GREATER CHARLOTTE REGIONAL FREIGHT MOBILITY PLAN

COORDINATING COMMITTEE MEETING #3

NOVEMBER 17, 2015

Progress to Date

- Base data collection
- Freight network inventory
- Truck parking inventory and utilization
- Review of existing plans
- Mapping
- Update meetings with committees
- Begin to identify Plan stakeholders
- Safety/Crash statistics
- Existing Commodity Flows from FAF4

Work in Progress Notes

- Trucking
  - Working with statewide model for truck volumes and VMTT
  - ATRI working to identify bottlenecks
- Railroads—Mapping of projects
- Aviation—Working to identify air cargo tonnages and values at each airport
- Commodity Flows—Working on refining to smaller geography
- Economic Impacts—Will begin to quantify based on commodity flows and values

Plan Development Process

Complete

Working

Existing Conditions

- Bottlenecks
- Commodity Flows
- O-D Analysis and Freight Corridors
- Network Identification
- Economic Impacts
- Truck Parking

Land Use, Facility, Infrastructure & Regulatory Gaps

- Existing Land Uses
- Regional Freight Land Use Policies and Regulations
- Truck Parking Capacity and Needs
- Road/Rail Network Corridor Demand

Best Practices

- Technology Trends
- Safety and Security
- Public Private Partnerships

Prioritizing Regional Needs

- Bottlenecks & LOS
- Pavement/Bridge Conditions
- High Crash Location
- Economic Opportunity
- Rail/Truck Grade Crossings
- Intermodal Connections

Performance Measures

- Goals Addressed
- Freight Impacted, Related or Focused
- Quantifiable and Trackable

Greater Charlotte Regional Freight Mobility Plan

Stakeholder Engagement

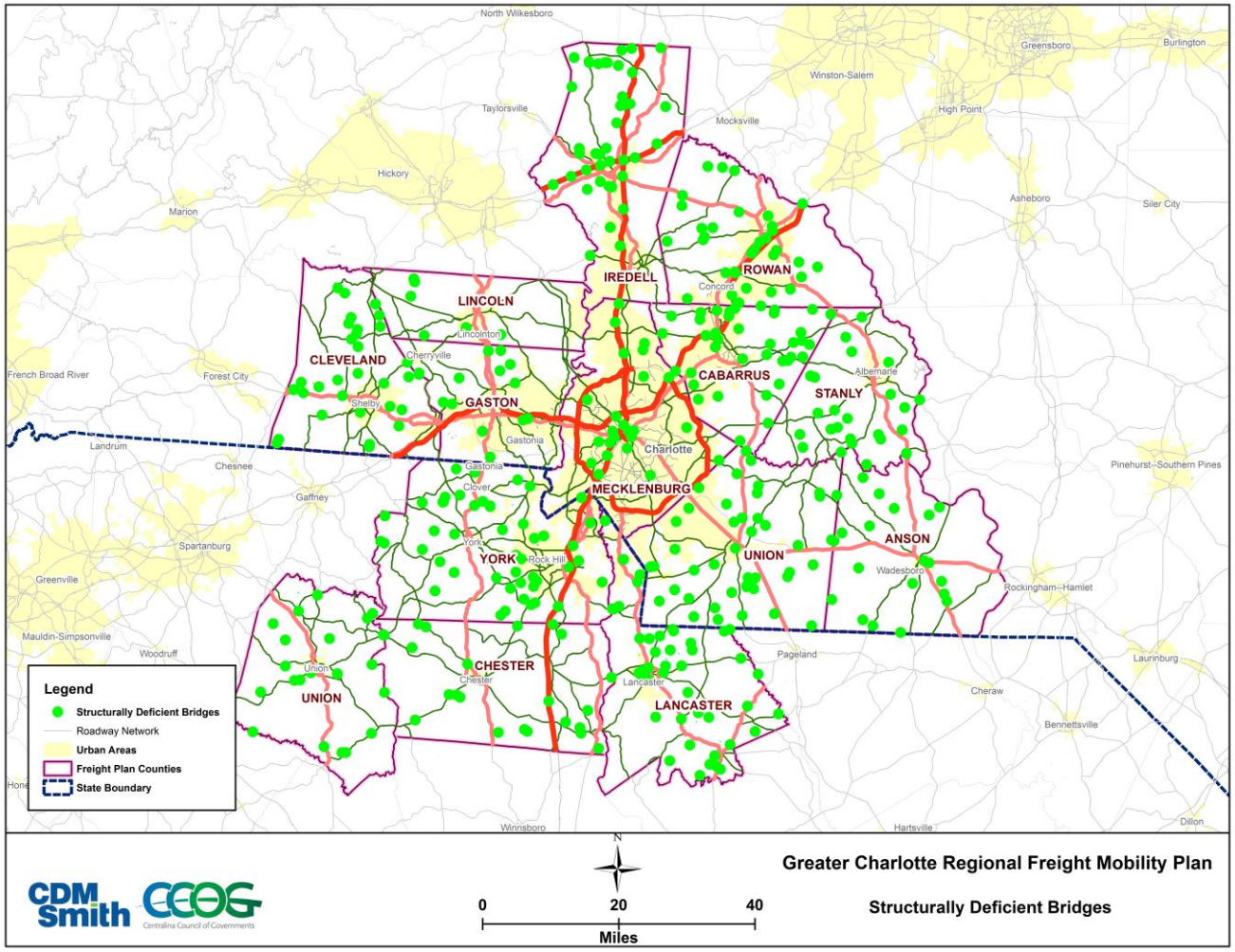
Plans Reviewed

- Cabarrus-Rowan Metropolitan Planning Organization (CRMPO) Draft 2040 Metropolitan Transportation Plan (MTP) (March 2014)
- Charlotte Region Transportation Planning Organization (CRTPO) MTP (April 2014)
- Gaston-Cleveland-Lincoln Metropolitan Planning Organization (GCLMPO) MTP
- Stanly County Comprehensive Transportation Plan (CTP) (2012)
- Anson County Comprehensive Transportation Plan (CTP) (2012)
- Rock Hill-Fort Mill Area Transportation Study (RFATS) 2035 Long Range Transportation Plan (LRTP)
- Catawba Regional Council of Governments LRTP
- NCDOT Seven Portals Study (2011)
- Piedmont Improvement Program
- Charlotte Railroad Improvement and Safety Program (CRISP)
- NCDOT Statewide Logistics Plan (2008)
- South Carolina Statewide Freight Plan (2014)

BRIDGE INVENTORY

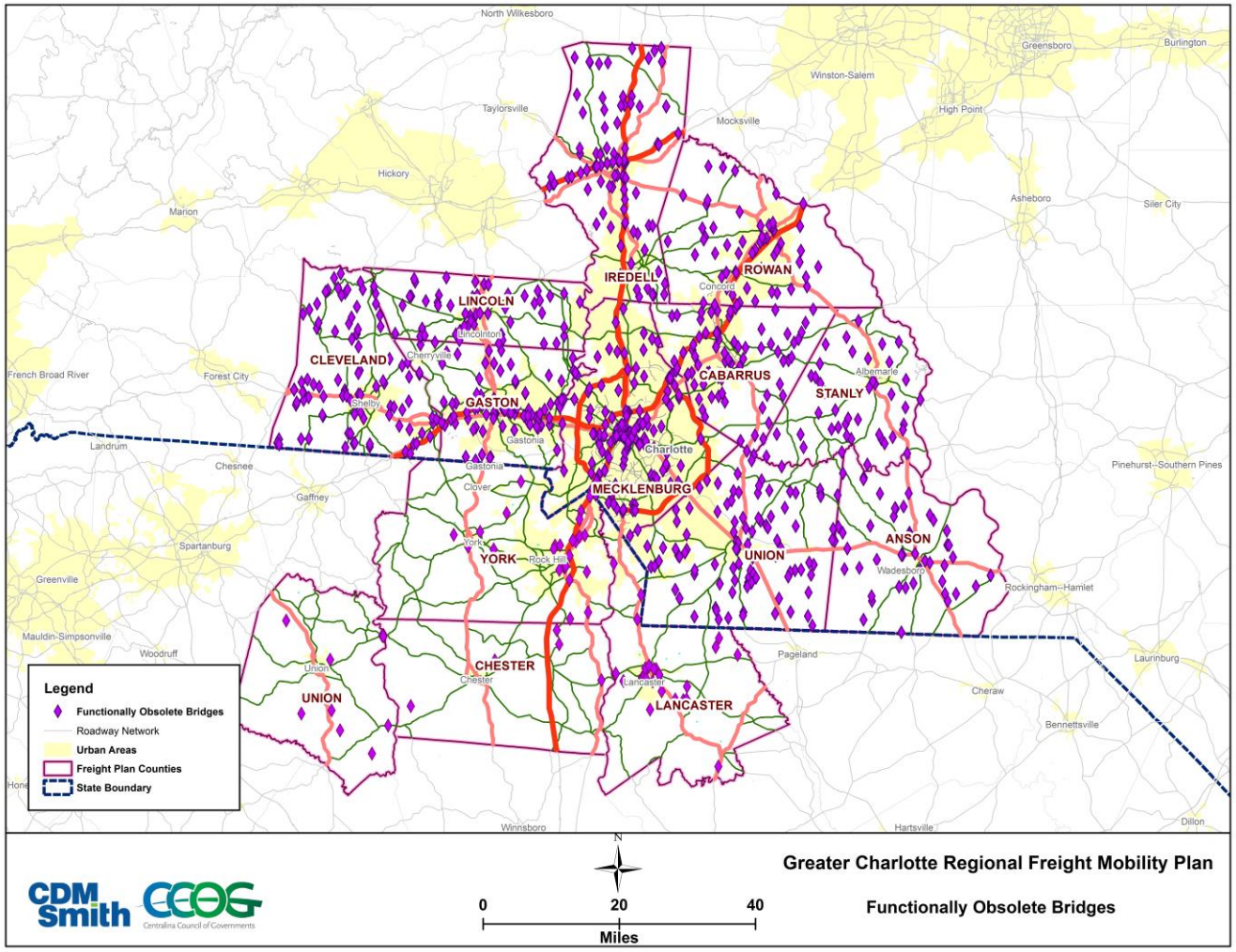
Bridges—Structurally Deficient

- North Carolina: 282 Bridges
- South Carolina: 139



Bridges—Functionally Obsolete

- North Carolina: 831 bridges
- South Carolina: 67



TRUCK PARKING

Truck Parking Demand

- Observations
  - Heavy utilization of truck parking facilities along I-77 between Exit 65 and Exit 36 in Iredell County. Trucks parked on multiple I-77 interchange and rest area ramps.
  - Heavy utilization of I-85 truck parking facilities from Exit 71 in Rowan County to Exit 39 in Mecklenburg. Trucks observed being parked on shoulders, ramps and side streets.
  - Heavy utilization of I-77 facilities south of the city through Chester County, SC.

Truck Parking Demand

Facility Name	County	State	Truck Parking Capacity (spaces)	Trucks Parked	Utilization
Union Grove Quick Stop (BP)	Iredell	NC	16	16	100%
Rest Area: Iredell County, I-77 Southbound	Iredell	NC	10	10	100%
Rest Area: Catawba County, I-40, Westbound	Catawba	NC	20	20	100%
Rest Area: Catawba County: I-40, Eastbound	Catawba	NC	20	20	100%
Country Market #9 (Exxon)	Lincoln	NC	40	29	73%
Rest Area: Iredell County, I-77 Northbound	Iredell	NC	16	16	100%
Wilco Hess #0357	Iredell	NC	90	88	98%
Rest Area: Iredell County, I-77 Southbound	Iredell	NC	16	16	100%
Wilco Hess #0364	Rowan	NC	70	70	100%
Love's Travel Stop #507	Rowan	NC	85	84	99%
Pilot Travel Center #056	Cabarrus	NC	48	48	100%
Rest Area: Cabarrus County, I-85 Southbound	Cabarrus	NC	22	22	100%
Rest Area: Cabarrus County, I-85 Northbound	Cabarrus	NC	21	21	100%
Pilot Travel Center #275	Mecklenburg	NC	24	24	100%
Welcome Center/Rest Area:Mecklenburg County, I-77 Northbound	Mecklenburg	NC	16	16	100%
Welcome Center: Southbound I-77 Fort Mill	York	SC	14	14	100%
Love's Travel Stop #333	Lancaster	SC	50	50	100%
Southern Pride (Valero)	Lancaster	SC	20	15	75%
Wilco Hess #0906	Lancaster	SC	30	30	100%
Crenco Auto/Truck Stop #8 (Exxon)	Lancaster	SC	40	32	80%
Rest Area: Chester County, SC I-77 Southbound	Chester	SC	14	14	100%
Rest Area: Chester County, SC I-77 Northbound	Chester	SC	14	14	100%
Grand Central Station (Shell)	Chester	SC	120	120	100%
Wilco Hess #0932	Chester	SC	120	120	100%
Wilco Hess #0383	Union	NC	50	49	98%
BP #15	Union	NC	42	42	100%
Quik Chek #5 (Citgo)	Stanley	NC	12	5	42%
Sam's Mart (Shell)	Cabarrus	NC	15	4	27%

Truck Parking Inventory

Truck Parking Facilities:

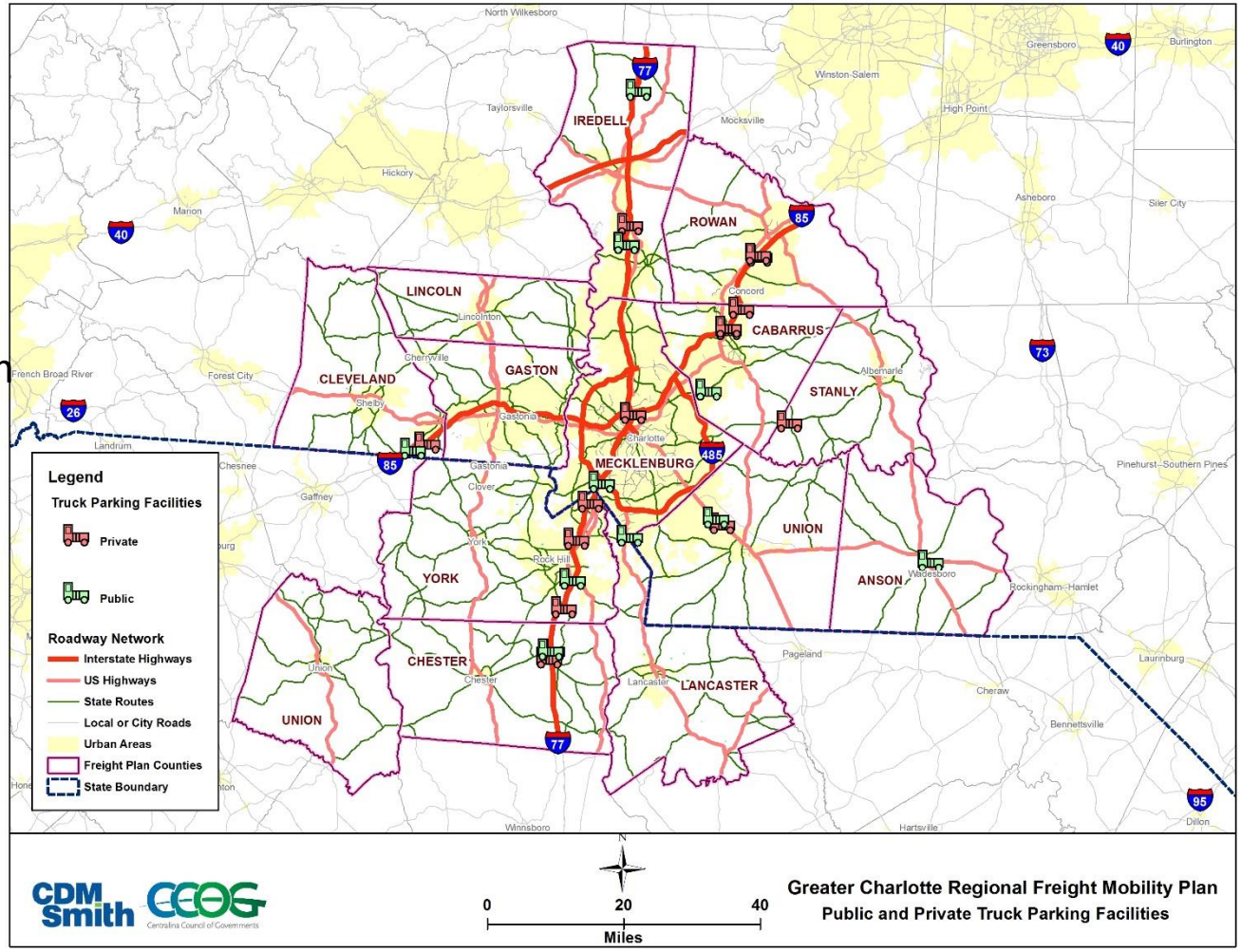
- 10 Public
- 16 Private

Private truck stops:

- http://www.truckstops.com
- 2015 National Truck Stop Directory.

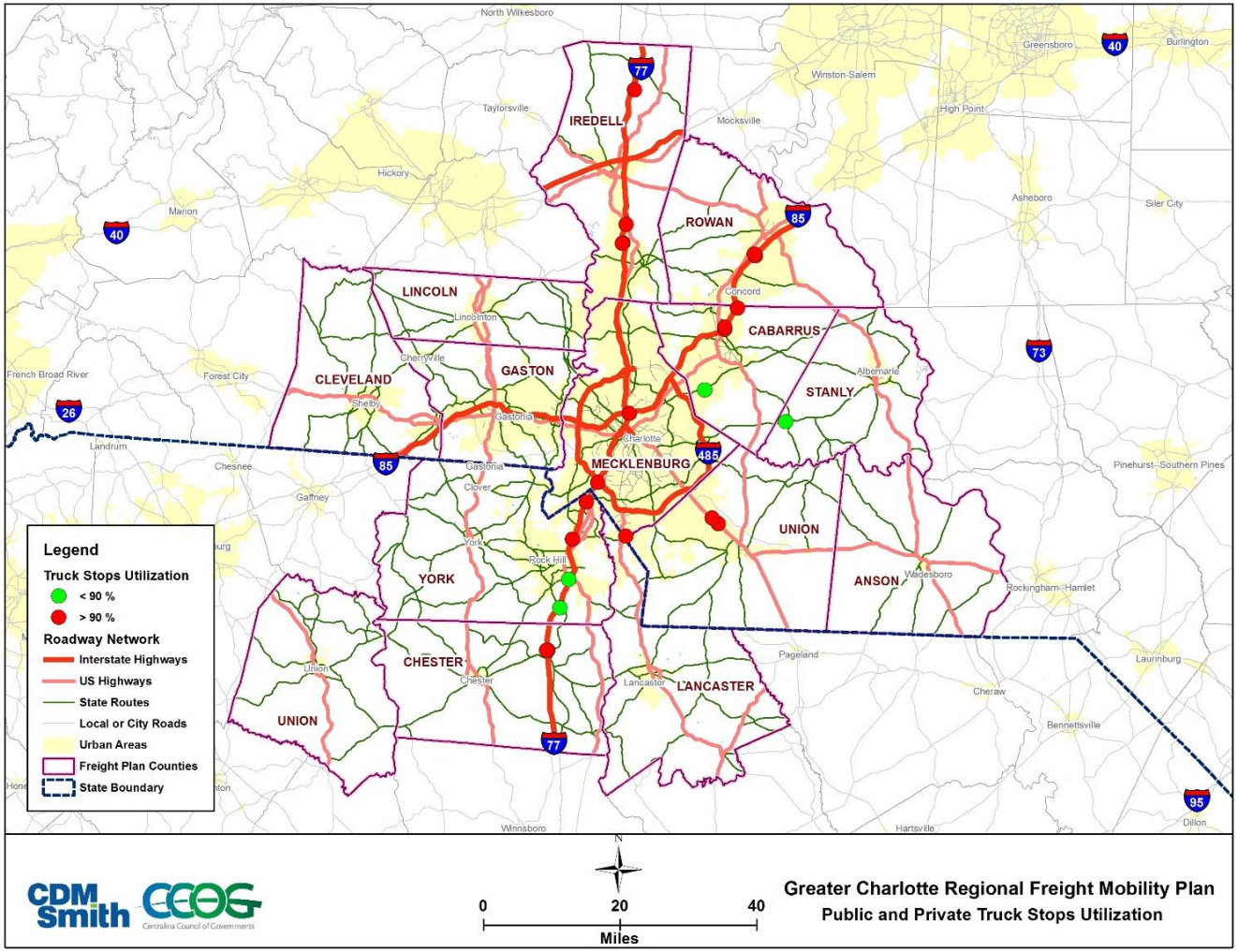
Public rest areas, welcome centers and visitor centers:

- NCDOT
- SCDOT
- Field Visits



Truck Parking Utilization

Of the 26 truck parking locations, only 5 are less than 90% utilized



TRUCK CRASH STATISTICS

Truck Crash Statistics—Frequency

Commercial Vehicle and All Motor Vehicle Crashes (2009 -2013)			
Year	Commercial Vehicle Crashes	All Motor Vehicle Crashes	CMV/All Vehicle Crashes
2009	1,172	51,411	2.3%
2010	1,298	52,145	2.5%
2011	1,321	52,172	2.5%
2012	1,437	56,270	2.6%
2013	1,398	59,593	2.3%
Total	**6,626**	**271,591**	**2.4%**

Truck Crash Statistics—Severity

- There were 1,398 crashes involving a commercial vehicle between 2009 and 2013.
  - 1.4% involved fatalities
  - 30.6% involved injuries
  - 67.2% involved property damage only (PDO)
  - Fatal and injury commercial vehicle crashes represented 0.03% and 0.72% of all motor vehicle crashes in 2013

Truck Crash Statistics—Severity

Commercial Vehicle Crashes by Roadway Type and Severity (2009 – 2013)					
Roadway Type	Fatal	Injury	PDO	Unknown	Total
Interstate	30	819	1,808	6	**2,663**
US Highway	11	240	476	2	**729**
State Primary	15	178	311	3	**507**
State Secondary	8	139	243	6	**396**
County/ Local	12	581	1,702	36	**2,331**
Total	**76**	**1,957**	**4,540**	**53**	**6,626**

Truck Crash Statistics—Severity

Persons Killed and Injured by Commercial Vehicle Crashes (2009 -2013)			
Year	Persons Killed	Persons Injured	Total
2009	19	524	**543**
2010	9	538	**547**
2011	15	618	**633**
2012	18	638	**656**
2013	22	618	**640**
Total	**83**	**2,936**	**3,019**

Truck Crash Statistics—Roadway Type and External Conditions

- 75.4% of CV crashes between 2009 and 2013 occurred on Interstates and County/Local roadways
- 15.7 % of CV crashes occurred at locations with poor roadway conditions
  - 82.6% were due to wet roadways
  - 27.9% limited visibility
- 27.9% of CV crashes occurred at night
  - 51.2% of these along roadways that were not lighted

Truck Crash Statistics—Roadway Conditions

Commercial Vehicle Crashes by Roadway Conditions (2009 – 2013)					
Roadway Condition	Fatal	Injury	PDO	Unknown	Total
Dry	64	1,640	3,833	47	**5,584**
Fuel, Oil	-	1	-	-	**1**
Ice	1	18	49	-	**68**
Sand, Mud, Dirt, Gravel	-	-	3	1	**4**
Slush	-	4	9	-	**13**
Snow	-	9	33	-	**42**
Water (Standing, Moving)	1	10	26	-	**37**
Wet	10	271	577	3	**861**
Unknown	-	4	10	2	**16**
Total	**76**	**1,957**	**4,540**	**53**	**6,626**

Truck Crash Statistics—Weather Conditions

Commercial Vehicle Crashes by Weather Conditions (2009 -2013)					
Weather Condition	Fatal	Injury	PDO	Unknown	Total
Clear	56	1,418	3,259	44	**4,777**
Cloudy	13	364	868	7	**1,252**
Fog, Smog, Smoke	1	10	21	-	**32**
Rain	6	150	329	2	**487**
Severe Crosswinds	-	-	1	-	**1**
Sleet, Hail, Freezing Rain/Drizzle	-	9	20	-	**29**
Snow	-	6	39	-	**45**
Other	-	-	3	-	**3**
Total	**76**	**1,957**	**4,540**	**53**	**6,626**

Truck Crash Statistics—Light Conditions

Commercial Vehicle Crashes by Light Condition (2009 -2013)					
Light Condition	Fatal	Injury	PDO	Unknown	Total
Dawn	5	32	81	-	**118**
Daylight	44	1,451	3,487	41	**5,023**
Dusk	2	25	77	1	**105**
Dark - Lighted Roadway	4	175	360	5	**544**
Dark - Roadway Not Lighted	20	268	526	6	**820**
Dark - Unknown Lighting	1	5	8	-	**14**
Unknown	-	1	1	-	**2**
Total	**76**	**1,957**	**4,540**	**53**	**6,626**

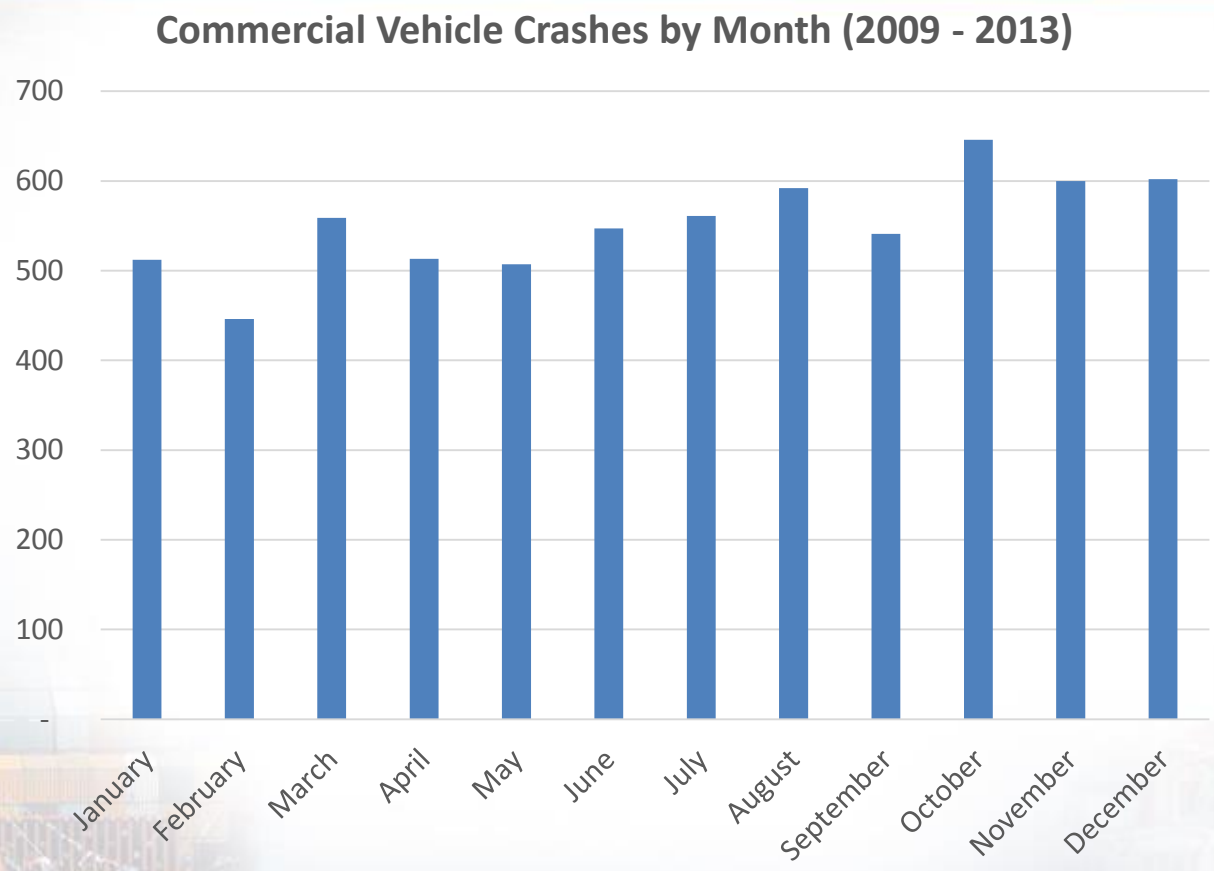
Truck Crash Statistics—Temporal Distribution

- Between 2009 and 2013, CV crashes occurred at relatively similar rates during each month
  - Highest (646) October
  - Lowest (446) February
- 90.9% of all CV crashes occurred during weekdays and were equally distributed Monday thru Friday (typical commercial driver work schedules).
- 77.2% of all CV crashes occurred between 6 AM and 6 PM
  - Matches typical commercial and commuter schedules.

Truck Crash Statistics—Temporal Distribution

Commercial Vehicle Crashes by Month and Severity (2009 - 2013)					
Month	Fatal	Injury	PDO	Unknown	Total
January	11	155	342	4	**512**
February	6	115	321	4	**446**
March	4	159	391	5	**559**
April	1	159	348	5	**513**
May	5	146	351	5	**507**
June	13	175	356	3	**547**
July	6	170	382	3	**561**
August	8	187	392	5	**592**
September	4	153	382	2	**541**
October	9	198	434	5	**646**
November	6	159	429	6	**600**
December	3	181	412	6	**602**
Total	**76**	**1,957**	**4,540**	**53**	**6,626**

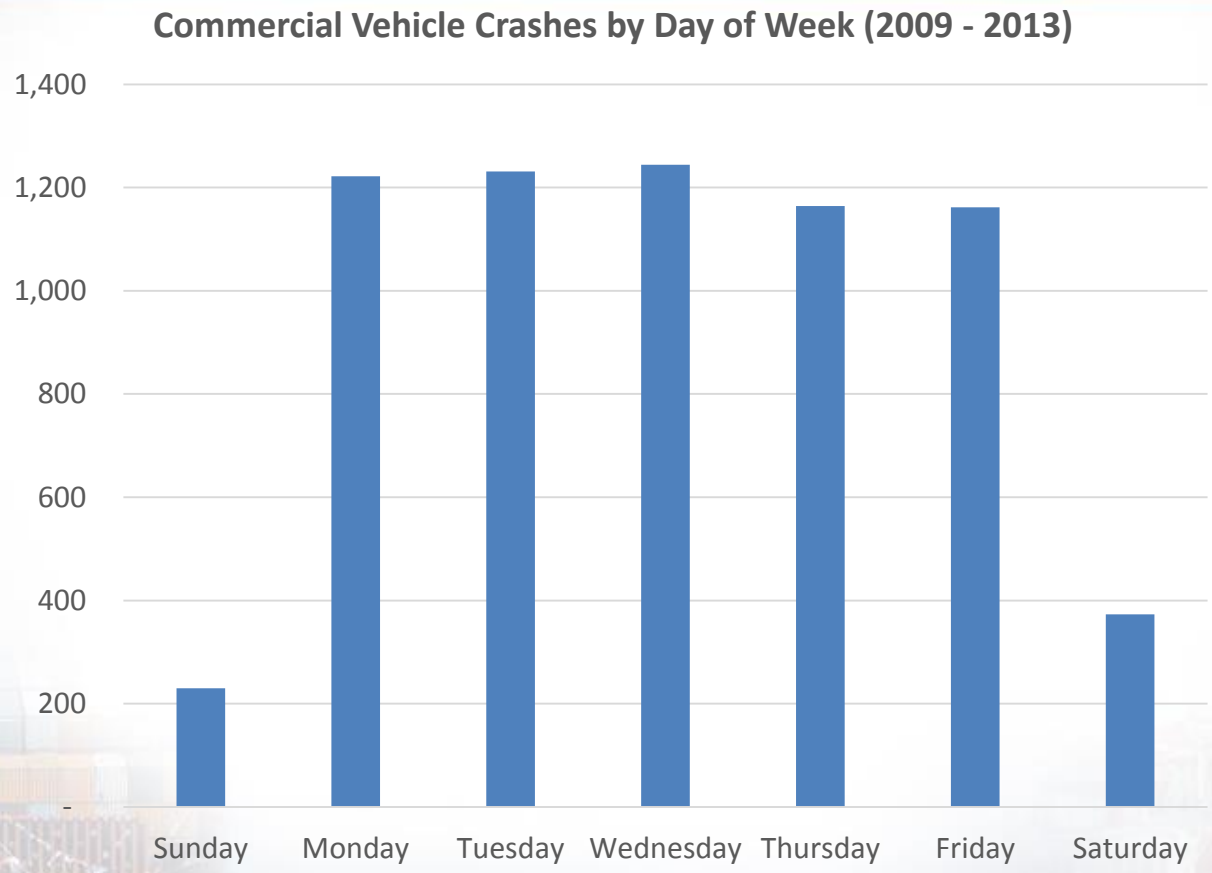
Truck Crash Statistics—Temporal Distribution



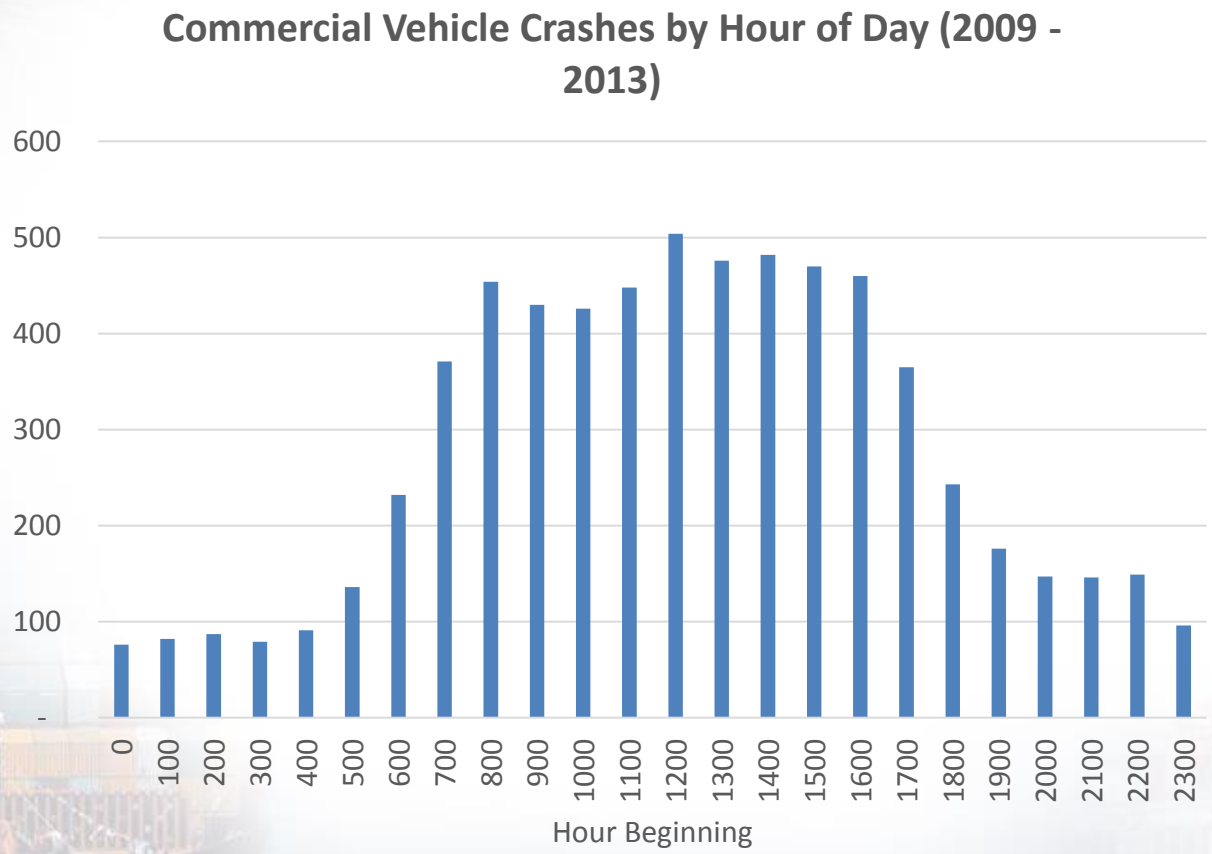
Truck Crash Statistics—Temporal Distribution

Commercial Vehicle Crashes By Day Of Week and Severity (2009 - 2013)					
Day	Fatal	Injury	PDO	Unknown	Total
Sunday	-	62	165	3	**230**
Monday	11	348	851	12	**1,222**
Tuesday	13	363	843	12	**1,231**
Wednesday	18	358	860	8	**1,244**
Thursday	19	351	785	9	**1,164**
Friday	11	354	794	3	**1,162**
Saturday	4	121	242	6	**373**
Total	**76**	**1,957**	**4,540**	**53**	**6,626**

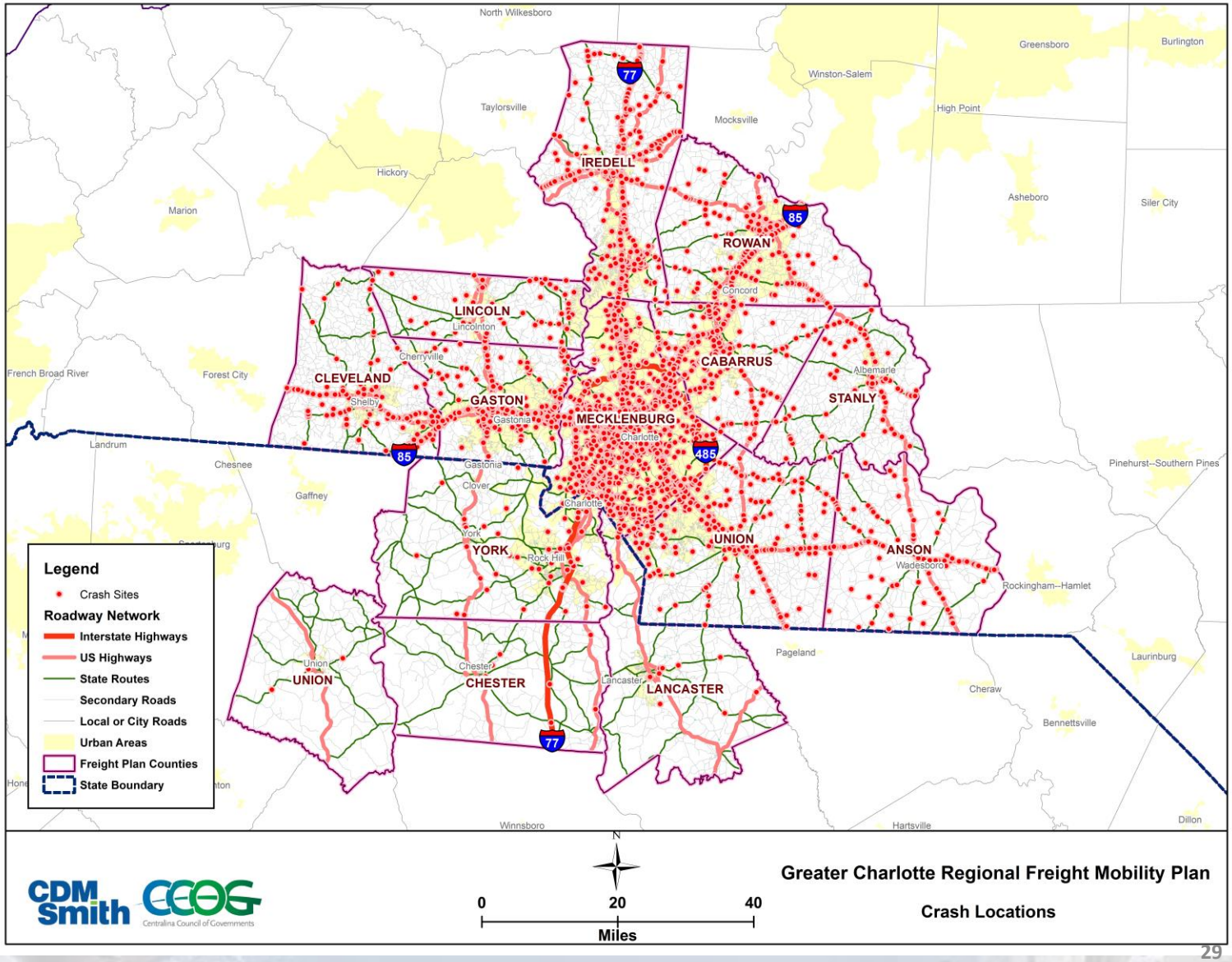
Truck Crash Statistics—Temporal Distribution



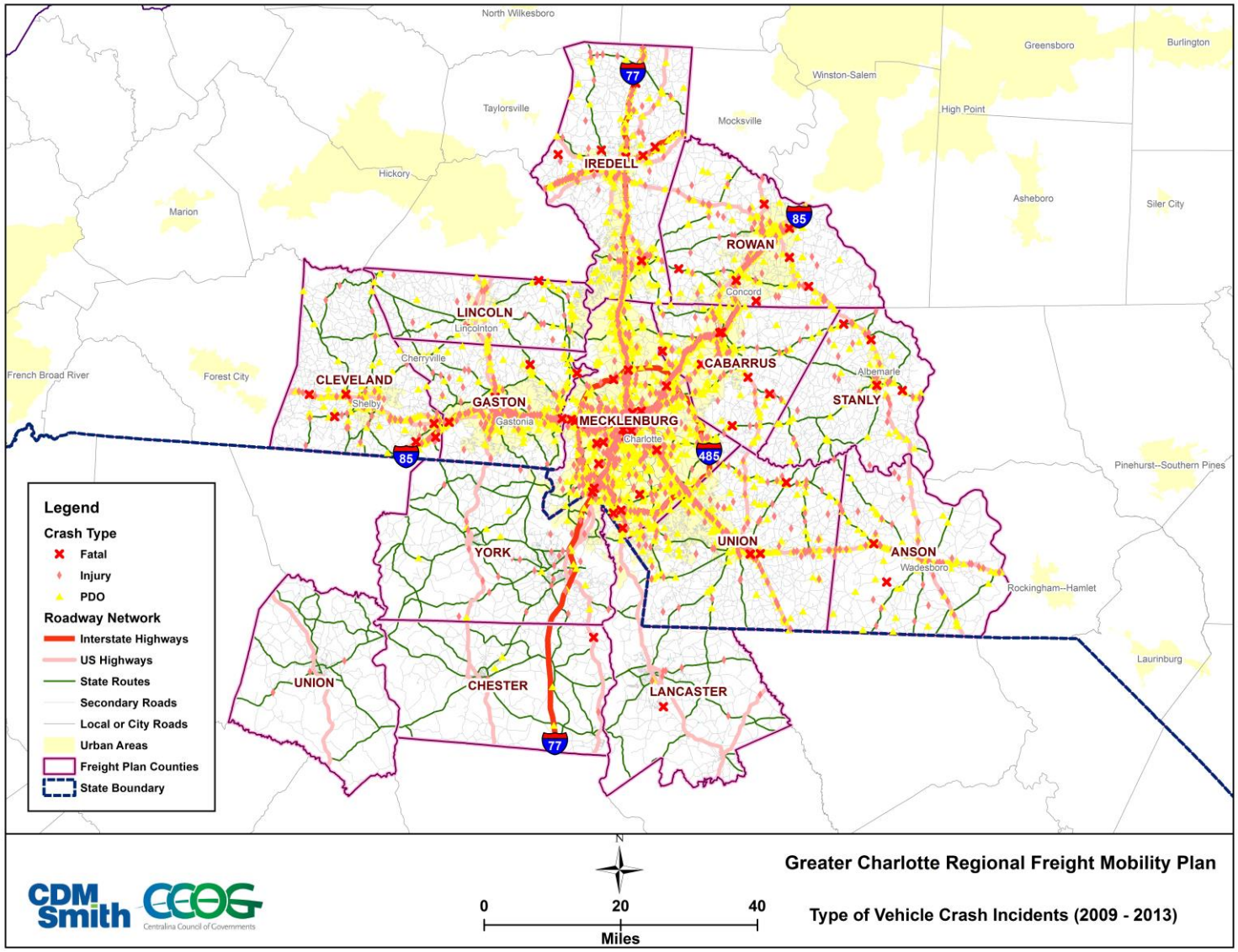
Truck Crash Statistics—Temporal Distribution



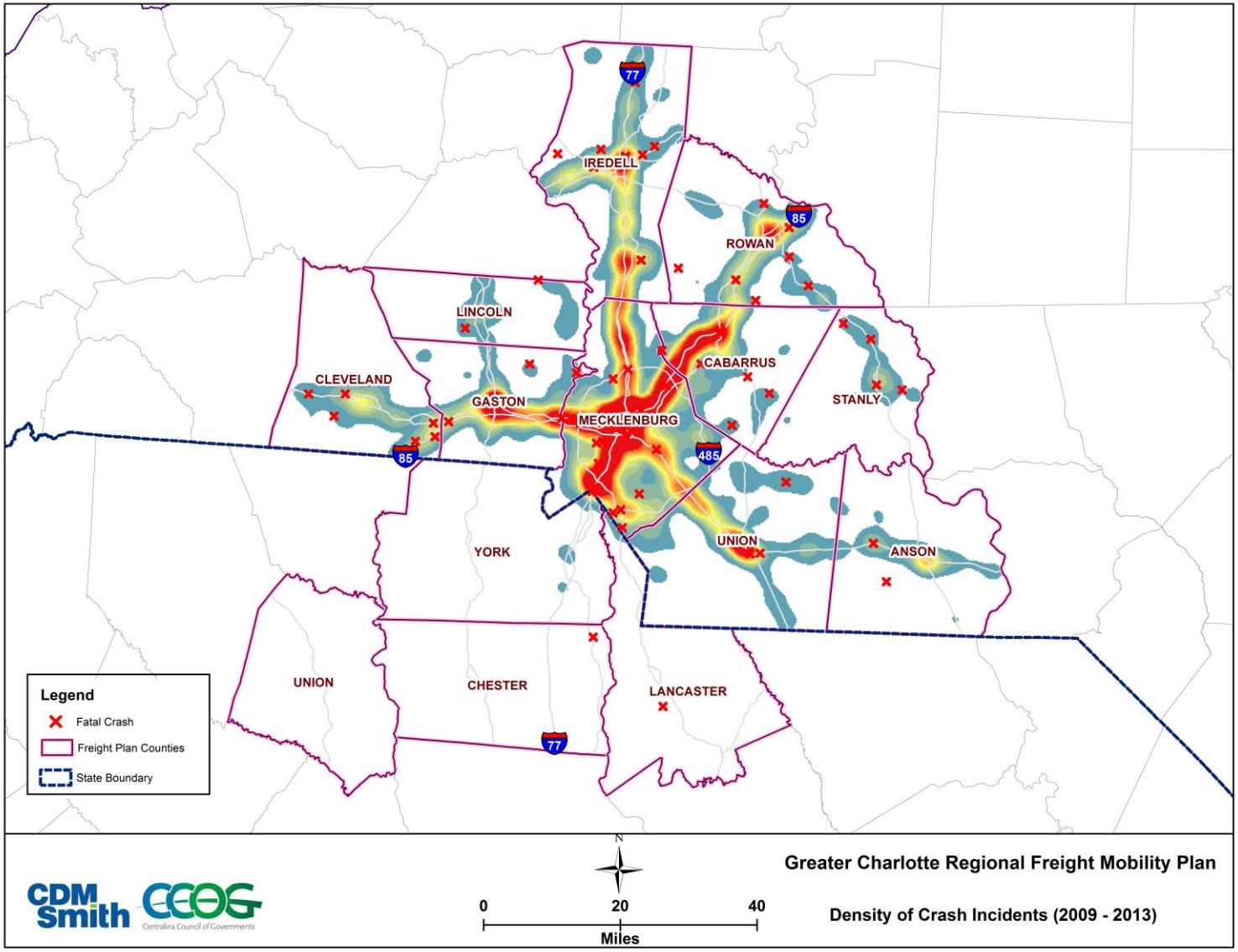
Truck Crashes



Truck Crashes



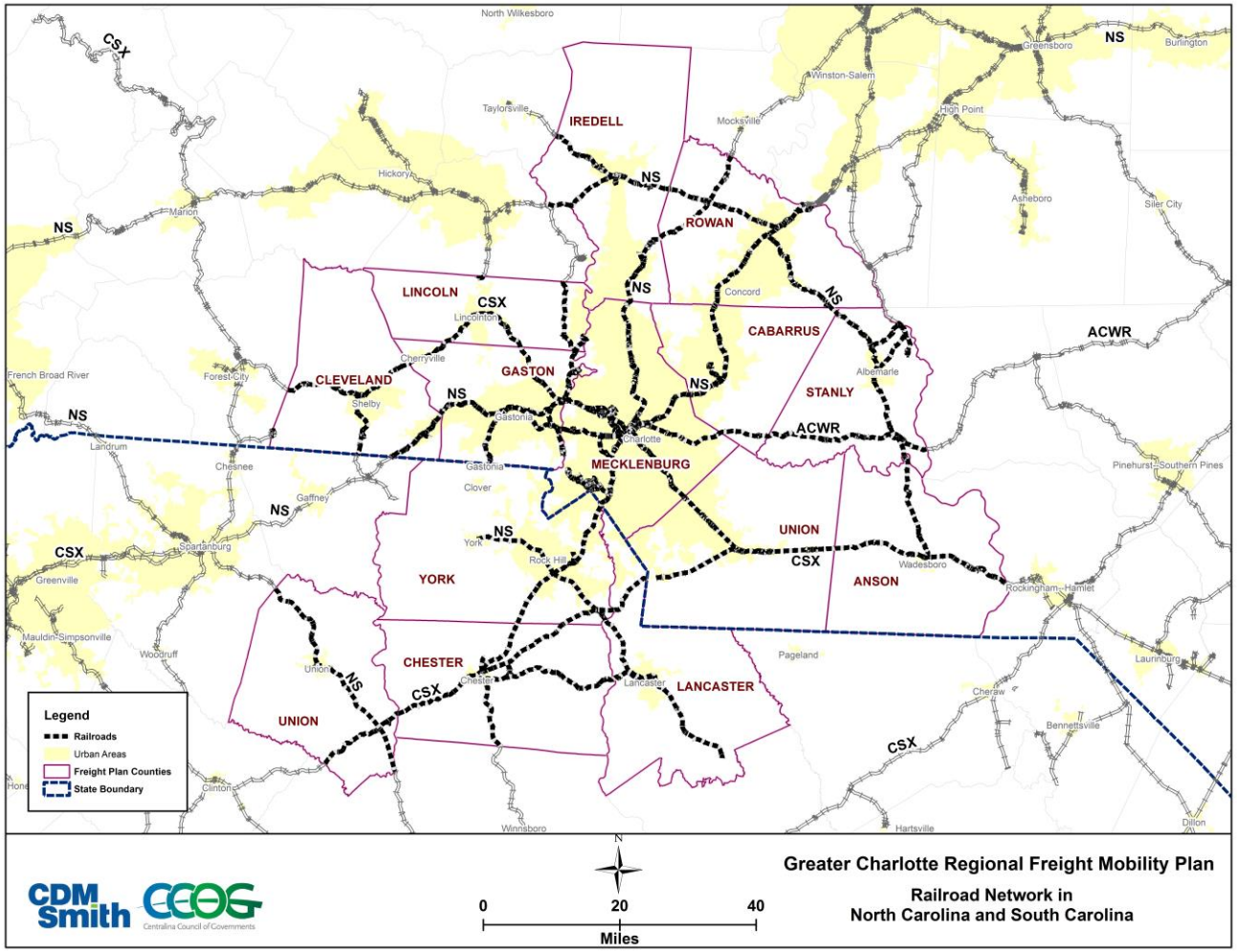
Truck Crashes



RAILROADS

Region's Railroads

Railroad Owner	Miles
Aberdeen Carolina & Western Railway	50.8
Alexander Railroad Company	13.6
Carolina Coastal Railway	13.5
CSX	335.0
NCDOT	1.0
Norfolk Southern	593.7
Piedmont & Northern Railway	15.5
Winston-Salem Southbound Railway	42.10
Lancaster & Chester	66.8
Others/Unknown	10.0



Railroad Inventory

- North Carolina Railroad (NCRR)
  - Owns and manages a 317-mile corridor extending from the Port of Morehead City to Charlotte.
  - First chartered in 1849 by the North Carolina General Assembly and directed to build a railroad between Charlotte and Goldsboro.
  - Developed with both public and private investment in order to connect the eastern and western parts of North Carolina and promote development along the rail line.

Railroad Inventory

- Norfolk Southern (NS)
  - In NC, NS operates approximately 1,240 miles of track, and 68 route miles in SC
  - The NS Main line is the primary corridor paralleling I-85 through the central part of the State connecting Charlotte and Greensboro with Atlanta, GA
  - On average, 35 freight trains per day operate along this line

Railroad Inventory

- NS (cont)
  - There are five other NS lines within the study area:
    - L line: operating from Mooresville to Winston-Salem
    - O line: operating from Charlotte to Mooresville
    - R line: operating from Charlotte through Rock Hill, SC, to Columbia
    - SB line: operating from Shelby, NC to Blacksburg, SC
    - SB line: operating between Newport, SC, through Rock Hill to Lancaster, SC

Railroad Inventory

- NC (cont)
  - NS also operates an intermodal facility at the Charlotte-Douglas International Airport and two bulk transfer terminals located just south of Charlotte.

Railroad Inventory

- CSX Transportation
  - CSXT operates approximately 1,090 route miles of track in NC, and 1,270 route miles in SC.
  - There are three primary corridors in NC.
  - SF line (east-west) from Johnson City, TN through Shelby and Lincolnton to Charlotte through Monroe to Hamlet
  - SFE line: operating from Charlotte to Terrell, NC (serving the Marshall Power Plant)
  - SG line: operating from Monroe to Chester, SC

Railroad Inventory

- CSXT (cont)
  - CSXT also operates the Charlotte Intermodal Terminal and Pinoca Yard within the study area.

Railroad Inventory

- Short Line Railroads
  - Within North Carolina, there are twenty short line railroads operating approximately 950 miles of track.
  - The Aberdeen Carolina & Western Railway (ACWR) operates from Charlotte to Mint Hill and Star, NC.
  - The Lancaster and Chester Railway Company (LC) operates 60 miles of rail line within four SC counties (Chester, Kershaw, Lancaster, and York)

Railroad Inventory

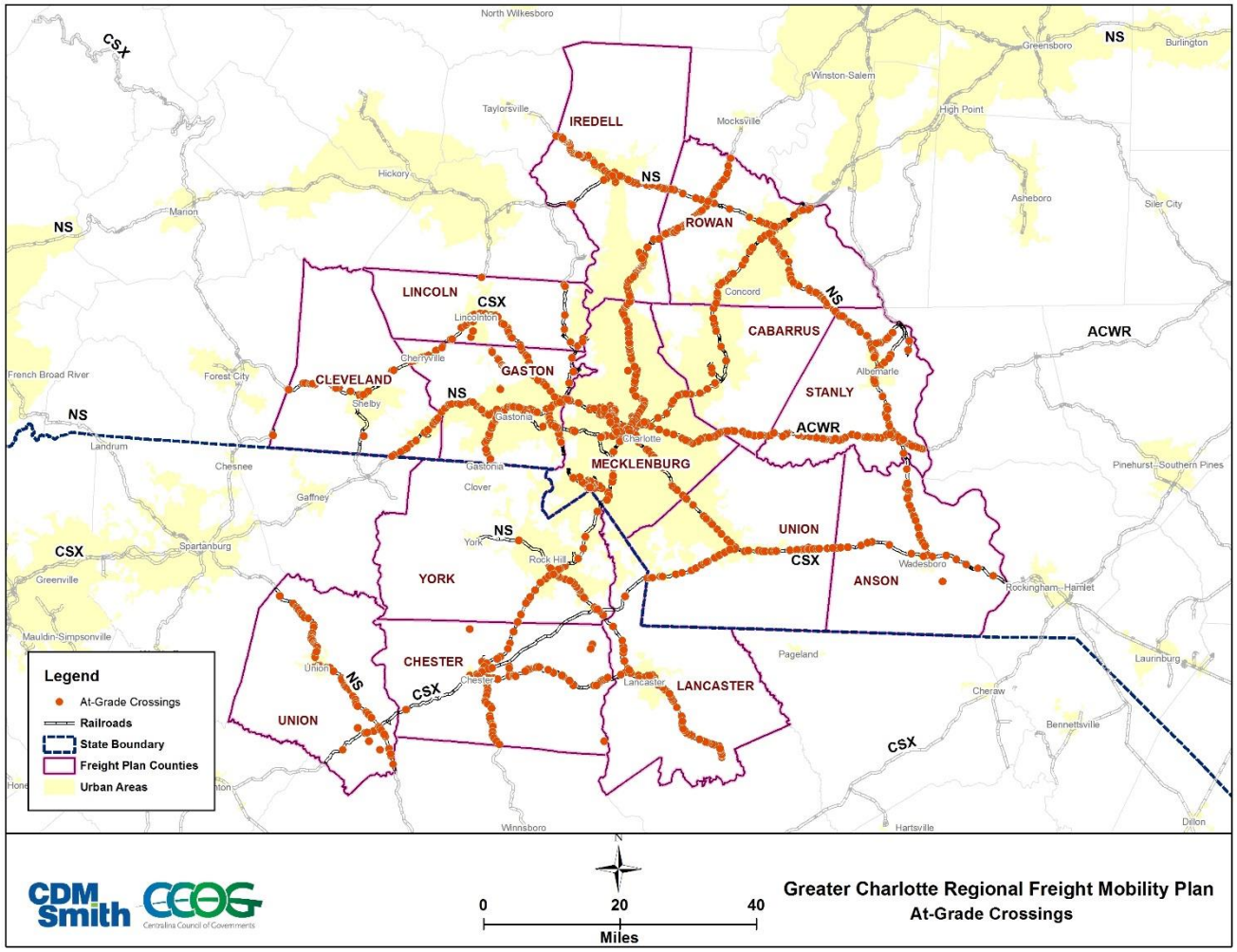
- Key Corridors and Facilities
  - Both NS and CSX have key rail corridors and intermodal yards.
  - For NS, the Main Line operating through Kannapolis, Charlotte and Gastonia serving the Charlotte-Douglas International Airport's Intermodal Yard is one of the busier corridors along the east coast.
  - The CSX SE Line connects to the Port of Wilmington and Hamlet Yard.

Rail/Highway at-Grade Crossings

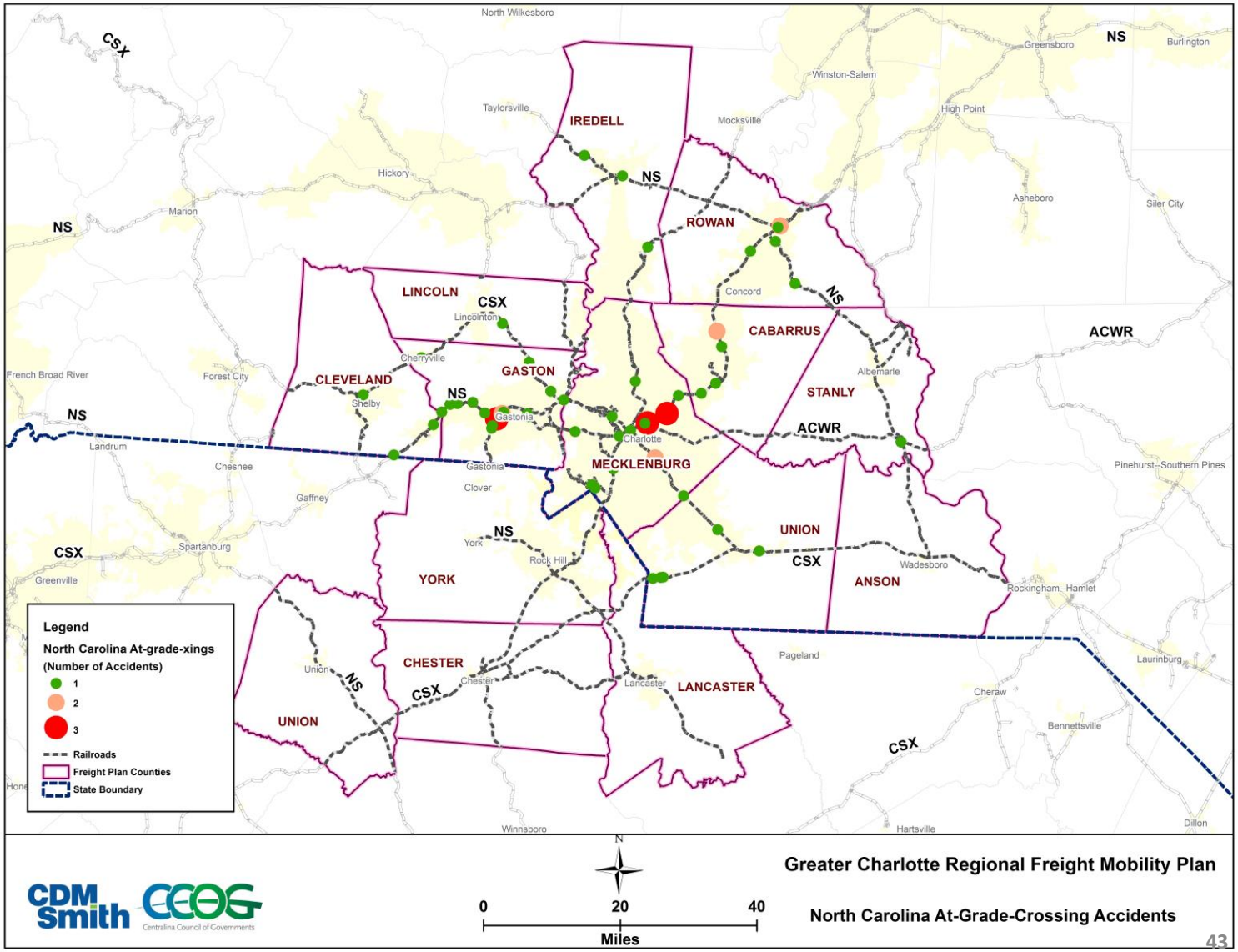
North Carolina - 1,158 crossings

South Carolina - 343 crossings

In NC, 63 accidents occurred at 53 of the at-grade crossings in past 5 years.



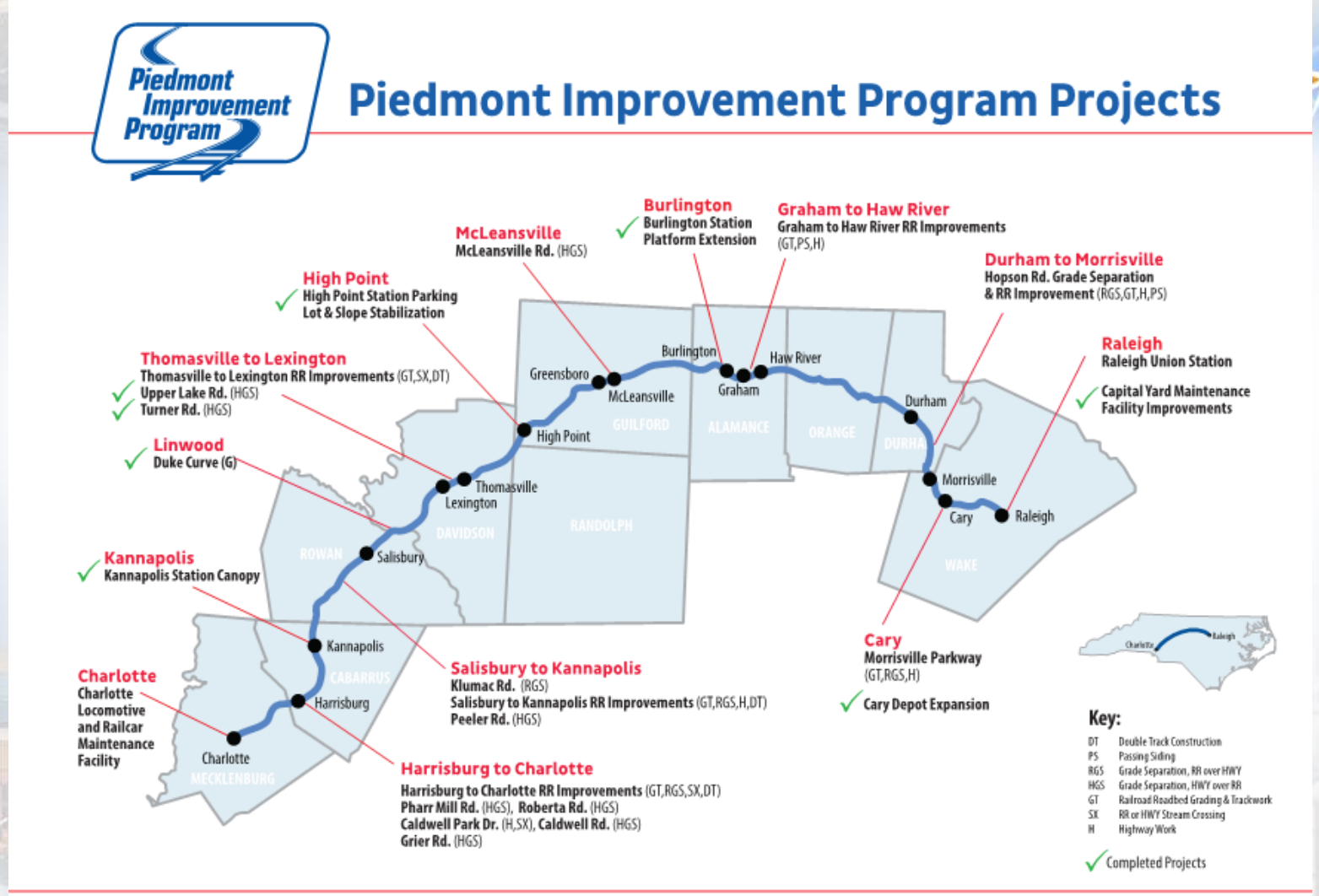
Rail/Highway at-Grade Crossings



Rail Bottlenecks and Constraints

- Along both the NS Main line and the CSX SF line at the ADM Mill in downtown Charlotte.
- The Charlotte Junction Wye, located west of downtown Charlotte, connecting the NS Main line and the R line.
- Aberdeen Carolina & Western Railway (ACW) corridor creating bottlenecks in CSX's North Davidson yard.
- Extensive CSX northwest yard terminal operation impacting local roadway networks.

Rail Capacity Improvement Projects



Rail Capacity Improvement Projects

- Piedmont Improvement Project (PIP) improvements—Salisbury and Kannapolis
  - Constructs approximately 11 miles of second track within Rowan County. Will also grade separate the railroad tracks over Kimball Road, upgrade 6 at-grade crossings, and close 6 existing at-grade crossings.
  - Klumac Road will be grade separated
  - Peeler Road will be relocated to the north with a grade separation over the tracks and U.S. 29, with ramps to provide connection to U.S. 29.

Rail Capacity Improvement Projects

- PIP Improvements—Harrisburg to Charlotte
  - Constructs approximately 12 miles of second track and realigning curves within Mecklenburg and Cabarrus County.
  - Will also grade separate over the future extension of Mallard Creek Church Road and upgrade 3 at-grade crossings.
  - Pharr Mill Road will be grade separated over the tracks and close 1 at-grade crossing.

Rail Capacity Improvement Projects

- PIP Improvements—Harrisburg to Charlotte (cont)
  - Roberta Road extension will be grade separated over the tracks and close 2 at-grade crossings.
  - Caldwell Park Drive will be extended for approximately 1 mile into Mecklenburg County and close 1 public and 3 private crossings.
  - Caldwell Road will be grade separated.
  - Grier Road will be extended with a grade separation over the tracks and close 1 at-grade crossing.

Rail Capacity Improvement Projects

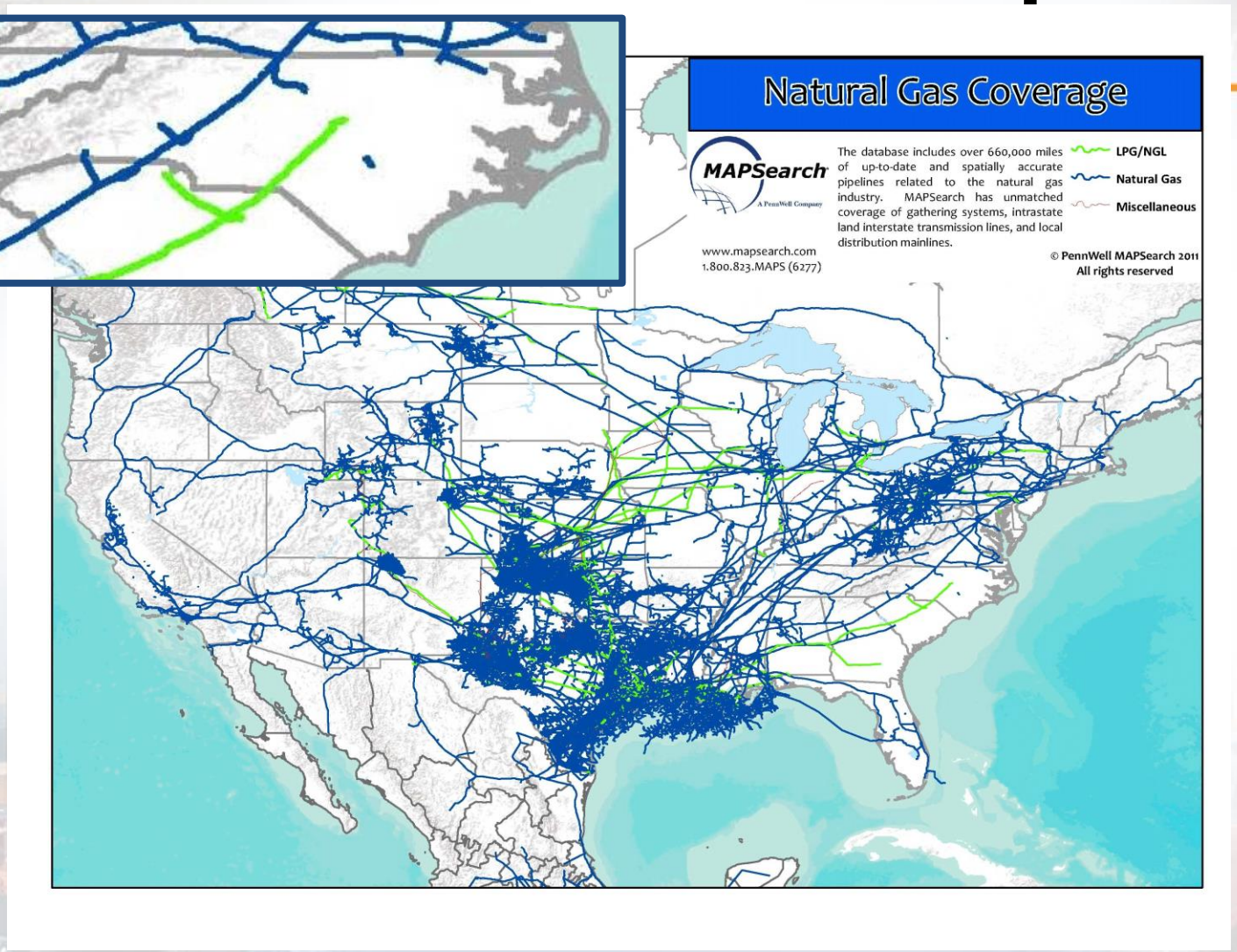
- PIP Improvements within Charlotte
  - Charlotte Locomotive and Railcar Maintenance Facility will be a new state-owned facility to serve the Piedmont and Carolinian trains during layovers in Charlotte.
  - The facility will include a connection to the NS Main Line, construct 2 service tracks, and an office building for Amtrak crews and maintenance employees.

Rail Capacity Improvement Projects

- NCDOT STIP Improvements
  - Grade separating Sugar Creek Road with the NCRR corridor, and closing the crossing at East Craighead Road
    - Handles over 30 NS freight trains and 8 passenger rail trains with increases expected
    - Part of the federally-designated Southeast High Speed Rail Corridor (SEHSR)
    - Increased safety and reduced rail and vehicle congestion

PIPELINE

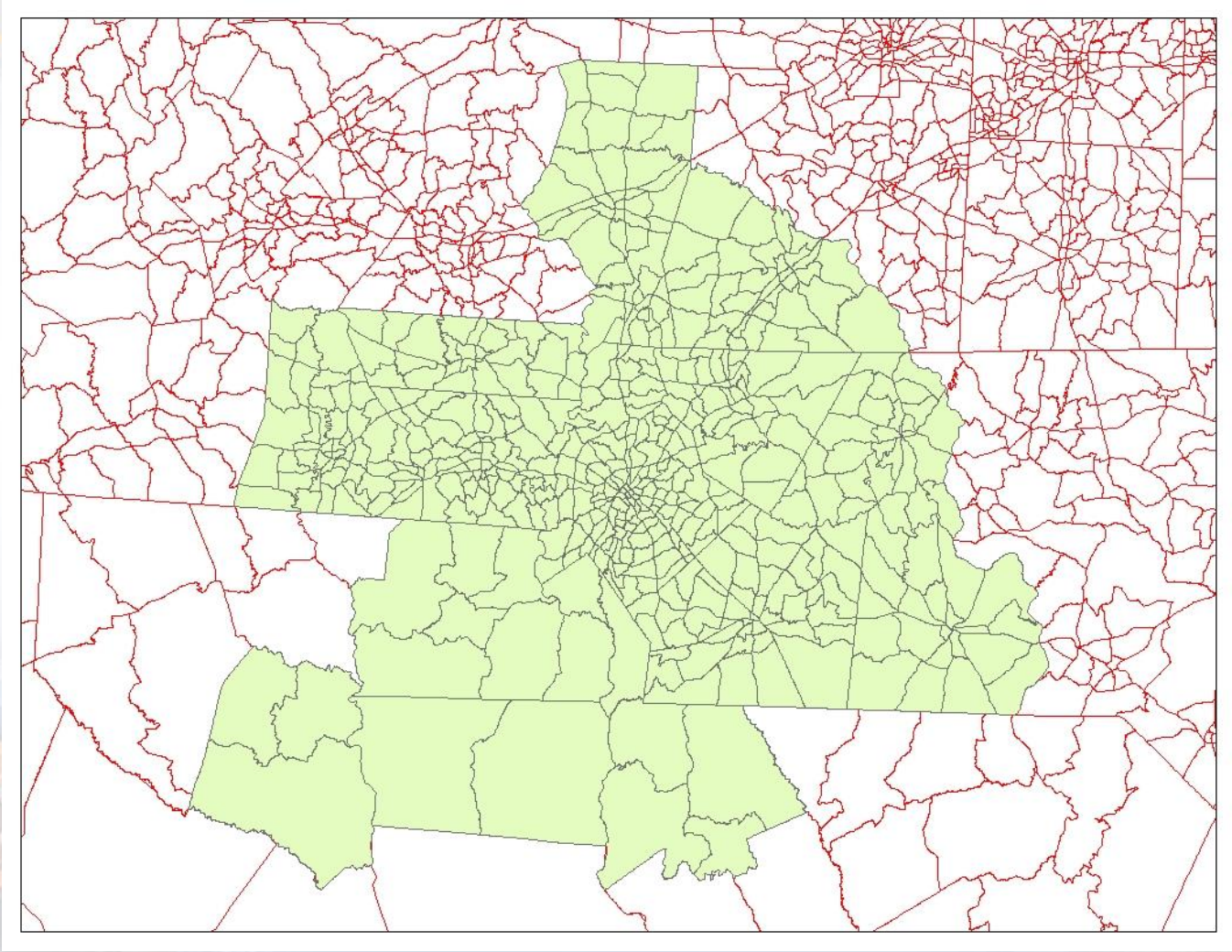
National Natural Gas Pipelines



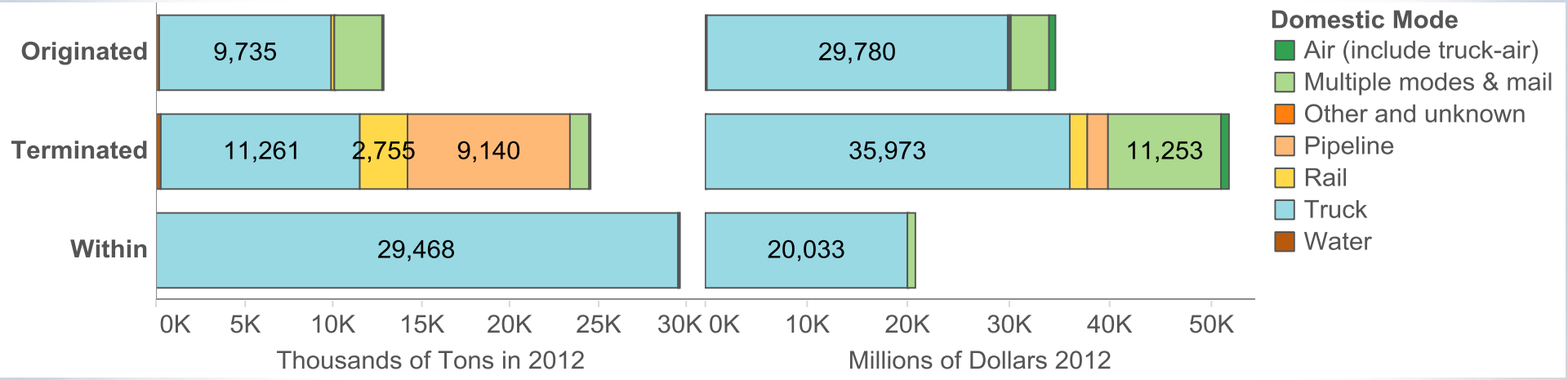
COMMODITY FLOWS

Commodity Flows

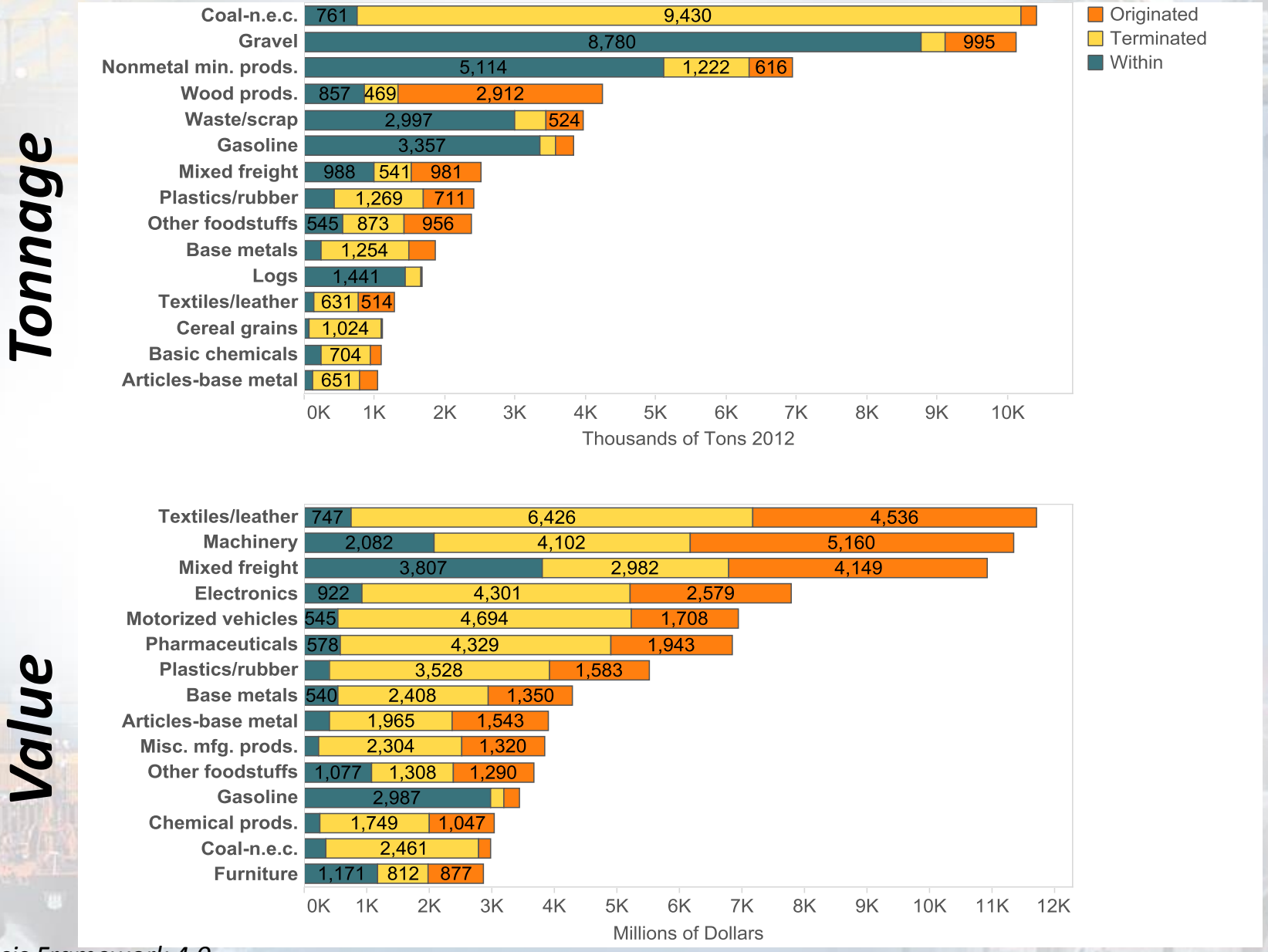
FAF Boundaries within the NCDOT Statewide Model



Modal Breakdown of Freight Originated or Terminated in Charlotte MSA in 2012

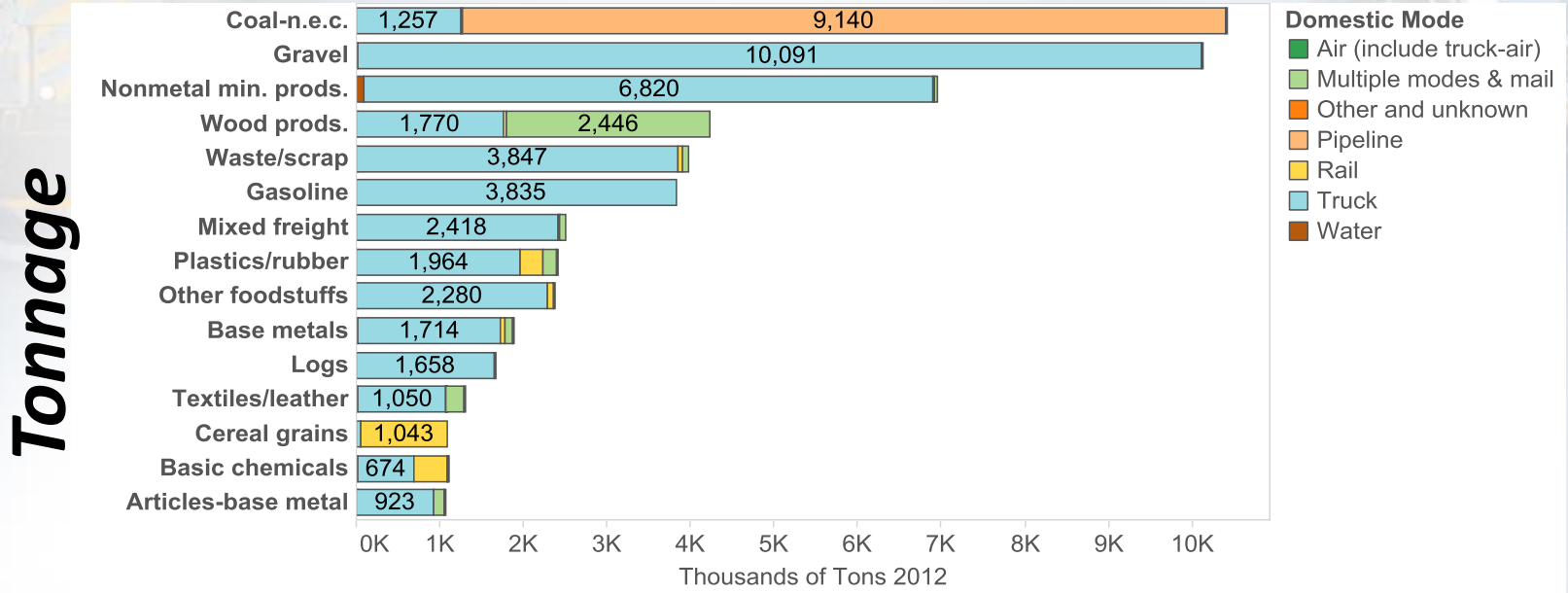


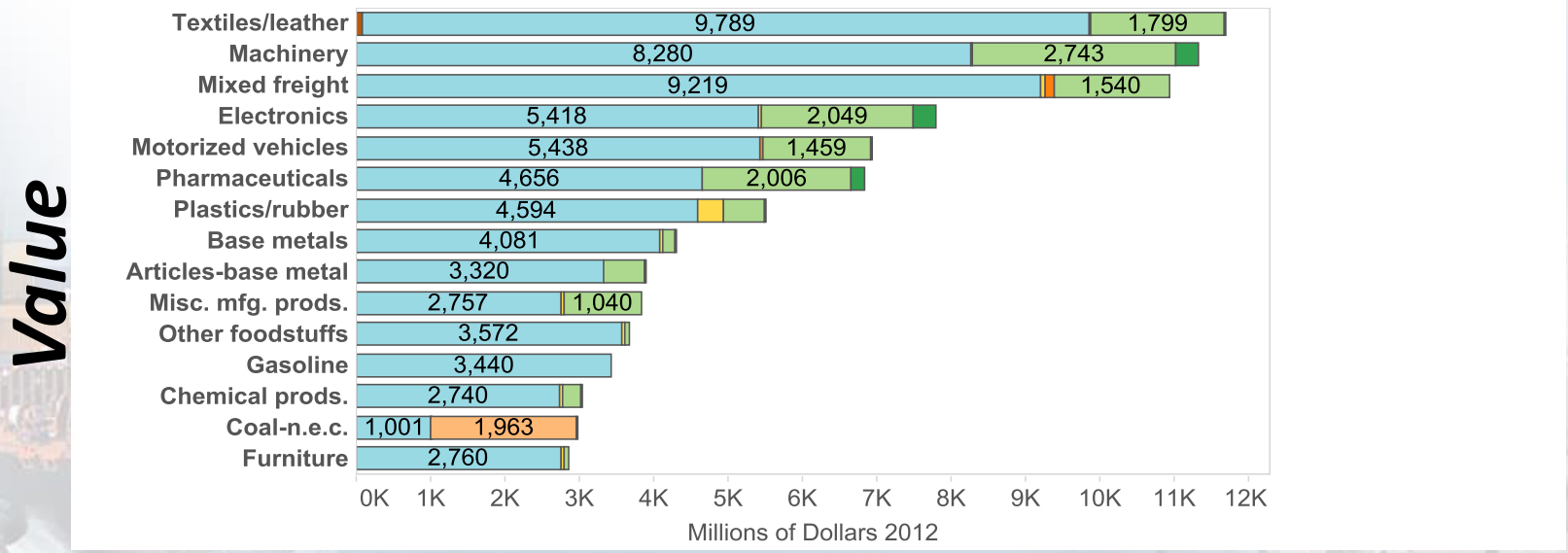
Top 15 Commodities by Tons and Value for Charlotte MSA in 2012



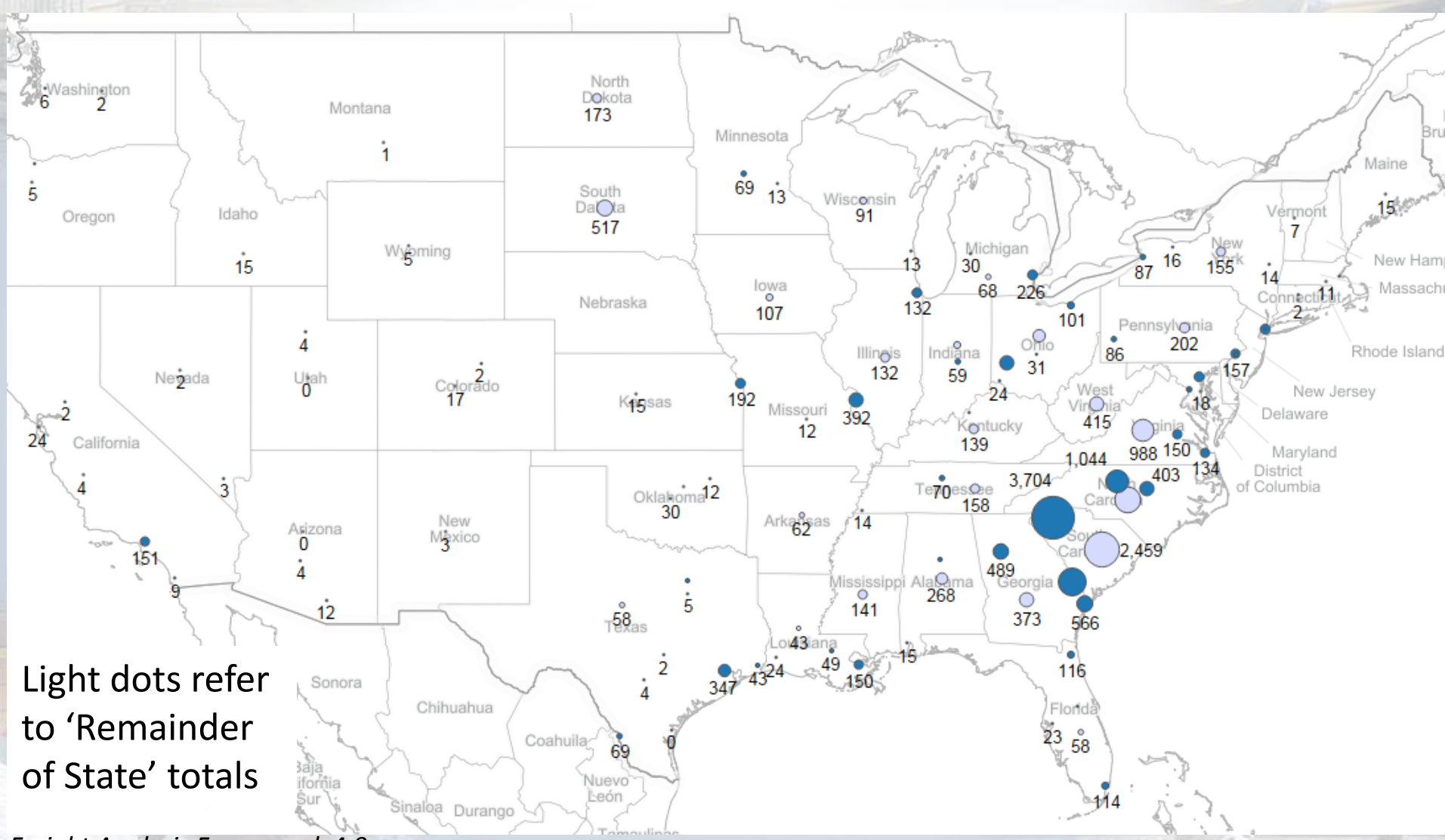
Freight Analysis Framework 4.0

Top 15 Commodities by Tons and Value for Charlotte MSA in 2012





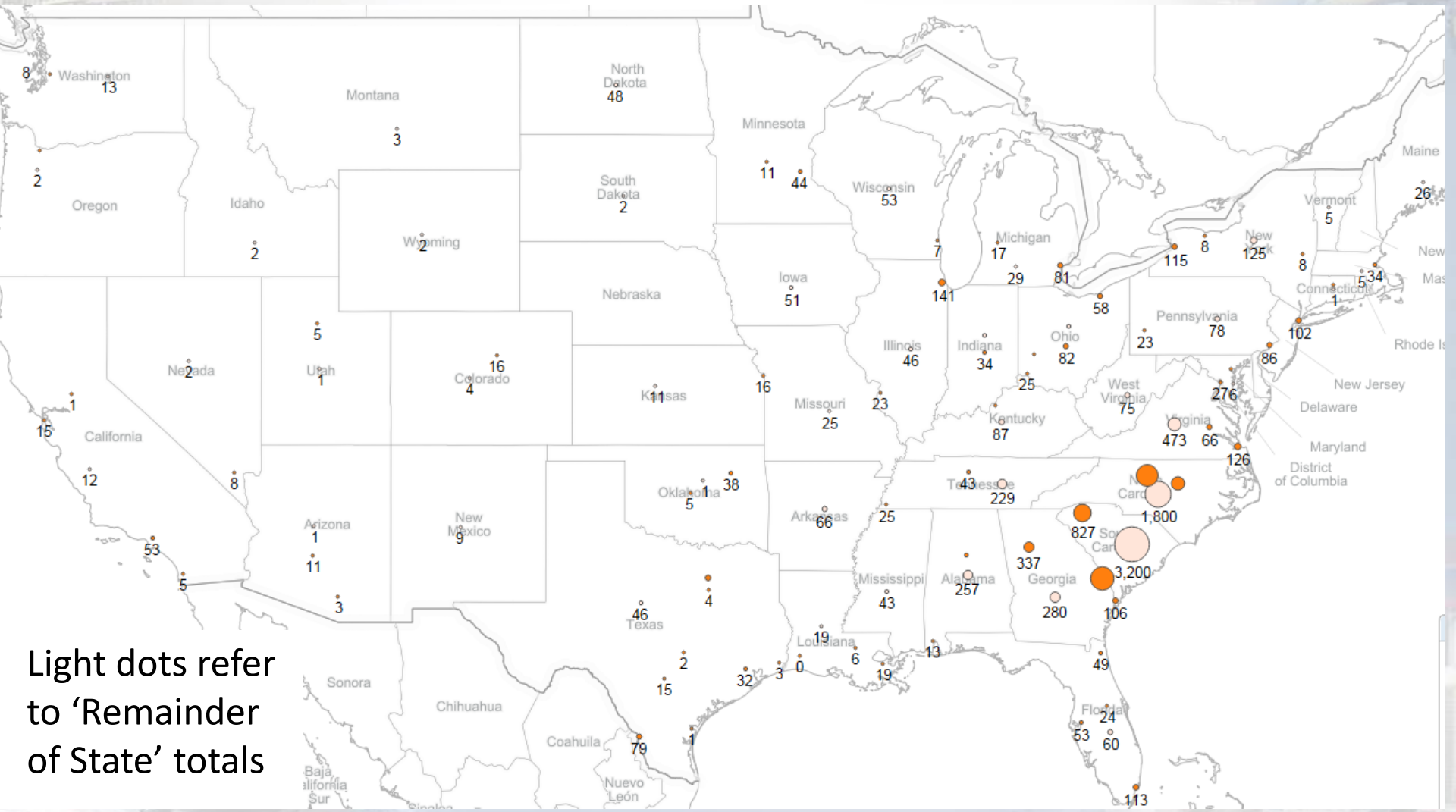
Origins of Freight Terminated in Charlotte, Tons (000') in 2012



Light dots refer to 'Remainder of State' totals

Freight Analysis Framework 4.0

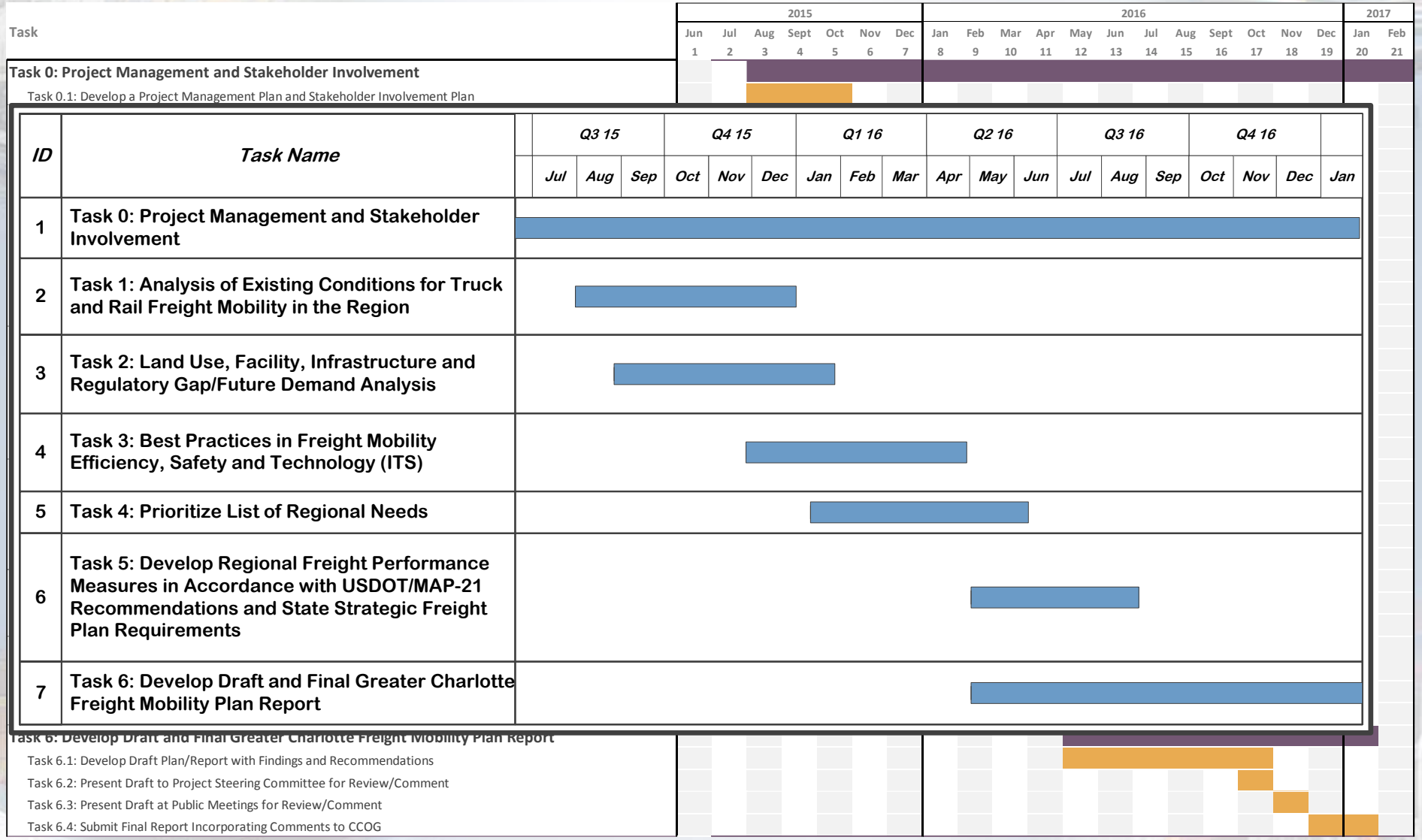
Destinations of Freight Originated in Charlotte, Tons (000') in 2012



Light dots refer to 'Remainder of State' totals

Schedule

ID	Task Name
1	Task 0: Project Management and Stakeholder Involvement
2	Task 1: Analysis of Existing Conditions for Truck and Rail Freight Mobility in the Region
3	Task 2: Land Use, Facility, Infrastructure and Regulatory Gap/Future Demand Analysis
4	Task 3: Best Practices in Freight Mobility Efficiency, Safety and Technology (ITS)
5	Task 4: Prioritize List of Regional Needs
6	Task 5: Develop Regional Freight Performance Measures in Accordance with USDOT/MAP-21 Recommendations and State Strategic Freight Plan Requirements
7	Task 6: Develop Draft and Final Greater Charlotte Freight Mobility Plan Report



Thank You!

Questions?