REGIONAL STRATEGIC FREIGHT PLAN

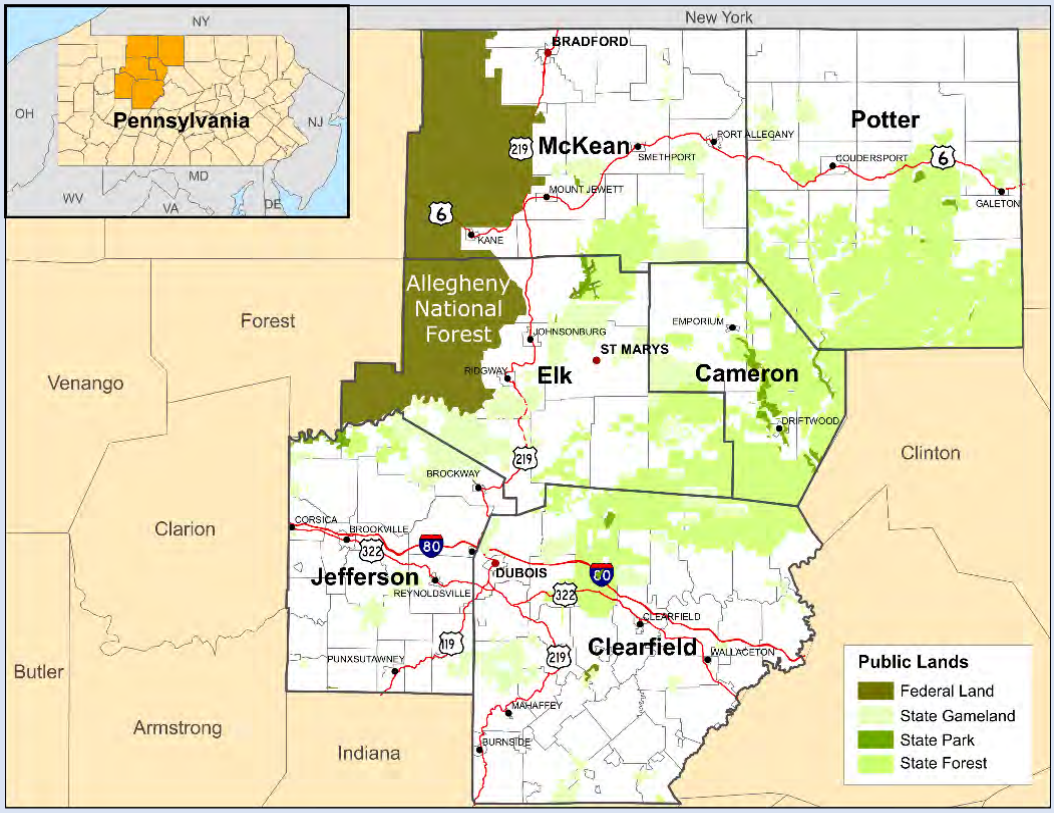
Prepared for:

North Central Pennsylvania Regional Planning and Development Commission
49 Ridgmont Drive
Ridgway, PA 15853
814-773-3162
http://www.ncentral.com/

TABLE OF CONTENTS

Our Geographic Position

The North Central Rural Planning Organization (RPO) region is one of the largest geographically in Pennsylvania. The six-county region includes Cameron, Clearfield, Elk, Jefferson, McKean, and Potter Counties and is 5,080 square miles in size. With an estimated 2016 population of only 218,600, the region is largely rural, yet includes the economic centers of Bradford, DuBois, and St. Marys. It is served primarily by Interstate 80, as well as US 6 and US 219. The Allegheny National Forest, at nearly 241,000 acres, is a major natural feature of the region, as is nearly 610,000 acres of state forest. The City of Bradford at the region's northern extent is just 80 miles, or a 100-minute drive, from the Peace Bridge and the Canadian border at Buffalo, NY.



REGIONAL FREIGHT PROFILE

Socioeconomics

Change in population is but one indicator in marking the health of a region's economy. Population characteristics are also important drivers in affecting the demand for freight. Population change in the North Central region has been characterized as being static, with no dramatic "boom and bust" cycles, or precipitous changes, overall. In fact, the region's estimated population of 225,000 today is not much less than what it was fifty years ago, when the 1960 US Census recorded the region's total population at 244,240. The region's overall population peaked in 1980, but with only a few exceptions, has steadily declined by nearly 20,000 persons since then.

Looking ahead, data from the long-term county economic and demographic projections firm of Woods & Poole indicate that the region's total population is expected to slightly increase to an estimated 227,060 persons by the 2040 Census. This translates into an expected increase of just 76 persons per year through 2040, illustrating the region's demographic stability. Current estimates (August 2019) from the US Census place the region's population at 219,472, or a loss of 5,300 persons since the 2010 decennial census.

Table 1 provides more detail on historic and projected changes in the region's population by county, dating back to 1960.

Table 1: Historic and Projected Total Population, by County, 1960-2040

	Cameron	Clearfield	Elk	Jefferson	McKean	Potter	Total	% Change
1960	7,586	81,534	37,328	46,792	54,517	16,483	244,240	
1970	7,096	74,619	37,770	43,695	51,915	16,395	231,490	-5.22
1980	6,674	83,578	38,338	48,303	50,635	17,726	245,254	5.95
1990	5,913	78,097	34,878	46,083	47,131	16,717	228,819	-6.70
2000	5,974	83,382	35,112	45,932	45,936	18,080	234,416	2.45
2010	5,085	81,642	31,946	45,200	43,450	17,457	224,780	-4.11
2020	5,080	83,270	32,240	45,760	42,610	17,770	226,730	0.87
2030	5,110	84,650	32,530	46,270	41,600	17,980	228,140	0.62
2040	5,080	85,090	32,460	46,270	40,170	17,990	227,060	-0.47

Source: 1960-2010-US Census; 2020, 2030 and 2040-2013 Woods & Poole

Age 65 and over

Just as the region's total population is expected to remain steady over the next 25 years, it is also expected to age. There has been an increase in the region's senior population, a phenomenon which has continued from 1990 to the present. With the oldest of the baby boomer generation turning 65 in 2010, the size of this age group is expected to increase in the region and across the state as seen in **Table 2.**

Table 2: Percent Population Age 65 and over, 2000–40

	Cameron	Clearfield	Elk	Jefferson	McKean	Potter	Pennsylvania
2000	20%	17%	17%	18%	17%	17%	15.2%
2010	21%	17%	19%	18%	17%	20%	15.5%

2020	28%	21%	24%	21%	20%	24%	18.6%
2030	33%	27%	31%	26%	24%	28%	22.6%
2040	32%	29%	36%	27%	26%	29%	23.1%

Source: US Census and Woods & Poole

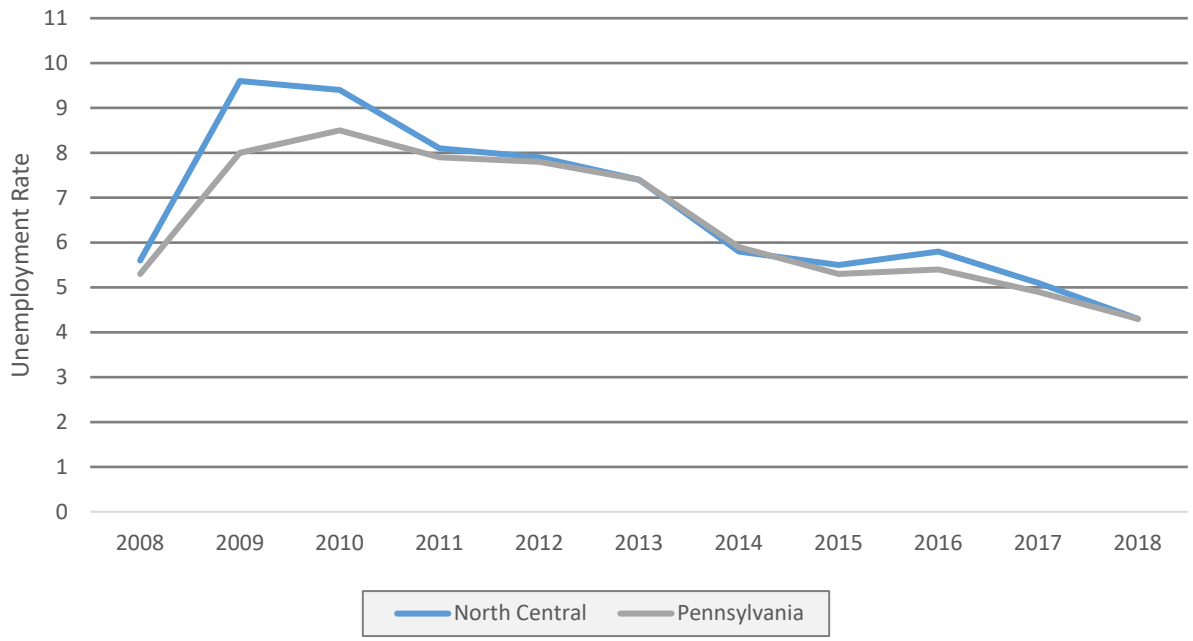
The growth of the region's senior population will have implications on the transportation system. These may include the need for planning for mature drivers, predictable construction zones, improved signing, access to public transportation and planning for autonomous and connected vehicles and other future technologies. More importantly for freight movement, as the region's population ages, a greater share of the region's population will be involved in wealth consumption (retirement) as opposed to wealth creation. This will involve changes in the level and composition of goods being hauled by the region's freight carriers.

Industry Structure of the Regional Economy

Regionally, participation in the labor force is estimated to be approximately 83,000 individuals. The unemployment rate for the North Central Pennsylvania region peaked at 9.7 percent in May 2009. It has since declined to a near pre-recession rate of 4.7 percent in July 2018.

Figure 1 compares the unemployment trends for the region and Pennsylvania.

Figure 1: Unemployment Rate for Pennsylvania and North Central Region, 2008-18



Source: PA Dept of Labor and Industry

For the decade ending 2017, the region experienced a near 1,000 increase of jobs in multiple sectors including Accommodation & Food Services, Health Care & Social Assistance, Administration & Waste Management, Construction, and Transportation & Warehousing. Other major employment sectors including Manufacturing, Utilities, and Retail Trade experienced job losses, totaling 3,400. The Mining, Quarrying, and Oil and Gas Extraction sector also experienced a loss of nearly 750 jobs. Even with minimal gains in Transportation & Warehousing and Construction, as seen in **Table 3,** employment in freight-dependent industries (including wholesale, retail, manufacturing, transportation & warehousing, and construction) declined by 3,200 over the past decade. While all the freight-dependent employment sectors did see a total increase of 2,883 in employment from 2010-17, it was not enough to offset job losses from 2005-10. It is possible that these sectors have not fully recovered from the effects of the Great Recession.

Table 3: Change in Employment, by Industry 2005-17

Description	2005	2010	2012	2017	Percent Change		
					2005-10	2012-17	2010-17
Total, all industries	**87,557**	**80,521**	**83,589**	**82,726**	**-8.0%**	**-1.0%**	**2.7%**
Agriculture, forestry, fishing and hunting	400	368	405	430	-8.7%	6.2%	16.8%
Mining, quarrying, and oil and gas extraction	1,796	2,422	3,528	1,598	34.8%	-54.7%	-34.0%
Utilities	588	734	692	607	24.8%	-12.3%	-17.3%
Construction	2,808	2,428	2,939	2,763	-13.5%	-6.0%	13.8%
Manufacturing	19,337	16,472	18,009	17,878	-14.8%	-0.7%	8.5%
Wholesale trade	2,258	2,038	2,141	2,012	-9.7%	-6.0%	-1.3%
Retail trade	10,283	9,053	9,224	9,454	-12.0%	2.5%	4.4%
Transportation and Warehousing	5,433	4,695	5,341	5,442	-13.6%	1.9%	15.9%
Information	3,249	1,028	953	857	-64.8%	-10.1%	-16.6%

Description	2005	2010	2012	2017	Percent Change		
					2005-10	2012-17	2010-17
Finance and insurance	1,838	1,720	1,682	1,421	-6.4%	-15.5%	-17.4%
Real estate and rental and leasing	625	427	433	483	-31.7%	11.5%	13.1%
Professional and technical services	2,063	1,916	2,175	2,310	-7.1%	6.2%	20.6%
Management of companies and enterprises	564	395	438	869	-30.0%	98.4%	120%
Administrative and waste services	1,704	2,190	2,444	2,278	28.5%	-6.8%	4.0%
Educational services	7,254	6,950	5,828	5,740	-4.2%	-1.5%	-17.4%
Health care and social assistance	14,995	16,312	15,752	16,081	8.8%	2.1%	-1.4%
Arts, entertainment, and recreation	474	374	432	302	-21.1%	-30.1%	-19.3%
Accommodation and food services	5,046	4,934	4,930	5,365	-2.2%	8.8%	8.7%
Other services (except Public Administration)	3,070	2,752	3,020	3,348	-10.4%	10.9%	21.7%
Public Administration	3,772	3,313	3,223	3,488	-12.2%	8.2%	5.3%

Source: LEHD On the Map

Table 4 depicts anticipated changes in freight-dependent employment in the region over the next several years by industry, and the commodities that are closely related to these industries.

Table 4: Summary of Select Major Industries Affecting Regional Freight

Industry	2016 Emp.	2010-16 Emp. Change	2026 Emp. (Estimated)	Projected Change, 2016-26	Related Commodities
Manufacturing	17,470	-998	17,060	-410	Metals, Paper, Pulp
Retail Trade	9,940	-887	10,260	320	Merchandise, Home Goods, Grocery
Transportation and Warehousing	4,630	65	5,100	470	Warehouse and Distribution Center
Construction	2,470	-42	2,770	300	Lumber, Glass, Metal, Brick
Wholesale Trade	1,770	268	1,800	30	Nonperishable Foods, Cosmetics, Detergents, Tobacco
Health Care and Social Assistance	15,360	952	16,940	1,580	Pharmaceuticals
Accommodation and Food Services	5,600	-666	6,070	470	Processed Milk, Beverages
Mining, Quarrying, Oil and Gas Extraction	1,550	872	1,560	10	Metallic Ores, Coal, Stone and Gravel, Petroleum and Natural Gas

Source: US Bureau of Labor Statistics, PA Work Stats

Major Employers

The most significant industries in the region's employment picture include Retail Trade, Health Care & Social Assistance, Accommodations & Food Services, Transportation & Warehousing, and Manufacturing. Educational Services, Healthcare and Social Assistance is the leading industry by employment in all but Cameron and Elk Counties where Manufacturing is the prominent sector. The prominence of these industries can be seen in the listing of major employers in **Table 5**.

Table 5: Major Employers, by County, August 2019

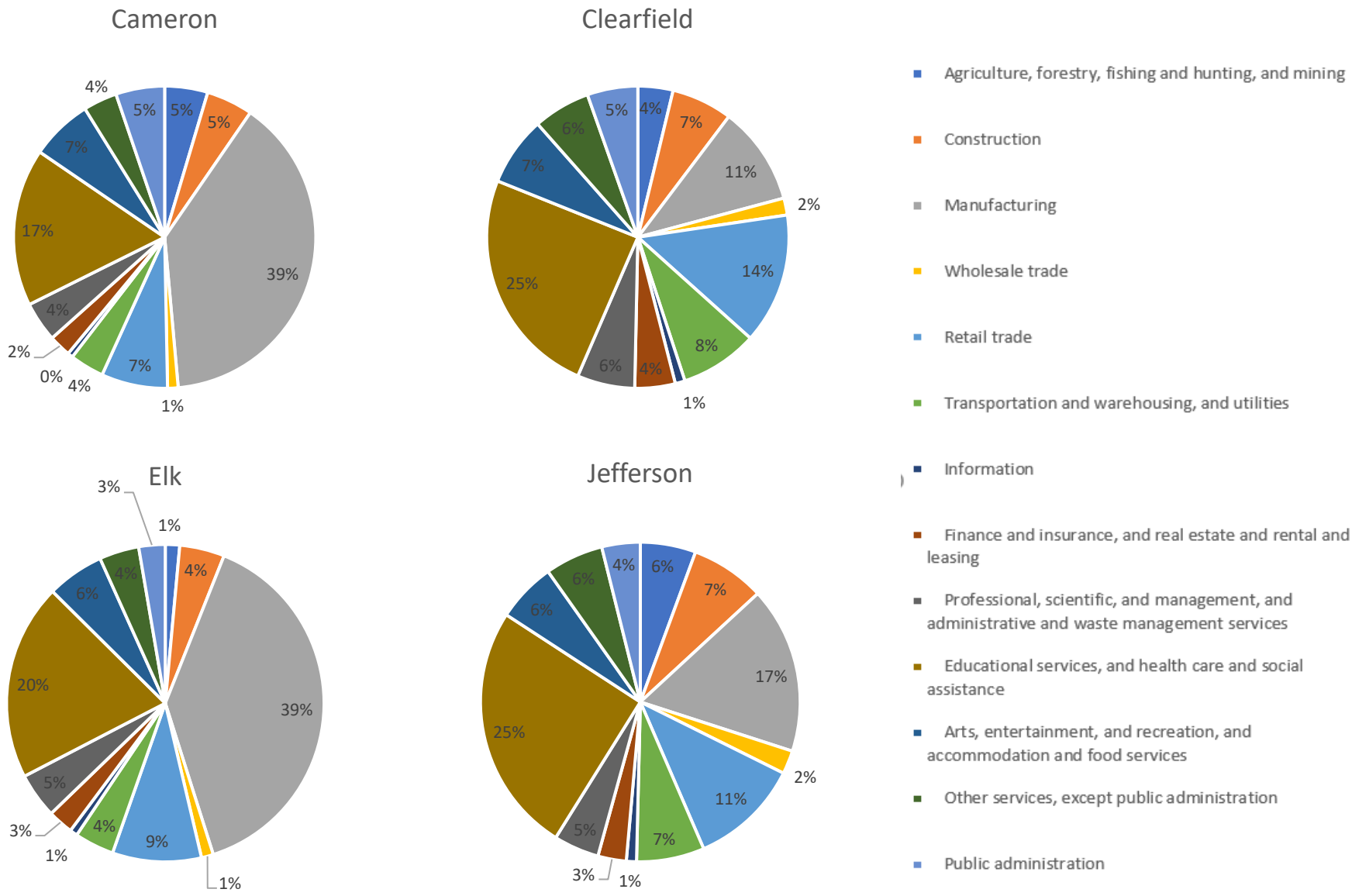
Cameron County	Clearfield County	Elk County
GKN Sinter Metals LLC	DuBois Regional Medical Center	Elk Regional Health Center Inc
Cameron County School District	Wal-Mart Associates Inc	Keystone Powdered Metal Company
State Government	State Government	Metaldyne Sintered Ridgway LLC
Embassy Powdered Metals Inc	DuBois Area School District	Domtar Paper Company LLC
Emporium Hardwoods	Cen-Clear Child Services Inc	Wal-Mart Associates Inc
Guy & Mary Felt Manor Inc	Paris Cleaners Inc	SGL Carbon LLC
Wabtec US Rail Inc	Clearfield Area School District	Saint Marys Area School District
Cameron County Commissioners	Christ the King Manor	Metal Powder Products LLC
Keystone Rural Health Consortia Inc	Clearfield Hospital	Clarion Sintered Metals Inc
Teutech LLC	Fayette Resources Incorporated	Eastern Sintered Alloys Inc

Jefferson County	McKean County	Potter County
Guardian Home & Community Services	Zippo Manufacturing Co	Charles Cole Memorial Hospital
Beverage Air Corp	Bradford Regional Medical Center	Morris Compressors Inc
Owens-Brockway Glass Container	Bradford Area School District	Cole Care Inc
Punxsutawney Area Hospital Inc	Federal Government	State Government
Punxsutawney Area School District	American Refining Group Inc	Zito Media
Miller Welding & Machine Co	University of Pittsburgh	Level 3 Communications LLC
Goodwill Industries of North Central PA	Allegheny Bradford Corporation	Coudersport Area School District
Brookville Area School District	Ardagh Glass Inc	Northern Potter School District
State Government	McKean County	Sweden Valley Manor
Brookville Equipment Corporation	Wal-Mart Associates Inc	Rev Hoopes Trucking LLC

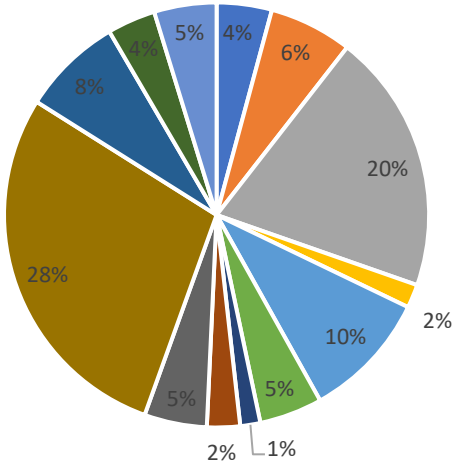
Source: Pennsylvania Department of Labor and Industry, PA Work Statistics

Each county in the region has significant percentage of workers in the Manufacturing industry or the Health Care industry. When compared to the other counties, Potter County exhibits the region's most diversified economy. While all the counties are diversified, the Manufacturing and Healthcare and Social Assistance Sectors employ a larger percentage of workers than the other sectors. **Figure 2** illustrates the percentage of workers in each industry.

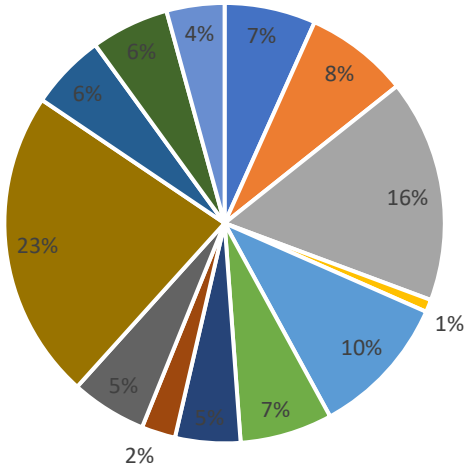
Figure 2: Employment by Industry by County, 2017



McKean



Potter



- Agriculture, forestry, fishing and hunting, and mining
- Construction
- Manufacturing
- Wholesale trade
- Retail trade
- Transportation and warehousing, and utilities
- Information
- Finance and insurance, and real estate and rental and leasing
- Professional, scientific, and management, and administrative and waste management services
- Educational services, and health care and social assistance
- Arts, entertainment, and recreation, and accommodation and food services
- Other services, except public administration
- Public administration

Source: US Census Bureau, 2013-2017 ACS 5-Year Estimates

Location Quotient

Location Quotient is a metric used for measuring the relative strength of an area's economy in comparison with other areas. It compares an industry's share of employment at the local level to the industry's share of employment at the state level. As such, it is a measure of economic strength. According to economic base theory, industries with an employment share that exceeds the state employment share have excess production – production that serves export markets. Because export activity injects new money into the local economy, these basic industries are considered "key drivers" of economic growth.

Table 6 demonstrates the strength of the region's economy by county. Industries are sorted by their regional location quotient.

Table 6: Location Quotient, by County, 2017

Industry	Cameron	Clearfield	Elk	Jefferson	McKean	Potter	Region
Agriculture, forestry, fishing and hunting, and mining	3.27	2.67	1.04	3.98	2.98	4.75	2.90
Educational services, and health care and social assistance	0.65	0.95	0.78	0.98	1.10	0.88	1.84
Retail Trade	0.62	1.22	0.79	0.97	0.85	0.91	1.58
Manufacturing	3.27	0.89	3.28	1.41	1.66	1.37	1.44
Other services, except public administration	0.78	1.32	0.87	1.27	0.79	1.24	1.40
Transportation and warehousing, and utilities	0.68	1.55	0.75	1.28	0.89	1.26	1.21
Professional, scientific, and management, and administrative and waste management services	0.42	0.61	0.45	0.45	0.47	0.55	1.03
Public administration	1.30	1.35	0.67	0.97	1.18	1.06	0.99
Arts, entertainment, and recreation, and accommodation and food services	0.79	0.88	0.69	0.71	0.91	0.66	0.85
Information	0.33	0.62	0.45	0.60	0.90	2.82	0.66
Finance and insurance, and real estate and rental and leasing	0.36	0.67	0.40	0.44	0.39	0.39	0.63
Wholesale trade	0.40	0.65	0.44	0.85	0.64	0.33	0.39
Construction	0.87	1.13	0.79	1.31	1.10	1.32	0.38

Source: U.S. Census Bureau, 2013-2017 ACS 5-Year Estimates and Calculations

Table Key:	< 1.0	1.0 > x > 2.0	2.0 > x > 3.0	> 3.0

Freight Infrastructure

The North Central Pennsylvania region's multimodal freight infrastructure includes a network of roadways that are both state- and locally-owned. It also includes regional railroads, and airports including the Bradford and DuBois Regional Airports.

Highway Network

The region is traversed by nearly 6,600 miles linear miles of roadway. Over 2,500 miles of this network are owned by the Commonwealth, while an additional 350 miles are owned and maintained by other government agencies. Most of the region's roadways (56%) are locally-owned. **Table 7** provides more detail on the region's roadways, by ownership.

Table 7: Roadway Mileage by Ownership, 2018

	PennDOT	Other Agencies	Local Municipalities	Total Linear Miles
Cameron	109.46	43.40	124.87	277.68
Clearfield	793.23	12.40	1,141.20	1,946.82
Elk	294.27	114.10	375.16	783.54
Jefferson	555.40	4.55	836.27	1,396.22
McKean	381.85	160.07	479.08	1,021.01
Potter	435.72	15.44	639.88	1,091.04
REGION TOTAL	2,570.15	349.96	3,597.42	6,517.53

Source: PennDOT, Bureau of Planning and Research

The region's roadway network supports an average of over 6.3 million daily vehicle miles of travel. The demand for travel, however, has declined after reaching a peak of 7.7 million miles in 2008. One factor has been the national recession and financial crisis of 2007-09. The demand for travel naturally increased as the economy has improved but has not yet returned to levels previously experienced before the economic downturn. **Table 8** provides a snapshot of travel demand for 2018 by ownership, while **Figure 3** shows how historic trends in travel demand for the region. While Pennsylvania overall has seen a gradual increase in travel demand, regional travel demand has declined; however, travel demand in the region has remained steady at 6.4 million daily vehicle miles traveled in recent years.

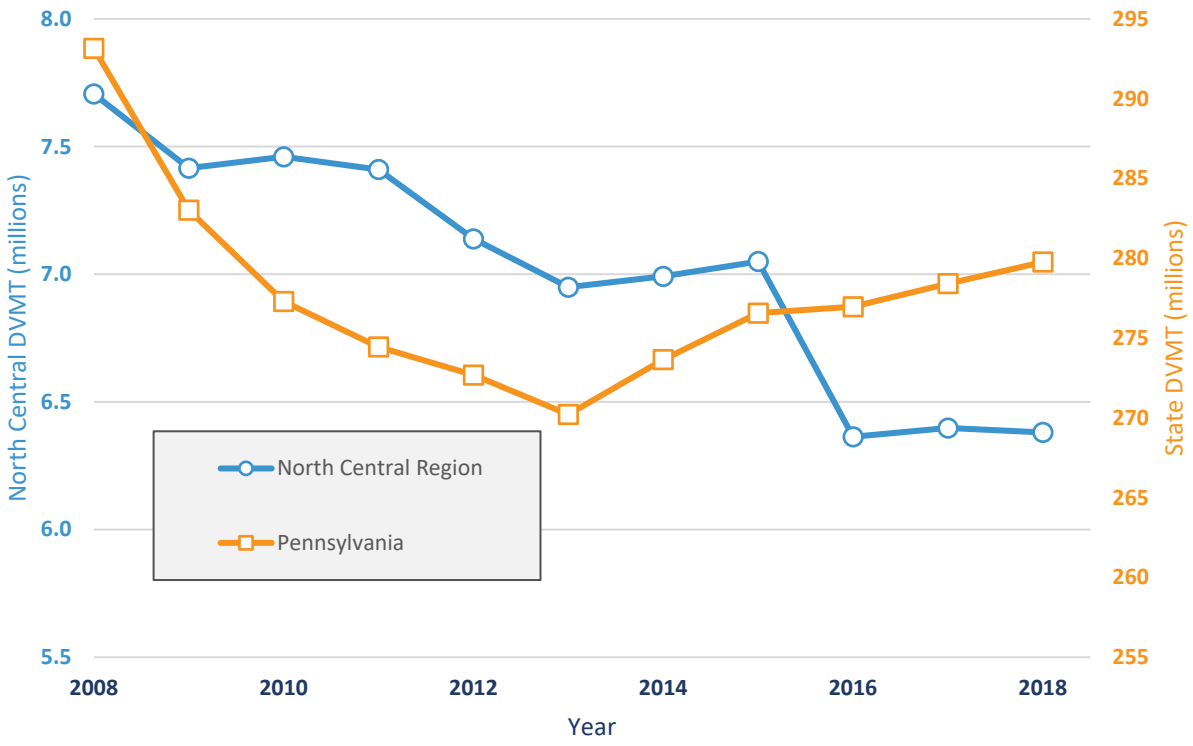
Table 8: Daily Vehicle Miles of Travel (DVMT) by Ownership, 2018

	PennDOT	Other Agencies	Local Municipal	Total DVMT
Cameron	96,583	115,232	20,970	232,785
Clearfield	2,352,172	30,442	192,245	2,574,859
Elk	646,495	21,665	84,110	752,269
Jefferson	1,268,475	12,070	186,152	1,466,696
McKean	712,500	11,011	121,666	845,178

Potter	364,166	40,999	103,572	508,737
REGION TOTAL	5,440,391	231,419	708,715	6,380,524

Source: PennDOT, Bureau of Planning and Research

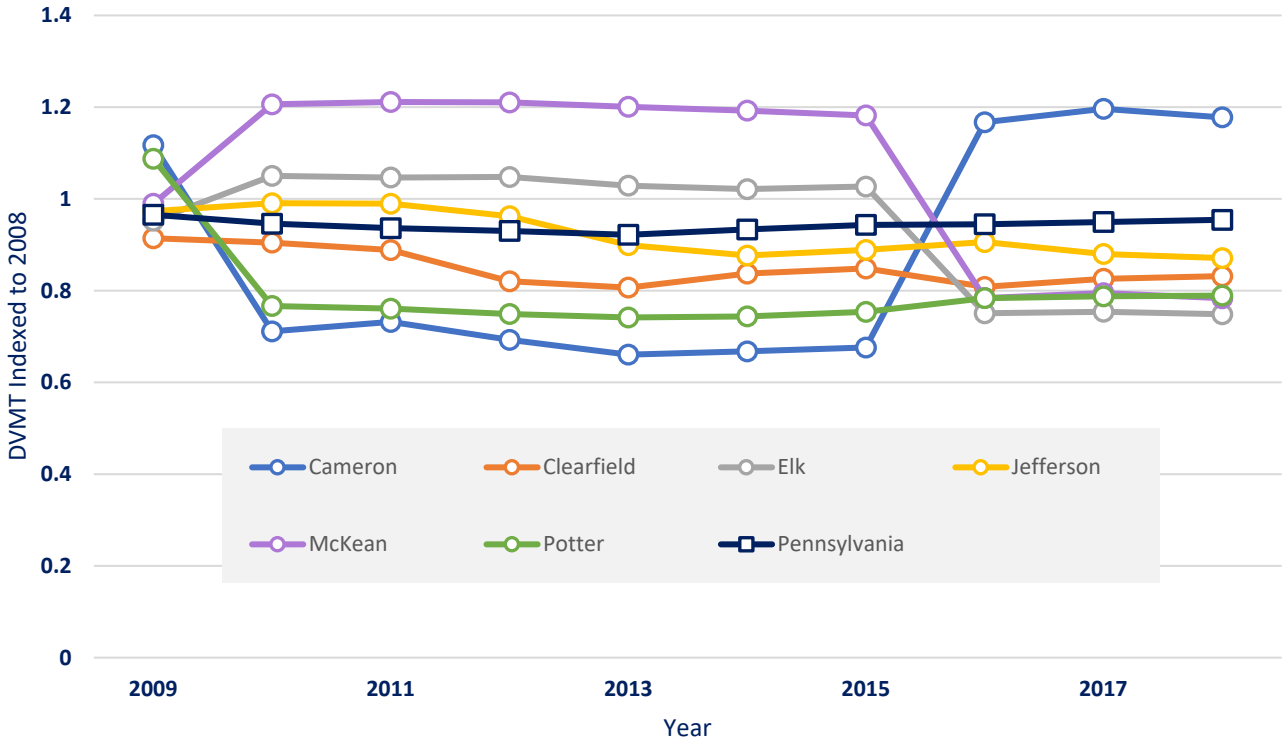
Figure 3: Daily Vehicle Miles Traveled, North Central Region and Pennsylvania, 2008-18



Source: PennDOT Bureau of Planning and Research

Regionally, Clearfield and Jefferson counties experience higher travel demand, since they contain the region's only interstate - Interstate 80. In recent years, Cameron County has exhibited stronger travel demand as shown in **Figure 4**, which indexes travel against numbers recorded a decade ago. This significant spike in Cameron County's travel demand is outpacing overall demand in Pennsylvania. Both Elk and McKean Counties have exhibited declines in travel demand in recent years, while Potter County's DVMT rates have remained steady since the Great Recession.

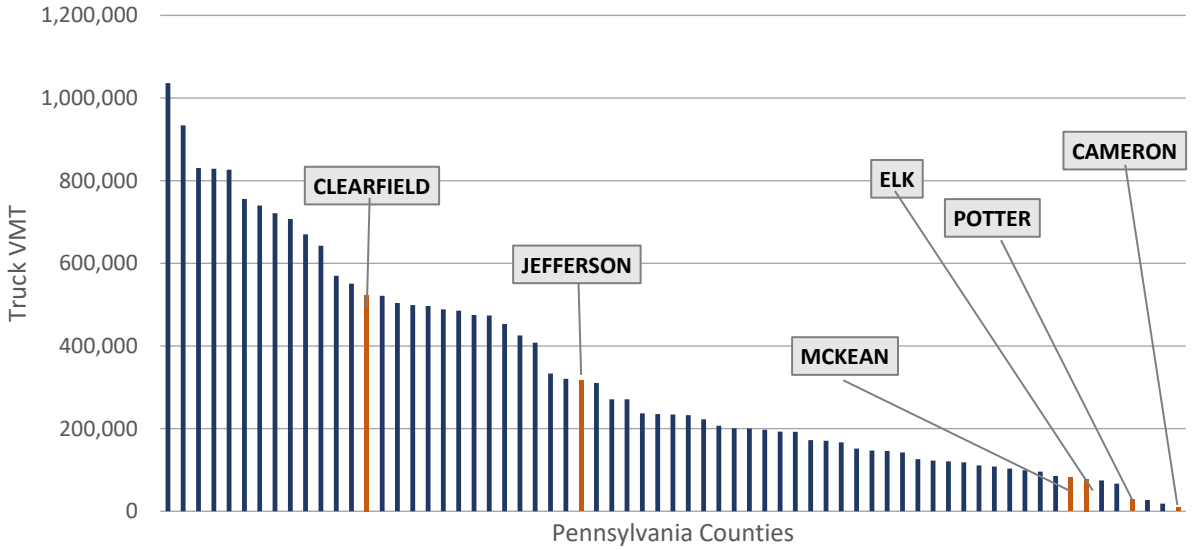
Figure 4: Regional and State DVMT, Indexed to 2008



Source: PennDOT Bureau of Planning and Research

The North Central region accommodates nearly 2.5 percent of all travel that occurs within the state and 4.6 percent of total truck traffic. **Figure 5** illustrates how each county in Pennsylvania compares to one another in daily truck VMT.

Figure 5: Pennsylvania Truck VMT, by County



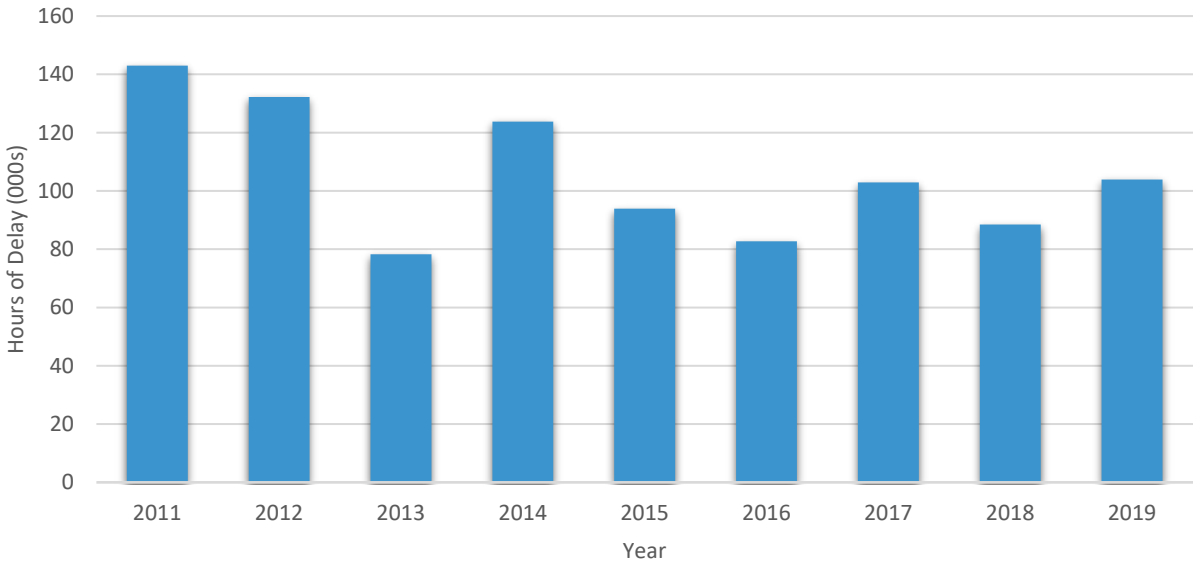
Source: PennDOT Center for Program Development and Management

Truck Delay and Demand

Truck Delay

INRIX travel time data was also evaluated using the Regional Integrated Transportation Information System (RITIS) to determine trends in regional truck delay. Delay is defined as the extra travel time (in hours) incurred by the number of trucks on each roadway as compared to off-peak travel times. Delay has fluctuated since 2011 and is most likely linked to the amount of truck travel during peak periods, non-truck travel volumes, and major incidents on the region's transportation system. **Figure 6** shows annual truck hours of delay by year.

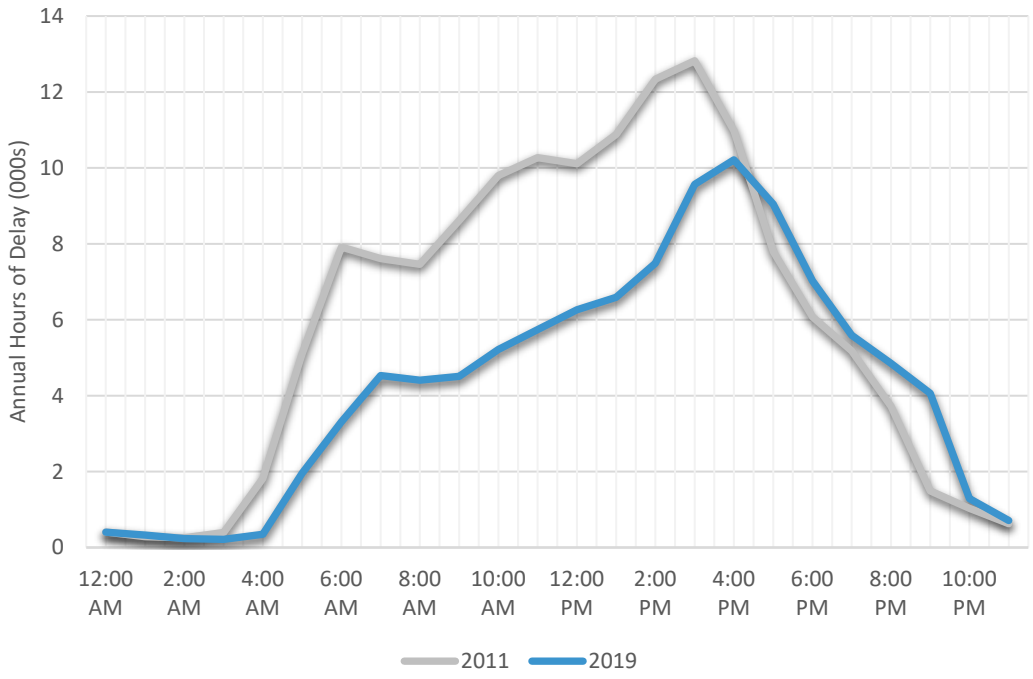
Figure 6: Annual Truck Hours of Delay (000s), 2011-29



Source: INRIX Travel Time Data Integrated with Highway Performance Monitoring System (HPMS) Truck VMT

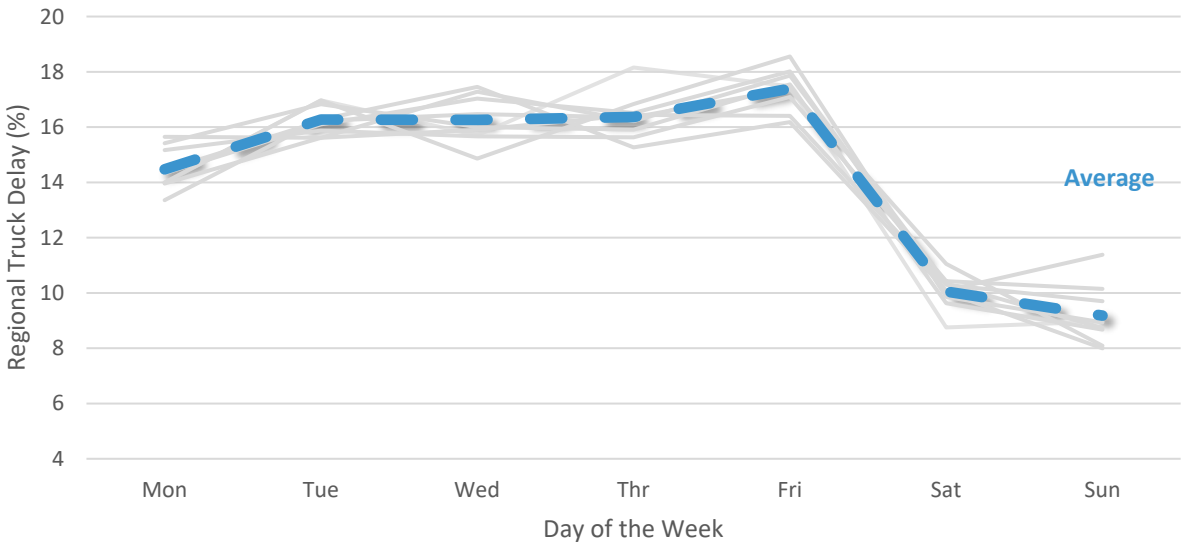
The INRIX data allows for assessments of delay trends and variations. **Figure 7** shows delay by time of day. The 3-hour evening peak period accounts for nearly 28 percent of all truck delay in 2019. The delay by the day of week has fluctuated slightly over the last seven years as shown in **Figure 8**. On average, Fridays are the days for which the most accumulated truck delay has occurred. Trucks experience the greatest percentage of delay during the summer season as shown in **Figure 9.** This delay may be closely correlated with the increase in vehicles on roadways due to vacations and other outdoor activities.

Figure 7: Annual Truck Hours of Delay by Time of Day, 2011 and 2019



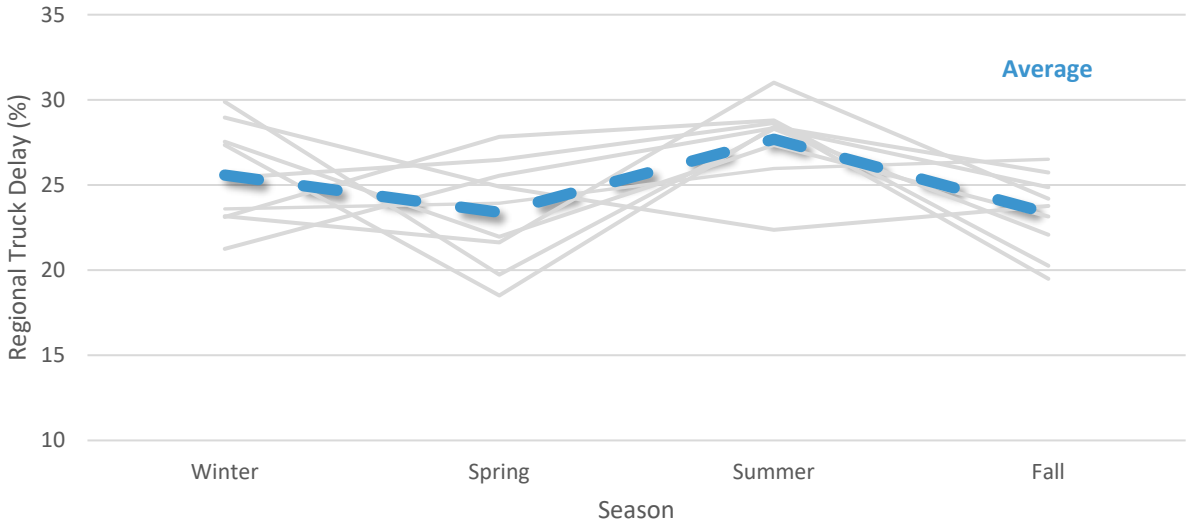
Source: INRIX Travel Time Data Integrated with Highway Performance Monitoring System (HPMS) Truck VMT

Figure 8: Percentage of Regional Truck Delay by Day of Week, 2011-19



Source: INRIX Travel Time Data Integrated with Highway Performance Monitoring System (HPMS) Truck VMT

Figure 9: Percentage of Regional Truck Delay by Season, 2011-19

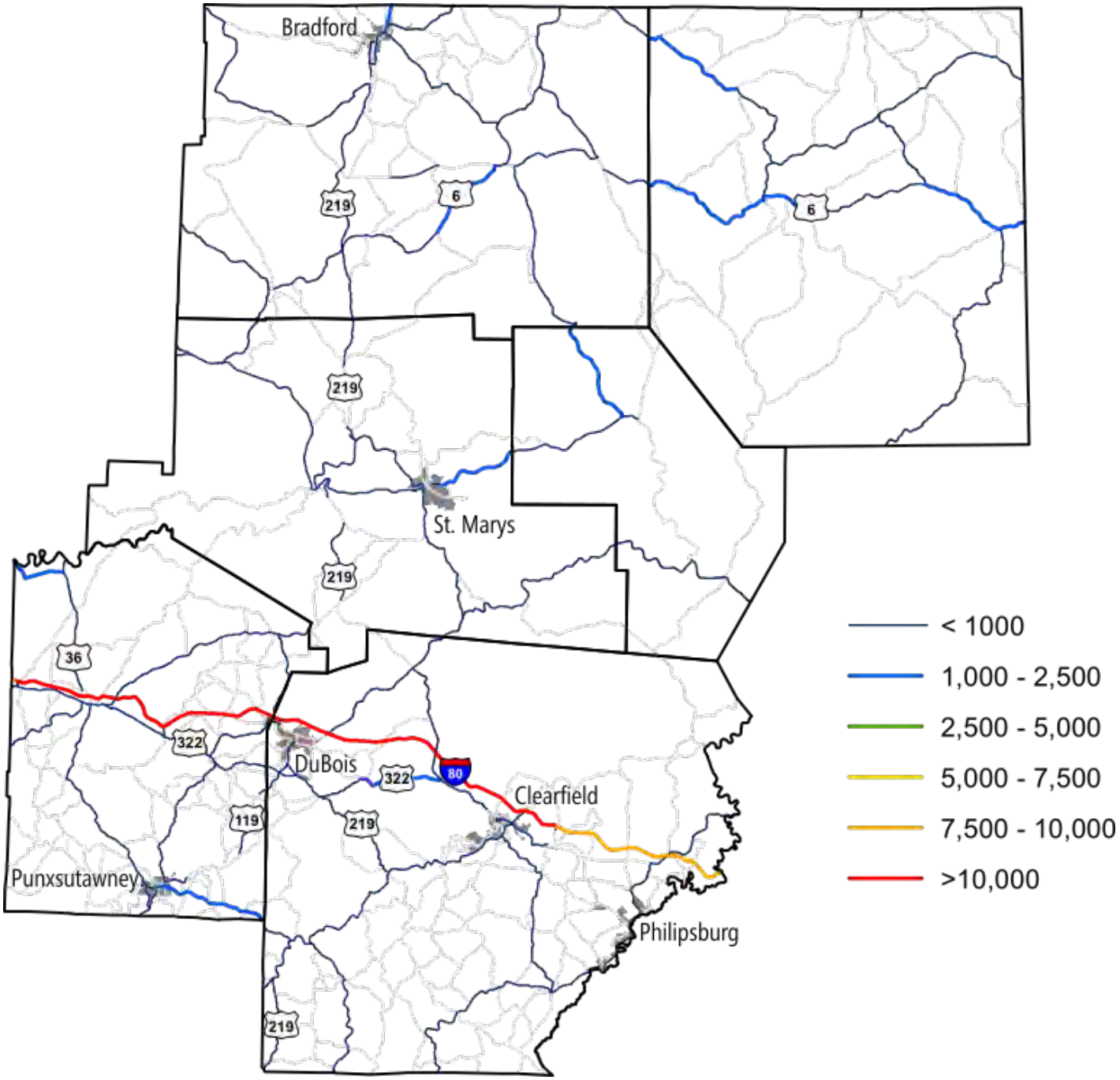


Source: INRIX Travel Time Data Integrated with Highway Performance Monitoring System (HPMS) Truck VMT

Truck Volume Growth

Figure 10 depicts the forecasted growth of truck volume in the North Central region from 2012-45. Most of the region's roadways are projected to have truck volumes increase up to 1,000 AADTT. The largest growth in truck volumes will occur on Interstate 80, with most of the corridor expected to experience an increase of at least 10,000 AADTT. With any predicted increase in truck volumes, PennDOT and the RPO will need to be aware of the impacts of increased volumes on congestion and infrastructure conditions.

Figure 10: Forecasted Growth in Truck Volume



Source: Freight Analysis Framework (FAF4)

Traffic Bottlenecks

Using data from the Regional Integrated Transportation Information System (RITIS), the top 10 traffic bottlenecks in the North Central Pennsylvania region were identified. These bottlenecks were ranked based on the duration of time motorists spend in congested travel conditions. **Table 9** shows a listing of these bottlenecks.

Table 9: Traffic Bottlenecks Ranked by Congestion Duration

Rank/ Map ID	County	Location	Average Daily Duration	Total Annual Duration
1	Clearfield	US 322 N @ PA-53/MAIN ST	5 h 6 m	77 d 19 h 18 m
2	McKean	US 6 E @ US-219/BUFFALO PITTSBURGH HWY	4 h 3 m	61 d 14 h 57 m
3	Clearfield	PA 970 N @ US-322/28TH DIVISION HWY	3 h 58 m	60 d 11 h 20 m
4	Clearfield	US 322 S @ PA-970	3 h 31 m	53 d 15 h 54 m
5	Jefferson	US 119 S @ PA-36/W MAHONING ST/GILPIN ST	3 h 29 m	53 d 4 h 26 m
6	Clearfield	PA 453 N @ PA-879/STATE ST/FILBERT ST	3 h 20 m	50 d 20 h 58 m
7	Jefferson	PA 36 N @ US-119/GILPIN ST	2 h 53 m	44 d 1 h 13 m
8	Jefferson	US 322 S @ PA-968/RICHARDS ST	2 h 53 m	43 d 20 h 53 m
9	Jefferson	PA 28 E @ PA-968/RICHARDS ST	2 h 53 m	43 d 20 h 53 m
10	McKean	US 6 W @ US-219/BUFFALO PITTSBURGH HWY	2 h 50 m	43 d 7 h 18 m

Source: Regional Integrated Transportation Information System (RITIS)

These traffic bottlenecks were then compared to weekday truck volumes, Tom Tom Travel Time Ratios and truck percentages to identify the bottlenecks with the most impact on truck traffic, as shown in **Figure 11 and Figure 12.** The bottlenecks with potential truck traffic impact are ranked by duration and listed in **Table 10.**

Table 10: Traffic Bottlenecks with Most Truck Traffic Impact

Rank	Map ID	County	Location	Travel Time Ratio	Truck Percentage
1	3	Clearfield	PA 970 N @ US-322/28TH DIVISION HWY	1.99	26
2	1	Clearfield	US 322 N @ PA-53/MAIN ST	1.7	9
3	5	Jefferson	US 119 S @ PA-36/W MAHONING ST/GILPIN ST	1.46	26
4	4	Clearfield	US 322 S @ PA-970	1.33	11

Figure 11: Traffic Bottlenecks and Weekday Truck Volumes

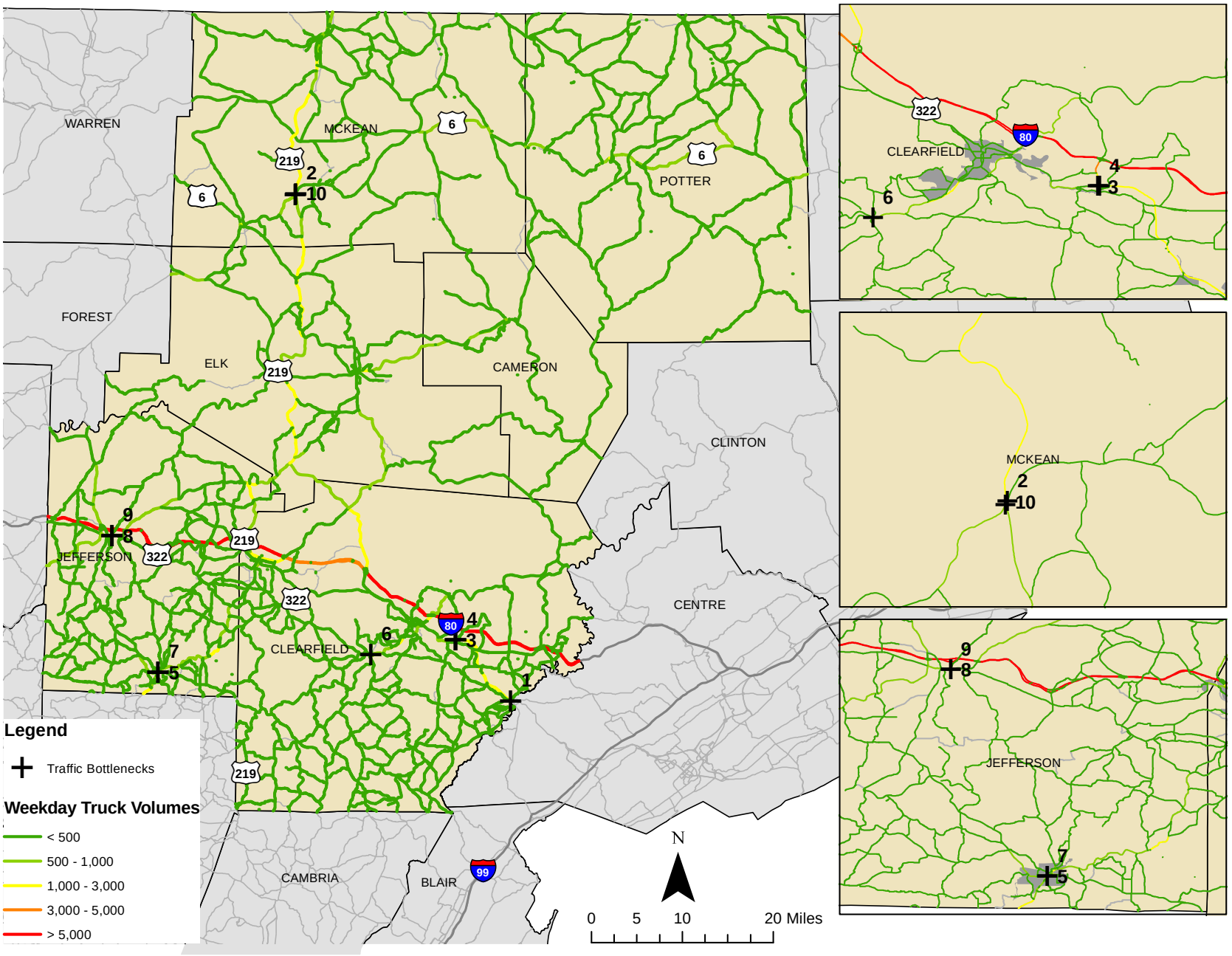
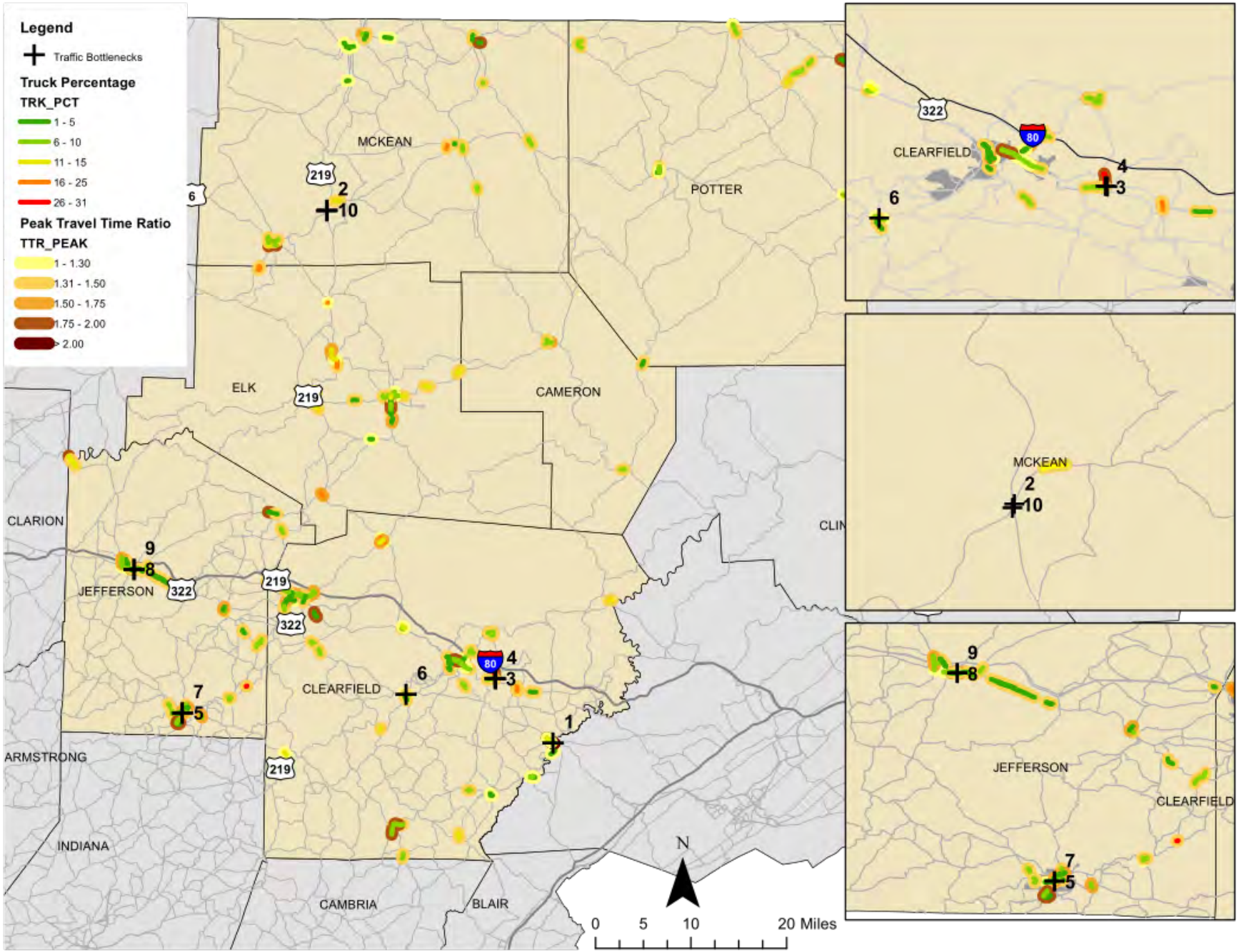


Figure 12: Traffic Bottlenecks Compared to Peak Travel Time Ratios and Truck Percentage



Impacts on Interstate 80's Parallel Routes

Congestion impacts on freight are not experienced solely at the regional bottleneck locations discussed in the previous section. Interstate 80 through Jefferson and Clearfield Counties, as the region's only interstate, is a major thoroughfare through the region – carrying a significant amount of freight by truck through the region. Closures and restrictions on Interstate 80 due to incidents, weather, and road construction put pressures on the surrounding infrastructure to connect motorists and freight to their destinations or to connect them back to the Interstate past the point of closure. To locate diversion routes and understand the impacts on the surrounding infrastructure, RITIS data was used to select five different dates where congestion was experienced on I-80 due to a closure or restriction, including roadway construction, weather (e.g., snow squalls), and incidents:

Table 11: Congested Days, Causes, and Total Hours of Vehicle Delay

Date	Cause	Total Hours of Vehicle Delay
August 18, 2016	Crash and Road Construction	14,500
December 15, 2016	59 vehicle pile-up in icy, snowy conditions	6,600
July 7, 2019	Possible Road Construction	5,000
February 29, 2020	Tractor Trailer Fire	439
March 7, 2020	Multi-Vehicle Crash	837

Source: RITIS

Shown in **Figures 13 through 17**, comparative speeds from RITIS were used to delineate diversion routes from Interstate 80 on these dates – comparing speeds during the closure or restriction to the average speed along a roadway during a specific hour and day of the week. Dark red segments in the figures below exhibit vehicles are traveling at speeds half of what is regularly experienced during that hour on that day of the week, while green segments exhibit speeds at or just below average speeds.

Figure 13: August 18, 2016 Impacts

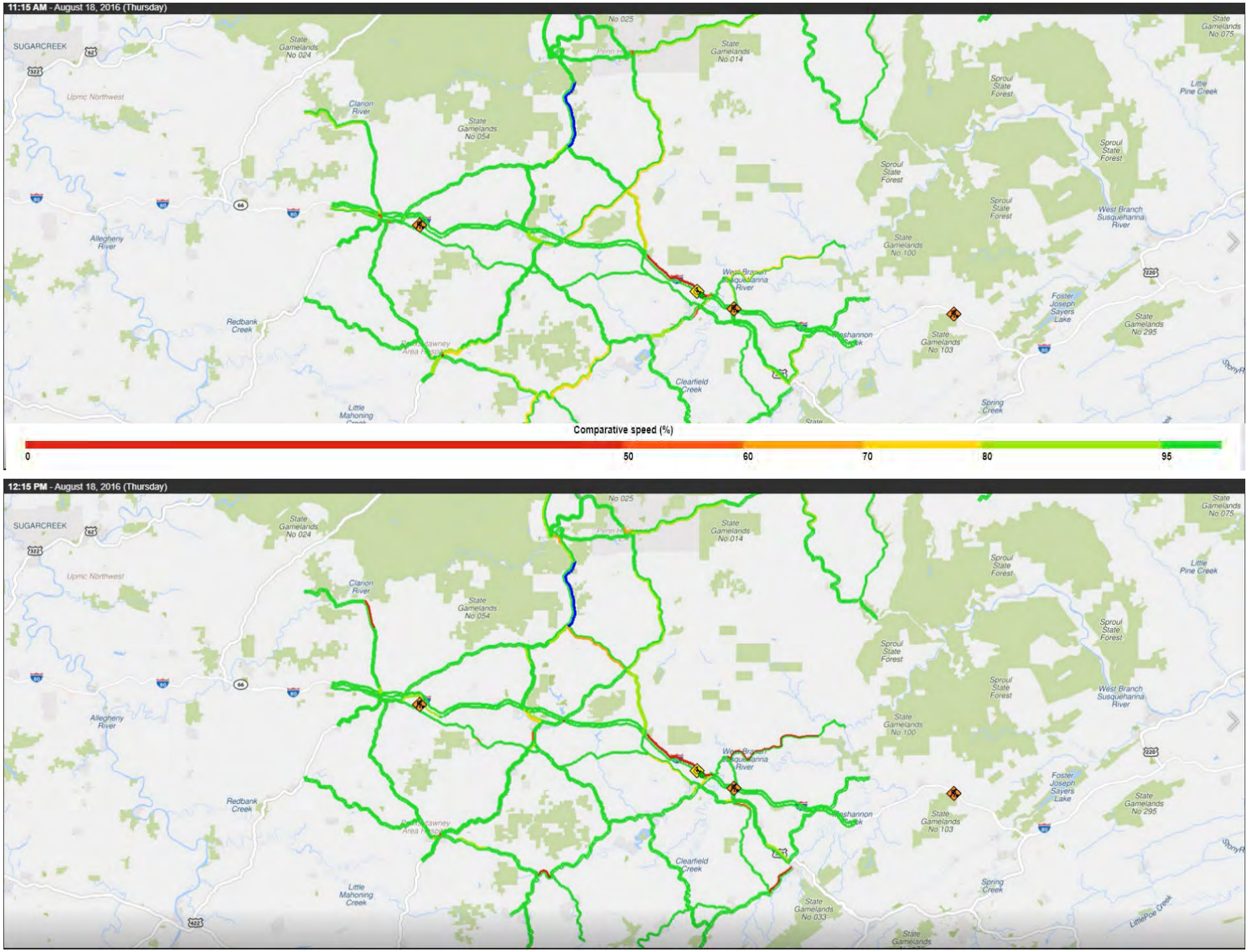


Figure 14: December 15, 2016 Impacts

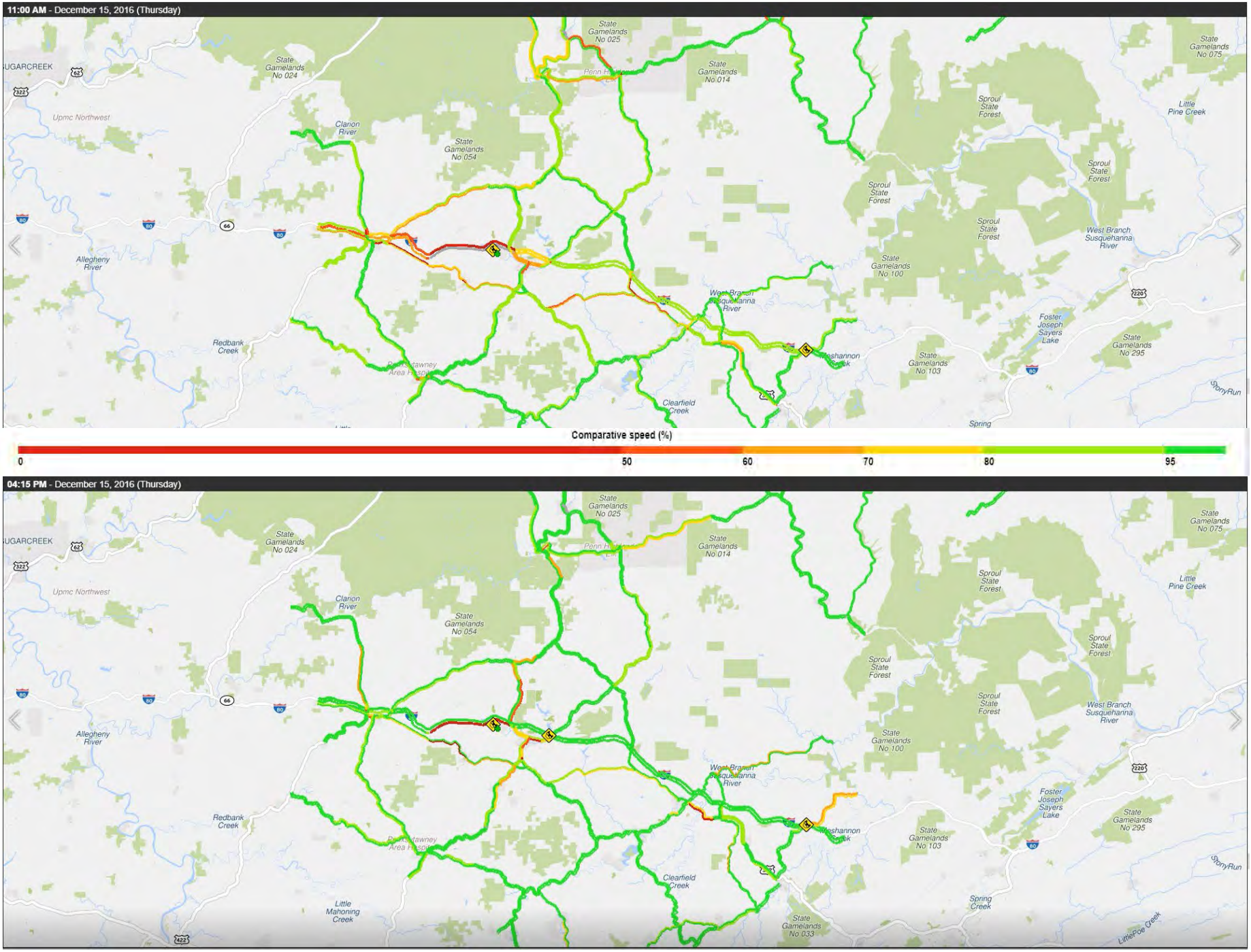


Figure 15: July 7, 2019 Impacts

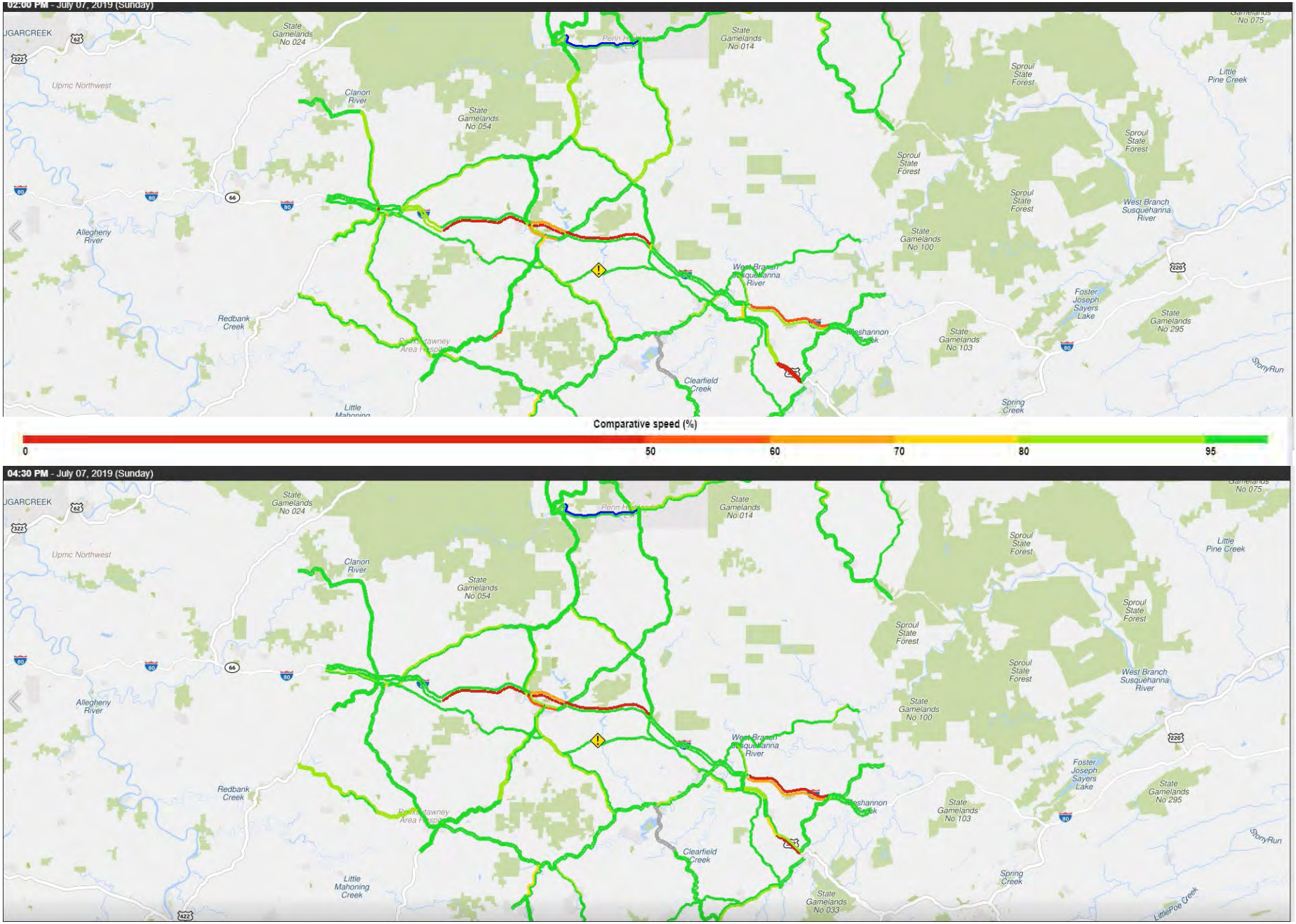


Figure 16: February 29, 2020 Impacts

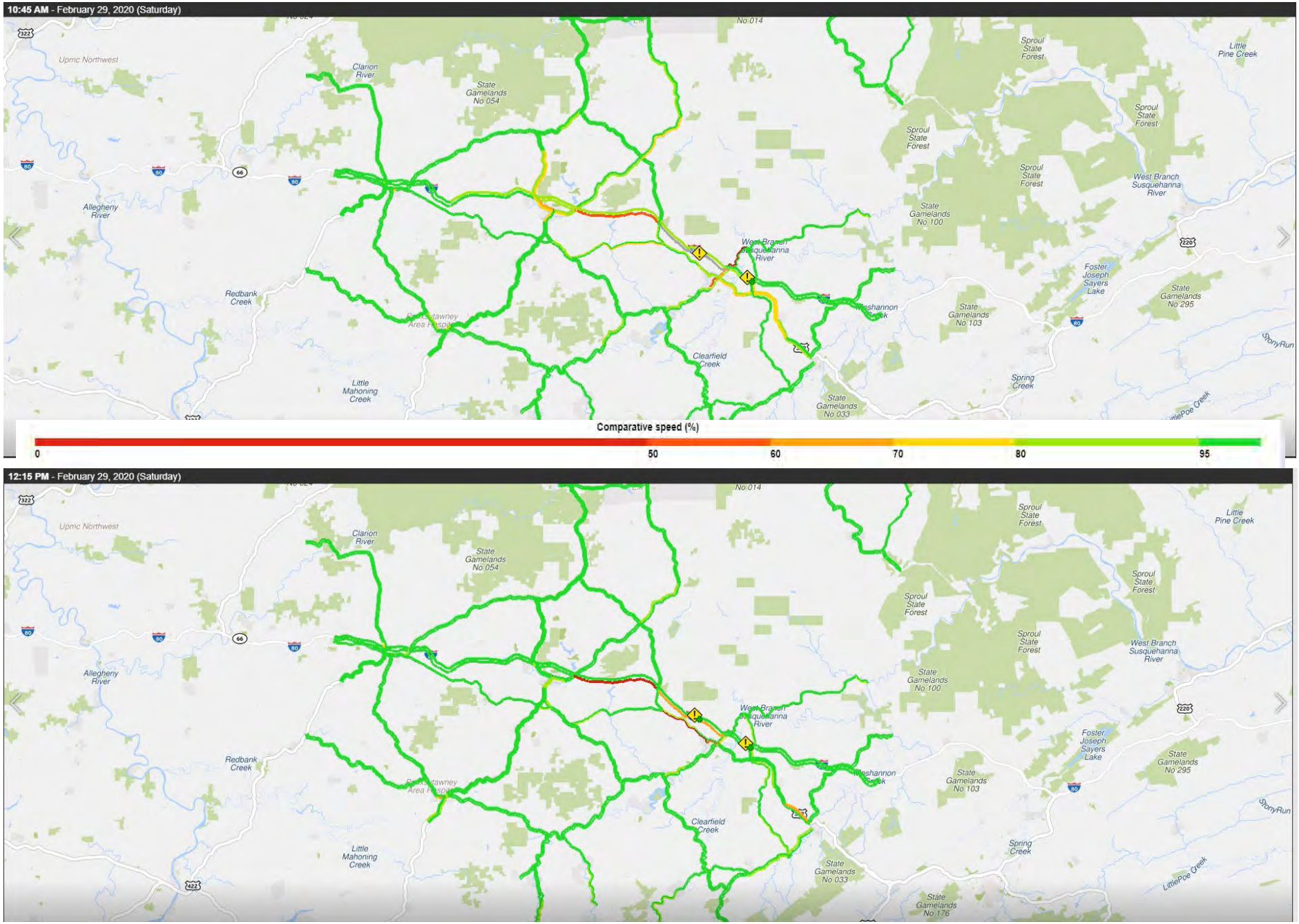
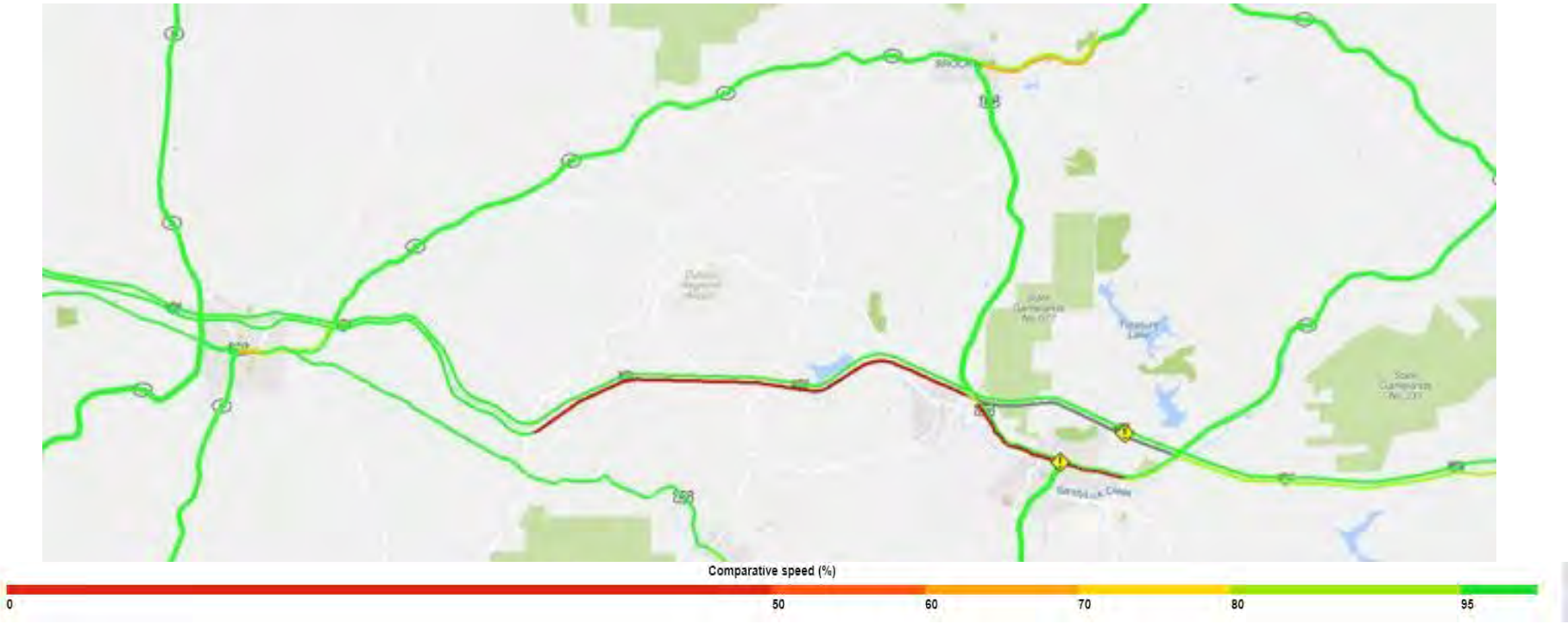


Figure 17: March 7, 2020 Impacts



When analyzing traffic patterns on the selected dates, US 322 and US 219 are commonly used as a diversion route and increased pressures are experienced most notably at the interchanges at DuBois and Clearfield.

Interstate 80 was heavily impacted by snow squalls and ice on December 15, 2016. As a result of these weather conditions, a 59-vehicle crash occurred between Brookville and DuBois going eastbound, causing the interstate to close. To avoid the closure, travelers diverted from Interstate 80 to US 322 which experienced increased congestion across the region. Another diversion can be seen from PA 28 to PA 153 to access Interstate 80 eastbound at Penfield.

Road construction is another cause for delays or closures on the Interstate. On July 7, 2019, road construction caused traffic to slow throughout the day. US 322 was the route most significantly impacted, most notably seen to the east of the region near Philipsburg.

During a February 29, 2020 tractor trailer fire, most travelers would exit at DuBois – taking US 219 to take US 322 toward Clearfield. Another multi-vehicle incident, taking place on March 7, 2020, resulted in a diversion from was on US 219 and PA 255 through DuBois in order to reconnect with Interstate 80.

While the above events are only a snapshot of the various negative impacts of Interstate 80 closures and restrictions on the region's infrastructure, North Central Pennsylvania can proactively plan for future situations such as these by implementing operational and incident management strategies – educating the public on incidents, weather, and road construction; or regularly evaluating signal timings. Most importantly, the RPO can prioritize these routes for freight-related improvements so trucks are able to maneuver these common diversion routes without hindering traffic flow or safety of other modes.

Functional Classification

The region has been functionally classifying its roadways for many years with its most recent update in 2019. The use of networks in transportation planning has been performed by FHWA and its partners at the state and regional level at least since the Federal-Aid Highway Act of 1973 required the practice for updating and modifying the Federal-Aid highway system. PennDOT and North Central have grouped the region's roadways into a hierarchy, according to the character of service they provide. Functional classification defines the role that any roadway should play in serving the movement of people and goods across the regional highway network.

Table 11 provides more information on the extent of the region's roadway network, by functional class, by county.

Table 12: Roadway Mileage by Functional Classification, 2018

	Federal Aid Linear Miles					Non-Federal Aid Linear Miles		Total Linear Miles
	Interstate	Other Frwy/Expwy	Other Princ Arter	Minor Arter	Major Coll	Minor Coll	Local	
Cameron	0.0	0.0	0.0	44.7	38.7	22.4	171.9	277.7
Clearfield	41.8	0.0	70.3	138.6	203.8	170.9	1321.4	1946.8
Elk	0.0	1.8	35.2	50.3	108.7	66.6	520.8	783.5
Jefferson	23.8	0.0	35.6	110.9	112.8	158.1	355.0	1396.2
McKean	0.0	5.2	74.5	77.3	163.5	29.6	670.9	1021.0
Potter	0.0	0.0	36.5	88.8	111.2	134.4	720.1	1091.0
North Central Region	65.6	7.0	252.1	510.6	738.7	582.0	3760.1	6516.2

Source: PennDOT, Bureau of Planning and Research

National Highway System

Congress designated the National Highway System (NHS) in 1995. The NHS consists of roadways deemed important to the nation's economy, defense, and mobility. There are 329.5 linear miles of NHS roadway within the North Central Pennsylvania region, which is 4.6 percent of the total network. The subsystems of the NHS are described below:

- **Interstate** – The Eisenhower Interstate system of highways is included as part of the NHS yet retains its separate identity. In the North Central Pennsylvania region, this includes Interstate 80 through Clearfield and Jefferson Counties.
- **Other Principal Arterials** – Highways in rural and urban areas which provide access between an arterial and a major port, airport, public transportation facility or other intermodal transportation facility. The North Central Pennsylvania region includes US Routes 6, 219, and 119 as well as PA Routes 28, 879, and 970 as part of this NHS subsystem.

- **Strategic Highway Network (STRAHNET)** – Highways which are important to the United States' strategic defense policy and which provide defense access, continuity, and emergency capabilities for defense purposes. There are no elements of the STRAHNET within North Central Pennsylvania.
- **Major Strategic Highway Network Connectors** – Highways which provide access between major military installations and highways which are part of the Strategic Highway Network. There are no elements of this subsystem within the North Central Pennsylvania region.
- **Intermodal Connectors** – Roadways providing access between major intermodal facilities and the other four subsystems making up the National Highway System. There are no intermodal connectors in the North Central Pennsylvania region.

Interstate Management

Beginning with the creation of the 2007 TYP, PennDOT assumed responsibility as the lead planning agency for the Pennsylvania interstate system in cooperation with the planning partners. The approach is consistent with PennDOT's philosophy of managing Pennsylvania's Interstate System as a single, statewide asset. Beginning with the upcoming 2021 TYP cycle, PennDOT will be implementing a shift in investment strategies and a stronger focus on maintaining and funding the needs of the statewide interstate system, adding $50 million in funding each year to reach $1 billion by 2030. This change in funding strategies will be able to better address the interstate system's basic cyclic needs and the current backlog of asset needs as well as implementation of strategic improvements. These new investments will not only assist in improved movement of freight and trucks on the interstate but will also work to meet other trucking needs like safety upgrades, truck climbing lanes and truck parking.

Within the North Central region, the interstate system consists of Interstate 80 through Clearfield and Jefferson Counties, which entails nearly 66 linear miles of roadway. The interstates may only consist of 1 percent of the regional transportation network, but they carry a quarter of the region's total traffic (1.6 million DVMT).

Projects on the interstates are managed on a separate Interstate Management TIP and funds are programmed centrally. PennDOT notifies the RPO of any amendments and modifications to the TIP. The 2019 Program includes $45 million in improvements on Interstate 80 in the North Central region, as depicted in **Table 12**.

Table 13: Interstate Projects on the Draft 2021 Program

County	ID #	Route	Project Title	Project Type	Phase	Cost ($000s)
Clearfield	74910	80	I-80 Clfd – Viaduct Highway Preservation	IMAN	CON	7,632
Clearfield	87729	80	I-80 ov SR 970 Interchange	IMAN	CON	13,500
Jefferson	106224	80	I-80 Brookville East PM	IMAN	CON	11,600
Jefferson	106224	80	I-80 Brookville East PM	IMAN	FD	50
Jefferson	106275	80	I-80 North Fork Bridge Replacements	IMAN	FD	3,477
Jefferson	106275	80	I-80 North Fork Bridge Replacements	IMAN	ROW	1,093
Jefferson	106275	80	I-80 North Fork Bridge Replacements	IMAN	UTL	273
Jefferson	106275	80	I-80 North Fork Bridge Replacements	IMAN	CON	14,926
Jefferson	106275	80	I-80 North Fork Bridge Replacements	IMAN	CON	134,331
Jefferson	114556	80	I-80 Joint Repair	IMAN	CON	3,283

Source: State Transportation Commission

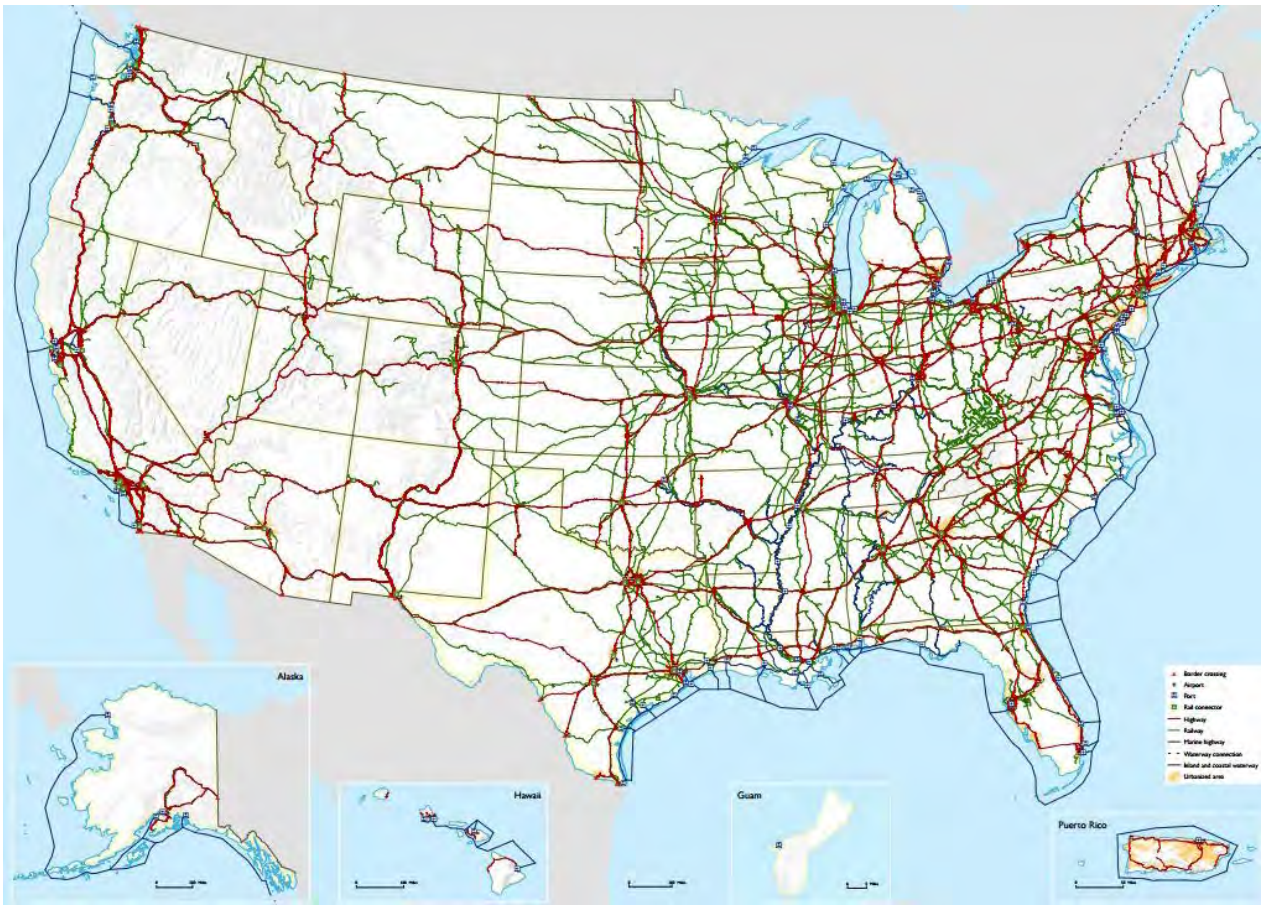
Primary Highway Freight Network

One of the early key initiatives of the FAST Act was the expansion of a proposed priority freight network that was originally suggested under MAP-21. MAP-21 designated 27,000 centerline miles nationwide to be considered as a Primary Freight Network (PFN); however, the PFN did not entail enough roadway mileage to achieve a contiguous network and was designated "highway-only" - thus not multimodal in scope.

In October 2015, the US Department of Transportation developed an interim National Multimodal Freight Network (NMFN) as part of its National Freight Strategic Plan. This updated network addressed the deficiencies of the PFN by identifying 65,000 centerline miles of road, more than 28 percent of the National Highway System (NHS) and approximately 1.6 percent of the nation's total public road mileage; 49,900 route miles of railways, including 35 percent of the nation's rail route miles; 78 ports that accounted for approximately 90 percent of total (2013) U.S. tonnage; and 56 airports that accounted for approximately 90 percent by weight of the nation's landed cargo in 2013.

The NMFN is composed of several elements, as described in the following points, and shown spatially in **Figure 13**.

Figure 18: Interim National Multimodal Freight Network



Source: US Department of Transportation

- **National Multimodal Freight Network (NMFN)** – Improves on the original Primary Freight Network established in MAP-21 by becoming more expansive and multimodal in scope. It includes all the freight networks described below.
- **National Highway Freight Network (NHFN)** – This network covers 51,024 miles nationwide. Total mileage will fluctuate, as new Interstates are added to the system, and thus automatically become part of the network. The NHFN consists of the following four subsystems:
    - **Primary Highway Freight System (PHFS)** – this network consists of 41,514 miles nationwide. In the North Central Region, Interstate 80 through Jefferson and Clearfield Counties falls on the PHFS.
    - **Portions of Interstates not on the PHFS** – Within Pennsylvania, there are 460 miles of non-PHFS Interstate mileage. This includes routes such as Interstate 79 in its entirety, and Interstate 83 between the City of York and the Maryland State Line.
    - **Critical Urban Freight Corridors (CUFCs) –** These priority freight segments typically consist of first- or last-mile connector routes from high-volume freight corridors to

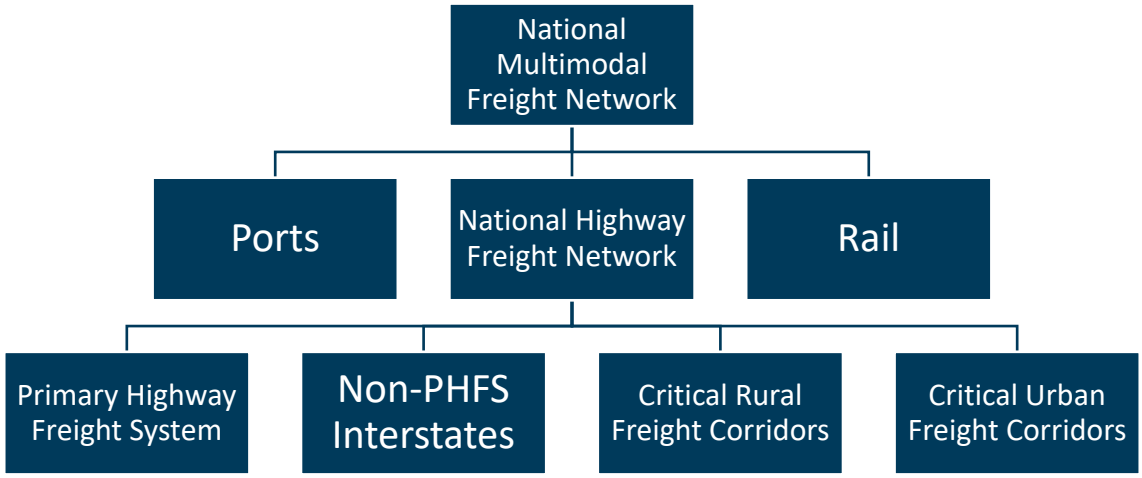
freight-intensive land and key urban freight facilities. They must lie within an urbanized area, or urban cluster as defined by the Census Bureau. The RPO did not consider segments for this designation, as the region is outside an urbanized area.

- **Critical Rural Freight Corridors (CRFCs)** – Priority freight segments classified as CRFCs lie outside of an urbanized area and satisfy one of seven or more criteria as defined by USDOT. As the RPO considered segments for this designation, it considered public roads that provide immediate links as first- and last-mile freight corridors to key rural freight facilities, including manufacturing centers, agricultural processing centers, farms, and intermodal facilities. The RPO submitted 111 miles in candidate segments for consideration for this designation.

The identification of CUFCs and CRFCs to the network makes these segments eligible for Federal National Highway Freight Network formula funds and FASTLANE Grant Program funds upon certification by USDOT. In 2017, FHWA instituted Pennsylvania's mileage cap at 141.26 miles of Critical Urban Freight Corridors, and 282.53 miles of Critical Rural Freight Corridors.

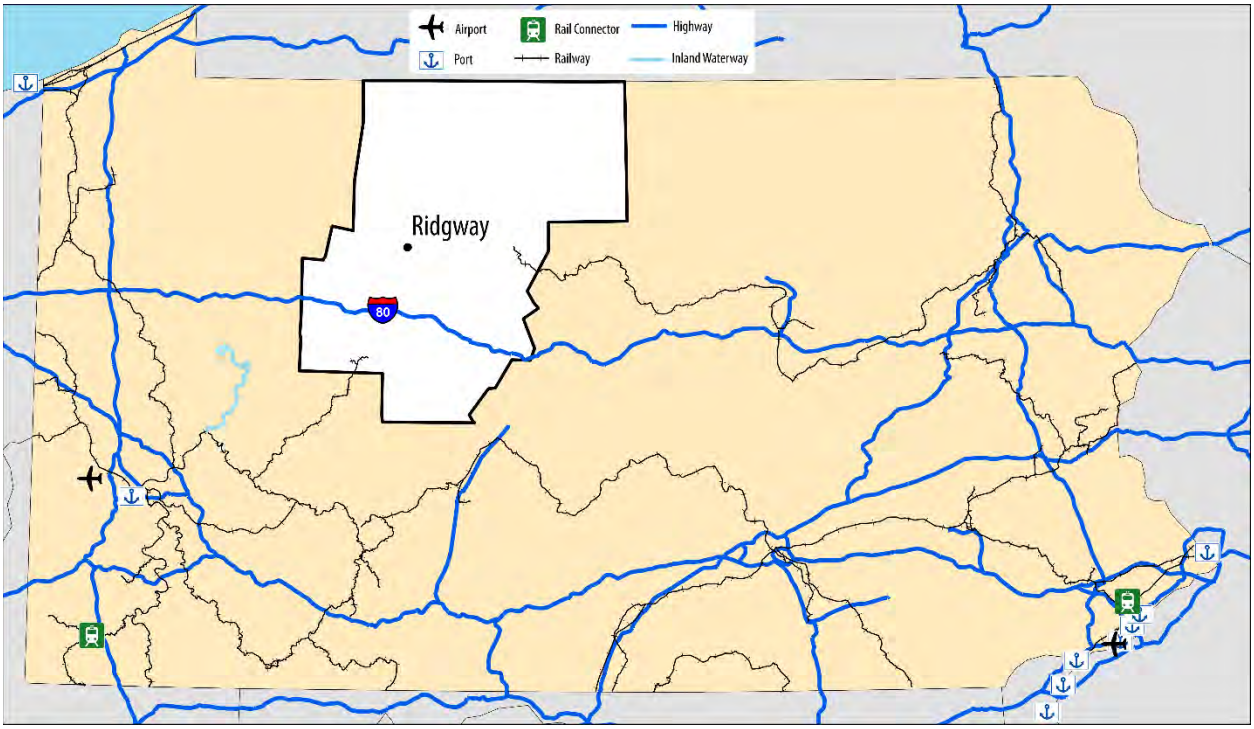
The relationship of the various subsystems within the National Multimodal Freight Network is illustrated in **Figure 14.**

Figure 19: The National Multimodal Freight Network and Related Subsystems



The North Central region's share of the NMFN is displayed as part of **Figure 15.**

Figure 20: The North Central Pennsylvania Region and Pennsylvania's Position within the National Multimodal Freight Network (NMFN)



Source: US Department of Transportation

In 2017, PennDOT assisted MPOs and RPOs statewide in the selection and prioritization of CUFCs and CRFCs on both state and local networks within each planning region. North Central Pennsylvania's Critical Rural Freight Corridors – both candidate and certified - are depicted in **Table 13.** The RPO submitted this list of candidate segments to PennDOT in late 2017. After PennDOT vetted all candidates received through a ranking system based on federal freight policy requirements, the number of candidates was narrowed down to meet the applicable mileage caps for Pennsylvania. Final certifications were made by FHWA in February 2019.

Table 14: North Central RPO's Critical Rural Freight Corridors

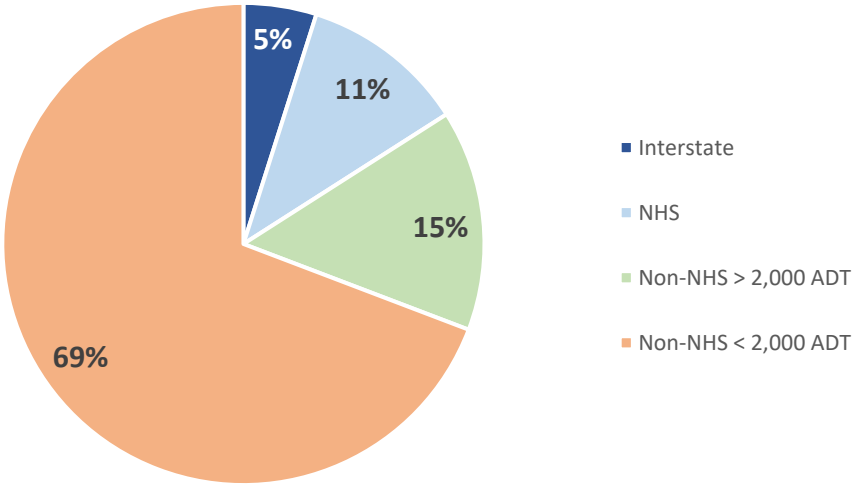
County	Route	Start Point (Seg Begin)	End Point (Seg End)	Length (miles)	RPO Priority	Certified by FHWA
Clearfield	0970	0012	0042	1.64	1	x
Clearfield	0219	0910	0940	0.67	2	
Clearfield	0830	0020	0020	0.55	2	
Clearfield	Larkeytown Road	0830	Merris Avenue	0.42	2	
Clearfield	0879	0310	0350	1.88	3	x
McKean	4005	0030	0050	0.97	4	
McKean	4002	0010	0010	0.17		x
McKean	0046	0640	0650	0.30	5	
Clearfield	0153	0410	0740	16.62	6	
Clearfield	0879	0250	0310	3.50	7	
Cameron	0120	0010	0420	20.20	8	x
Jefferson	0028	0220	0270	1.23	9	
Jefferson	Evans Street	Hiawatha Street	0322	0.55		
Clearfield	0255	0040	0080	1.34	10	x
Clearfield	4017	0010	0020	0.63		
Clearfield	4014	0010	0050	0.11		
Clearfield	4011	0062	0072	0.83		
Jefferson	0830	0280	0280	0.63	11	
Jefferson	0950	0140	0150	1.22		
Elk	0120	0020	0258	10.14	12	
McKean	Main Street	Church Street	4001	0.45	13	
McKean	4001	0140	0140	0.21		
McKean	3005	0040	0166	3.60	14	
Clearfield	Platt Road	0255	04016	1.74	15	
Potter	2002	0250	0250	0.25	16	
Cameron	0155	0010	0160	23.20	17	
McKean						
Potter						
Clearfield	0350	0010	0260	15.10	18	x
Centre[1]						

[1] Extends outside of the North Central RPO into Centre County MPO

Pavement Conditions

Figure 16 shows how the region's roadways are organized across PennDOT's major business plan networks: Interstates; the National Highway System (NHS); non-NHS with greater than 2,000 ADT; and non-NHS with less than 2,000 ADT. The figure shows that the Interstates comprise a minute portion of the overall system, compared to the non-NHS roadways.

Figure 21: Segment Miles by Business Plan Network, 2019

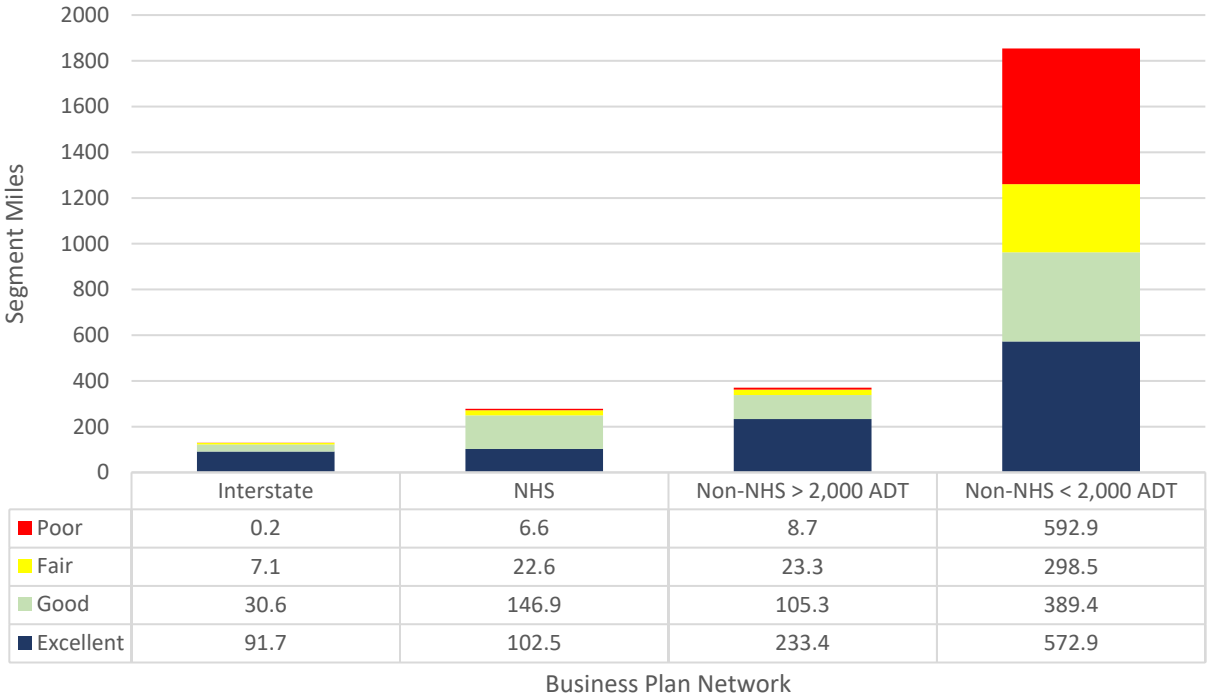


Source: PennDOT Roadway Management System (RMS) and Calculations

PennDOT and North Central RPO analyze pavement needs in different ways, including International Roughness Index (IRI), which indicates the level of roughness on a roadway.

Figure 17 shows a snapshot of the region's existing pavement conditions by business plan network. The figure shows the region's success in maintaining "Good" or "Excellent" IRI ratings on the higher order networks, including Interstates and the NHS; while the lower order networks, most notably Non-NHS with average daily traffic rates of 2,000 or less, experience increased poor condition ratings. The region's higher order networks commonly carry the most freight.

Figure 22: Pavement Conditions (IRI Ratings) By Business Plan Network, 2018



	Interstate	NHS	Non-NHS > 2,000 ADT	Non-NHS < 2,000 ADT
Poor	0.2	6.6	8.7	592.9
Fair	7.1	22.6	23.3	298.5
Good	30.6	146.9	105.3	389.4
Excellent	91.7	102.5	233.4	572.9

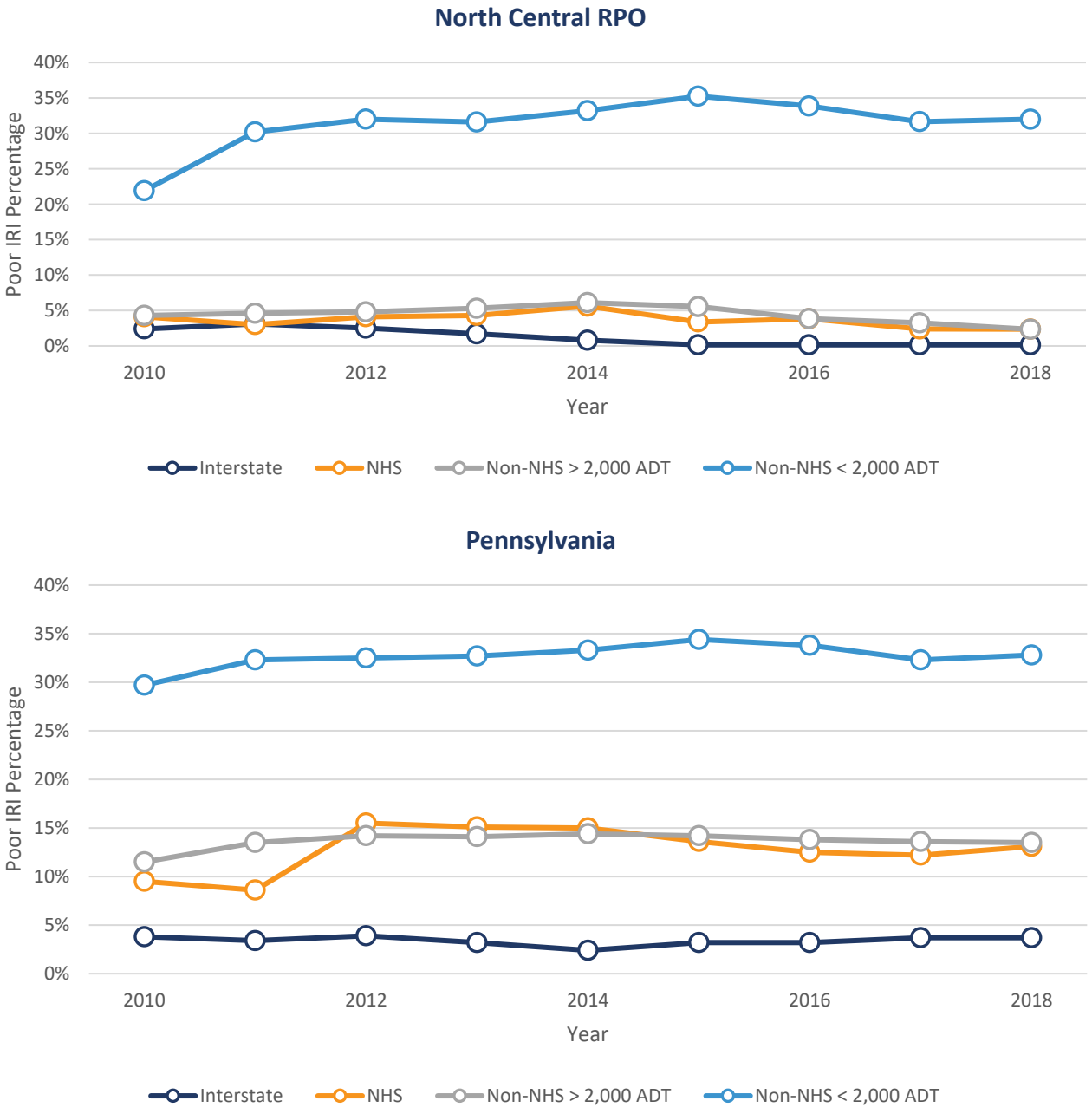
Business Plan Network

Source: PennDOT Performance Measures

The International Roughness Index (IRI) is a pavement roughness index that is obtained from roadway profiles for evaluating road systems. The higher the number, the poorer the pavement quality.

While trends in IRI values have varied across the years, there has been an overall improvement in pavement quality on the regional system, with values showing a downward trend when compared to their 2010 baseline. All networks have seen overall improvement in pavement conditions; however, IRI values for Non-NHS < 2,000 ADT network have remained above their 2010 baseline values and have seen a minute increase in recent years. Pavement conditions on the region's interstates and the NHS, however, have been showing significant improvement, as exhibited by the decline in IRI values in **Figure 18**. When measured as a percentage of "Poor" IRI ratings, overall pavement quality in the North Central region has compared auspiciously with statewide trends.

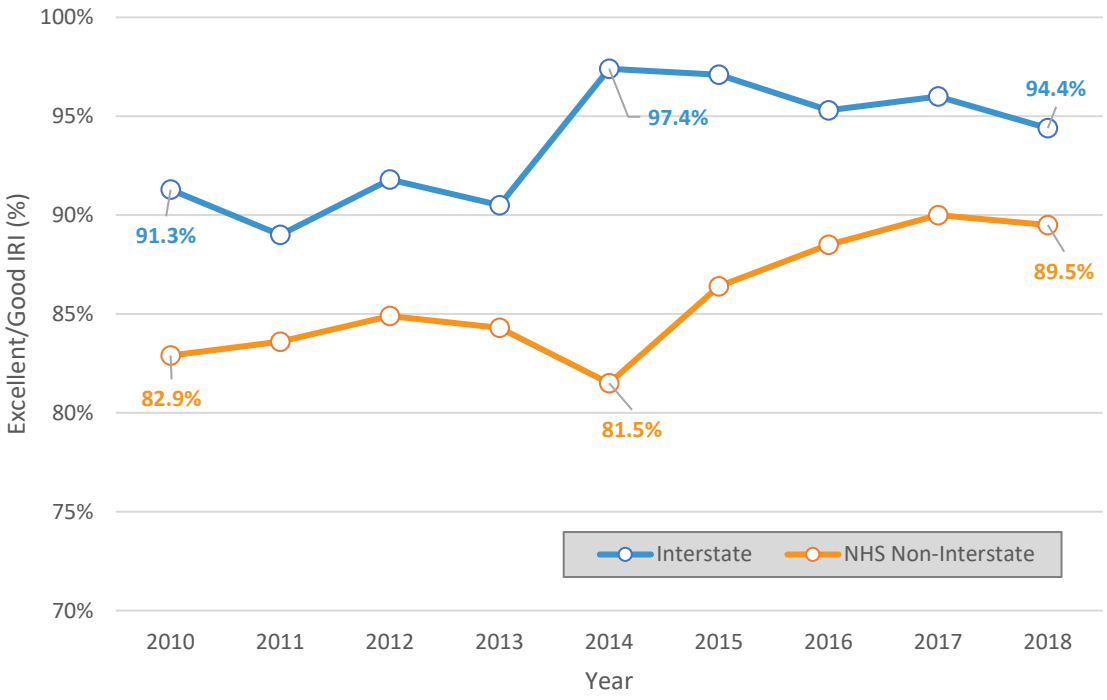
Figure 23: "Poor" IRI Ratings by Business Plan Network, 2010-18 (%)



Source: PennDOT Annual Performance Measure Reports

"Good" and "Excellent" IRI values on the region's interstates and Non-Interstate NHS routes (e.g., I-80, US 6, etc.) have varied since their 2010 baseline was established. IRI values have been showing overall improvement as shown in **Figure 19**. While pavement quality on the region's interstates has seen a downward turn since 2014, the percentage of "Good" and "Excellent" IRI values remains above its 2010 baseline at 94.4 percent in 2018. "Good" and "Excellent" IRI ratings on the region's non-interstate NHS routes has been on the rise at 89.5 percent in 2018. This is significant improvement from the region's most recent low of 81.5 percent in 2014.

Figure 24: "Good/Excellent" IRI Ratings for Interstate and Non-Interstate NHS, 2010-18 (%)



Source: PennDOT Performance Reports

Average Annual Truck Crashes 2009-18

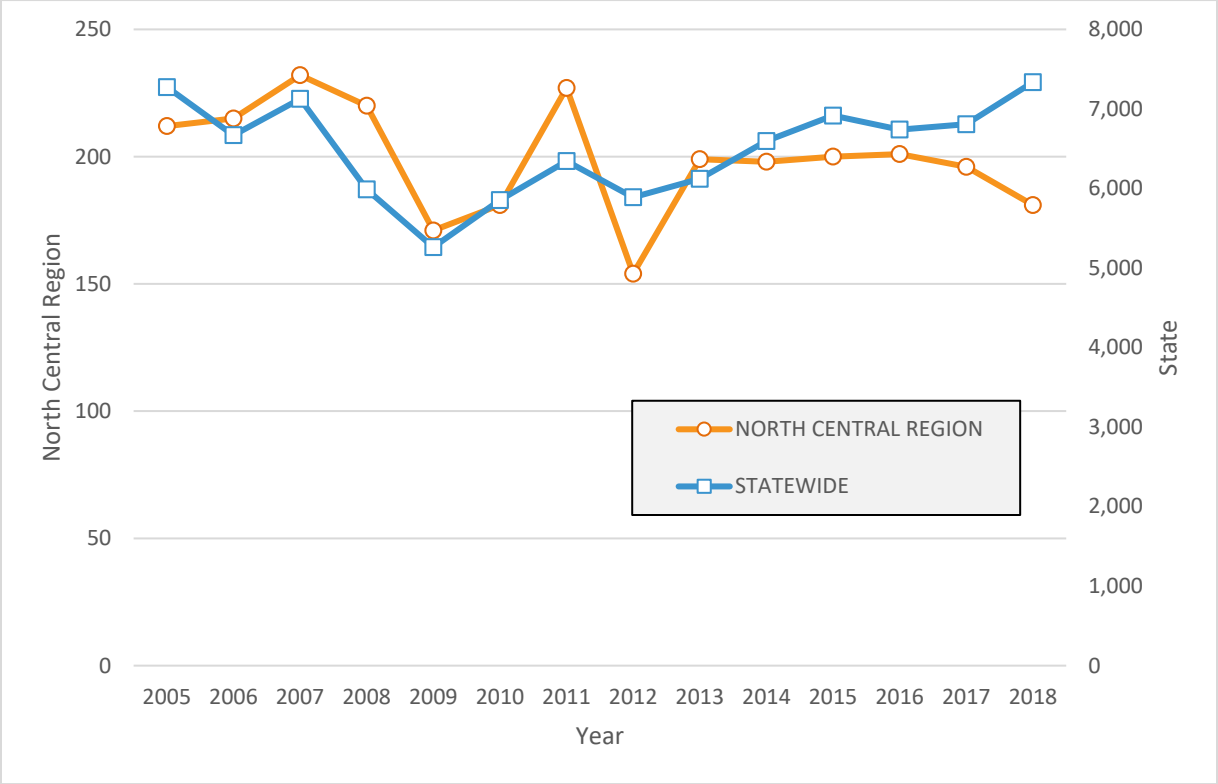
Cameron	2
Clearfield	96
Elk	22
Jefferson	45
McKean	21
Potter	6

Highway Safety

The total number of heavy truck crashes occurring within the North Central Region has varied throughout the last decade. For the decade ending in 2018, the region averaged 191 truck crashes per year. Clearfield County historically leads the region in total number of heavy truck crashes, averaging 96 annually over the past 10 years. This may be attributed to being one of the two counties housing Interstate 80 – the only interstate in the region. In contrast, Cameron County experienced the fewest number of crashes, averaging 2 crashes annually.

Figure 20 compares trends in truck crashes within the North Central region to Pennsylvania. While the number of heavy truck crashes statewide has been on the rise, North Central's number of crashes has started to see overall improvement after nearly five years at approximately 200 crashes per year.

Figure 25: Truck Crashes, Region and State, 2005-18



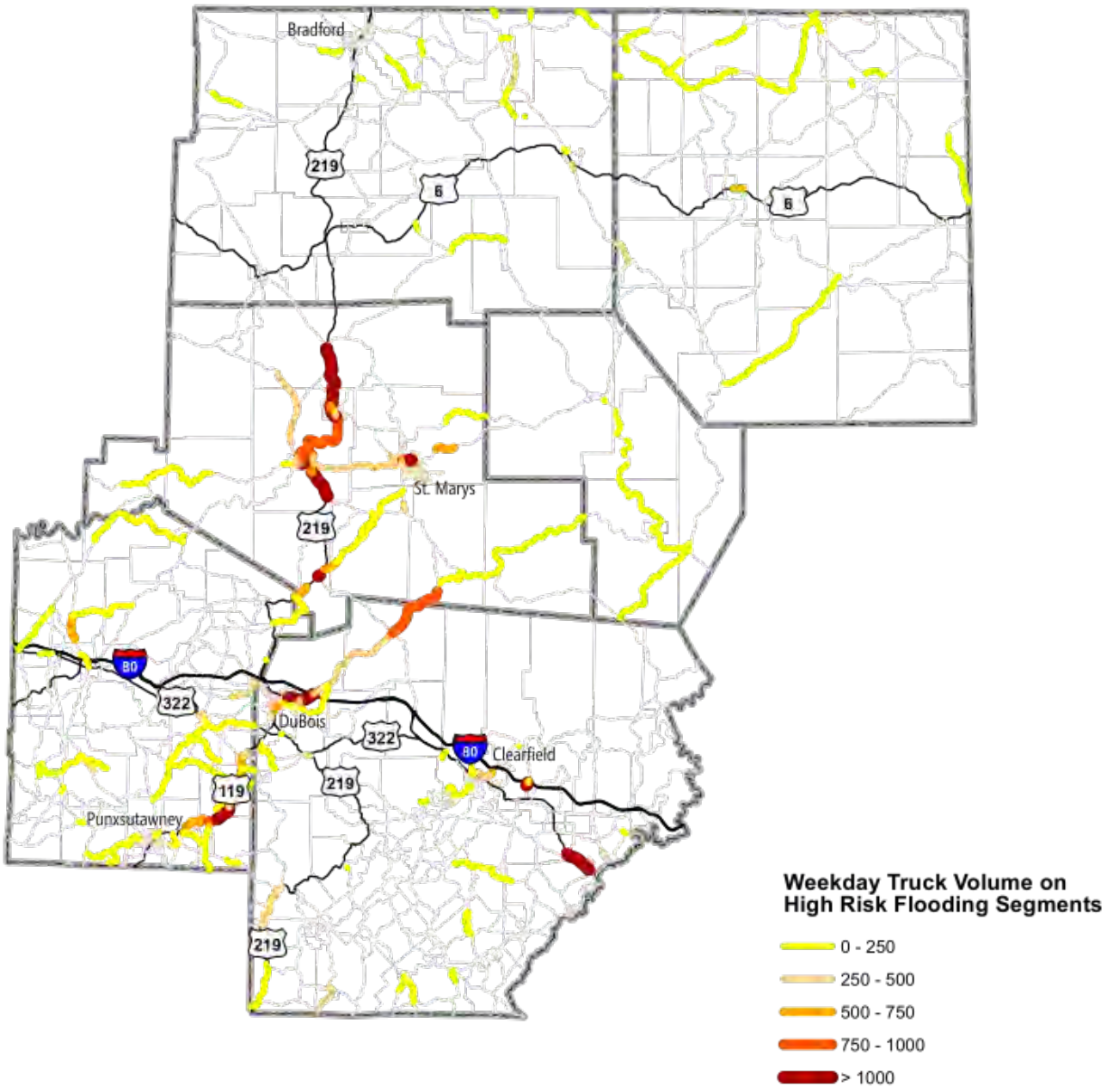
Source: PennDOT Crash Information Tool, Reportable Crash Statistics

Flooding Vulnerability

In 2017, PennDOT completed an *Extreme Weather Vulnerability Study* to identify historic flooding locations on state-owned roads and bridges. The study utilized PennDOT's Road Conditions Reporting System (RCRS) and collected stakeholder comments representing more than 3,000 miles of vulnerable roadway segments statewide. This data was combined with truck volumes from PennDOT's Roadway Management System (RMS) and used to develop maps highlighting the locations of flooding vulnerabilities within the North Central Pennsylvania region.

Figure 21 provides color coding of each flooding location by the weekday volume of trucks travelling at that location.

Figure 26: Truck Volumes on High Risk Flooding Road Segments



Source: PennDOT RMS and Extreme Vulnerability Study

Bridge Condition

North Central's regional transportation system houses 1,329 state-owned bridges greater than 8 feet in length and 287 locally owned bridges that are greater than 20 feet in length.[2] The RPO, in partnership with PennDOT, continues to program bridge improvements to maintain its bridge stock in a state of good repair and to address any structures that may be considered in poor condition. The region continues to make significant progress in the reduction of poor condition bridges by both count and deck area.

State-Owned Bridges

Of the region's state-owned bridges, 173 are in poor condition. Poor condition bridge rates in the region have been showing significant improvement, with its total state-owned poor condition bridge rate decreasing from nearly 22.5 percent in 2014 to 13 percent in 2019. When measuring these rates by bridge deck area in the same period, the rate of poor condition square footage has also decreased from nearly 11.5 percent in 2014 to 7.4 percent in 2019. Even with these significant improvements in recent years, bridge deck area continues to hold a higher poor condition rate in the region and is considered a more meaningful measurement of bridge condition.

Table 14 includes more detailed information on the condition of the region's state-owned bridges greater than 8 feet in length compared to Pennsylvania.

Table 15: State-Owned Bridge Conditions, Length 8' or Greater by County

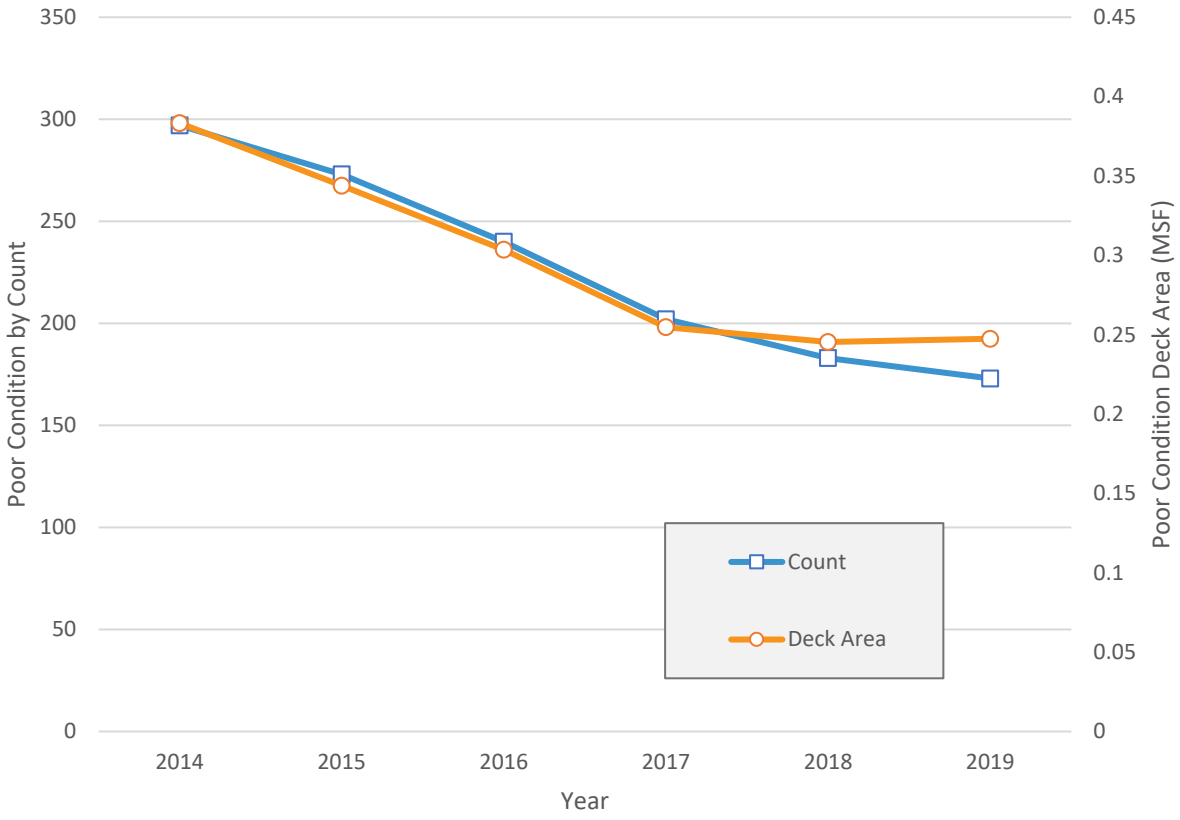
	Total Count	Total Deck Area (MSF)	Closed Bridges	Posted Bridges	Poor Condition Count	% Poor Condition by Count	Poor Condition Deck Area (MSF)	% Poor Condition by Deck Area
Cameron	68	0.157	0	0	9	13.24%	0.0164	10.44%
Clearfield	382	1.185	0	7	53	13.87%	0.0824	6.96%
Elk	123	0.347	0	1	9	7.32%	0.0079	2.26%
Jefferson	264	0.692	0	1	22	8.33%	0.0742	10.72%
McKean	242	0.611	0	2	44	18.18%	0.0327	5.35%
Potter	246	0.352	0	4	36	14.63%	0.0388	9.61%
North Central Region	1,325	3.344	0	15	173	13.06%	0.2474	7.40%
Pennsylvania	25,418	115.788	32	477	2,758	10.85%	7.6800	6.63%

Source: PennDOT, September 30, 2019

[2] It is bridges of this length and ownership type that are included within PennDOT's Bridge Management Data system (BMS). This dataset includes extensive information and data regarding the extent and condition of these structures, statewide.

PennDOT and North Central continue to program bridge projects in driving down the region's rate of poor condition bridges. **Figure 22** shows PennDOT and the RPO's progress in reducing poor condition bridges within the region. In the last six years, the total number of poor condition bridges has seen improvement, being reduced from 297 in 2014 to 173 in 2019. When measuring poor condition bridge performance based on deck area, the square footage of poor condition deck area has decreased at a similar rate throughout the same period with a minute increase in recent years.

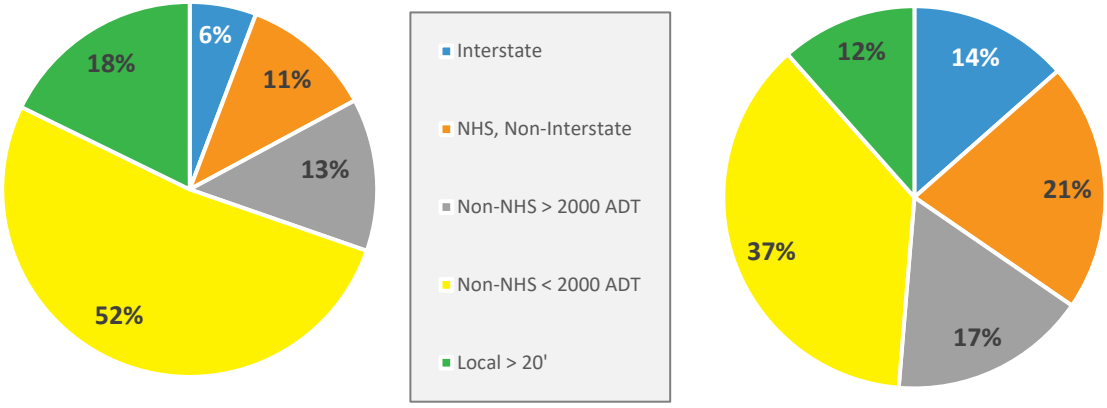
Figure 27: State-owned Poor Bridge Conditions, 2014-19



Source: PennDOT Performance Reports

Figure 23 shows how the region's bridges are structured across PennDOT's five major business plan networks: Interstates; the National Highway System (NHS); non-NHS with greater than 2,000 ADT; non-NHS with less than 2,000 ADT; and the Local system. Even though bridge count is low on the higher order networks such as interstates and non-interstate NHS routes, they comprise 35 percent of total deck area on the regional system. These bridges tend to be larger yet lower in count, while bridges on lower order networks tend to be more numerous and shorter.

Figure 28: Bridges by Business Plan Network, by Deck Area (%) and Count (%), December 2018



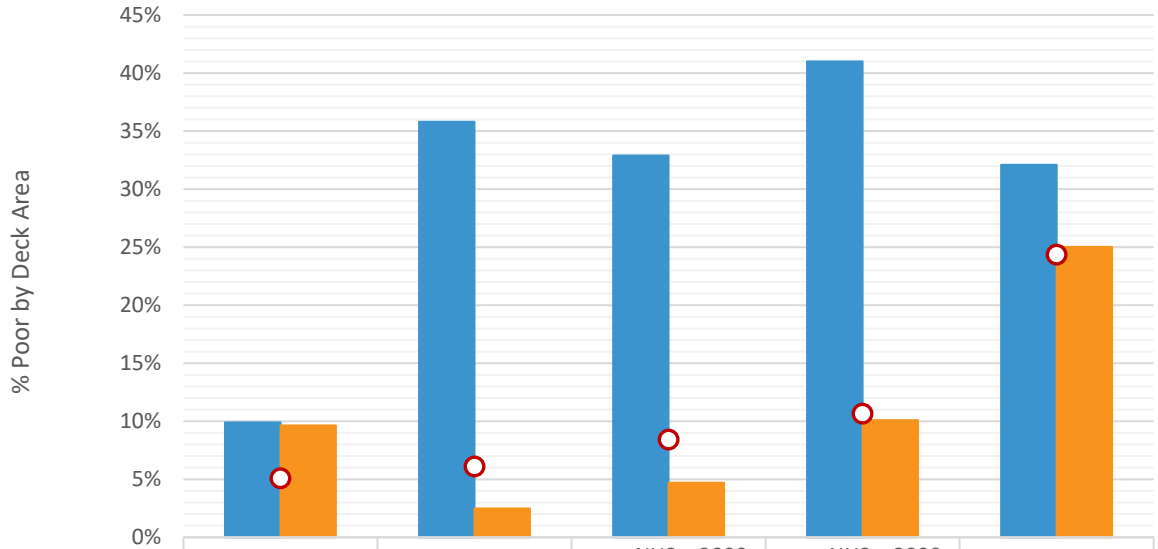
By Count **By Deck Area**

Source: PennDOT Performance Reports

Figure 24 demonstrates how bridge conditions have changed across the business plan networks since the 2010 base year. North Central RPO and PennDOT have been successful in keeping the region's bridge stock in a state of good repair over the last decade. Rates of poor condition bridges have improved across every business plan network since 2010. Poor condition bridges on the NHS have been nearly addressed in their entirety, reaching 2.5 percent in 2018 – compared to its 2010 rate of 35.8 percent. Non-NHS > 2,000 ADT poor condition bridge rates have dropped to a 2018 rate of 4.7 percent from a 2010 rate of 32.9 percent. Poor condition bridges on the region's interstates, despite seeing improvement, only had .3 percent addressed since 2010.

This ongoing success of the region's bridge system improvements and overall maintenance will continue to assist in meeting statewide targets as established by FHWA and PennDOT in the 2019 Statewide Transportation Asset Management Plan (TAMP).

Figure 29: Poor Condition by Deck Area (%), December 2018



	Interstate	NHS	non-NHS > 2000 ADT	non-NHS < 2000 ADT	Local > 20'
2010 Baseline	9.9%	35.8%	32.9%	41.0%	32.1%
Current (Dec. 2018)	9.6%	2.5%	4.7%	10.1%	25.0%
Statewide (Dec. 2018)	5.1%	6.1%	8.4%	10.7%	24.4%

Source: PennDOT

Local Bridges (>20')

Conditions on the region's locally owned bridge network are generally worse compared to state-owned bridges. Of the region's 290 locally owned bridges (>20'), 103 are in poor condition. When measured by total deck area, the North Central region has an overall poor condition percentage of 24.2 percent. When measured by bridge count, the overall regional rate of 35.5 percent is worse than the state percentage of 28.4; however, conditions vary significantly by county. **Table 15** provides more information on the region's stock of locally owned bridges.

Table 16: Locally-owned Bridge Conditions (>20'), September 2019

County	Total Count	Deck Area (MSF)	Closed	Posted	Poor Condition Count	% Poor by Count	Poor Condition Deck Area (MSF)	% Poor by Deck Area
Cameron	15	0.0269	1	4	6	40.00%	0.0034	12.82%
Clearfield	71	0.0836	6	22	32	45.07%	0.0320	38.28%
Elk	34	0.0715	0	4	9	26.47%	0.0064	8.97%
Jefferson	44	0.0945	2	6	9	20.45%	0.0167	17.65%
McKean	81	0.1246	3	25	30	37.04%	0.0351	28.20%
Potter	45	0.0376	2	13	17	37.78%	0.0124	32.98%

County	Total Count	Deck Area (MSF)	Closed	Posted	Poor Condition Count	% Poor by Count	Poor Condition Deck Area (MSF)	% Poor by Deck Area
North Central Region	290	0.4386	14	74	103	35.52%	0.1061	24.18%
Pennsylvania	6458	14.94	209	1,444	1,834	28.40%	3.56	23.84%

Source: PennDOT, September 30, 2019

County-owned Bridges (>20')

Included within the numbers shown in **Table 15** above are those of county-owned bridges greater than 20 feet in length. Within the North Central Pennsylvania region, there are 55 of these structures. Conditions of this subset of bridges are most acute in Clearfield County, where 17 percent of county-owned bridge deck area is considered poor condition, compared to a statewide rate of nearly 21 percent. **Table 16** provides more details on the region's county-owned bridges greater than 20 feet in length.

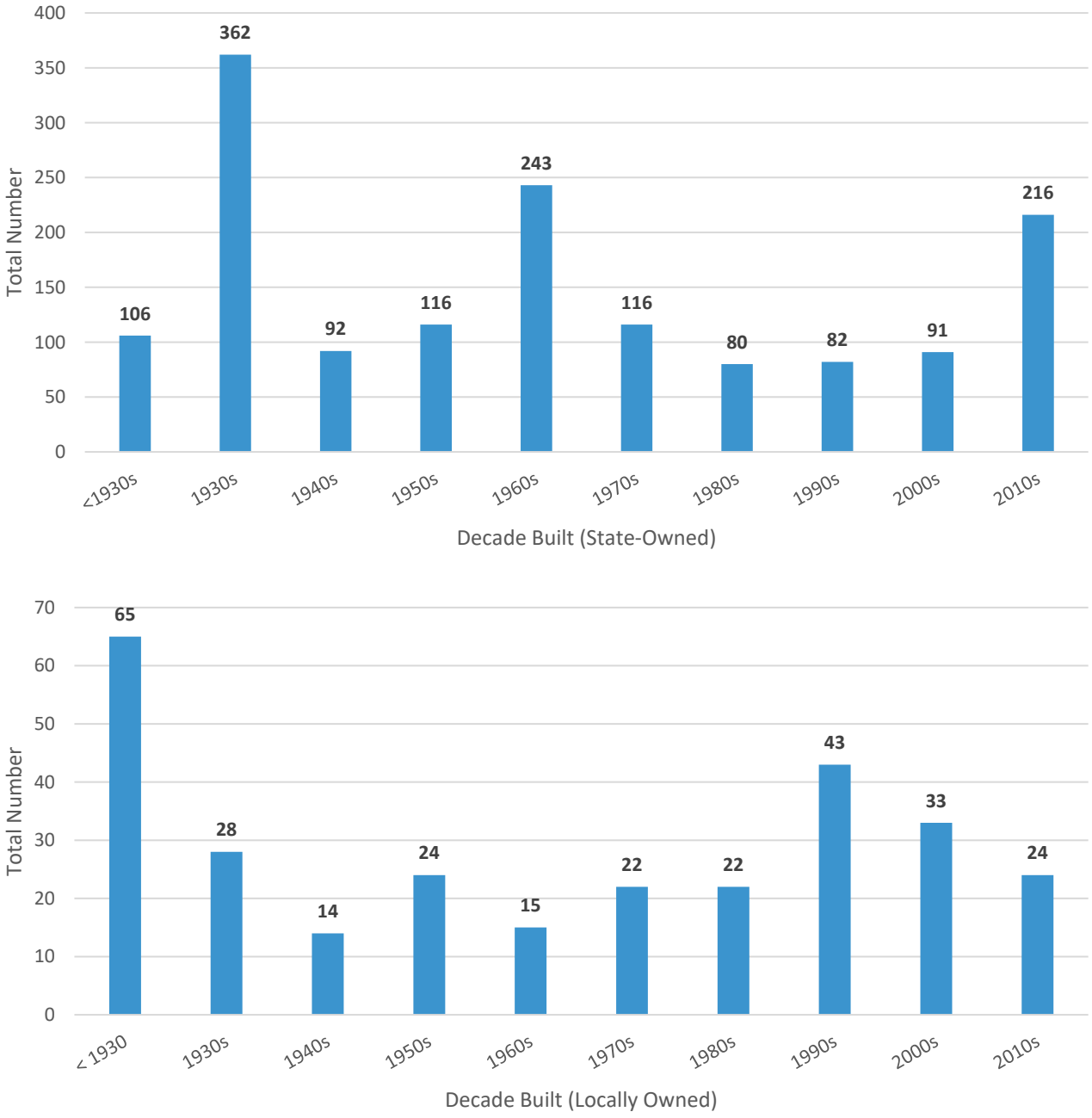
Table 17: County-owned Bridge Conditions (>20'), September 2019

County	Total Count	Deck Area	Closed	Posted	Poor Condition Count	% Poor by Count	Poor Condition Deck Area	% Poor by Deck Area
Cameron	4	18908.1	0	0	0	N/A	N/A	N/A
Clearfield	10	32269.1	2	2	3	30.0%	5,633.1	17.5%
Elk	2	19269.5	0	0	0	N/A	N/A	N/A
Jefferson	34	86994.3	1	1	4	11.8%	12,827.7	14.8%
McKean	5	20195.8	0	0	0	N/A	N/A	N/A
Potter	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
North Central Region	55	177,636.8	3	3	7	12.7%	18,460.8	10.4%
Pennsylvania	2,605	7,001,261	100	651	376	14.4%	1,453,209	20.8%

Source: PennDOT BMS2

Within the North Central Pennsylvania region, the average state-owned bridge is 50 years old. Locally owned bridges are on average seven years older. A time series analysis of both state- and locally-owned bridges in the region shown in **Figure 25** depicts an aging inventory. The RPO will be faced with a relatively large stock of Depression-era bridges as well as bridges built before 1930 (90+ years old) that may require extensive rehabilitation or replacement to extend their lifetime. State-owned bridges have an large stock of interstate-era bridges (1960s) that will need preservation or rehabilitation attention in order to maintain a state of good repair. The increase in newly-built bridge structures over the past thirty years will also increase the overall regional bridge stock in need of ongoing maintenance or repair over time. The region's older bridges are now facilitating the movement of greater volumes of trucks, complicating the upkeep of these older structures.

Figure 30: Bridges by Decade Built, State- and Locally-Owned



Source: PennDOT BMS2

Posted and closed bridges can disrupt freight movement and other commercial activities, causing negative impacts to the local economy; however, posting and closing bridges increases overall driver safety on structures that are unable to carry a legal load until they can be repaired or reconstructed. In North Central Pennsylvania, a total of XX bridges are posted or closed. **Tables 18 and 19** list all of the region's state and local bridges that are posted or closed. Those that are highlighted in yellow fall within three miles of a freight generator or Keystone Opportunity Zone.

Table 18: Posted State-Owned Bridges in North Central Pennsylvania

County	Municipality	Bridge Name	Year Built	Year Reconstructed	Posted Load Limit (Tons)	ADT	Truck %
Clearfield	Morris Township	SR 2036 over Emigh Run	1936	N/A	30	2201	1
	Irvona Borough	SR 3005 over South Witmer Run	1933	1955	UNKNOWN	524	6
	Lawrence Township	SR 1006 over Lick Run	1971	N/A	32	466	1
	Chest Township	SR 3014 over North Camp Run	1938	1951	UNKNOWN	174	26
	Chester Hill Borough	SR 2020 over Moshannon Creek	1940	1971	UNKNOWN	2052	4
	Jordan Township	SR 3022 over North Witmer Run	1938	1950	15	198	7
Elk	Millstone Township	SR 3005 over Wyncoop Run	1894	1971	DEMOLISHED	101	8
Jefferson	Winslow Township	SR 4005 over North Fork Creek	1950	N/A	32	202	10
McKean	Eldred Township	SR 1011 over Mix Creek	1938	1959	32	1760	2
	Bradford Township	SR 4011 over Bennett Brook	1940	1950	33	143	2
Potter	Genessee Township	SR 4016 over Orebed Creek	1930	N/A	13	124	11
	Ulysses Township	SR 1001 over Trib. Pine Creek	1941	N/A	33	184	4
	Sharon Township	SR 4017 over Bell Run	1953	N/A	28	263	6
	Oswayo Township	SR 4025 over Brizzie Hollow Run	1953	N/A	17	51	25

Source: PennDOT BMS2

Table 19: Locally Owned Posted and Closed Bridges in North Central Pennsylvania

County	Bridge Owner/ Municipality	Bridge Name	Year Built	Year Reconstructed	Posted Load Limit (Tons)	ADT	Truck %
Cameron	Lumber Township	T-306 Over Mckinnon Branch	1940	N/A	5	25	0
	Grove Township	T-356 Over Upper Jerry Run	1965	2008	15	20	0
	Grove Township	T-356 Was T-355 Over Wykoff Run	1985	N/A	21	60	0
	Grove Township	T-356 Was T-355 Over Upper Jerry Run	1930	2007	12	20	0
	Shippen Township	T-330, Nickler Rd Over Salt Run	1929	N/A	CLOSED	0	0
Clearfield	Pike Township	T-207 Over Kratzer Run	1920	N/A	6	70	0
	Penn Township	Workers Rd (T-463) Over Bell Run	1930	N/A	6	60	0
	Knox Township	Kellytown Road Over Potts Run	1905	N/A	CLOSED	0	0
	Knox Township	T-439 Fruit Hill Rd Over Potts Run	1909	1986	3	45	0
	Clearfield County	T-566 Kellytown Rd Over Clearfield Creek	1883	N/A	CLOSED	0	0
	Brady Township	T-338 Kellar Rd Over East Br Mahoning Creek	1924	2017	20	30	0
	Clearfield County	T-322 C Bridge Rd Over W Br Susquehanna River	1873	1978	3	135	0
	Clearfield County	T-733 Peale Rd Over Moshannon Creek	1923	1945	16	2	0
	Lawrence Township	T-519 Flegal Rd Over Moose Creek	1930	N/A	32	400	1
	Gulich, Beccaria Twps	T-536 Over Muddy Run	1918	N/A	3	170	1
	Clearfield County	Leonard St Ext Over RJ Corman Rr	1902	N/A	CLOSED	1	0
	Covington Township	T-729 Germania Rd Over Sandy Creek	1915	N/A	10	25	0
	Huston Township	T-527 Laurel Run Rd Over Laurel Run	1915	N/A	10	30	0

County	Bridge Owner/ Municipality	Bridge Name	Year Built	Year Reconstructed	Posted Load Limit (Tons)	ADT	Truck %
Clearfield	Knox & Pike Townships	T-584 Over Little Clearfield Creek	1919	N/A	3	5	0
	Brady Township	T-346 Haag Rd Over Stump Creek	1930	N/A	28	320	1
	Burnside Township	T-306 Shepard Ln Rd Over Branch Of Beaver Run	1915	N/A	32	35	0
	Covington Township	Red Wing Rd T-640 Over Sandy Creek	1960	N/A	10	15	0
	Sandy Township	Murry Road (T-915) Over Luthersburg Br Sandy Lick Cr	1915	N/A	5	80	0
	Burnside Township	T-333 Rager Rd Over Beaver Run	1935	2005	15	40	0
	Greenwood Township	T-421 Zorger Rd Over W Br Susquehanna River	1920	N/A	CLOSED	30	0
	Covington/Girard Twp	T-637 River Hill Rd Over Deer Creek	1913	N/A	10	30	0
	Bloom Township	T-203 Bilger Rocks Over Bilger Run	1930	N/A	15	30	0
	Knox Township	Clark Road (T-565) Over Potts Run	1910	2017	3	45	0
	Bell Township	T-332 Ryan Rd Over Curry Run	1960	N/A	26	20	0
	Irvona Borough	Hopkins Street Over North Witmer Run	1938	N/A	15	150	4
	Pike Township	T-206 Over Anderson Creek	1930	N/A	CLOSED	60	0
	Bradford Township	T-507 Was T-800 Over Jake Run	1991	N/A	CLOSED	60	0
	Gulich Township	T-919 Walnut St. Over Little Muddy Run	1933	2016	5	100	0
	Bradford Township	T-208 Egypt Rd Over Sulphur Run	1960	N/A	29	100	0
Elk	Jay Township	T-464 (Caledonia) Over Bennett Br Sinnemahoning	1937	N/A	16	170	2
	Highland Township	T-322 Pigs Ear Rd. Over East Branch Spring Creek	1900	1976	36	100	0

County	Bridge Owner/ Municipality	Bridge Name	Year Built	Year Reconstructed	Posted Load Limit (Tons)	ADT	Truck %
	Millstone Township	T-301 (River Road) Over Cline Run	1940	1987	34	68	0
	Ridgway Township	T-347 Mohan Run Rd Over Mohan Run	1974	N/A	34	200	0
	Spring Creek Township	T-354 Hidinger Rd Over Maxwell Run	1930	N/A	11	4	0
Jefferson	Eldred Township	T-353 Bottom Rd Over Mill Run	1909	1995	11	50	5
	Jefferson County	Worth Street Over Soldier Run	1937	N/A	24	671	9
	Oliver Township	T-408 Trussell Rd. Over Indiancamp Run	1940	N/A	25	50	0
	Rose Township	T-396 Seldom Seen Over Coder Run	1914	N/A	CLOSED	50	0
	Barnett Township	T-346 Cathers Run Over Cathers Run	1936	N/A	3	50	0
	Eldred Township	T-357 Mcmanigle Over Mill Run	1910	1992	9	50	0
	Jefferson County	T-386 Dobson Rd Over Big Run	1901	N/A	CLOSED	0	0
	Reynoldsville Borough	South 14Th Street Over Soldier Run	1989	2015	6	50	5
McKean	Bradford Township	Langley Drive Over Minard Run	1997	N/A	19	35	3
	City Of Bradford	Campus Drive Over Bennett Brook	1955	N/A	21	1000	2
	Otto Township	T-387 Berger Hollow Over S Br Knapp Creek	1950	2001	19	10	0
	Bradford Township	T-499 Clarks Lane Over W Br Tunungwant Creek	1955	N/A	CLOSED	150	0
	Bradford Township	T-331 Browntown Rd Over E Br Tunungwant Creek	1955	1990	11	70	0
	Keating Township	T-385 Valley Cross Over Potato Creek	1888	2018	3	450	0
	Liberty Township	T-402 Cady Run Rd Over Portage Creek	1908	2014	17	25	0
	Hamilton Township	T-317 Hillside Ave Over Two Mile Run	1940	1994	12	100	2

County	Bridge Owner/ Municipality	Bridge Name	Year Built	Year Reconstructed	Posted Load Limit (Tons)	ADT	Truck %
McKean	Ceres Township	T-437 Delmar Road Over Oswayo Creek	1908	1962	CLOSED	0	0
	Hamlin Township	T-573 Town Line Rd Over Kinzua Creek	1991	N/A	35	60	2
	City Of Bradford	Barbour St Over Bennett Brook	1955	N/A	15	1200	3
	Otto Township	T-384 Brooklyn St Over Knapp Creek	1890	1996	16	40	0
	Bradford Township	T-336 High Street Over Minard Run	1931	N/A	34	250	4
	Norwich Township	T-373 Brewer Run Rd Over Potato Creek	1910	2014	8	40	0
	Otto Township	T-374 Clark Street Over S Br Knapp Creek	1955	2008	10	20	0
	Foster Township	T-523 Fairview Hts Over Foster Brook	1940	N/A	15	250	1
	Keating Township	T-350 Bordell Cross Over Cole Creek	1915	2001	17	120	2
	Keating Township	T-362 West Valley Over Irish Hollow Creek	1910	2003	23	200	5
	Foster Township	Harrisburg Run Rd Over Foster Brook	1955	N/A	20	250	2
	City Of Bradford	Elm Street Over E Br Tunungwant Creek	1960	N/A	3	500	0
	Hamlin Township	T-319 Dewey Ave Over Marvin Creek	1975	N/A	11	50	2
	Port Allegheny Borough	Arnold Avenue Over Lillibridge Creek	1957	N/A	32	400	20
	Eldred Township	T-389 Sartwell Rd Over Newell Creek	1982	1993	7	280	0
	Hamlin Township	T-323 Kasson Road Over Marvin Creek	1998	N/A	20	50	0
	Bradford Township	T-347 E Warren Rd Over E Br Tunungwant Creek	1910	N/A	CLOSED	200	0
	Keating Township	T-349 Bordell Rd Over Cole Creek	1915	N/A	17	75	3
	Otto Township	T-388 Depot St Over S Br Knapp Creek	1960	1992	3	20	0

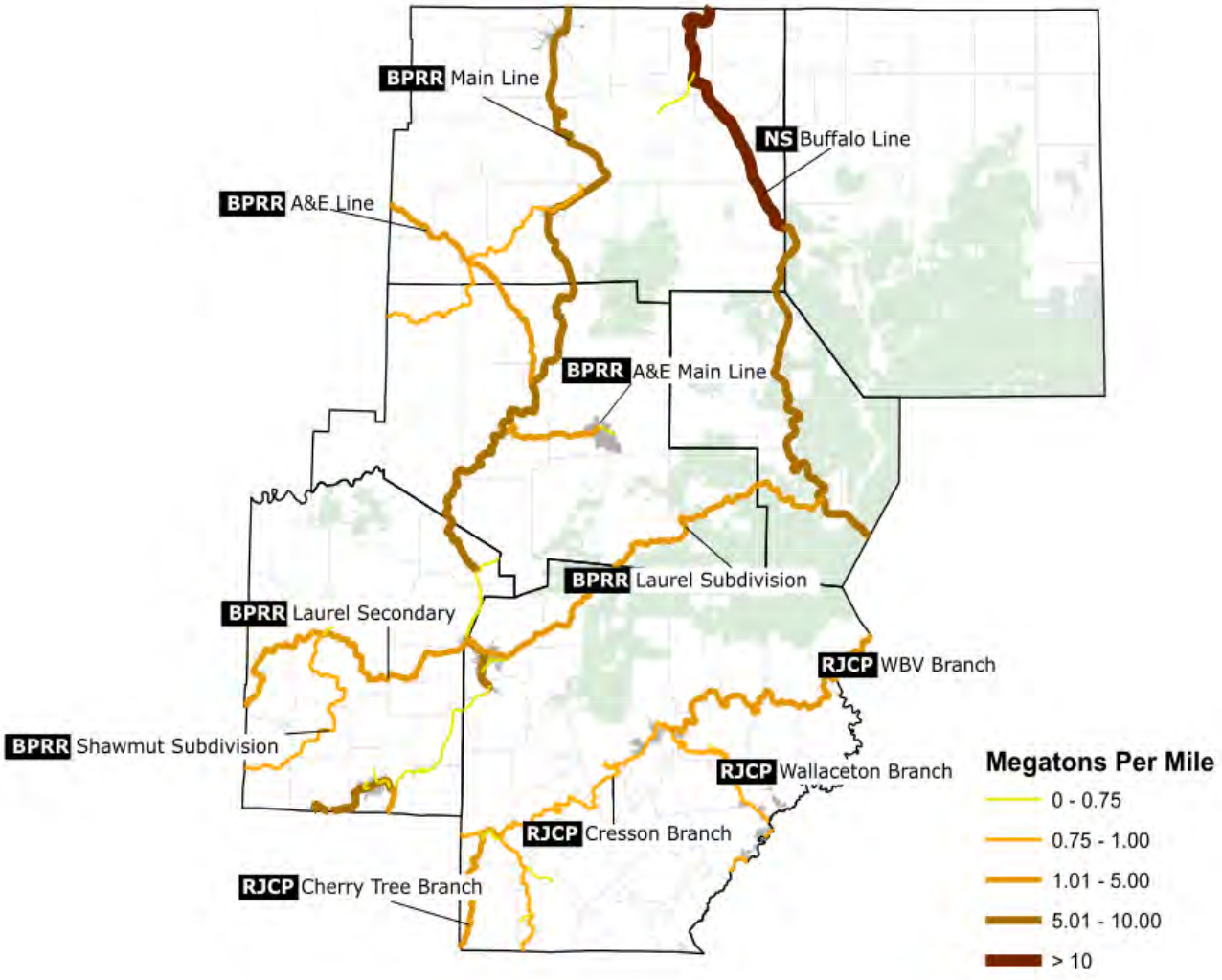
County	Bridge Owner/ Municipality	Bridge Name	Year Built	Year Reconstructed	Posted Load Limit (Tons)	ADT	Truck %
Potter	Bingham Twp	T-409 Musto Hlw Rd Over Genesee River	2000	N/A	27	50	2
	Harrison Township	T-481 W Tannery St Over N Br Cowanesque River	1951	2009	14	50	0
	Sharon Township	T-363 Herringtown Over Eleven Mile Creek	1940	1983	7	70	0
	Wharton Township	Cemetery Road Over Sinnemahoning Crk	1965	N/A	3	20	0
	Sylvania Township	T-302 S. Woods Rd Over First Fork Sinnemahoning	1950	1999	13	60	0
	Oswayo Borough	T-356 Bryant Ho Rd Over Oswayo Creek	1907	1981	CLOSED	50	0
	Clara Township	T-351 Topeka Road Over Oswayo Creek	1920	1997	0	0	0
	Homer Township	T304 Big Moores Rd Over Big Moores Run	1975	N/A	19	20	0
	Harrison Township	T-583 Harrison Rd Over Cowanesque River	1979	2007	10	40	0
	Harrison Township	T-589 Plumstead Rd Over White Br North Fork Crk	1940	N/A	11	50	0
	Sylvania Township	T-302 S Woods Rd Over South Woods Branch	1950	N/A	3	25	0
	Sylvania Township	T-391 Crandall Rd Over Sinnemahoning Crk	1955	N/A	26	100	1
	Stewardson Township	T417 Cross Fork Rd Over Windfall Run	1955	N/A	10	60	2
	Austin Borough	Elliot Street Over Freeman Run	1955	2000	24	200	1
	Pike Township	T-436 Hardscrabble Over Genesee Fork Pine Creek	1974	N/A	23	30	0

Source: PennDOT BMS2

Rail

Shippers and receivers in the North Central Pennsylvania region are connected to the national rail network through a mix of regional short lines and a Class I carrier in Norfolk Southern (NS). Pennsylvania leads the nation in the total number of operating railroads (with a current total of 65) and has more than 5,500 route miles of railroad. The strength of the region's railroad infrastructure is vital to ensuring proper rail connections to the state and nation. The extent and rail line density of the region's rail network is as shown in **Figure 26**.

Figure 31: North Central Pennsylvania Rail Line Density

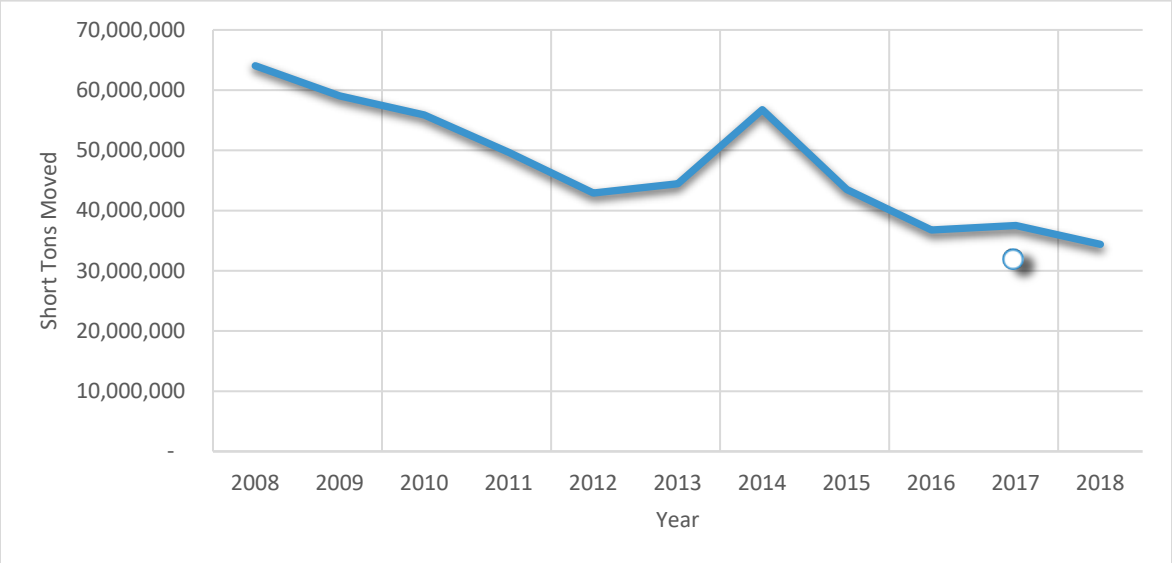


Source: PennDOT Open Data - January 23, 2020

The Commonwealth has historically been a strong supporter of rail freight. Given the scope of the industry within the Keystone State, the Commonwealth continues to promote the preservation and improvement of the statewide rail freight transportation system. PennDOT's Rail Freight Assistance Program (RFAP) and Rail Transportation Assistance Program (RTAP) were established as part of the state's Rail Freight Preservation and Improvement Act of 1984. These programs provide financial assistance to railroads to maintain and improve their infrastructure. The RFAP currently provides $10 million in assistance annually to regional railroads and short lines, while RTAP, also known as the Commonwealth's Capital Budget, provides an additional $30 million. The grant funding comes with a 30 percent local match requirement.

Overall, the railroad industry has been resilient in adapting to economic forces that has affected its core business. Much of the state's rail infrastructure was originally built to haul coal and the industry continues to operate efficiently as coal traffic experiences an ongoing decline. Despite this decline, coal continues to be a leading commodity by weight shipped by rail in Pennsylvania, with more than 51 million tons transported within the state. This accounts for nearly a quarter of the state's freight tonnage shipped by rail. A variety of factors are contributors to this decline in traffic, including stringent EPA regulations that have accelerated the closure of coal-fired electric generating stations. Decreases in the pricing of natural gas and increases in the use of wind and solar power have also suppressed the demand for coal. The statewide trends in coal shipments to electric power facilities over the last decade, shown in **Figure 27**, are only a snapshot of the decline in overall demand for coal.

Figure 32: Coal Shipments to the Electric Power Sector from Pennsylvania Mines, 2008-2018



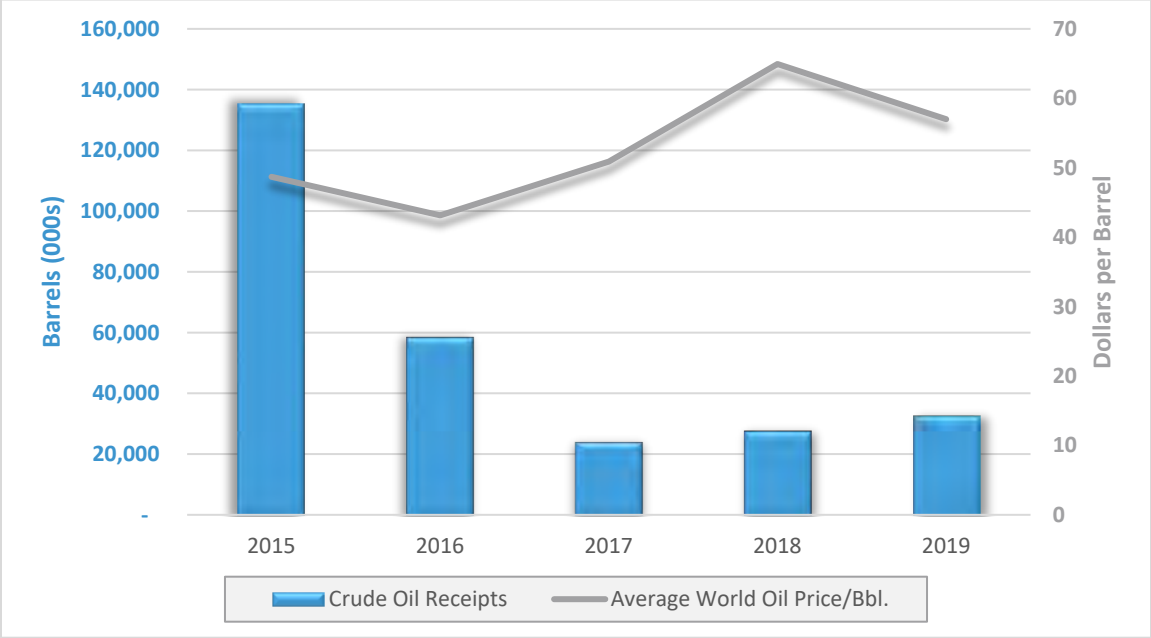
Source: US Energy Information Administration (EIA)

Regionally, North Central Pennsylvania's freight movement by rail has been heavily impacted by these changes in commodity demand. Decline in extractive industries, including coal, have caused facilities to close or change business focus along regional and short lines. Despite this downward trend, IHS Global Transearch data shows bituminous coal as a top outbound commodity in the region, particularly in Jefferson and Clearfield Counties. Since most of North Central Pennsylvania's land area is underlain by

natural gas shales, the Marcellus shale gas industry and any associated policy decisions also continue to have significant influence on the operations of short line railroads in the region.

The advent of hydraulic fracturing as a drilling technique has over the past decade became commonplace in Pennsylvania's Marcellus Shale region as well as in North Dakota's Bakken Formation. As oil production has soared, shippers turned to the railroad in delivering their commodity to refineries in Philadelphia and Marcus Hook. As with any other commodity, the movement of oil is subject to the continual changes in the economy, and a drop in oil prices that began in June 2014 has since made it more advantageous for East Coast refiners to import oil as opposed to moving deliveries from the Bakken Formation (**Figure 28**). The expansion of pipeline capacity nationally is expected to further displace the need for unit oil trains.

Figure 33: World Oil Prices and East Coast Receipts by Rail from Midwest of Crude Oil



Source: US Energy Information Administration (EIA)

Intermodal traffic (or the movement of containerized cargo and trailers) has been a growth area for the railroad industry for many years. This traffic declined during the Great Recession of 2007-09, but has recovered since then. The decline in oil prices since 2014 naturally dampened demand for rail intermodal traffic to some extent, with this traffic diverting to the highway; however, since 2016, oil prices have been on the rise, peaking at $65 per barrel in 2018.

As railroads adjust to these headwinds, they must also consider technological changes now under development in connected and highly automated trucks. The advent of this technology – including driverless trucks and platooning – could mean further volume losses for railroads as the technology becomes more widespread and operational within the next 25-30 years. Pennsylvania, and specifically Pittsburgh, has been positioning itself as a leader in encouraging the development of this technology.

The motor carrier industry faces a shortage of drivers in coming years, and new Federal regulations now require truck drivers to log their drive times and rest periods electronically. Many of the Eisenhower-era

Interstate highways and bridges that were built are also nearing the end of their design life and in need of being reconstructed altogether.

At the time of the drafting of this plan, the transportation industry awaits to see how Congress will address the nation's transportation system at the Federal level. The FAST Act provides funding for transportation only through September 2020.

A description of the region's major rail freight carriers and related rail freight activity is discussed within the following section.

Norfolk Southern (NS)

As the only Class I railroad in the North Central Pennsylvania region, Norfolk Southern (NS) operates within the region through its Buffalo Line which runs from Renovo and Keating in Clinton County and into Cameron County, where it connects with the Buffalo and Pittsburgh (B&P) at Driftwood. The line north of Emporium was acquired in 2007 by the Western New York and Pennsylvania Railroad (WNYP), yet NS maintains operating rights on the line. Operating rights are also maintained on its spur to Farmer's Valley in McKean County as well as on the B&P line coming into Punxsutawney from Indiana and Creekside.

Buffalo and Pittsburgh (B&P)

Founded by Genesee and Wyoming Railroads in 1988, the Buffalo and Pittsburgh Railroad operates as a Class III railroad with operations in Pennsylvania and New York. The B&P is known for carrying commodities like coal, petroleum, paper products, agricultural products, metallic ores, forest products, and scrap. With nearly 630 miles of track in Pennsylvania and 286,000 pounds compatible, the Buffalo and Pittsburgh line serves the North Central Pennsylvania region at multiple stops in each county (except for Potter County) and connects with Norfolk Southern in Driftwood and has transloading services available in DuBois.

R.J. Corman Railroad

R.J. Corman Railroad's Pennsylvania Line (RJCP) was established in December of 1995. The railroad owns nearly 245 miles of track in Pennsylvania. In the North Central region, this short line railroad serves Clearfield County along with neighboring Cambria, Centre, Clinton, and Indiana counties. Within the region, the railroad serves its railyard in Clearfield and connects with Norfolk Southern in Keating, Clinton County. The RJCP is known for hauling materials such as coal, aggregates, agricultural materials, metal products, petroleum and plastics, building materials, wood and paper products, and food products. It serves the Belford Mine, Benjamin Mine, and coal mining strips south of Osecola Mills.

Western New York & Pennsylvania Railroad

The Western New York & Pennsylvania Railroad (WNYP) is centered in Olean, New York and operates on a portion of the former Pennsylvania Railroad Buffalo line, which was leased in 2007 from Norfolk Southern. This branch extends between Driftwood in Clearfield County and through McKean County in the North Central Pennsylvania region and ends in Machias, New York. Driftwood serves as an interchange with Norfolk Southern to Harrisburg and with the Buffalo & Pittsburgh Railroad to DuBois.

The WNYP has been hauling freight since 1965 but began independent operations in 2001. Commodities moved by the WNYP include aggregates for road construction, steel and scrap, fracking sand, and wax related materials.

At-grade Crossings

Crashes involving rail crossings are rare within the North Central Pennsylvania region with only eight recorded from 2009-18. All at-grade crossing crashes occurred in Clearfield, Jefferson, and McKean Counties. The region has not experienced any recorded fatalities at railroad crossings and most years record zero at-grade railroad crossing crashes. Many of the vehicle/train crashes that occur come as a result of motorists trying to circumvent or purposely violate active control devices. **Table 17** shows trends in at-grade railroad crossing crashes within the region over the past decade.

Table 20: At-grade Railroad Crossing Crashes, 2009-18

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Clearfield	0	0	2	0	0	1	0	0	0	0
Jefferson	0	0	0	0	0	0	2	0	0	1
McKean	0	0	0	0	0	0	1	0	1	0
North Central Region	0	0	2	0	0	1	3	0	1	1

Source: Pennsylvania Crash Information Tool

Air Cargo

Air cargo service in the region is provided by two airports – Bradford and DuBois Regional Airports.

Bradford Regional Airport

Bradford Regional Airport is located within Lafayette Township, McKean County - approximately 11 miles south of Bradford. Owned and operated by Bradford Regional Airport Authority, the airport is classified as a commercial service airport, but also provides general aviation services. Through Southern Airways Express, passengers can fly direct to Pittsburgh International Airport. In CY 2018, nearly 4,200 commercial service passengers flew out of Bradford Regional Airport, a 14 percent decrease from a decade ago, as shown in **Table 21**. The airport is also home to a 36,000 square-foot National Guard armory.

Table 21: Bradford Regional Airport Passenger Enplanements 2008 and 2018

	2008 Passenger Enplanements	2018 Passenger Enplanements	Percent Change
Bradford Regional Airport	4,898	4,191	**-14.4%**

Source: Federal Aviation Administration

Bradford Regional Airport averages nearly 70 flights per day with 64 percent being commercial service flights. Currently, air cargo at the airport is very limited with only one air cargo flight per quarter. UPS used to operate air cargo flights from the airport nearly a decade ago, averaging one air cargo flight per day. Due to the construction of a UPS customer center in nearby Kane, the need for air cargo services

was significantly reduced and freight movement became centric to trucking as a less expensive alternative.

DuBois Regional Airport

Located on a 400-acre site in Washington Township, Jefferson County, DuBois Regional Airport is approximately eight miles northwest of the City of DuBois and two miles north of Interstate 80. The airport is owned and operated by the Clearfield-Jefferson Regional Airport Authority and has one commercial airline, Southern Airways Express – providing service to Baltimore and Pittsburgh since 2017. Silver Airways used to provide passenger service at the airport until service ended in 2016, being replaced by Southern Airways Express. Passenger enplanements increased from 2,300 with Silver Airways to 5,500 with Southern Airways Express in 2018, an increase of nearly 70 percent in enplanements since 2008. The airport has a single runway 5,500 feet in length and 100 feet in width.

Table 22: DuBois Regional Airport Passenger Enplanements 2008 and 2018

	2008 Passenger Enplanements	2018 Passenger Enplanements	Percent Change
DuBois Regional Airport	3,230	5,448	**68.9%**

Source: Federal Aviation Administration

DuBois Regional Airport averages nearly 24 flights per day; however, only 5 percent of those flights provide air cargo service – ranging from 8 to 10 flights monthly. Almost all the airport's air cargo flights are arranged by freight forwarders – companies that arrange the importing and exporting of goods. Corporate and business activities at DuBois Regional Airport are driven by the powdered metals, automotive parts manufacturing and the Marcellus Shale natural gas industries.

To support its air cargo customers, the airport provides multiple services including fueling, de-icing, loading of freight, and use of an all-weather instrument landing system. Some of the airport's air cargo customers drive from other origins within the North Central Pennsylvania region and as far as Altoona and Johnstown to utilize the freight loading service. Local businesses that use the airport include Fort Worth Pipe, Barber Trucking, R.J. Corman Railroad Group, Phoenix Pressed Metals, C&S Wholesale, and Black and Decker. For businesses in the powdered metal and automotive manufacturing sectors, ad hoc cargo operations are available.

DuBois Regional Airport's location within the Utica Shale Formation has made it an attractive location for Marcellus Shale drilling companies. Cactus Wellhead, a hydraulic fracturing equipment manufacturer, currently operates a 20,000 square-foot facility on an adjacent 36-acre parcel – known as the DuBois Regional Air Commerce Park. This non-aeronautical use park creates the opportunity for further economic development nearby and new tenants could lead to an amplified need for air cargo operations at the airport.

DuBois Regional Airport has been operating within a Foreign Trade Zone (FTZ) since 2002; however, the FTZ is currently inactive. The FTZ was actively used for the first four years after its designation, storing imported equipment for locomotive construction and repair. The airport currently has 9 acres available for development that fall within the FTZ and additional acreage can be acquired in order to meet future demand.

The 2019 Twelve Year Program (TYP)

The North Central RPO works with PennDOT and other partners in developing a four-year transportation improvement program (TIP), which serves as the first four-year period of the Twelve-Year Program (TYP) and is a project-specific, fiscally-constrained list of the region's programmed projects. The State Transportation Commission (STC) adopted Pennsylvania's most recent TYP on August 16, 2018. The North Central Pennsylvania region's share of this program includes nearly 340 projects and line items totaling nearly $620 million in roadway and bridge improvements. **Table 18** summarizes the program for the region.

Table 23: Composition of the 2019 TYP in the North Central Pennsylvania Region

Project Type	Total Count	Cost ($000s)
Highway Restoration	101	$190,801
Bridge Restoration	95	$173,964
Bridge Replacement	56	$70,112
Safety Improvement	13	$39,652
Preventative Maintenance	15	$37,653
Reserve Line Item	3	$29,874
Highway Reconstruction	5	$20,099
409 Expanded Maintenance	3	$15,731
Congestion Reduction	2	$9,944
Bridge Preservation	7	$8,905
Multimodal	5	$5,909
General Maintenance	9	$5,265
Rail Highway Grade Crossing	11	$3,757
Additional Lanes	1	$3,497
Transportation Enhancement	3	$2,690
Bridge Removal	8	$1,733
New Alignment	3	$1,641

Source: PennDOT, January 2, 2020

From the preceding table, the region is programming a significant majority of its transportation dollars on restoration, safety, and maintenance projects. A summary of the major program line items follows:

- **Highway Restoration** – A majority of the region's highway dollars have been programmed for highway restoration projects. There are 101 projects of this type in the program. A sample of these include the resurfacing of PA 120 from Driftwood Borough to the Clinton County line in Cameron County as well as the resurfacing of US 322 from Turner Road to Blue Ball.

- **Bridge Restoration** – Most of the region's transportation dollars have also been programmed for bridge restoration with 95 of these projects in total. Major restoration projects include rehabilitation of bridges on PA 949 over Interstate 80 in Jefferson County.
- **Bridge Replacement** – There are over 56 projects of this type on the program. Major projects include short span length bridge replacements in Jefferson County, consisting of three bridges carrying PA 949 and Airport Road (SR 1013).
- **Safety Improvements** – Safety improvements are included as part of every programmed project, yet there are certain projects that are programmed specifically for the safety benefits. These projects include slide corrections along PA 120 in Cameron County and reconfigurations of existing intersections in Jefferson County - PA 28 and US 322 intersection in Brookville, PA 36 and PA 436 in Punxsutawney and US 219 with PA 28 in Brockway.
- **Preventive Maintenance** – Just over $24 million has been programmed for Preventative Maintenance along several sections of US 322 and PA 36 in Jefferson County.
- **Highway Reconstruction** – Programmed projects include an $8 million improvement to Interstate 80 near Brookville as well as the $8.2 million reconstruction of 11 miles of US 219 near Bradford (also known as the Bradford Bypass) in McKean County.
- **Bridge Preservation** – The region has 7 bridge preservation projects programmed on the 2021 program. The implementation of these projects extends the lifetime of these bridges and maintains them in good condition for efficient operation of the regional transportation system.

As of the writing of this plan, the 2021 Twelve Year Program (TYP) is in development. PennDOT and the State Transportation Commission (STC) solicited public input on transportation needs during an open comment period in March and April 2019. North Central RPO and its partners at PennDOT Districts 2-0 and 10-0 will collaborate on the identification of priorities during the development of the 2021 Transportation Improvement Plan (TIP) – a project-specific, fiscally-constrained list of programmed projects for the region. Municipal input is collected through the PennDOT Connects process and is an asset to the development of the TIP. The RPO is expected to adopt the 2021 TIP by June of 2020 and the TYP will be put before the STC, the Secretary of Transportation, the General Assembly, and the Governor for adoption in late summer of 2020.

STRATEGIC DIRECTIONS

Asset Management and Infrastructure Condition

Strategy	Description/Benefits	Potential Projects (if applicable)
Continue to program projects that address system preservation and preventive maintenance needs.	Routine programming of maintenance projects will avoid the need to make larger investments in roadway reconstruction and bridge rehabilitation/replacement projects. The RPO will continue working with PennDOT to program preservation and preventative maintenance projects to support the new "lowest life cycle cost" approach to asset management.	• N/A
Ensure our Interstates do not have any segments rated as "poor" condition	Interstate 80 continues to maintain "Good" and "Excellent" conditions through the region – with only 0.2 miles in "poor" condition as of 2018. By continuing to work with PennDOT to program regular preventative maintenance and preservation, major pavement reconstruction investments on Interstate 80 can be avoided – allowing freight to move efficiently without the need to detour onto lower level roadways.	• N/A
Continue addressing pavement conditions on our secondary roadways	Secondary and lower order roadways typically contain critical first- and last- mile connections for truck traffic. By addressing pavement needs in these areas, truck traffic can continue to move efficiently from origin to destination with no detour.	• West Street (SR 2002) from Union Street (SR 1020) to US 6 • Halsey Road (SR 3007) from US 219 to Campbelltown Road (SR 3005) • US 219/PA 830 from Larkeytown Road to I-80 • Beaver Drive in DuBois
Make the posting and bonding process more transparent to haulers	Understanding the posting and bonding process can help preserve structural integrity of assets and improve safety and traffic flow. Communication regarding permitted routes can be strengthened. The RPO, in partnership with its municipalities and regional partners, can assist in the development of an educational campaign regarding the posting and bonding process. This will allow haulers to gain a further understanding on where they are permitted to travel and their responsibility in maintaining the infrastructure they use.	• Administer LTAP Posting and Bonding Courses • Educational Campaign for Haulers

Strategy	Description/Benefits	Potential Projects (if applicable)
Continue reducing the number of "poor" bridges on our Interstates and US Routes that carry the most freight. Maintain at a rate below the MAP-21 target of 10 percent (by deck area).	The RPO will continue its coordination with PennDOT to remain proactive in addressing the region's "poor" condition bridges. (Current rates are at 6.5 percent of deck area, as of September 2019.) The loss of a bridge due to construction or collapse can greatly affect freight movement. By investing in bridge rehabilitation and replacement projects, the region's stock of "poor" condition bridges will decrease.	• US 322 over Branch Roaring Run in Clearfield County • I-80 over North Fork Run and Water Plant Road in Jefferson County • PA 120 over Tributary of Elk Creek in Elk County • US 6 over Branch of Marvin Creek in McKean County • PA 49 over Allegheny River in Potter County • PA 46 over Eddy Run in Cameron County
Address weight-restricted bridges and coordinate restrictions with law enforcement	Weight restrictions are put in place to safeguard critical transportation infrastructure and maintain safety of all system users; however, weight restricted bridges can significantly limit freight movement in some areas. The RPO can coordinate with law enforcement and local agencies to enforce and identify alternate routes heavy loads can use.	• SR 1006 (Goshen Road) over Lick Run • SR 4011 (Sullivan Road) over Bennett Brook • SR 4005 (Richardville Road) over North Fork Creek
Coordinate with local governments on local bridge needs, particularly on critical first- and last- mile connectors	Local governments may not have access to the resources to address deteriorating local bridges. The RPO will assist municipalities in identifying funding sources to address local bridges in need of attention, particularly those that carry the most freight and those on first- and last-mile connectors.	• N/A

Safety

Strategy	Description/Benefits	Potential Projects (If Applicable)
Address signing needs/warrants, pavement markings on critical freight corridors.	Visibility of pavement markings is lacking in the nighttime hours, making travel difficult for trucks unfamiliar with the region. High visibility pavement markings and signage would improve wayfinding.	• PA 66 and Old Mill Road near Kane • Intersection of PA 255, PA 120, and Washington Street in St. Marys
Target Highway Safety Improvement Program (HSIP) dollars on identified "hot spots" for truck crash locations	The RPO will utilize HSIP as a funding mechanism to address corridors with a high number of truck crashes.	• PA 153 from US 219 to I-80
Perform road safety audits to correct safety problems on high-priority freight corridors	Road safety audits (RSAs) can be administered by the RPO and its municipal partners to determine adequate short, mid-, and long-term improvements for high crash corridors. The RPO will coordinate with PennDOT, the Counties, and municipalities on completing RSAs on key freight corridors.	• PA 153 from US 219 to I-80 • PA 970 from US 322 to I-80 • PA 879 from South 2nd Street to I-80
Consider the establishment of a Traffic Incident Management (TIM) Team to improve how incidents are handled on I-80 and ensure highest level of emergency response possible.	By organizing first responders, response times can be improved, and incidents can be addressed quickly and efficiently. The RPO will consider the establishment of a TIM Team for the I-80 corridor.	• Could also be done in partnership with adjoining Planning Partners (e.g., Northwest, Centre Region)

System Management and Operations

Strategy	Description/Benefits	Potential Projects (If Applicable)
Ensure all traffic signals are properly timed and coordinated. Promote the Green Light-Go Program to the region's municipalities to improve system reliability and efficiency for motor carriers.	Routine signal retiming is necessary for efficient or improved traffic flow along major travel corridors. In most cases, municipalities are responsible for the maintenance of these assets. The RPO will educate local partners on the importance of routine signal retiming and promote PennDOT's Green Light Go program – a program that offers state funds for the operation and maintenance of traffic signals along critical corridors on state highways.	• Intersection of PA 36, Perry Street and PA 436 (Lincoln Way) in Punxsutawney. • Adjustment of traffic signals in Brookville to provide better visibility • Addition of signal at US 6 at West Main Street in Smethport
Support highway improvements that address congestion bottlenecks.	The RPO, through the identification of congested truck travel corridors, can program and implement highway improvements for improved traffic flow. These improvements could include adding capacity, widening lanes, adequate space for trucks experiencing trouble to pull over, installation of new technologies, etc.	• Intersection of PA 970 N at US 322 • Intersection of US 322 N at PA 53 • Intersection of US 119 S at PA-36/W Mahoning St/Gilpin St • Intersection of US 322 S at PA 970 • US 6 W to PA 321 S • Intersection of US 6 and US 219
Supplement the regional freight study with targeted studies of specific freight problem areas or corridors where warranted	While understanding existing trends is key in identifying areas in need of freight-related improvements, supplemental freight studies can identify the proper improvements needed to efficiently address these concerns. The RPO will conduct supplemental studies at targeted areas of freight-related concern in order to address them properly.	• PA 153 from US 219 to I-80 • PA 970 from US 322 to I-80 • PA 879 from South 2nd Street to I-80

Strategy	Description/Benefits	Potential Projects (If Applicable)
		• Intersection of PA 970 N at US 322 • Intersection of US 322 N at PA 53 • Intersection of US 119 S at PA-36/W Mahoning St/Gilpin St
Support use of technology in improving safety and efficiency of freight movement, including traveler information to truckers, truck parking availability, changing conditions	There are various platforms to communicate traffic information and conditions to motorists. This includes the trucking industry, with the development of commercial GPS units as a prime example. Other platforms include 511PA and Waze, which provide real time traffic information to the travelling public. The RPO can promote the use of these technologies as part of regular outreach efforts.	• N/A

Planning

Strategy	Description/Benefits	Potential Projects (If Applicable)
Sub-allocate base funding toward improving the region's identified Critical Freight Corridors and NHS Connectors.	The North Central Pennsylvania RPO submitted Critical Freight Corridor candidates to PennDOT and FHWA for certification in 2017. Four of these submissions were certified and are now eligible for NHFP funding. Those that have not been certified can still be improved using other revenue sources – the RPO can sub-allocate some of that funding to improve the non-certified corridors.	• PA 970 from US 322 to I-80 • PA 879 from US 322 to I-80 • SR 4002 (Owens Hwy) from US 219 to SR 4005 (High Street) • PA 255 from SR 4017 (Shaffer Road) to I-80
Address system resiliency, and areas prone to flooding.	Resiliency is defined by FHWA as "the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions."[3] FHWA continues to focus its resiliency efforts on climate change and extreme weather. The RPO will work with its local government partners to identify freight corridors where stormwater infrastructure is lacking.	• SR 3014 (Sprankle Mills Road) near McKillop Lane in Jefferson County • US 219 from PA 321 to PA 928 in Elk County • PA 255 from I-80 to Division Street in DuBois • US 119 from PA 410 to Filtering Plant Road in Gaskill Township, Jefferson County
Encourage the region's shippers to use rail freight service where available.	Rail freight offers several advantages to shippers and the general public alike, including: improving roadway safety, congestion, and extending pavement life.	• N/A

[3] https://ops.fhwa.dot.gov/publications/fhwahop15024/index.htm

Strategy	Description/Benefits	Potential Projects (If Applicable)
Encourage the acknowledgement of freight concerns as county and local comprehensive plans are being updated.	Recognizing freight concerns at the county and local level is critical in developing a cohesive approach to addressing them. The RPO will assist its county and municipal partners in acknowledging freight concerns in local plan and ordinance updates.	• N/A
Encourage the consideration of freight needs through the PennDOT Connects process.	Through the PennDOT Connects process, the RPO will continue to collaborate with its partners at PennDOT District 2-0, PennDOT District 10-0, and local agencies to consider freight needs in the project design and delivery process.	• N/A
Monitor the construction of the ethane "Cracker plant" in Beaver County.	The construction of this multi-billion-dollar petrochemical plant in Beaver County is currently taking place less than 100 miles from the North Central Pennsylvania region. The plant is expected to generate 1.6 million tons of ethylene per year and will have a significant freight influence and impact on the North Central Pennsylvania region. The RPO will continue to follow construction patterns and will remain proactive in planning for the potential impacts on the regional transportation system due to this major development.	• N/A
Remain abreast of Federal policy and regulatory influences impacting freight, incusing the availability of Federal, state, and local funding sources for freight projects. This includes the reauthorization of the FAST Act, which is set to expire in September 2020.	The RPO will continue to monitor all transportation funding sources specifically geared toward freight. Freight specific revenue sources free up other funding allocations for the RPO and PennDOT to address other transportation concerns and to make progress toward Federal performance measures.	• N/A
Diversify the region's economy in response to the declining demand for coal.	See Strategies in *White Paper: Transitioning from a Coal-Based Economy*	• N/A

Modal Needs

Strategy	Description/Benefits	Potential Projects (If Applicable)
FREIGHT RAIL		
Address at-grade rail crossings and develop a prioritized list for their improvement either through new technologies, or grade separation.	The RPO will work with PennDOT, Class I, and regional rail lines to establish a prioritization process for at-grade rail crossings and address them through implementation of planned improvements.	• Hilltop Road (RJ Corman RR) near Wallaceton, Clearfield County • Montmorenci Avenue (BPRR) in Ridgway, Elk County • Highland Road (NS) in Kane, McKean County
Support the region's short lines in future requests for public funding through the Rail Freight Assistance Program (RFAP), capital budget, or other public sources.	PennDOT's Rail Freight Assistance Program grants funding for investments in rail freight infrastructure with the goal of "preserving essential rail freight service where economically feasible and preserve/stimulate economic development through new or expanded rail freight service."[4]	• Brookville Railyard Upgrades
Encourage the repurposing of idle facilities served by freight rail and increase the number of rail-served buildings.	More rail served buildings allow for rail users to be quickly located and served. Repurposing closed/idle rail-served facilities provides economic development opportunities along with increased benefit for freight rail.	• N/A
Preserve rail corridors for freight service	The North Central Pennsylvania region can remove trucks from roadways by preserving rail freight service in the region. A notable success in the region is the DuBois Transload facility. The RPO should support the preservation and expansion of rail freight services within the region to promote modal choice and efficient goods movement.	• Brookville Railyard • DuBois Transload • Driftwood Interchange with Norfolk Southern

[4] https://www.penndot.gov/Doing-Business/RailFreightAndPorts/Pages/Grants-and-Loans.aspx

Strategy	Description/Benefits	Potential Projects (If Applicable)
MOTOR CARRIER		
Make spot improvements to better connect rural areas to Interstates.	Many rural areas provide important links for freight movement; however, many rural roads do not have the capacity to carry heavy freight. Two lane rural roads are challenging for drivers not familiar with the region. The RPO will work closely with PennDOT, counties, and local agencies to identify rural corridors impacted by freight and implement improvements to better accommodate freight movement. These improvements could include roadway widening and capacity improvements to alleviate rural congestion or improved road to rail transfers.	• SR 2007 (Irishtown Road/Old Kersey Road) between PA 255 and Kersey (narrow lanes and tight turning radii) • Improve capacity on PA 28, coming from Pittsburgh
Install truck climbing lanes where needed	Truck climbing lanes help address reductions in capacity and provide improved operation where congestion on grades is caused by slow trucks in combination with high traffic volumes. The North Central region can benefit from these lanes due to its rugged landscape.	• I-80 from Milesburg to Snowshoe • I-80 W from Clearfield to Pennfield • SR 2001 (Keystone Road) at Parker Dam • PA 255 south of Micale Road • PA 36 in Jefferson County • PA 153 from US 219 to I-80
Consider the construction of infrastructure designed for ease of truck movements (i.e., generous turning radii, truck lanes, and bypasses)	The RPO will work closely with PennDOT to program improvements to improve truck movements throughout various corridors and intersections. By improving current infrastructure, trucks will be able to travel efficiently without causing hinderance to other motorists. Construction of infrastructure such as truck lanes can reduce congestion on two lane roads through areas with mountainous terrain. Bypasses can keep trucks out of downtowns and intersection improvements to accommodate wider turning radii can allow trucks to make fluid movements without blocking intersections.	• Address narrow lanes and tight turn radii along SR 2007 (Irishtown Road/Old Kersey Road) between PA 255 and Kersey • Bypasses around towns along US 219, including the completion of the

Strategy	Description/Benefits	Potential Projects (If Applicable)
		US 219 bypass around Ridgway • St. Marys "Diamond" Bypass • Truck-only lanes through areas with mountainous terrain (e.g., I-80 around Snowshoe)
Address low vertical clearances for more efficient freight movement	By properly signing or addressing vertical clearances, trucks are less likely to get stuck and cause traffic congestion. Addressing vertical clearances will also allow for cost savings in addressing bridge and infrastructure damages due to trucks.	• Intersection of Hiawatha and Evan Streets in Brookville (Low hanging wires cause clearance concerns for freight traffic coming from Brookville Equipment Corporation) • PA 59 near Bradford Regional Airport
Develop funding mechanisms and partnerships for the provision of truck parking areas	Truck parking continues to be a nationwide concern. The RPO will consider participating in a truck parking roundtable discussion with stakeholders from the public and private sectors.	• Truck Parking Roundtables facilitated by FHWA
AVIATION		
Pursue development of air cargo service at DuBois and Bradford Regional Airports	The RPO will continue to support air cargo services at DuBois and Bradford Regional Airports.	• N/A
Maintain essential air service at DuBois and Bradford Regional Airports	DuBois and Bradford Regional Airports provide passenger services to regional destinations such as Baltimore and Pittsburgh.	• N/A

Strategy	Description/Benefits	Potential Projects (If Applicable)
Support economic development initiatives at both DuBois and Bradford Regional Airports (Bradford Wilds Commerce Park, DuBois Air Commerce Park).	Both regional airports have planned or begun to implement commerce parks on adjacent properties. The RPO can support this economic development initiative and promote air cargo services at both airports.	• N/A