North Carolina Transportation Infrastructure and Need for Feed Materials by County

September 21, 2018
For questions please contact: hschwei@ncsu.edu

Data sources:

- North Carolina Department of Transportation: https://connect.ncdot.gov/resources/gis/Pages/GIS-Data-Layers.aspx
  - Rail lines and facilities
  - Interstate highways
  - County boundaries
- U.S. Department of Transportation: http://osav-usdot.opendata.arcgis.com/
  - Navigable waterways and port facilities
- USDA: https://quickstats.nass.usda.gov/ and https://www.ers.usda.gov/data-products/feed-grains-database/feed-grains-yearbook-tables.aspx
  - 2016/17 livestock inventories used to calculate grain consuming animal units per county
  - Amount of energy feeds and all feeds consumed by grain consuming animal units
- ERSI
  - Base maps

The table below shows top counties by feed needs as determined by livestock inventories. A grain consuming animal unit (GCAU) is a measure developed by USDA to standardize estimates of livestock herds while accounting for differences in the amount of feed consumed across species. One animal unit reflects the amount consumed by a dairy cow. Energy feeds include barley, corn, oats, sorghum, and wheat.

The shipping calculations are based on maximum weight for each type of transport. Typically grains and oilseeds are transported via specialized equipment. But containerization of grain has become more prevalent and therefore we also include twenty-foot equivalent units (TEUs) in the table. A TEU is a standard container size that can be loaded onto all transport modes.

Table: Top 10 North Carolina Counties by Feed Needs

County	Estimated Grain Consuming Animal Units	Metric Tons of Energy Feeds Needed	Metric Tons All Feeds Needed	TEU All Feeds Needed	Truckloads All Feeds Needed[a]	Railcars All Feeds Needed[b]	Ships All Feeds Needed[c]
		Annual	Annual	Weekly	Weekly	Weekly	4 Weeks
Duplin	537,824	817,493	1,140,187	1,018	1,007	241.7	1.67
Sampson	523,945	796,396	1,110,763	991	981	235.5	1.63
Bladen	181,201	275,425	384,146	343	339	81.4	0.56
Wayne	153,375	233,131	325,156	290	287	68.9	0.48
Robeson	105,321	160,088	223,281	199	197	47.3	0.33
Greene	89,171	135,540	189,043	169	167	40.1	0.28
Union	87,805	133,463	186,146	166	164	39.5	0.27
Iredell	80,260	121,995	170,151	152	150	36.1	0.25
Randolph	78,534	119,371	166,491	149	147	35.3	0.24
Lenoir	76,246	115,893	161,641	144	143	34.3	0.24

Notes
a. Assumed trailer length is 36"
b. Car capacity assumed to be 4750cf
c. Assumed vessel size is Panamax

Figure 1 overlays main transportation infrastructure onto a map of GCAUs where the graduated coloring scheme is determined by standard deviation from the mean GCAU. The distribution is right tailed, and darker shades indicate a higher need for feed.

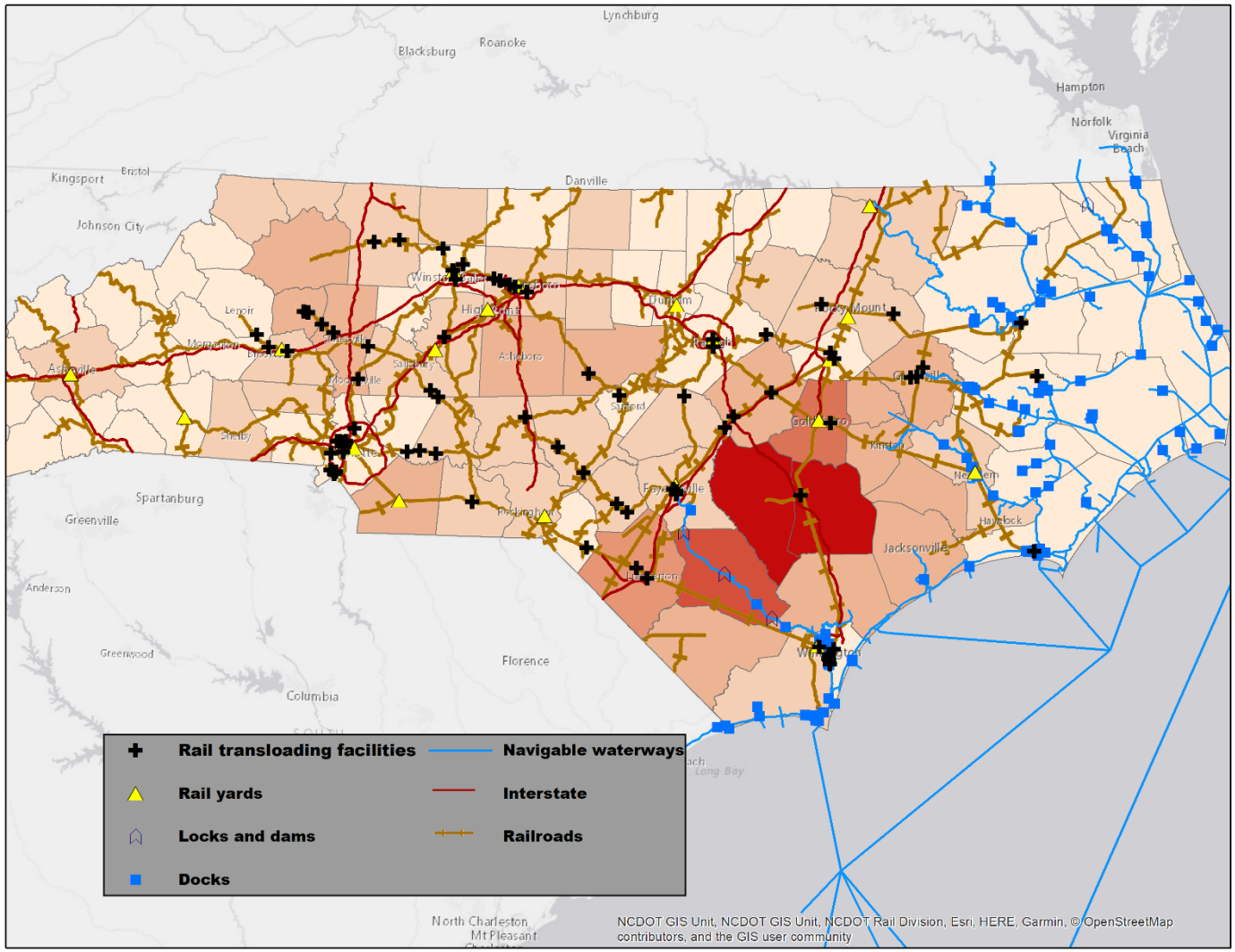

Figure 1

Duplin and Sampson counties have the highest feed needs in the state. Figure 2 is a close-up of Figure 1 showing all major road and transportation system access to these counties.

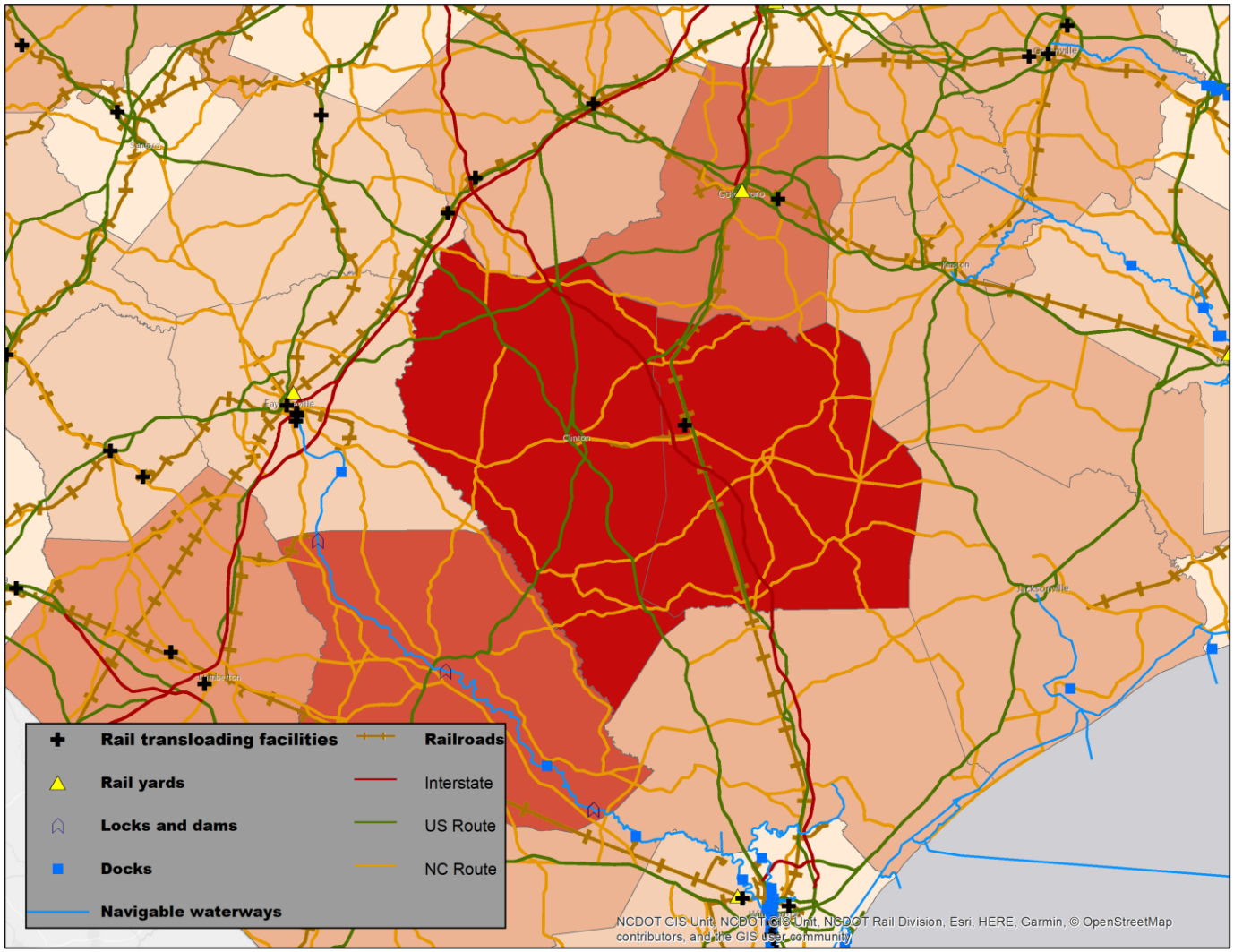

Figure 2