

# Appendix C: FAF, Transearch, and Streetlight Analyses

Figure C-1: through Figure C-27 following present the FAF Dashboard analysis screens for:

- Year 2017 Tons and Value, for each flow type
- Year 2017 Tons and Value, for each domestic mode
- Year 2017 Tons and Value, for each of the top five tonnage/value commodities
- Total Tons and Total Value for Years 2030 and 2045

For the rail Transearch-based desire line maps (Figure C-28 through Figure C-44), each map shows lines connecting origins and destinations. All origins and destinations within North Dakota are aggregated to a single point; origins and destinations outside North Dakota are aggregated to the Business Economic Area level (in the US) and provincial/state level (in Canada and Mexico). The line thicknesses correspond to the tonnage or value between two points and are color-coded by the direction of the flow. Each map is accompanied by data summary tables summarizing volume by direction; originating BEAs; terminating BEAs; and leading commodities. Maps are presented for:

- Tonnage by all commodities
- Tonnage inbound to, outbound from, between, or within the eight North Dakota DOT districts
- Tonnage for the seven leading rail tonnage commodities
- Value for the seven leading rail value commodities, if not already mapped based on tonnage

Figure C-45 to Figure C-97 detail the Streetlight data analyses associated with truck flows within the state.

Figure C-1: International Gateway Tons (M) (2017)

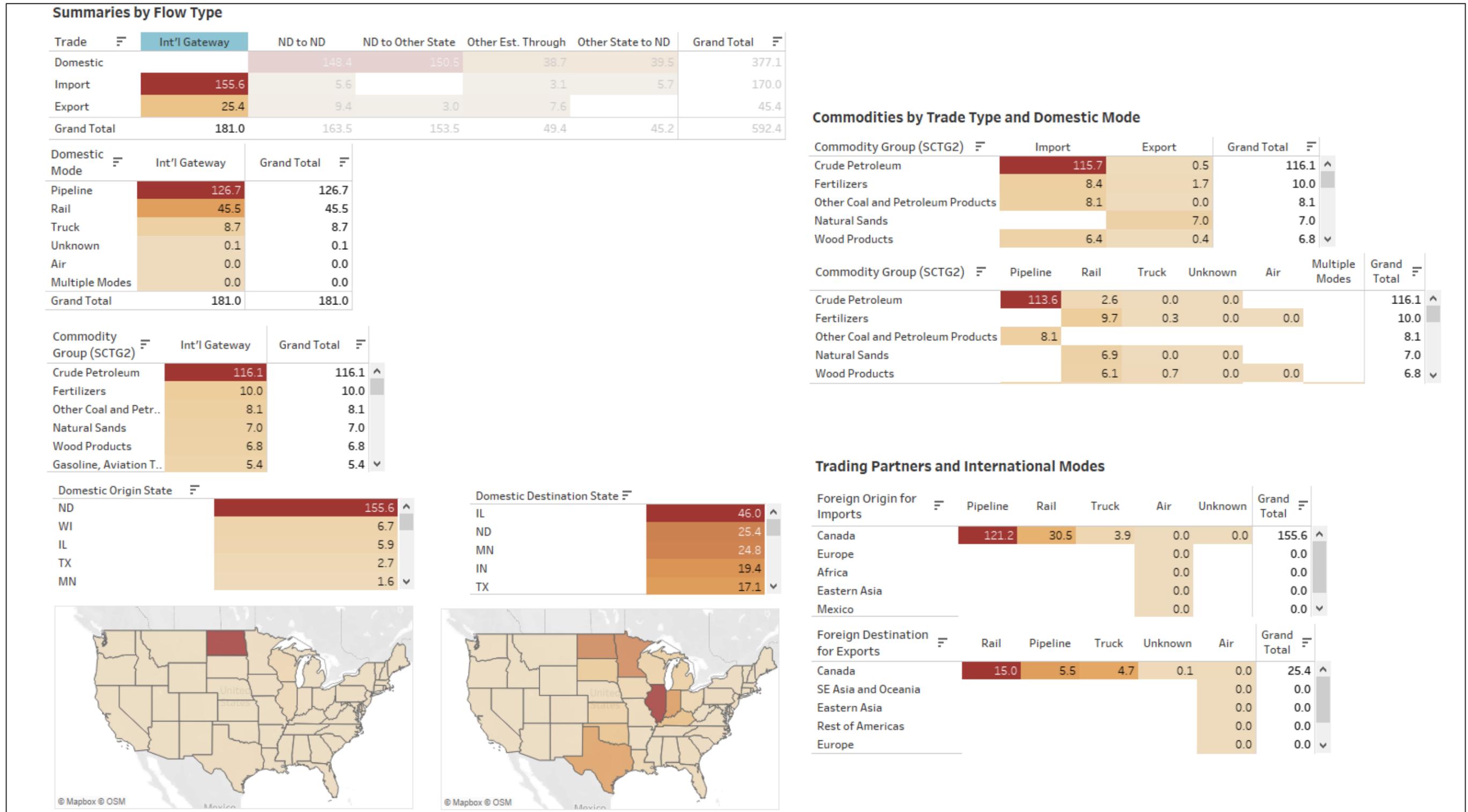


Figure C-2: International Gateway Value (\$B) (2017)

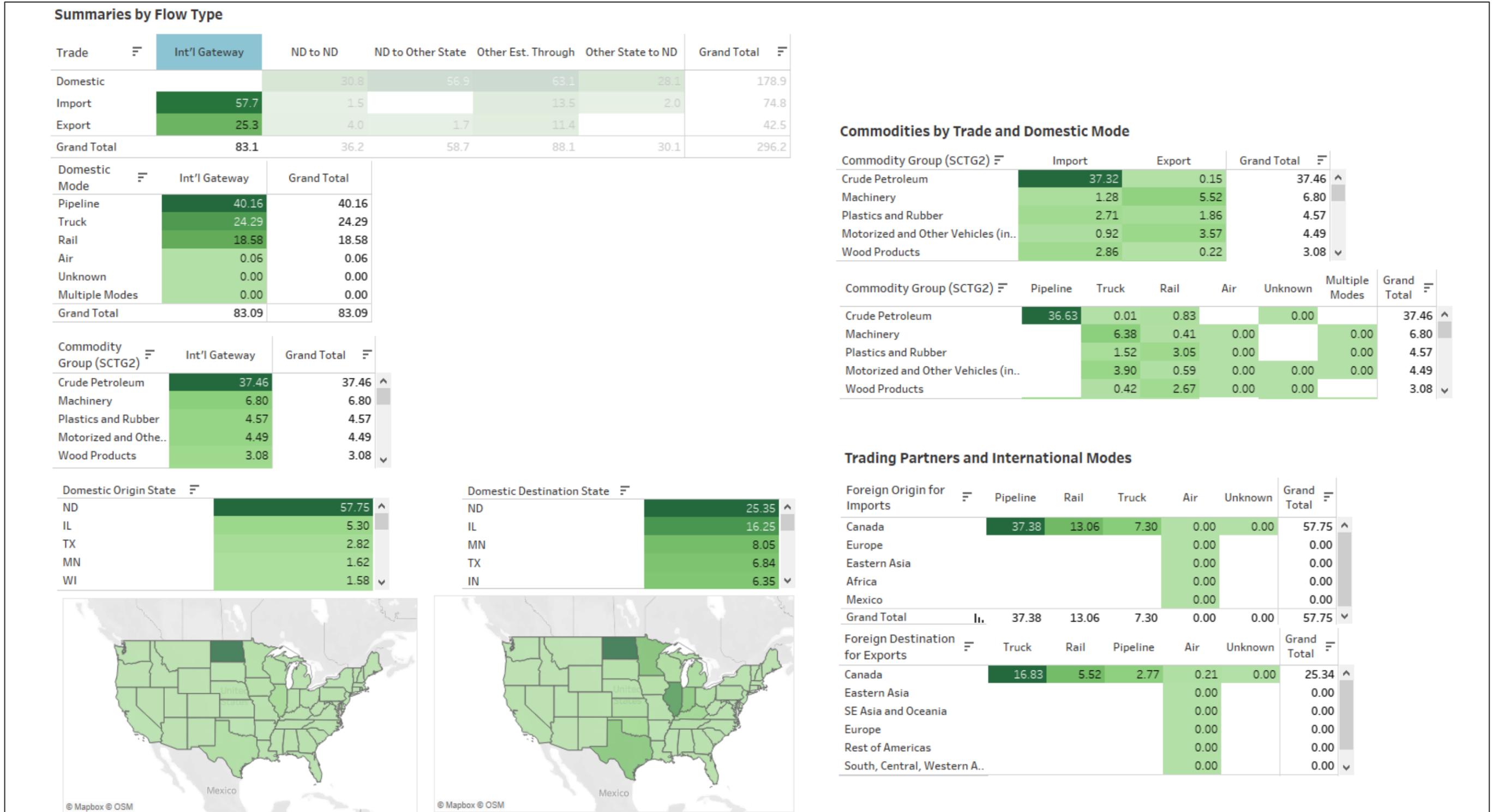


Figure C-3: North Dakota to North Dakota Tons (M) (2017)

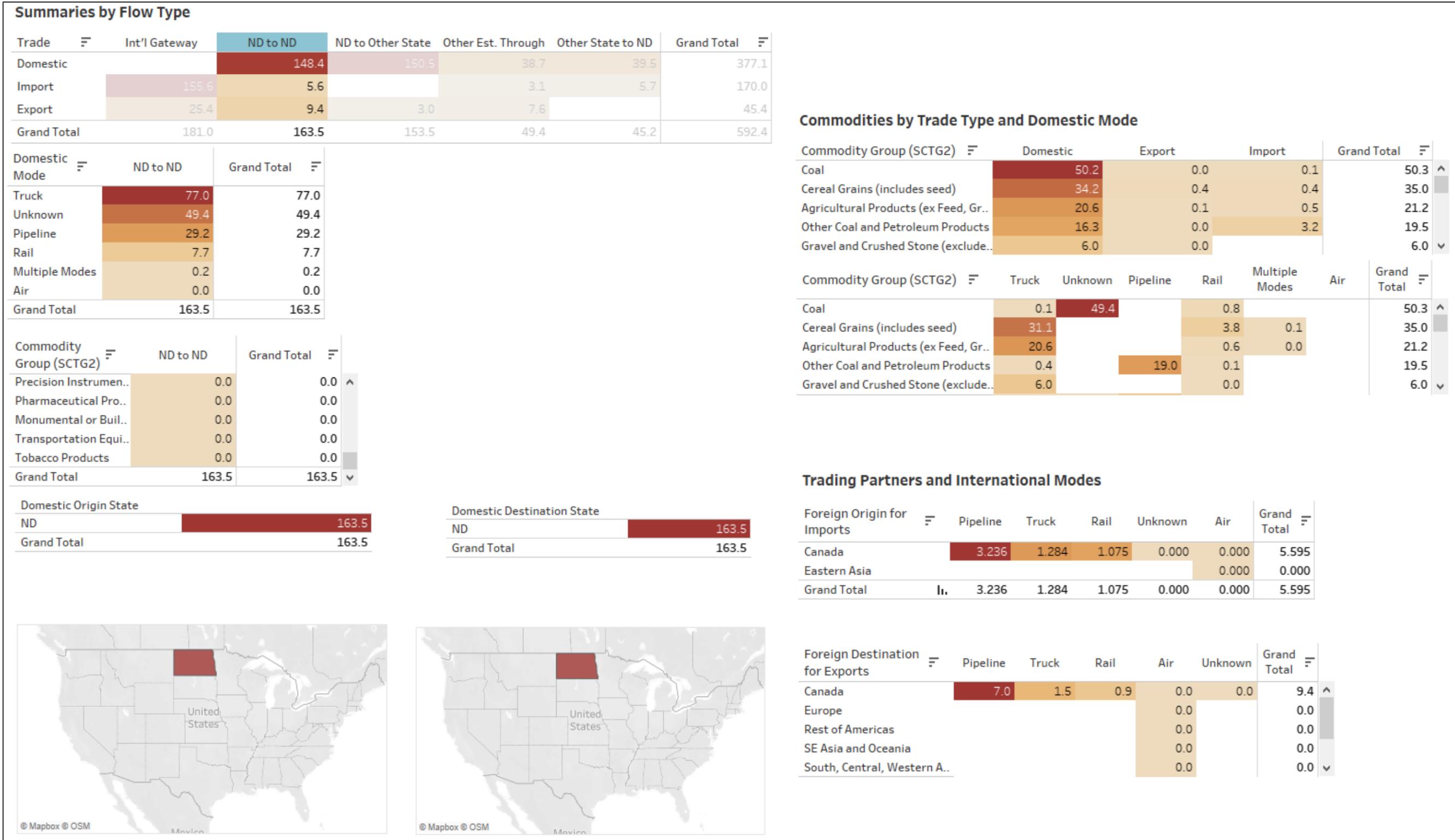


Figure C-4: North Dakota to North Dakota Value (\$B) (2017)

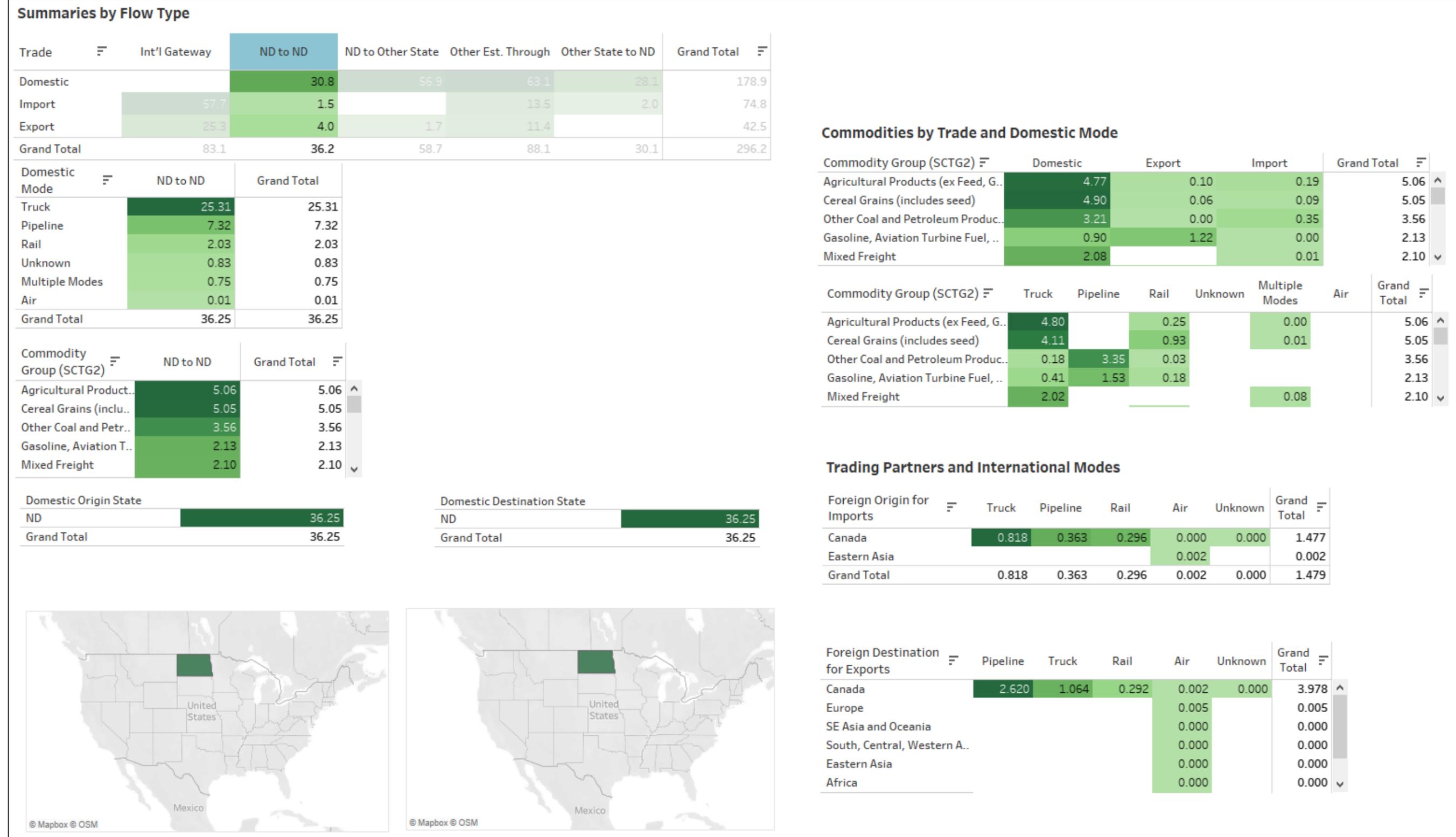


Figure C-5: North Dakota to Other State Tons (M) (2017)

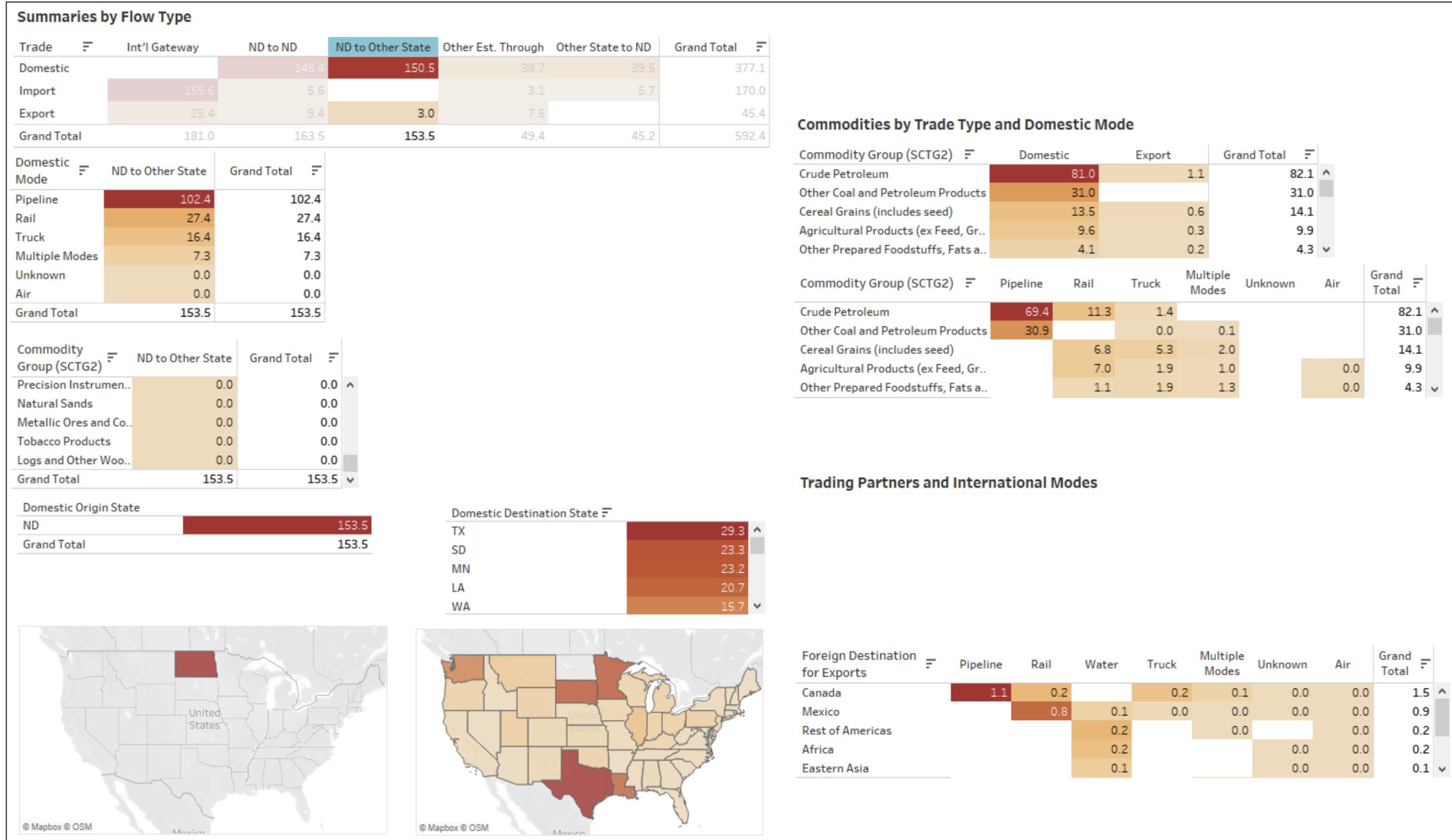


Figure C-6: North Dakota to Other State Value (\$B) (2017)

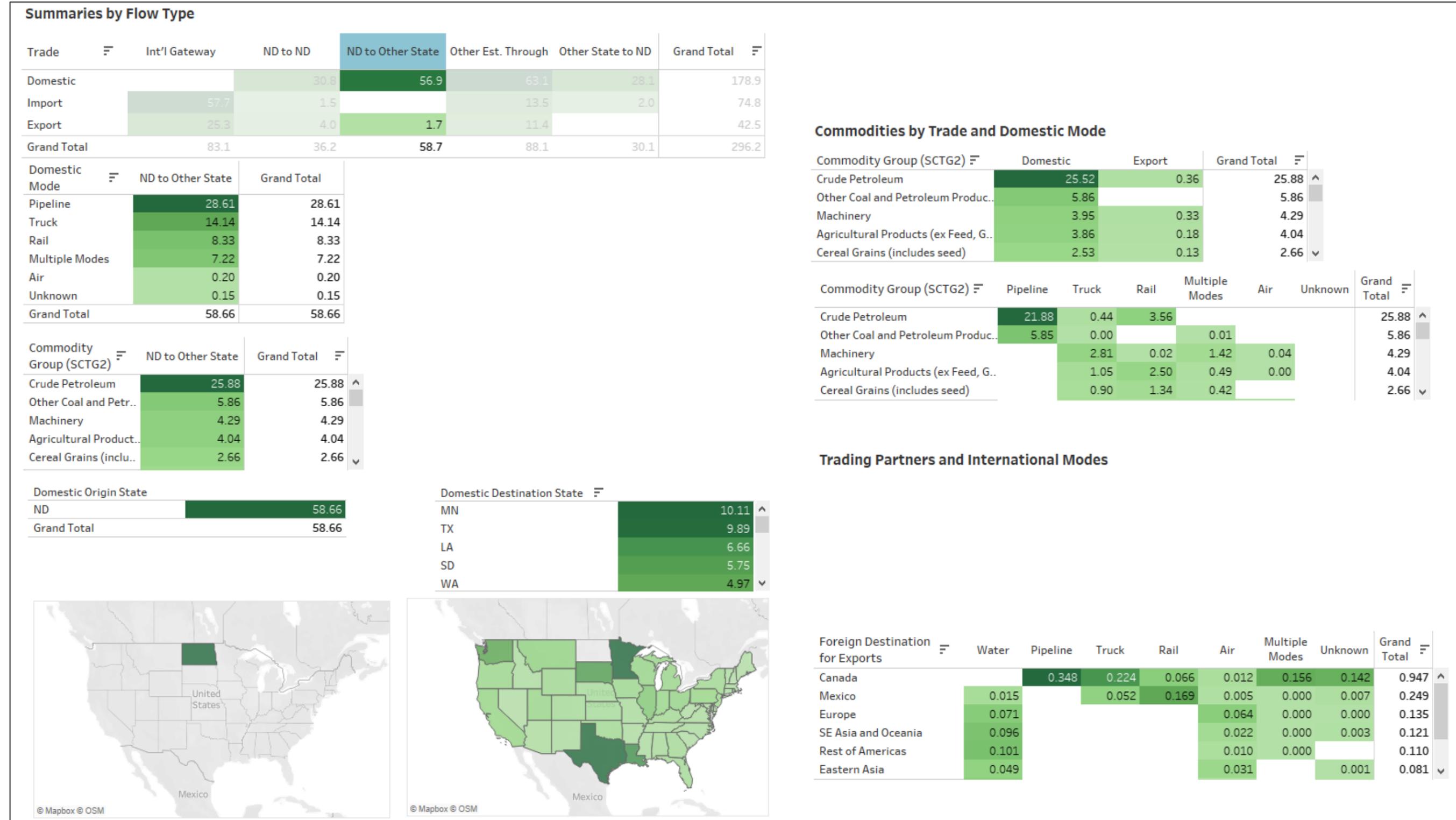


Figure C-7: Other State to North Dakota Tons (M) (2017)

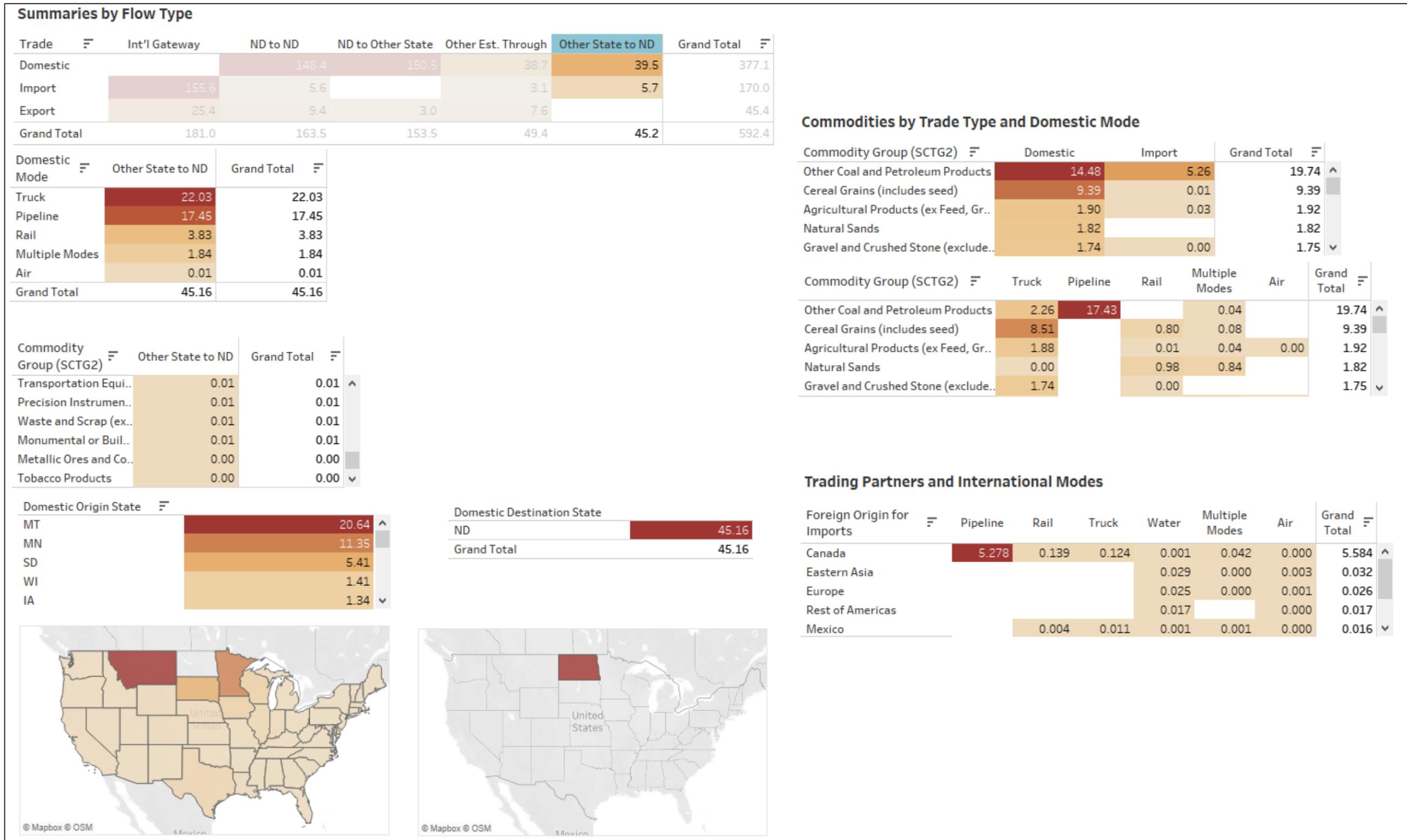


Figure C-8: Other State to North Dakota Value (\$B) (2017)

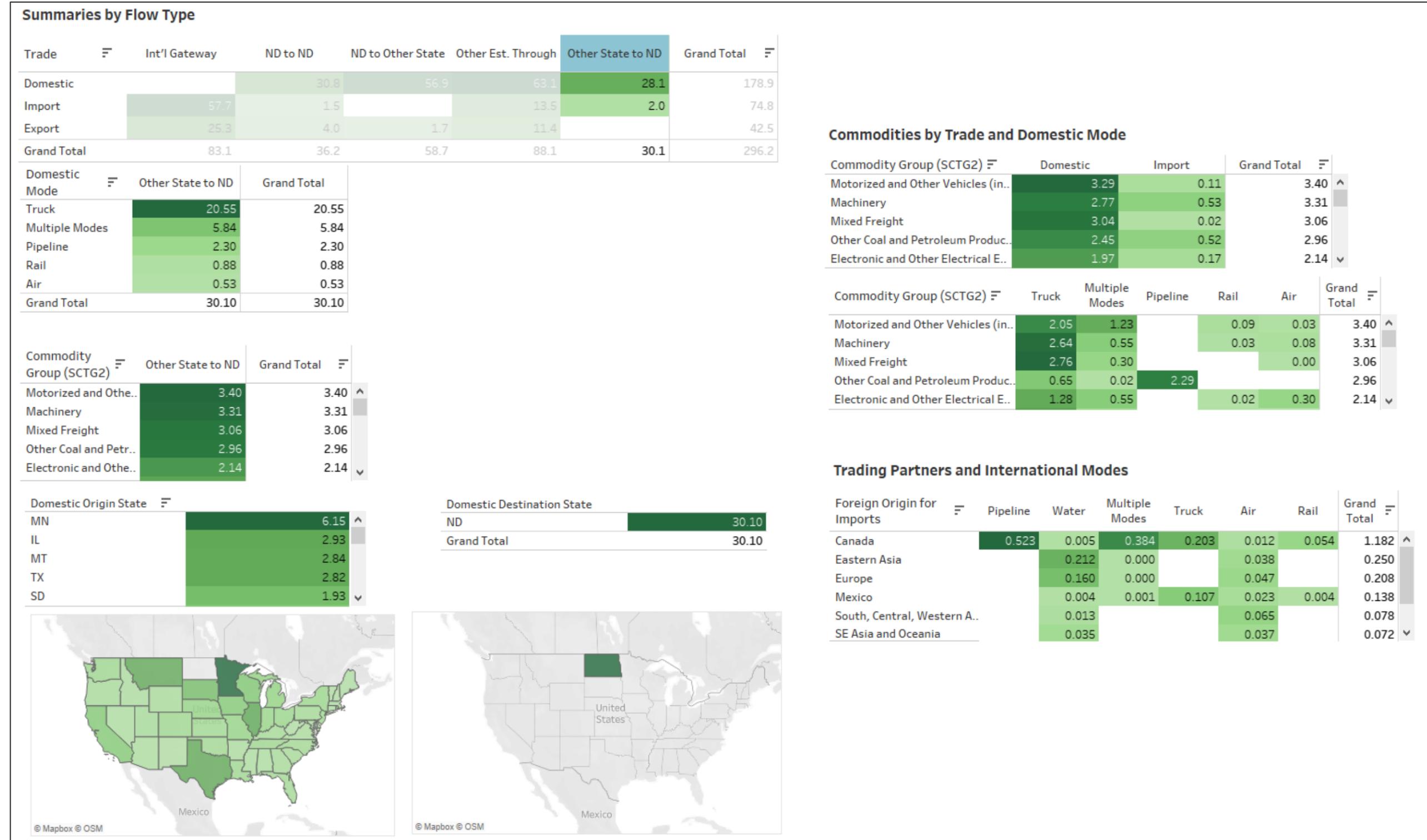


Figure C-9: Other Estimated Through Tons (M) (2017)

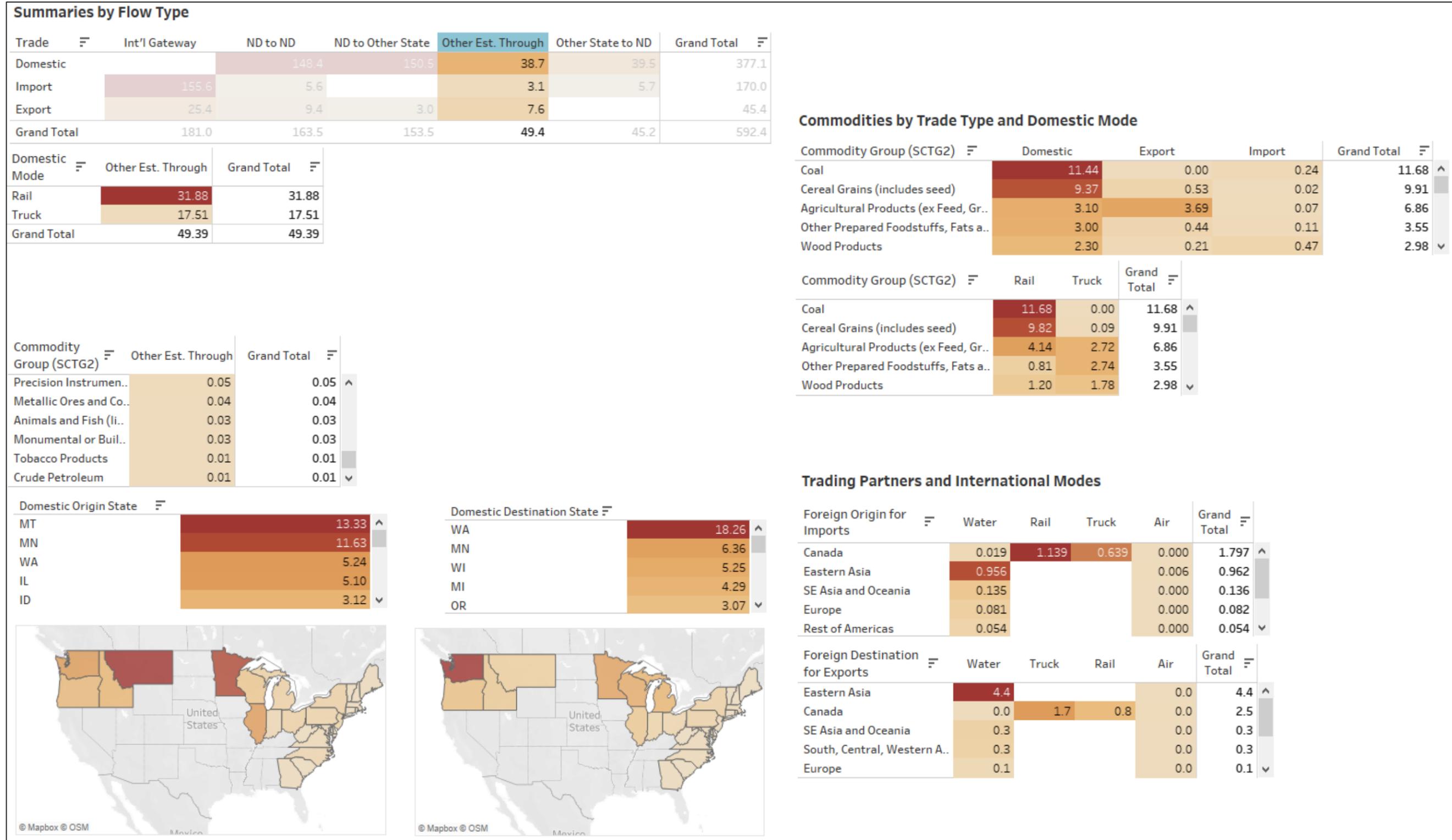


Figure C-10: Other Estimated Through Value (\$B) (2017)

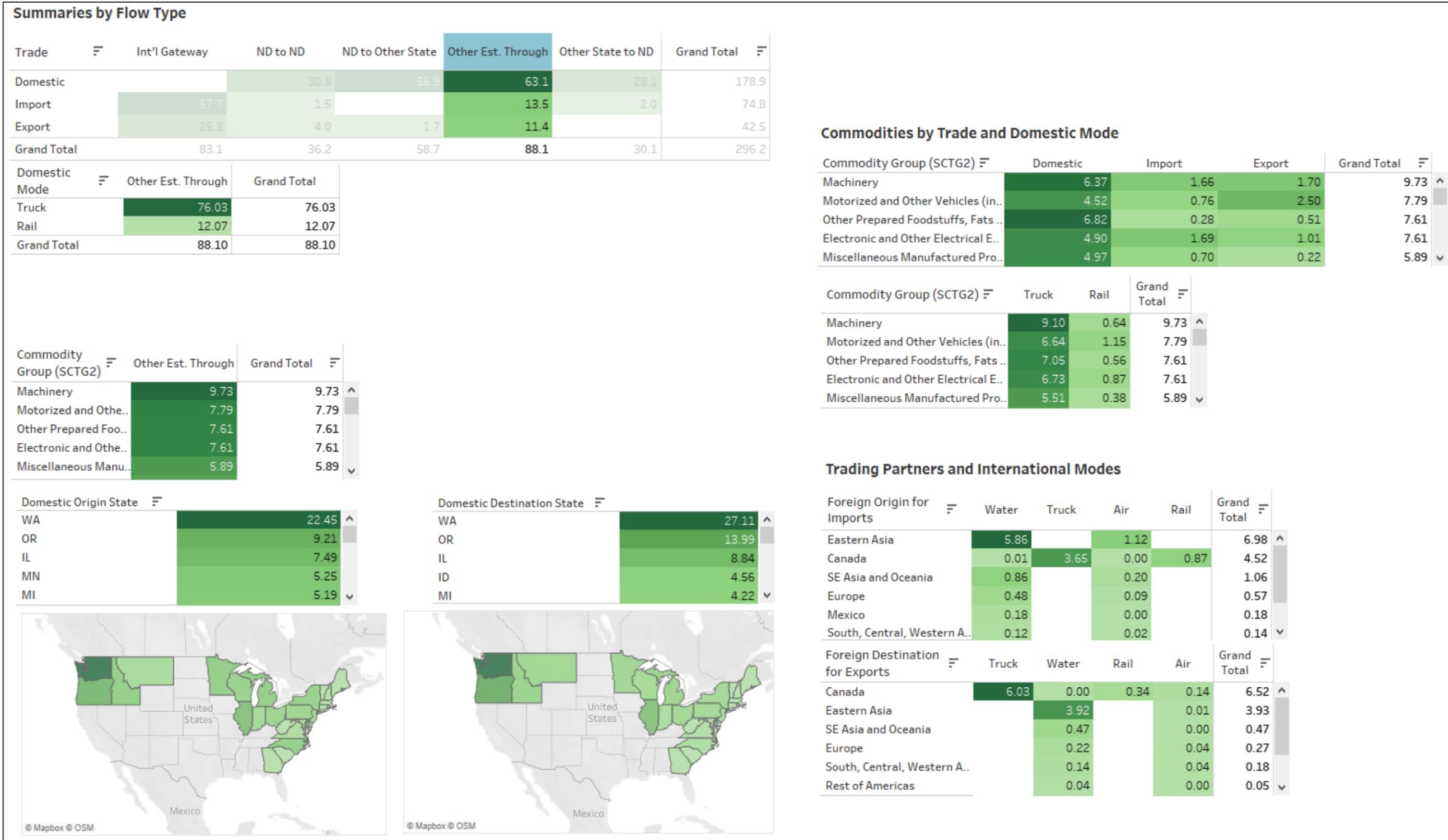


Figure C-11: Pipeline Tons (M) (2017)

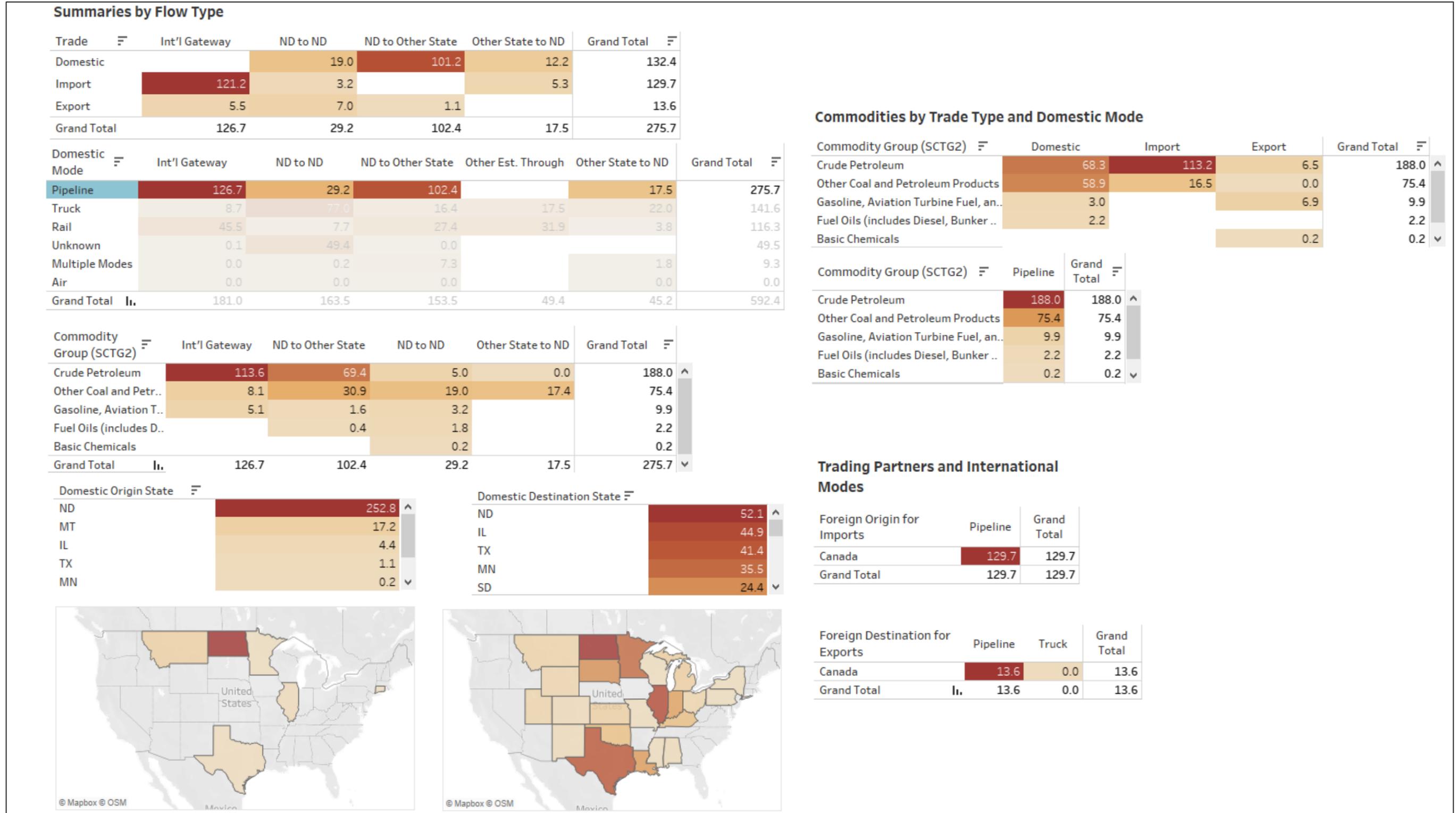


Figure C-12: Pipeline Value (\$B) (2017)

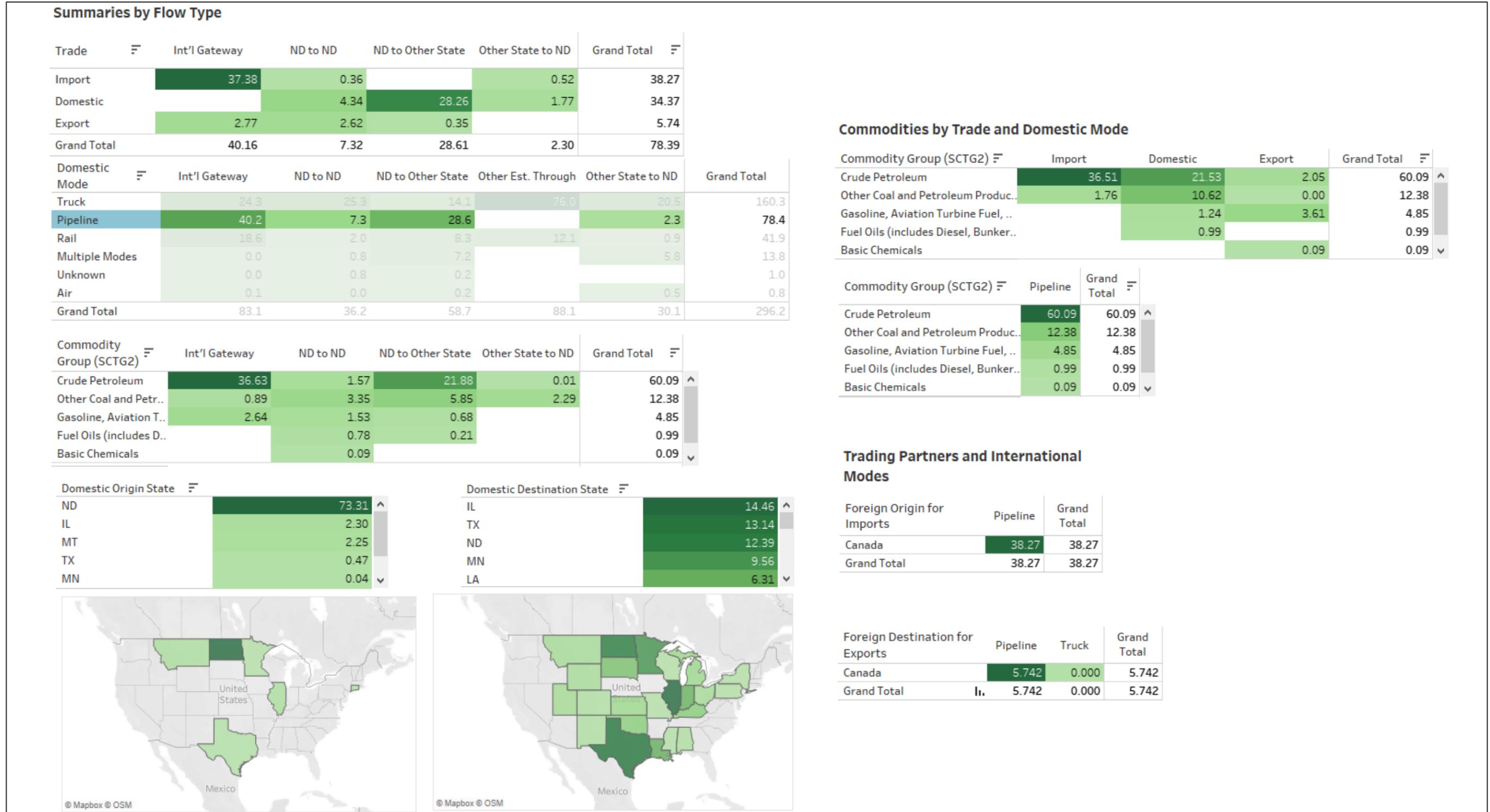


Figure C-13: Truck Tons (M) (2017)

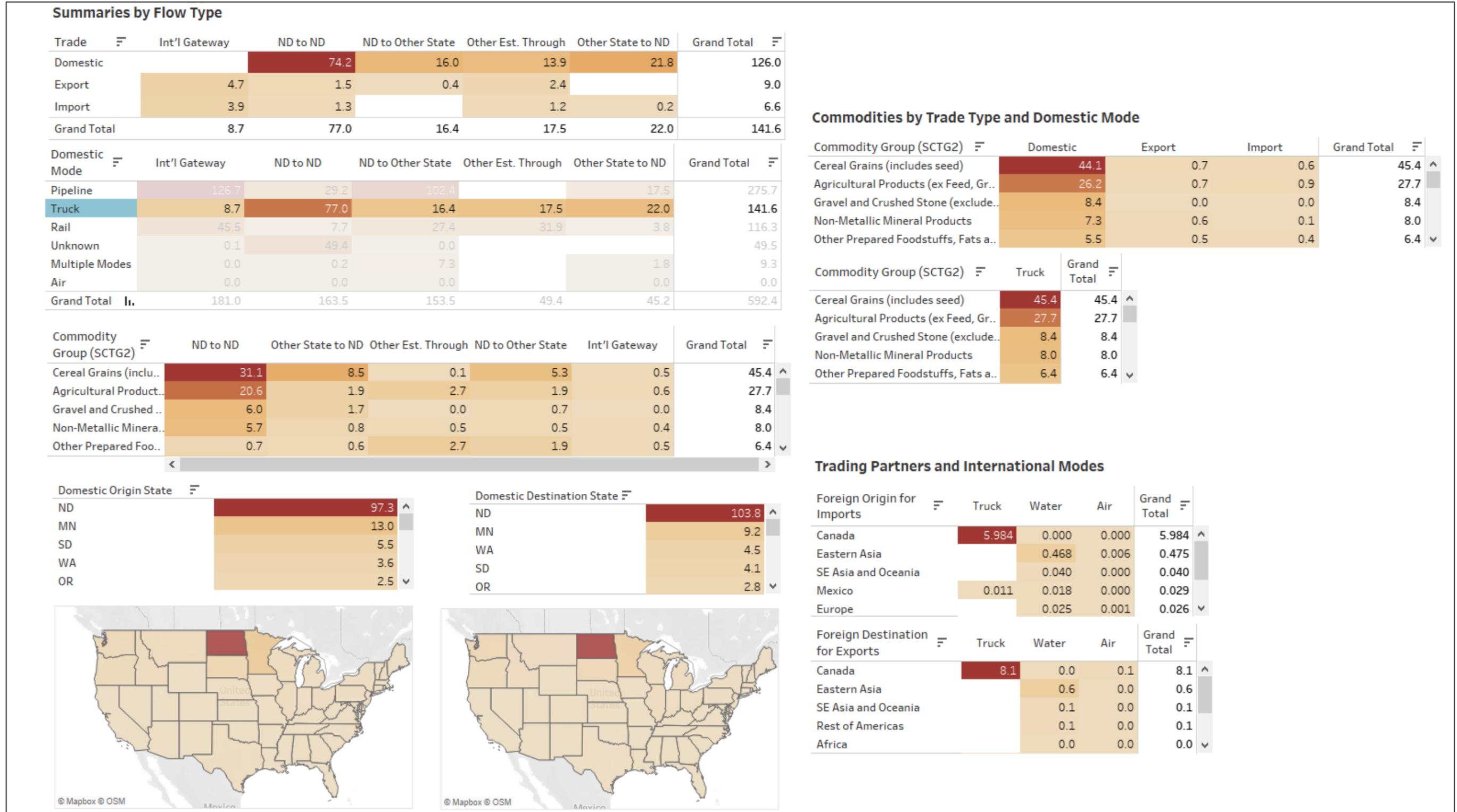


Figure C-14: Truck Value (\$B) (2017)

### Summaries by Flow Type

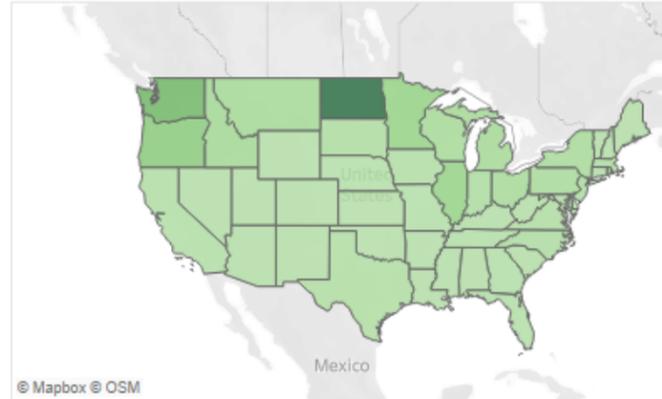
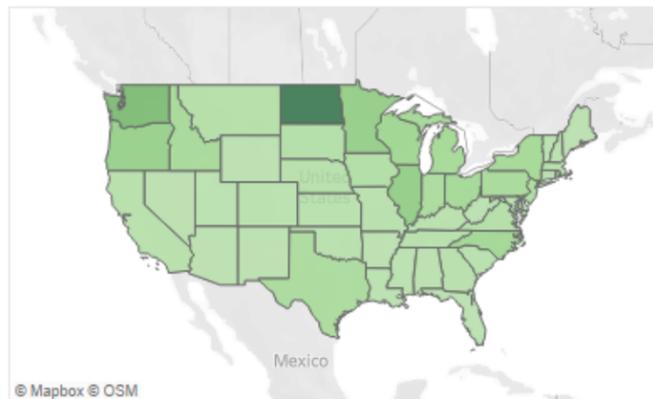
Trade	Int'l Gateway	ND to ND	ND to Other State	Other Est. Through	Other State to ND	Grand Total
Domestic		23.4	13.6	59.6	19.9	116.6
Export	17.0	1.1	0.5	8.1		26.7
Import	7.3	0.8		8.3	0.6	17.0
<b>Grand Total</b>	<b>24.3</b>	<b>25.3</b>	<b>14.1</b>	<b>76.0</b>	<b>20.5</b>	<b>160.3</b>

Domestic Mode	Int'l Gateway	ND to ND	ND to Other State	Other Est. Through	Other State to ND	Grand Total
<b>Truck</b>	<b>24.3</b>	<b>25.3</b>	<b>14.1</b>	<b>76.0</b>	<b>20.5</b>	<b>160.3</b>
Pipeline	40.2	7.3	28.6		2.3	78.4
Rail	18.6	2.0	8.3	12.1	0.9	41.9
Multiple Modes	0.0	0.8	7.2		5.8	13.8
Unknown	0.0	0.8	0.2			1.0
Air	0.1	0.0	0.2		0.5	0.8
<b>Grand Total</b>	<b>83.1</b>	<b>36.2</b>	<b>58.7</b>	<b>88.1</b>	<b>30.1</b>	<b>296.2</b>

Commodity Group (SCTG2)	Int'l Gateway	ND to ND	ND to Other State	Other Est. Through	Other State to ND	Grand Total
Machinery	6.4	2.0	2.8	9.1	2.6	22.9
Motorized and Other Vehicles (in..)	3.9	1.1	1.0	6.6	2.0	14.6
Electronic and Other Electrical E..	1.3	0.7	0.5	6.7	1.3	10.6
Agricultural Products (ex Feed, G..)	0.5	4.8	1.1	3.0	0.7	10.0
Other Prepared Foodstuffs, Fats ..	0.5	0.4	1.0	7.0	0.8	9.8

Domestic Origin State	Value
ND	46.7
WA	18.2
IL	11.0
MN	10.3
OR	9.0

Domestic Destination State	Value
ND	62.9
WA	23.1
OR	12.9
MN	9.0
IL	8.8



### Commodities by Trade and Domestic Mode

Commodity Group (SCTG2)	Domestic	Export	Import	Grand Total
Machinery	12.9	7.1	2.9	22.9
Motorized and Other Vehicles (in..)	8.1	4.9	1.6	14.6
Electronic and Other Electrical E..	7.3	2.1	1.2	10.6
Agricultural Products (ex Feed, G..)	8.7	0.8	0.5	10.0
Other Prepared Foodstuffs, Fats ..	8.6	0.7	0.5	9.8

Commodity Group (SCTG2)	Truck	Grand Total
Machinery	22.9	22.9
Motorized and Other Vehicles (in..)	14.6	14.6
Electronic and Other Electrical E..	10.6	10.6
Agricultural Products (ex Feed, G..)	10.0	10.0
Other Prepared Foodstuffs, Fats ..	9.8	9.8

### Trading Partners and International Modes

Foreign Origin for Imports	Truck	Water	Air	Grand Total
Canada	11.95	0.00	0.00	11.96
Eastern Asia		2.85	1.12	3.96
SE Asia and Oceania		0.23	0.20	0.43
Europe		0.18	0.11	0.29
Mexico	0.11	0.16	0.01	0.27
South, Central, Western A..		0.04	0.02	0.05

Foreign Destination for Exports	Truck	Water	Air	Grand Total
Canada	24.15	0.00	0.32	24.47
Eastern Asia		1.55	0.01	1.56
SE Asia and Oceania		0.36	0.00	0.37
Europe		0.07	0.06	0.13
South, Central, Western A..		0.03	0.04	0.07
Mexico	0.05	0.00	0.00	0.06

Figure C-15: Rail Tons (M) (2017)

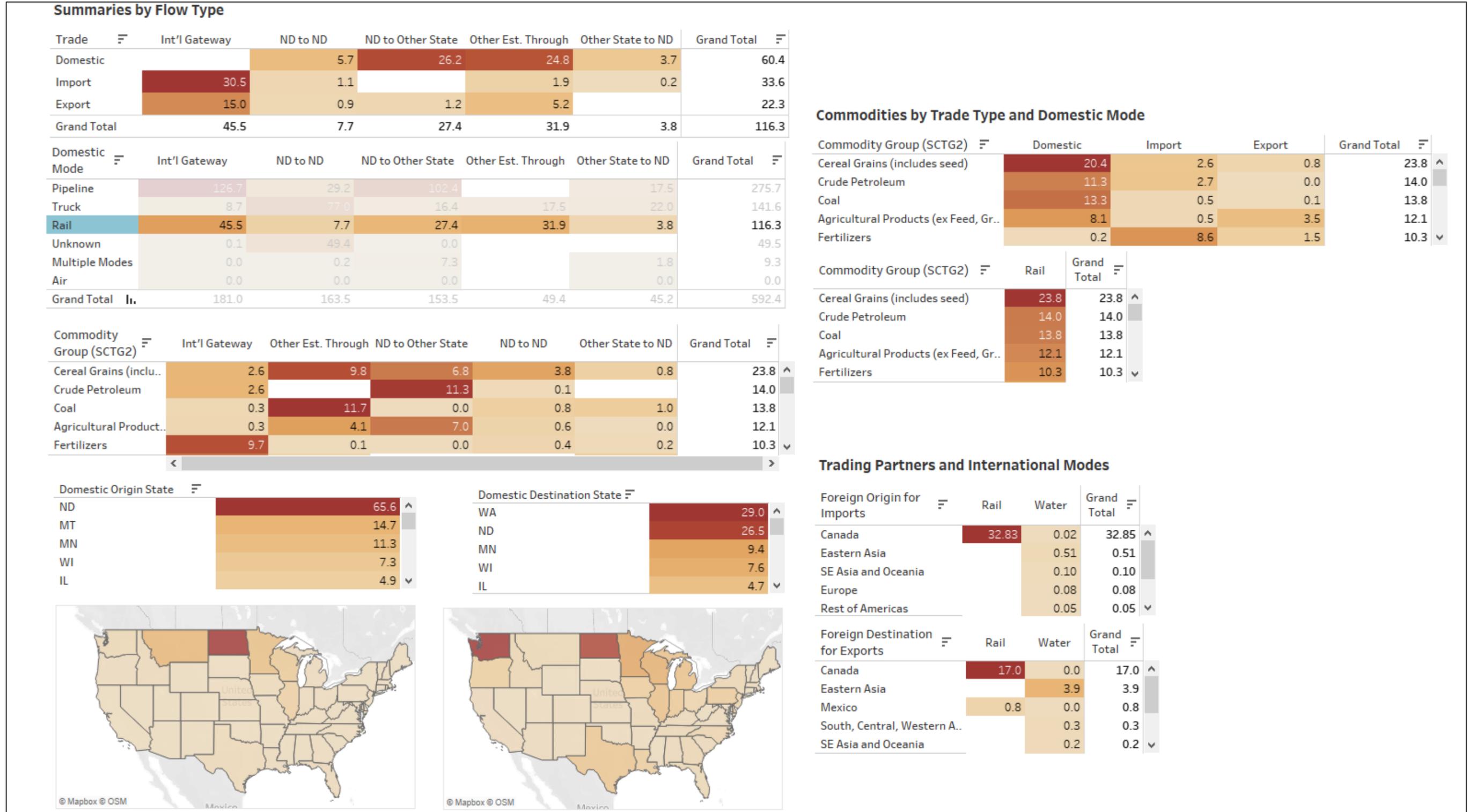


Figure C-16: Rail Value (\$B) (2017)

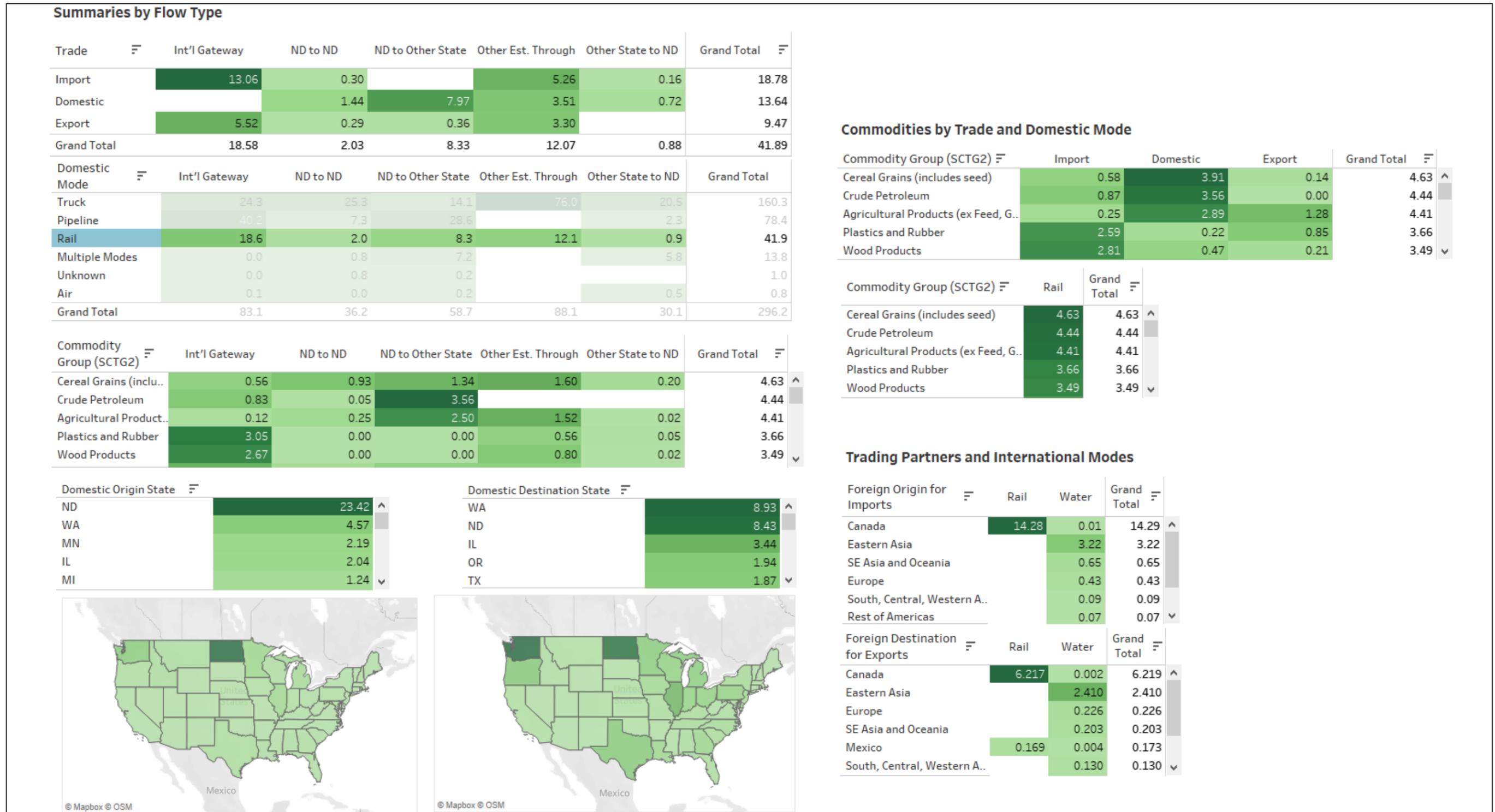


Figure C-17: Crude Petroleum Tons (M) (2017)

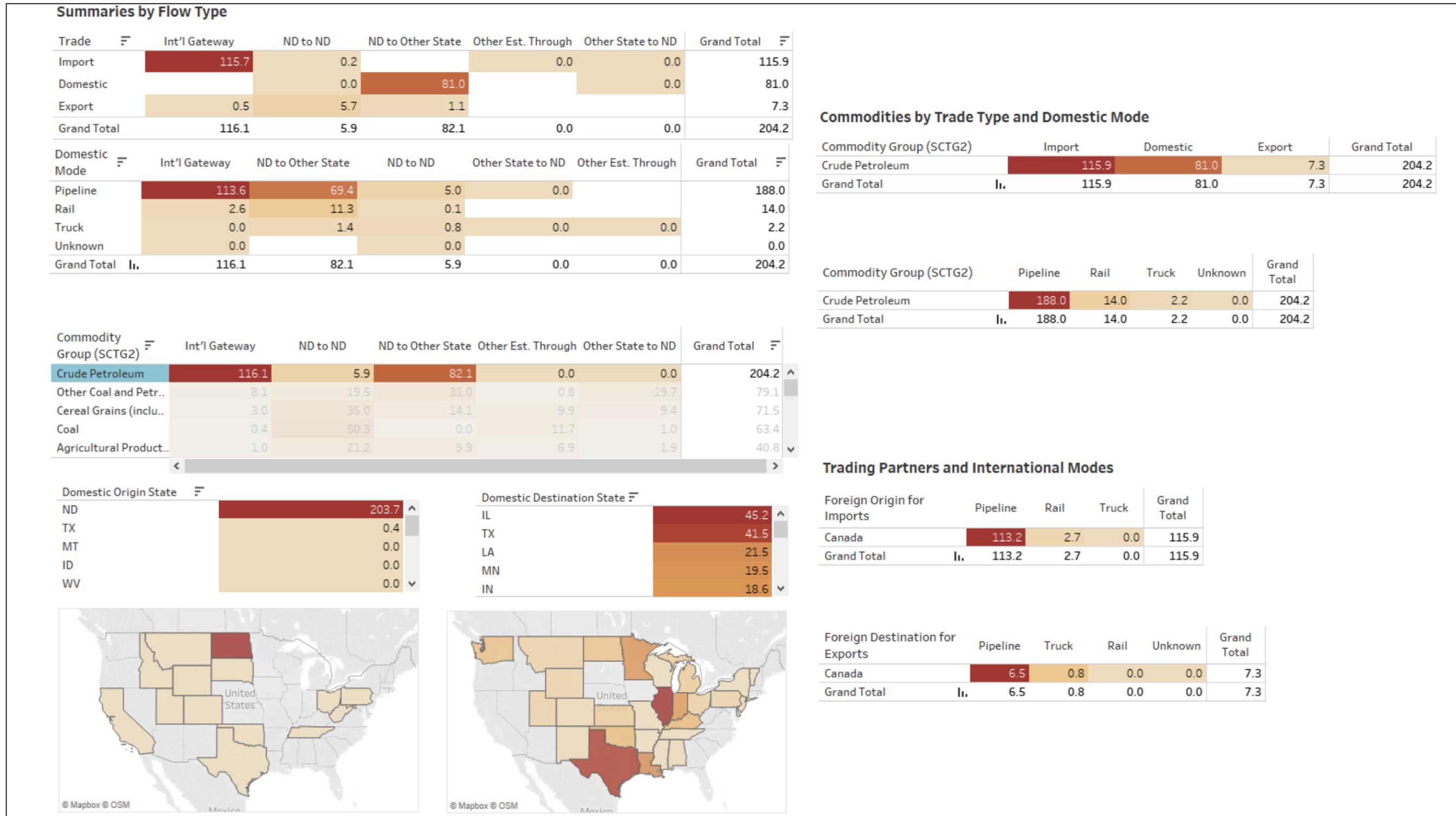


Figure C-18: Other Coal and Petroleum Products Tons (M) (2017)

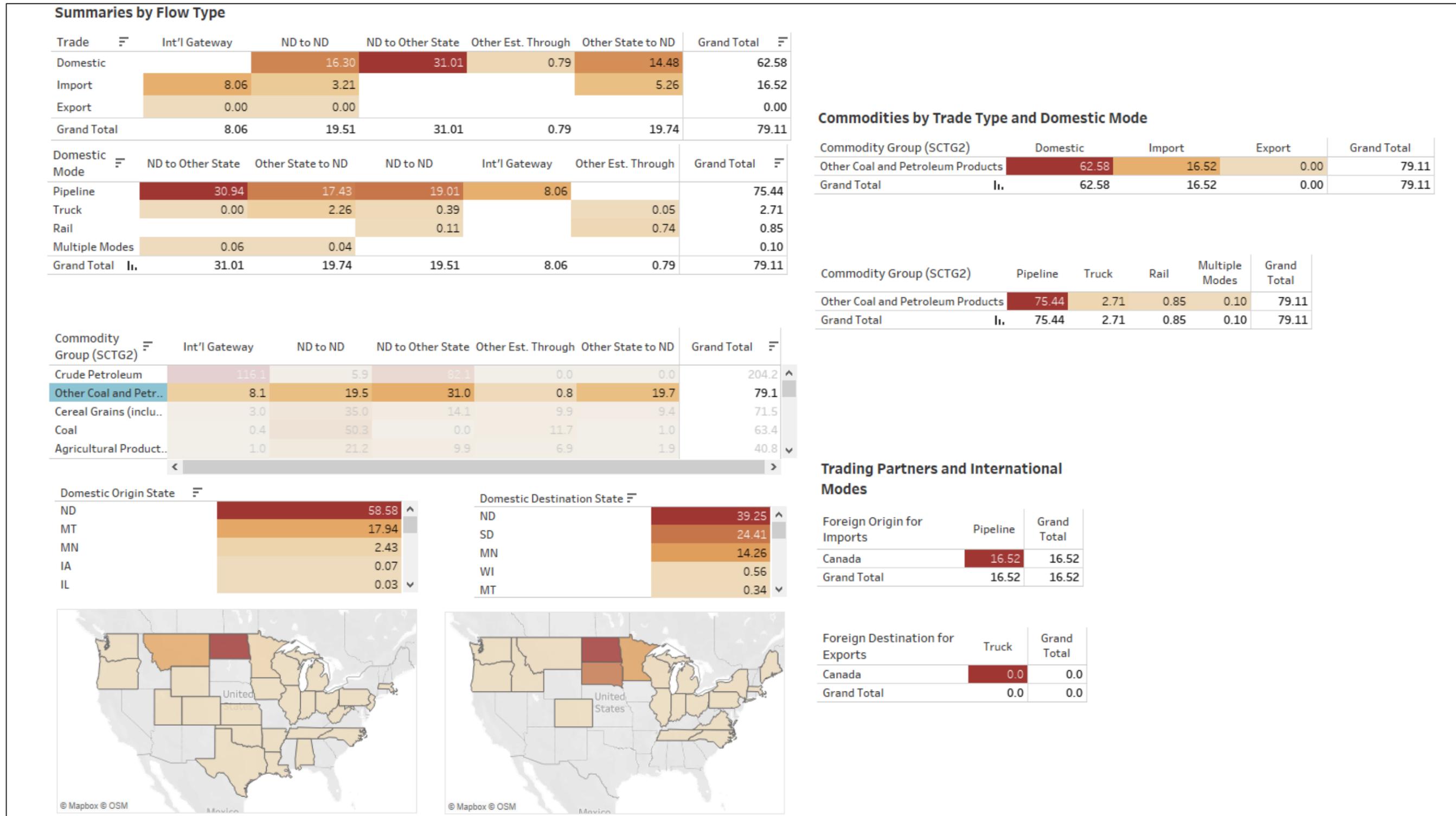


Figure C-19: Cereal Grains (Includes Seed) Tons (M) (2017)

**Summaries by Flow Type**

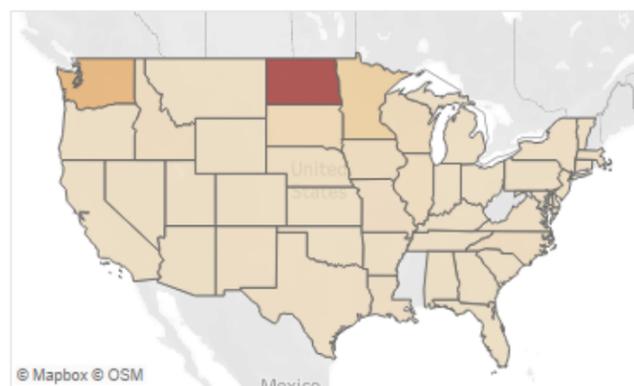
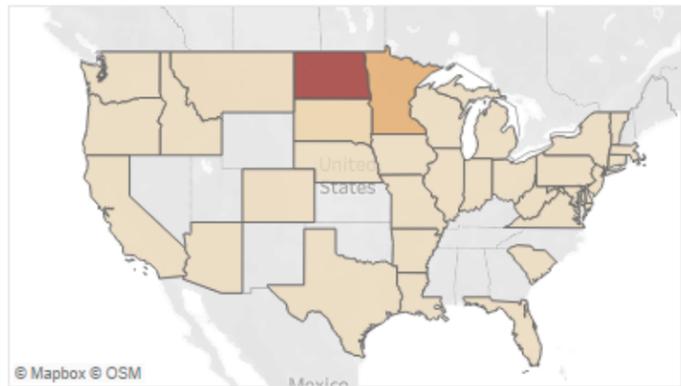
Trade	Int'l Gateway	ND to ND	ND to Other State	Other Est. Through	Other State to ND	Grand Total
Domestic		34.23	13.53	9.37	9.39	66.51
Import	2.82	0.36		0.02	0.01	3.21
Export	0.22	0.41	0.61	0.53		1.76
<b>Grand Total</b>	<b>3.05</b>	<b>34.99</b>	<b>14.14</b>	<b>9.91</b>	<b>9.39</b>	<b>71.48</b>

Domestic Mode	ND to ND	ND to Other State	Other Est. Through	Other State to ND	Int'l Gateway	Grand Total
Truck	31.07	5.29	0.09	8.51	0.46	45.41
Rail	3.80	6.81	9.82	0.80	2.59	23.82
Multiple Modes	0.12	2.05		0.08		2.25
Unknown					0.00	0.00
<b>Grand Total</b>	<b>34.99</b>	<b>14.14</b>	<b>9.91</b>	<b>9.39</b>	<b>3.05</b>	<b>71.48</b>

Commodity Group (SCTG2)	Int'l Gateway	ND to ND	ND to Other State	Other Est. Through	Other State to ND	Grand Total
Crude Petroleum	116.1	5.9	82.1	0.0	0.0	204.2
Other Coal and Petr..	8.1	19.5	31.0	0.8	19.7	79.1
<b>Cereal Grains (inclu..</b>	<b>3.0</b>	<b>35.0</b>	<b>14.1</b>	<b>9.9</b>	<b>9.4</b>	<b>71.5</b>
Coal	0.4	50.3	0.0	11.7	1.0	63.4
Agricultural Product..	1.0	21.2	9.9	6.9	1.9	40.8

Domestic Origin State	Value
ND	51.96
MN	14.86
SD	2.85
MT	0.83
NJ	0.28

Domestic Destination State	Value
ND	44.61
WA	12.25
MN	4.64
SD	2.21
WI	1.62



**Commodities by Trade Type and Domestic Mode**

Commodity Group (SCTG2)	Domestic	Import	Export	Grand Total
Cereal Grains (includes seed)	66.51	3.21	1.76	71.48
<b>Grand Total</b>	<b>66.51</b>	<b>3.21</b>	<b>1.76</b>	<b>71.48</b>

Commodity Group (SCTG2)	Truck	Rail	Multiple Modes	Unknown	Grand Total
Cereal Grains (includes seed)	45.41	23.82	2.25	0.00	71.48
<b>Grand Total</b>	<b>45.41</b>	<b>23.82</b>	<b>2.25</b>	<b>0.00</b>	<b>71.48</b>

**Trading Partners and International Modes**

Foreign Origin for Imports	Rail	Truck	Water	Multiple Modes	Air	Grand Total
Canada	2.609	0.593		0.000		3.201
Rest of Americas			0.007			0.007
South, Central, Western A..			0.000			0.000
SE Asia and Oceania			0.000		0.000	0.000
Eastern Asia			0.000			0.000

Foreign Destination for Exports	Water	Truck	Rail	Multiple Modes	Unknown	Air	Grand Total
Canada		0.6	0.1	0.0	0.0	0.0	0.8
South, Central, Western A..	0.2					0.0	0.2
Rest of Americas	0.2					0.0	0.2
Eastern Asia	0.2						0.2
Africa	0.2						0.2

Figure C-20: Coal Tons (M) (2017)

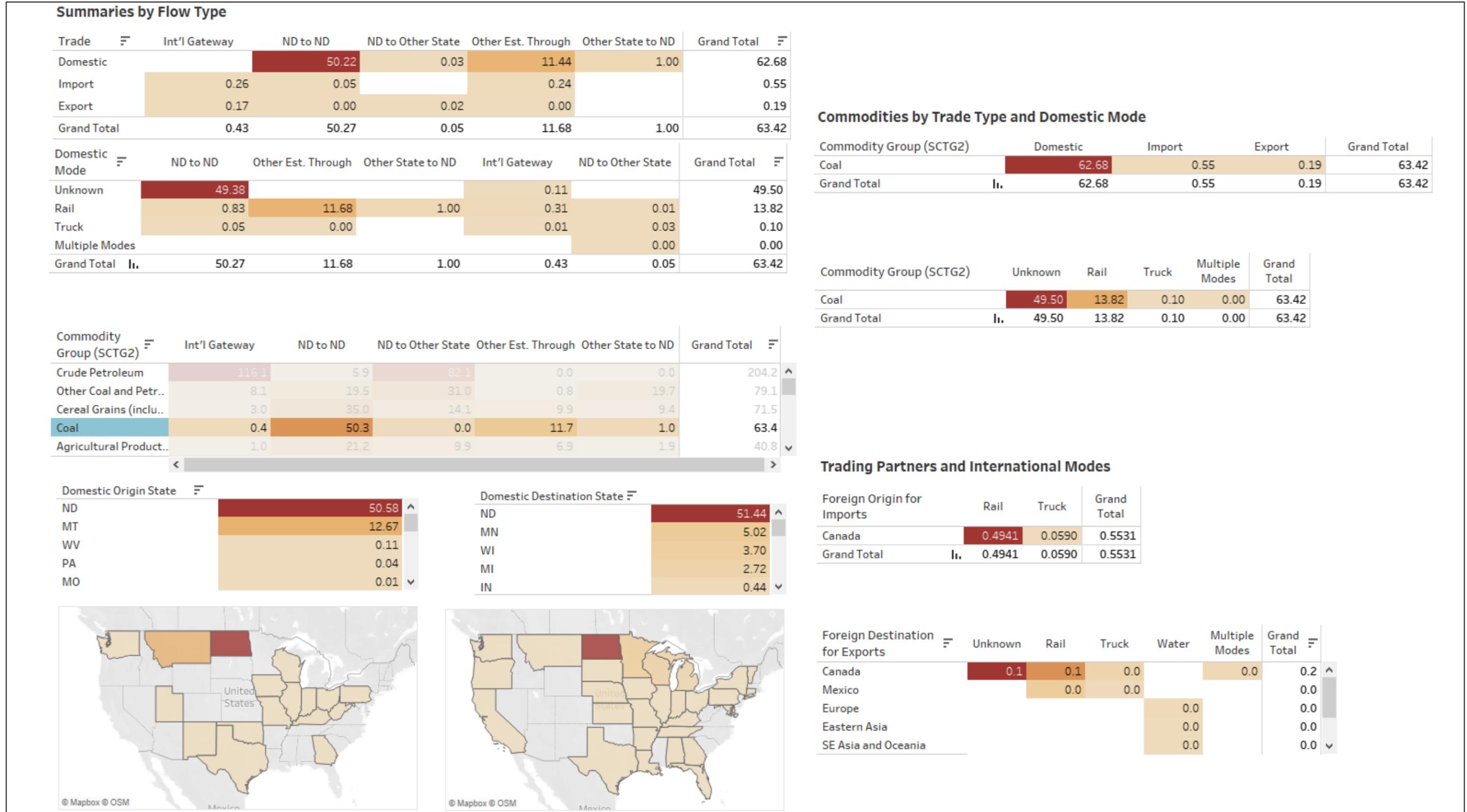


Figure C-21: Agricultural Products (except Feed, Grains, Forage) Tons (M) (2017)

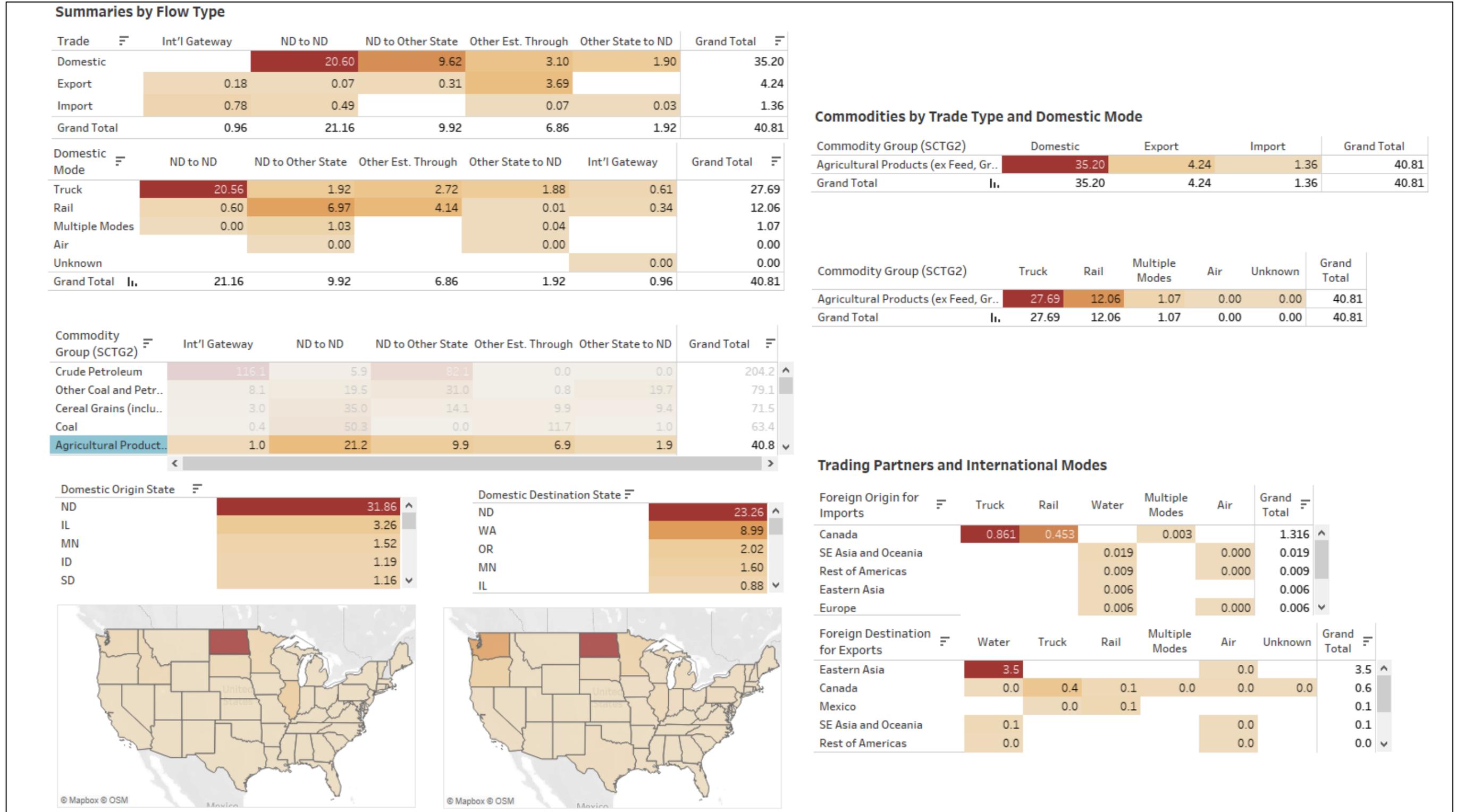


Figure C-22: Machinery Value (\$B) (2017)

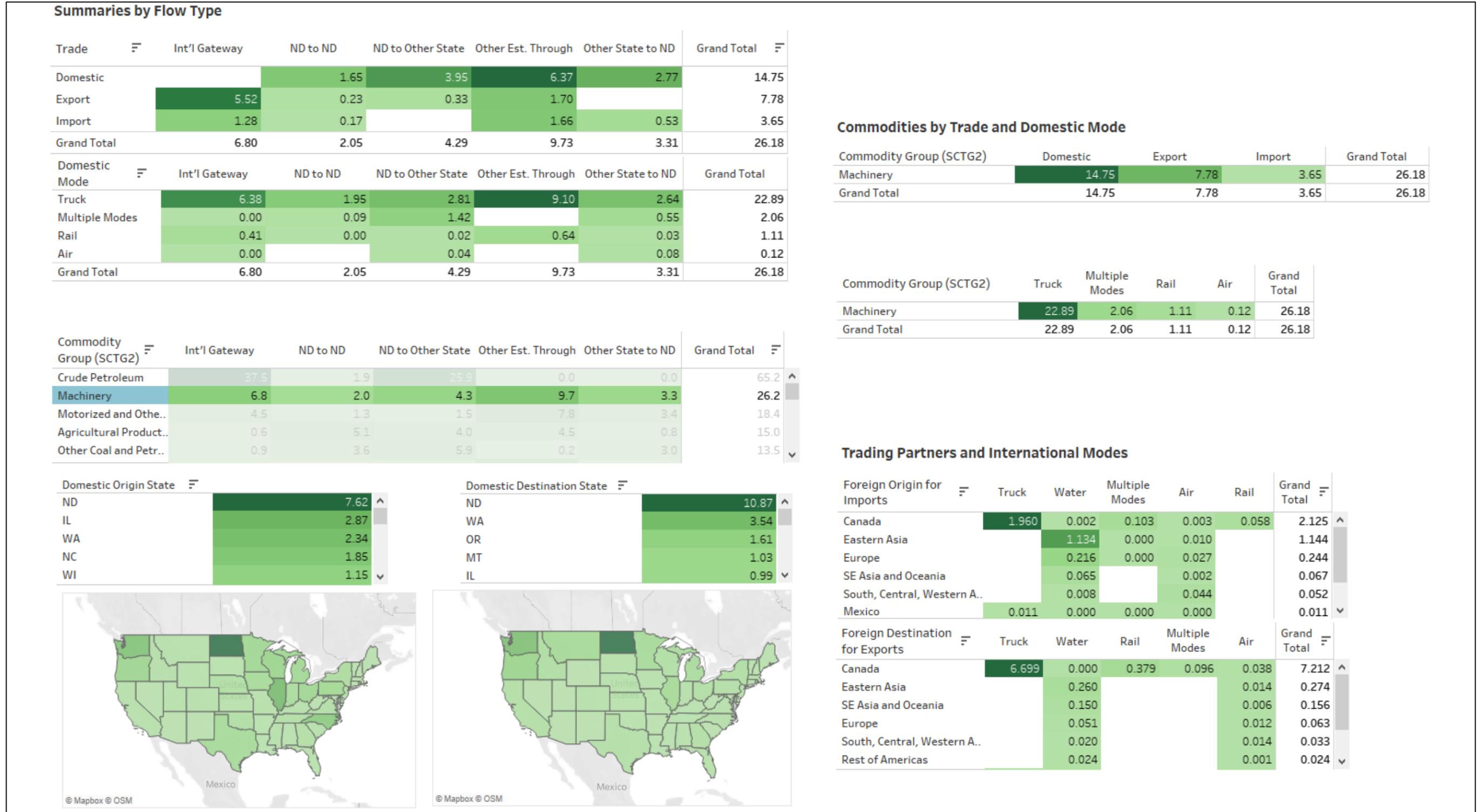


Figure C-23: Motorized and Other Vehicles (Includes Parts) Value (\$B) (2017)

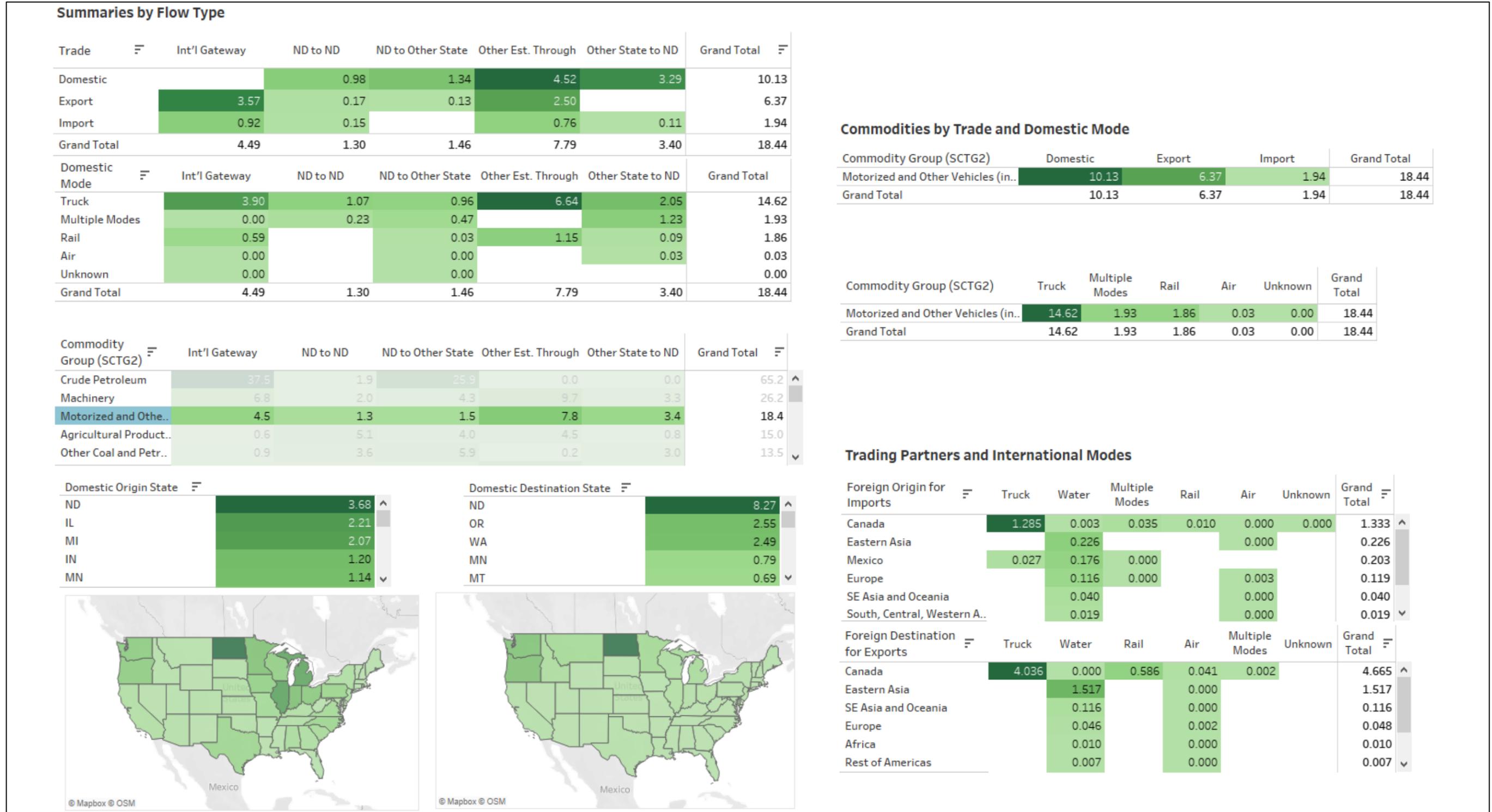


Figure C-24: Forecast Total Tons (M) (2030)

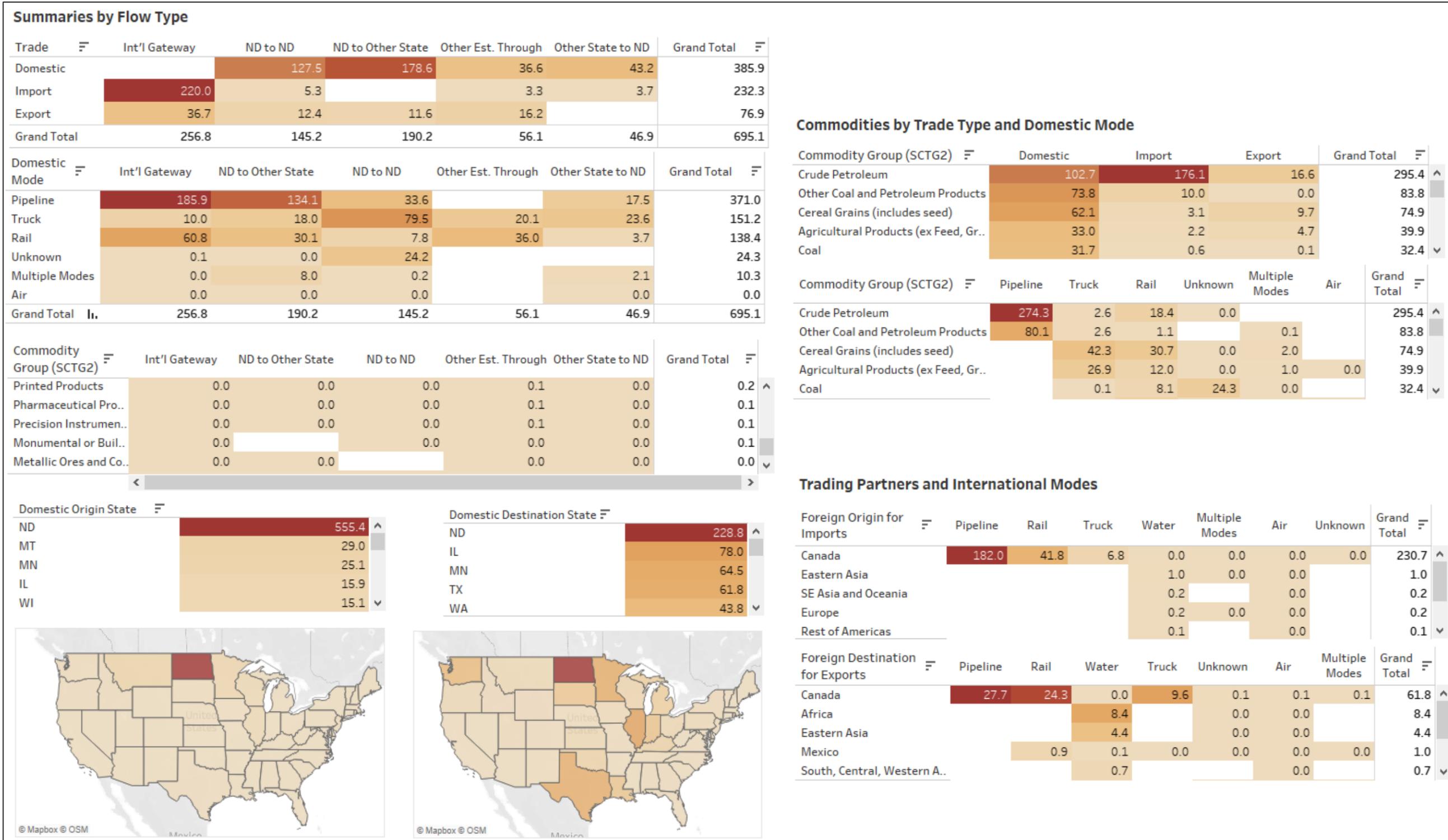


Figure C-25: Forecast Total Value (\$B) (2030)

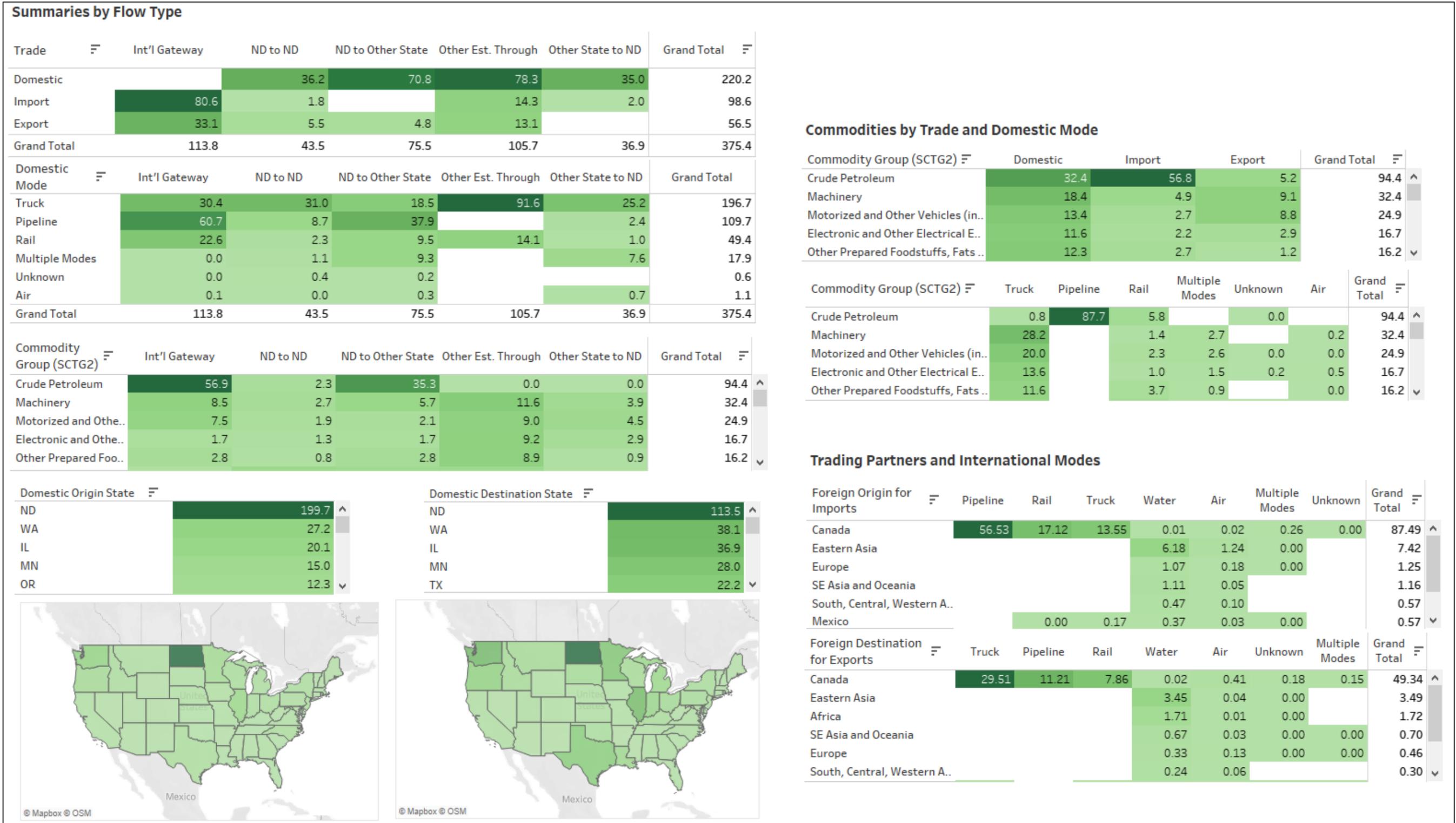


Figure C-26: Forecast Total Tons (M) (2045)

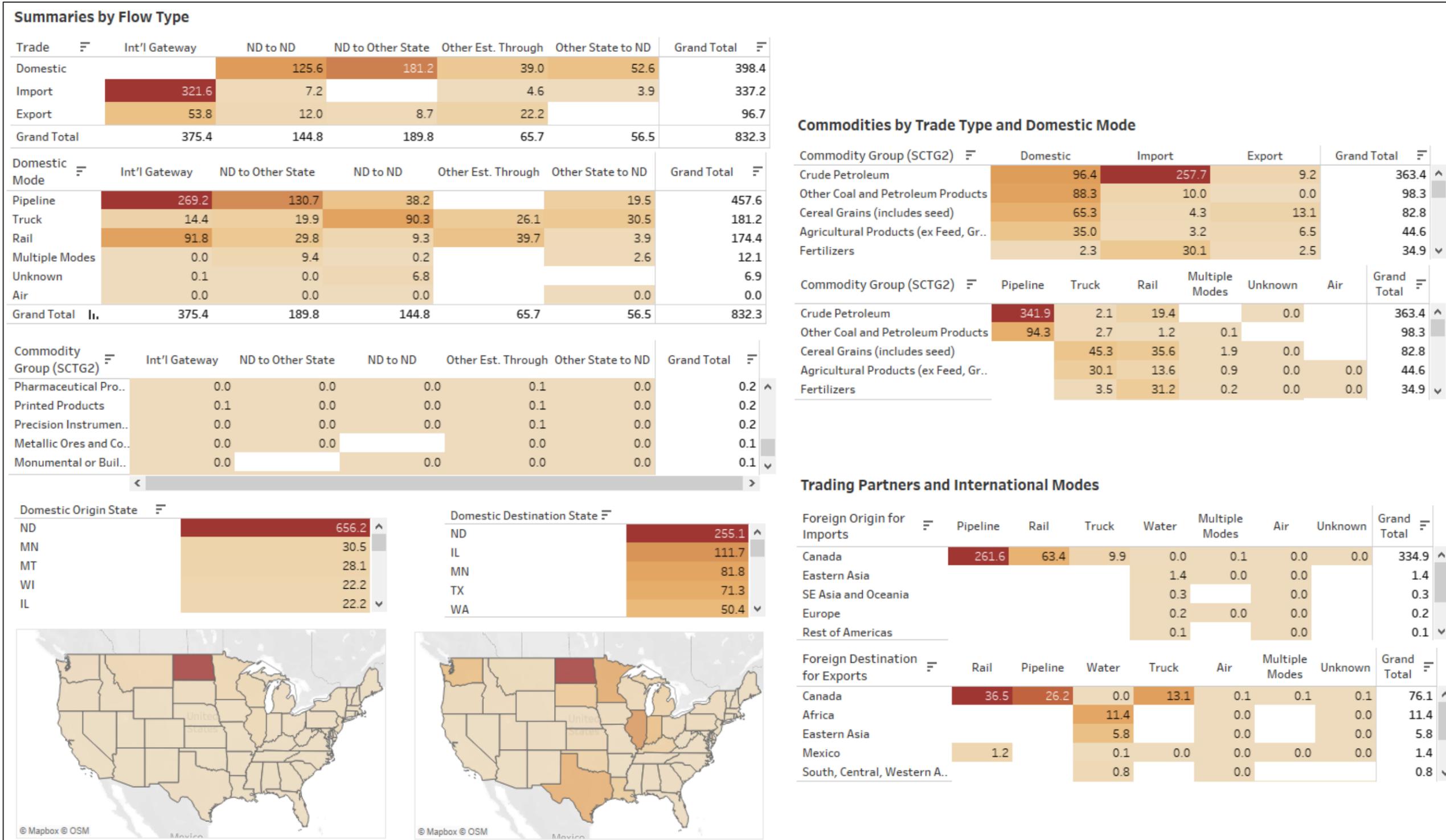


Figure C-27: Forecast Total Value (\$B) (2045)

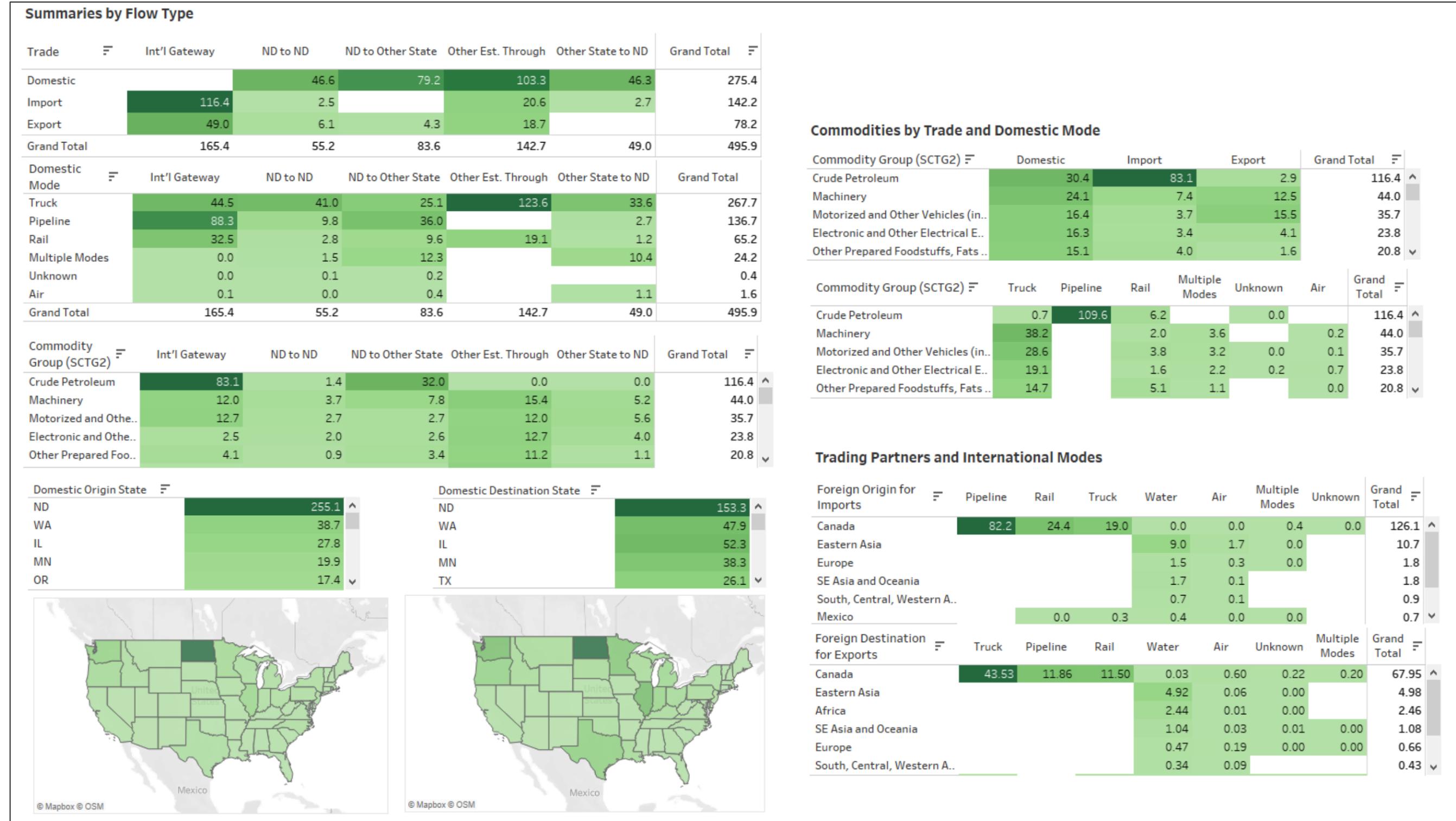


Figure C-28: Transearch Rail O-D Tonnage All Commodities (2019)

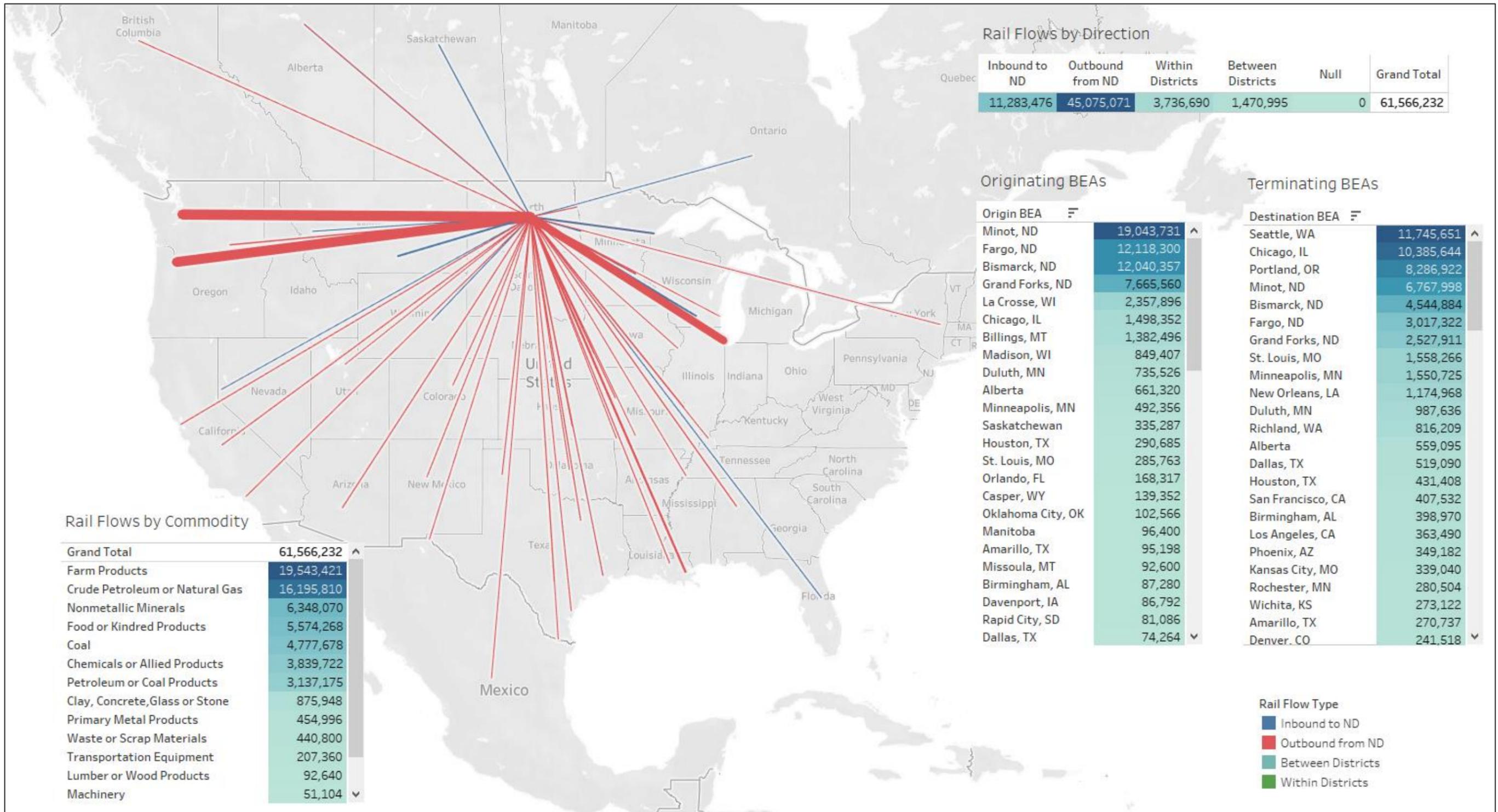


Figure C-29: Transearch Rail O-D Tonnage, All Commodities, Inbound Only (2019)

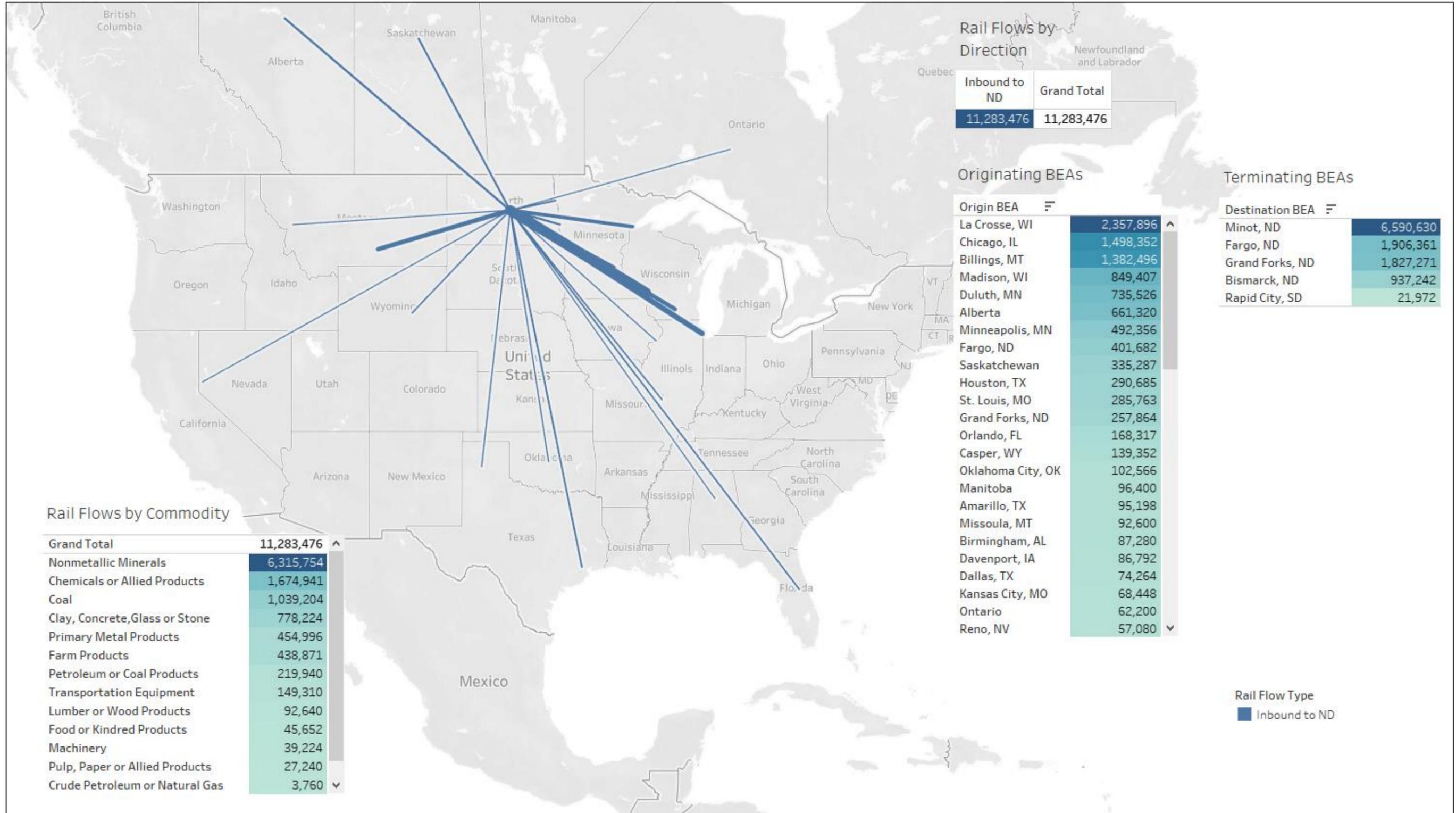


Figure C-30: Transearch Rail O-D Tonnage, All Commodities, Outbound Only (2019)

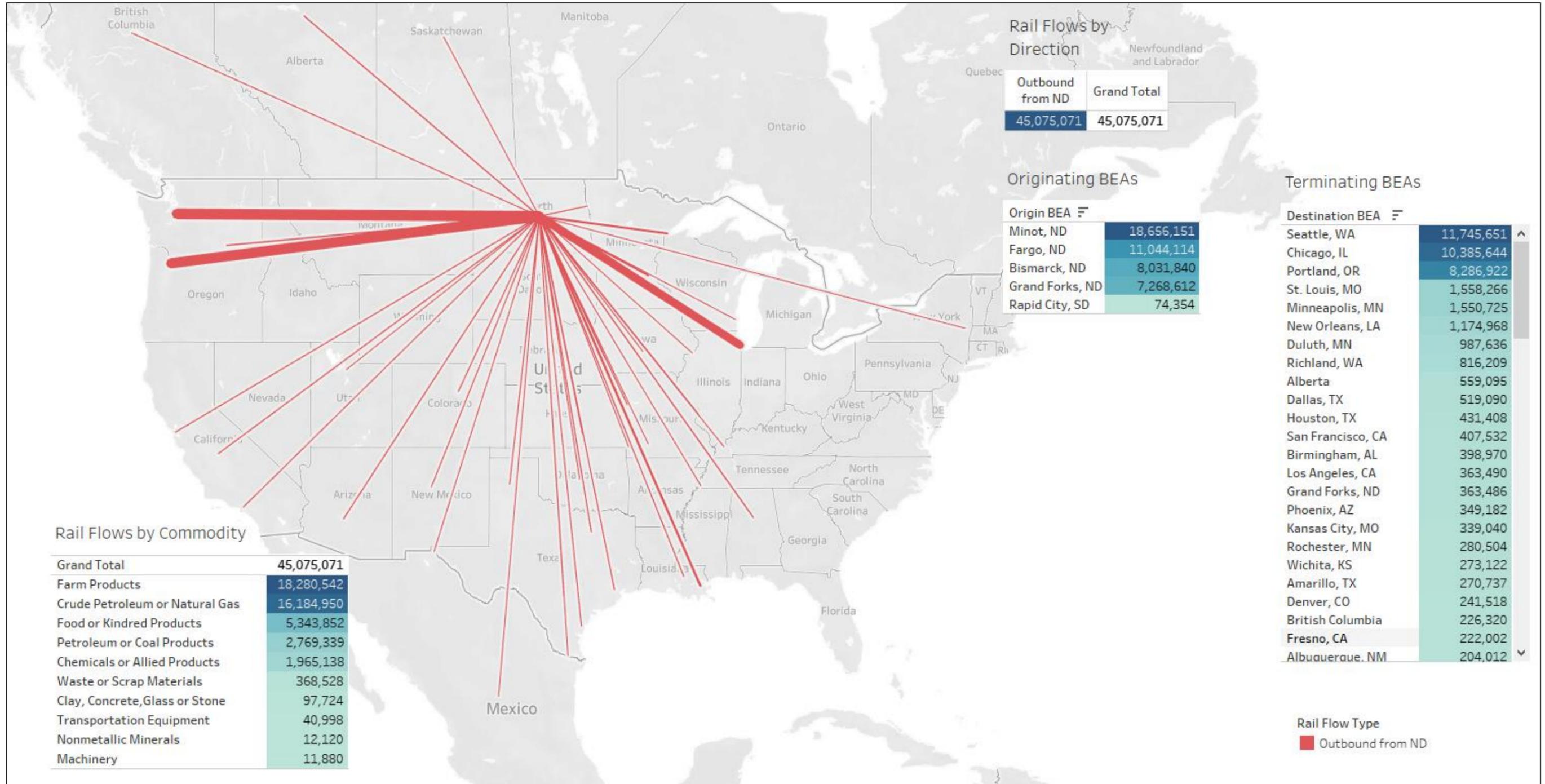


Figure C-31: Transearch Rail O-D Tonnage, All Commodities, Between NDDOT Districts (2019)

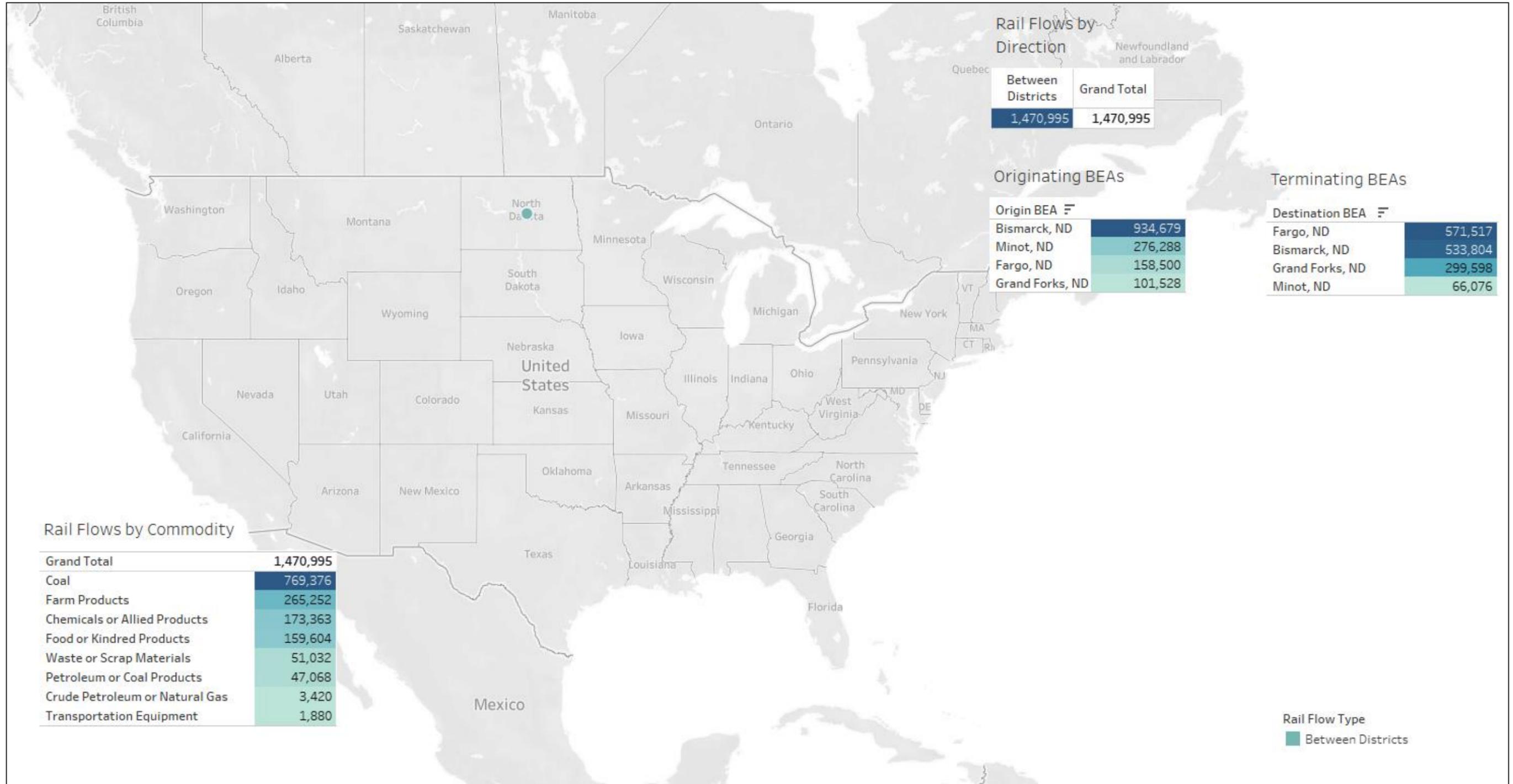


Figure C-32: Transearch Rail O-D Tonnage, All Commodities, Within NDDOT Districts (2019)

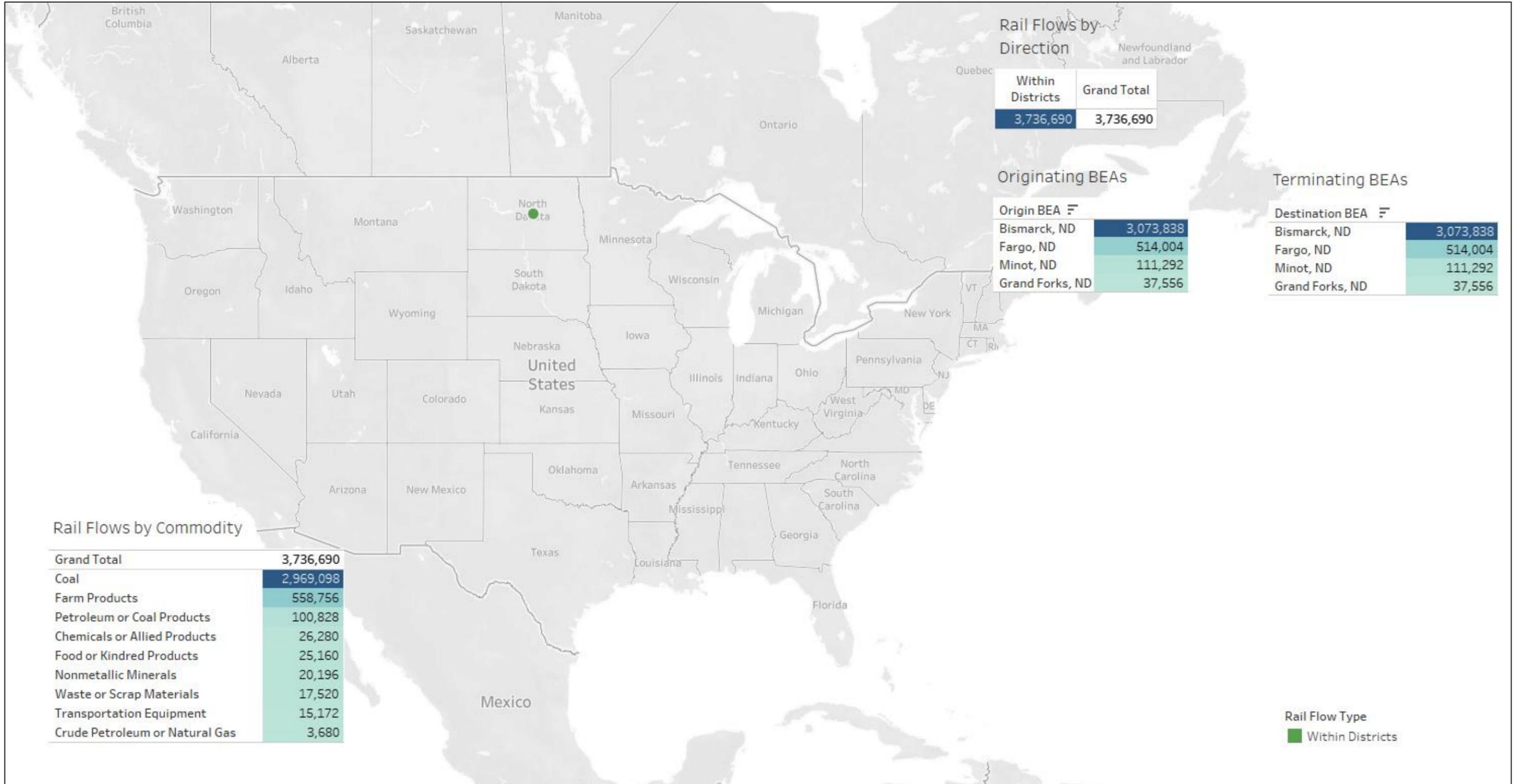


Figure C-33: Transearch Rail O-D Tonnage, Farm Products (2019)

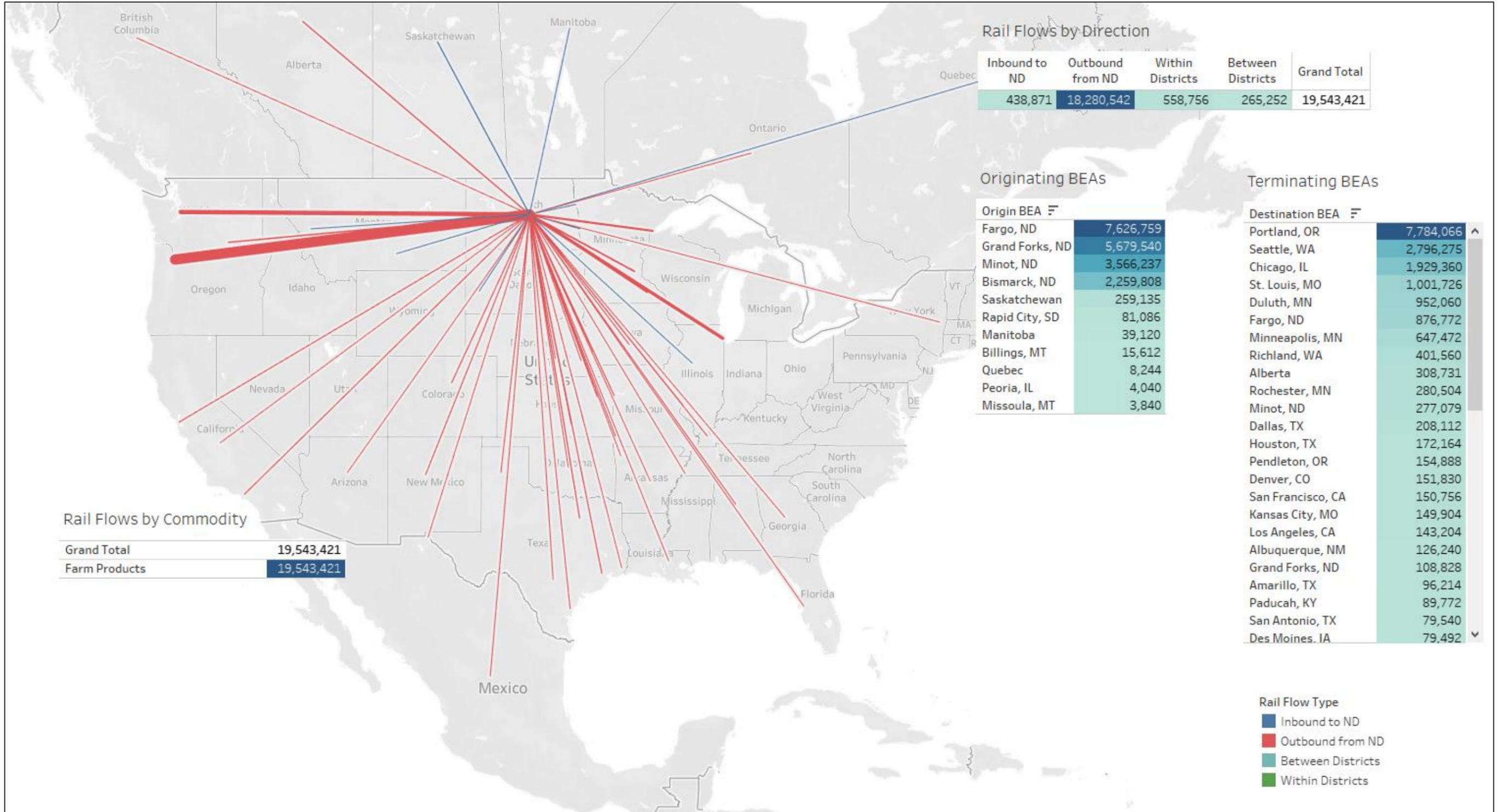


Figure C-34: Transearch Rail O-D Tonnage, Crude Petroleum or Natural Gas (2019)

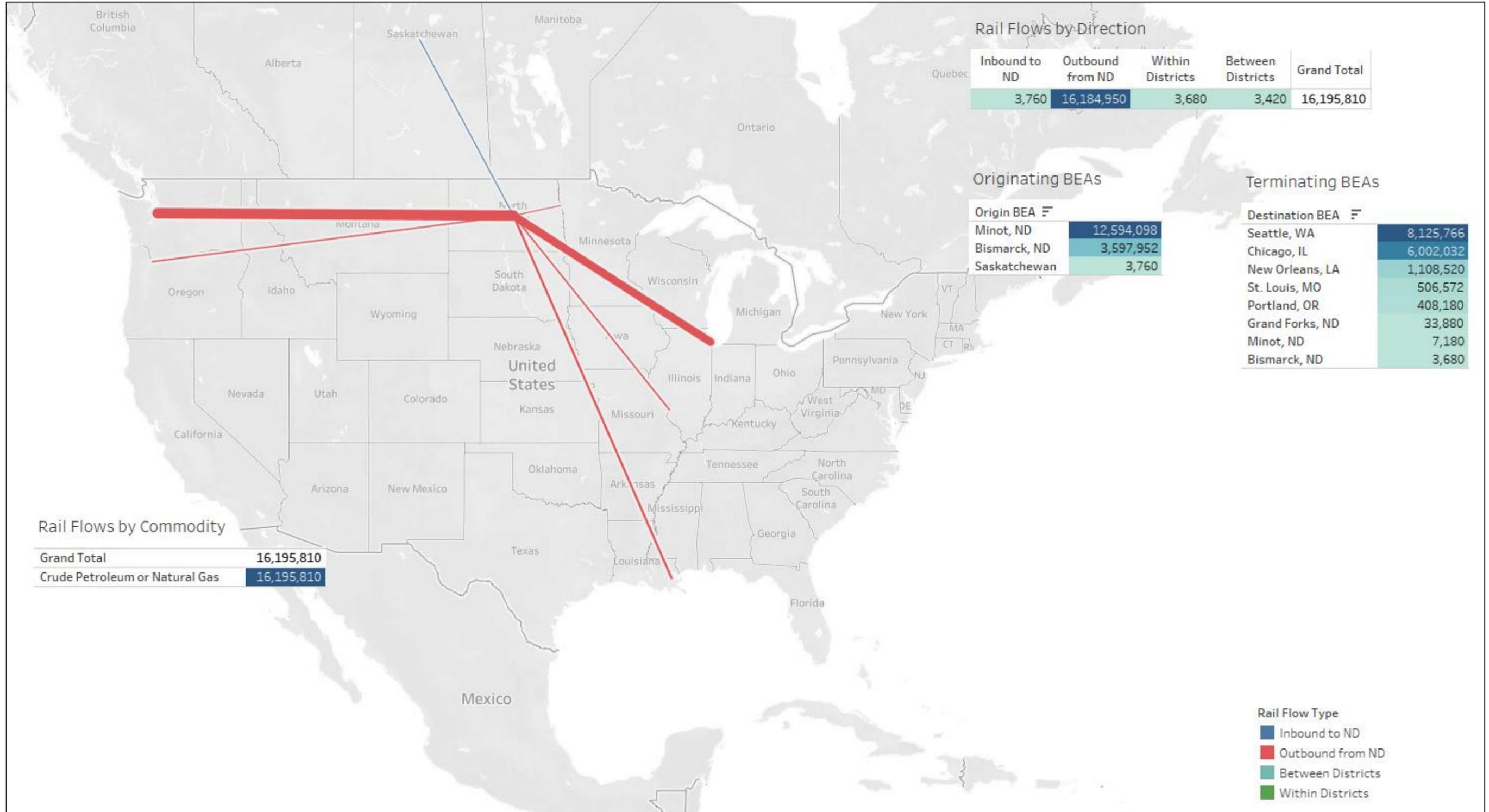


Figure C-35: Transearch Rail O-D Tonnage, Nonmetallic Minerals (2019)

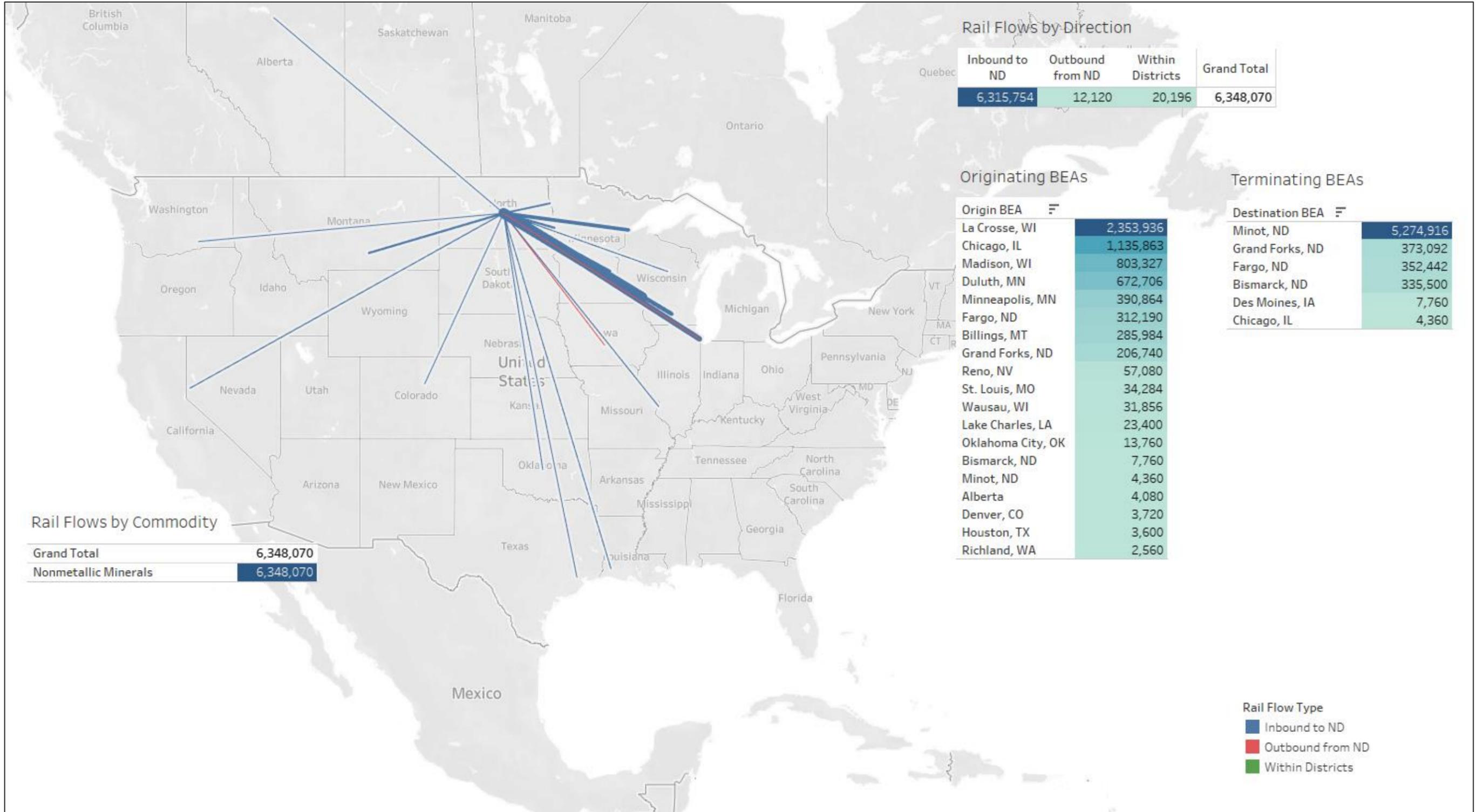


Figure C-36: Transearch Rail O-D Tonnage, Food or Kindred Products (2019)

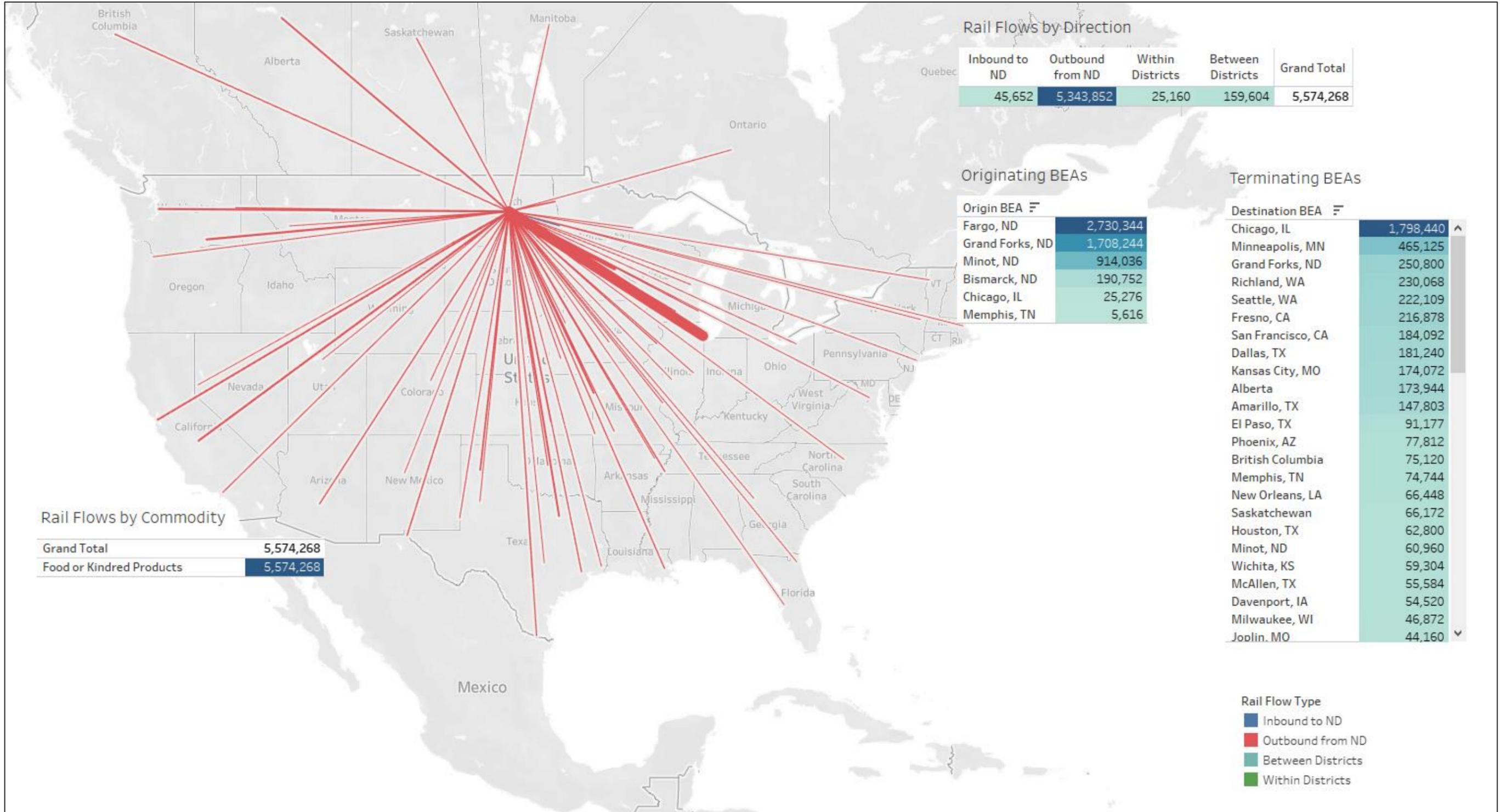


Figure C-37: Transearch Rail O-D Tonnage, Coal (2019)

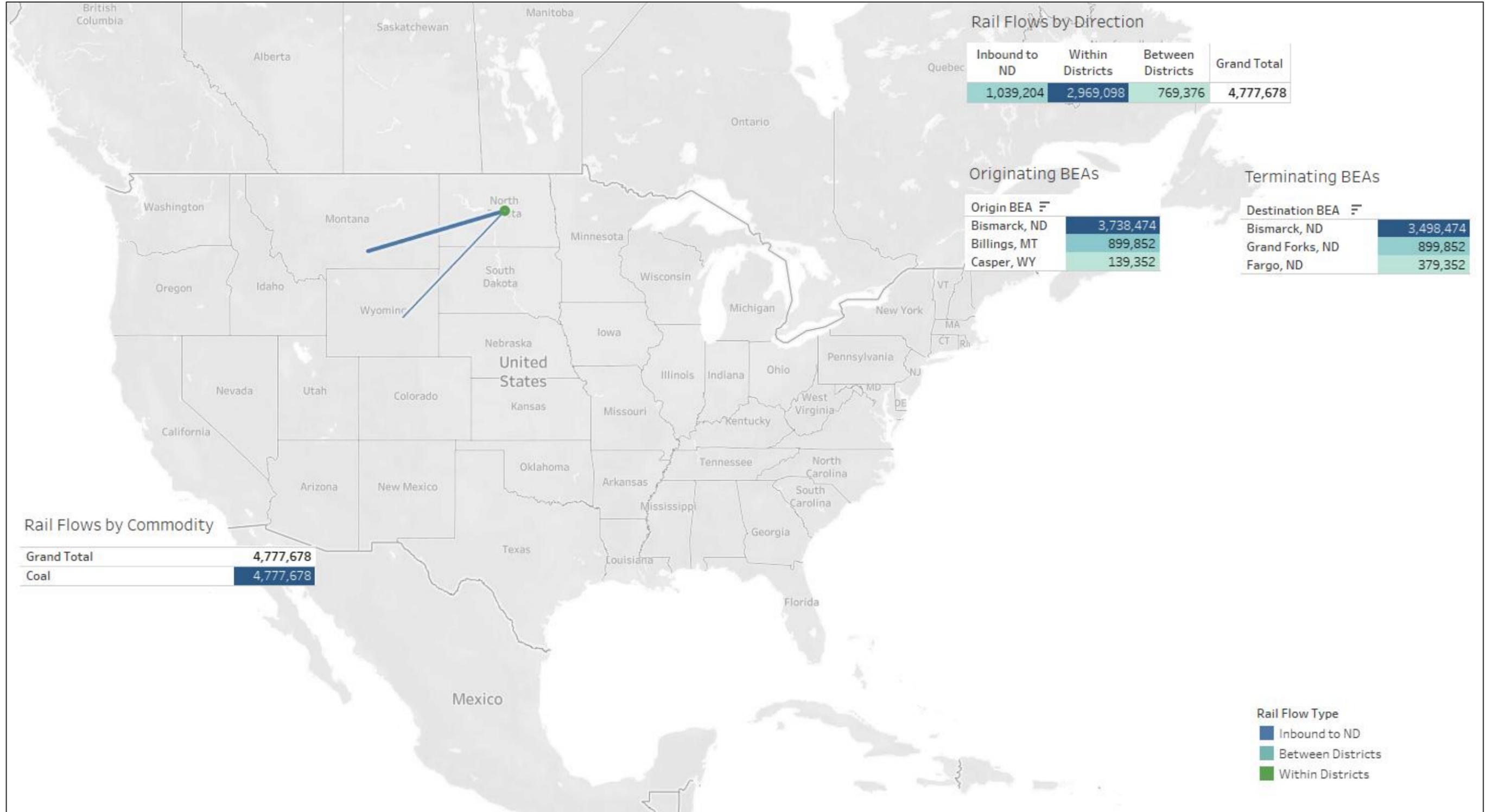


Figure C-38: Transearch Rail O-D Tonnage, Chemicals or Allied Products (2019)

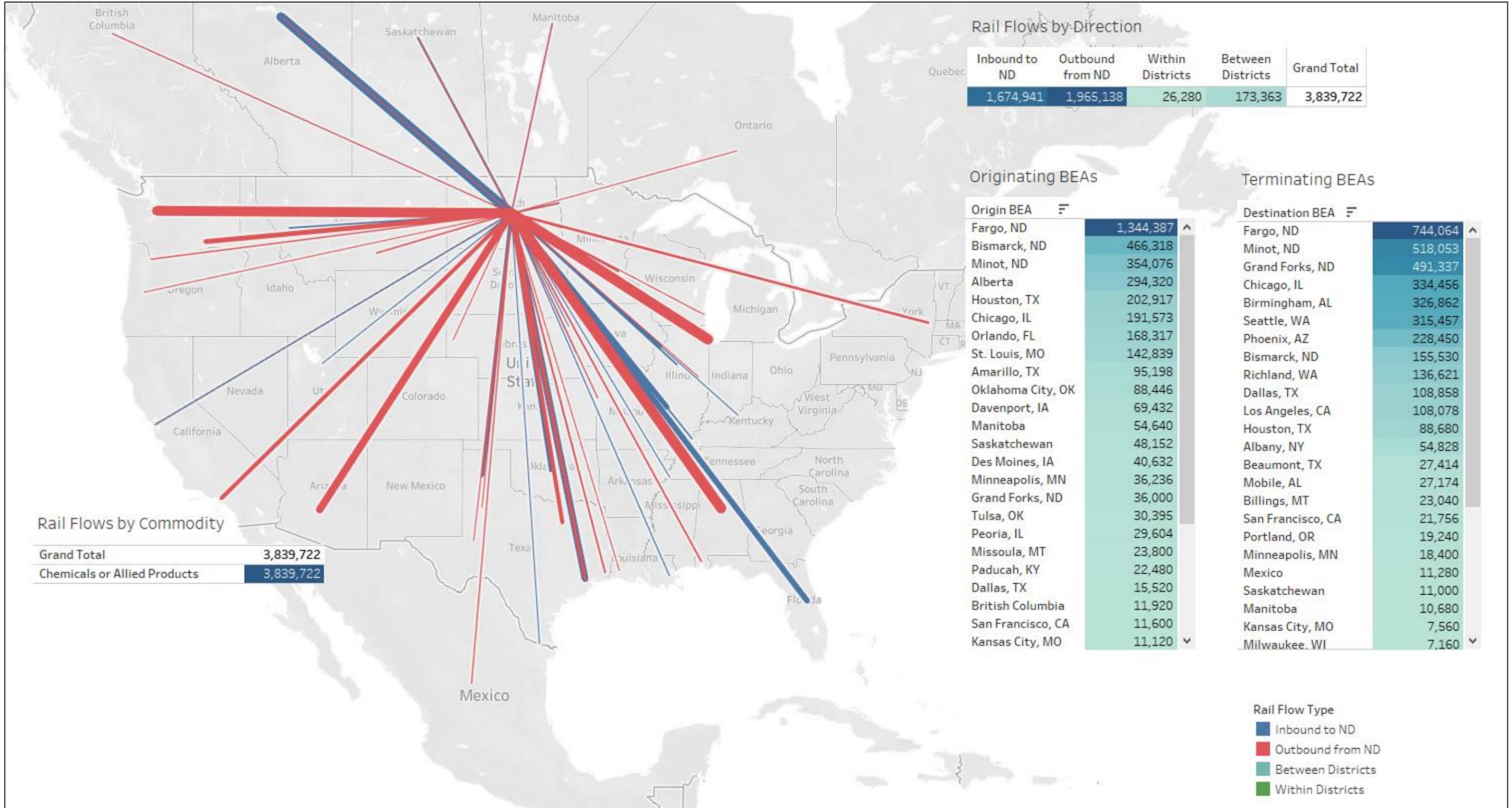


Figure C-39: Transearch Rail O-D Tonnage, Petroleum or Coal Products (2019)

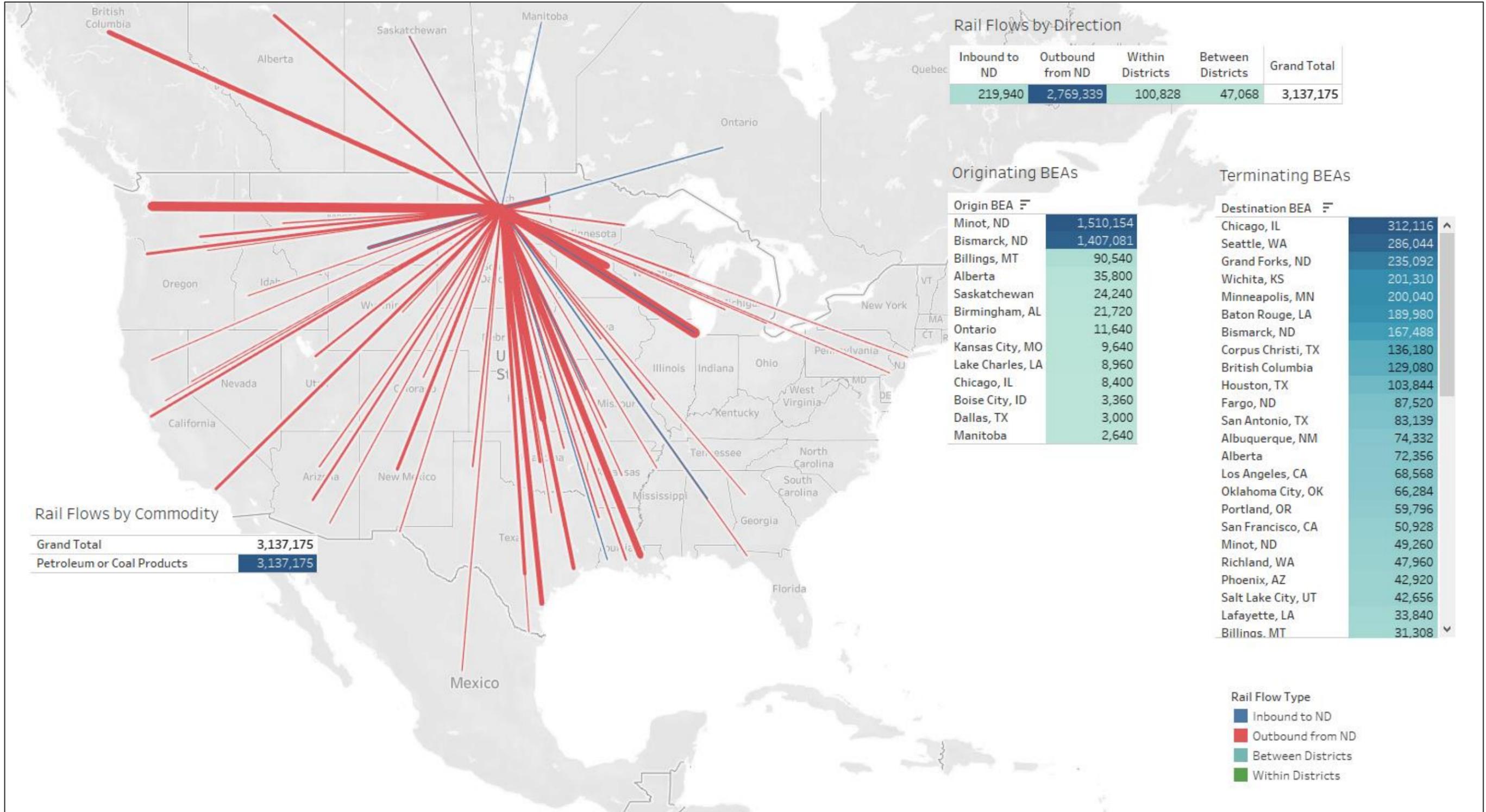


Figure C-40: Transearch Rail OD Value, Primary Metal Products (2019)

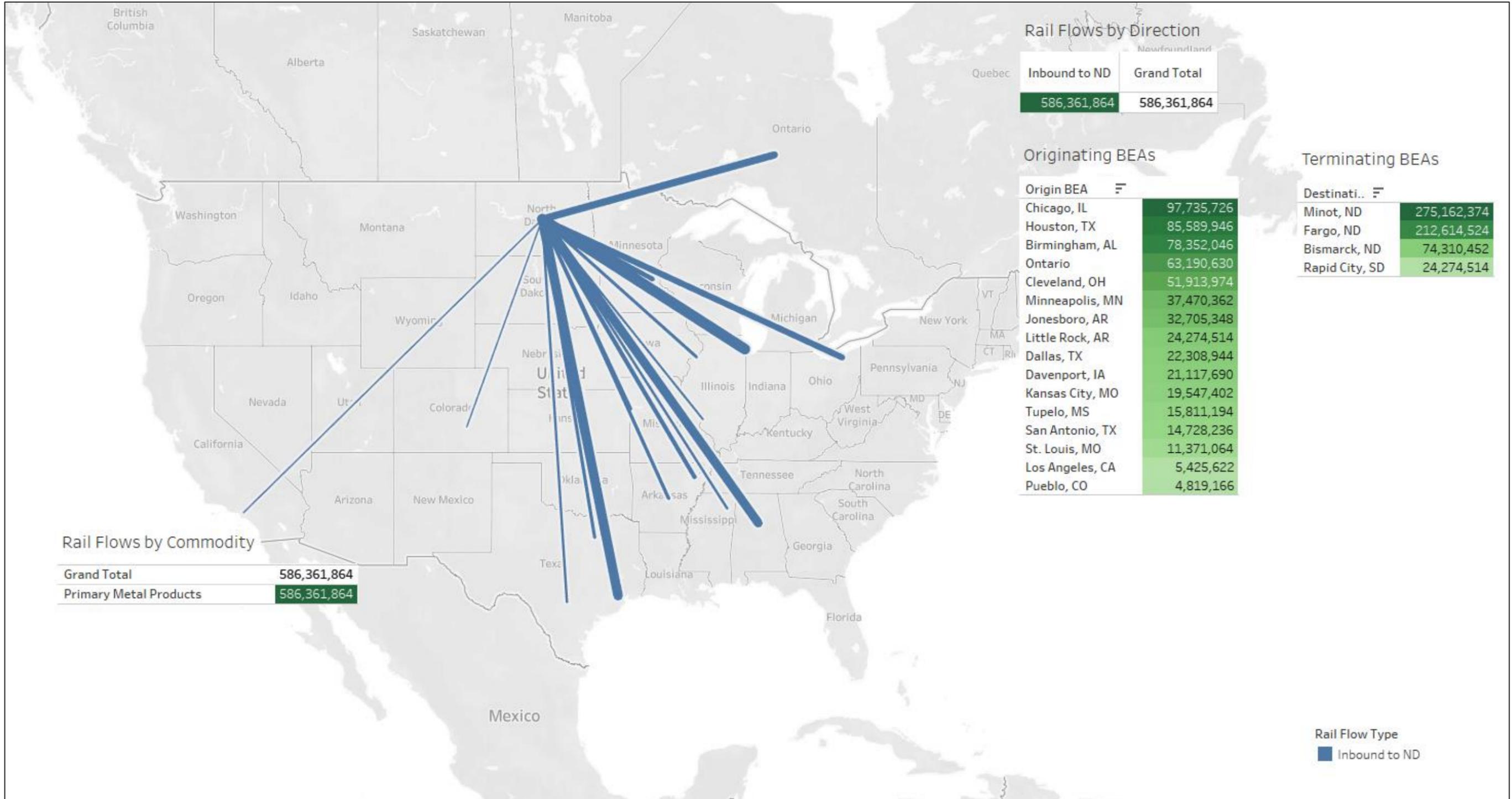


Figure C-41: Transearch Rail O-D Value, Machinery (2019)

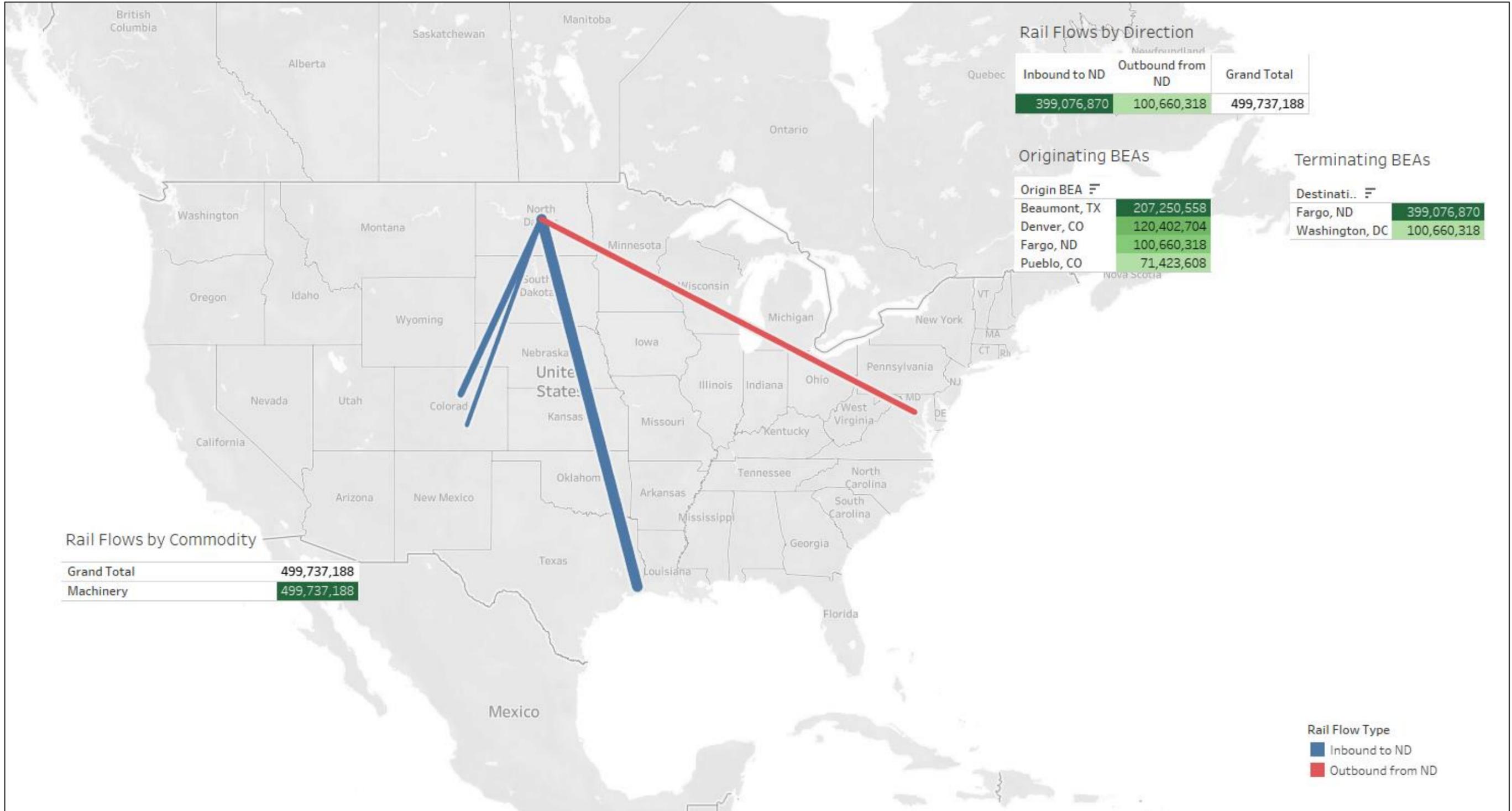


Figure C-42: Transearch Rail O-D Value, Transportation Equipment (2019)

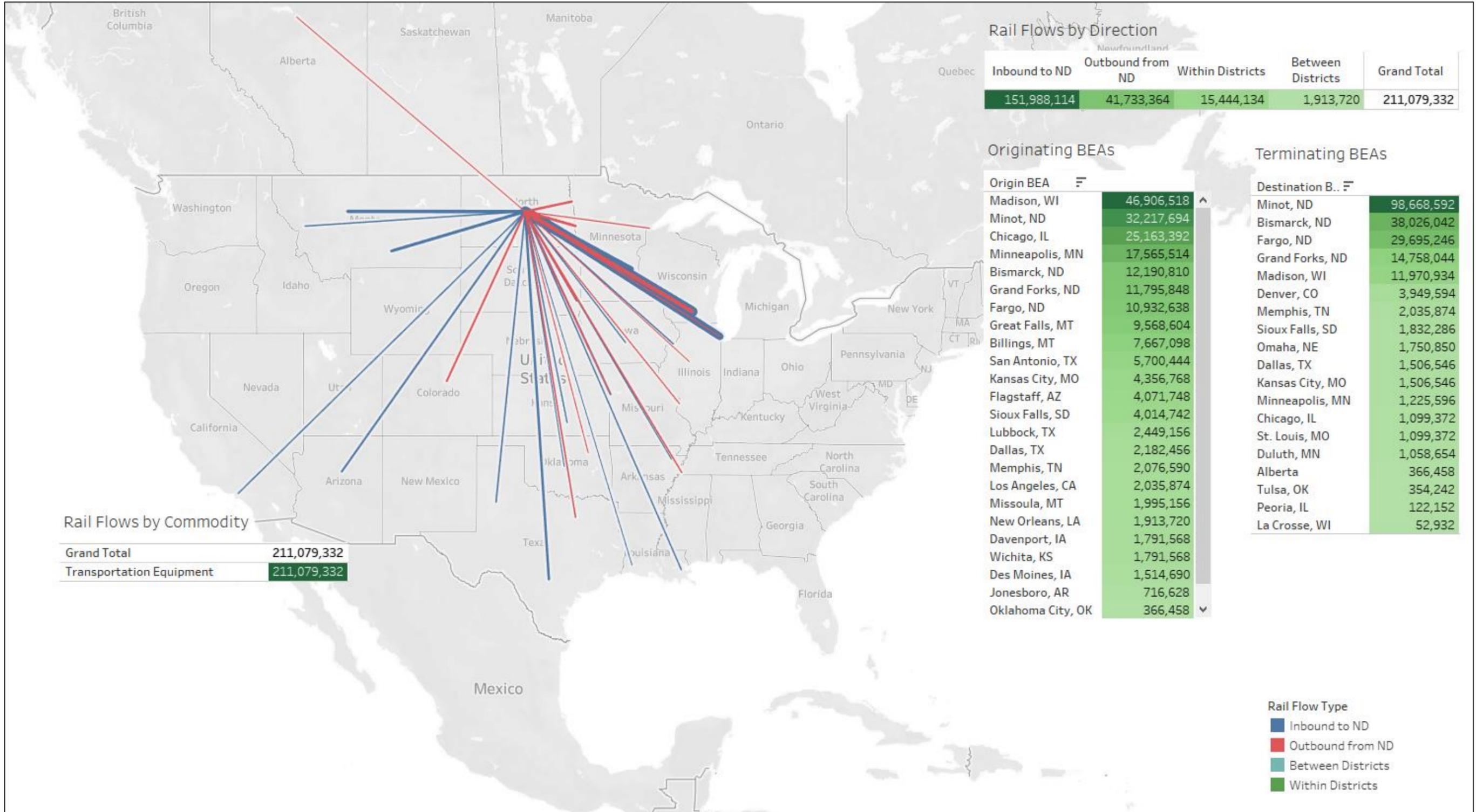


Figure C-43: Transearch Rail O-D Value, Clay Concrete Glass Stone (2019)

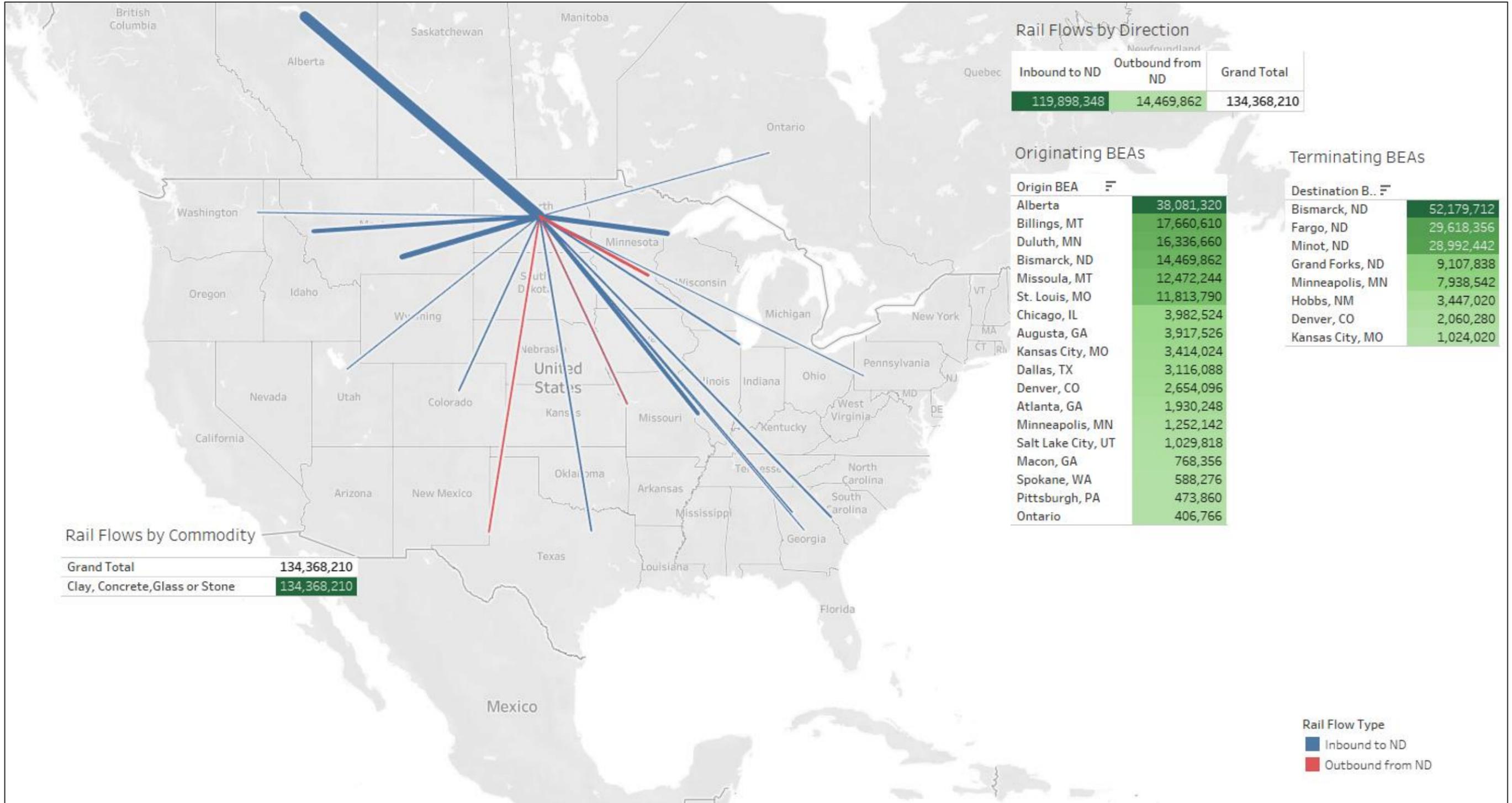


Figure C-44: Transearch Rail O-D Value, Waste or Scrap Materials (2019)

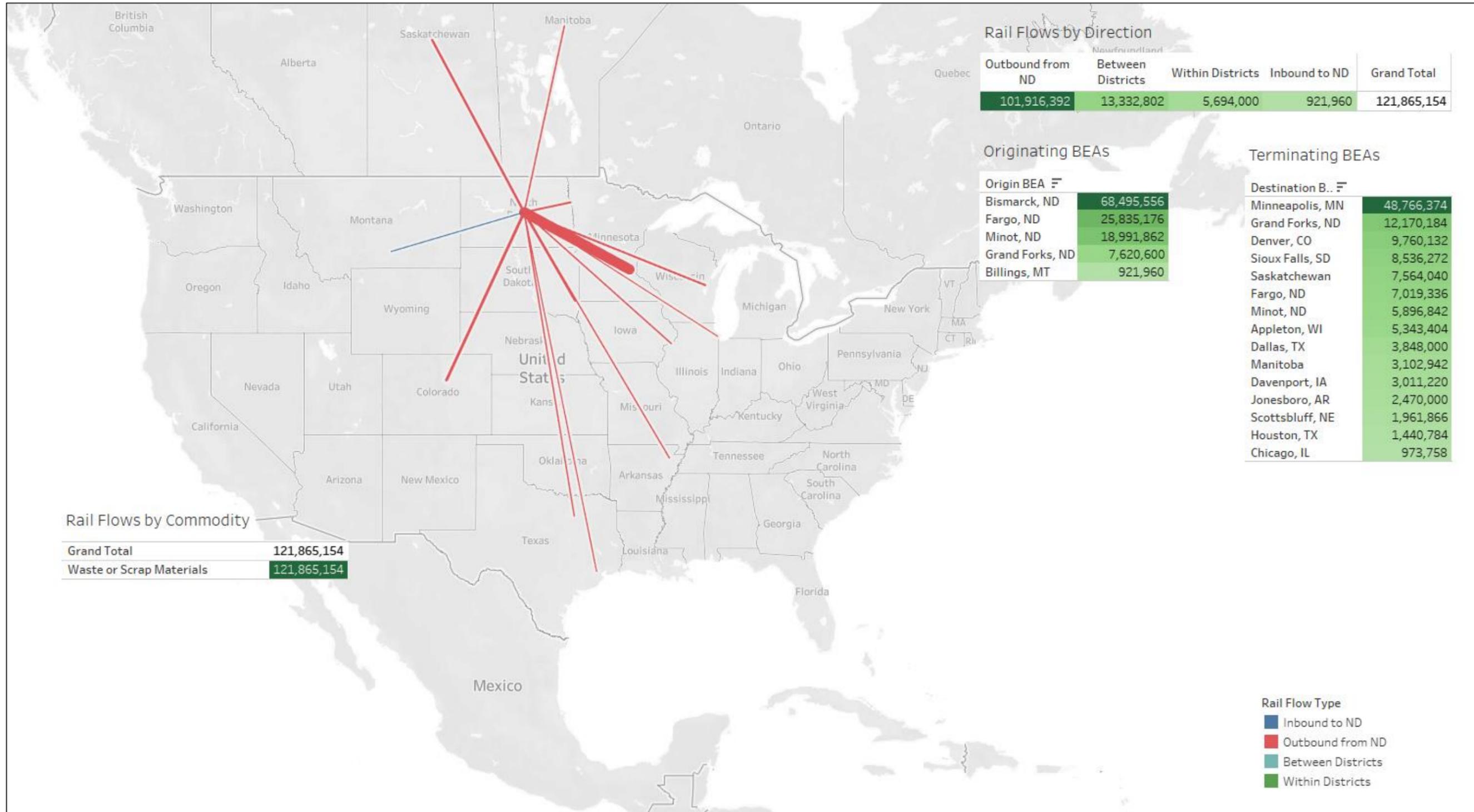


Figure C-45: StreetLight County-Level Top Route Analysis: Adams County

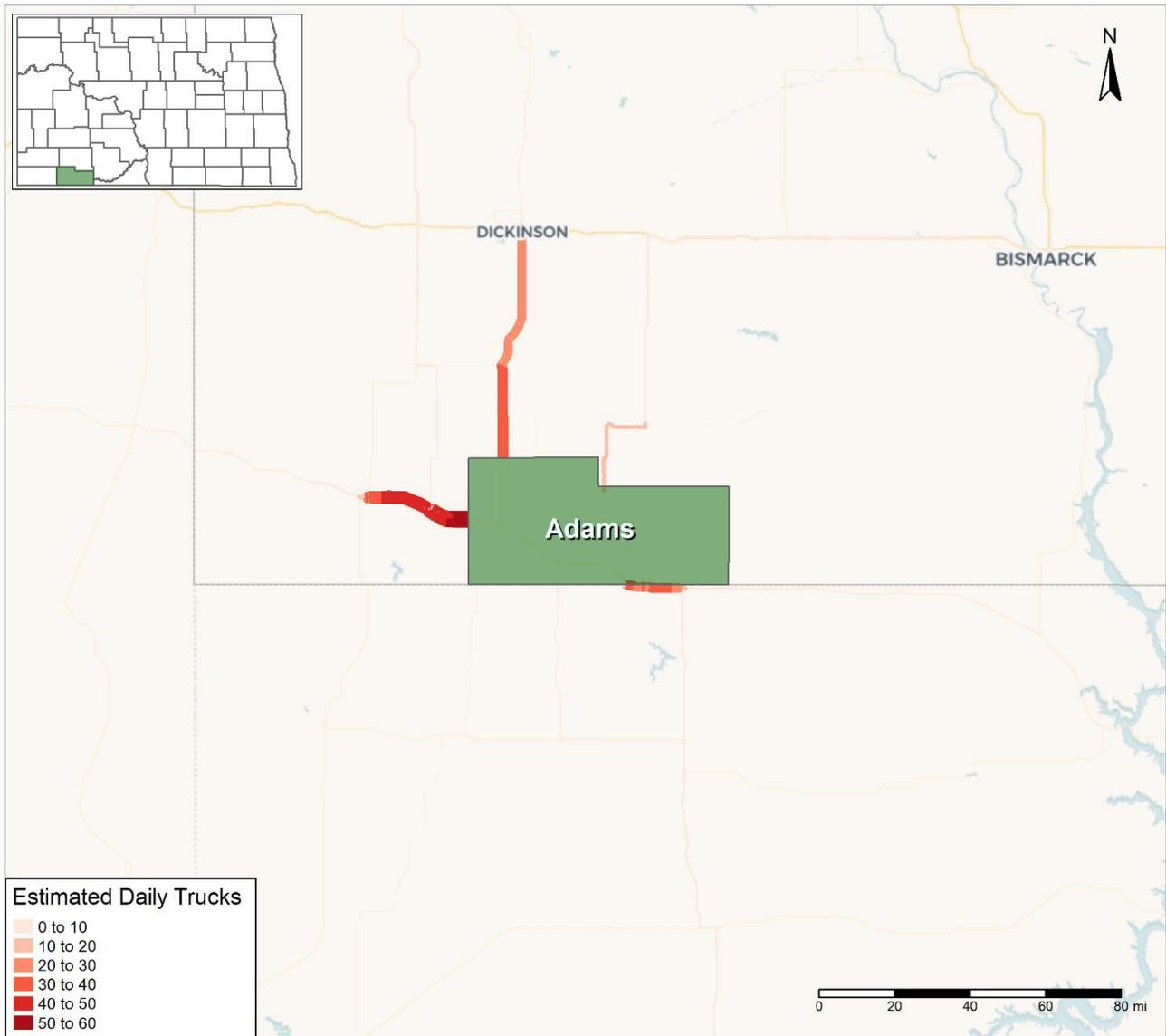


Figure C-46: StreetLight County-Level Top Route Analysis: Barnes County

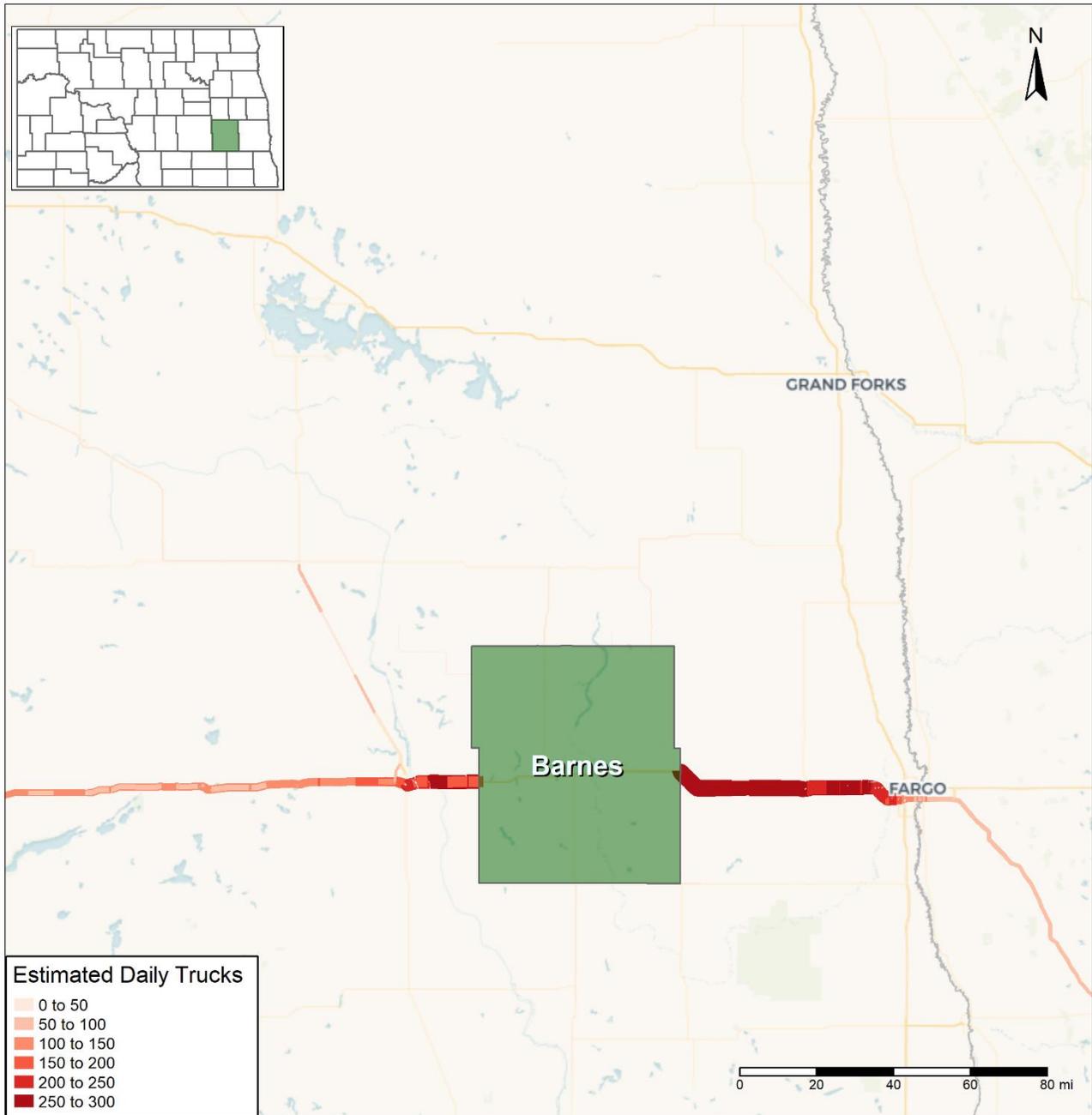


Figure C-47: StreetLight County-Level Top Route Analysis: Benson County

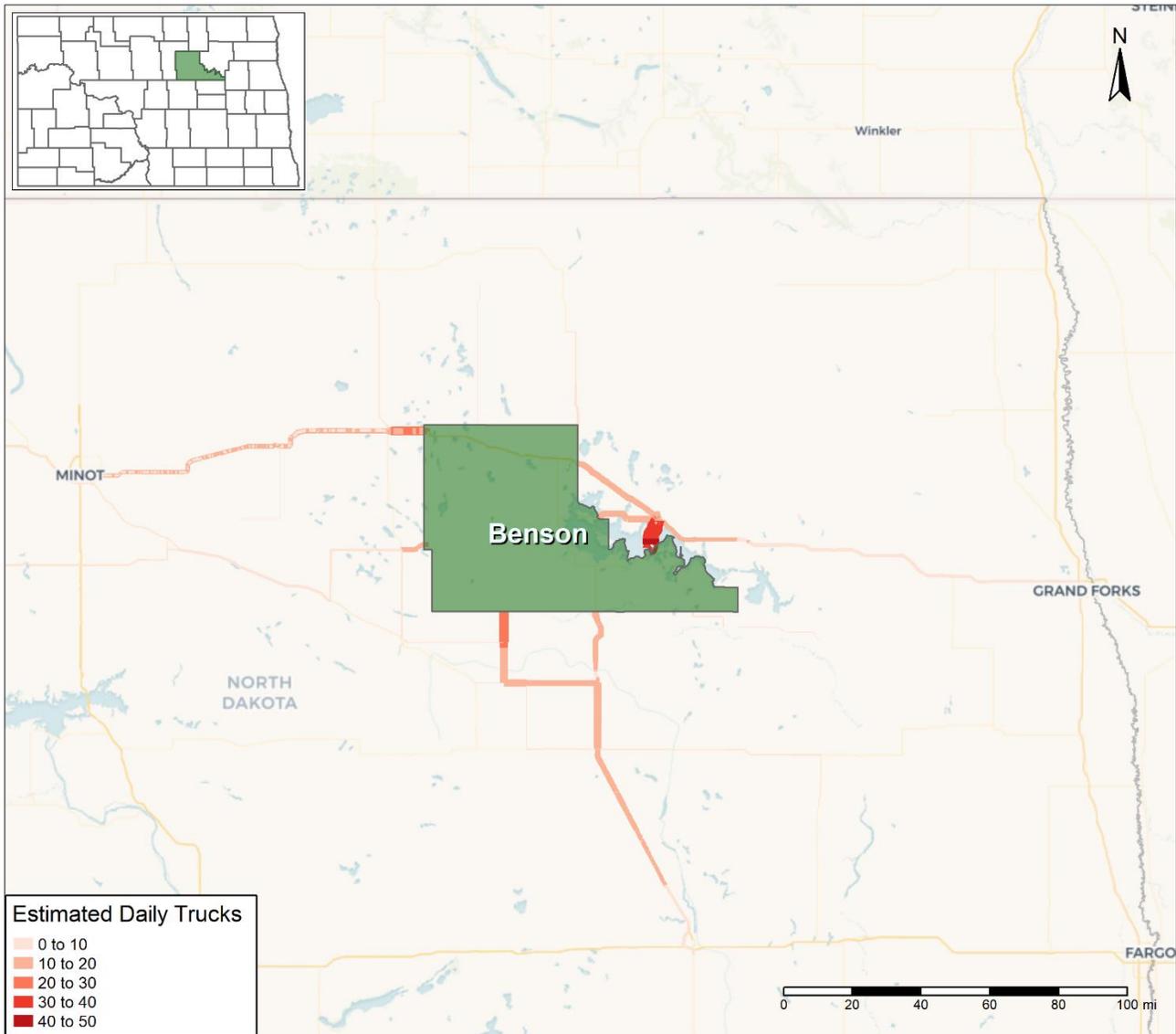


Figure C-48: StreetLight County-Level Top Route Analysis: Billings County

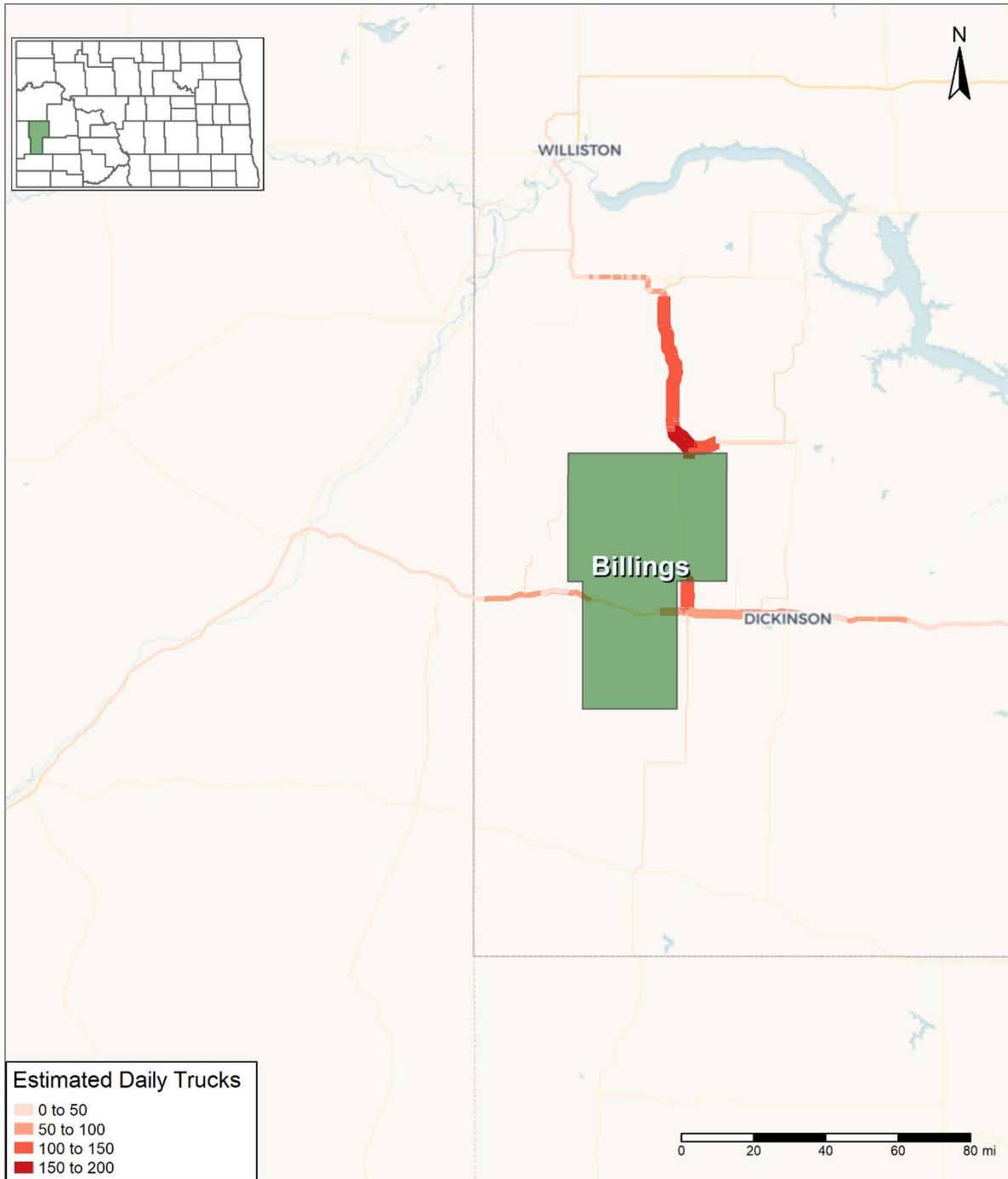


Figure C-49: StreetLight County-Level Top Route Analysis: Bottineau County

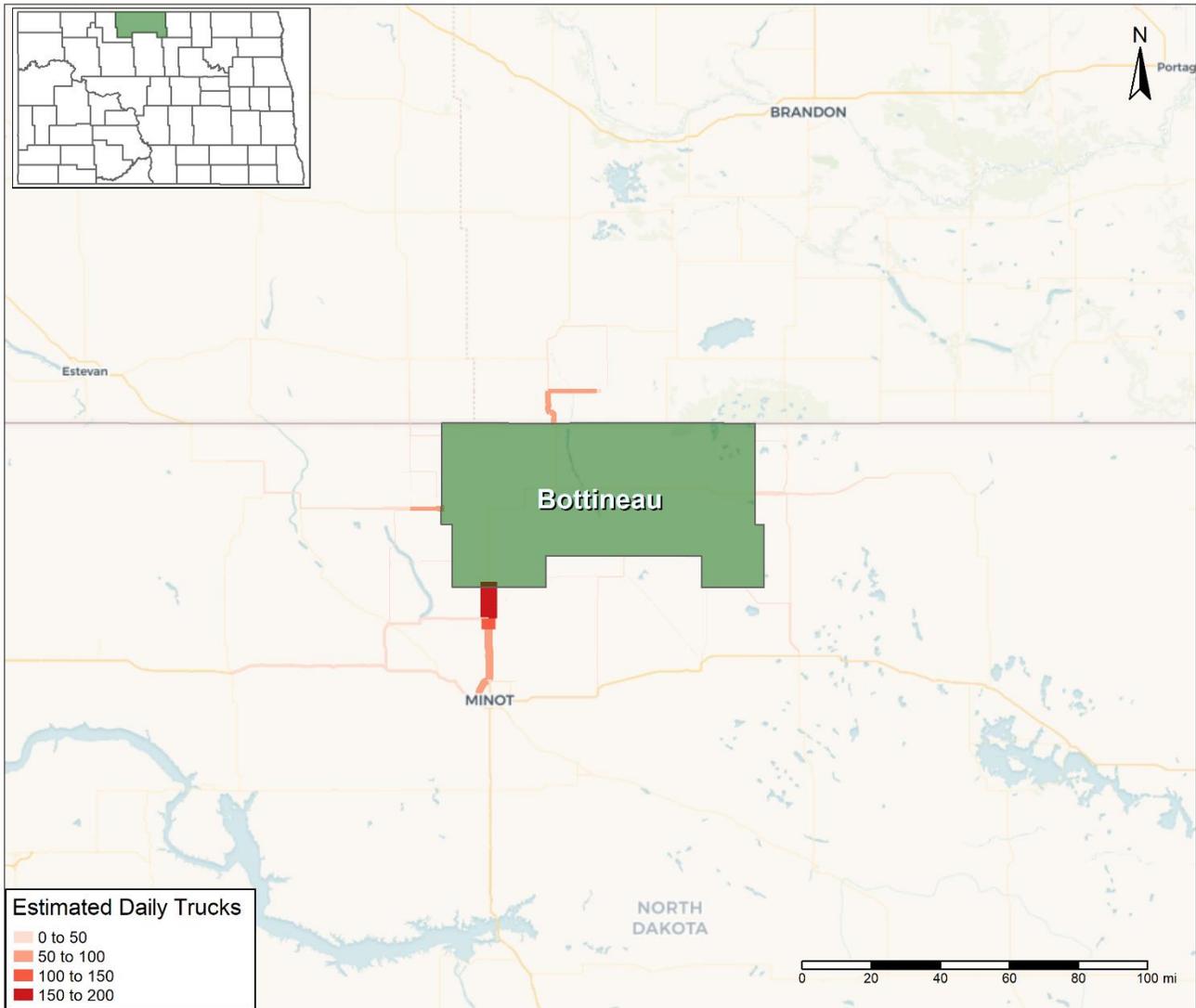


Figure C-50: StreetLight County-Level Top Route Analysis: Bowman County

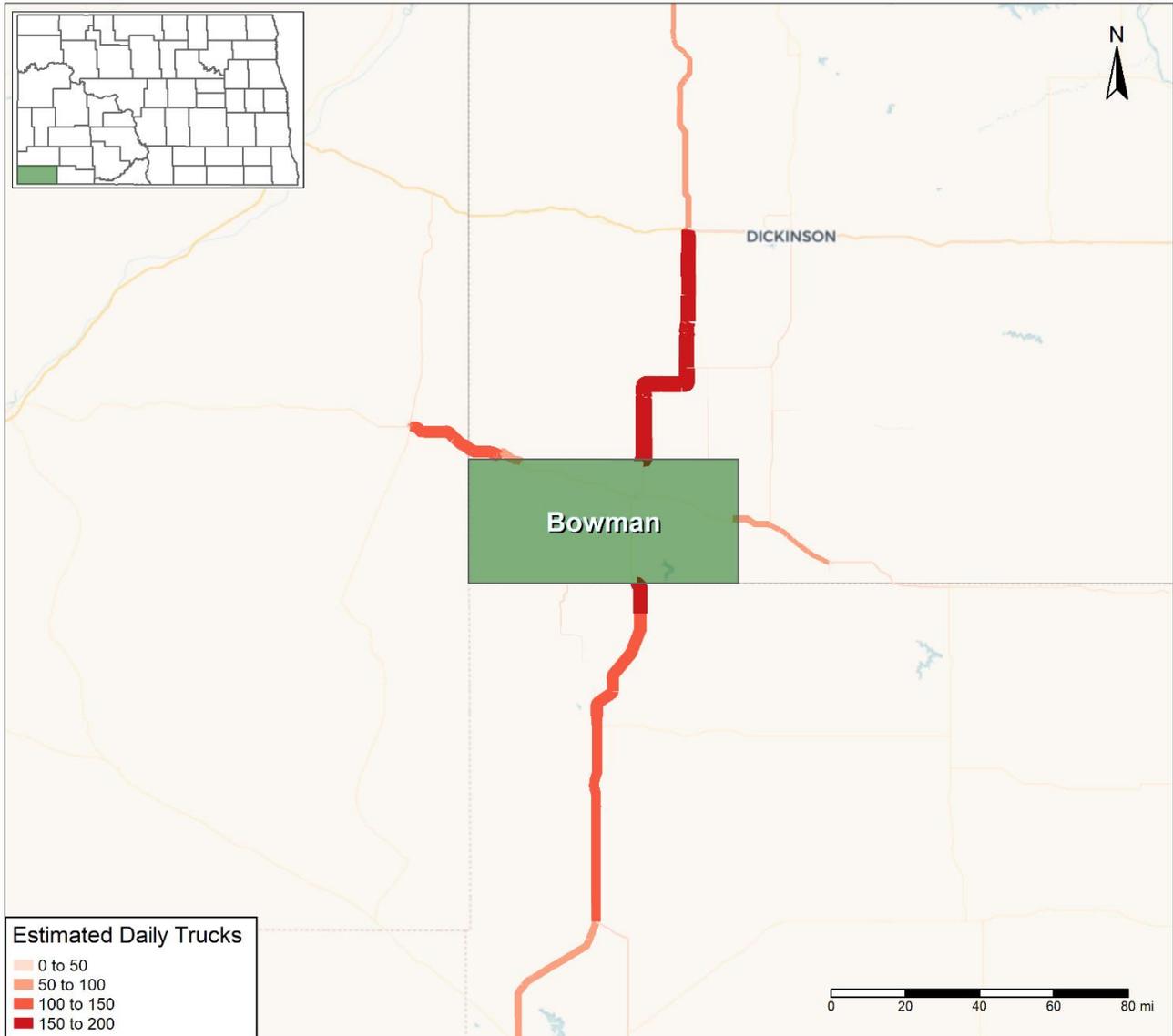


Figure C-51: StreetLight County-Level Top Route Analysis: Burke County

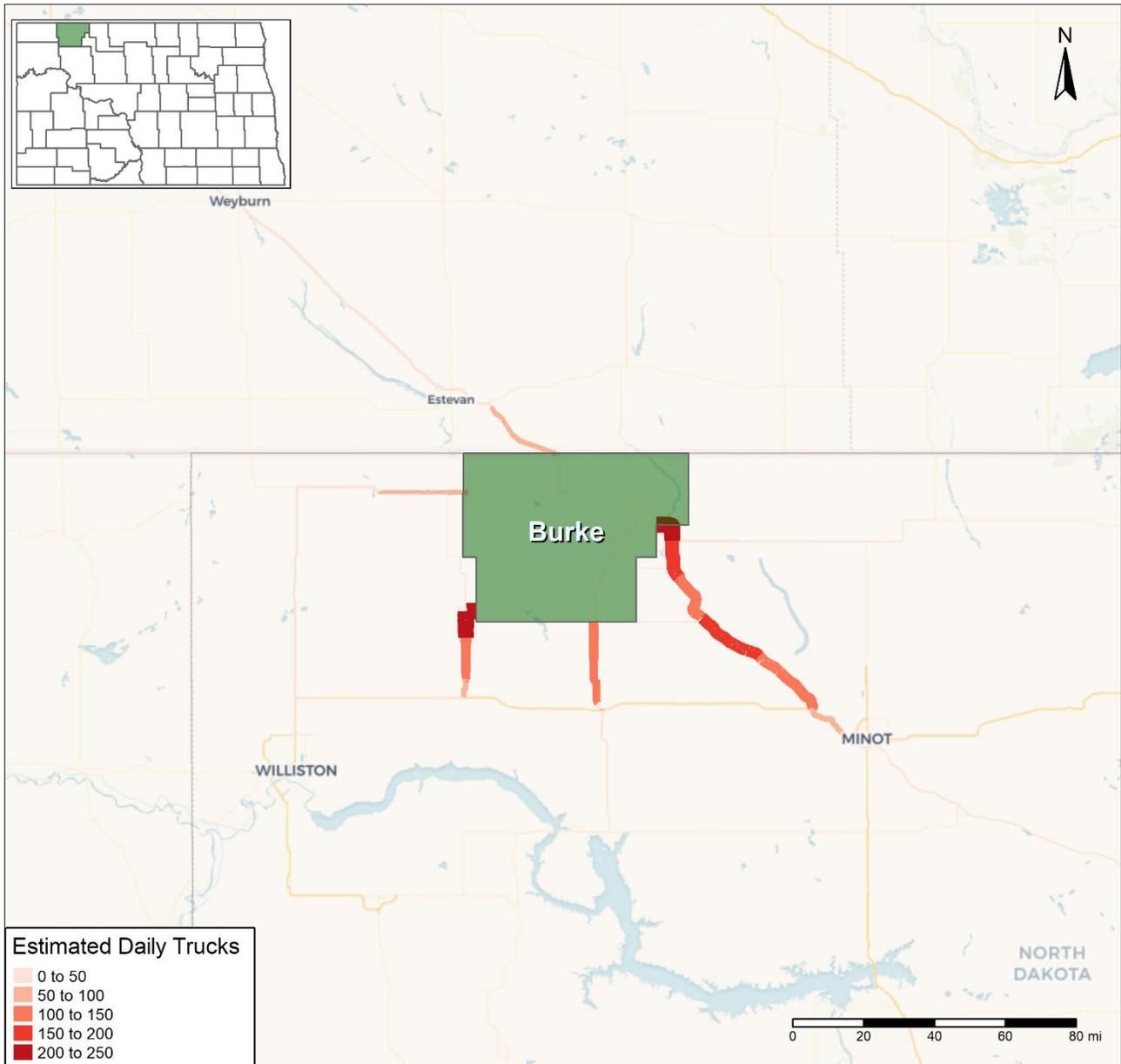


Figure C-52: StreetLight County-Level Top Route Analysis: Burleigh County

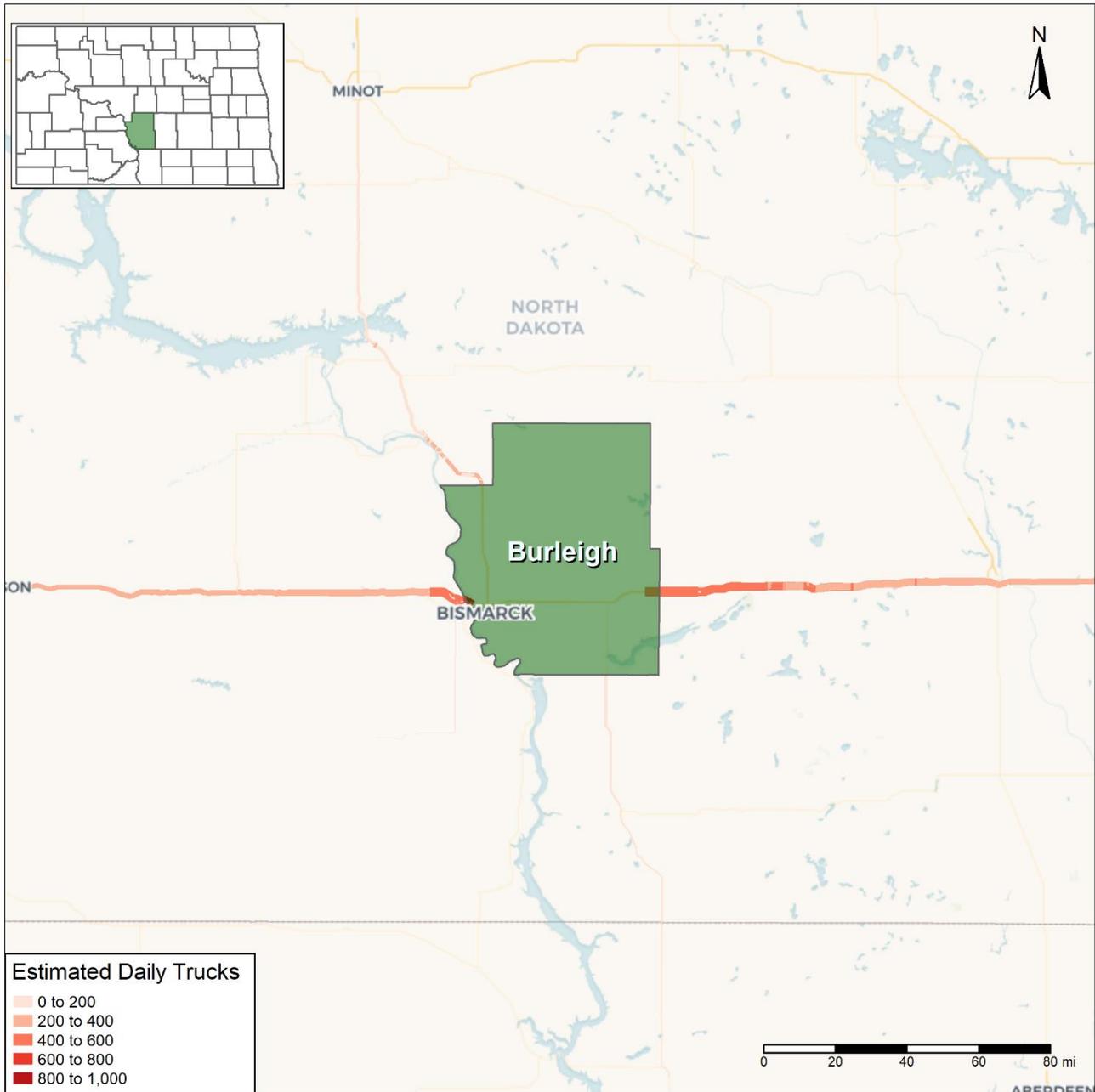


Figure C-53: StreetLight County-Level Top Route Analysis: Cass County

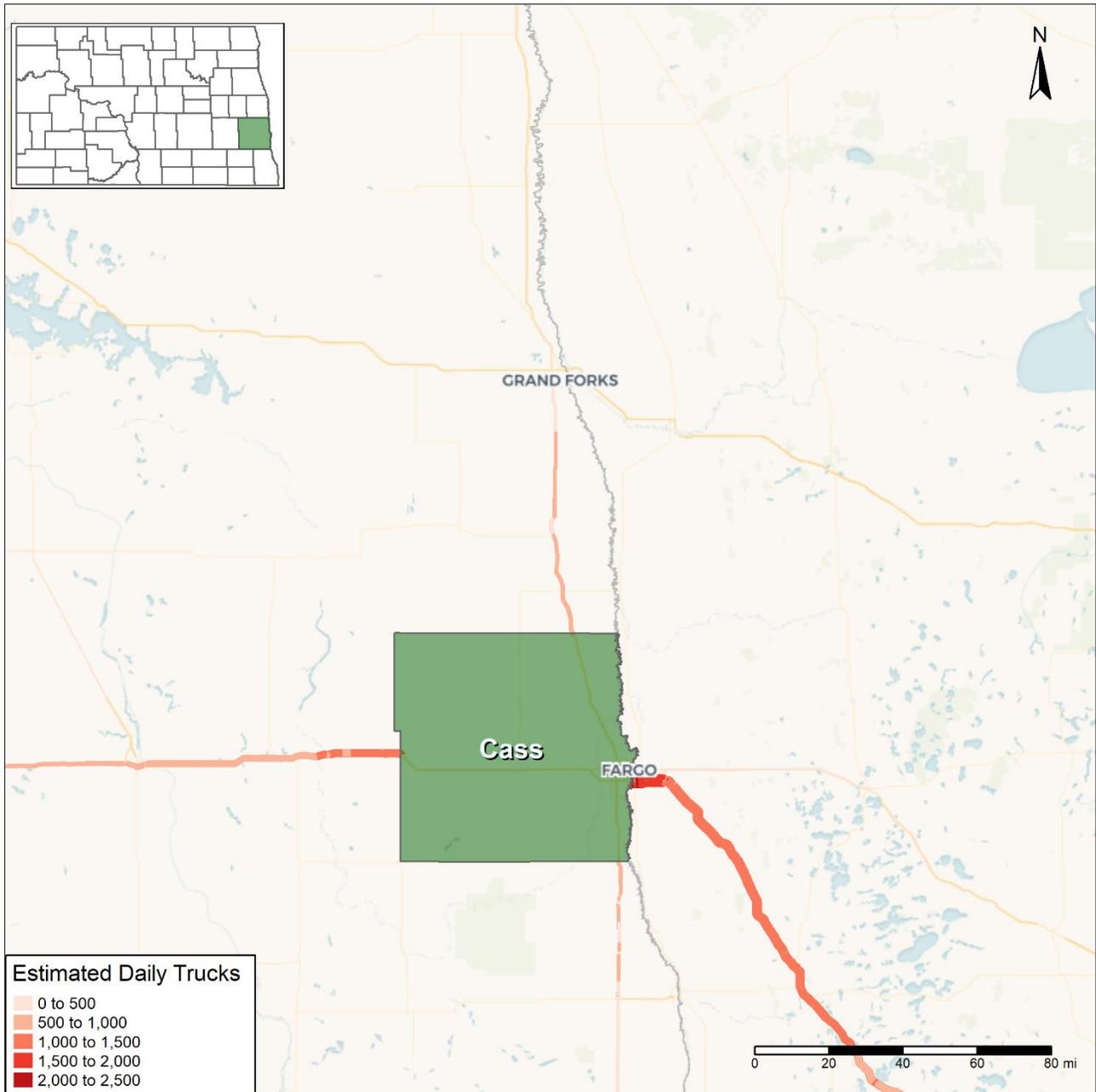


Figure C-54: StreetLight County-Level Top Route Analysis: Cavalier County

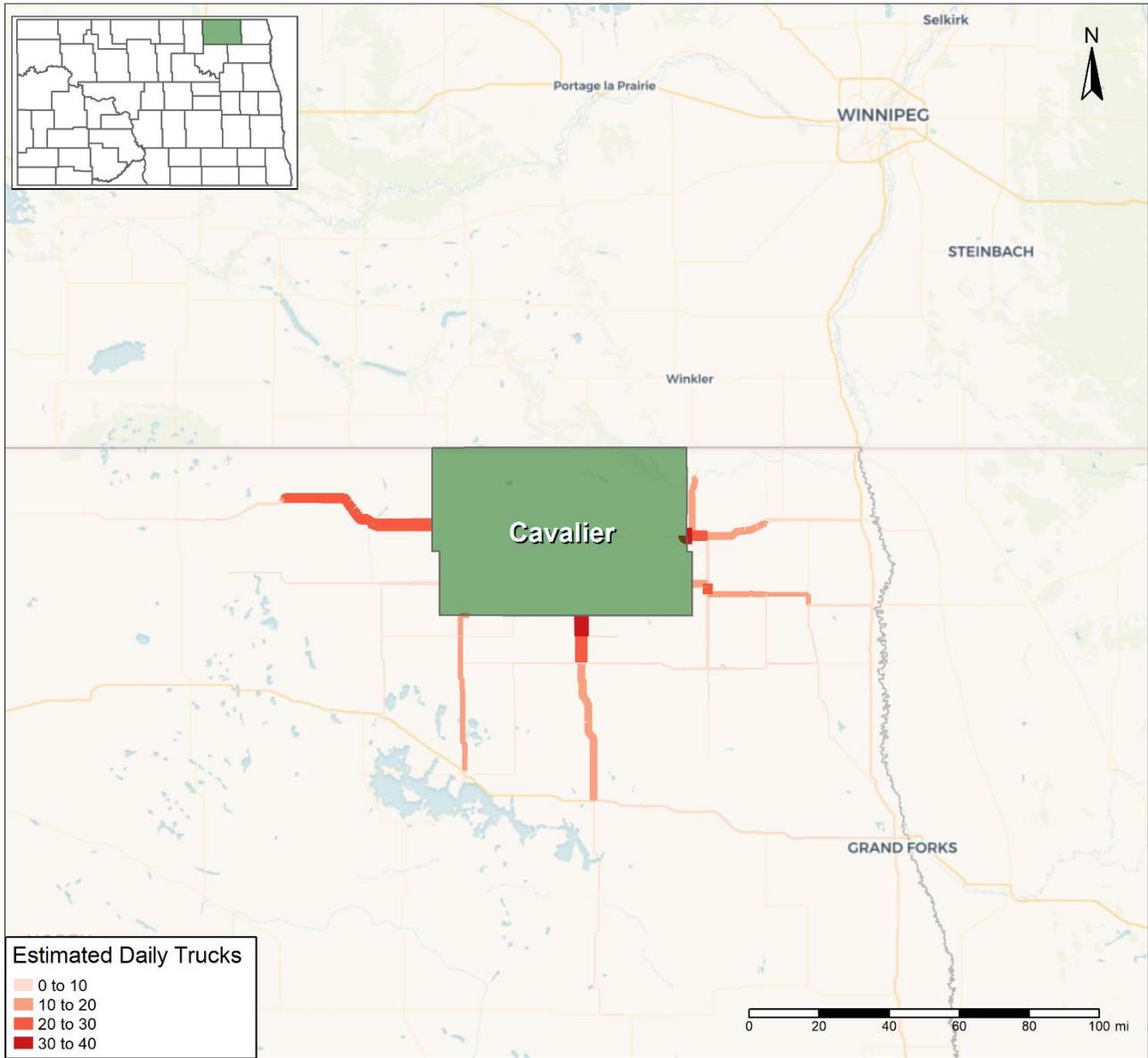


Figure C-55: StreetLight County-Level Top Route Analysis: Dickey County

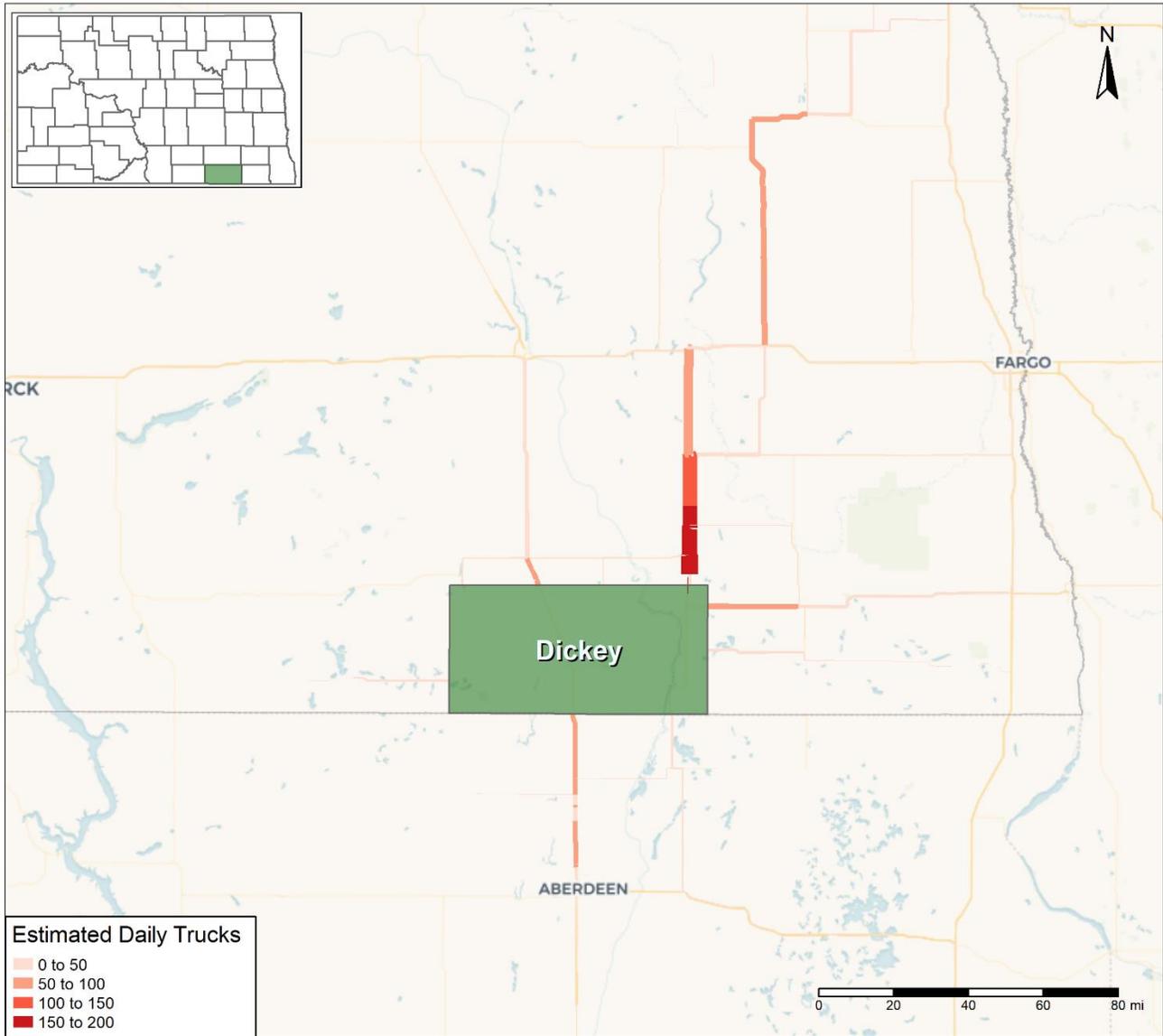


Figure C-56: StreetLight County-Level Top Route Analysis: Divide County

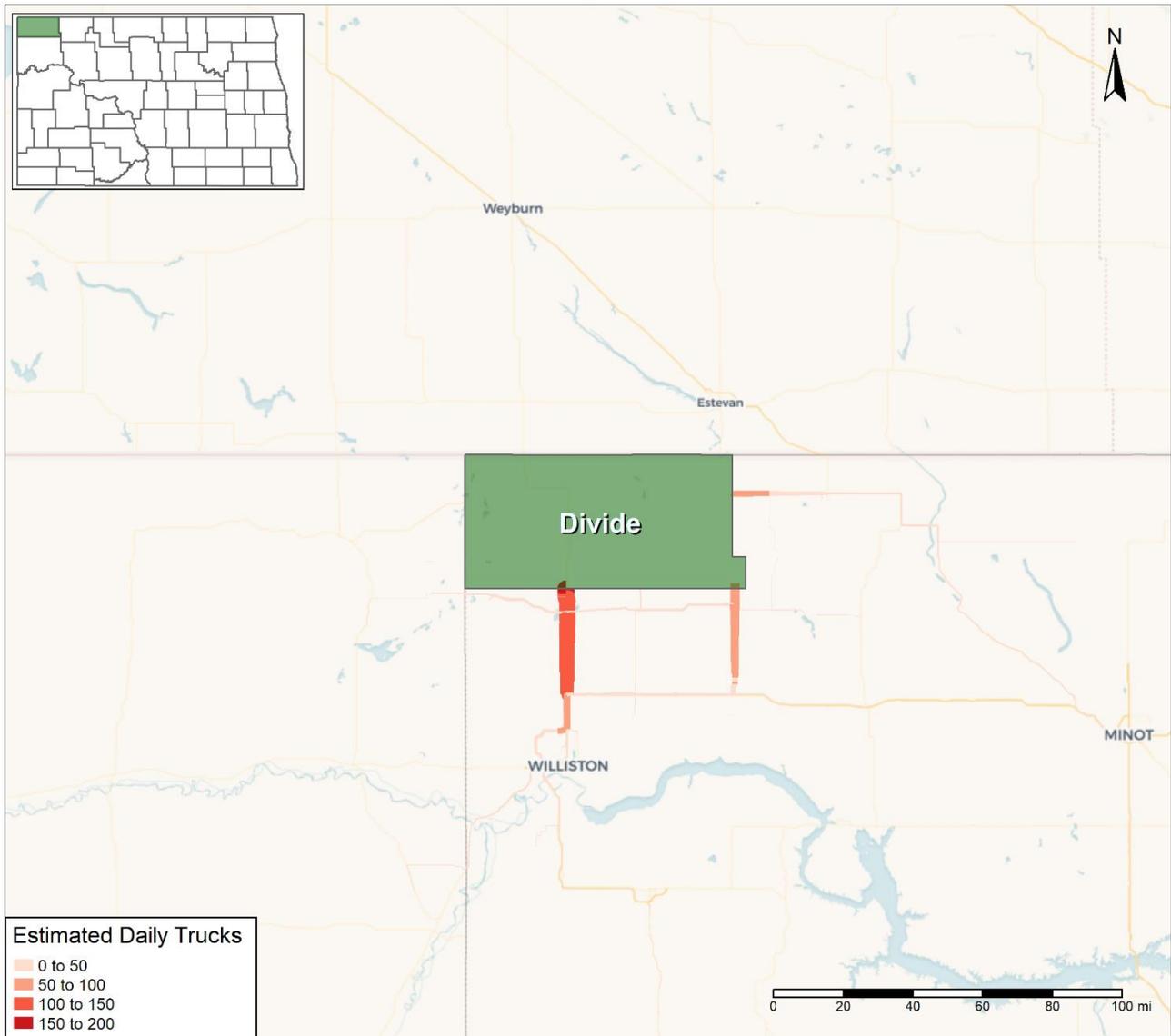


Figure C-57: StreetLight County-Level Top Route Analysis: Dunn County

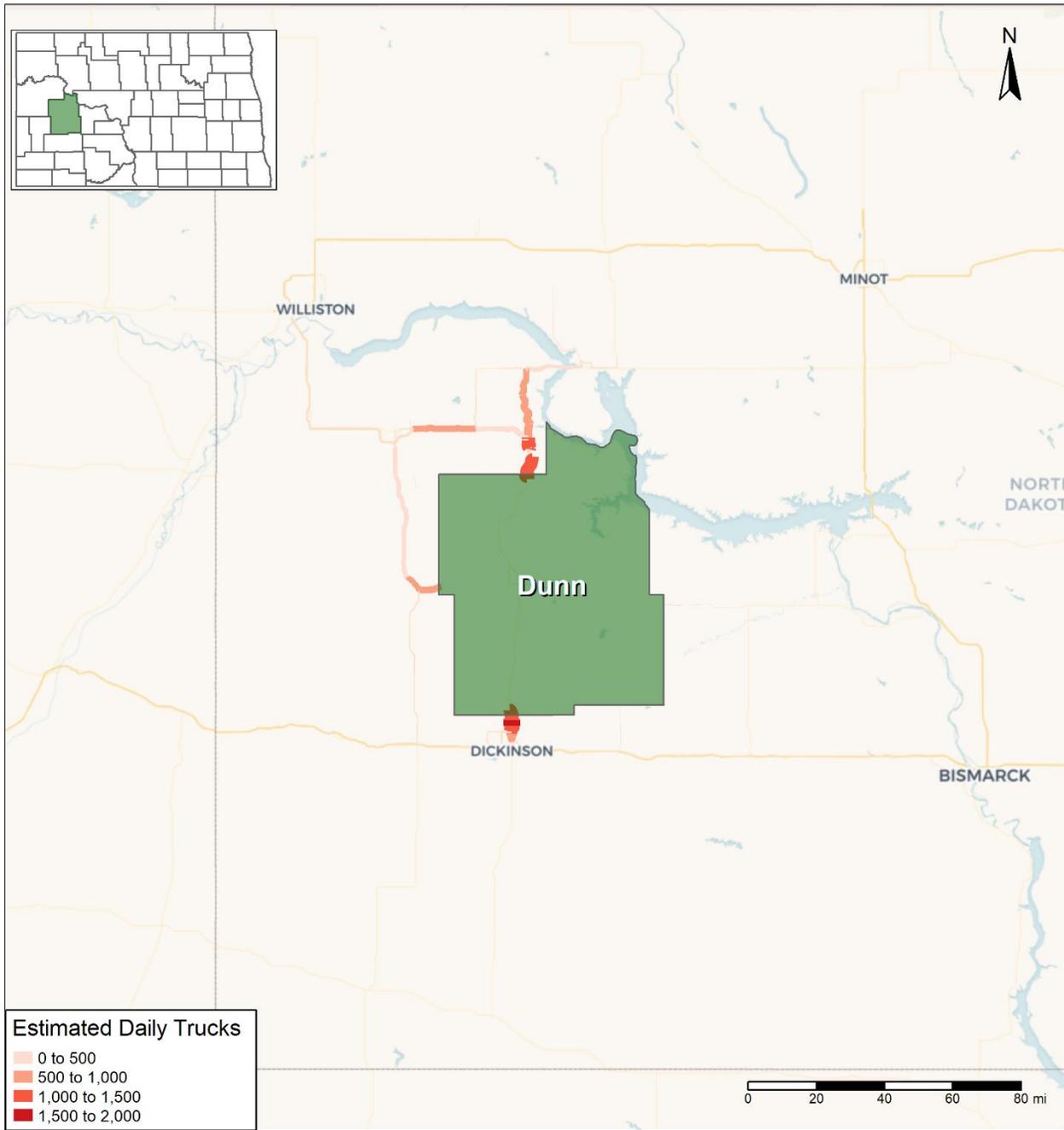


Figure C-58: StreetLight County-Level Top Route Analysis: Eddy County

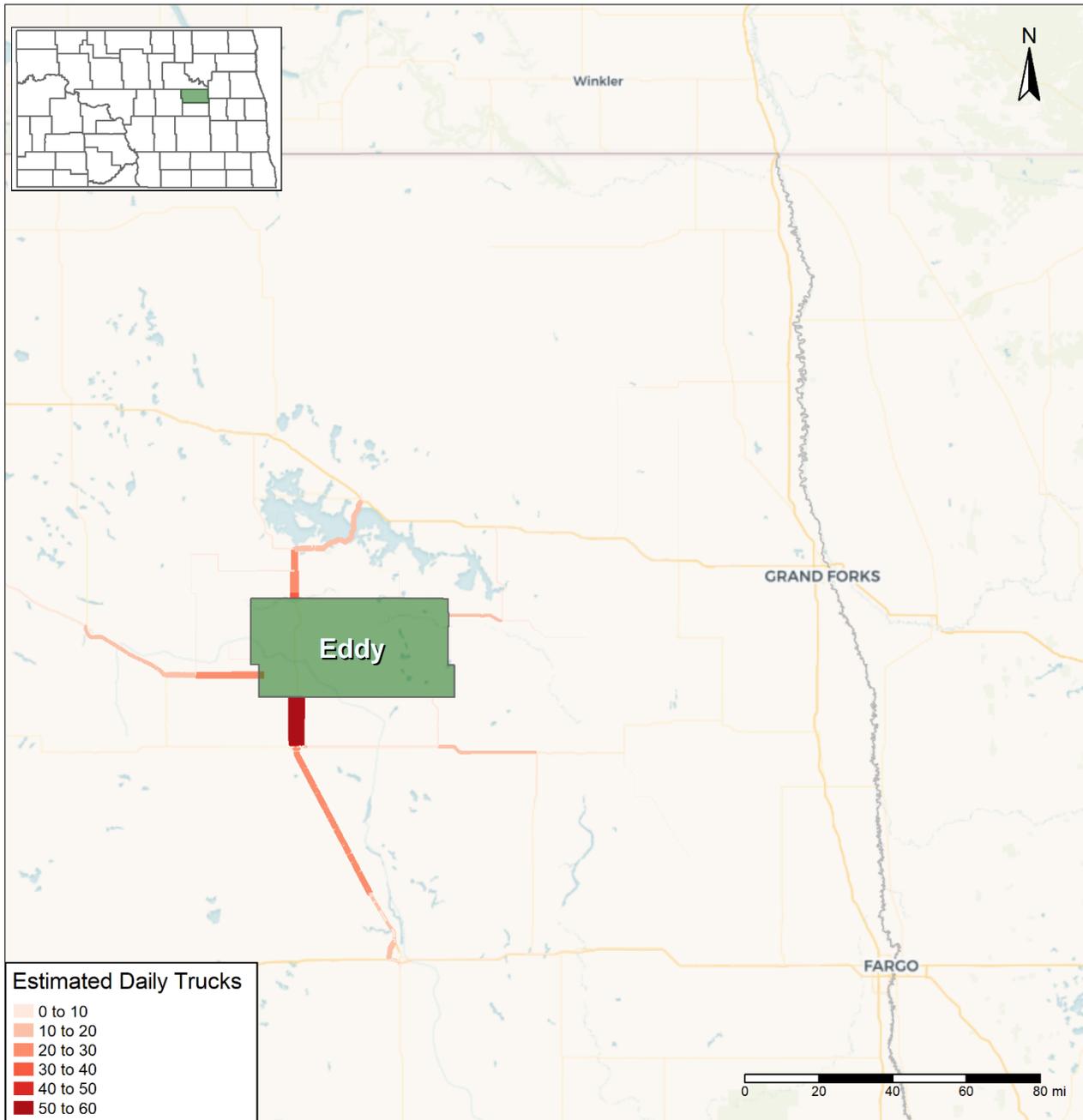


Figure C-59: StreetLight County-Level Top Route Analysis: Emmons County

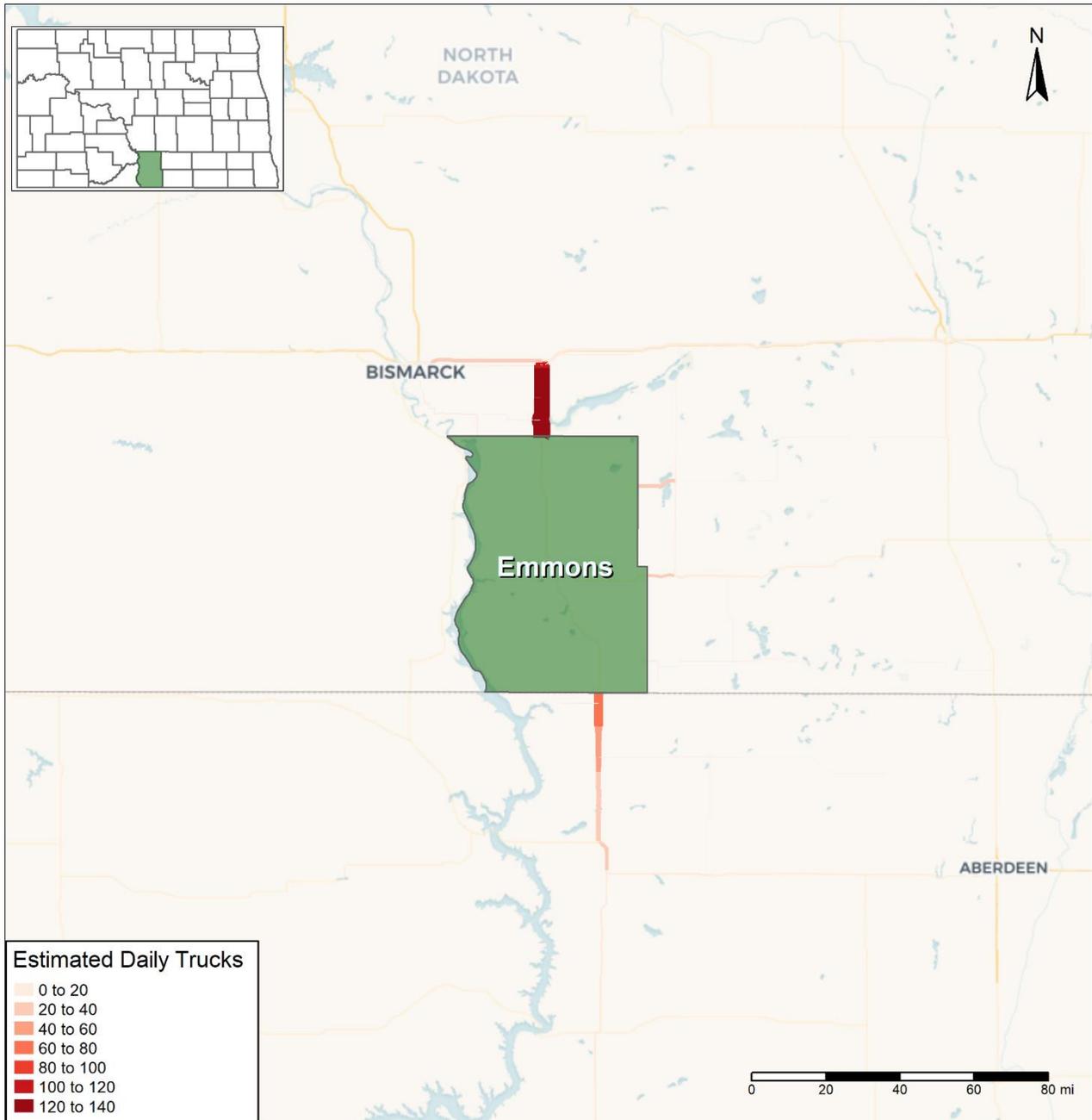


Figure C-60: StreetLight County-Level Top Route Analysis: Foster County



Figure C-61: StreetLight County-Level Top Route Analysis: Golden Valley County

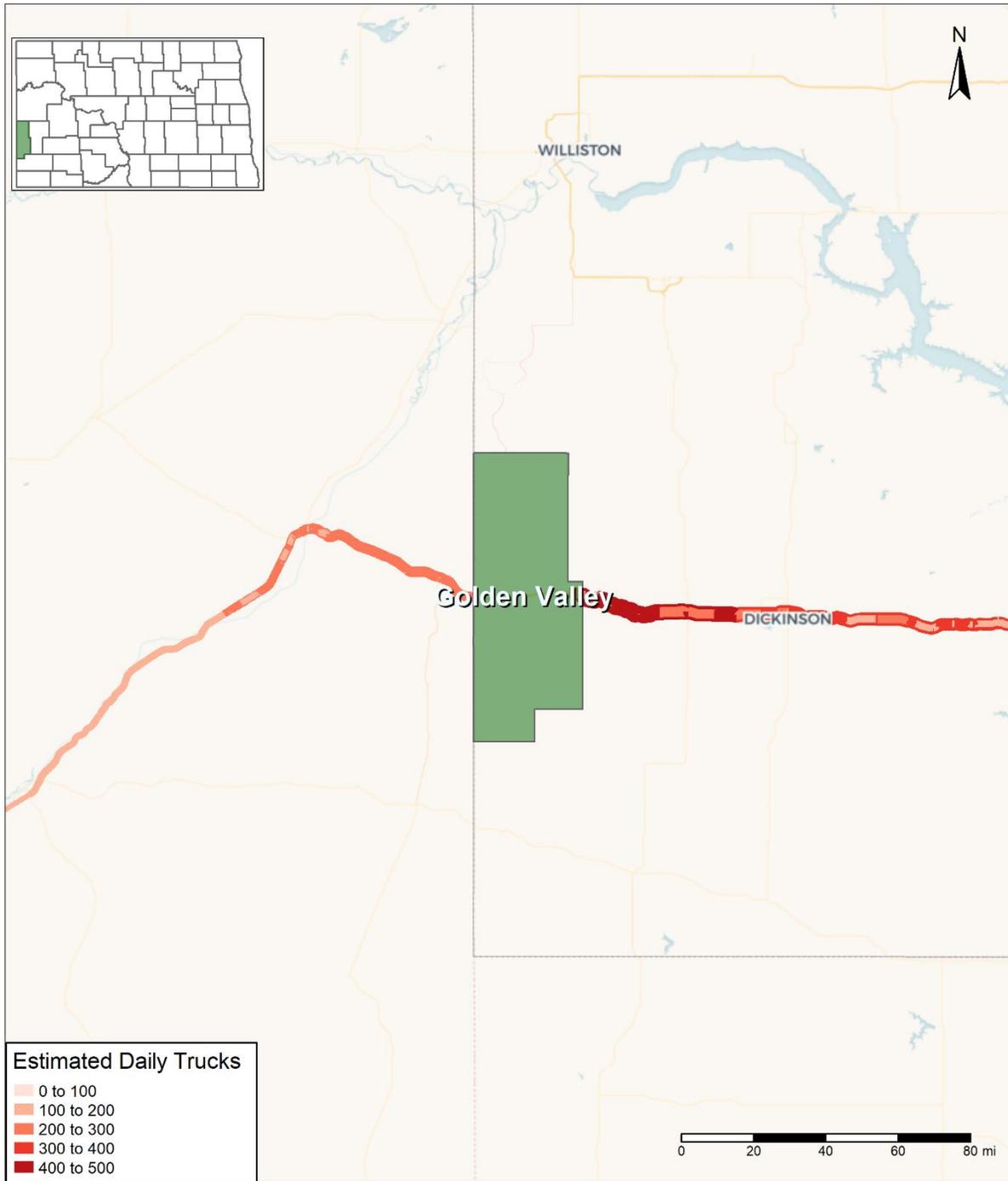


Figure C-62: StreetLight County-Level Top Route Analysis: Grand Forks County

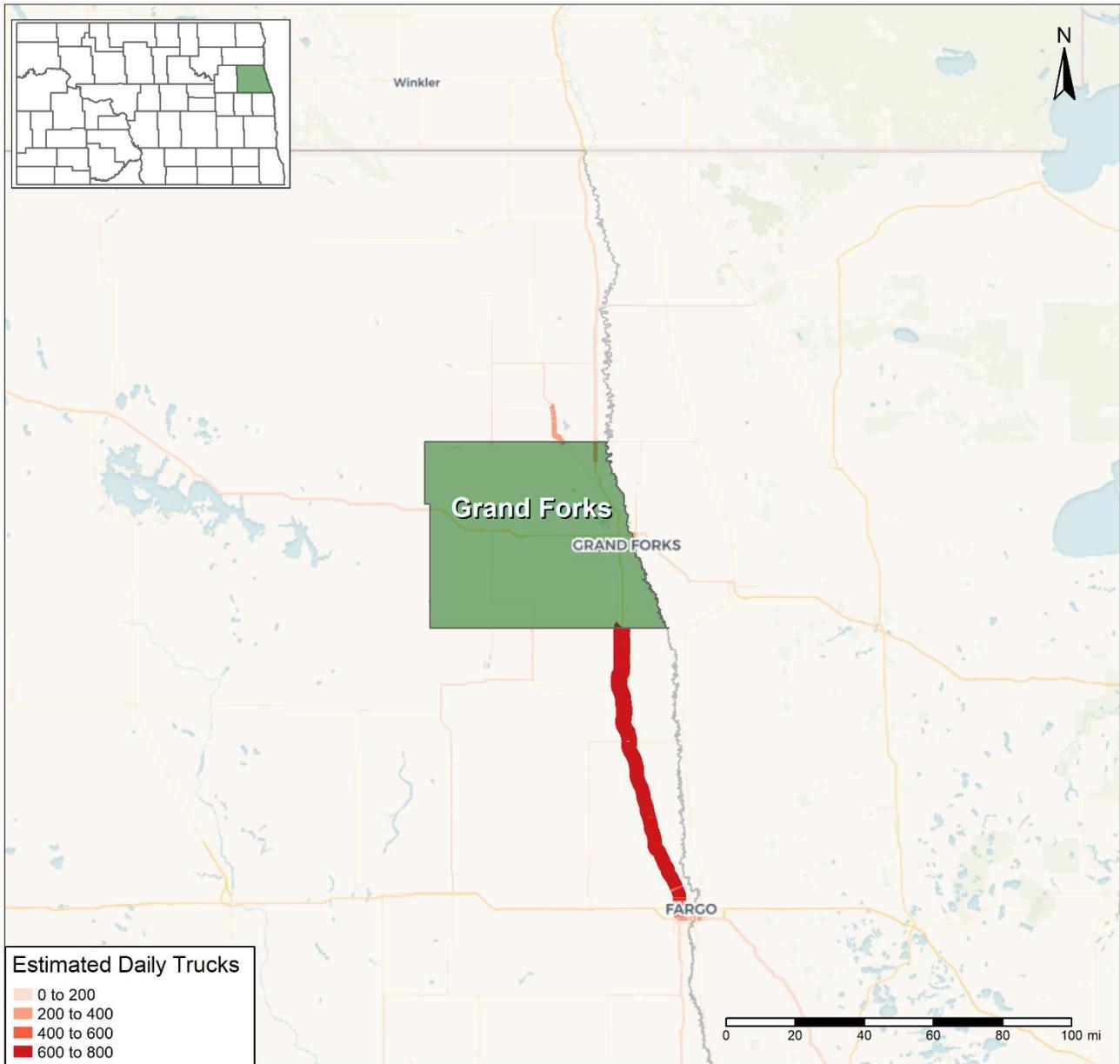


Figure C-63: StreetLight County-Level Top Route Analysis: Grant County



Figure C-64: StreetLight County-Level Top Route Analysis: Griggs County

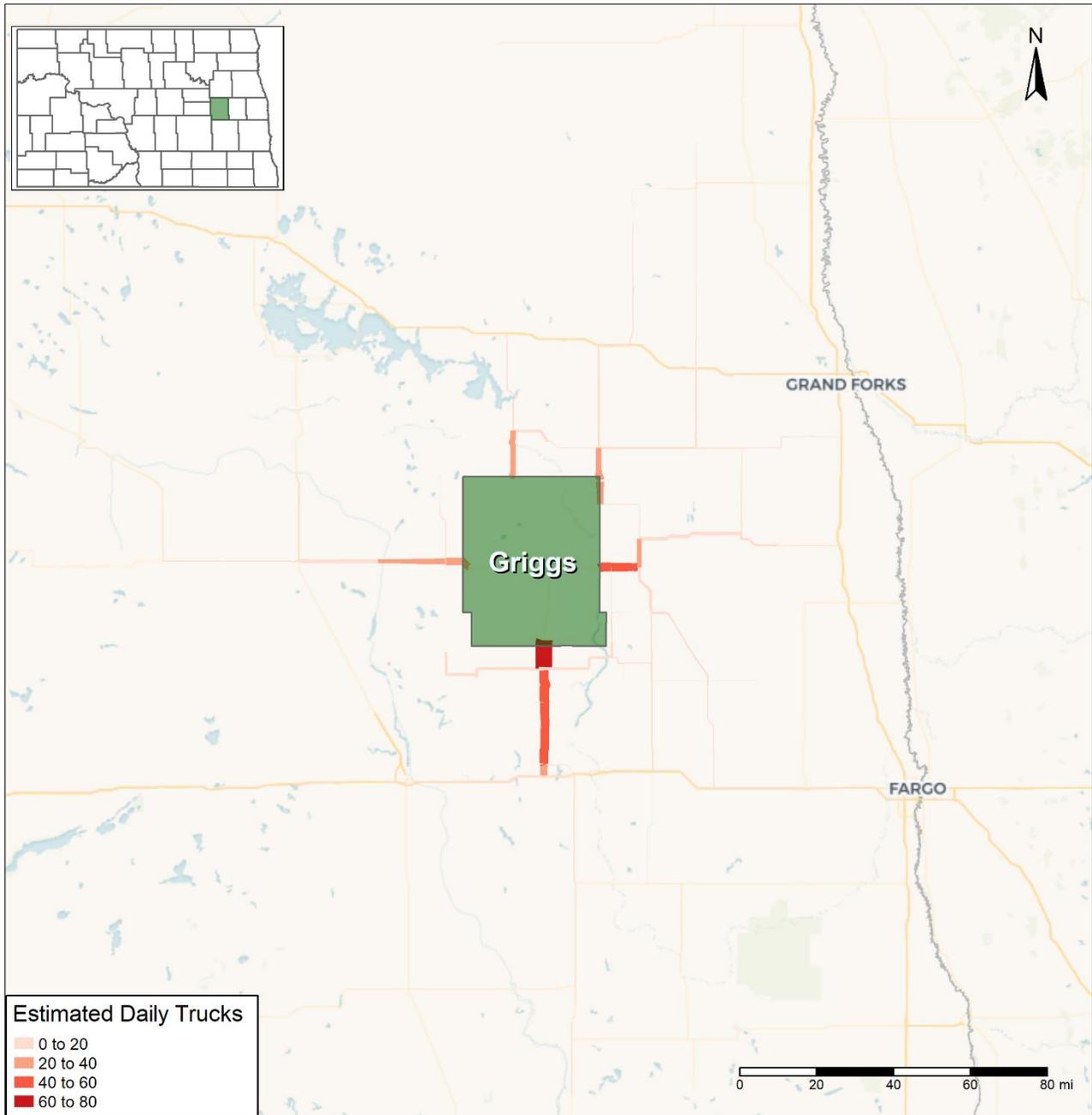


Figure C-65: StreetLight County-Level Top Route Analysis: Hettinger County

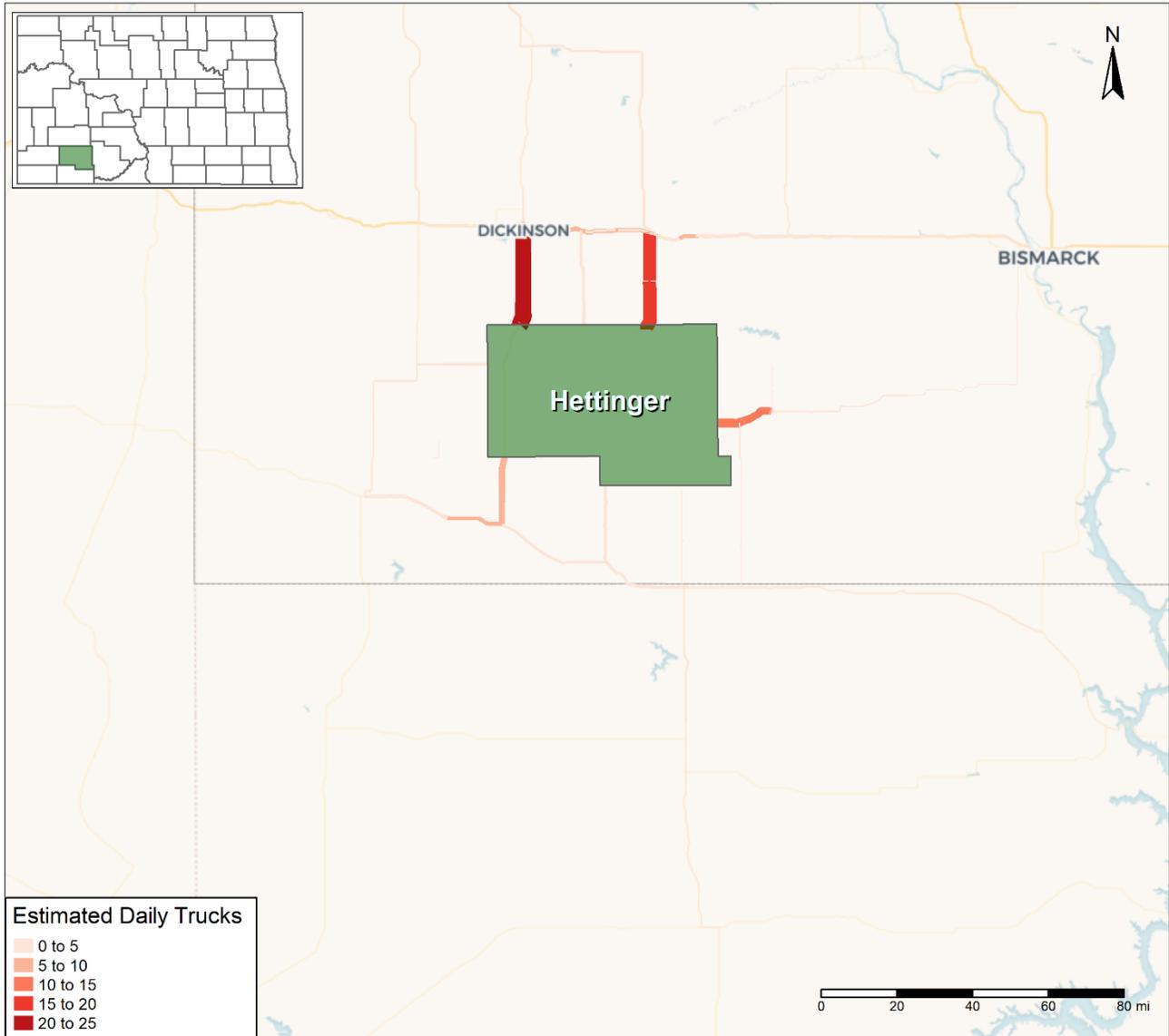


Figure C-66: StreetLight County-Level Top Route Analysis: Kidder County

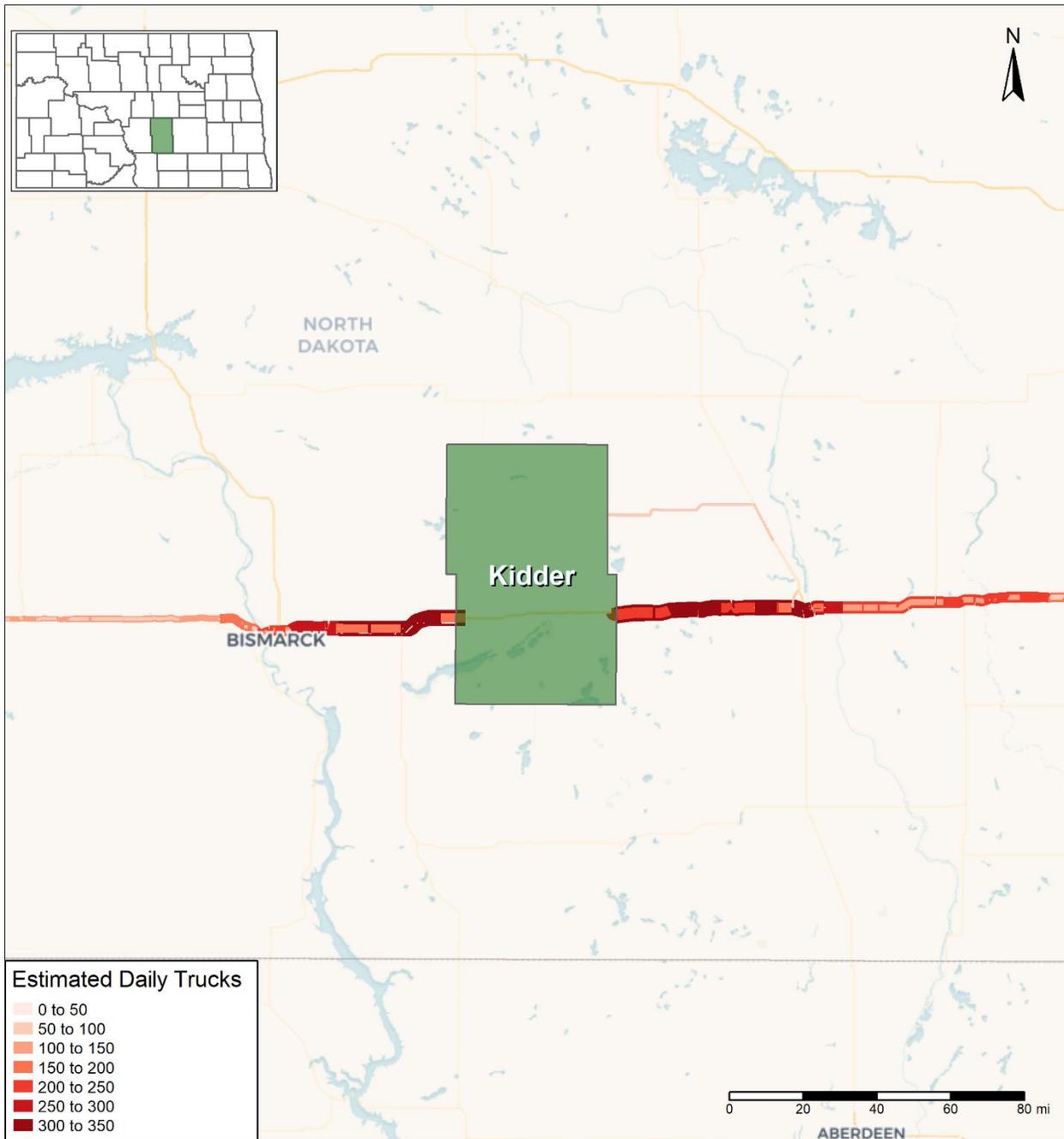


Figure C-67: StreetLight County-Level Top Route Analysis: LaMoure County

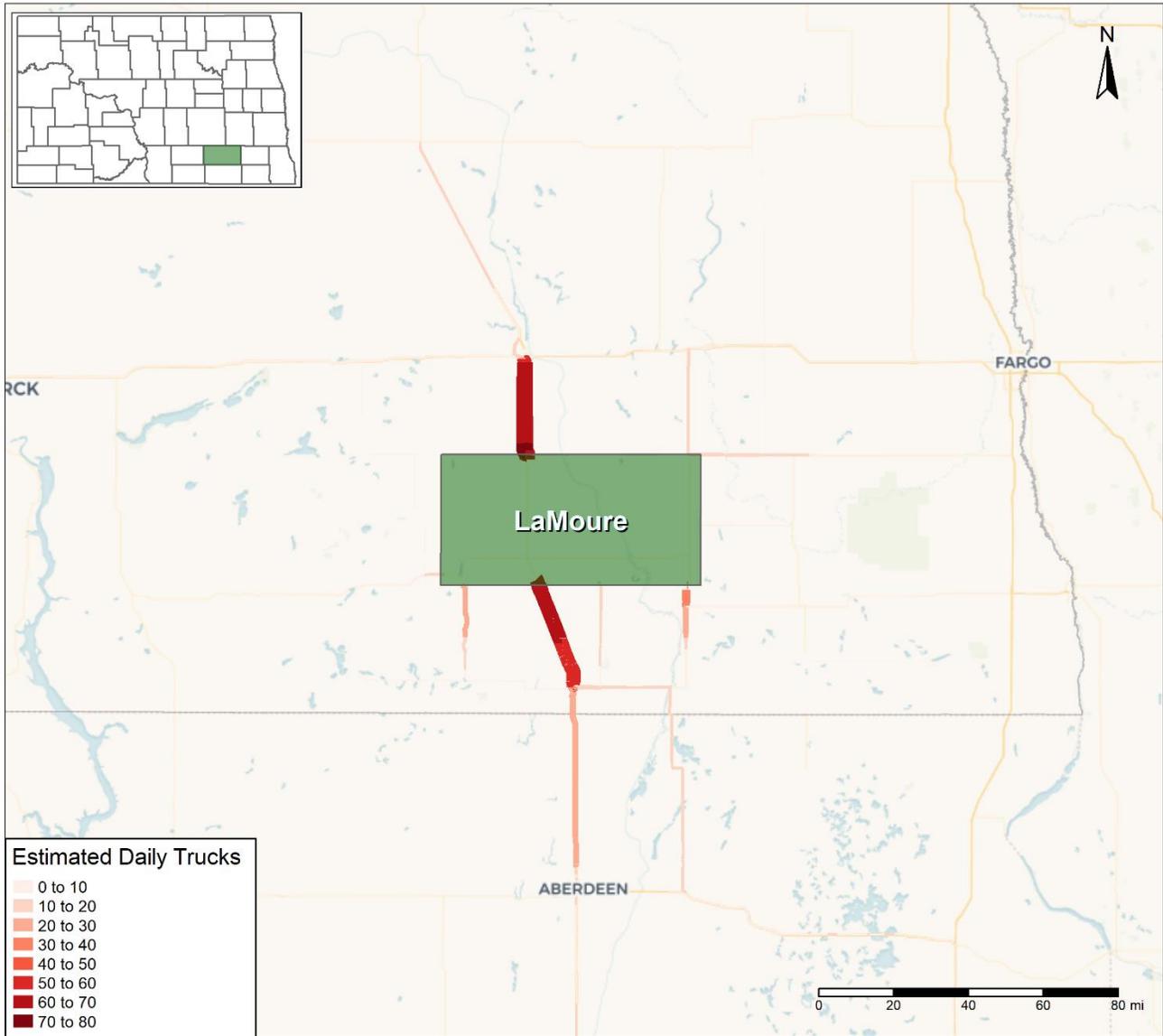


Figure C-68: StreetLight County-Level Top Route Analysis: Logan County

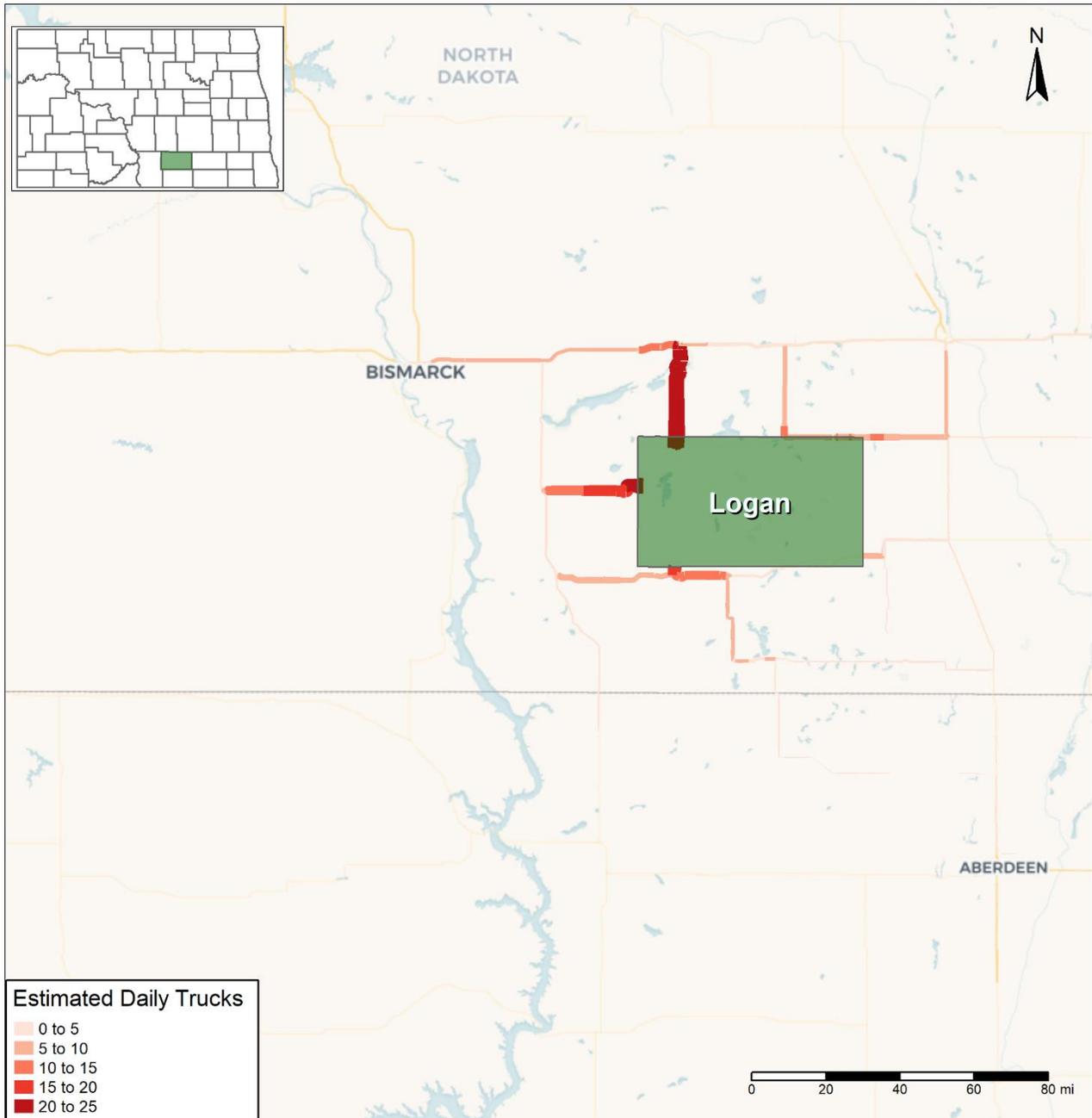


Figure C-69: StreetLight County-Level Top Route Analysis: McHenry County

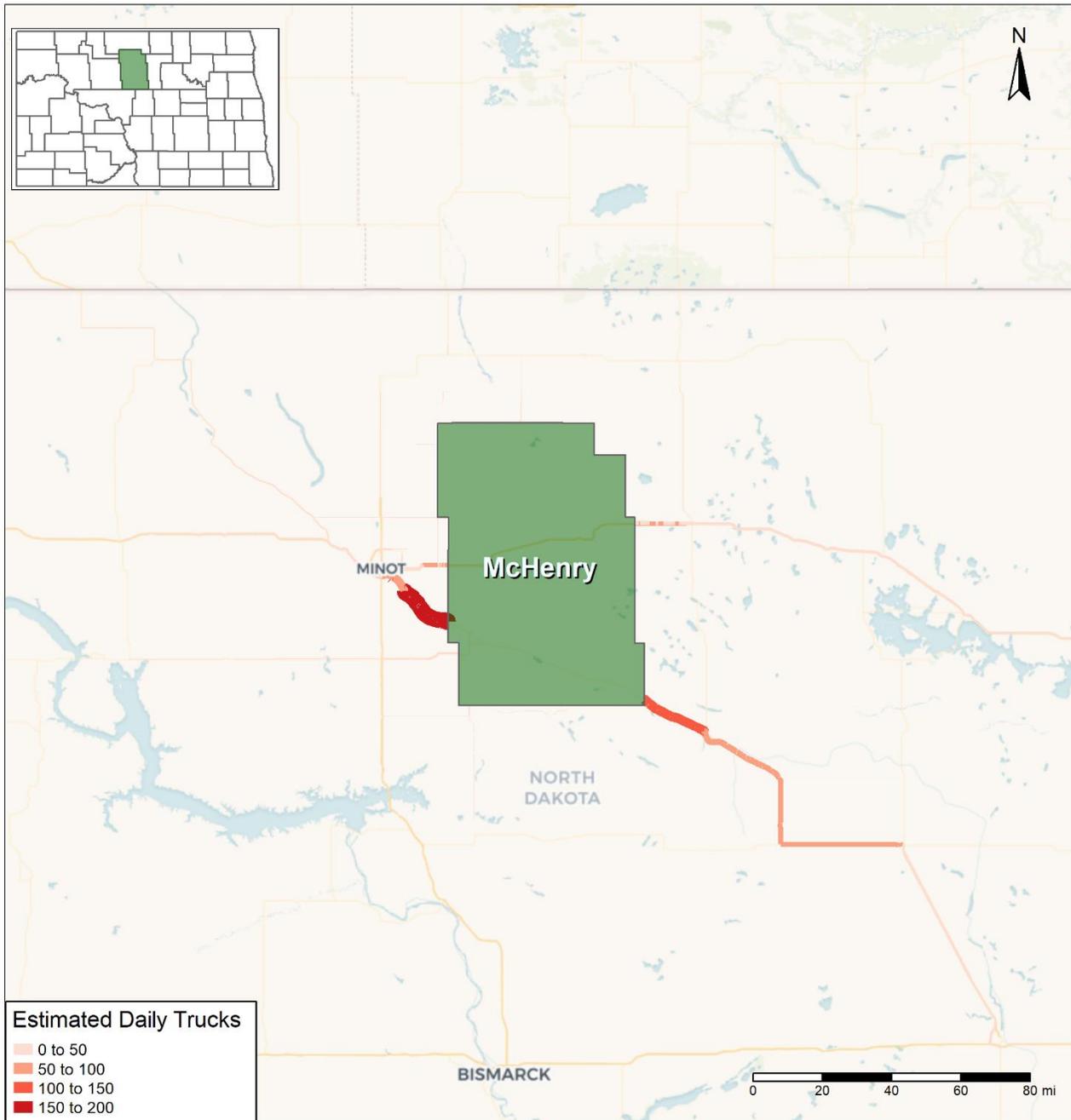


Figure C-70: StreetLight County-Level Top Route Analysis: McIntosh County

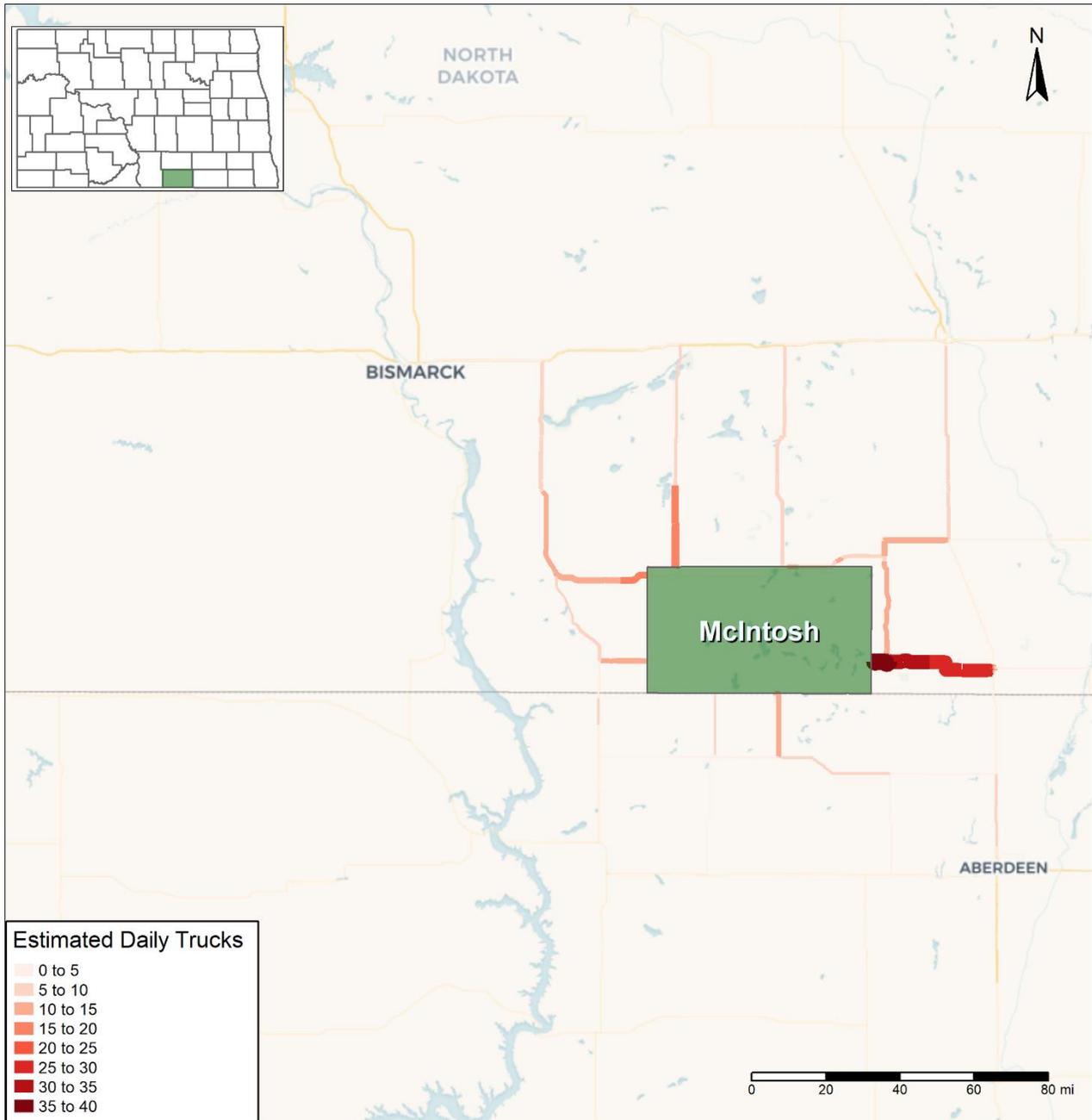


Figure C-71: StreetLight County-Level Top Route Analysis: McKenzie County

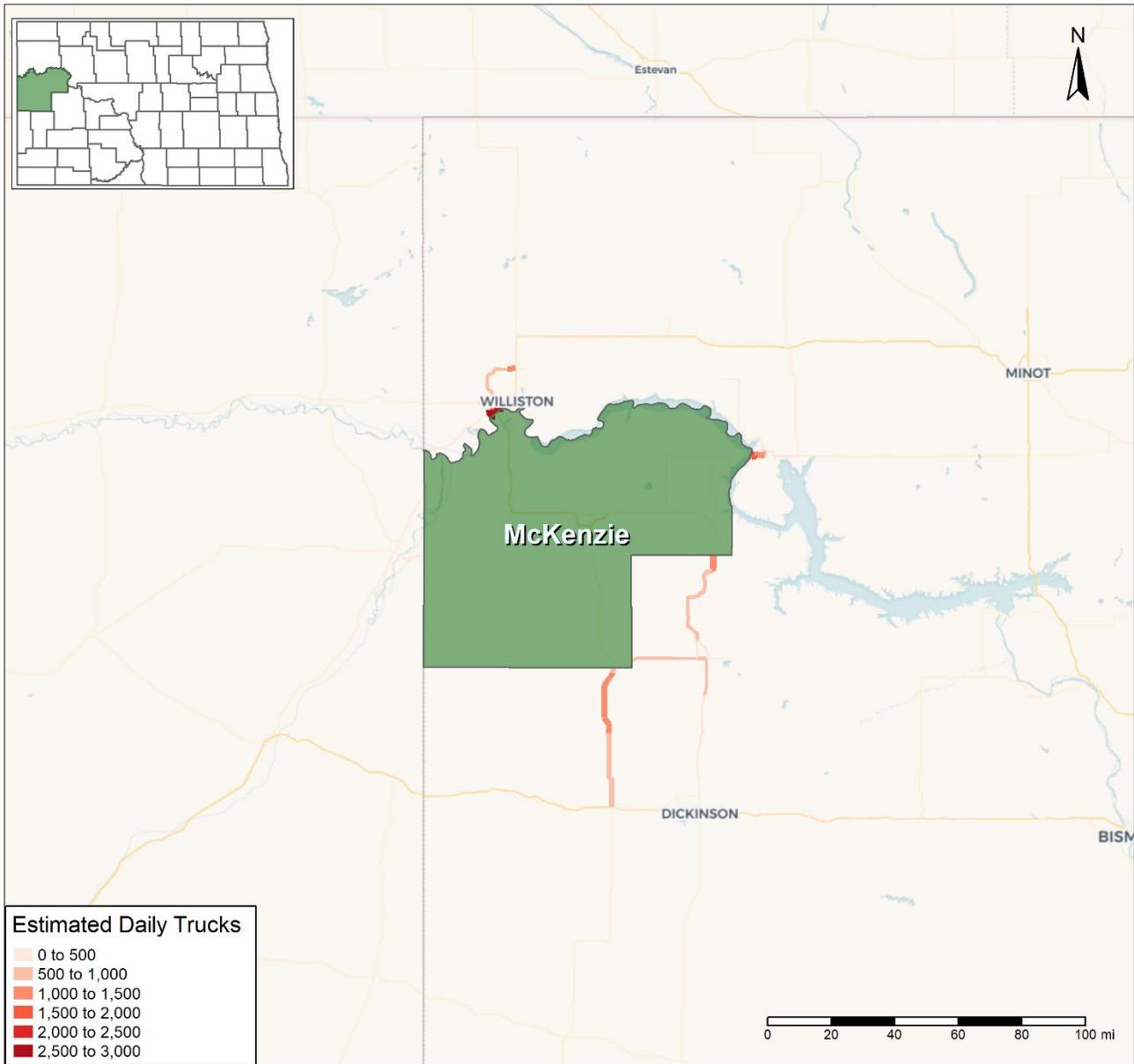


Figure C-72: StreetLight County-Level Top Route Analysis: McLean County

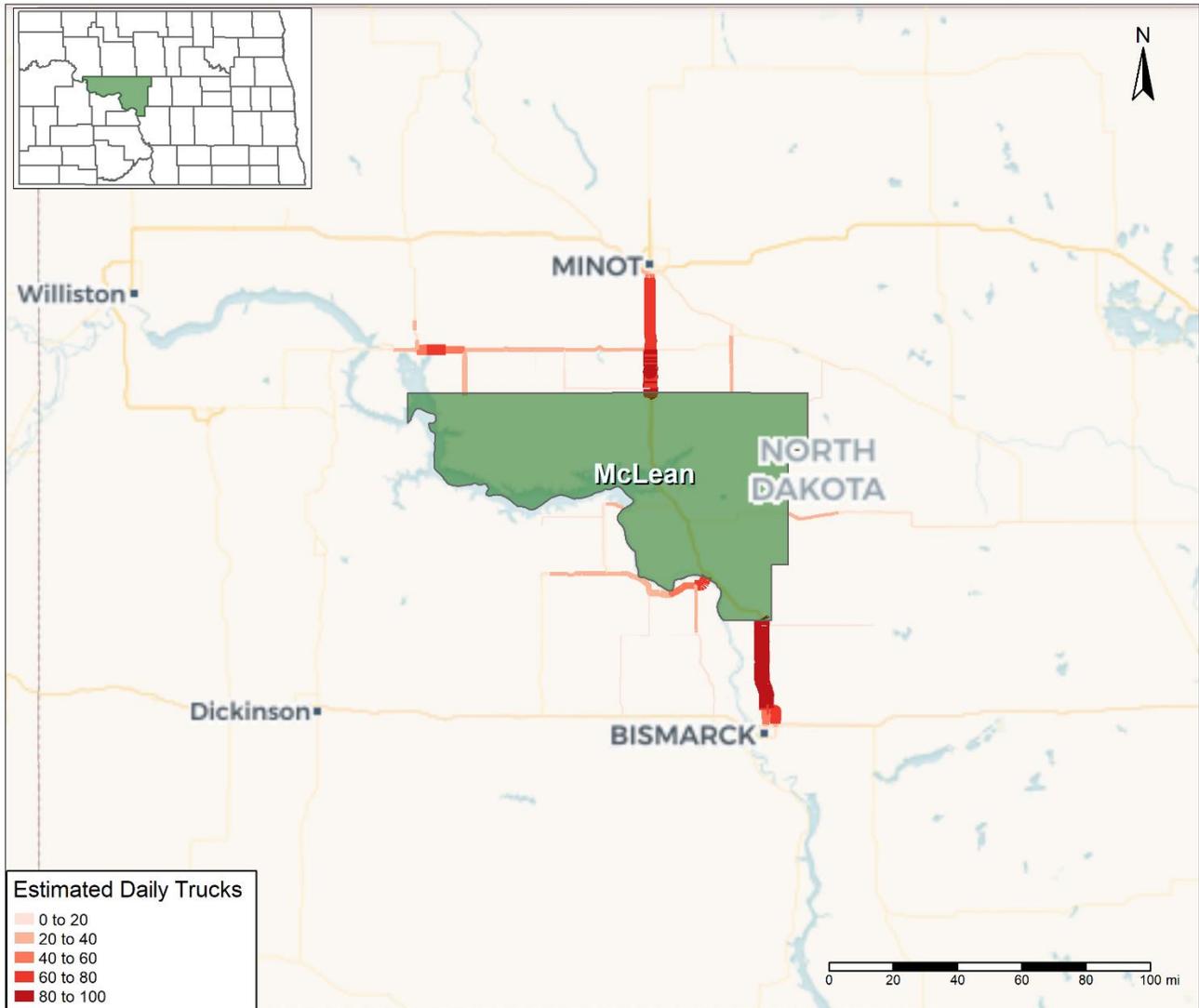


Figure C-73: StreetLight County-Level Top Route Analysis: Mercer County

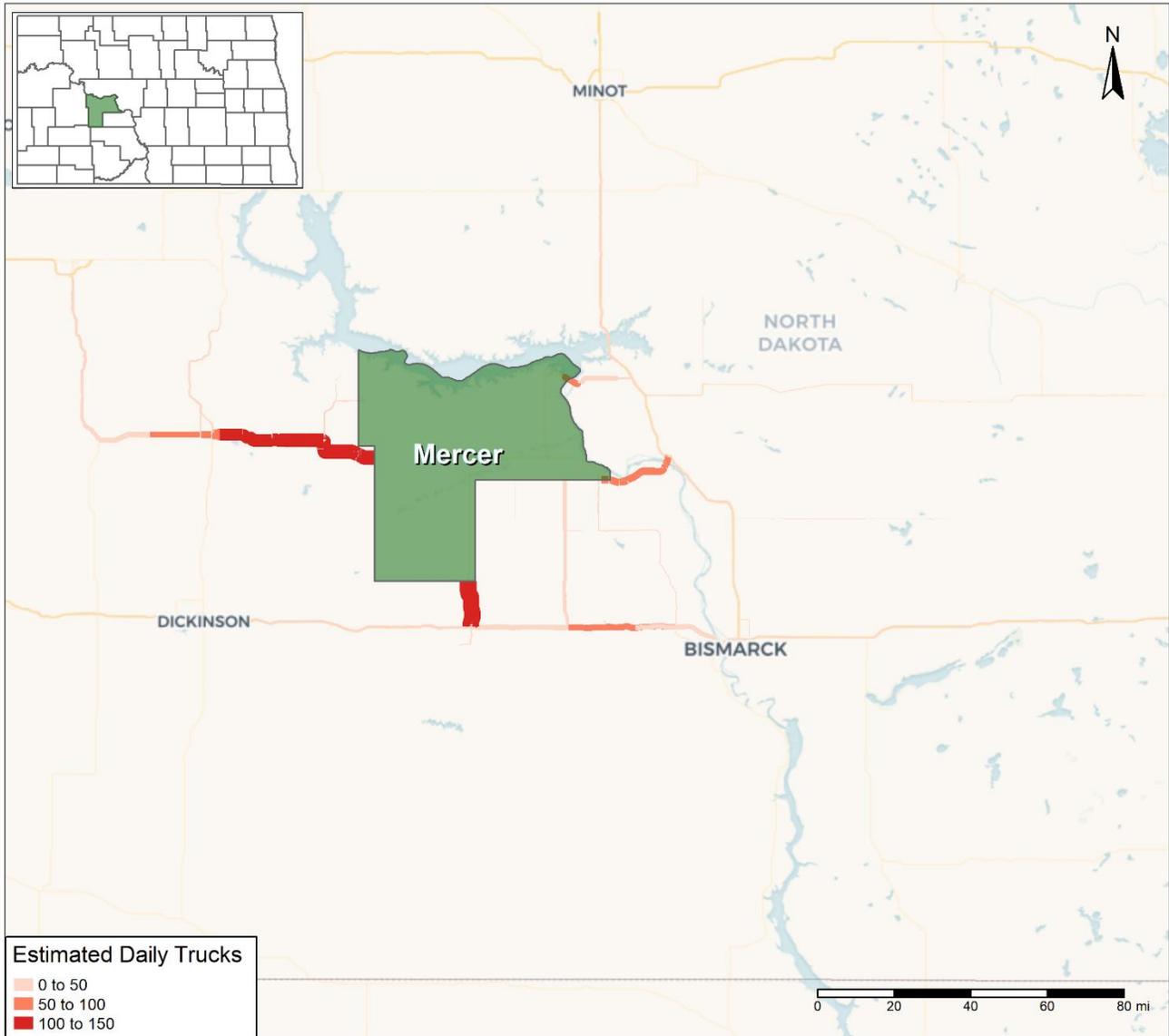


Figure C-74: StreetLight County-Level Top Route Analysis: Morton County

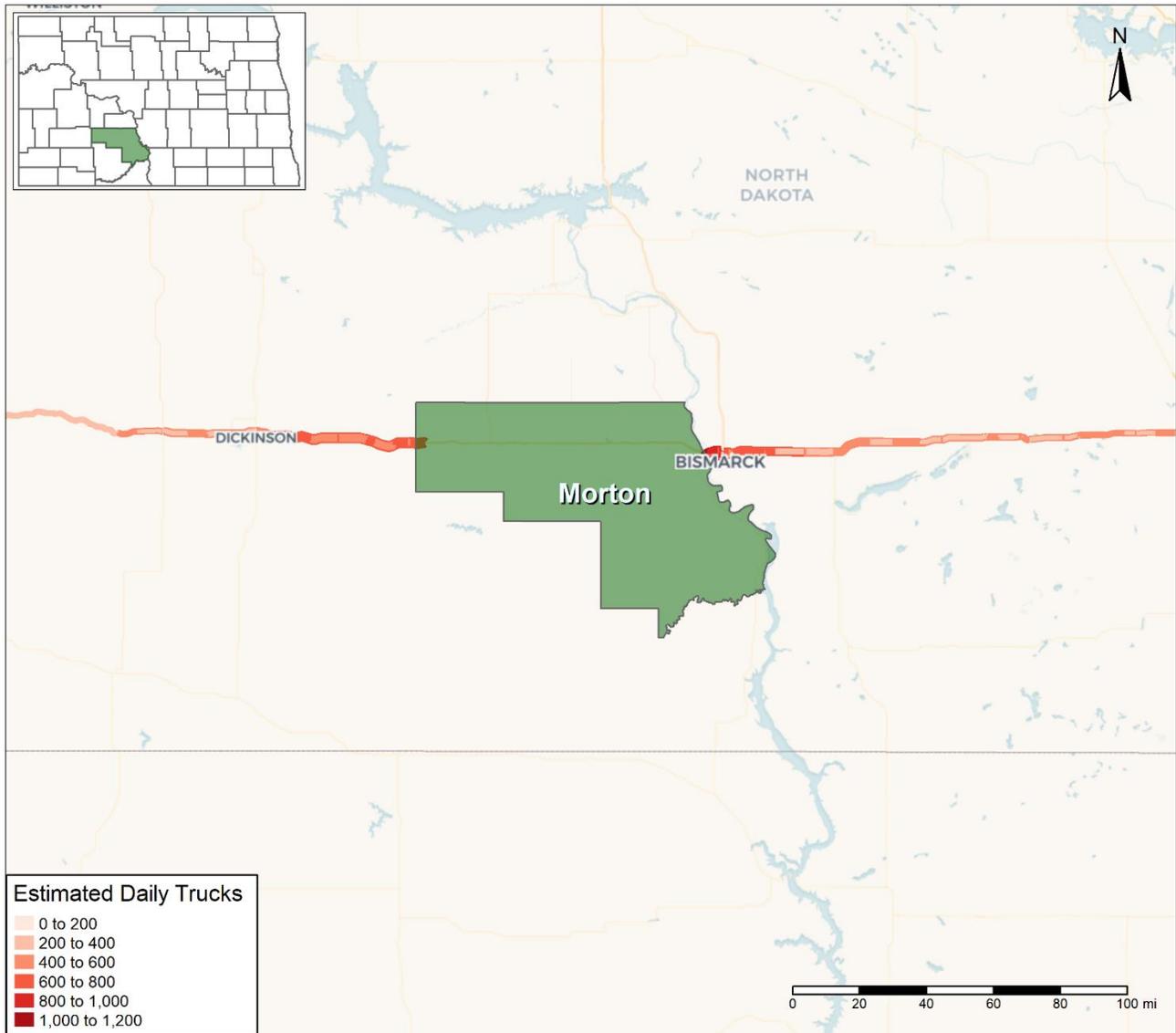


Figure C-75: StreetLight County-Level Top Route Analysis: Mountrail County

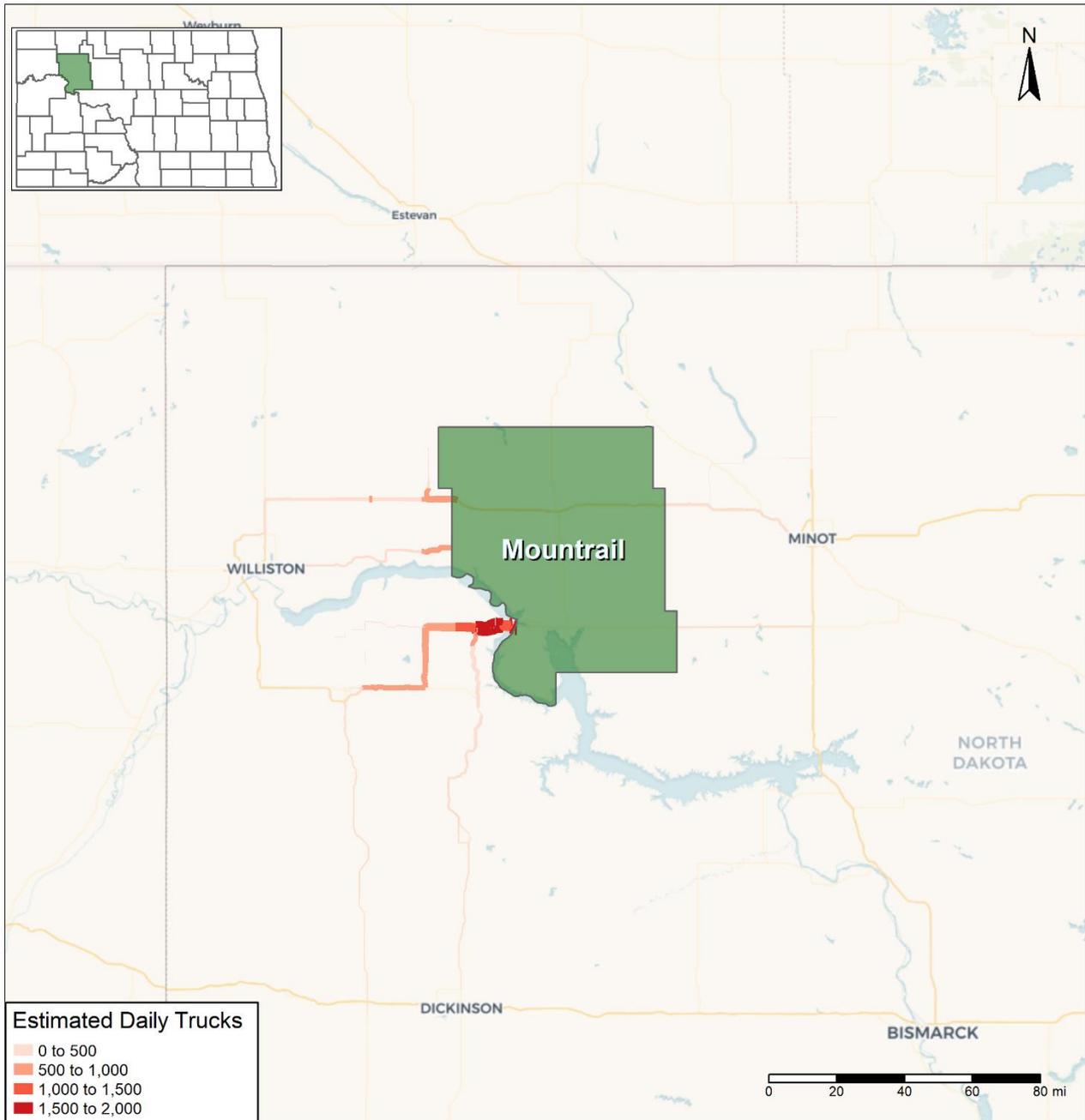


Figure C-76: StreetLight County-Level Top Route Analysis: Nelson County

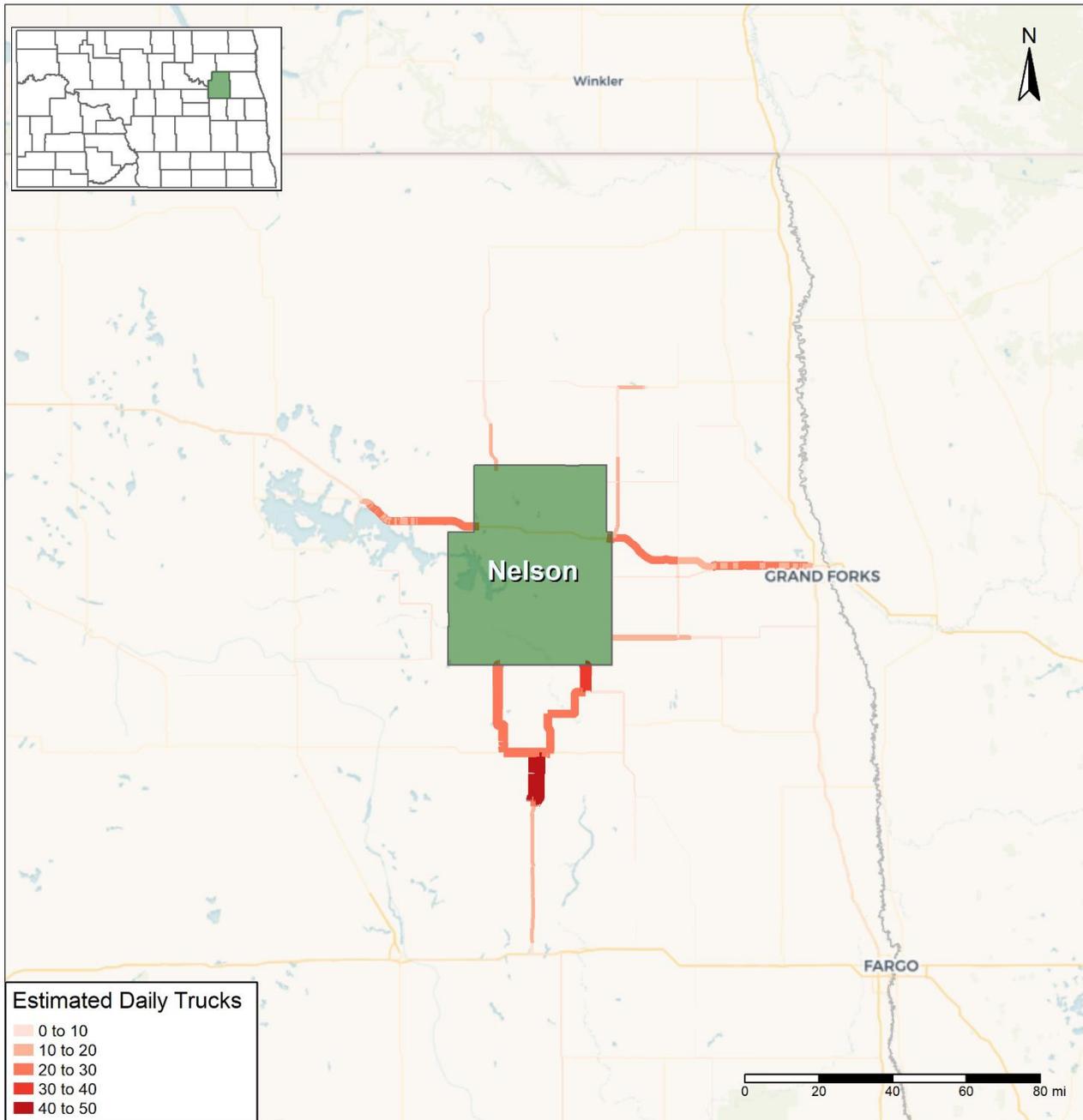


Figure C-77: StreetLight County-Level Top Route Analysis: Oliver County

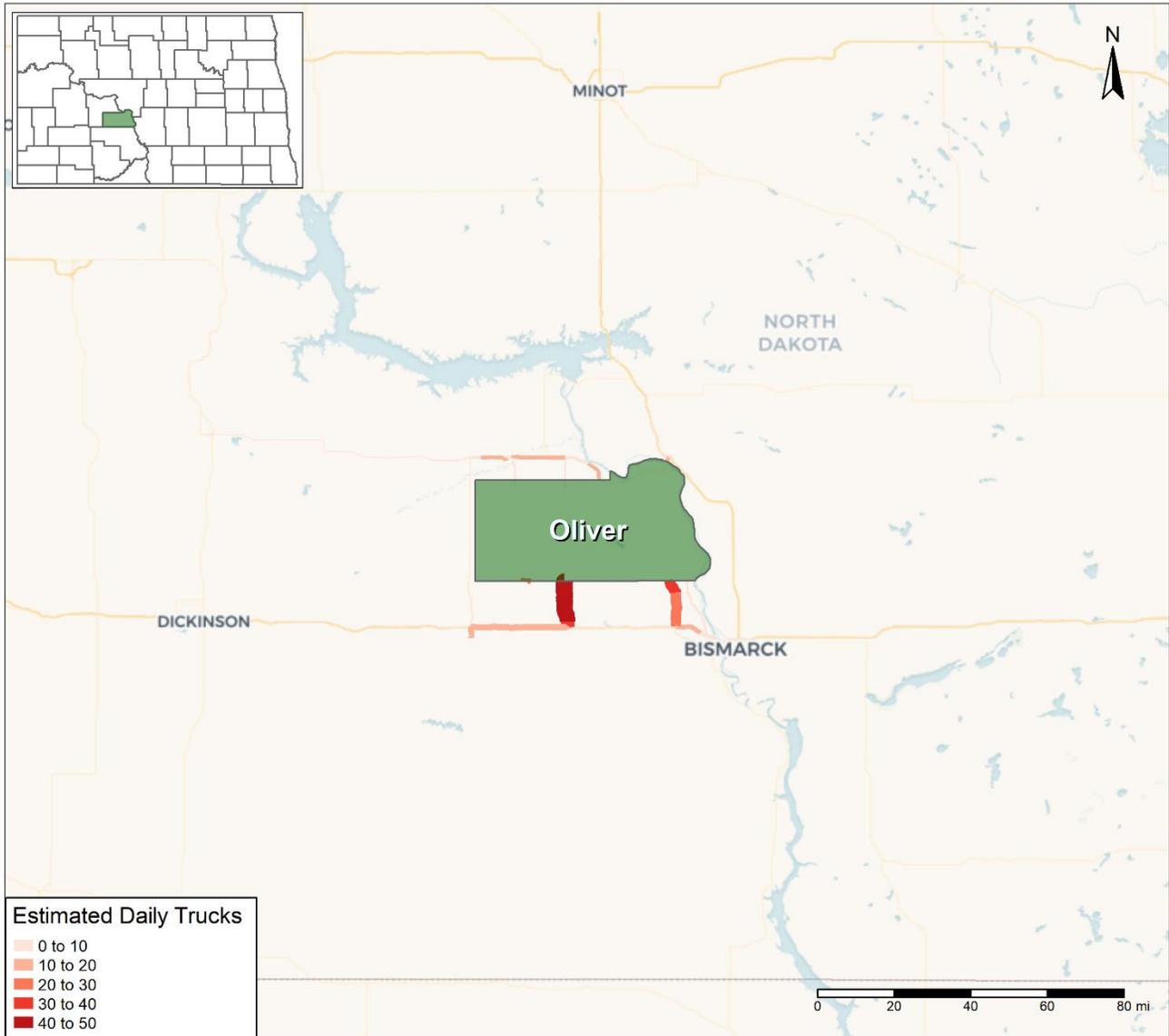


Figure C-78: StreetLight County-Level Top Route Analysis: Pembina County

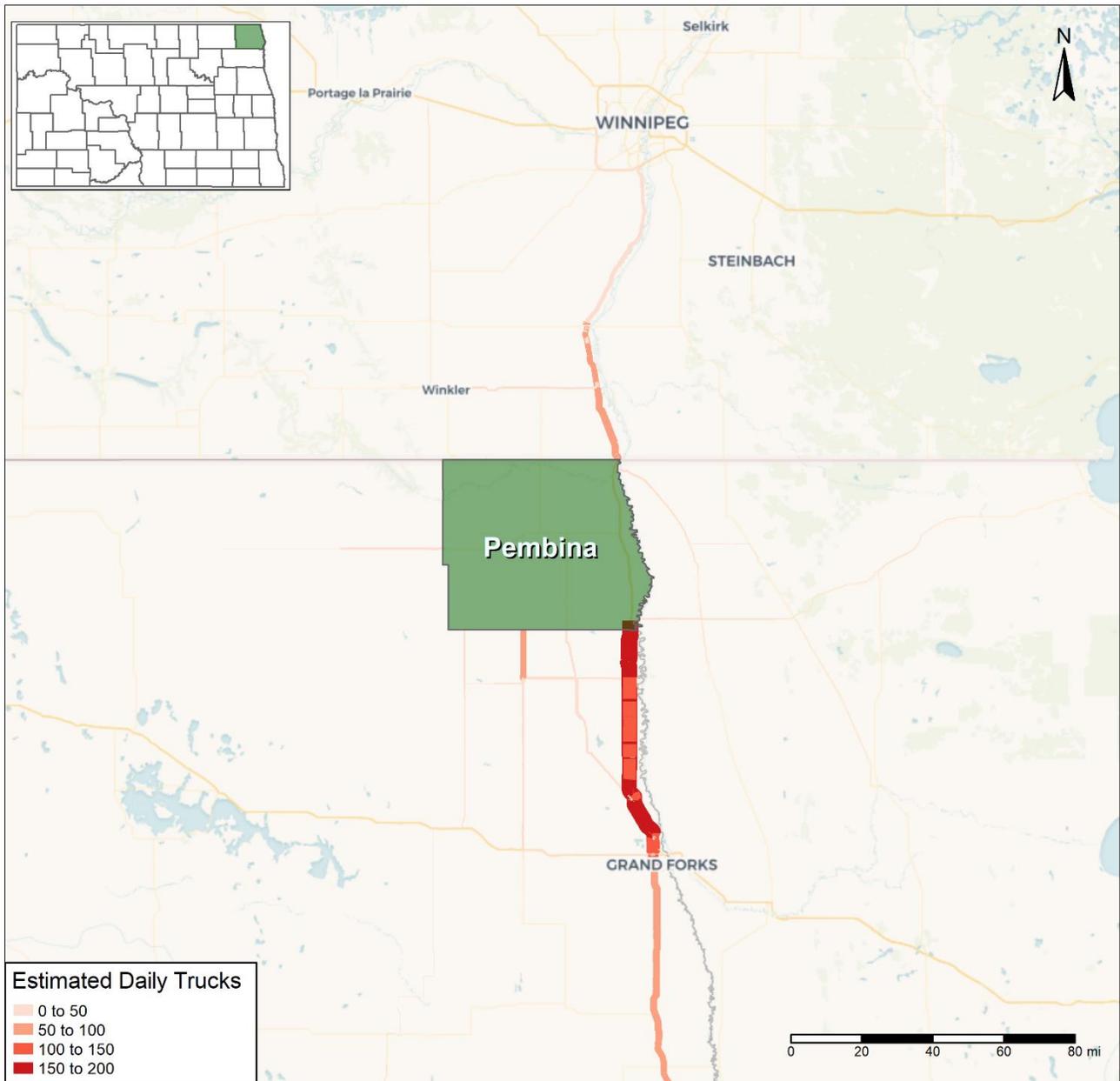


Figure C-79: StreetLight County-Level Top Route Analysis: Pierce County

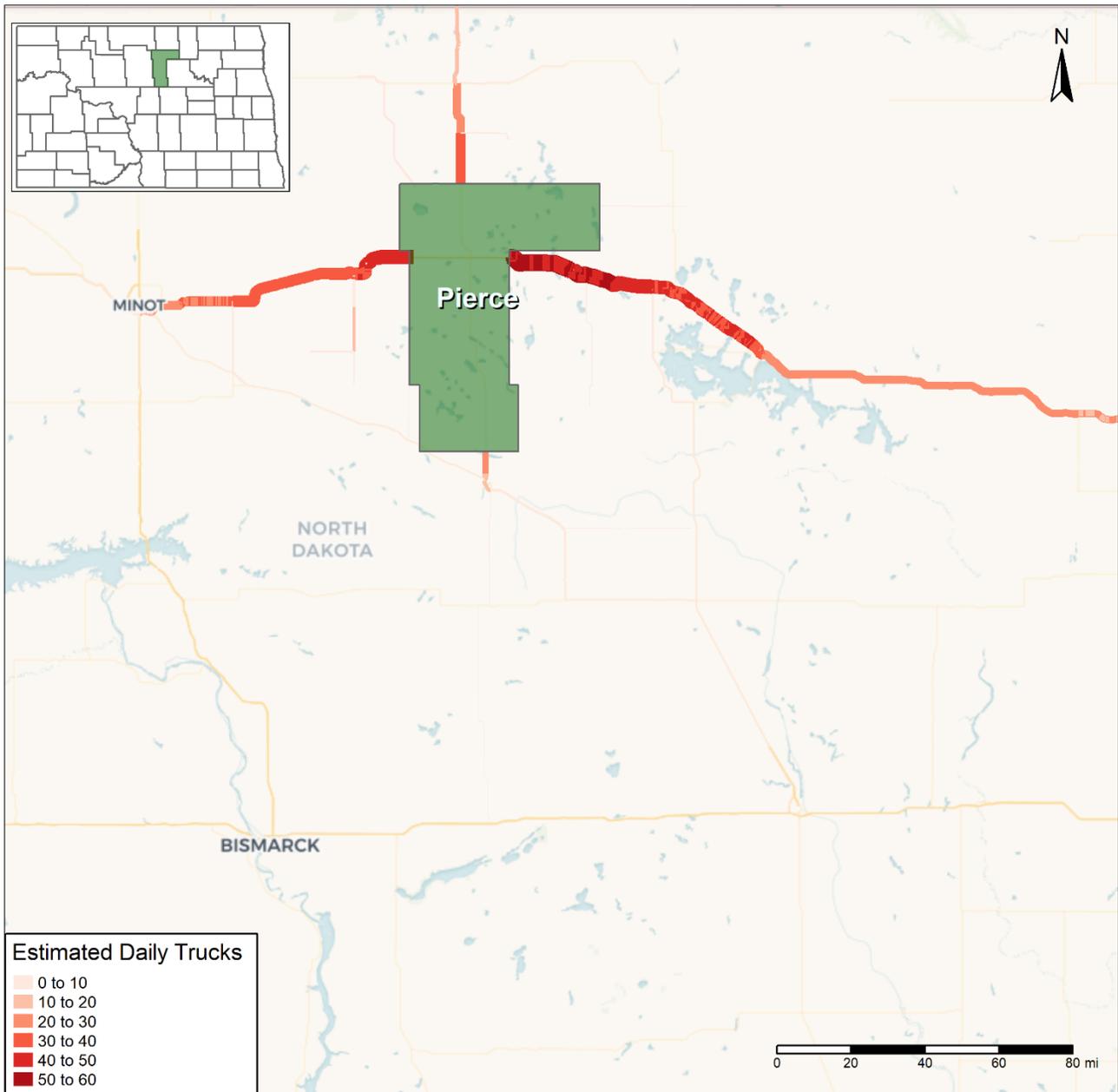


Figure C-80: StreetLight County-Level Top Route Analysis: Ramsey County

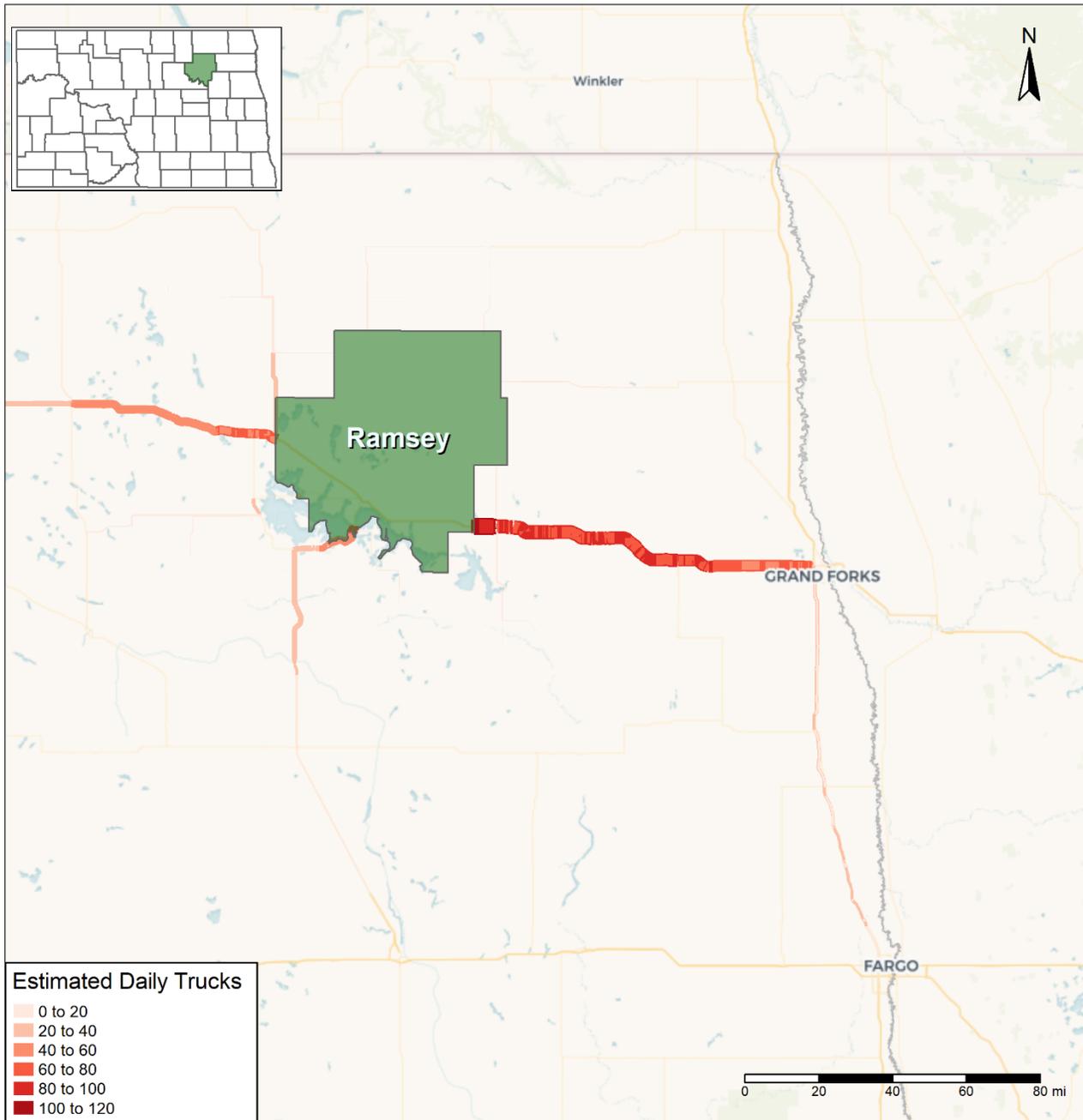


Figure C-81: StreetLight County-Level Top Route Analysis: Ransom County

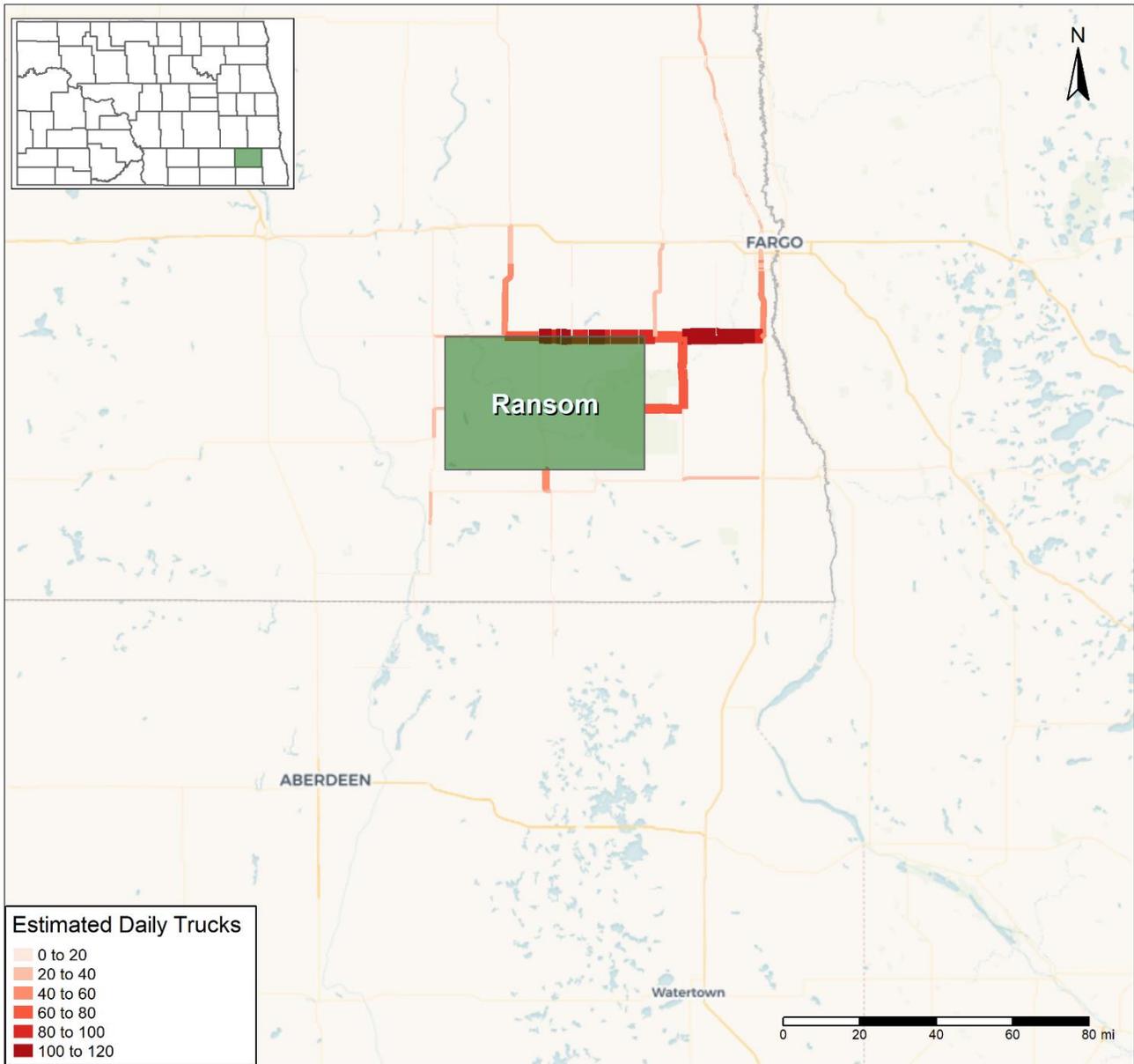


Figure C-82: StreetLight County-Level Top Route Analysis: Renville County

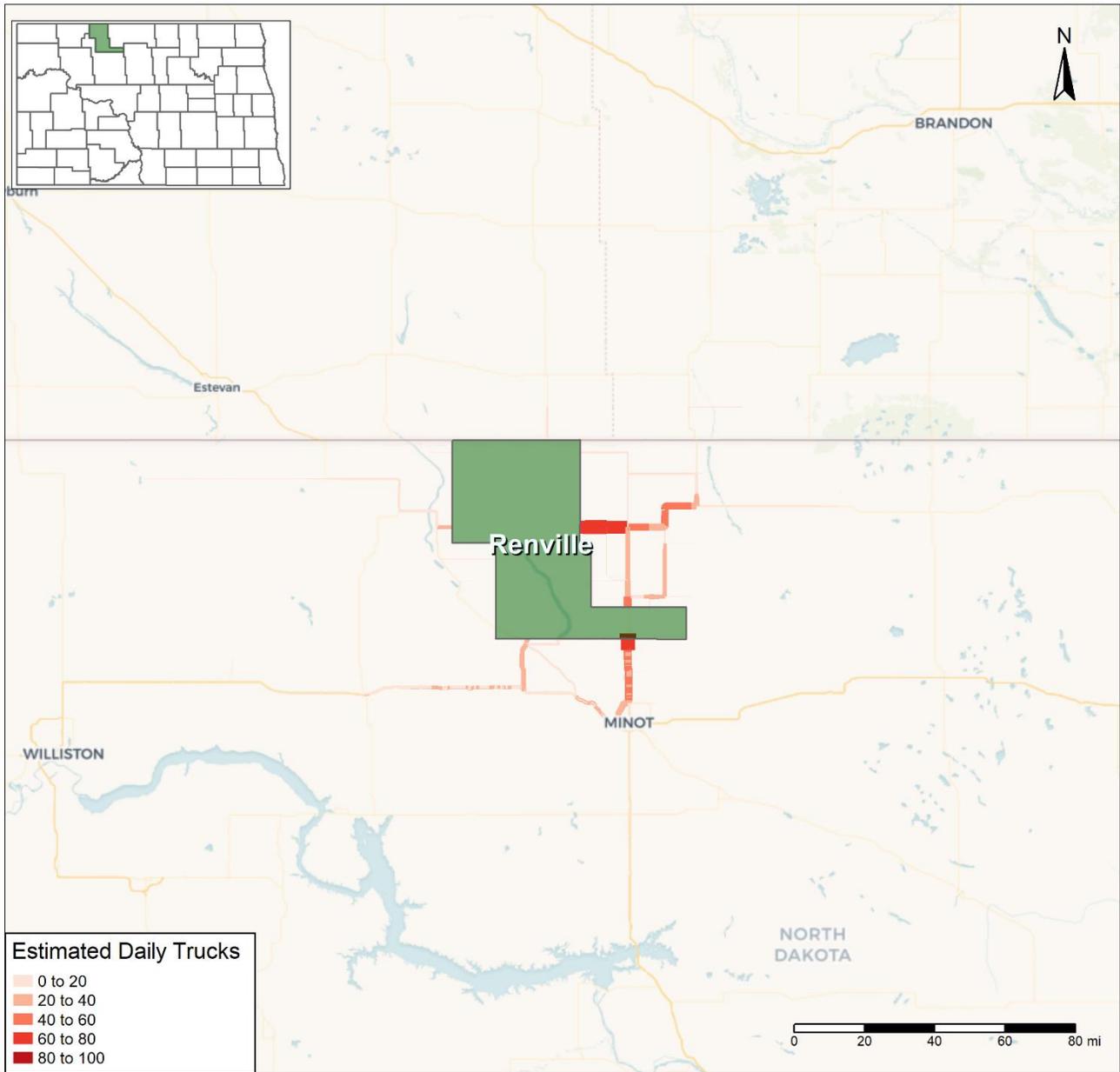


Figure C-83: StreetLight County-Level Top Route Analysis: Richland County

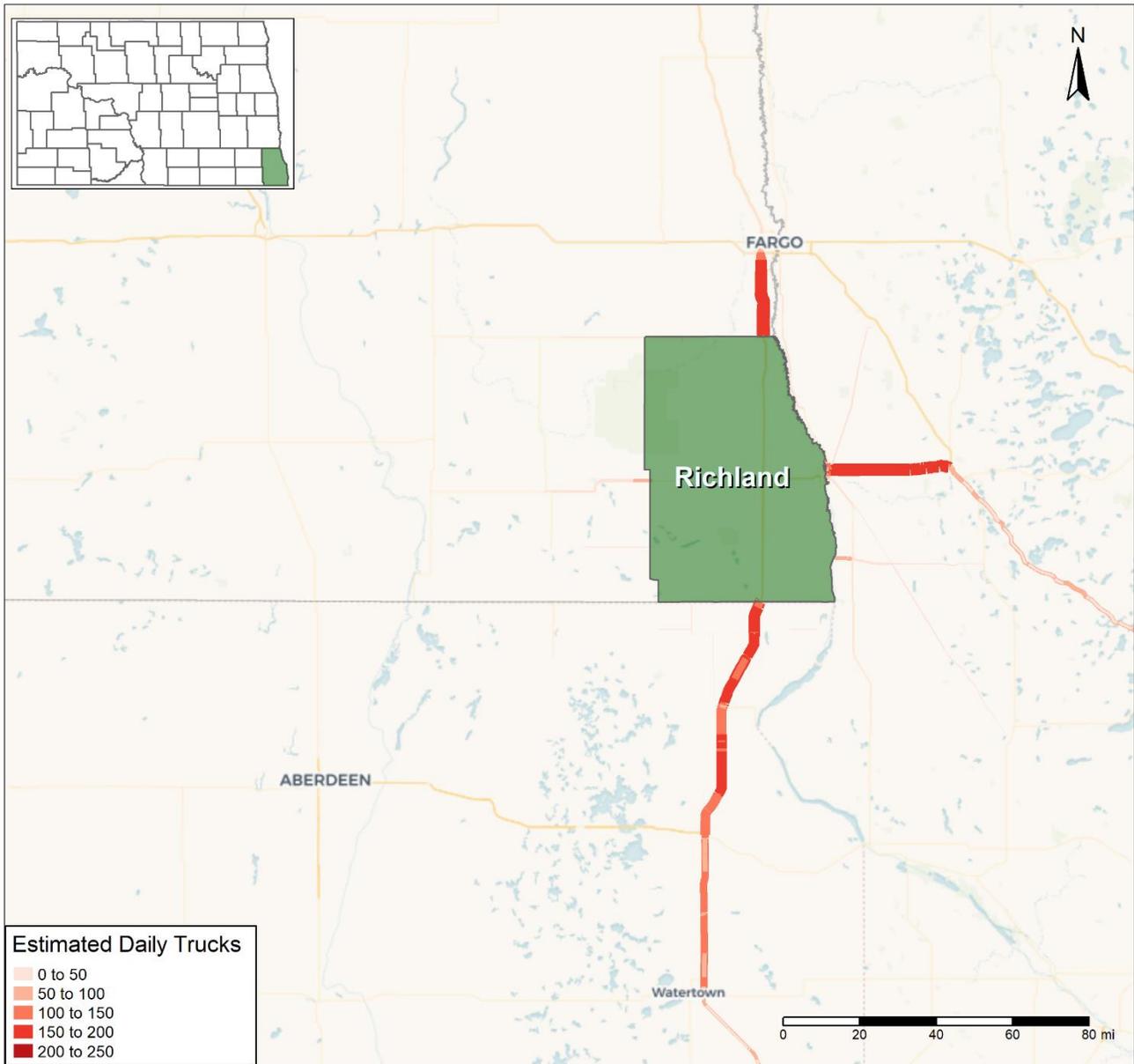


Figure C-84: StreetLight County-Level Top Route Analysis: Rolette County

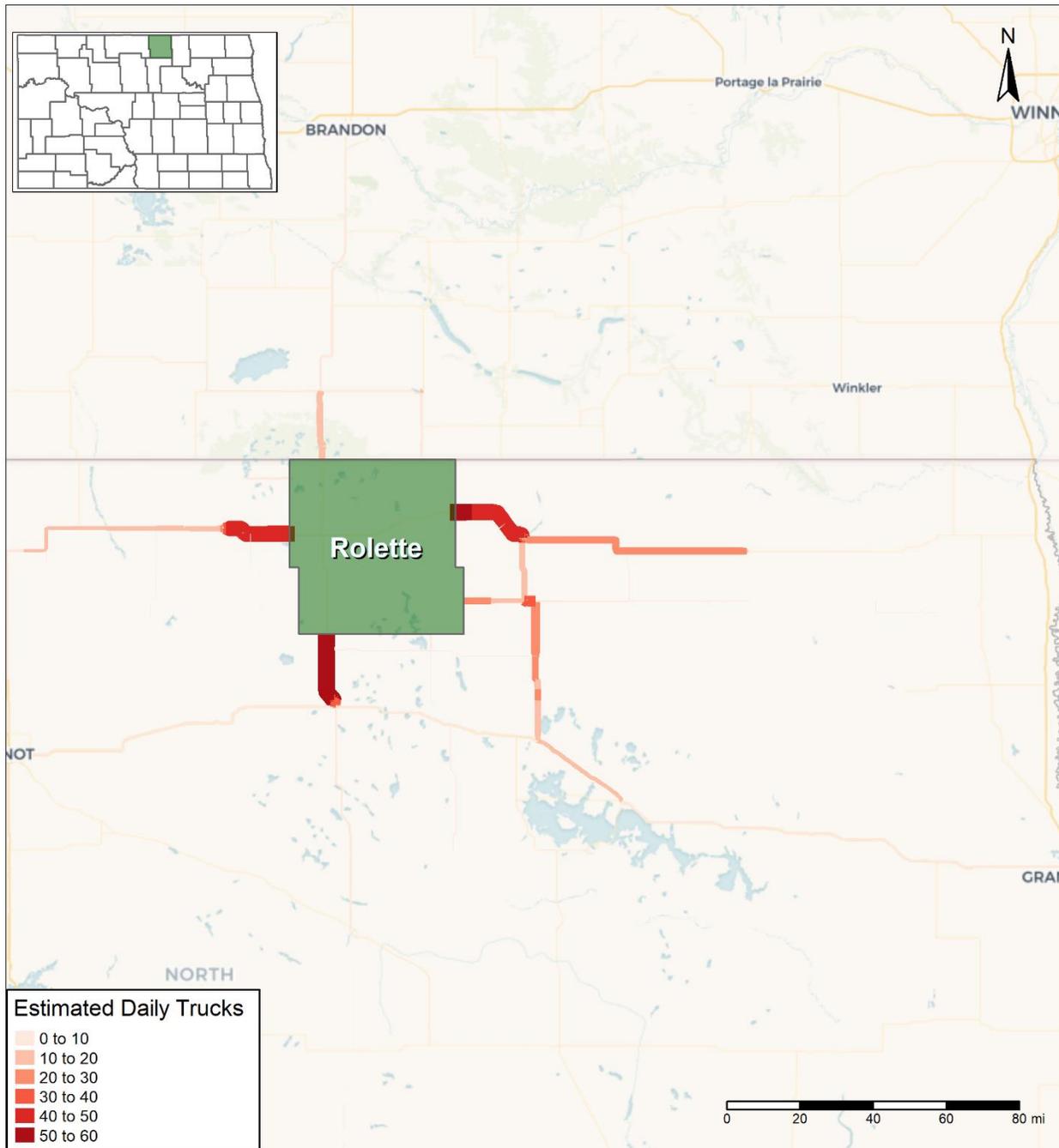


Figure C-85: StreetLight County-Level Top Route Analysis: Sargent County

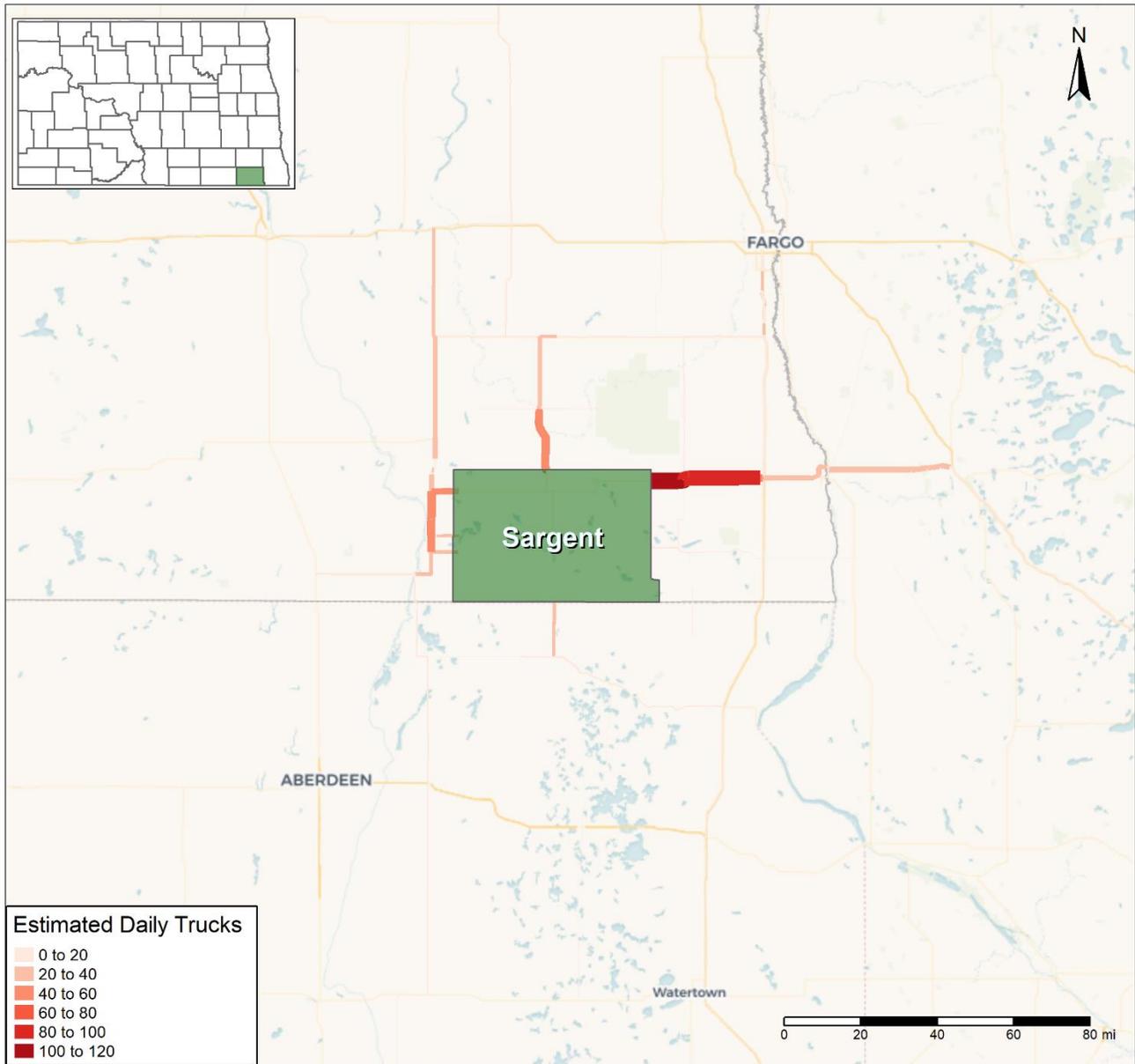


Figure C-86: StreetLight County-Level Top Route Analysis: Sheridan County

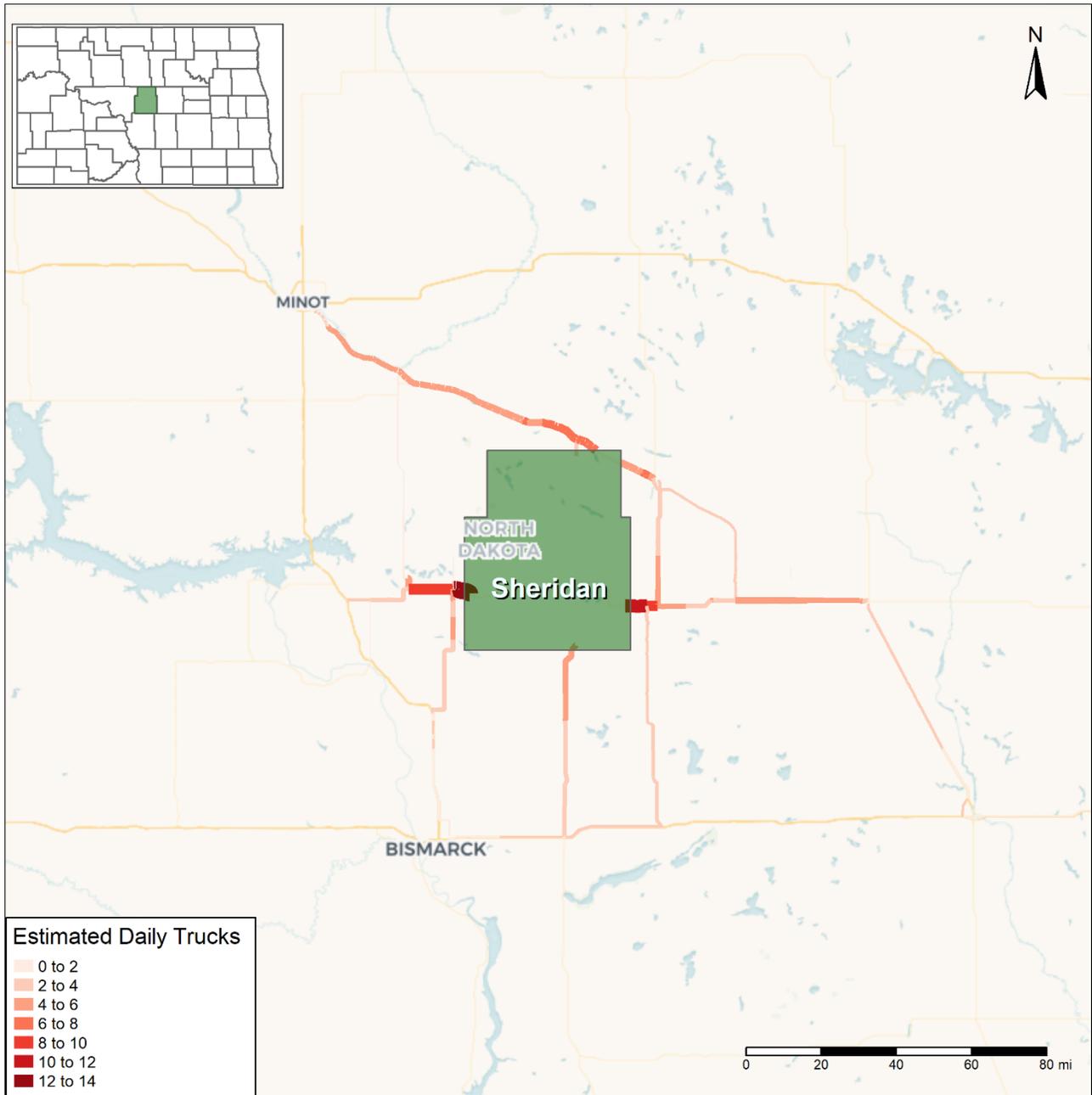


Figure C-87: StreetLight County-Level Top Route Analysis: Sioux County

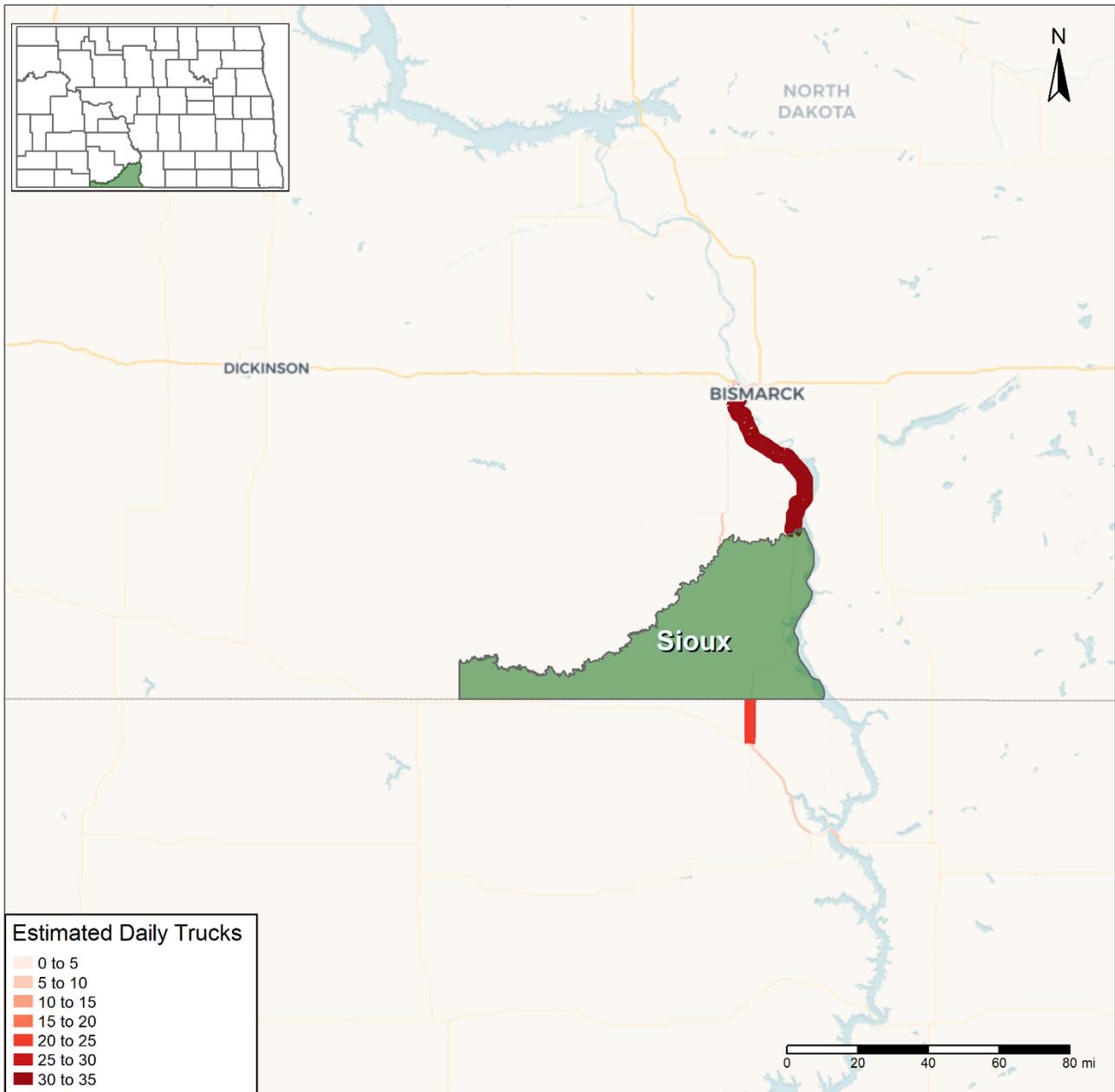


Figure C-88: StreetLight County-Level Top Route Analysis: Slope County

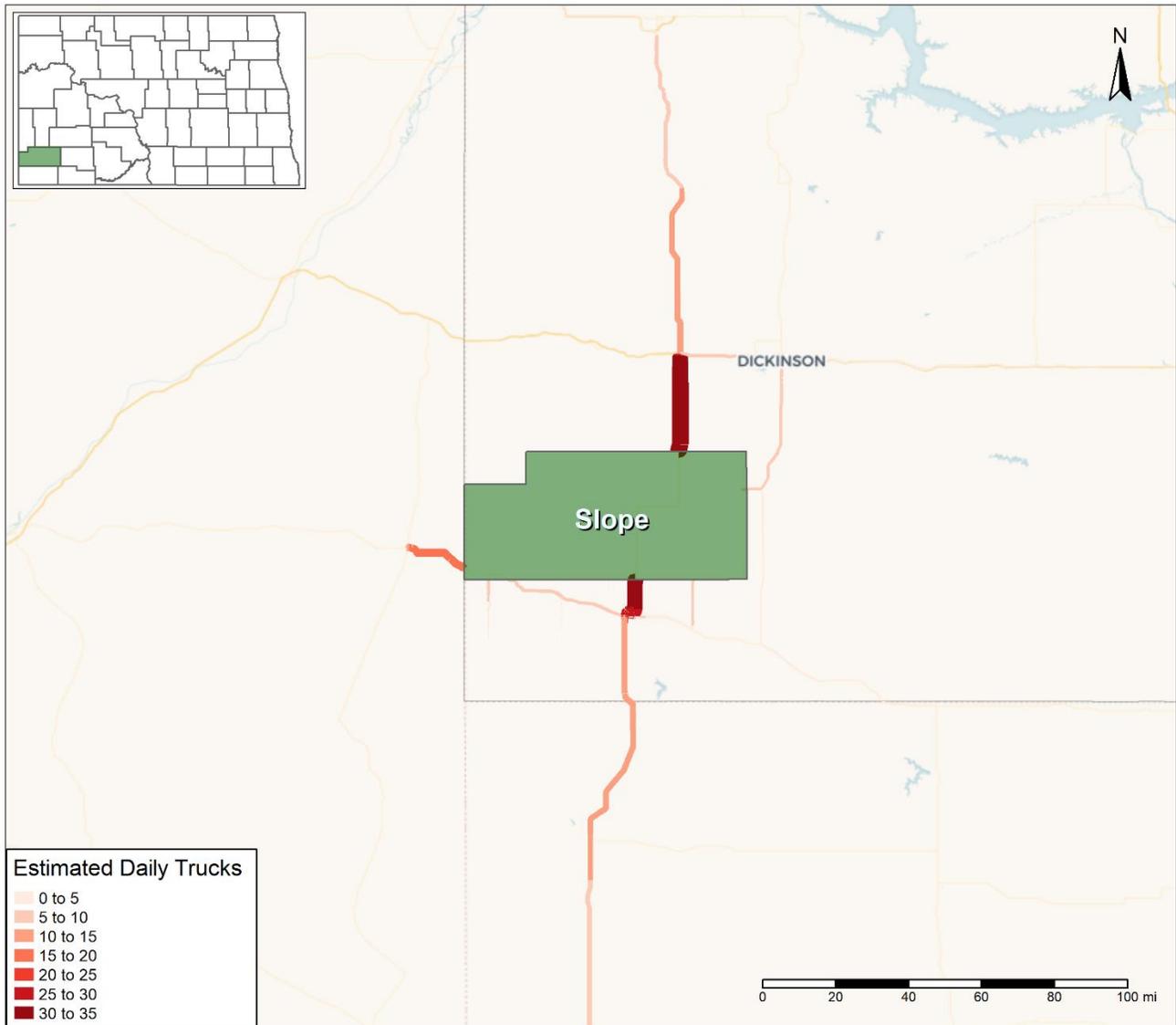


Figure C-89: StreetLight County-Level Top Route Analysis: Stark County

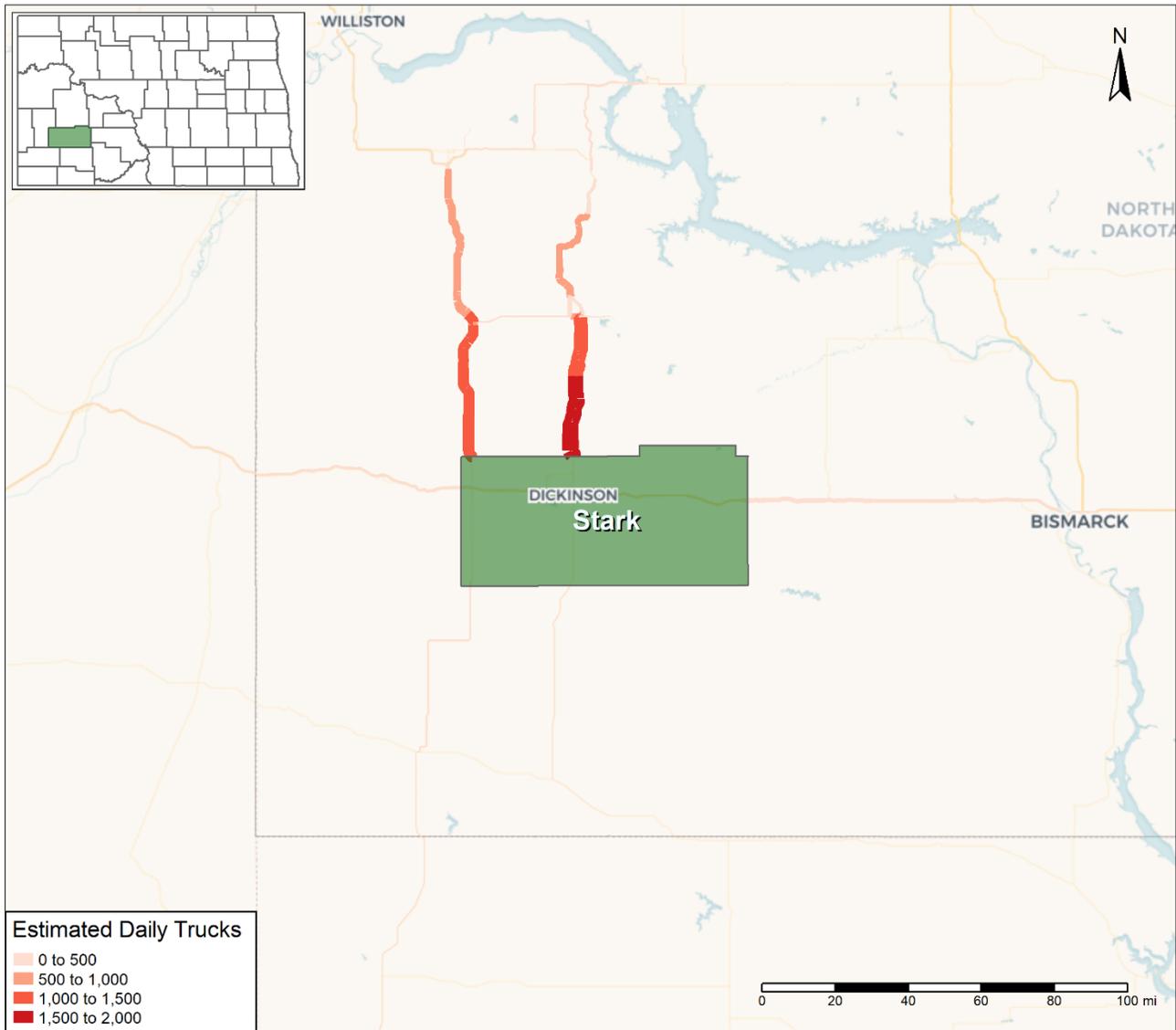


Figure C-90: StreetLight County-Level Top Route Analysis: Steele County

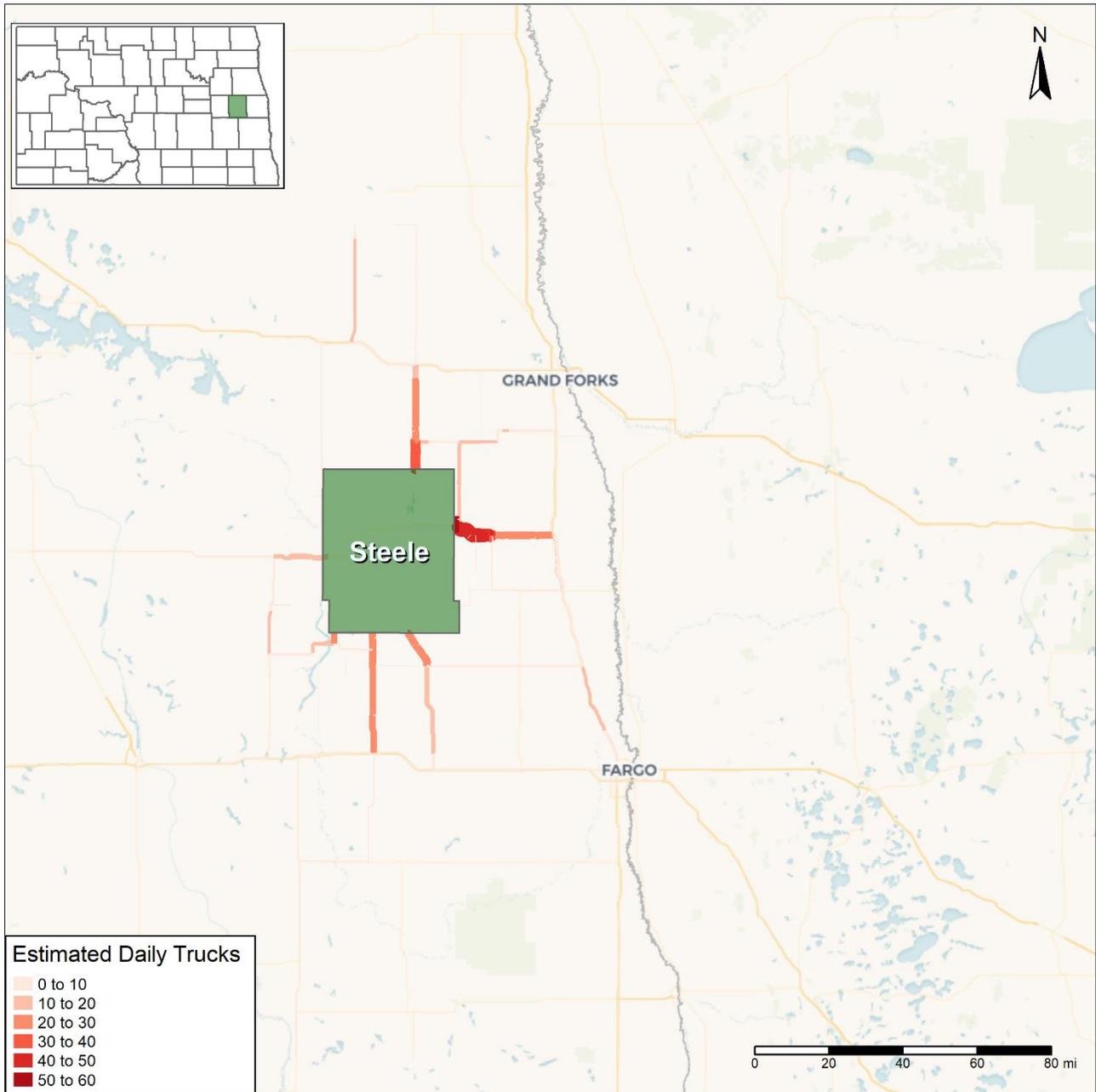


Figure C-91: StreetLight County-Level Top Route Analysis: Stutsman County

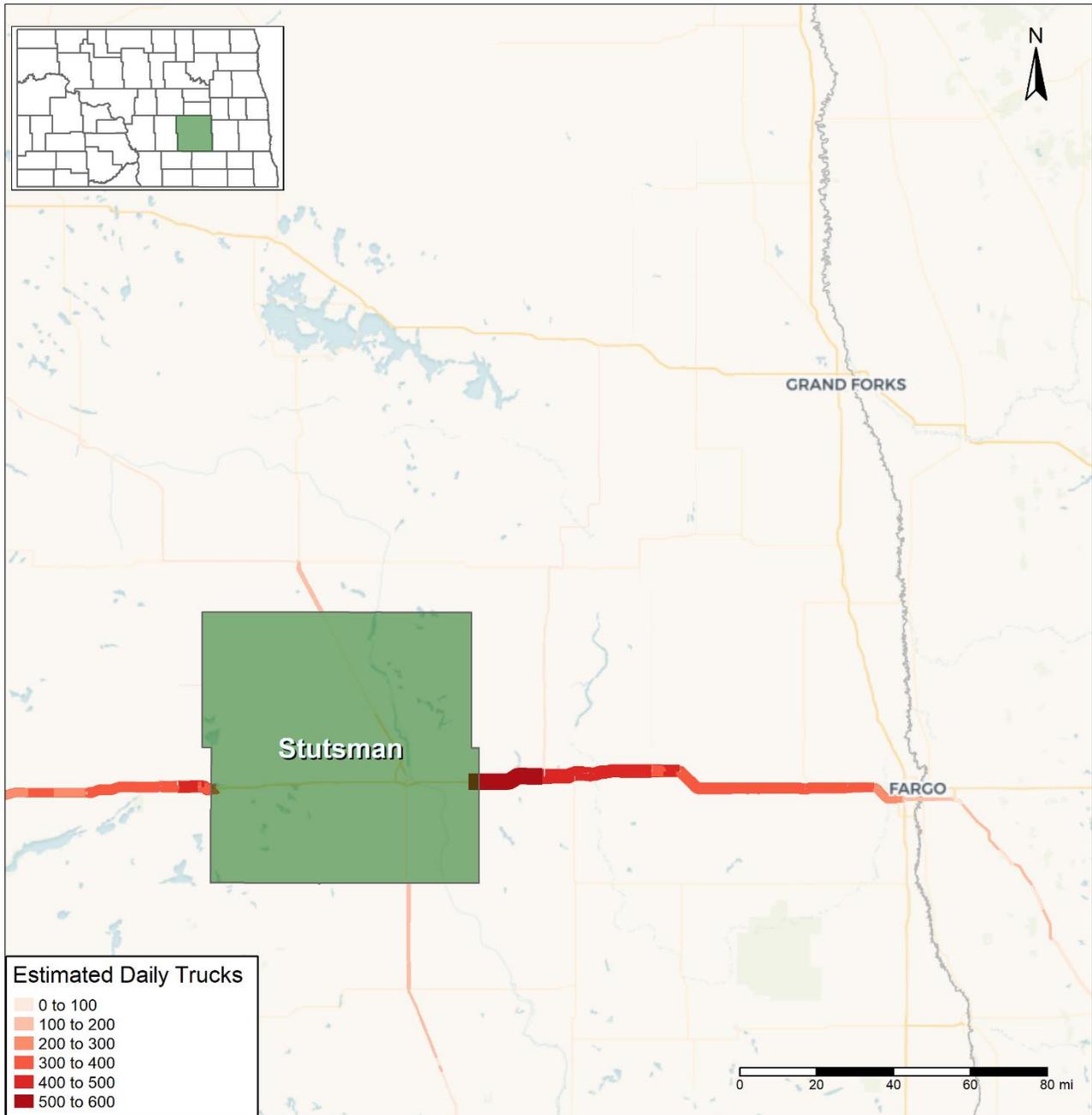


Figure C-92: StreetLight County-Level Top Route Analysis: Towner County

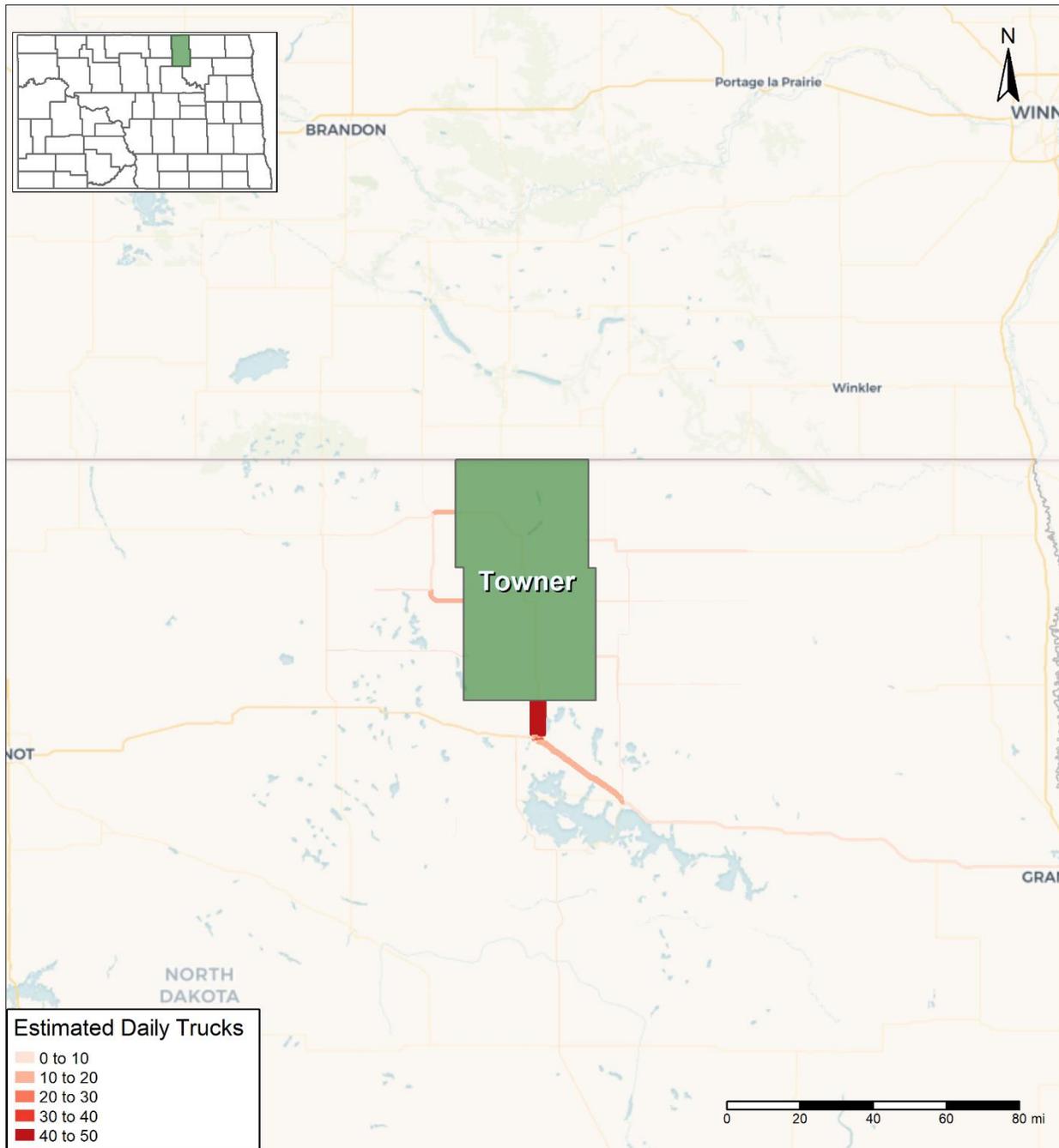


Figure C-93: StreetLight County-Level Top Route Analysis: Traill County

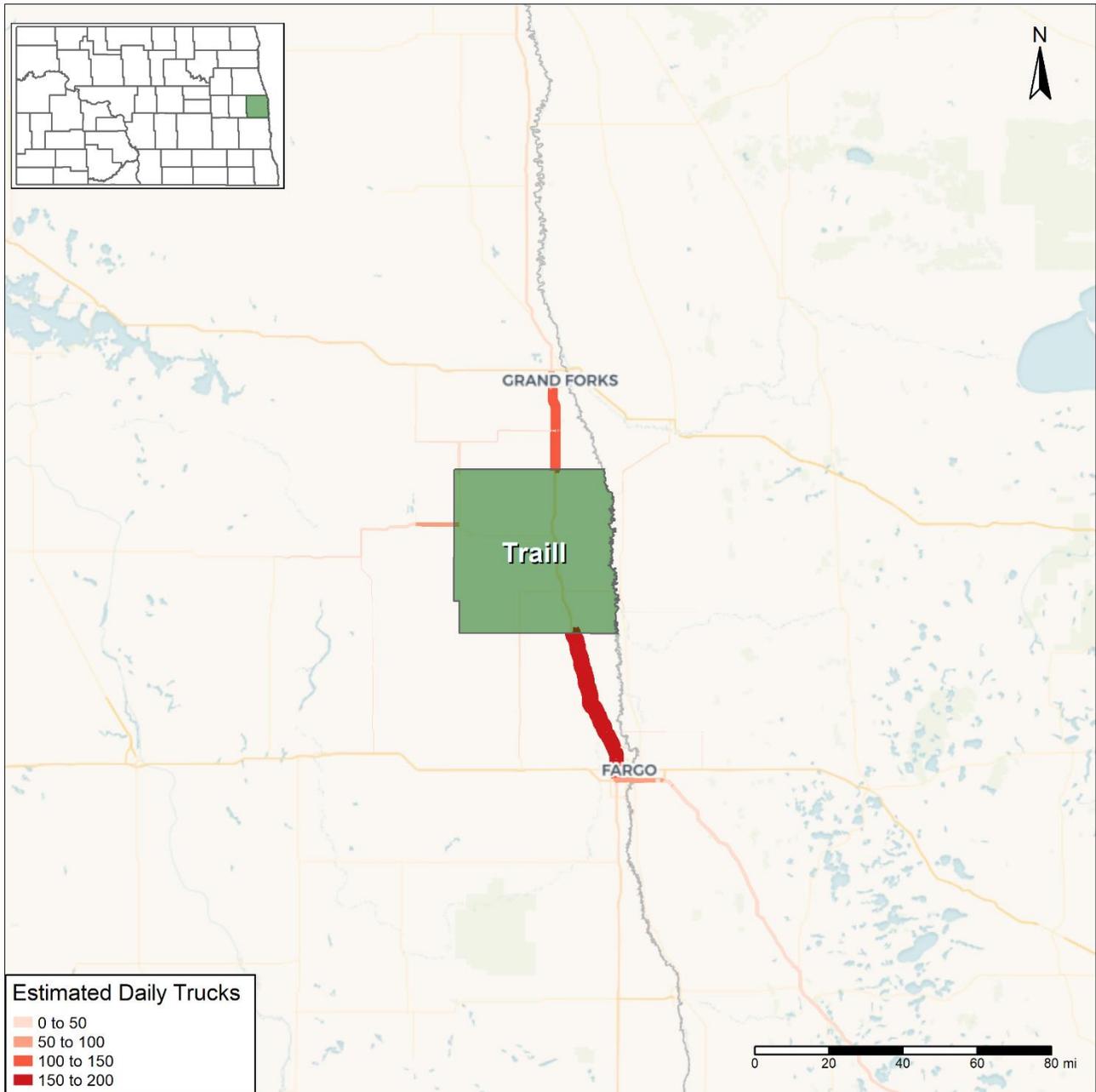


Figure C-94: StreetLight County-Level Top Route Analysis: Walsh County

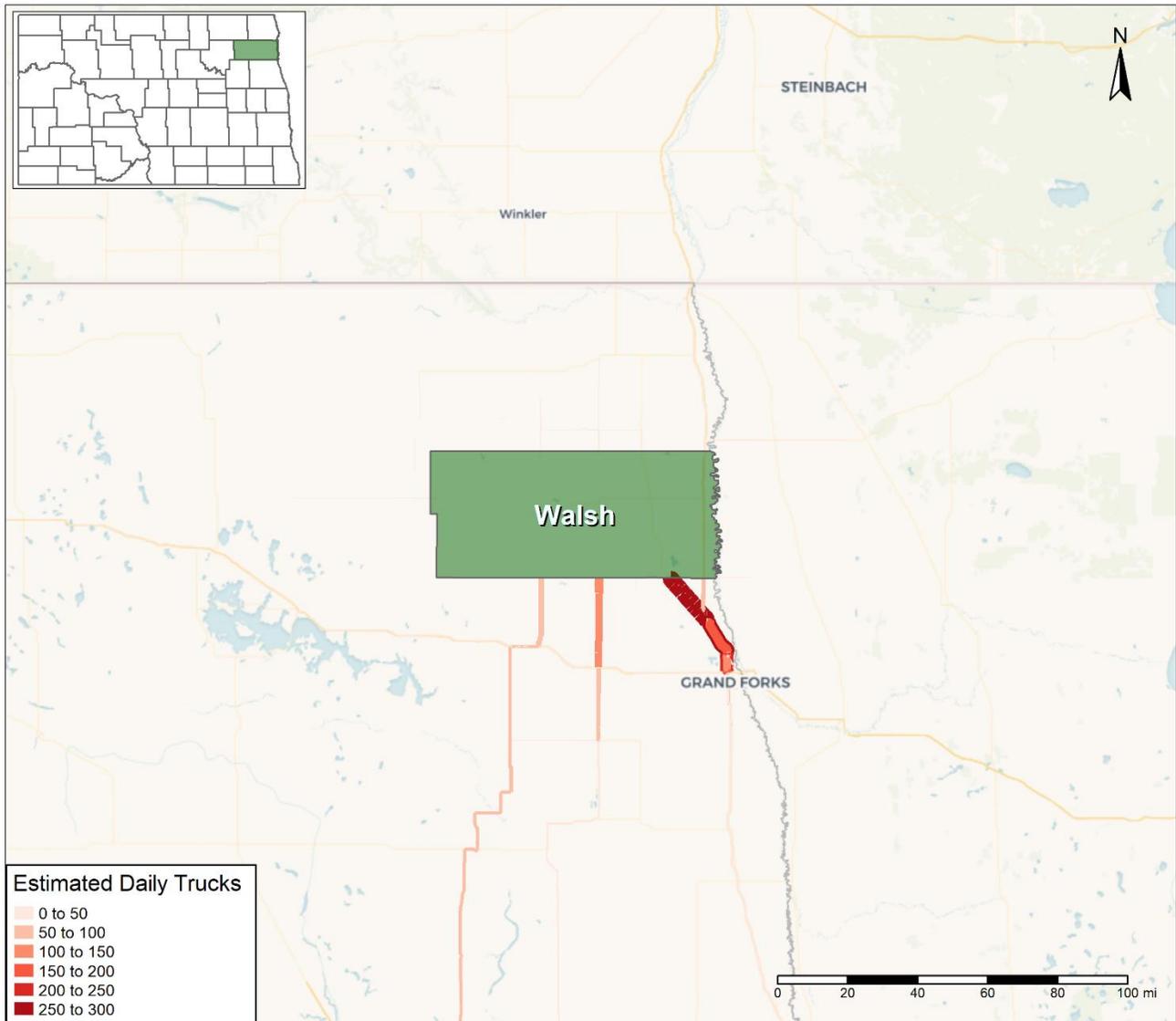


Figure C-95: StreetLight County-Level Top Route Analysis: Ward County

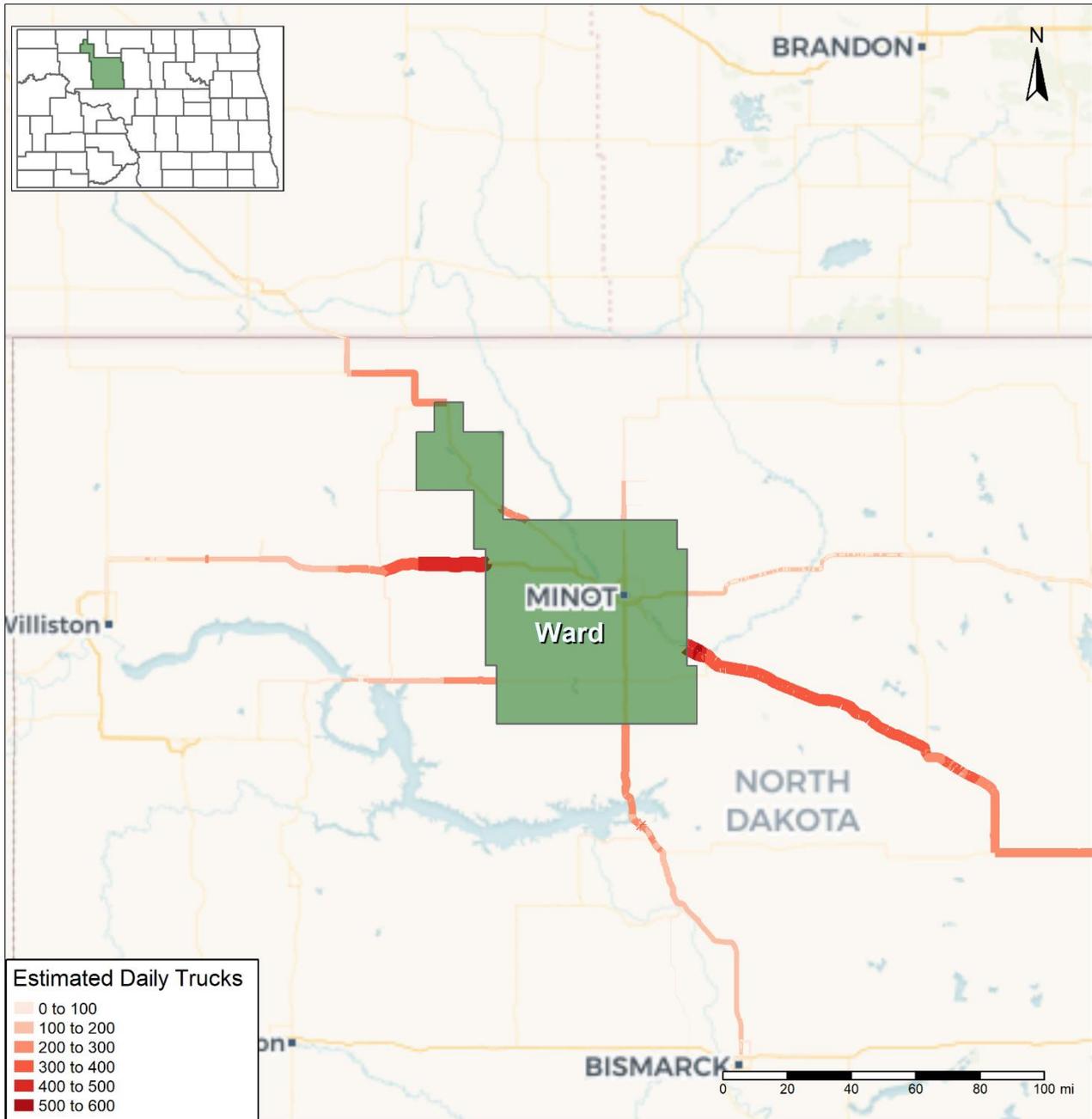


Figure C-96: StreetLight County-Level Top Route Analysis: Wells County

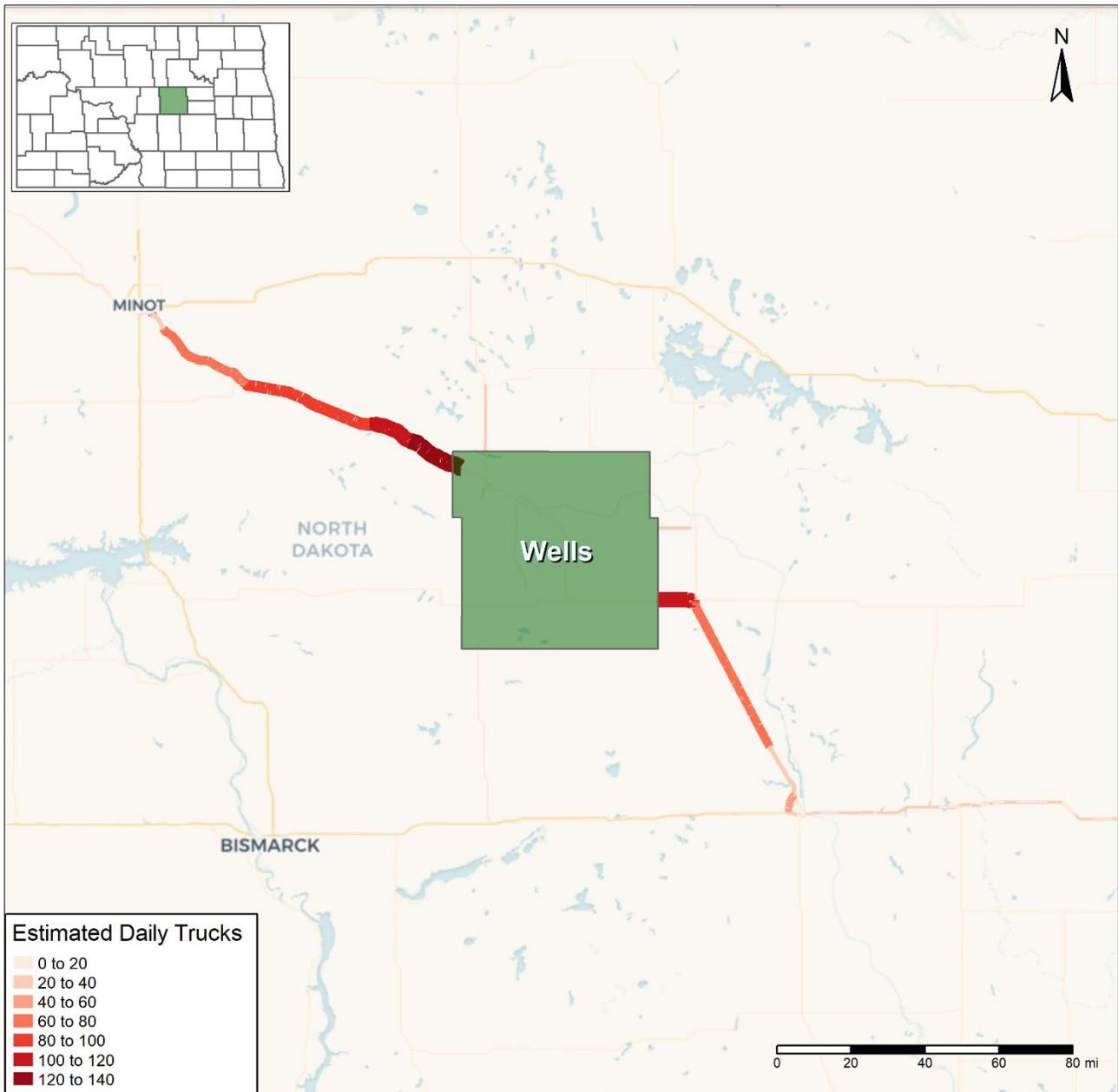


Figure C-97: StreetLight County-Level Top Route Analysis: Williams County

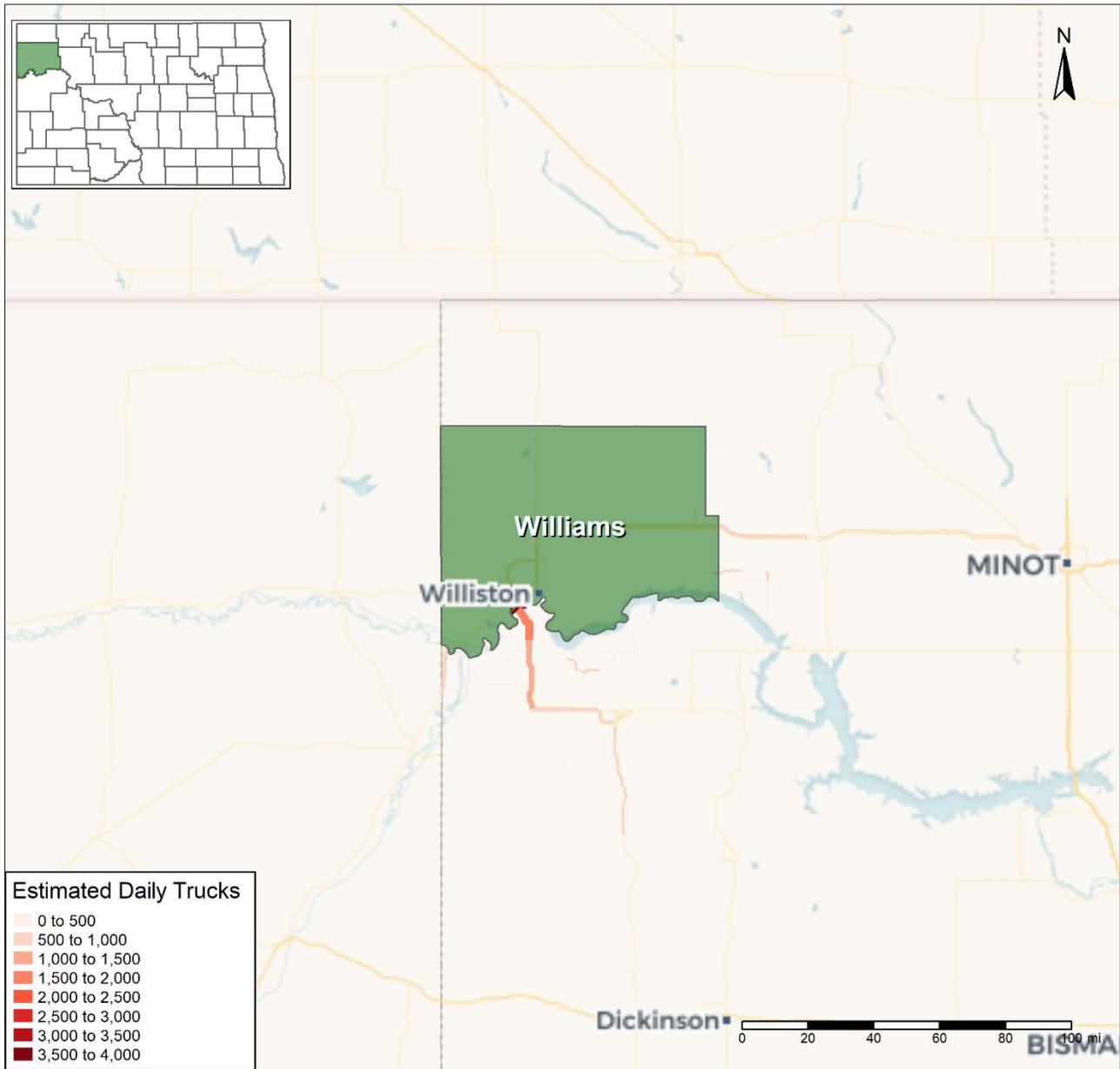


Figure C-98: StreetLight Border Crossing Analysis: Northgate

