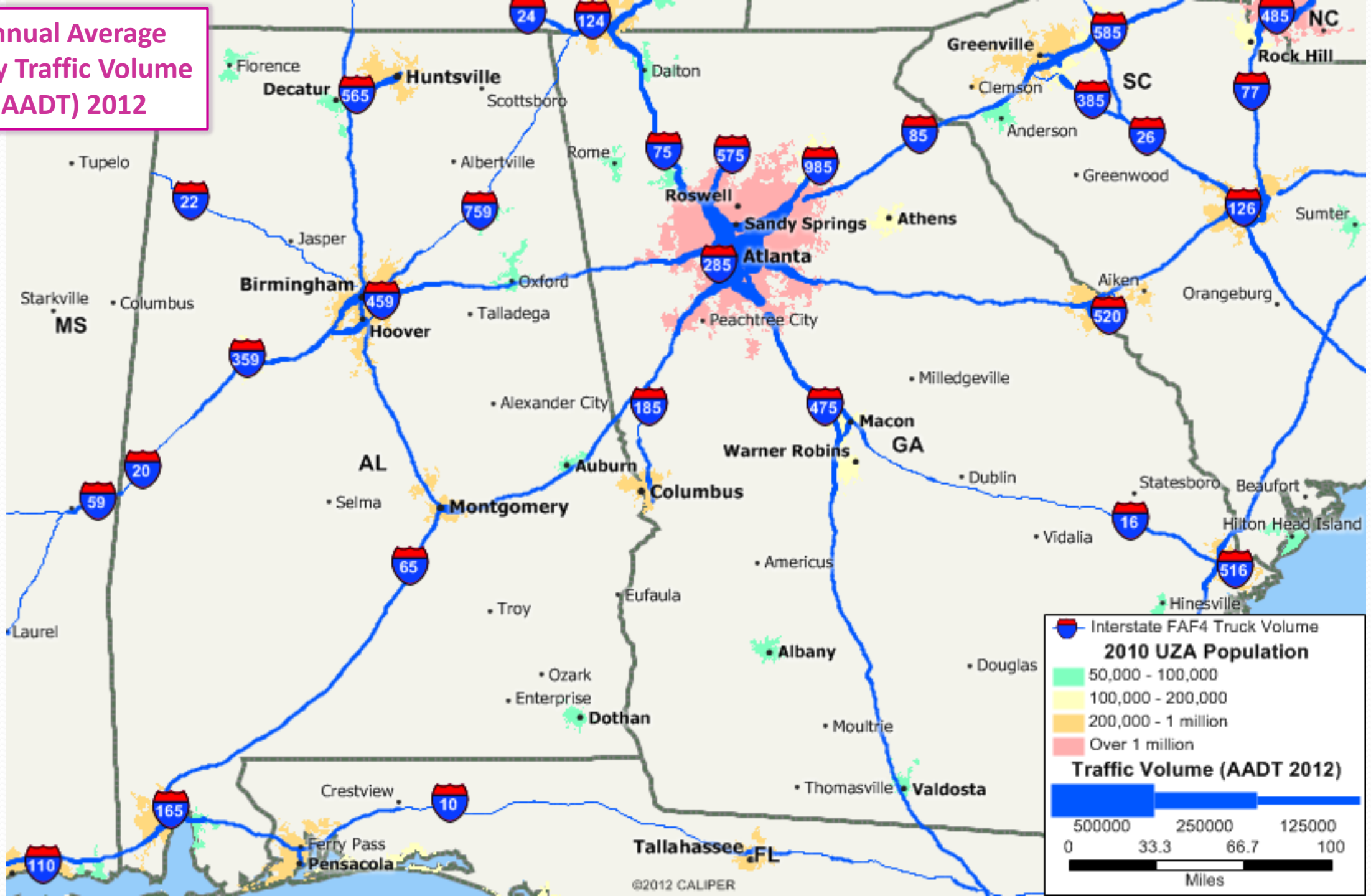
Georgia LPG Corridor Analysis for Future Designations

State	LPG Ready	LPG Pending	Additional Considerations
GA	<p>I-20: From GA/AL border to GA/SC border (296 miles from Birmingham AL to Augusta)</p> <p>I-75: From Atlanta to Tifton (188 miles)</p>	<p>I-75: From Atlanta to GA/TN border; and from Tifton to GA/FL border (<i>next station is 183 miles to Ocala FL</i>)</p> <p><i>Recommendation: Evaluate siting a station in Valdosta GA (49 miles from Tifton) or Lake City FL (108 miles from Tifton) to close this gap to Ocala</i></p>	<p>I-95: 130 miles from Next AutoGas LLC, Jacksonville FL to U-Haul of Savannah GA (but it's 8.3 miles off of I-95) AND 36 miles from U-Haul to Blossman Gas Inc., Ridgeland, SC 29936 (but it's 7.4 miles off the highway).</p> <p><i>Recommendation: Evaluate siting a station in between, perhaps Brunswick GA.</i></p>

Alabama LPG Corridor Analysis for Future Designations

State	LPG Ready	LPG Pending	Additional Considerations
AL	<p>I-20: From Birmingham AL to AL/GA border (<i>Corridor in AL & GA is LP Ready 296 miles from Birmingham AL to Augusta GA</i>)</p> <p>I-59: From Birmingham AL to AL/GA border (<i>Corridor in AL & GA is LP Ready 122 miles from Birmingham AL to Trenton GA</i>)</p>	<p>I-20: From Birmingham AL to AL/MS border</p> <p>I-59: From Birmingham AL to AL/MS border</p>	<p>I-10: 86 miles from Pilot Travel Center in Moss Point, MS to Blossman Gas in Pensacola FL (<i>Corridor is LPG Ready between Pensacola and New Orleans</i>)</p> <p><i>Recommendation: Evaluate siting a station in Mobile</i></p>

**Annual Average
Daily Traffic Volume
(AADT) 2012**



Interstate FAF4 Truck Volume
2010 UZA Population

- 50,000 - 100,000
- 100,000 - 200,000
- 200,000 - 1 million
- Over 1 million


Traffic Volume (AADT 2012)

500000 250000 125000
 0 33.3 66.7 100

Miles

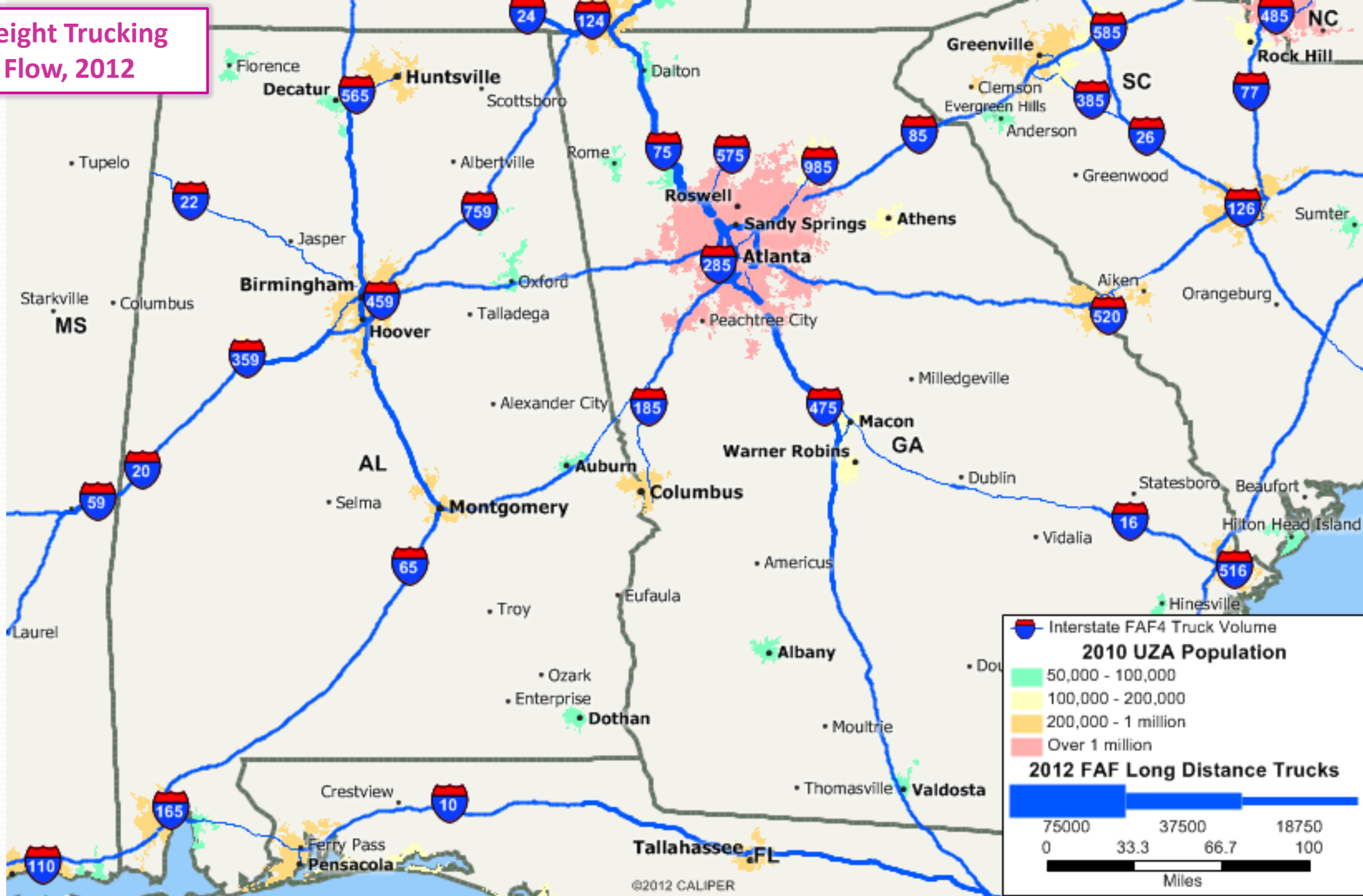
**Annual Average
Daily Traffic Volume
(AADT) 2045**



 Interstate FAF4 Truck Volume
2010 UZA Population
 50,000 - 100,000
 100,000 - 200,000
 200,000 - 1 million
 Over 1 million
Traffic Volume (AADT 2045)
 500000
 250000
 125000
 0
 33.3
 66.7
 100

 Miles

Freight Trucking Flow, 2012



AL Corridor Analysis for Annual Average Daily Traffic Volume

State	Hwy	Origin	Destination	AADT 2012	AADT 2045	Percent Increase
AL	I-20	AL/MS border	AL/GA border	59126	210530	256%
AL	I-10	AL/MS border	AL/FL border	62835	305041	385%
AL	I-65	Mobile	AL/TN border	26840	75725	182%
AL	I-59	Birmingham	AL/GA border	26891	86211	221%
AL	I-85	Montgomery	AL/GA border	47924	211060	340%
AL	I-22	AL/MS border	Birmingham	14902	51637	247%

AL Corridor Analysis for Long Distance Truck Volume

State	Hwy	Origin	Destination	FAF4 2012	FAF4 2045	Percent Increase
AL	I-20	AL/MS border	AL/GA border	5368	10322	92%
AL	I-10	AL/MS border	AL/FL border	3848	7992	108%
AL	I-65	Mobile	AL/TN border	7043	13254	88%
AL	I-59	Birmingham	AL/GA border	3860	7765	101%
AL	I-85	Montgomery	AL/GA border	3645	7332	101%
AL	I-22	AL/MS border	Birmingham	2407	4596	91%

GA Corridor Analysis for Annual Average Daily Traffic Volume

State	Hwy	Origin	Destination	AADT 2012	AADT 2045	Percent Increase
GA	I-20	GA/AL border	GA/SC border	81566	174972	115%
GA	I-75	GA/TN border	GA/FL border	100878	252322	150%
GA	I-95	GA/SC border	GA/FL border	51497	159057	209%
GA	I-16	Macon	Savannah	25945	50667	95%
GA	I-85	GA/SC border	GA/AL border	95061	251720	165%

GA Corridor Analysis for Long Distance Truck Volume

State	Hwy	Origin	Destination	FAF4 2012	FAF4 2045	Percent Increase
GA	I-20	GA/AL border	GA/SC border	4919	8263	68%
GA	I-75	GA/TN border	GA/FL border	9367	14989	60%
GA	I-95	GA/SC border	GA/FL border	5575	10712	92%
GA	I-16	Macon	Savannah	3134	7464	138%
GA	I-85	GA/AL border	GA/SC border	4562	7698	69%

**LPG AFC's:
Rounds 1 & 2**



Alternative Fueling Station Locator

Find alternative fueling stations in the United States and Canada. For U.S. stations, see [data by state](#). For Canadian stations in French, see [Natural Resources Canada](#).

Public Stations

Advanced Filters

U.S. and Canada

NC



Propane (LPG)



Include stations with limited vehicle fueling

These stations have fuel available for use in vehicles but limited vehicle-specific fueling services.



Map a Route



U-Haul

37.5 mi

2346 Gillespie St
Fayetteville, NC
28306



Payne Oil Co

40.8 mi

962 E Elm St
Graham, NC 27253



Parker Gas Co

57.3 mi

1504 Sunset Ave
Clinton, NC 28328



U-Haul

84.3 mi

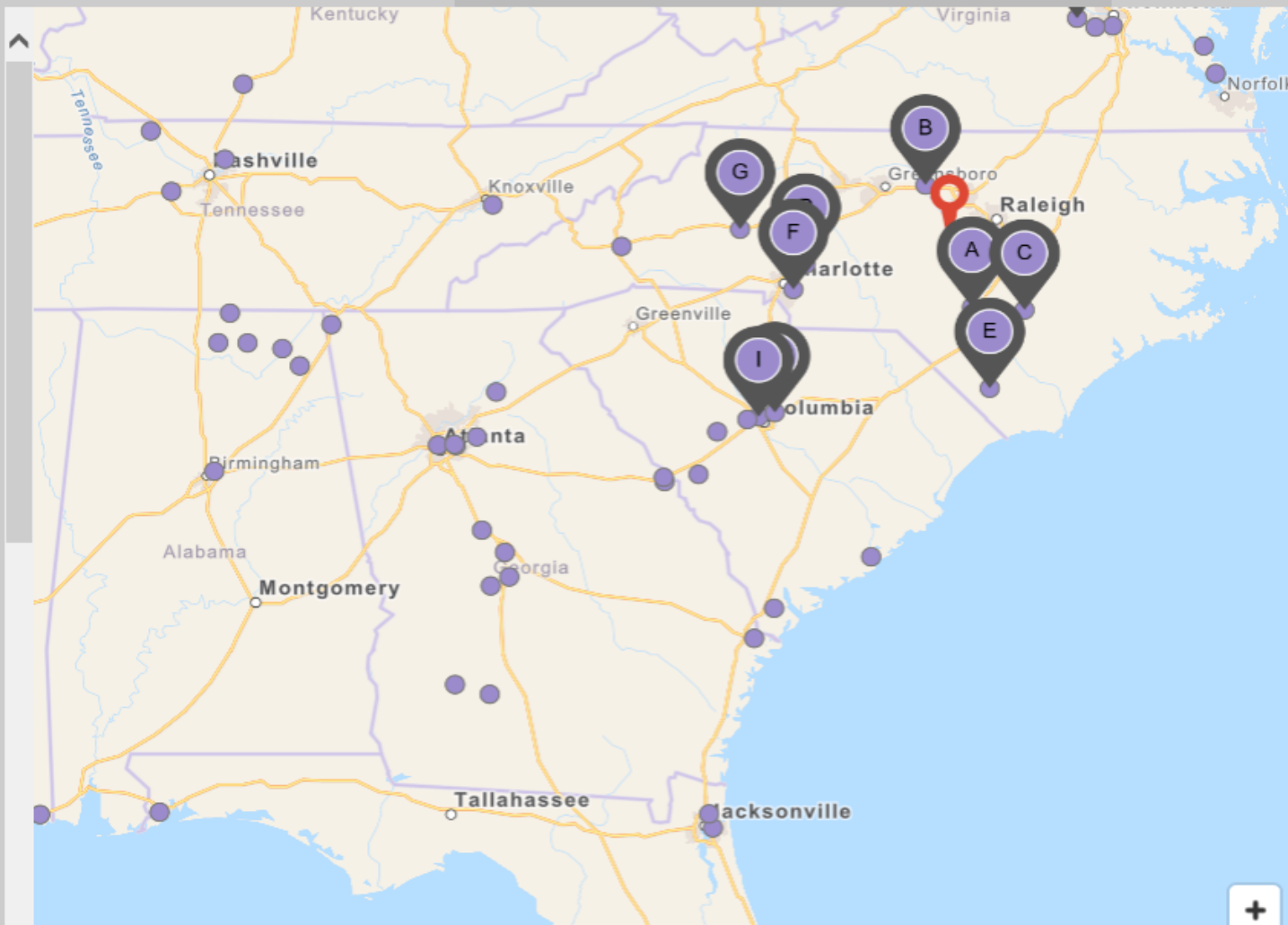
855 Concord Pkwy S
Concord, NC 28027



Cape Fear Propane

87.8 mi

140 Bitmore Rd
Whiteville, NC 28472



North Carolina LPG Corridor Analysis for Future Designations

State	LPG Ready	LPG Pending	Additional Considerations
NC	<p>I-85: From Graham to Concord (96 miles)</p> <p>I-40: Graham to Asheville (196 miles)</p>	<p>I-85: From NC/VA border to Graham; and from Concord to NC/SC border</p> <p>I-40: From Wilmington to Graham; and from Asheville to NC/TN border</p>	

Alternative Fueling Station Locator

Find alternative fueling stations in the United States and Canada. For U.S. stations, see [data by state](#). For Canadian stations in French, see [Natural Resources Canada](#).

Public Stations

Advanced Filters

U.S. and Canada

NC

Propane (LPG)

Include stations with limited vehicle fueling

These stations have fuel available for use in vehicles but limited vehicle-specific fueling services.

Map a Route

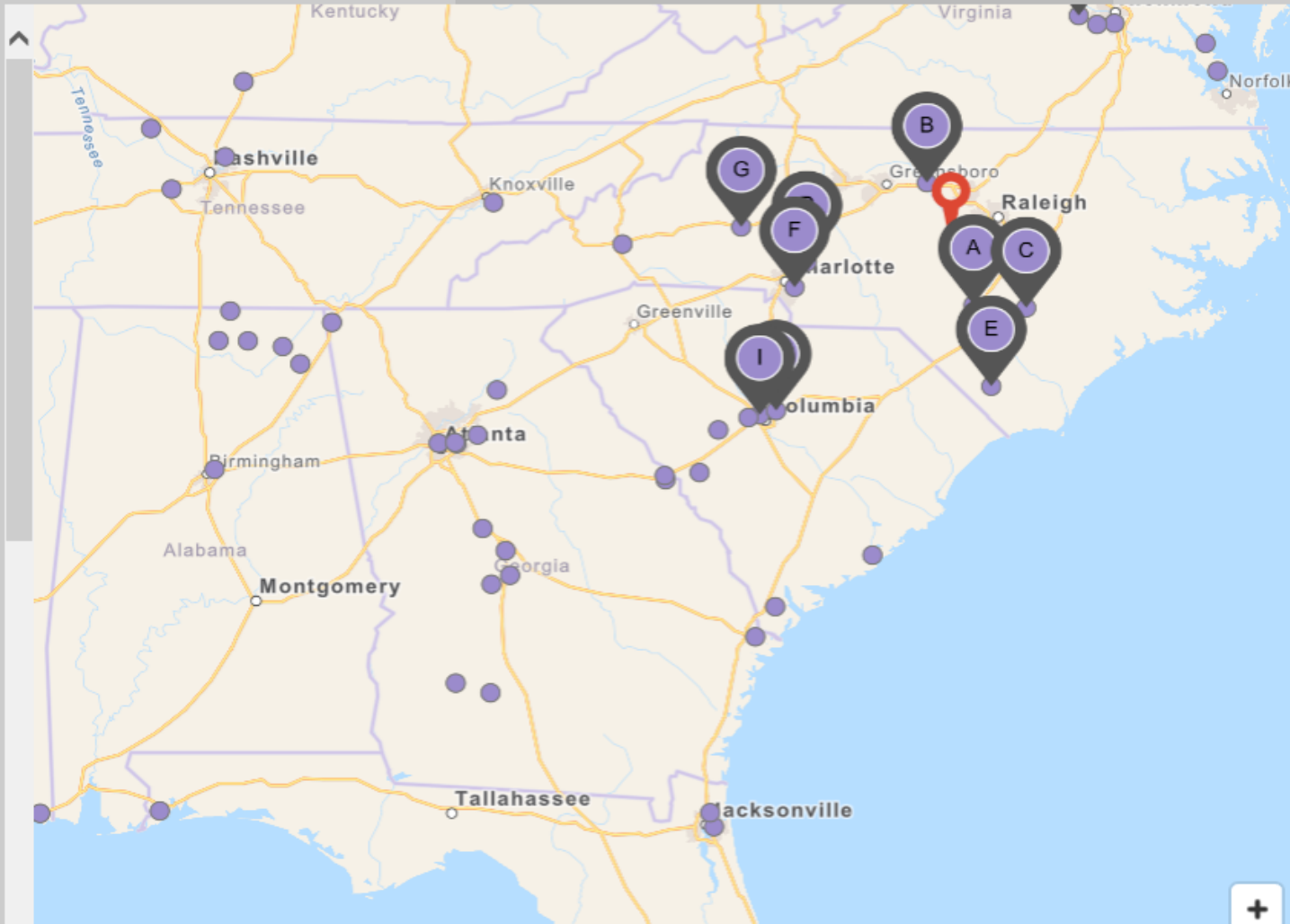
A U-Haul 37.5 mi
2346 Gillespie St
Fayetteville, NC
28306

B Payne Oil Co 40.8 mi
962 E Elm St
Graham, NC 27253

C Parker Gas Co 57.3 mi
1504 Sunset Ave
Clinton, NC 28328

D U-Haul 84.3 mi
855 Concord Pkwy S
Concord, NC 28027

E Cape Fear Propane 87.8 mi
140 Bitmore Rd
Whiteville, NC 28472



Primary LPG Stations:

NC: 8

SC: 7

GA: 15

AL: 6

NOTE: Primary LPG Stations offer vehicle-specific fueling capabilities and fuel priced specifically for use in vehicles.

Alternative Fueling Station Locator

Find alternative fueling stations in the United States and Canada. For U.S. stations, see [data by state](#). For Canadian stations in French, see [Natural Resources Canada](#).

Public Stations

Advanced Filters

U.S. and Canada

NC

Propane (LPG)

Include stations with limited vehicle fueling

These stations have fuel available for use in vehicles but limited vehicle-specific fueling services.

Map a Route

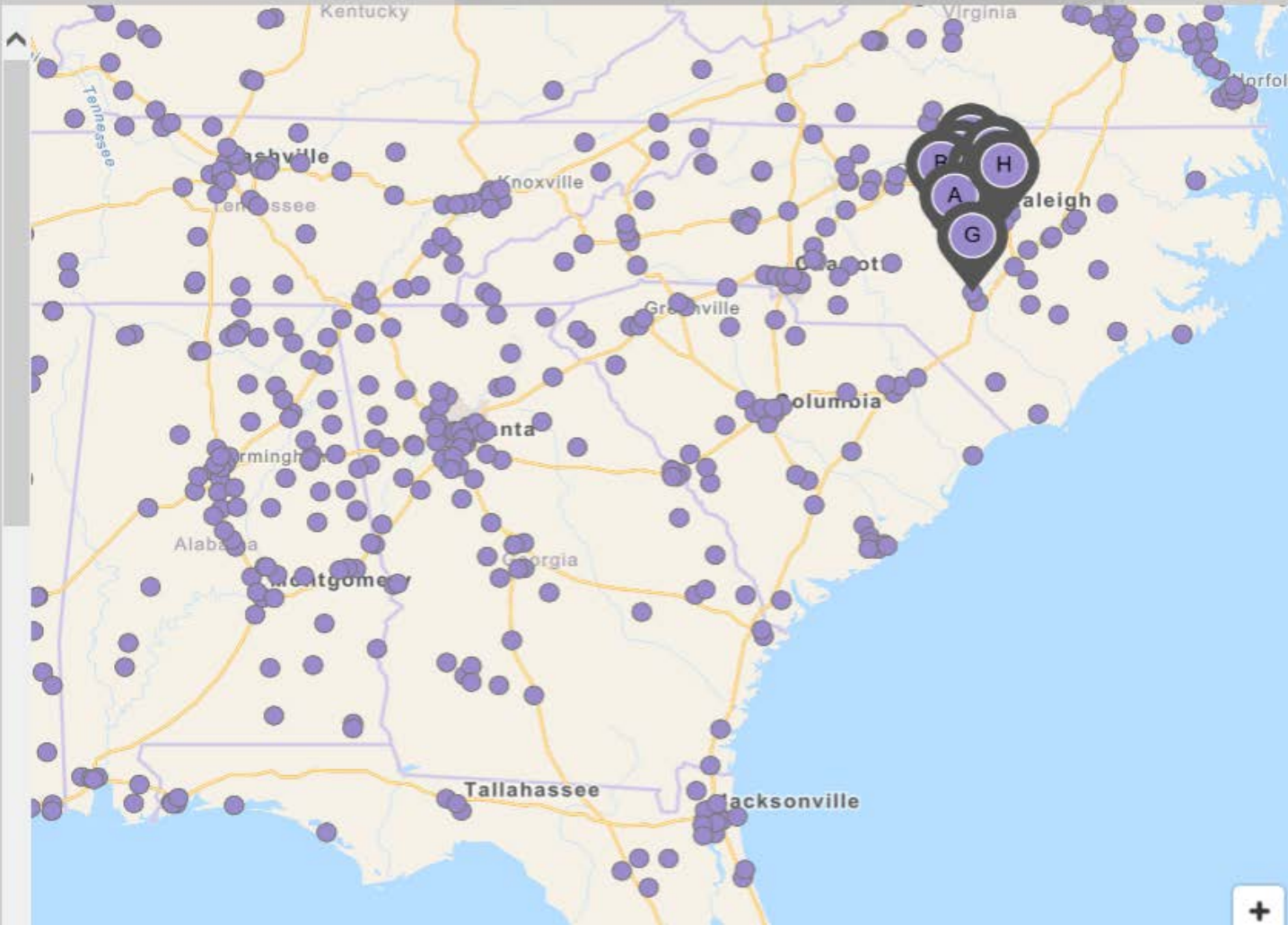
A Cooper LP Gas Co 5.4 mi
3097 Hal Siler Dr
Sanford, NC 27332

B Jenkins Propane 16.5 mi
43 Hadley Mill Rd
Pittsboro, NC 27312

C U-Haul 20.4 mi
102 Vickers Rd
Chapel Hill, NC 27517

D Thompson Gas 21.0 mi
824 E Williams St
Apex, NC 27502

E KB Johnson Oil & Gas Co 21.5 mi



Primary & Secondary LPG Stations:

NC: 8 + 71 = 79

SC: 7 + 38 = 45


GA: 15 + 74 = 89

AL: 6 + 81 = 87

NOTE: These Secondary LPG Stations should be evaluated for the feasibility to be upgraded to Primary

**Annual Average
Daily Traffic Volume
(AADT) 2012**



 Interstate FAF4 Truck Volume
2010 UZA Population
 50,000 - 100,000
 100,000 - 200,000
 200,000 - 1 million
 Over 1 million
Traffic Volume (AADT 2012)
 500000
 250000
 125000
 0
 30
 60
 90
 Miles

Freight Trucking Flow, 2012



Interstate FAF4 Truck Volume

2010 UZA Population

- 50,000 - 100,000
- 100,000 - 200,000
- 200,000 - 1 million
- Over 1 million

2012 FAF Long Distance Trucks

75000	37500	18750	
0	33.3	66.7	100

Miles

©2012 CALIPER

NC Corridor Analysis for Annual Average Daily Traffic Volume

State	Hwy	Origin	Destination	AADT 2012	AADT 2045	Percent Increase
NC	I-40	NC/TN border	Wilmington	66670	167357	151%
NC	I-77	NC/SC border	NC/VA border	80755	142867	77%
NC	I-95	NC/SC border	NC/VA border	39029	66879	71%
NC	I-26	NC/SC border	NC/TN border	45104	118732	163%
NC	I-85	NC/SC border	NC/VA border	66401	161825	144%

NC Corridor Analysis for Long Distance Truck Volume

State	Hwy	Origin	Destination	FAF4 2012	FAF4 2045	Percent Increase
NC	I-40	NC/SC border	Wilmington	5502	8409	53%
NC	I-77	NC/SC border	NC/VA border	4957	8673	75%
NC	I-95	NC/SC border	NC/VA border	4720	8245	75%
NC	I-26	NC/SC border	NC/SC border	4285	7203	68%
NC	I-85	NC/SC border	NC/VA border	3318	5600	69%

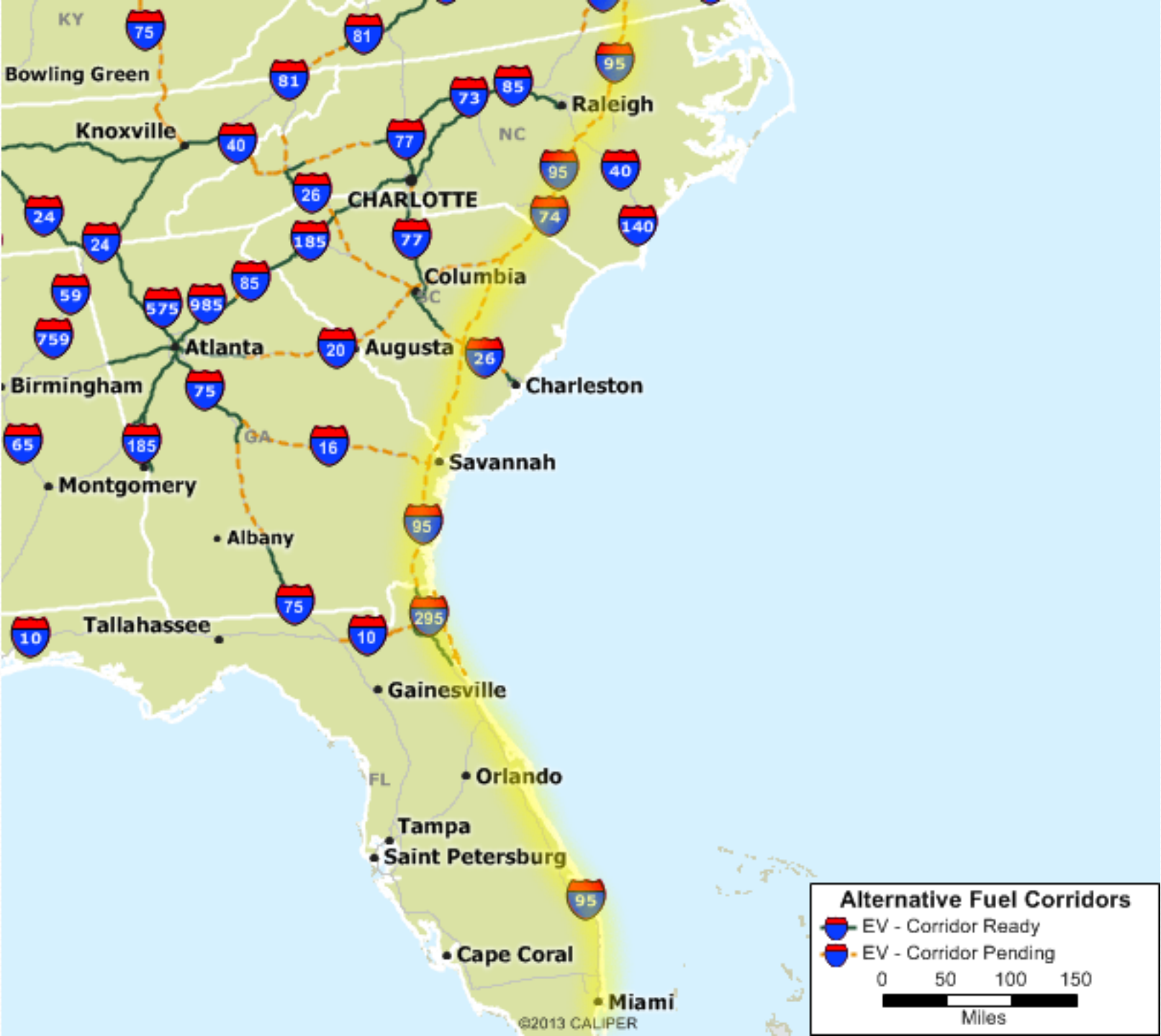
SC Corridor Analysis for Annual Average Daily Traffic Volume

State	Hwy	Origin	Destination	AADT 2012	AADT 2045	Percent Increase
SC	I-20	SC/GA border	Florence	47564	95015	100%
SC	I-77	SC/NC border	Columbia	59416	167981	183%
SC	I-95	SC/NC border	SC/GA border	34759	125332	261%
SC	I-26	SC/NC border	Charleston	53244	114490	115%
SC	I-85	SC/NC border	SC/GA border	64486	204405	217%

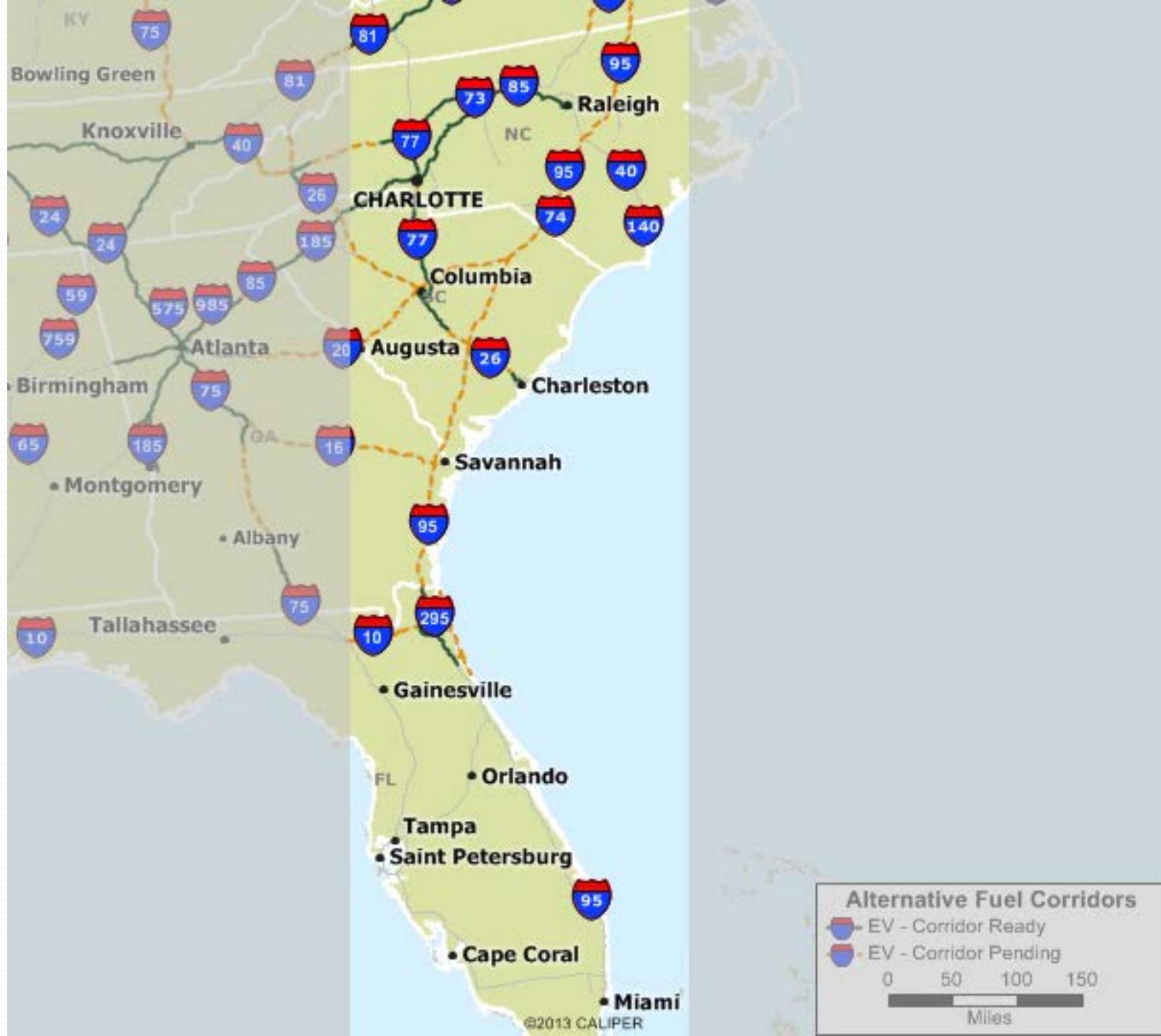
SC Corridor Analysis for Long Distance Truck Volume

State	Hwy	Origin	Destination	FAF4 2012	FAF4 2045	Percent Increase
SC	I-20	SC/GA border	Florence	4855	7933	63%
SC	I-77	SC/NC border	Columbia	3801	7357	94%
SC	I-95	SC/NC border	SC/GA border	5685	10237	80%
SC	I-26	SC/NC border	Charleston	3963	8040	103%
SC	I-85	SC/NC border	SC/GA border	5593	9552	71%

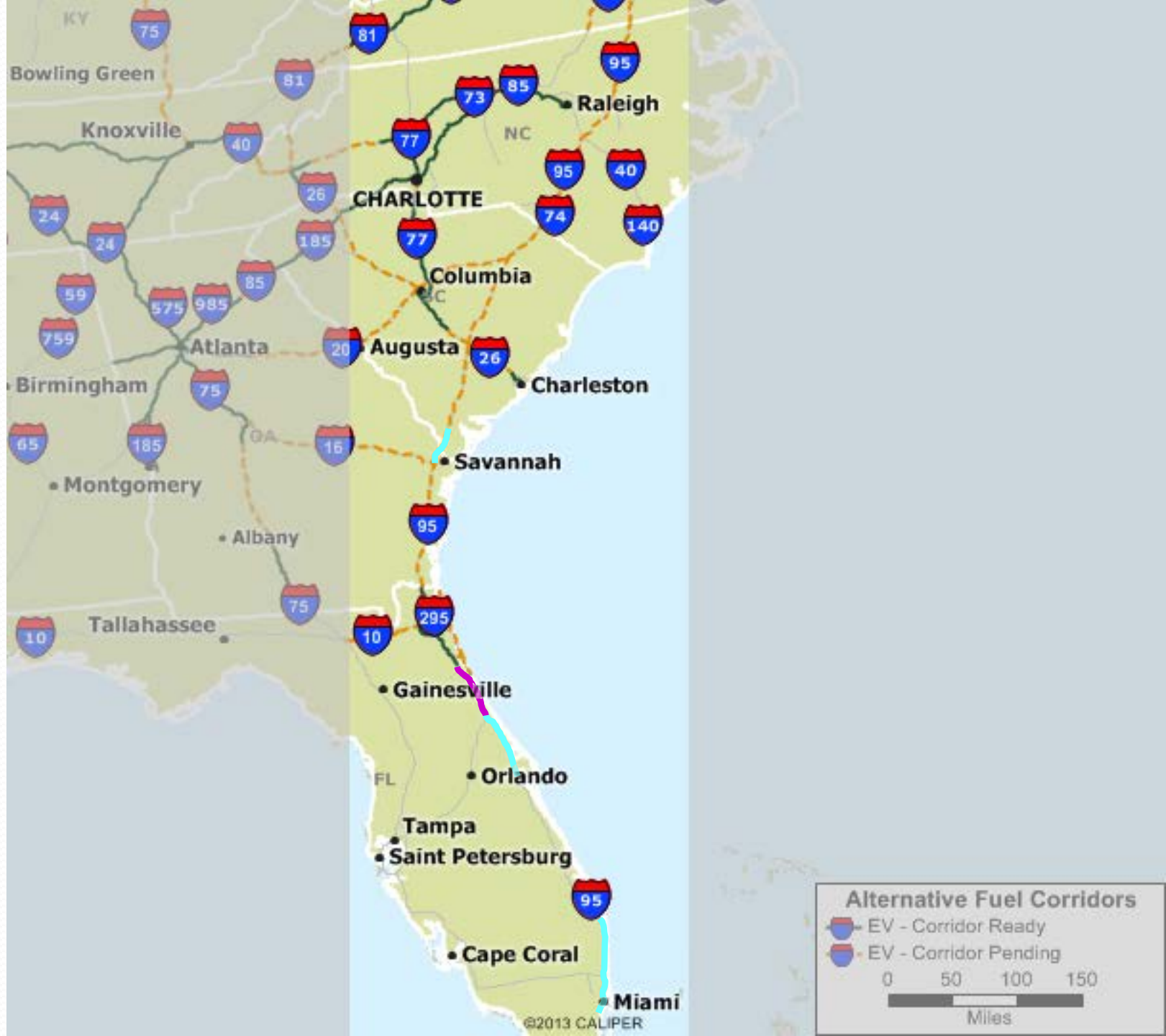
**EV AFC's:
Rounds 1 & 2**



**EV AFC's:
Rounds 1 & 2**



**EV AFC's:
Rounds 1 & 2**



AF Corridor Analysis Summary

- Analyze station data on corridors to identify existing stations and gaps where future stations can be located
- Review important metrics such as VMT, freight volume
- Initiate conversations with property hosts for potential station locations
 - Investigate upgrading LPG Secondary sites to Primary vehicle fueling capabilities
- Hold workshops/meetings to identify priority corridors in the state/region
- Work with State/Planning agencies to identify potential funding
 - CMAQ Priority for EV & CNG stations on designated corridors
 - VW Appendix D EVSE Funding
- Initiate/participate in planning with neighboring states
 - Electrify America Cycle 1 and 2 development
 - ZEV MOU states & MOU for Regional EV Plan for Western States
 - Informal coordination between States & Clean Cities Coalitions

Thanks for Your Interest from the DOT Alt Fuel Corridor Team !

Diane Turchetta

U.S. Department of Transportation
Federal Highway Administration
202-493-0158
diane.turchetta@dot.gov

Mike Scarpino

U.S. Department of Transportation
Volpe Center
617-494-3373
michael.scarpino@dot.gov

Stephen Costa

U.S. Department of Transportation
Volpe Center
617-494-3852
stephen.costa@dot.gov

Resources

FHWA Alternative Fuel Corridor website:

http://www.fhwa.dot.gov/environment/alternative_fuel_corridors/

MUTCD Memorandum – Signing for Designated Alternative Fuel Corridors:

https://mutcd.fhwa.dot.gov/resources/policy/alt_fuel_corridors/index.htm

DOE/NREL Alternative Fueling Station Locator:

<https://www.afdc.energy.gov/locator/stations/>



U.S. Department of Transportation
Federal Highway Administration

Backup Slides/ Additional Analysis for FL, MS, AL



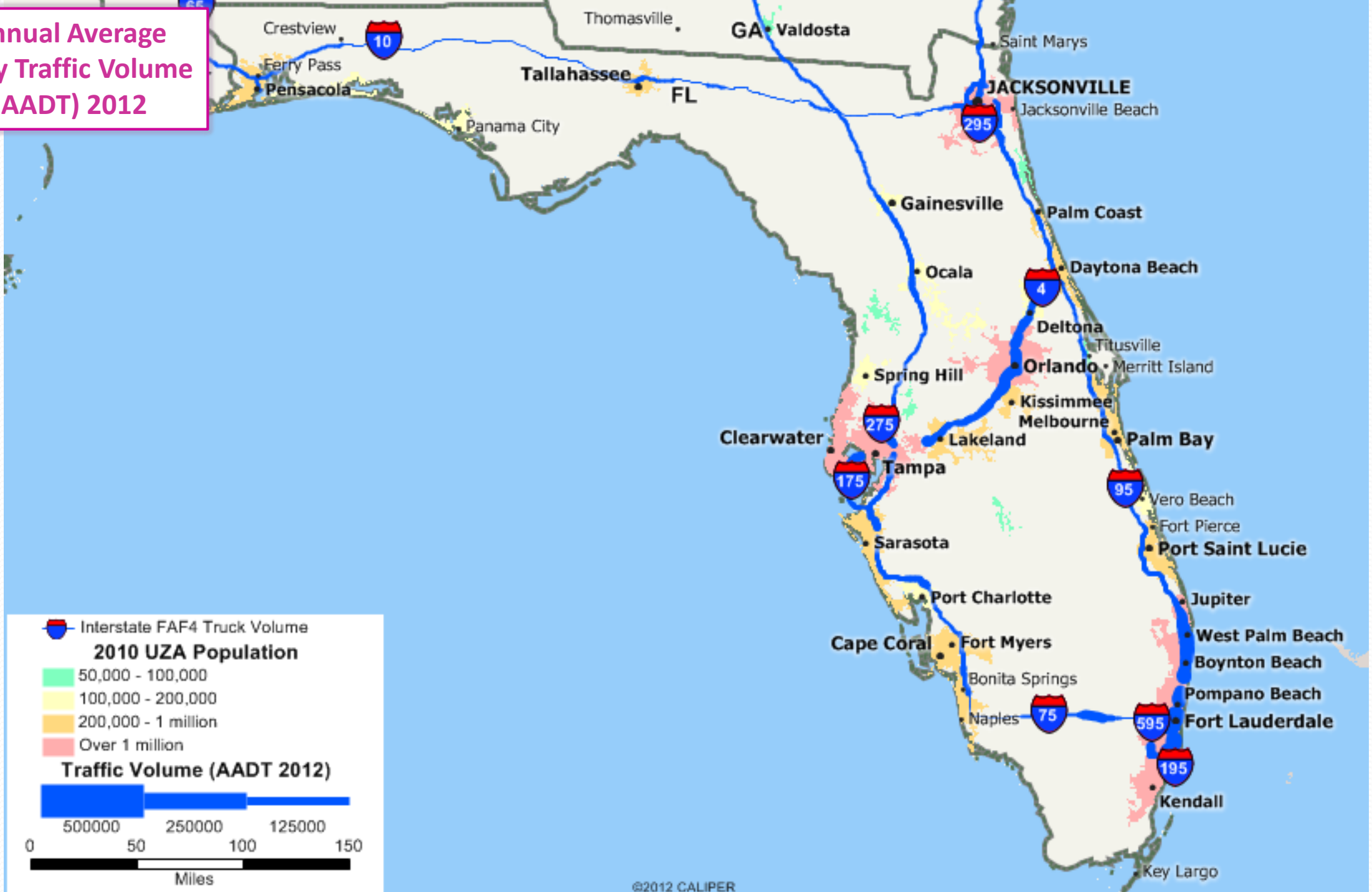
Florida EV Corridor Analysis for Future Designations


State	EV Ready	EV Pending
FL	<p>I-95: From Daytona Beach to Titusville (48 miles); and from West Palm Beach to South Miami (88 miles)</p> <p>I-75: From Temple Terrace to Port Charlotte (110 miles); and from Davie to Miami Gardens (21 miles)</p> <p>I-4: From Daytona Beach to Tampa (134 miles)</p> <p>Florida's Turnpike: From Wildwood to Orlando (49 miles); and from West Palm Beach to Sunrise (60 miles)</p>	<p>I-95: From St. Augustine to Daytona Beach (56 miles); and from Titusville to West Palm Beach (142 miles)</p> <p>I-10: From Jacksonville to FL/AL border</p> <p>I-75: From FL/GA border to Temple Terrace; and from Port Charlotte to Davie</p> <p>Florida's Turnpike: From Orlando to West Palm Beach; and Sunrise to Miami Gardens</p>

Florida CNG Corridor Analysis for Future Designations

State	CNG Ready	CNG Pending
FL	<p>I-95: St. Augustine to Bunnell (41 miles)</p> <p>I-75: From FL/GA border to Fort Myers (354 miles from Valdosta GA)</p> <p>I-4: From Orlando to Tampa (87 miles)</p>	<p>I-95: From Bunnell to South Miami</p> <p>I-10: From Jacksonville to FL/AL border</p> <p>I-75: From Fort Myers to Miami Gardens</p> <p>I-4: Daytona Beach to Orlando</p> <p>Florida's Turnpike: From Wildwood to Miami Gardens</p>

**Annual Average
Daily Traffic Volume
(AADT) 2012**



 Interstate FAF4 Truck Volume
2010 USA Population
 50,000 - 100,000
 100,000 - 200,000
 200,000 - 1 million
 Over 1 million

Traffic Volume (AADT 2012)

500000
 250000
 125000

0 50 100 150

Miles

**Annual Average
Daily Traffic Volume
(AADT) 2045**



FL Corridor Analysis for Annual Average Daily Traffic Volume

State	Hwy	Origin	Destination	AADT 2012	AADT 2045	Percent Increase
FL	I-10	FL/AL border	Jacksonville	32350	35056	8%
FL	I-75	FL/GA border	Miami Gardens	59605	98938	66%
FL	I-95	FL/GA border	South Miami	124365	143411	15%
FL	I-4	Tampa	Daytona	121902	152150	25%
FL	Florida's Turnpike	Wildwood	Miami Gardens	60503	73135	21%

FL Corridor Analysis for Long Distance Truck Volume

State	Hwy	Origin	Destination	FAF4 2012	FAF4 2045	Percent Increase
FL	I-10	FL/AL border	Jacksonville	6336	10688	69%
FL	I-75	FL/GA border	Miami Gardens	6787	10436	54%
FL	I-95	FL/GA border	South Miami	5840	10264	76%
FL	I-4	Tampa	Daytona	5039	7797	55%
FL	Florida's Turnpike	Wildwood	Miami Gardens	2941	4899	67%

Mississippi Corridor Analysis for Future Designations

Fuel	Corridor Ready	Corridor Pending
CNG	I-20: CNG Ready from MS/AL border to MS/LA border	
LPG	I-10: LPG Ready from MS/AL border to MS/LA border I-59: LPG ready from Laurel to Hattiesburg	I-59: LPG Pending between MS/AL border and Laurel and between Hattiesburg and MS/LA border
LNG		I-20: LNG Pending from MS/AL border to MS/LA border

MS Corridor Analysis for Annual Average Daily Traffic Volume

State	Hwy	Origin	Destination	AADT 2012	AADT 2045	Percent Increase
MS	I-20	MS/LA border	MS/AL border	38537	80139	108%
MS	I-10	MS/LA border	MS/AL border	51577	71660	39%
MS	I-59	MS/LA border	MS/AL border	26380	61496	133%
MS	I-55	MS/LA border	MS/TN border	41384	85469	107%

MS Corridor Analysis for Long Distance Truck Volume

State	Hwy	Origin	Destination	FAF4 2012	FAF4 2045	Percent Increase
MS	I-20	MS/LA border	MS/AL border	5252	9916	89%
MS	I-10	MS/LA border	MS/AL border	6612	13710	107%
MS	I-59	MS/LA border	MS/AL border	5112	10461	105%
MS	I-55	MS/LA border	MS/TN border	6691	12253	83%

EV Corridor Opportunities



Alabama EV Corridor Analysis for Future Designations

State	EV Ready	EV Pending
AL	None identified	<p>I-65: From Lynn Layton Cad-Nissan in Decatur to Benton Nissan in Birmingham (87 miles)</p> <p><i>Recommendation: Evaluate locating DCFC in Hanceville (w/ intersection of SR-69 (TA Truck Service ?). This would close the gap to 49 and 38 miles.</i></p> <p>I-65: From Lynn Layton Cad-Nissan in Decatur to Nissan North America in Franklin TN (102 miles)</p> <p><i>Recommendation: Work with TN officials to close the gap between Decatur and Franklin.</i></p> <p><i>Recommendation: Evaluate upgrading the Nissan stations to add SAE CCS charging</i></p> <p>I-10: 125 miles between future EA station in Pensacola FL and new EA station in Gulfport MS. <i>Recommend evaluating a new DCFC site in Mobile, which would close the gap to 55 and 71 miles.</i></p>