

DRAFT

READING AREA TRANSPORTATION STUDY

TRAFFIC SAFETY REPORT

2023

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**READING AREA TRANSPORTATION STUDY
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LIST OF ACRONYMS

RATS

Reading Area Transportation Study

TIP

Transportation Improvement Program

L RTP

Long Range Transportation Plan

MPO

Metropolitan Planning Organization

CMP

Congestion Management Process

TMA

Transportation Management Area

FFY

Federal Fiscal Year

FHWA

Federal Highway Administration

FTA

Federal Transit Administration

TZD

Toward Zero Deaths

MAP-21

Moving Ahead for Progress in the 21st Century

FAST

Fixing America's Surface Transportation

SHSP

Strategic Highway Safety Plan

HSIP

Highway Safety Improvement Program

SAFETEA-LU

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

SFA

Safety Focus Areas

VMT

Vehicle Miles Traveled

PennDOT

Pennsylvania Department of Transportation

SSI

Suspected Serious Injury

VRU

Vulnerable Road User

AWSZE

Automated Work Zone Speed Enforcement

PCIT

Pennsylvania Crash Information Tool

SS4A

Safe Streets and Roads for All

TASA

Transportation Alternatives Set-Aside

MTF

Multimodal Transportation Fund

DCED

Department of Community and Economic Development

NHTSA

National Highway Traffic Safety Administration

FRA

Federal Railroad Administration

PCIT LIST OF DEFINITIONS/TYPES OF CRASHES

- Fatal** Indicates that any person was fatally injured as a result of a crash
- Injury** Indicates if any person was injured in a crash
- Possible Injury** Indicates that any person sustained a possible injury
- Property Damage Only** Indicates if a crash resulted in a vehicle being towed but no injuries or fatalities resulted from the crash
- Suspected Minor Injury** Indicates that any person sustained a Suspected Minor Injury
- Suspected Serious Injury** Indicates that any person sustained a Suspected Serious Injury
- Speeding Related** Indicated if at least one drivers' action was speeding, driving too fast for conditions, or involved in a police chase
- Distracted Driver** Indicates if any driver was distracted, including using a phone
- Curve Driver Error** Indicates that any drivers' action was over or under compensated while negotiating a curve
- Vulnerable Road User** Indicates that the crash Included both a motor vehicle AND a pedestrian, pedestrian conveyance (wheelchair, scooter, skateboard, etc.), bicyclist (not including e-bikes), or other pedalcyclist.
- Aggressive Driving** Indicates if at least two actions of one driver were classified as aggressive driving
- Aggressive Driving (Old Description)** Indicates if at least one driver's action was classified as aggressive driving
- Local Road** Indicates if any road was a county of municipal roadway
- State Road** Indicates if any road was a state maintained highway or non-turnpike Interstate
- Turnpike** Indicates if any road in a crash was the PA Turnpike or a Turnpike maintained extension
- Commercial Vehicle** Indicates that any vehicle was a commercial vehicle
- Heavy Truck Related** Indicates whether any vehicles was aa heavy truck (over 10,000 lbs.)
- Signalized Intersection** Indicates that the crash occurred at an intersection controlled by a traffic signal or flashing traffic signal
- Stop Controlled** Indicates that the crash occurred at an intersection controlled by a stop sign
- Impaired Driver** Indicates if any driver was suspected by police of alcohol and/or drug use while driving

INTRODUCTION

This plan was developed to identify trends and mitigation strategies that can be used to aid in reducing overall traffic related crashes and fatalities and serious injuries.

Safety on Berks County roadways is a top priority when determining potential projects for inclusion in the Reading Area Transportation Study Transportation Improvement Program and Long Range Transportation Plan.

The Reading Area Transportation Study (RATS) Coordinating Committee is the designated Metropolitan Planning Organization (MPO) for transportation in Berks County. RATS facilitates the regional, performance-based planning process that serves as the basis for spending state and federal transportation funds for improvements to streets, highways, bridges, public transit, bicycle and pedestrian networks allocated to Berks County. RATS is currently responsible for prioritizing approximately \$75 million annually to advance transportation improvement projects throughout the county.

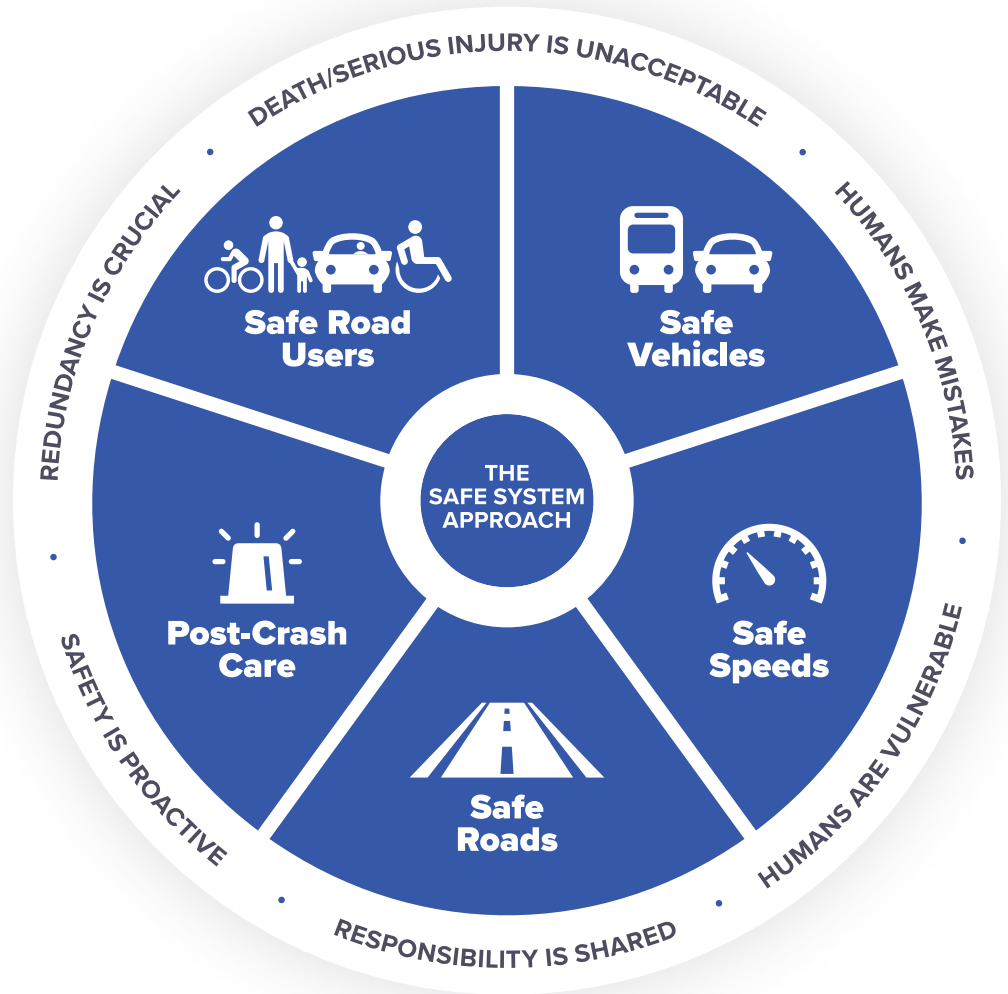
To receive federal funding, transportation projects must be identified in the Long Range Transportation Plan (LRTP). The LRTP examines socioeconomic trends that affect travel, the current state of the county transportation network, and describes multimodal transportation strategies to address identified transportation needs. The plan outlines the region's long-range transportation vision and projects the transportation needs of the county through the year 2045. The plan must be updated every four years and must project at least 20 years into the future to meet federal requirements.

RATS also approves the Transportation Improvement Program (TIP) which is the capital-funding program that contains all surface transportation projects eligible for federal funding that are programmed for implementation over the next four years. Projects scheduled in the TIP were first identified in the LRTP as projects that would impact transportation needs in the county. The most recently adopted TIP (FFY 2023-2026, locally approved July 14, 2022) was approved by FHWA/FTA on September 29, 2022. The TIP lists 131 projects totaling \$303.2 million for highway, bridge, and transit projects over the four-year period from 2023 to 2026.

Federal regulations require the development and maintenance of a Congestion Management Process (CMP) for all MPOs in Transportation Management Areas (TMA). The CMP is a performance-based process for identifying congested locations within the entire transportation network. The plan includes a range of mitigation strategies and implementation methods for reducing congestion along roadways in Berks County. The most current CMP was adopted by the RATS MPO in 2016. Staff is in the process of updating the CMP with an anticipated adoption of an updated CMP by the RATS MPO in late 2023.

The goal of this plan is to identify ways to reduce the number of crashes on Berks County roadways and prevent fatalities and serious injuries through the examination of crash trends and identification of mitigation strategies.

It is important to address the COVID-19 pandemic. The pandemic has had worldwide impacts to everything from politics and culture to economy and ecology. The transportation system was not exempt from the impacts of the pandemic. As a result, information gathered for this plan exhibits skewed results primarily for the year 2020 and in some instances for 2021. Difficulties in data gathering and availability, as well as changes in the way the world operates contributed to the variance in the data obtained.



STATE PROGRESS TOWARDS ZERO DEATHS

One fatality is too many.

The Toward Zero Deaths (TZD): A National Strategy on Highway Safety was developed with input from numerous stakeholders across the country with support from several agencies within the United States Department of Transportation. The vision of the National Strategy is to unite stakeholder efforts in reducing traffic related fatalities and serious injuries at a sustained pace over time. The document identifies strategies and initiatives that are effective in addressing crashes and have the potential to greatly reduce fatalities and serious injuries. The plan focuses on applying a Safe System approach that involves anticipating human mistakes by designing and managing roadway infrastructure that reduces and minimizes the risk of potential mistakes. In addition, by anticipating potential human error in the transportation network, road design and maintenance can be configured to minimize and reduce injury severity.

DID YOU KNOW?:

Road safety is a global concern. The Global Plan: Decade of Action for Road Safety 2021-2030 is a document that was developed to aid in the achievement of the UN General Assembly Resolution 74/299 target to reduce fatalities and injuries by 50% between 2021 and 2030.

The Moving Ahead for Progress in the 21st Century (MAP-21 and Fixing America's Surface Transportation (FAST) Act require states to develop, implement, and update a Strategic Highway Safety Plan in order to receive federal funds for road projects that address safety. The Pennsylvania Strategic Highway Safety Plan (SHSP) was updated in 2022 and identifies Priority Emphasis Areas and Safety Focus Areas that have the most influence on improving highway safety across the Commonwealth.

Pennsylvania’s SHSP incorporates several themes for progressing TZD in the state:

Highway Safety	Strategies for key focus areas to reduce crash frequency and severity and achieve measurable success
Active Transportation	Mobility options powered primarily by human energy, including bicycling and walking
Safe System Approach	Roadway design that emphasizes minimizing the risk of injury to all road users, considers the possibility of human error, and accommodates human injury tolerance by considering likely accident types and resulting impact forces
Transportation Equity	Reducing inequities in our transportation network, building resilience against future disruptions, improving safety, and supporting both environmental and financial sustainability
Data & Technology	Using cost-effective, data-driven methods, and incorporating safety technologies into infrastructure, vehicles & other modes of travel

By incorporating these themes, the state’s goal of a 2% annual reduction for fatalities and maintain level of suspected serious injuries can be achieved to help progress Pennsylvania TZD and support the long-term federal goal of zero deaths by 2050.



STATE SAFETY PLAN SAFETY FOCUS AREAS

A state Strategic Highway Safety Plan is a federal requirement of the Highway Safety Improvement Program (HSIP). The HSIP program was first established through the SAFETEA-LU and the Fixing America’s Surface Transportation (FAST) Act continued the requirement for the federal-aid program. Pennsylvania’s Strategic Highway Safety Plan (SHSP) was updated in 2022. The plan was developed with input from multiple agencies and provides the framework for reducing fatalities and serious injuries on all public roads throughout the state.

The Pennsylvania SHSP identifies 3 priority emphasis areas:

Lane Departure Crashes – this crash type exhibits the greatest number of fatalities and serious injuries each year due to a vehicle departing its lane of travel.

Impaired Driving – alcohol related fatal crashes has decreased over the years but remain high. Drug-related fatalities have been increasing.

Pedestrian Safety – while pedestrian fatalities have remained low relative to vehicular fatalities, pedestrian safety is a top priority with the increase in active transportation options available for pedestrians creating a marginal increase in pedestrian fatalities.

Due to the complexity of the roadway network and diverse nature of crashes, the Pennsylvania SHSP identifies 15 additional Safety Focus Areas (SFA) to assist in decreasing fatalities and serious injuries. These include:

Speeding and Aggressive Driving	Seat Belt Usage	Intersection Safety	Mature Driver Safety	Local Road Safety
Vulnerable User Safety (Motorcycle Safety)	Vulnerable User Safety (Bicyclist Safety)	Commercial Vehicle Safety	Young and Inexperienced Drivers	Distracted Driving
Traffic Records Data	Work Zone Safety	Transportation Systems Management and Operations (TSMO)	Emergency Medical Services	Vehicle-Train Safety

PENNDOT DISTRICT 5-0 HIGHWAY SAFETY PLAN

To further safety improvements on Pennsylvania roadways, each PennDOT District Office across the state will develop a Highway Safety Plan for their district. PennDOT District 5-0 encompasses Berks, Carbon, Lehigh, Monroe, Northampton, and Schuylkill Counties. PennDOT District 5-0 developed a Highway Safety Plan for these counties in March 2023. The District 5-0 plan identifies the same 3 priority emphasis areas as the Pennsylvania SHSP which include lane departure crashes, pedestrian safety, and impaired driving. There are several strategies included in the District 5-0 plan to help meet safety goals for reducing fatal and injury crashes which include implementing lane departure safety countermeasures, using the Highway Safety Network Screen and Systemic Safety Project Selection Tools to identify locations for safety improvements, installing pedestrian safety improvements, and identifying and implementing National Highway Traffic Safety Administration countermeasures that work.

RATS SAFETY PERFORMANCE MEASURES

Federal regulations regarding the National Performance Management Measures for the Highway Safety Improvement Program (HSIP) require PennDOT to establish Performance Measures and targets to evaluate and improve safety within the transportation system. Several performance measures are identified for use in developing the safety targets. These include:

- 1) Number of fatalities**
- 2) Rate of fatalities per 100 million Vehicle Miles Traveled (VMT)**
- 3) Number of serious injuries**
- 4) Rate of serious injuries per 100 million VMT**
- 5) Number of non-motorized fatalities and serious injuries**

By evaluating these performance measures, the targets established are based on data driven trend analysis of the statewide fatality and suspected serious injuries numbers.

In addition, federal regulations require MPOs to establish safety targets either by agreeing to plan and program projects in support of the PennDOT targets or by establishing their own quantifiable targets. RATS most recently adopted the recommended state performance measures and targets in January 2023. The following tables identify the statewide targets and the RATS MPO supporting values.

TABLE 1: STATEWIDE TARGETS:

PERFORMANCE MEASURE	5-YEAR ROLLING AVERAGES		
	TARGET	ACTUAL	BASELINE
	2019-2023	2019-2023	2017-2021
Number of Fatalities	1,160.9		1149.0
Fatality Rate	1.170		1.162
Number of Serious Injuries	4,893.2		4590.6
Serious Injury Rate	4.931		4.642
Number of Non-motorized Fatalities and Serious Injuries	811.3		783.4

* Future VMT estimated to hold level over next few years

TABLE 2: READING MPO SUPPORTING VALUES:

PERFORMANCE MEASURE	5-YEAR ROLLING AVERAGES		
	TARGET	ACTUAL	BASELINE
	2019-2023	2019-2023	2017-2021
Number of Fatalities	44.3		44.6
Fatality Rate	1.293		1.326
Number of Serious Injuries	210.8		192.2
Serious Injury Rate	6.154		5.714
Number of Non-motorized Fatalities and Serious Injuries	30.3		27.0

* Future VMT estimated to hold level over next few years

In order to attain significant progress toward meeting the established targets, the outcome in 4 of 5 performance measures has to be better than the baseline number. Preliminary data indicated that Pennsylvania did not meet the 2021 performance measure targets and will be required to submit a plan that identifies gaps, develops strategies, action steps and best practices, and includes a financial and performance review of all HSIP funded projects by June 30, 2023. The state will also have to obligate safety funds in FFY 2024 that are equal to the FFY 2020 HSIP apportionment.

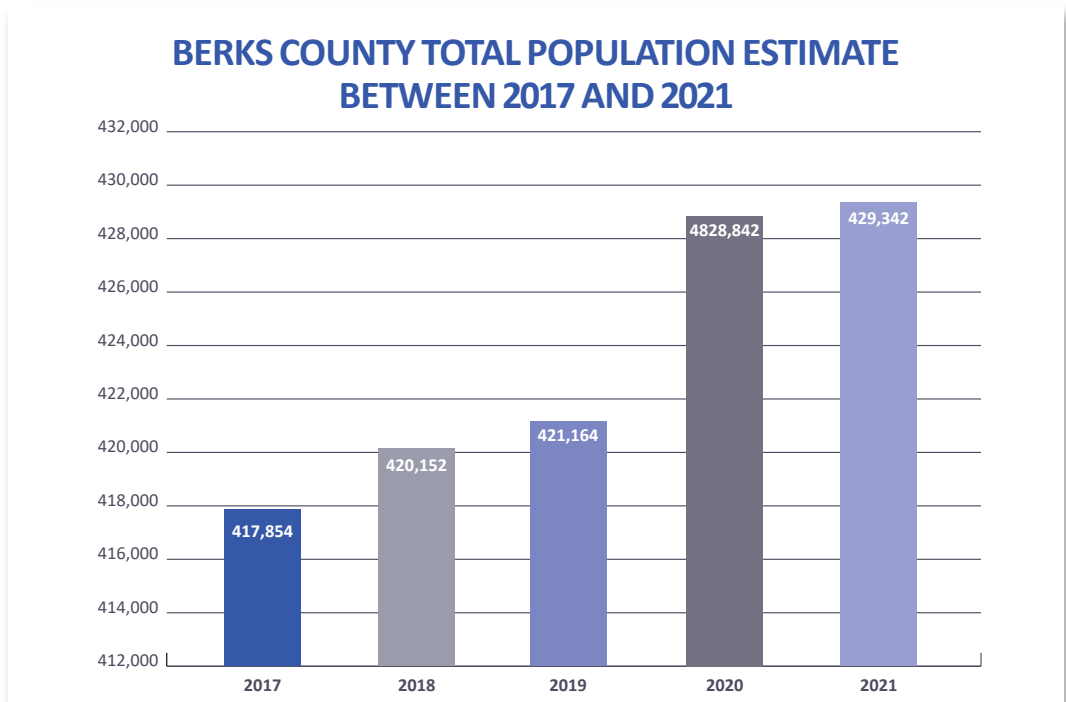
TRAVEL DEMAND FACTORS

There are many factors that influence transportation trends and behaviors within Berks County. Some of these factors include population, employment, passenger car registrations and vehicle miles traveled. These factors usually result in increased travel and commerce which influence transportation needs within the County. The following charts and tables briefly cover these travel demand factors.

Population

The number of people in Berks County influences the amount of people working, traveling, and utilizing Berks County roadways. The population of Berks County increased 2.75% from 2017 to 2021. In 2021, Berks County was the 9th most populated county in Pennsylvania.

Please note that due to pandemic-related data collection and tabulation difficulties, there are no 2020 American Community Survey 1-year Estimates products available. Population shown for 2020 is the actual 2020 Decennial Census count.

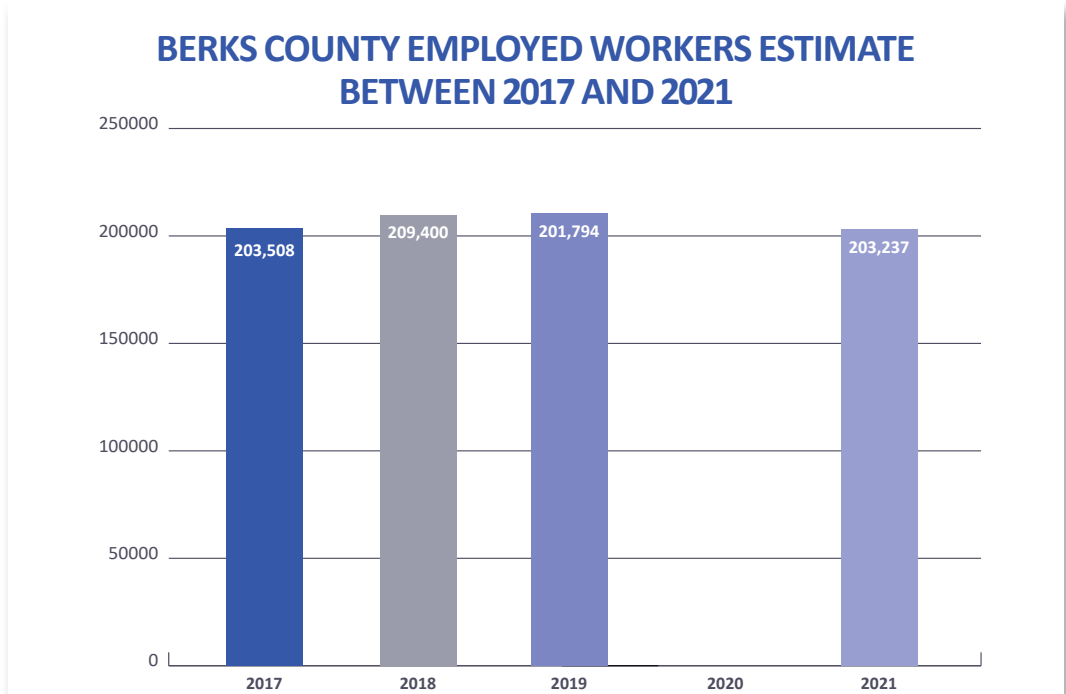


Source: Population (Persons), U.S. Census Bureau American Community Survey, 1-year Estimates for Berks County, PA, Table DP05 (ACS Demographic and Housing Estimates)

Employment

The number of working people influences the amount of commuter traffic on Berks County roadways. While the number of employed workers increased in 2018 and 2019, the number of employed workers slightly decreased in 2021 representing a decrease of 0.13 percent in employed workers from 2017 to 2021.

Please note that due to pandemic-related data collection and tabulation difficulties, there are no 2020 American Community Survey 1-year Estimates products available. No similar employment data is available and therefore, there is no data for employed workers in Berks County for 2020.



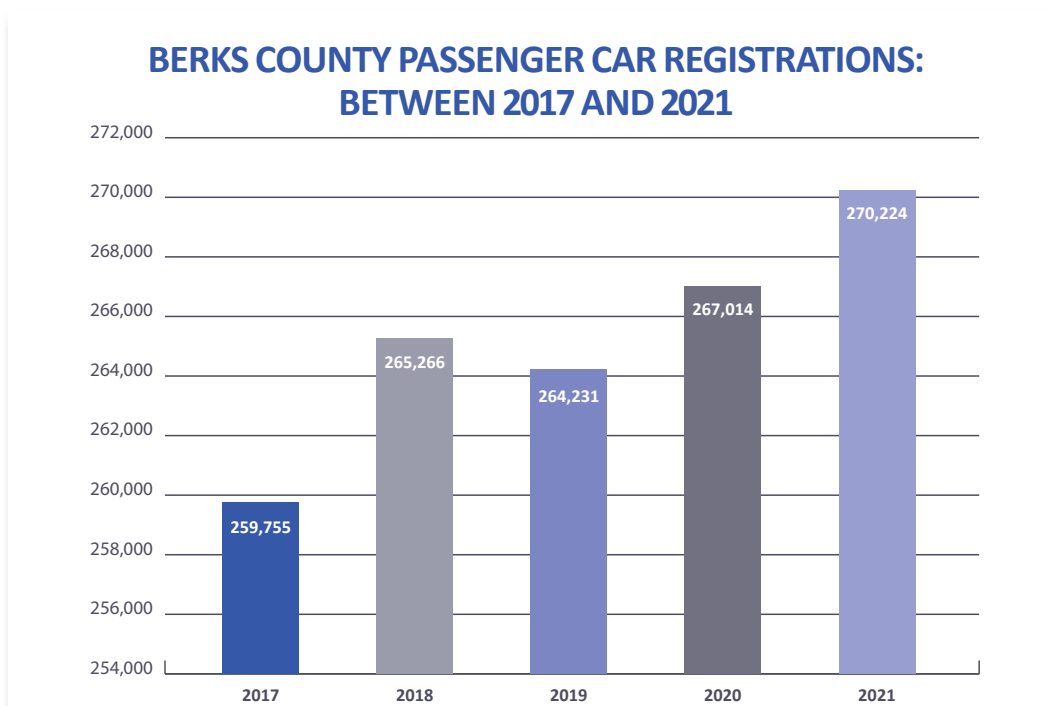
Source: Employment (Workers), U.S. Census Bureau American Community Survey, 1-year Estimates for Berks County, PA, Table DP03 (Selected Economic Characteristics)

Passenger Car Registrations

Passenger car registrations are the largest number of registered vehicles in Berks County. In 2021, passenger car registrations accounted for approximately 66% of the total number of registered vehicles in Berks County. The number of passenger car registrations for Berks County steadily increased from 2017 to 2021 representing a total increase of 4.03 percent. In comparison, Pennsylvania passenger car registrations only increased 0.84 percent.



PASSENGER CAR REGISTRATIONS: 2017-2021						
	2017	2018	2019	2020	2021	Trend
Berks	259,755	265,266	264,231	267,014	270,224	
PA	8,084,151	8,219,631	8,168,045	8,118,635	8,152,012	

Source: PennDOT Bureau of Motor Vehicles Annual Report of Registrations

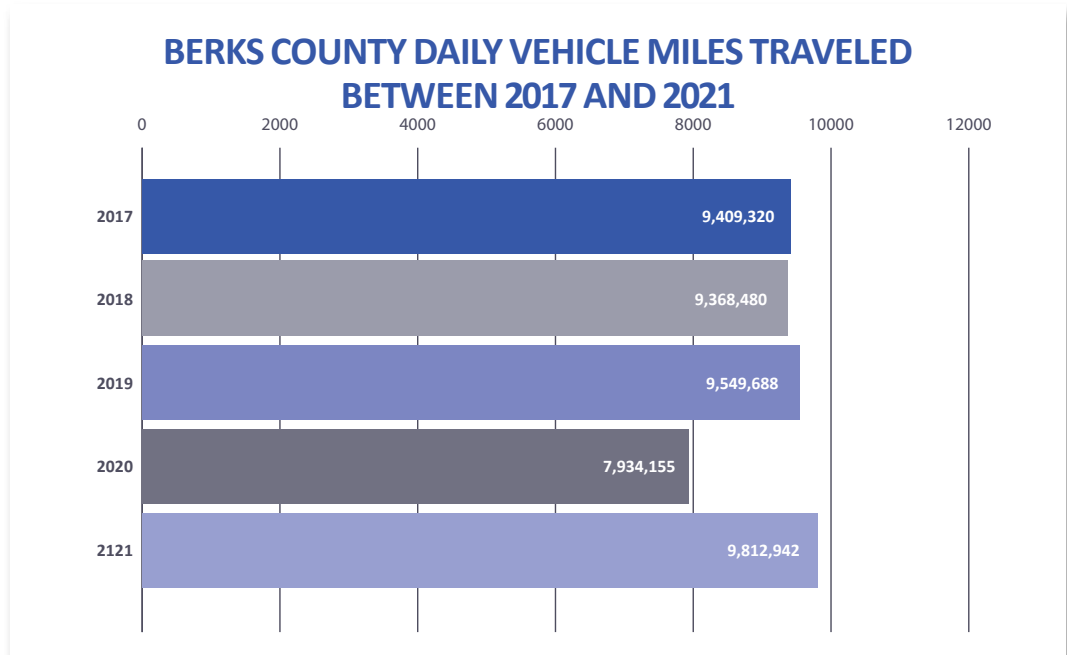


Vehicle Miles Traveled

Similar to the previous travel demand factors, the number of daily vehicle miles traveled increased 4.29 percent from 2017 to 2021. In comparison, Pennsylvania daily vehicle miles traveled only increased 1.05 percent for the same time period. Noticeably, there was a sharp decrease in daily vehicle miles traveled for both Berks County and the state as a result of the pandemic-related closures and implementation of remote work options for employees. In 2021, Berks County ranked 8th for total linear miles across the state. As well, Berks County had the 7th highest number of total daily vehicle miles traveled in Pennsylvania.

VEHICLE MILES TRAVELED: 2017-2021						
	2017	2018	2019	2020	2021	Trend
Berks	9,409,320	9,368,480	9,549,688	7,934,155	9,812,942	
PA	278,414,227	279,767,061	281,547,075	233,668,192	281,339,073	

Source: PennDOT Highway Statistics



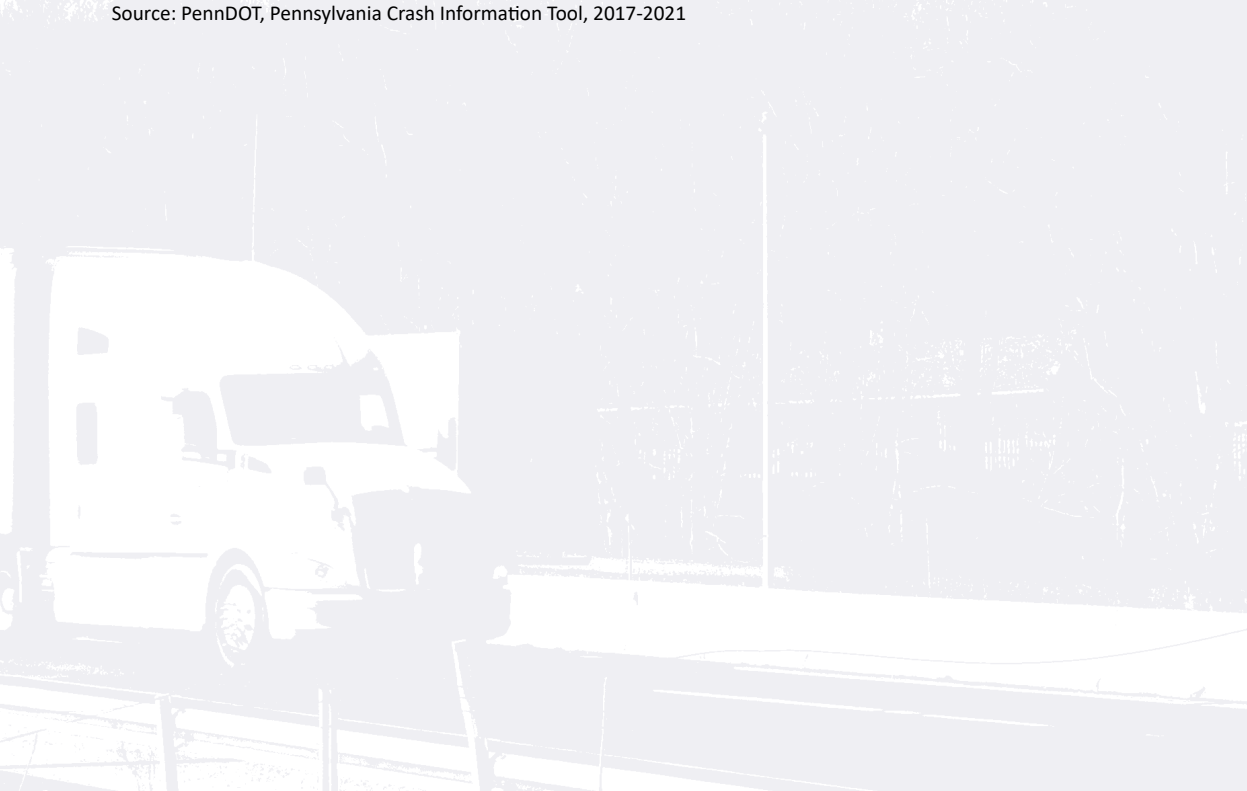
GENERAL CRASH TRENDS

Analyzing crash trends allows PennDOT and RATS to program safety improvements that address the crash trends and help meet safety goals for transportation throughout Berks County.

Berks County experienced a significant number of crashes from 2017 to 2021. Out of the 24,341 total crashes, Berks County had a total of 204 fatal crashes from 2017 to 2021. Compared to all the counties across the state, Berks County had the 6th highest number of crash incidents and the 5th highest number of fatal crashes between 2017 and 2021. These ranks correspond to the rankings for Berks County in population, linear miles of roadways, and VMT.

TOP 10 COUNTIES IN PA BY CRASHES 2017-2021		TOP 10 COUNTIES IN PA BY FATAL CRASHES 2017-2021	
Allegheny	58,931	Philadelphia	559
Philadelphia	54,098	Allegheny	312
Montgomery	42,232	Bucks	244
Bucks	28,968	Lancaster	236
Lancaster	28,256	Berks	204
Berks	24,341	Montgomery	194
Delaware	24,260	Westmoreland	172
Lehigh	24,049	York	170
York	22,682	Chester	166
Chester	21,993	Luzerne	147

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021





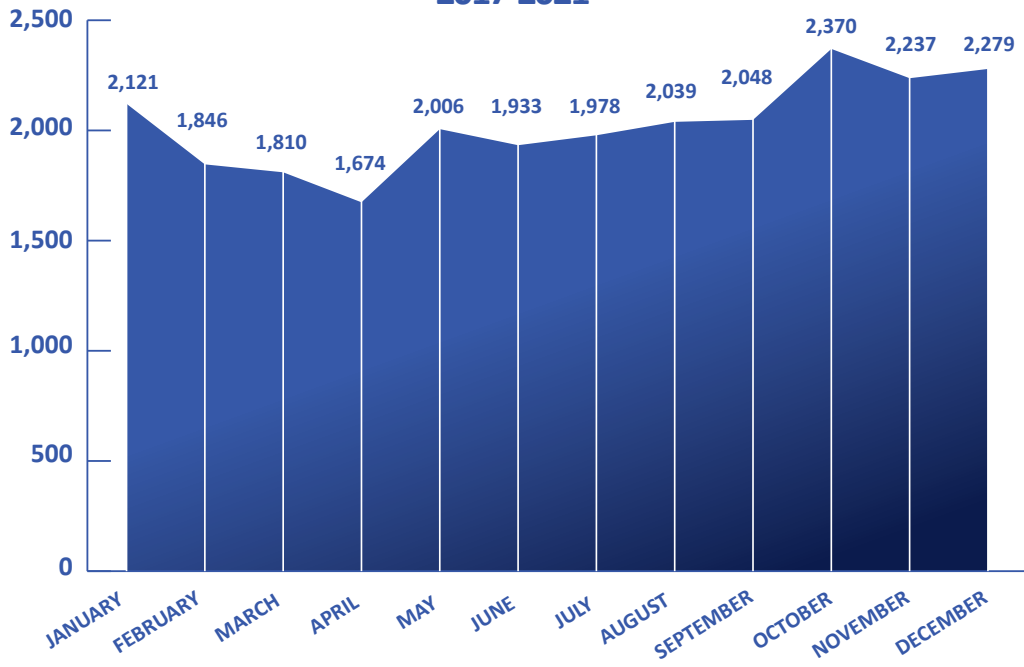
BERKS COUNTY TOTAL CRASHES BY MONTH 2017-2021

When looking at the number of crashes that occur by month from 2017-2021, a higher frequency of crashes in Berks County occurs between October and January. Generally, more people travel during these months for various holidays including Thanksgiving, Christmas, and New Year's which can be a contributing factor to the higher number of crashes for these months.

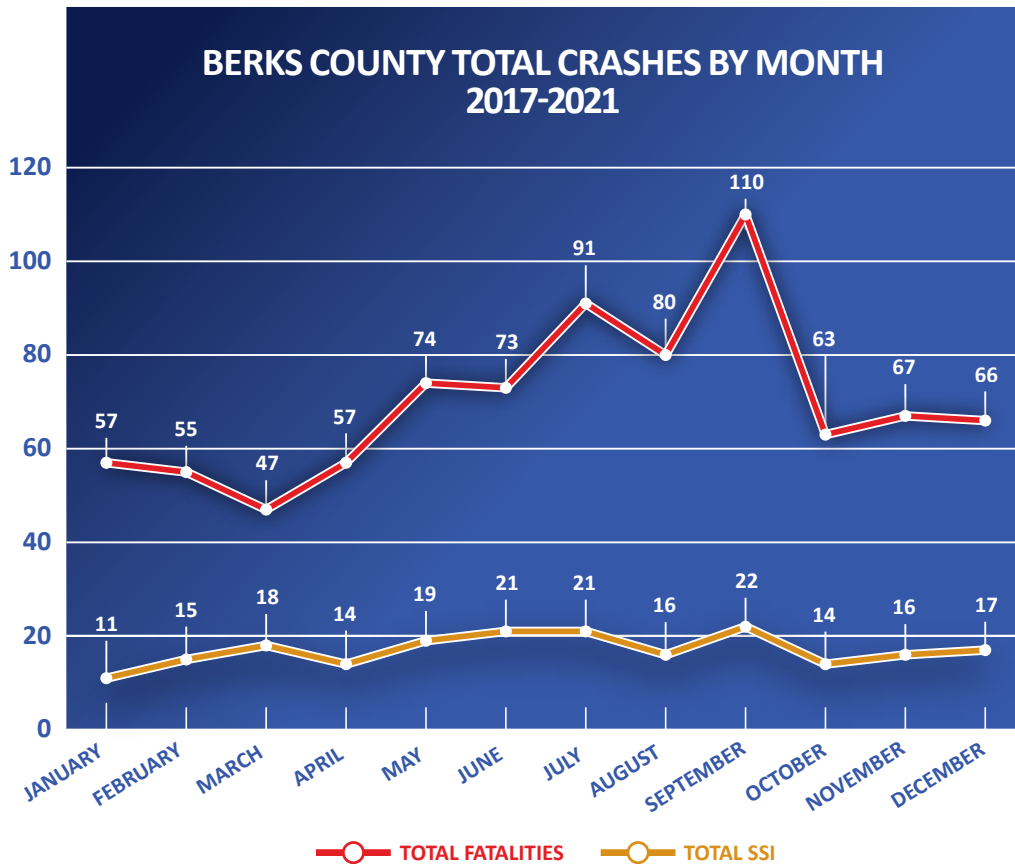
BERKS COUNTY CRASHES BY MONTH FROM 2017-2021							
	2017	2018	2019	2020	2021	Total	% Change
January	424	465	450	427	355	2,121	-16.3%
February	350	440	372	341	343	1,846	-2.0%
March	403	382	385	284	356	1,810	-11.7%
April	388	372	349	194	371	1,674	-4.4%
May	449	398	434	308	417	2,006	-7.1%
June	398	387	382	343	423	1,933	6.3%
July	382	427	382	355	432	1,978	13.1%
August	394	426	393	419	407	2,039	3.3%
September	417	379	408	406	438	2,048	5.0%
October	528	476	464	422	480	2,370	-9.1%
November	426	525	428	446	412	2,237	-3.3%
December	493	446	442	414	484	2,279	-1.8%
Total	5,052	5,123	4,889	4,359	4,918	24,341	-2.7%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

**BERKS COUNTY TOTAL CRASHES BY MONTH
2017-2021**



**BERKS COUNTY TOTAL CRASHES BY MONTH
2017-2021**





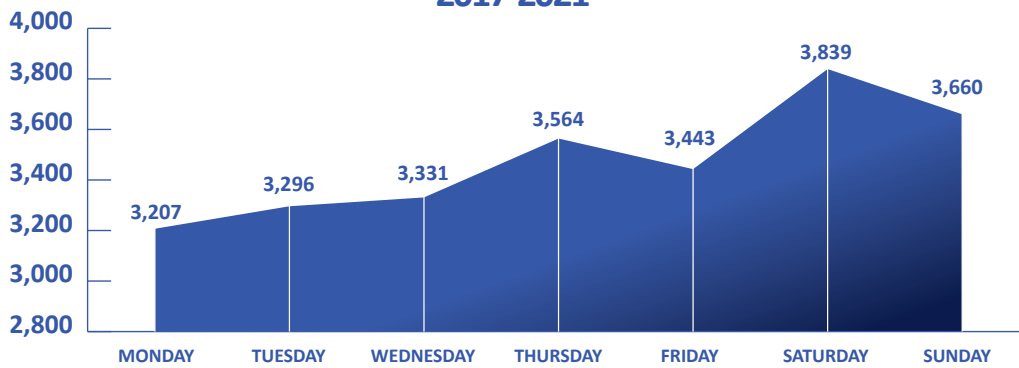
BERKS COUNTY TOTAL CRASHES BY DAY OF THE WEEK 2017-2021

Overall, the majority of crashes on Berks County roadways occurred on Saturdays and Sundays. These days tend to have more recreational travelers utilizing various modes of transportation. Similarly, fatal and suspected serious injury crashes were higher on Saturdays and Sundays. Over the 5-year period, the total number of crashes occurring on Fridays decreased 10.33 percent while Mondays increased 8.74 percent.

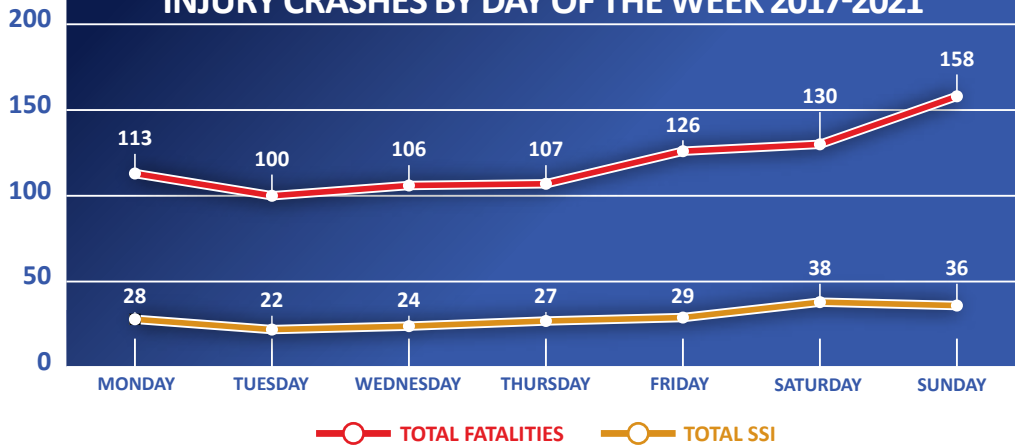
BERKS COUNTY CRASHES BY DAY OF THE WEEK FROM 2017-2021							
	2017	2018	2019	2020	2021	Total	% Change
Monday	629	641	678	575	684	3,207	8.74%
Tuesday	709	669	658	592	668	3,296	-5.78%
Wednesday	700	741	696	538	659	3,331	-5.86%
Thursday	707	764	730	653	710	3,564	0.42%
Friday	736	751	682	614	660	3,443	-10.33%
Saturday	767	830	758	715	769	3,839	0.26%
Sunday	804	727	690	672	767	3,660	-4.60%
Total	5,052	5,123	4,889	4,359	4,917	24,340	-2.67%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES BY DAY OF THE WEEK 2017-2021



BERKS COUNTY TOTAL FATAL AND SUSPECTED SERIOUS INJURY CRASHES BY DAY OF THE WEEK 2017-2021





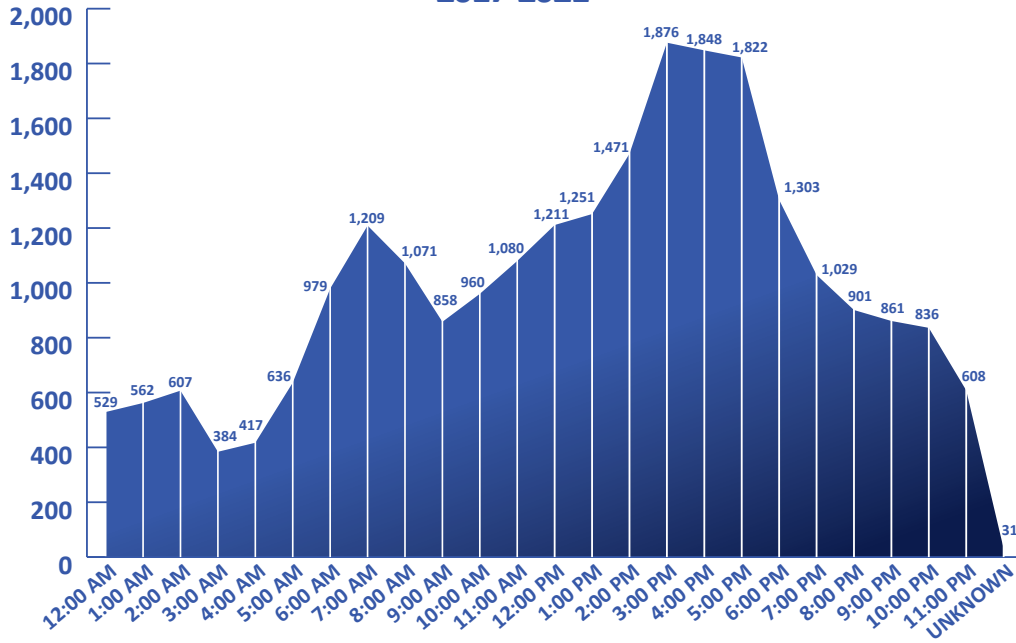
BERKS COUNTY TOTAL CRASHES BY TIME OF DAY 2017-2021

Overall, the majority of crashes that occurred in Berks County happened during peak travel times between 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM. Generally, there are more people traveling during these times for work and school. Fatal and suspected serious injury crashes increase during these time periods as well. The 7:00 AM time period experienced the greatest reduction in crashes between 2017 and 2021 by 22.83 percent. Crashes occurring during the 1:00 AM time period increased 21.37 percent between 2017 and 2021.

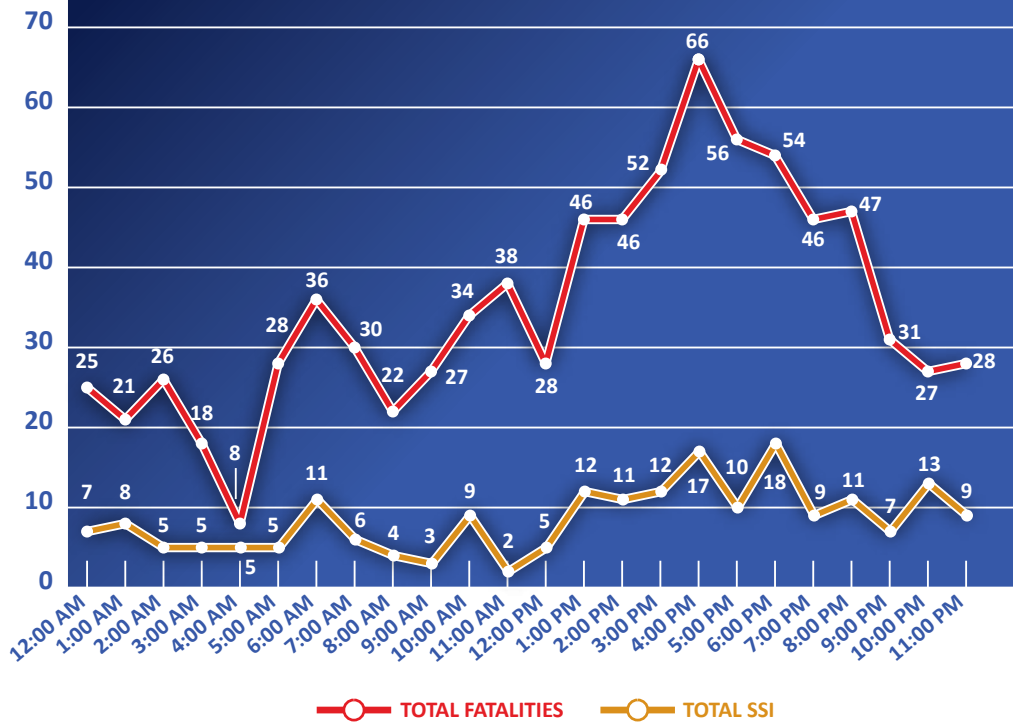
BERKS COUNTY CRASHES BY TIME OF DAY: 2017-2021							
	2017	2018	2019	2020	2021	Total	% Change
12:00 AM	108	103	106	100	112	529	3.70%
1:00 AM	117	110	111	82	142	562	3.42%
2:00 AM	141	119	127	77	143	607	17.73%
3:00 AM	97	81	68	58	80	384	2.06%
4:00 AM	91	100	74	70	82	417	-18.68%
5:00 AM	128	138	128	108	134	636	-7.03%
6:00 AM	198	216	200	179	186	979	3.03%
7:00 AM	276	309	251	160	213	1,209	-4.35%
8:00 AM	232	252	230	163	194	1,071	-27.16%
9:00 AM	172	200	190	141	155	858	-22.09%
10:00 AM	182	177	194	188	219	960	-9.34%
11:00 AM	202	208	227	204	239	1,080	18.32%
12:00 PM	242	251	232	237	249	1,211	15.29%
1:00 PM	250	270	238	257	236	1,251	2.80%
2:00 PM	272	303	312	297	287	1,471	-5.15%
3:00 PM	400	397	383	355	341	1,876	3.75%
4:00 PM	408	384	359	323	374	1,848	-14.46%
5:00 PM	398	389	379	319	337	1,822	-8.54%
6:00 PM	259	265	238	254	287	1,303	-23.55%
7:00 PM	197	208	204	208	212	1,029	14.21%
8:00 PM	188	158	187	158	210	901	7.98%
9:00 PM	179	177	162	169	174	861	12.29%
10:00 PM	192	186	154	126	178	836	-2.60%
11:00 PM	115	117	126	119	131	608	-12.17%
Unknown	8	5	9	7	2	31	200.00%
Total	5,052	5,123	4,889	4,359	4,917	24,340	-0.12%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES BY TIME OF DAY 2017-2021



BERKS COUNTY TOTAL FATAL AND SUSPECTED SERIOUS INJURY CRASHES BY TIME OF DAY 2017-2021





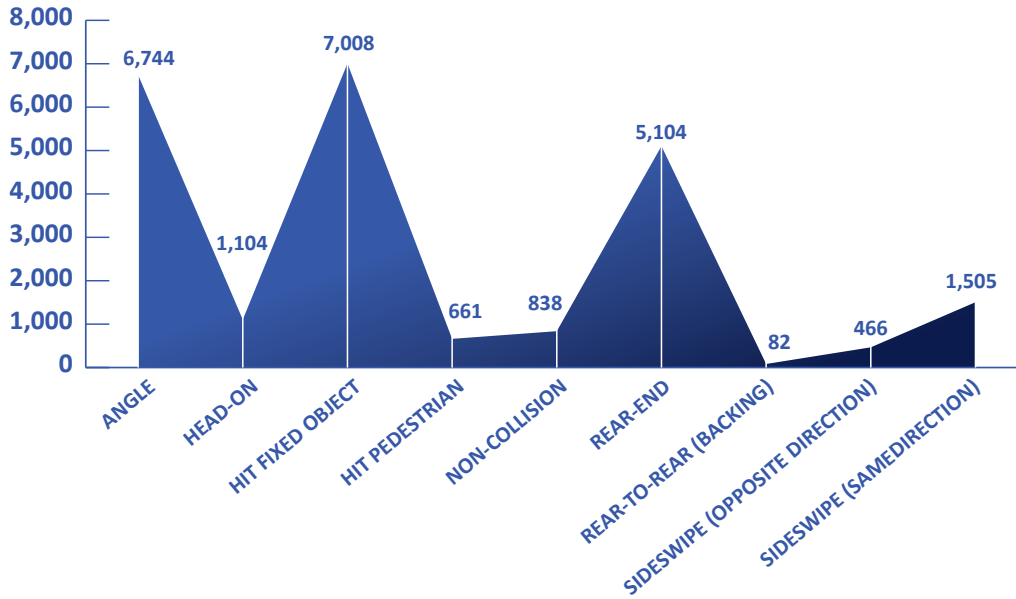
BERKS COUNTY CRASHES BY COLLISION TYPE FROM 2017-2021

Hit fixed object crashes were the most predominant crash type between 2017 and 2019. Angle crashes were the most predominant crash type in 2020 and 2021. Overall, the most crashes involved hitting a fixed object, angle, and rear-end collisions. Fatal and suspected serious injury crashes were greater among these three crash types as well. Between 2017 and 2021, crashes that involved hitting a pedestrian decreased 13.61 percent.

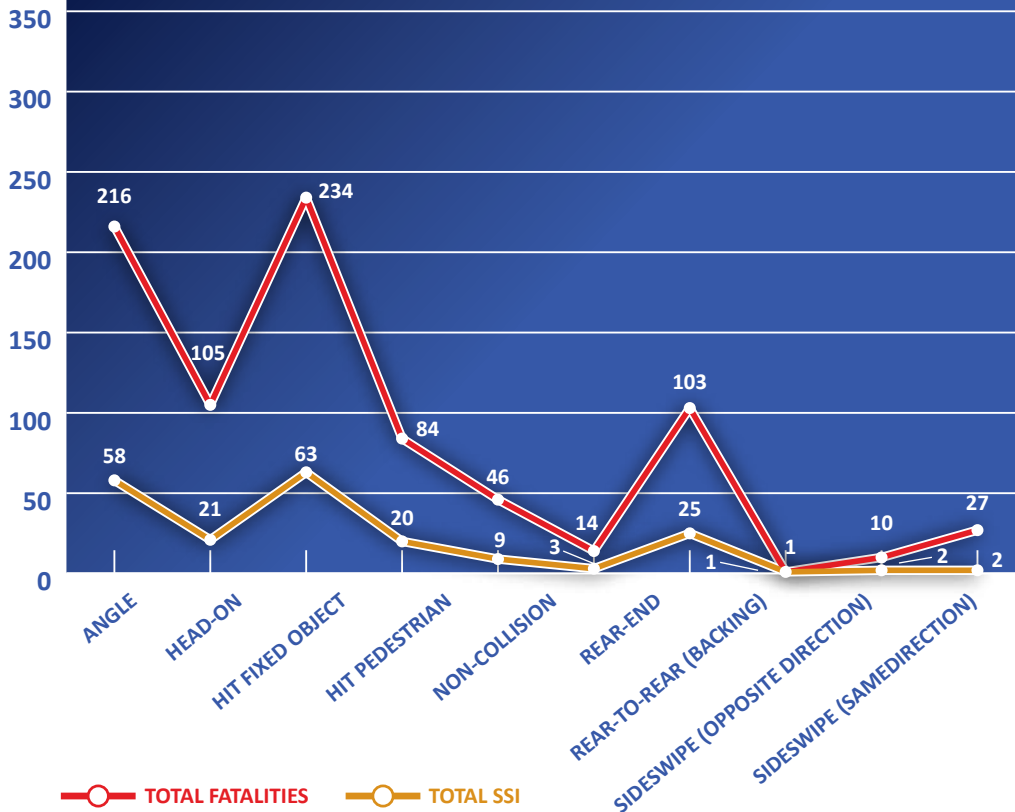
BERKS COUNTY CRASHES BY COLLISION TYPE FROM 2017-2021							
	2017	2018	2019	2020	2021	Total	% Change
Angle	1,390	1,378	1,271	1,238	1,467	6,744	5.54%
Head-on	199	244	201	227	233	1,104	17.09%
Hit fixed object	1,517	1,544	1,396	1,197	1,354	7,008	-10.74%
Hit Pedestrian	147	122	150	115	127	661	-13.61%
Non-Collision	168	196	158	154	162	838	-3.57%
Rear-end	1,078	1,063	1,125	867	971	5,104	-9.93%
Rear-to-rear (Backing)	17	20	20	14	11	82	-35.29%
Sideswipe (Opposite Direction)	96	91	80	101	98	466	2.08%
Sideswipe (Same Direction)	278	295	322	273	337	1,505	21.22%
Total	5,052	5,123	4,889	4,359	4,917	24,340	-2.67%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES BY COLLISION TYPE 2017-2021



BERKS COUNTY TOTAL FATAL AND SUSPECTED SERIOUS INJURY CRASHES BY COLLISION TYPE 2017-2021





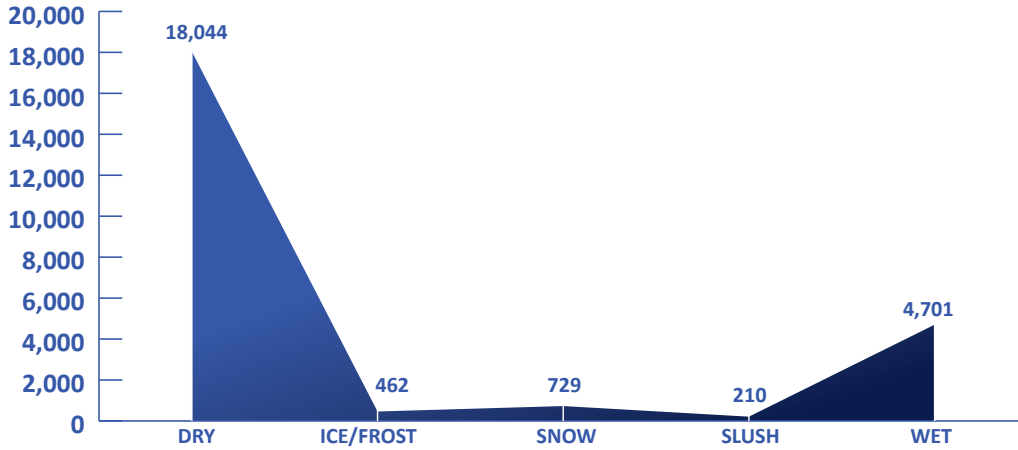
BERKS COUNTY CRASHES BY ROAD CONDITION 2017-2021

The majority of crashes in Berks County occurred when the road condition was dry. Between 2017 and 2021, dry road conditions accounted for approximately 75% of these total crashes. Crashes where the road conditions had ice/frost on them decreased 34 percent from 2017 to 2021. Similarly, fatal and suspected serious injury crashes predominantly occurred when road conditions were dry or wet.

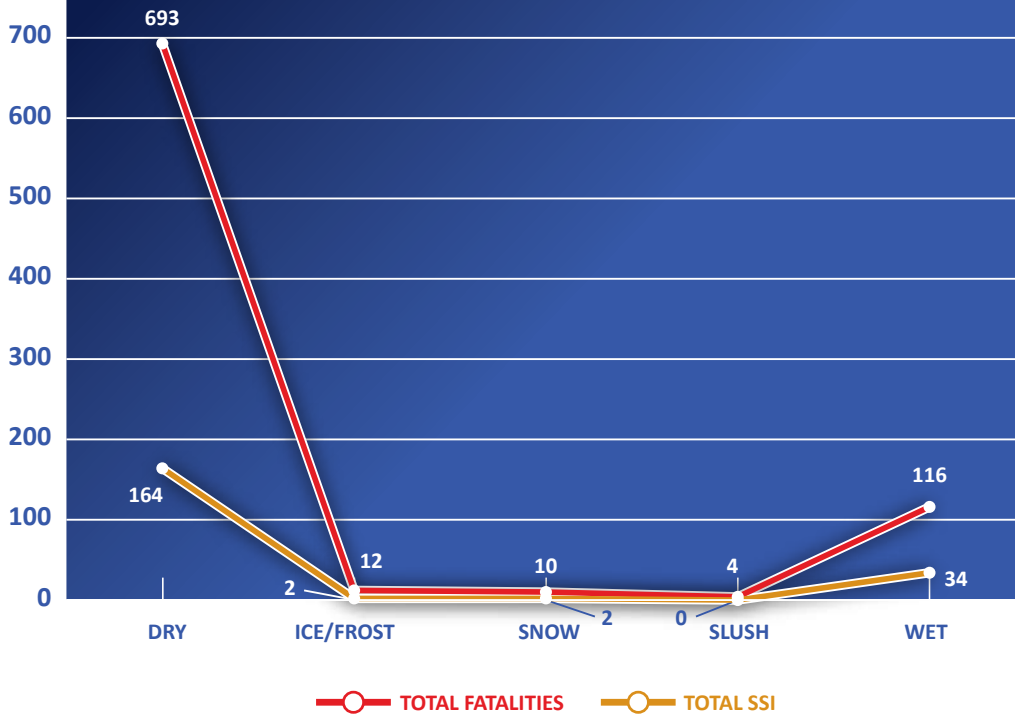
BERKS COUNTY CRASHES BY ROAD CONDITION 2017-2021							
	2017	2018	2019	2020	2021	Total	% Change
Dry	3,749	3,506	3,606	3,221	3,962	18,044	5.68%
Ice/Frost	96	137	93	73	63	462	-34.38%
Snow	140	232	169	77	111	729	-20.71%
Slush	34	61	58	21	36	210	5.88%
Wet	999	1,144	932	925	701	4,701	-29.83%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES BY ROAD CONDITION 2017-2021



BERKS COUNTY TOTAL FATAL AND SUSPECTED SERIOUS INJURY CRASHES BY ROAD CONDITION 2017-2021





BERKS COUNTY CRASHES BY WEATHER CONDITION 2017-2021

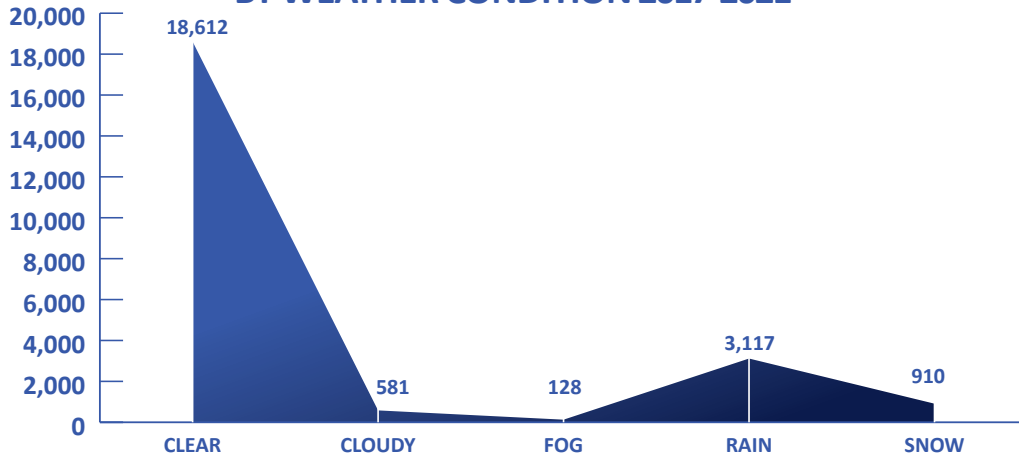
Weather events impact all modes of transportation. While rain and snow can be contributing factors to crash events, the highest incidence of crashes in Berks County between 2017 and 2021 occurred on clear days (80%). Fatal and Serious Injury crashes by weather condition proportionally relate to the overall total of crashes by weather condition during this 5-year period accounting for approximately 86 percent of the total fatal and SSI number of crashes by weather condition.

BERKS COUNTY CRASHES BY WEATHER CONDITION 2017-2021

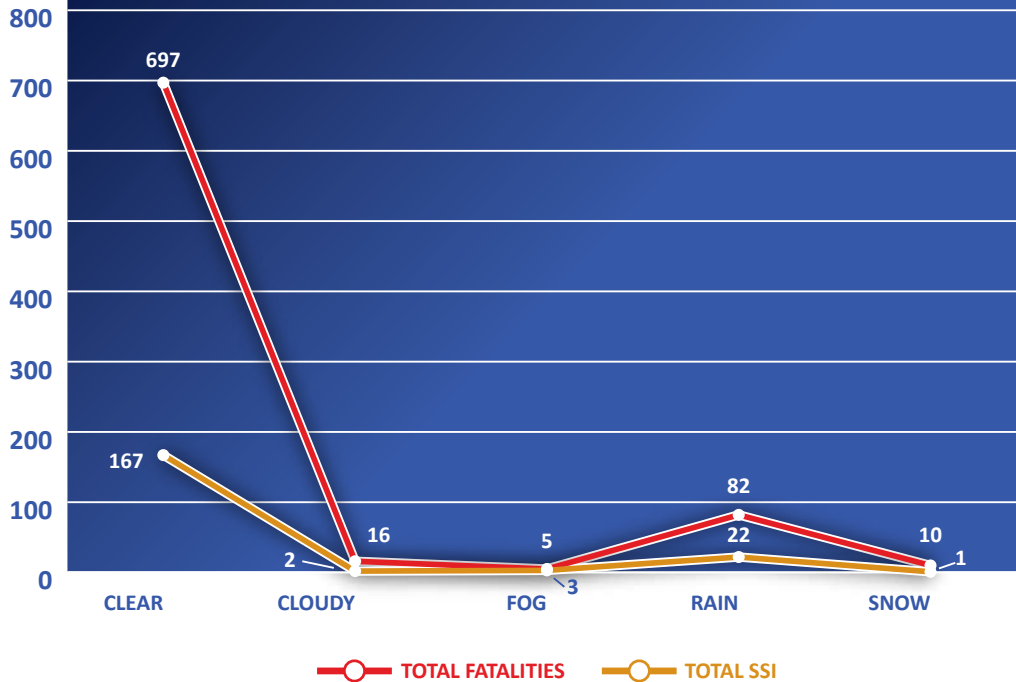
	2017	2018	2019	2020	2021	Total	% Change
Clear	4,039	3,833	3,839	3,117	3,784	18,612	-6.3%
Cloudy	0	0	26	245	310	581	310.0%
Fog	31	28	26	28	15	128	-51.6%
Rain	698	851	636	541	391	3,117	-44.0%
Snow	201	316	227	62	104	910	-48.3%
Total	4,969	5,028	4,754	3,993	4,604	23,348	-7.3%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES BY WEATHER CONDITION 2017-2021



BERKS COUNTY TOTAL FATAL AND SUSPECTED SERIOUS INJURY CRASHES BY WEATHER CONDITION 2017-2021





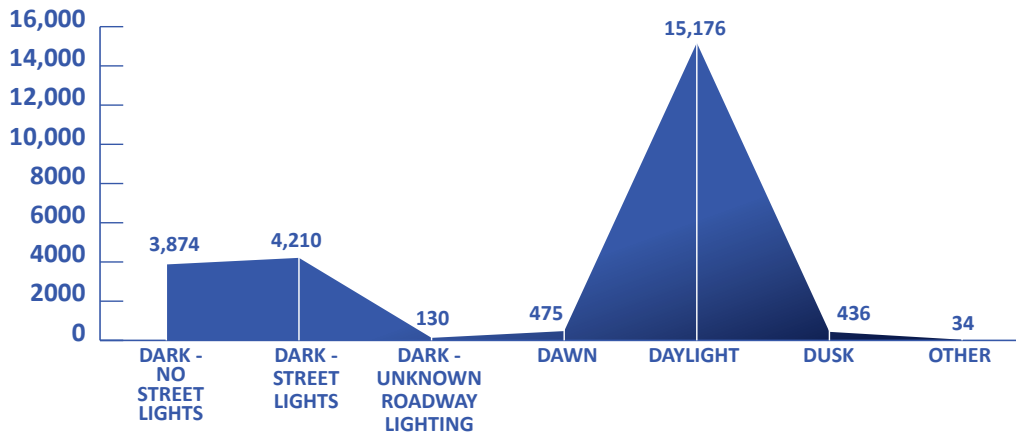
BERKS COUNTY CRASHES BY ILLUMINATION FROM 2017 TO 2021

Similar to crashes by weather, the majority of crashes in Berks County between 2017 and 2021 occurred during daylight hours. Crashes that occurred during daylight hours accounted for approximately 62% of the total number of crashes during this time period despite decreasing by 5% from 2017 to 2021. Fatalities and SSI crashes show a similar trend to the total number of crashes in that the greatest number of these types of crashes occurred in daylight. Approximately 57% of fatalities and SSI crashes occurred in the daylight.

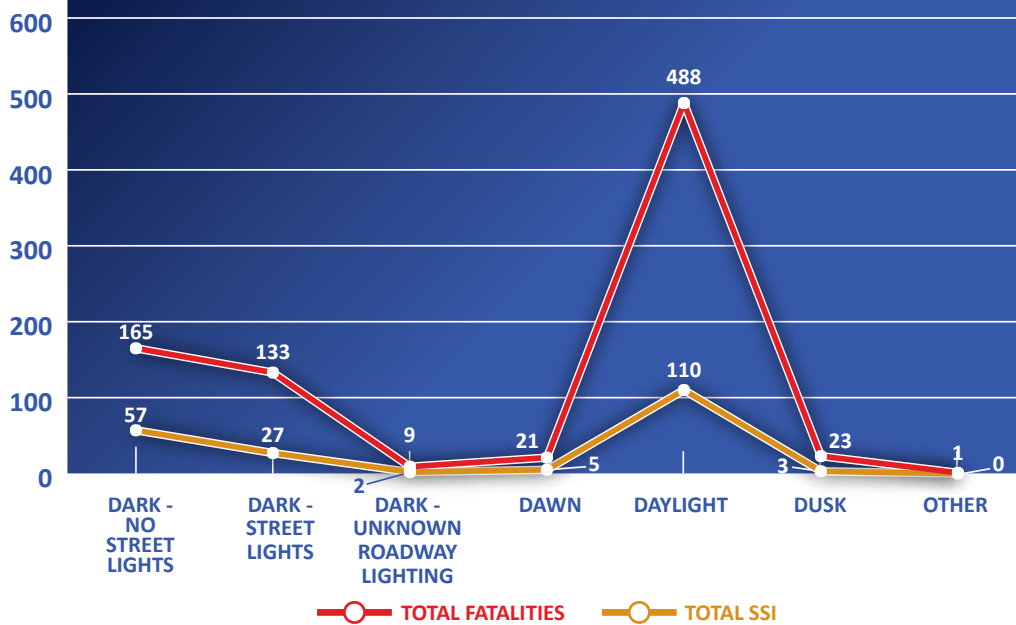
BERKS COUNTY CRASHES BY ILLUMINATION FROM 2017 TO 2021							
	2017	2018	2019	2020	2021	Total	% Change
Dark - no street lights	827	843	778	629	797	3,874	-3.6%
Dark - street lights	864	831	806	784	925	4,210	7.1%
Dark- unknown roadway lighting	31	24	25	16	34	130	9.7%
Dawn	99	109	96	70	101	475	2.0%
Daylight	3,126	3,212	3,097	2,772	2,969	15,176	-5.0%
Dusk	98	100	76	78	84	436	-14.3%
Other	7	4	10	6	7	34	0.0%
Total	7,069	7,141	6,907	6,375	6,938	24,335	-1.9%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES BY ILLUMINATION 2017-2021



BERKS COUNTY TOTAL FATAL AND SUSPECTED SERIOUS INJURY CRASHES BY ILLUMINATION 2017-2021



MODE SPECIFIC CRASH TRENDS



BERKS COUNTY CRASHES BY DRIVING BEHAVIOR 2017-2021

Driving behavior plays a major role in crash trends in Berks County. In many instances, crashes involving driving behaviors could be avoidable. Aggressive driving, speeding, and distracted driving continue to be the largest contributors to crashes in Berks County. Generally, vehicle manufacturers now include hands-free technology for cell phones as part of their standard vehicle package. Additional technology is also becoming standard such as navigation and weather applications. In many cases, the increase in available technology has contributed to distracted driving by providing additional visual distractions and feature adjustments while driving.

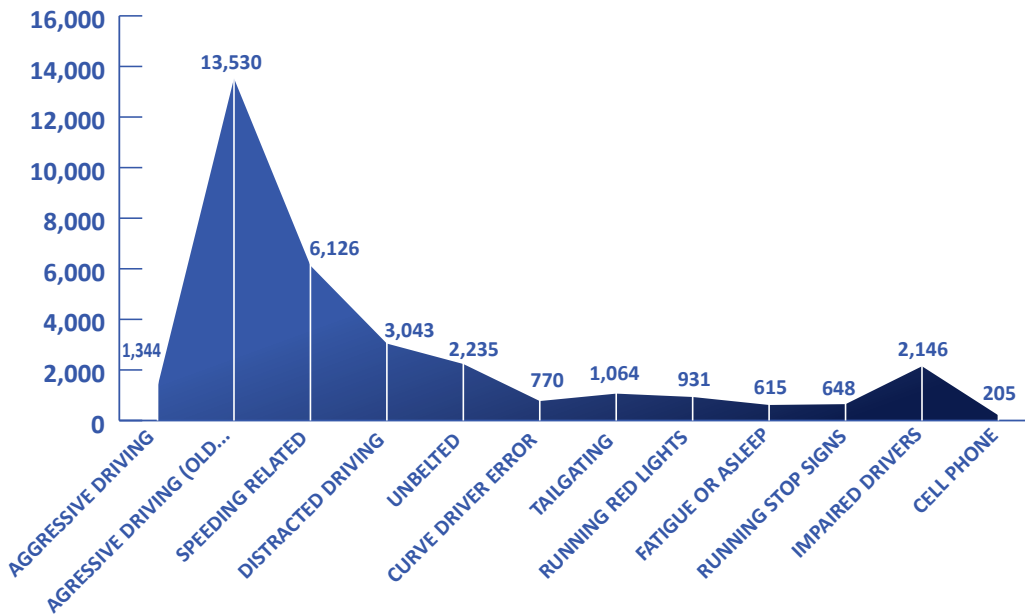
While these three driving behaviors are the highest contributors to crashes in Berks County, there has been a moderate decline in these types of crashes from 2017 to 2021.

BERKS COUNTY CRASHES BY DRIVING BEHAVIOR 2017-2021

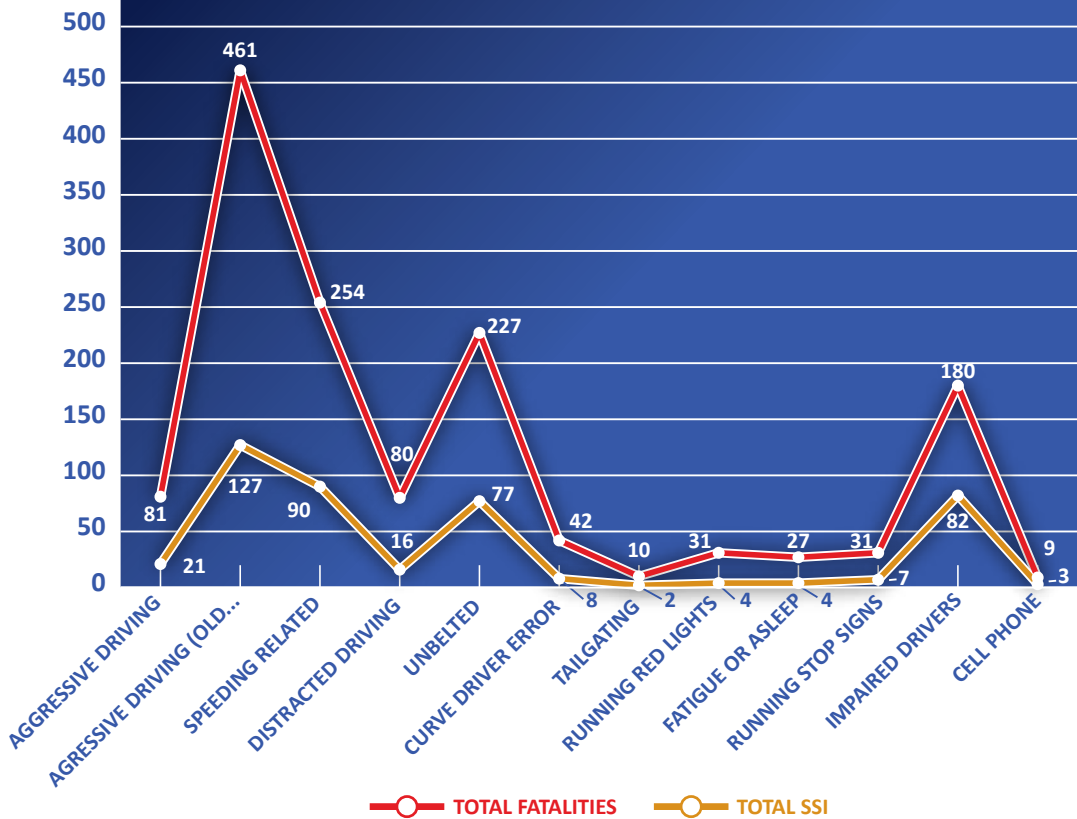
	2017	2018	2019	2020	2021	Total	% Change
Aggressive Driving	262	279	266	245	292	1,344	11.5%
Aggressive Driving (Old Definition)	2,814	2,914	2,717	2,394	2,691	13,530	-4.4%
Speeding Related	1,341	1,377	1,212	1,110	1,086	6,126	-19.0%
Distracted Driving	656	648	574	520	645	3,043	-1.7%
Unbelted	461	432	443	451	448	2,235	-2.8%
Curve Driver Error	172	168	150	124	156	770	-9.3%
Tailgating	212	254	241	162	195	1,064	-8.0%
Running Red Lights	191	175	170	192	203	931	6.3%
Fatigue or Asleep	116	125	119	117	138	615	19.0%
Running Stop Signs	112	125	134	125	152	648	35.7%
Impaired Driver	490	449	406	356	445	2,146	-9.2%
Cell Phone	45	38	49	43	30	205	-33.3%
Total	6,872	6,984	6,481	5,839	6,481	32,657	-5.7%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES BY DRIVING BEHAVIOR 2017-2021



BERKS COUNTY TOTAL FATAL AND SSI BY DRIVING BEHAVIOR 2017-2021





BERKS COUNTY CRASHES BY YOUNG AND MATURE DRIVERS 2017-2021

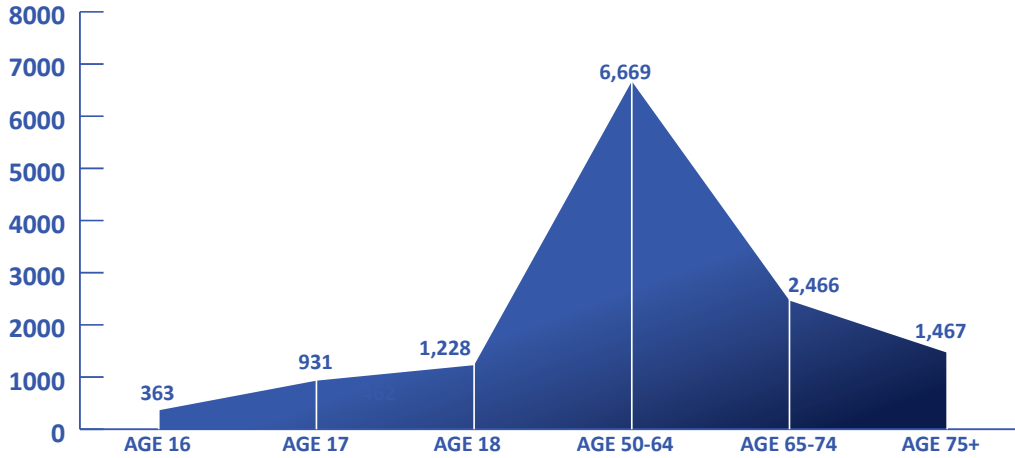
Young and mature populations are considered at-risk drivers. Younger drivers are less experienced and less mature which contributes to the higher crash rate among that age group. Mature drivers are in crashes at a higher rate due to visual, cognitive and physical skill deterioration. A common theme is the rise of elderly drivers on the road. The number of mature drivers will continue to increase, eventually outnumbering the younger drivers, as the baby boomer generation continues to age. Safety programs aimed towards mature drivers has aided in the reduction of crashes by this age group. Pennsylvania driver licensing requirements have aided in reducing crashes among age 16 population. This age group shows the greatest decrease in crashes by approximately 15%. The 50-64 age group continues to have the greatest number of crashes accounting for approximately 51% of the total crashes amongst these at-risk age groups. Similarly, fatalities and SSI among the 50-64 age group accounted for approximately 67% of the total fatalities and SSI that occurred amongst at-risk drivers between 2017 and 2021.

BERKS COUNTY CRASHES BY YOUNG AND MATURE DRIVERS 2017-2021

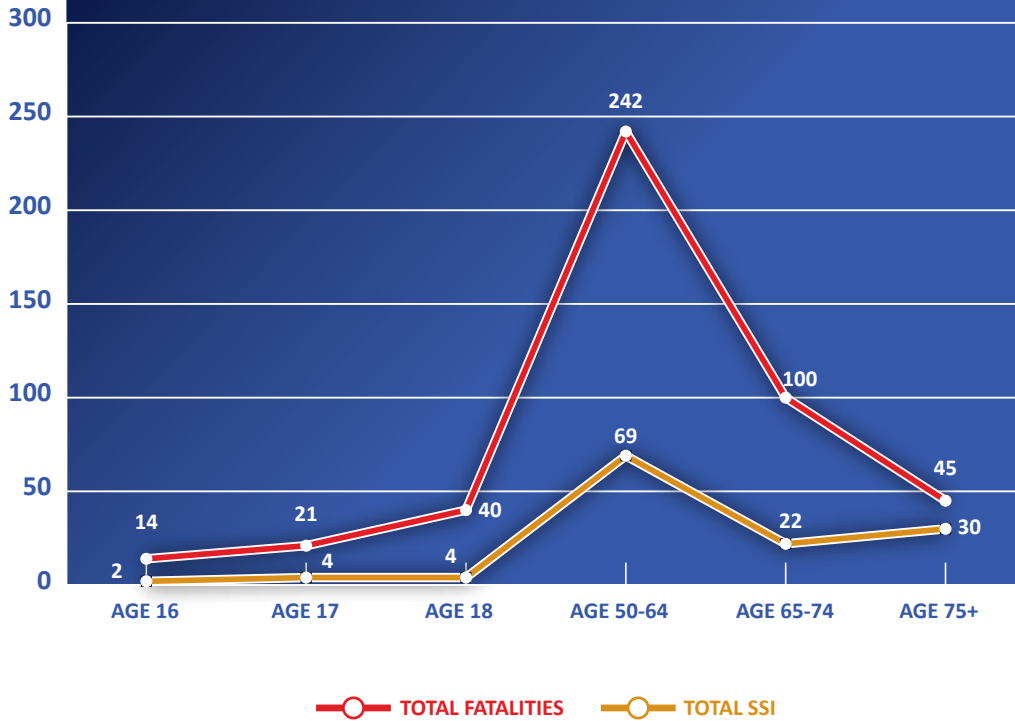
	2017	2018	2019	2020	2021	Total	% Change
Age 16	75	89	69	66	64	363	-14.7%
Age 17	204	201	177	159	190	931	-6.9%
Age 18	245	236	250	234	263	1,228	7.3%
Age 50-64	1,391	1,439	1,410	1,127	1,302	6,669	-6.4%
Age 65-74	507	509	523	441	486	2,466	-4.1%
Age 75+	314	286	308	259	300	1,467	-4.5%
Total	2,736	2,760	2,737	2,286	2,605	13,124	-4.8%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES BY YOUNG AND MATURE DRIVERS 2017-2021



BERKS COUNTY TOTAL FATAL AND SUSPECTED SERIOUS INJURY CRASHES BY YOUNG AND MATURE DRIVERS 2017-2021





BERKS COUNTY VULNERABLE ROAD USER CRASHES 2017-2021

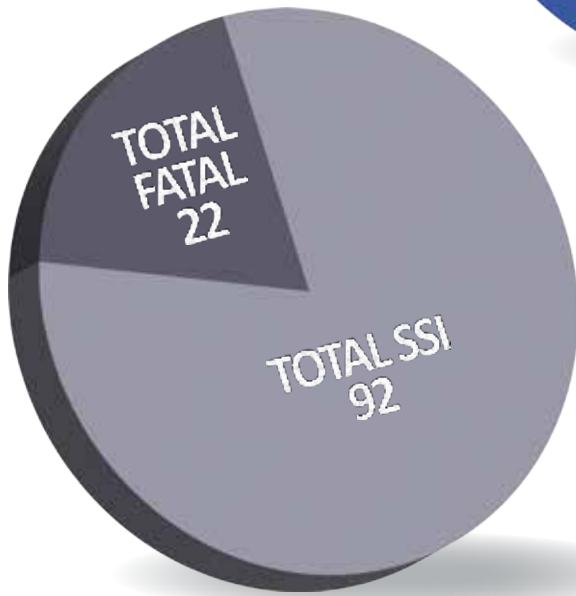
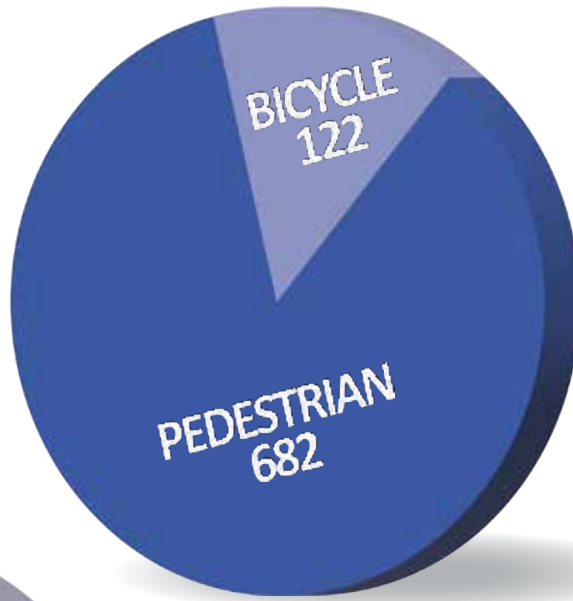
Vulnerable Road Users (VRU) are those that are using the road without a vehicle surrounding them for protection. These generally consist of pedestrians, bicyclists, and motorcycles. Motorcycle crashes are addressed in the next table. Strides have been made in reducing VRU crashes since 2017. Most prominently, bicycle crashes have reduced 62.5% since 2017. Crashes involving pedestrians experienced the greatest severity with a total of 114 fatalities and SSI from 2017 to 2021.

BERKS COUNTY VULNERABLE ROAD USER CRASHES 2017-2021

	2017	2018	2019	2020	2021	Total	% Change
Pedestrian	150	125	154	120	133	682	-11.3%
Bicycle	32	35	18	25	12	122	-62.5%
Total	182	160	172	145	145	804	-20.3%

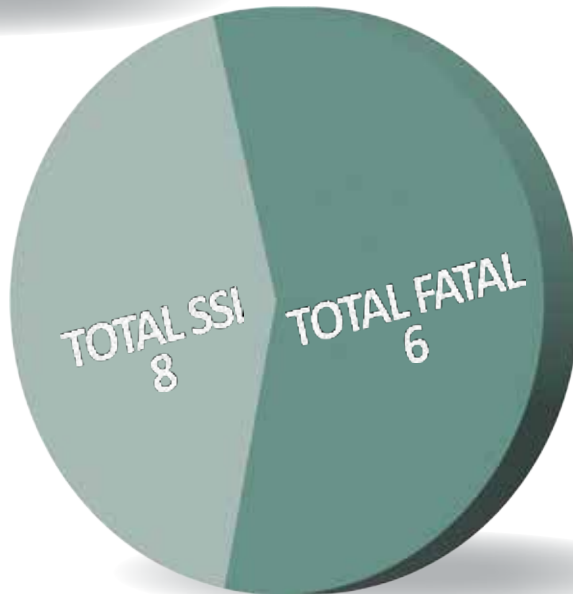
Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

**BERKS COUNTY TOTAL
VULNERABLE ROAD USER
CRASHES 2017-2021**



**BERKS COUNTY TOTAL
FATAL AND SUSPECTED
SERIOUS INJURY CRASHES
INVOLVING PEDESTRIANS
2017-2021**

**BERKS COUNTY TOTAL
FATAL AND SUSPECTED
SERIOUS INJURY CRASHES
INVOLVING BICYCLISTS
2017-2021**





BERKS COUNTY CRASHES BY VEHICLE TYPE 2017-2021

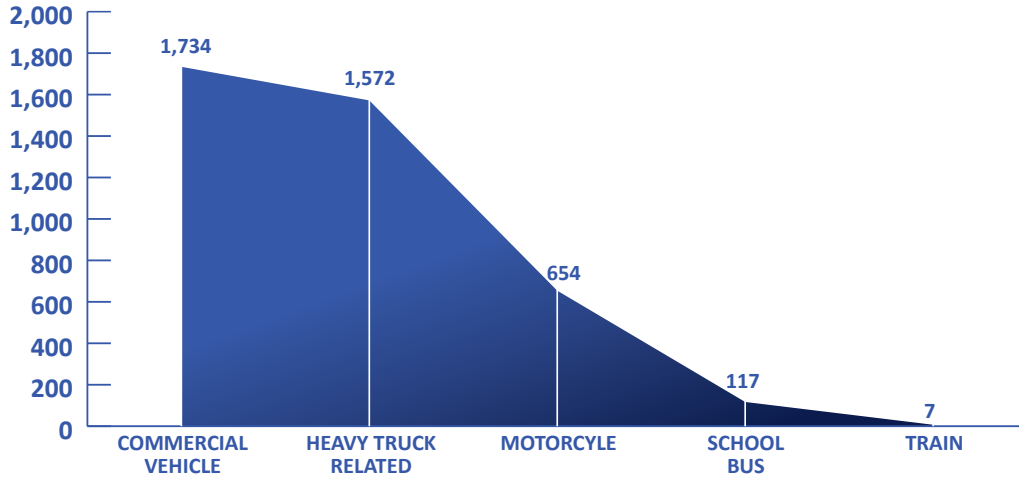
Crashes involving commercial vehicles increased 11.9% and crashes involving heavy trucks increased 19.3% from 2017 to 2021. Given that the county interstate system is a major freight corridor, and freight moved by commercial vehicles and heavy trucks has increased since 2017, it's not surprising to see an increase in commercial and heavy truck related vehicle crashes. Commercial vehicles and heavy trucks accounted for approximately 81% of the total crashes in Berks County for these 5 types of vehicles.

Despite the high percentage of crashes involving commercial vehicles and heavy trucks, crashes involving motorcycles had a higher number of fatalities and SSI between 2017 and 2021. Approximately 45% of the total fatalities and SSI for these 5 vehicle types involved motorcycles. Pennsylvania does not have a mandatory helmet law.

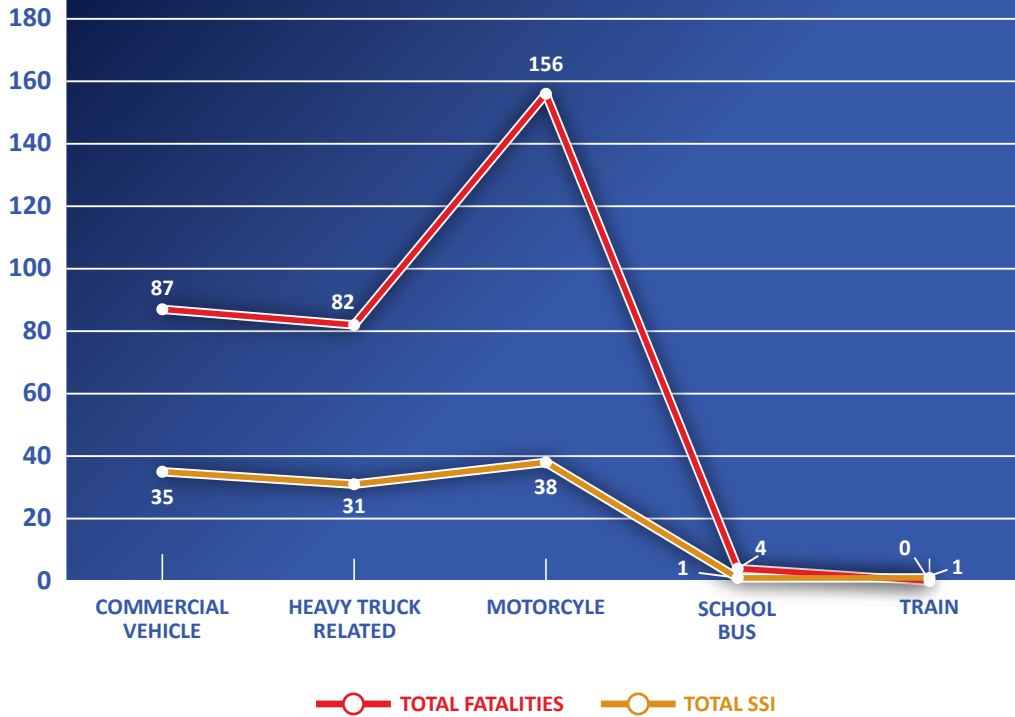
BERKS COUNTY CRASHES BY VEHICLE TYPE 2017-2021							
	2017	2018	2019	2020	2021	Total	% Change
Commercial Vehicle	337	380	359	281	377	1,734	11.9%
Heavy Truck Related	290	336	327	273	346	1,572	19.3%
Motorcycle	132	115	113	144	150	654	13.6%
School Bus	33	29	19	16	20	117	-39.4%
Train	1	2	3	0	1	7	0.0%
Total	792	860	818	714	893	4,084	12.8%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES BY VEHICLE TYPE 2017-2021



BERKS COUNTY TOTAL FATAL AND SUSPECTED SERIOUS INJURY CRASHES BY YOUNG AND MATURE DRIVERS 2017-2021





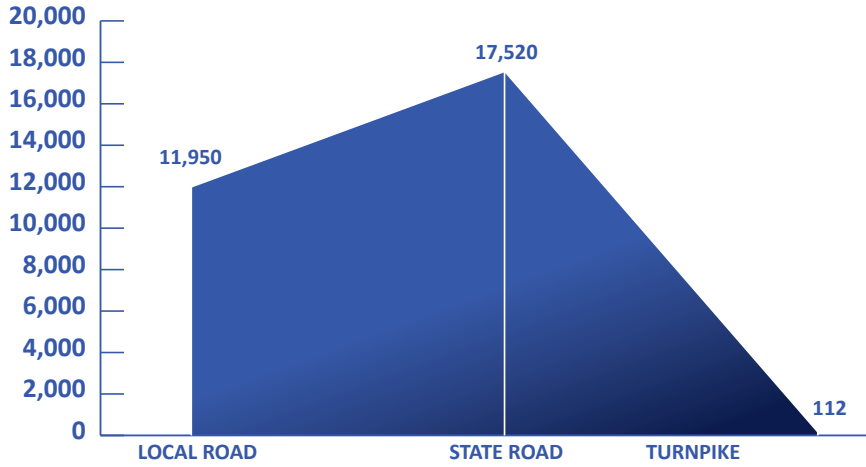
BERKS COUNTY CRASHES BY ROAD OWNERSHIP 2017-2021

According to PA Highway Statistics for 2021, there were approximately 2,402 miles of local roads, 874 miles of state roads, and 5 miles of turnpike roads in Berks County. With the majority of miles of state owned roadways in Berks County, it's not surprising that the majority of crashes occurred on them between 2017 and 2021. Similarly, a higher incidence of fatalities and SSI occurred on state owned roadways accounting for nearly 61% of the total fatal and SSI crashes from 2017 to 2021. Since there are only a few miles of turnpike owned or maintained roadways in Berks County, it is evident that there would be fewer number of crashes on them.

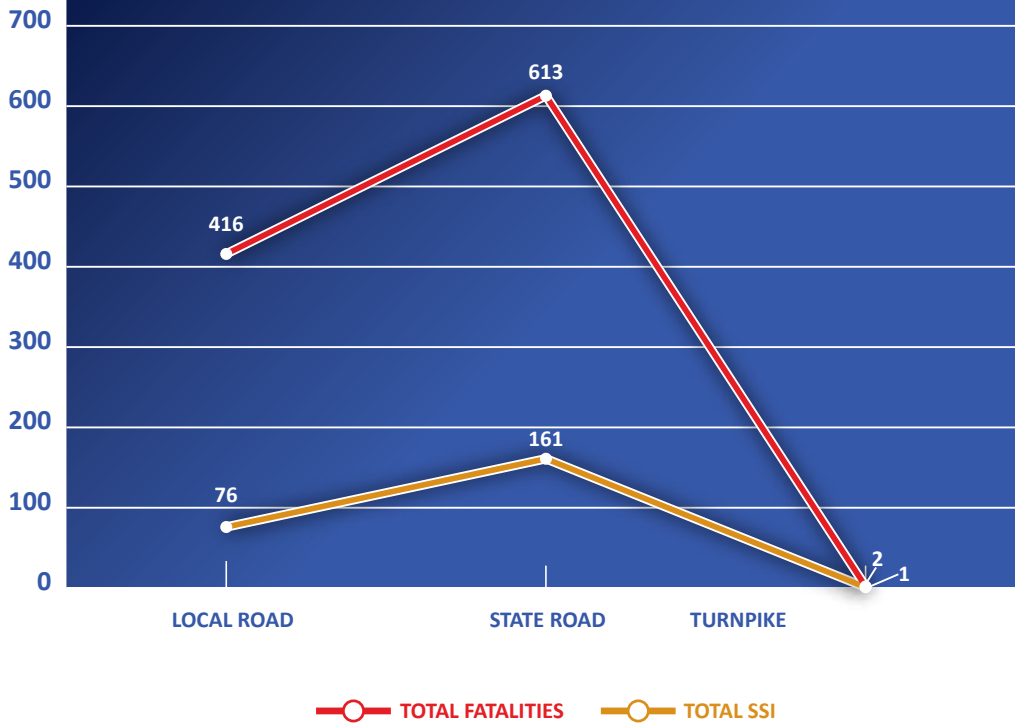
BERKS COUNTY CRASHES BY ROAD OWNERSHIP 2017-2021							
	2017	2018	2019	2020	2021	Total	% Change
Local Road	2,414	2,544	2,358	2,184	2,450	11,950	1.5%
State Road	3,627	3,659	3,556	3,130	3,548	17,520	-2.2%
Turnpike	27	21	25	16	23	112	-14.8%
Total	6,068	6,224	5,939	5,330	6,021	29,582	-0.8%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES BY ROAD OWNERSHIP 2017-2021



SERIOUS INJURY CRASHES BY ROAD OWNERSHIP 2017-2021





BERKS COUNTY CRASHES BY INTERSECTION TYPE 2017-2021

The 3 types of intersections with the highest incidence of crashes were the four way intersection, mid-block intersection, and T intersection. Mid-block intersections have the greatest number of crashes accounting for approximately 60% of the total crashes in Berks County between 2017 and 2021. Similarly, the majority of crashes by intersection control device occurred at unsignalized intersections. Roundabouts are an intersection type that have proven to reduce fatalities and SSI. While crashes may occur in roundabouts, the slower speeds required in them generally minimizes the severity of the crash. Between 2017 and 2021, there were no fatalities and 1 SSI in a roundabout in Berks County.

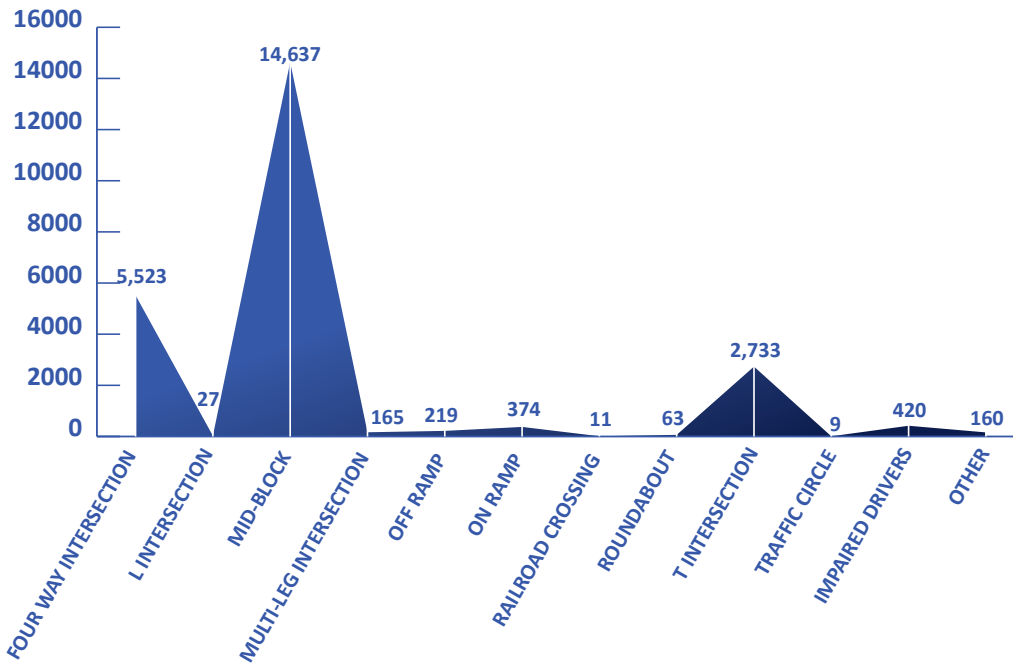
BERKS COUNTY CRASHES BY INTERSECTION TYPE 2017-2021							
	2017	2018	2019	2020	2021	Total	% Change
Four Way Intersection	1,107	1,117	1,106	995	1,198	5,523	8.2%
L Intersection	1	6	2	8	10	27	900.0%
Mid-block	3,152	3,057	2,929	2,620	2,879	14,637	-8.7%
Multi-leg Intersection	38	32	28	27	40	165	5.3%
Off Ramp	32	48	63	40	36	219	12.5%
On Ramp	51	78	95	71	79	374	54.9%
Railroad Crossing	2	4	4	0	1	11	-50.0%
Roundabout	0	11	17	16	19	63	63.0%
T Intersection	568	623	505	470	567	2,733	-0.2%
Traffic Circle	2	2	0	1	4	9	100.0%
Y Intersection	56	102	106	71	85	420	51.8%
Other	43	43	34	40	0	160	-100.0%
Total	5,052	5,123	4,889	4,359	4,918	24,341	-2.7%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

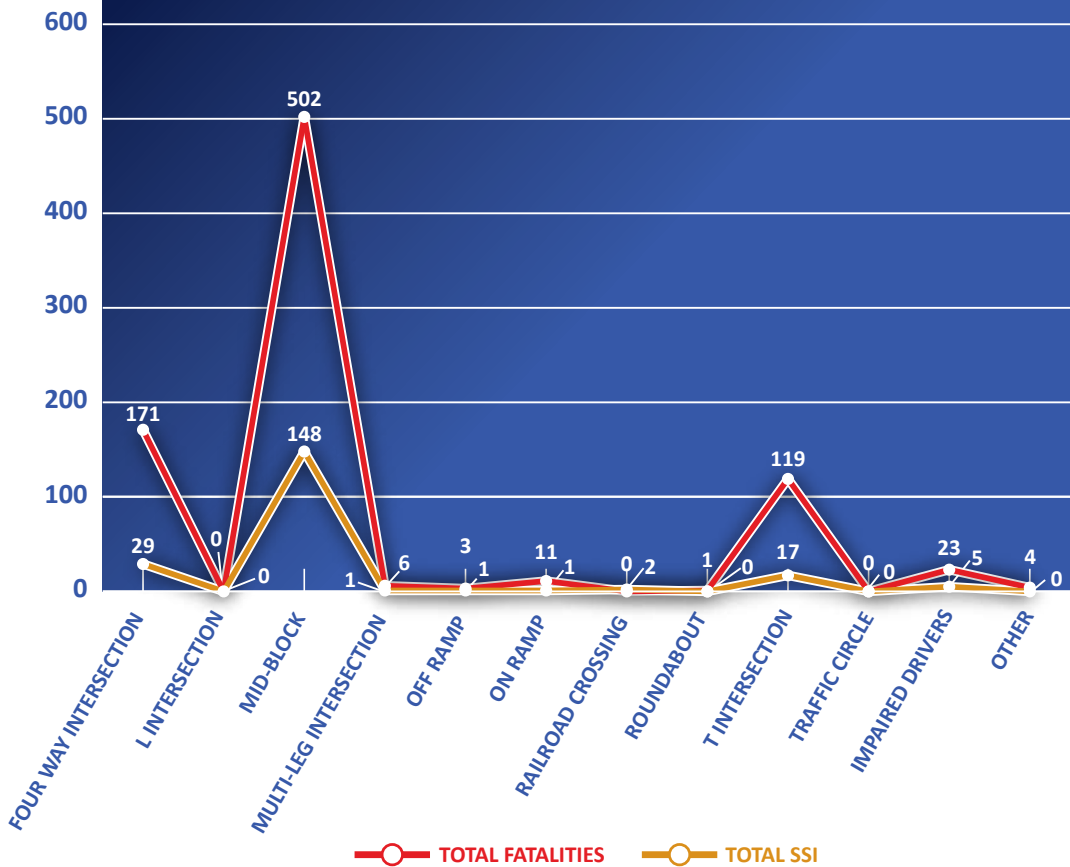
BERKS COUNTY CRASHES BY INTERSECTION CONTROL TYPE 2017-2021							
	2017	2018	2019	2020	2021	Total	% Change
Signalized Intersection	726	733	726	645	769	3,599	5.9%
Stop Controlled	663	704	623	526	704	3,220	6.2%
Unsignalized Intersection	1,174	1,333	1,234	1,094	1,270	6,105	8.2%
Total	2,563	2,770	2,583	2,265	2,743	12,924	7.0%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES BY DRIVING BEHAVIOR 2017-2021



BERKS COUNTY TOTAL FATAL AND SUSPECTED SERIOUS INJURY CRASHES BY INTERSECTION TYPE 2017-2021





BERKS COUNTY CRASHES IN WORK ZONES BY WORK ZONE TYPE 2017-2021

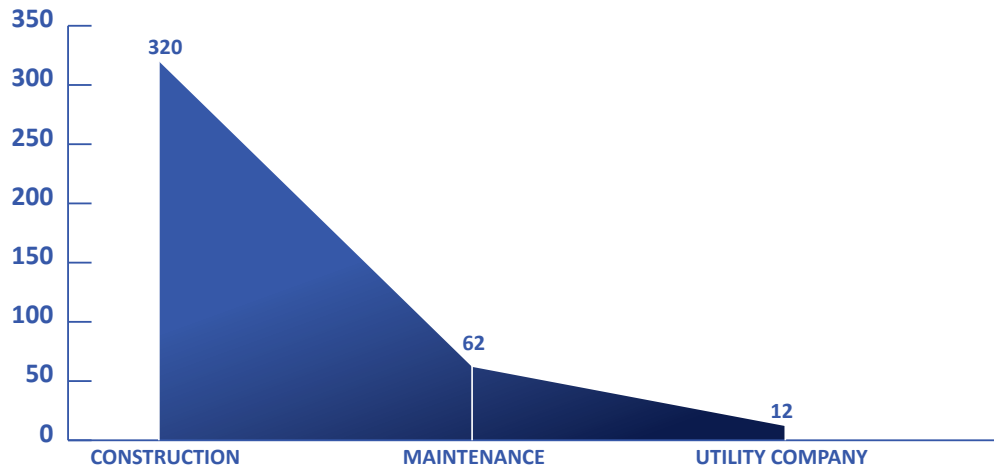
Crashes in work zones are a major concern as the majority of them could be avoided if drivers abide by the signage and follow the lower speeds implemented in active work zones. In an effort to combat crashes in active work zones, Pennsylvania implemented the Automated Work Zone Speed Enforcement (AWSZE) program in March 2020. Vehicle mounted systems are used to record drivers that exceed posted work zone speed limits by 11 miles per hour or more. The program is aimed at reducing driver speeds in work zones and improving driver behaviors in work zones to save worker and traveler lives, promote work zone safety, and complement existing enforcement by the Pennsylvania State Police. The construction work zone type experienced the greatest number of crashes on Berks County roadways between 2017 and 2021. As a result, fatalities and SSI in this work zone type account for nearly 86% of the total fatalities and SSI crashes by work zone type during this time period.

BERKS COUNTY CRASHES IN WORK ZONES BY WORK ZONE TYPE 2017-2021

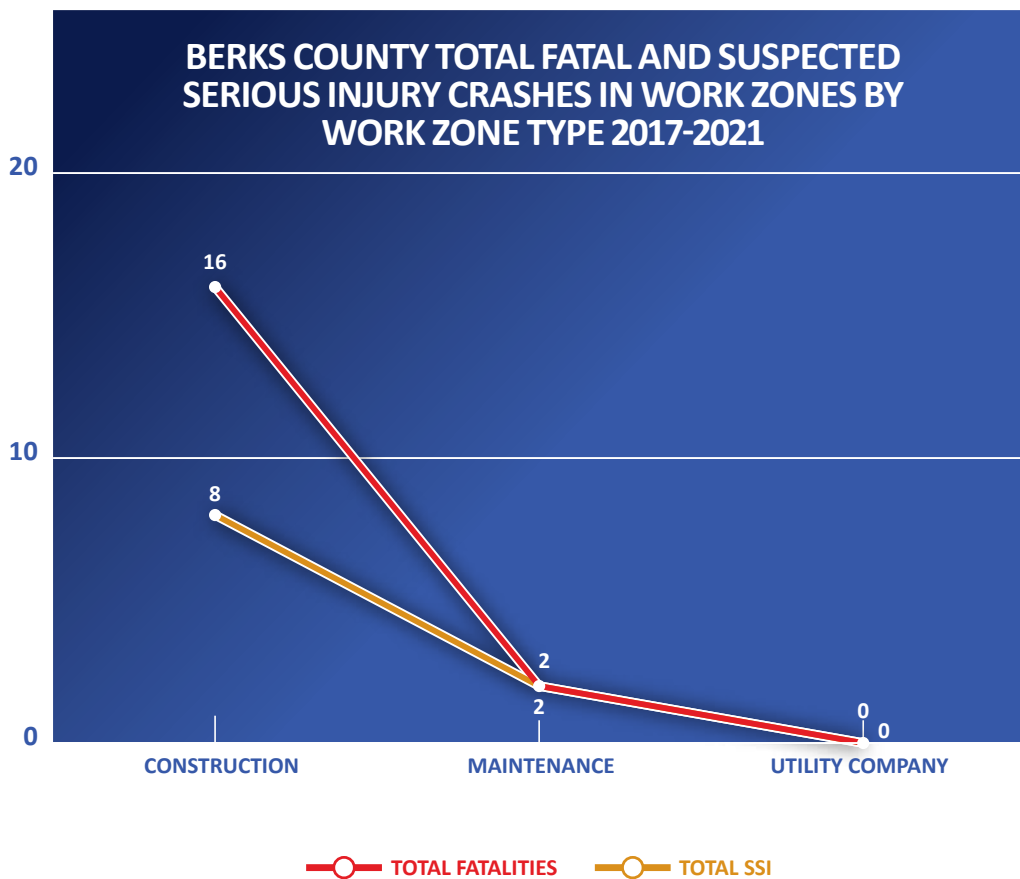
	2017	2018	2019	2020	2021	Total	% Change
Construction	36	28	64	68	124	320	244.4%
Maintenance	10	16	14	7	15	62	50.0%
Utility Company	3	0	4	3	2	12	-33.3%
Total	49	44	82	78	141	394	187.8%

Source: PennDOT, Pennsylvania Crash Information Tool, 2017-2021

BERKS COUNTY TOTAL CRASHES IN WORK ZONE BY WORK ZONE TYPE 2017-2021



BERKS COUNTY TOTAL FATAL AND SUSPECTED SERIOUS INJURY CRASHES IN WORK ZONES BY WORK ZONE TYPE 2017-2021



OVERALL 5 YEAR SEVERITY TRENDS IN BERKS COUNTY

When comparing Berks County 5-Year total crashes by severity trends to the trends for Pennsylvania, the trends are relatively similar. Both Injury and Possible Injury crashes decreased across Berks County and the state between the 5-year period of 2013-2017 and the 5-year period of 2017-2021. Fatal crashes in Berks County showed a steady increase compared to Pennsylvania where fatalities decreased since 2013-2017. Suspected Serious Injuries for both Berks County and Pennsylvania increased from 2013 to 2021.

5-YEAR TOTAL CRASHES BY TYPE FOR BERKS COUNTY AND PENNSYLVANIA						
	2013-2017	2014-2018	2015-2019	2016-2020	2017-2021	Trend
Fatal: Berks County	191	189	201	199	204	
Fatal: Pennsylvania	5,497	5,483	5,366	5,324	5,389	
Suspected Serious Injury: Berks County	562	630	709	783	840	
Suspected Serious Injury: Pennsylvania	15,818	16,897	18,287	19,452	20,067	
Suspected Minor Injury: Berks County	3,002	3,706	4,446	4,976	5,234	
Suspected Minor Injury: Pennsylvania	74,687	90,423	108,079	121,727	128,515	
Injury: Berks County	10,556	10,634	10,685	10,318	10,190	
Injury: Pennsylvania	297,719	294,459	291,837	277,322	268,203	
Possible Injury: Berks County	4,582	3,951	3,253	2,468	2,317	
Possible Injury: Pennsylvania	131,525	112,526	93,011	70,031	62,018	
Property Damage Only: Berks County	12,526	12,970	13,148	12,963	13,015	
Property Damage Only: Pennsylvania	312,640	319,436	324,172	315,407	312,312	

Source: PennDOT, Pennsylvania Crash Information Tool, 2013-2021





















SUMMARY OF OVERALL TRENDS FOR BERKS COUNTY

Although Berks County ranks in the top 10 for crashes and fatal crashes based on county boundaries, Berks County also ranks in the top 10 for population, VMT, and total linear miles of roadways. This is important to remember because locations with higher populations, higher VMT, and higher linear miles of roadway ultimately will have a higher potential for crash incidents.





















In addition, higher incidents involving fatal and suspected serious injury crashes relate to the total number of crashes. For example, there are a higher number of crash incidents in Berks County on Saturdays and Sundays for 2017-2021. Therefore, the higher number of fatal and suspected serious injury crashes also occurred on Saturdays and Sundays. One area where there is a noticeable difference between the total number of crashes and severity is in regards to crashes involving motorcycles. While the total number of crashes involving motorcycles is less than commercial vehicles and heavy truck related vehicles, crashes involving motorcycle related fatalities and suspected serious injuries were greater than either one of the other 2 vehicle types.



The following table summarizes the safety trends involving fatal and suspected serious injury crashes from 2017 to 2021.

SAFETY TREND SUMMARY FOR FATAL AND SUSPECTED SERIOUS INJURY CRASHES FROM 2017 TO 2021			
INDICATOR NAME	DESCRIPTION	TREND	TREND RATING
Roadway Fatalities	The total number of fatal roadway crashes decreased approximately 17% from 2017 to 2021.	IMPROVING 	
Roadway Suspected Serious Injury	The total number of suspected serious injury roadway crashes increased approximately 43% from 2017 to 2021.	DECLINING 	
Impaired Driver Fatalities	The total number of fatal crashes among impaired drivers remained the same from 2017 to 2021.	STEADY 	
Impaired Driver Suspected Serious Injury	The total number of suspected serious injury crashes among impaired drivers increased approximately 68% from 2017 to 2021.	DECLINING 	
Vulnerable Road User Fatalities	Despite crashes involving VRUs declining approximately 20% from 2017 to 2021, the total number of fatal crashes among this group increased approximately 50%.	DECLINING 	
Vulnerable Road User Suspected Serious Injury	Despite crashes involving VRUs declining approximately 20% from 2017 to 2021, the total number of suspected serious injury crashes among this group increased approximately 47%.	DECLINING 	
Work Zone Fatalities	Work zone fatal crashes increased approximately 50% from 2017 to 2021.	DECLINING 	
Work Zone Suspected Serious Injury	Work zone suspected serious injury crashes increased from 1 in 2017 to 12 in 2021.	DECLINING 	
Motorcyclist Fatalities	Fatal crashes among motorcyclists remained the same from 2017 to 2021.	STEADY 	
Motorcyclist Suspected Serious Injury	Suspected serious injury crashes among motorcyclists more than doubled from 2017 to 2021.	DECLINING 	

SAFETY TREND SUMMARY FOR FATAL AND SUSPECTED SERIOUS INJURY CRASHES FROM 2017 TO 2021

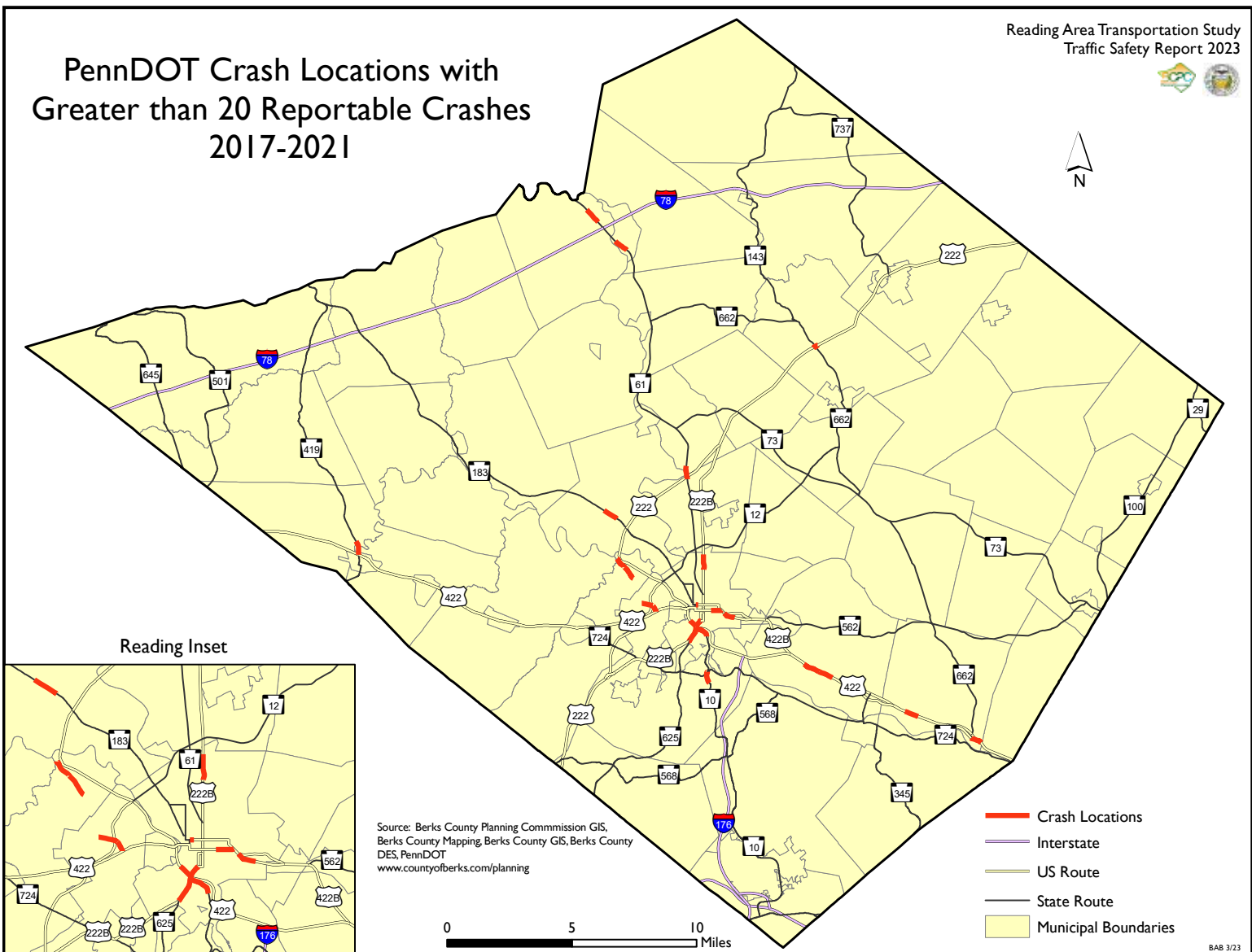
INDICATOR NAME	DESCRIPTION	TREND	TREND RATING
Lane Departure Fatalities	Lane departure fatal crashes decreased approximately 31% from 2017 to 2021.	IMPROVING 	
Lane Departure Suspected Serious Injury	Lane departure suspected serious injury crashes remained the same from 2017 to 2021.	STEADY 	
Local Road Fatalities	Local road fatal crashes decreased approximately 12% from 2017 to 2021.	IMPROVING 	
Local Road Suspected Serious Injury	Local road suspected serious injury crashes increased approximately 55% from 2017 to 2021.	DECLINING 	
Intersection Fatalities	Fatal crashes at intersections decreased approximately 43% from 2017 to 2021.	IMPROVING 	
Intersection Suspected Serious Injury	Suspected serious injury crashes at intersections nearly doubled from 2017 to 2021.	DECLINING 	
Heavy Truck Related Fatalities	Fatal crashes involving heavy trucks increased by 1 from 2017 to 2021.	DECLINING 	
Heavy Truck Related Suspected Serious Injury	Suspected serious injury crashes involving heavy trucks increased by 10 from 2017 to 2021.	DECLINING 	
Young (16-18) and Mature (65+) Driver Fatalities	Fatal crashes involving young and mature drivers decreased by 7% from 2017 to 2021.	IMPROVING 	
Young (16-18) and Mature (65+) Driver Suspected Serious Injuries	Suspected serious injury crashes involving young and mature drivers increased 46% from 2017 to 2021.	DECLINING 	

The overall average number of fatal crashes from 2017-2021 for Berks County was 40.8 which is below the Performance Measure Reading Supporting Values baseline of 44.6 for the same time frame. The overall average number of suspected serious injury crashes from 2017-2021 for Berks County was 168 which is below the Performance Measure Reading Supporting Values baseline of 192.2 for the same time frame. The overall average number of fatal and suspected serious injury crashes involving VRUs from 2017-2021 for Berks County was 25.4 which is below the Performance Measure Reading Supporting Values baseline of 27.0 for the same time frame. Based on this data, it is anticipated that the RATS MPO will meet its Safety Performance Measure targets for 2019-2023 for these categories.

DISTRIBUTION OF CRASHES IN BERKS COUNTY

PennDOT has a variety of crash information available through their website. PennDOT's Pennsylvania Crash Information Tool (PCIT) provides users the ability to search specific criteria related to crashes, persons, and vehicles. Date ranges as well as locations can also be specified. A variety of options are available for the selected data to be displayed including either by point map or heat map, table, or report.

Using PCIT data, the map on the following page identifies roadway segments where more than 20 reportable crashes occurred between 2017 and 2021. Major roadways with higher traffic volumes are the main locations for the larger number of reportable crash incidents in Berks County.



FEDERAL HIGHWAY ASSOCIATION PROVEN SAFETY COUNTERMEASURES

The FHWA identifies 28 proven safety countermeasures that aid in reducing fatalities and SSI on all types of roadways for all types of road users. The 28 safety countermeasures are broken down into 5 categories. The following text identifies those categories and the proven countermeasures within the categories.

Speed Management

Speed management includes providing appropriate speed limits for all road users, implementation of speed safety cameras, and utilizing variable speed limits. While not specifically included in FHWA's proven safety countermeasures, radar speed signs provide driver feedback and help slow speeding drivers down by alerting them to their speed. These types of road signs have become increasingly useful in small towns, villages, and boroughs where there is a greater number of pedestrians and bicyclists using the roadways at any given time.

Appropriate speed limits are especially important on roadways where VRUs and vehicles intermix. Lowering the speed limit where these two types of road users share the roadway can reduce the number and severity of crashes and therefore reduce the number of fatalities and SSI.

Speed safety cameras aid in educating drivers and assist enforcement agencies in reducing speeding-related crashes. Speed safety cameras detect speeding and photograph vehicles that violate a speed limit threshold. Currently, Pennsylvania utilizes these types of devices in active work zones.

Variable speed limits help maintain a safe and efficient road network. Speed limits are generally established after an engineering study has been conducted that examines different types of factors including traffic volumes, roadway characteristics, and crash history. Sometimes roadway conditions can change quickly due to a weather event, increased congestion, or a crash event. Variable speed limits use these factors and roadway conditions to determine appropriate speeds and identify them to drivers. Variable speed limits help drivers mitigate adverse weather conditions and congestion which aids in reducing crashes and injuries.

PEDESTRIAN/BICYCLIST

Pedestrians and bicyclists are especially vulnerable on roadways where vehicles are present. Pedestrians and bicyclists do not have protection like a driver does with safety belts and surrounding framework that can help minimize severity in the event of a crash. FHWA identifies 8 proven safety countermeasures to reduce pedestrian and bicyclist crashes.

Bicycle lanes can help mitigate interactions, conflicts and crashes between bicyclists and vehicles. Separating road users enhances the safety for all road users. Bicycle lanes can be included on new roadways or incorporated into existing roadways by designating the right-of-way for bicycle lanes.

Crosswalk visibility enhancements can reduce crashes by making pedestrians and other crosswalk users more visible to drivers. Some of the improvements could include high-visibility pavement markings, crosswalks, lighting and signage to identify crosswalk users to motorists.

Leading pedestrian interval provides pedestrians an opportunity to enter a crosswalk before vehicles are given a green light to proceed along their route of travel. Leading pedestrian intervals provide increased visibility of pedestrians to drivers, reduce conflicts between pedestrians and drivers, increase the chance for motorists to yield to pedestrians, and increase the safety for pedestrians that require more time to traverse the crosswalk identified intersection.

Medians and pedestrian refuge islands can help pedestrians traverse one lane of traffic at a time. These are particularly beneficial for pedestrians on wide roadways in urban and suburban areas. Medians and pedestrian refuge islands help reduce human error for a pedestrian that has to estimate vehicle speeds, vehicle paths, and their own walking speed in order to traverse a roadway.

Pedestrian hybrid beacons are particularly useful for pedestrians to cross on roadways that have speed limits that exceed 35 miles per hour, multiple lanes of traffic, and where gaps in traffic are insufficient. The pedestrian hybrid beacon is a device that initiates a yellow to red light sequence that directs motorists to slow down and stop when a pedestrian activates the beacon.



Rectangular rapid flashing beacons help motorists identify pedestrians at uncontrolled, marked crosswalks. These beacons generally flash with an alternating high frequency to enhance visibility of pedestrians at these types of crosswalks. By increasing the visibility of pedestrians at crosswalks, drivers are more likely to slow down and yield to the pedestrians in the crosswalk and therefore reducing the risk of potential crash between the two transportation modes.

Road diets can help calm traffic and improve safety and mobility for all road users. Road diets generally consist of reducing the number of lanes while providing for turns. Benefits of road diets can include reduction of rear-end and left-turn crashes, reduce right-angle crashes, provide a more complete streets environment, and can provide an opportunity to install bicycle lanes or pedestrian refuge islands.

Walkways are defined as ‘any type of defined space or pathway for use by a person traveling by foot or using a wheelchair.’ By incorporating walkways and pedestrian facilities into the transportation network, pedestrians can experience direct and connected walking routes to destinations without experiencing gaps or abrupt changes. Pedestrian walkways help identify this type of road user to other road users and can reduce conflict points where pedestrians and other transportation modes intersect.

Roadway Departure

FHWA defines a roadway departure crash as ‘a crash which occurs after a vehicle crosses an edge line or a center line, or otherwise leaves the traveled way.’ These type of crashes can involve head-on crashes, sideswipe crashes, and property damage crashes to name a few.

Enhanced delineation for horizontal curves includes several strategies that can be implemented prior to the curve or within the curve either in combination or individually. Some strategies to implement prior to the curve include installing pavement markings, in-lane curve warning pavement markings, retroreflective strips on sign posts, and larger or retroreflective signs. Some strategies that can be implemented within a curve include installation of pavement markings, retroreflect strips on sign posts, delineators, chevron signs, sequential dynamic chevrons, and larger or retroreflective signs. Implementation of these strategies can help reduce curve driver error and improve driver safety within roadway curves.

Longitudinal rumble strips and stripes on two-lane roads alerts drowsy or distracted drivers of departure from their lane of travel. Reducing roadway departure crashes by installing rumble strips and stripes is generally a low-cost improvement. Rumble strips can be installed on the shoulder, edge line, or along the center line that creates a vibration when a vehicle drives on them. Sometimes, the pavement marking is placed on top of the rumble strip which can help increase visibility at nighttime or during wet road conditions.

Median barriers are a type of barrier that separates opposing traffic on a divided highway. Median barriers greatly reduce the number of cross-median roadway departure crashes. Not all barriers are the same and generally the type of barrier is determined by the various characteristics of the roadway. The 3 most common type of median barriers include cable barriers, metal-beam guardrails, and concrete barriers.

Roadside design improvements at curves is a strategy that implements improvements along the outside lane of horizontal curves. These can include providing a clear zone that is free of any objects that can allow a driver to avoid hitting fixed objects and regain control of the vehicle, reducing the side slope to avoid obstacles and maintain vehicle stability, and adding or widening shoulders to provide a larger recovery area to drivers in the event of a roadway departure. In addition, when there is not enough room to provide for an unobstructed vehicle departure recovery area, cable barriers, metal-beam guardrails, and concrete barriers can be installed to prevent contact with unmovable objects and prevent departure down steep embankments.

SafetyEdgeSM technology is the practice of shaping the edge of the pavement of a roadway at approximately 30 degrees. By shaping the edge of the roadway, vertical drop-off and vehicle instability are reduced which provides a driver with a smoother and more stable return to the roadway.

Wider edge lines help reduce roadway departure crashes by increasing the visibility of the travel lane boundary. Normal edge lines are approximately 4 inches wide. Wider edge lines extend the width of the edge line by another 2 inches to a total of 6 inches wide. In addition, wider edge lines help increase the visibility of the travel lane boundaries which also helps to reduce lane departure crashes.

Intersections

According to FHWA, more than 50 % of total fatal and serious injury crashes occur at or near intersections. This high percentage of fatal and serious injury crashes led to increased research and development of innovative intersection solutions and designs. Some of the design solutions developed include the roundabout and the diverging diamond interchanges. FHWA identifies 7 proven safety countermeasures for intersections.

Backplates with retroreflective borders that are added to a traffic signal help increase the visibility of the signal and reduces crashes that result from human error. This type of improvement is considered to be a low-cost safety improvement.

Corridor access management involves control of entry and exit points along a roadway. Every intersection has potential conflict points whether it is signalized, unsignalized, or stop controlled. Managing access points along a corridor can reduce the potential for conflicts and improve safety for all modes of users. There are several ways of managing access points along a corridor including but not limited to:

- Reducing access points through closure, consolidation or relocation
- Managing the spacing of access points
- Limiting the types of movements at access points
- Providing turn lanes
- Installing medians to prevent cross-roadway movements
- Utilizing roundabouts at access points

Dedicated left- and right-turn lanes at intersections provide physical separation of traffic movements for motorists. Installation of dedicated turn lanes at intersections reduces crashes left-turn crashes and rear-end crashes. In addition, off-set turn lanes provide greater visibility for left-turn vehicle movements which helps reduce crashes resulting from vehicle movements.

Reduced left-turn conflict intersections involves designing a roadway that alters how left-turn movements can occur. The two most effective designs are the Restricted Crossing U-turn and the Median U-turn. Both movements utilize right turns and U-turns at designated locations. The Median U-turn prevents left turns within the intersection altogether. These types of intersections reduce the number of head-on and angle crashes.



Systemic application of multiple low-cost countermeasures at stop-controlled intersections involves implementing multiple low-cost safety countermeasures that can include enhanced signage, enhanced pavement markings, and retroreflective sheeting on sign posts. These measures increase awareness and identification of intersections for motorists.

Yellow change intervals is the length of time that a signalized intersection will display the yellow 'yield' color. To reduce crashes as a result of motorists running red lights, a longer yellow change interval can be programmed at signalized intersections.

Crosscutting

FHWA identifies crosscutting as ‘strategies that address multiple safety focus areas.’

Lighting can be installed along road segments, intersections, and pedestrian crosswalks. Installation of lighting can help improve visibility at nighttime for all modes of transportation which can reduce crashes.

Local road safety plans can provide a framework for identifying, analyzing, evaluating, and prioritizing safety improvements on local roadways. FHWA has several resources available for local agencies to help them develop a local road safety plan. By developing and implementing a local road safety plan, local agencies can reduce crashes and the severity of those crashes while supporting the goals of the state’s Strategic Highway Safety Plan.

Pavement friction management involves the maintenance of friction between a vehicle and the roadway where vehicles are frequently turning, slowing, or stopping. Installation of surface treatments such as High Friction Surface Treatments can help minimize and prevent roadway departure crashes, intersection crashes, and pedestrian-related crashes.

Road safety audit is a unique approach to addressing safety on roadways. Road safety audits consider all transportation modes, account for human factors and road user capabilities, and are documented in a formal report that require a formal response from the road owner. According to FHWA, road safety audits provide multiple benefits including but not limited to:

- Reduction in the number and severity of crashes
- Reduction in costs resulting from early identification and mitigation of safety issues before projects are built
- Increased opportunities for integrate multimodal safety strategies
- Increased communication and collaboration among stakeholders
- Objective review by independent multidisciplinary team

ADDITIONAL COUNTERMEASURES AND MITIGATION STRATEGIES

FHWA provides a great list of proven safety countermeasures. Many of the measures involve adjustments to a roadway whether through low-cost safety improvements or during the design phase of a programmed project.

It’s important to note that education and enforcement are also effective safety countermeasures that reduce crashes on roadways. These countermeasures help in addressing driving behaviors of motorists and road users.

Education

Many schools provide driver educational programs that help prepare the young driver population for the responsibilities of becoming a licensed motorist. In addition, the Pennsylvania Graduated Driver Licensing Law, enacted in 1999 and updated in 2011, helps young drivers develop safe habits and skills under adult-supervised conditions. Once a young driver passes the physical examinations and the knowledge test, young drivers may begin practice and learn driving skills behind-the-wheel. Six months of learning with an adult over the age of 21 is required with practice including driving during nighttime hours and driving in poor weather conditions. Additional restrictions help minimize the risk of distraction to the learners permitted young driver. Ultimately, a young driver has restrictions until they reach the age of 18 or apply for an unrestricted license prior to the age of 18. These requirements have greatly improved safe driving behavior among young drivers and reduced the number of crashes that involves young drivers.

Similarly, PennDOT partners with many organizations to assist mature drivers. Through the partnerships, educational programs and courses, discussion information, and guides for mature drivers are provided to help mitigate the personal independence of these drivers and the safety of the roadways.

Several campaigns are conducted by PennDOT that are aimed at educating the public on various safe driving topics. The Live Free Ride Alive campaign is designed to educate drivers about motorcycle safety in Pennsylvania. Not only is it important for motorcyclists to be aware of other drivers, but it’s also important for vehicular drivers to be aware of motorcyclists. In addition to the campaign, PennDOT offers a motorcycle safety program course geared towards new motorcycle drivers that teaches the basic fundamentals to aspiring motorcyclists. This course helps new riders train for safely riding on roadways with other vehicles and drivers and helps reduce the risk of crashes among this group of drivers.

Be Safe PA is a campaign that addresses multiple driver safety issues. Aggressive driving and speeding related crashes are generally preventable. This campaign aims to reduce crashes as a result of aggressive driving and promotes the ‘Slow Down, Save a Life’ tagline. Distracted driving involves anything that causes a driver to look away and lose attention on the roadway. These can include things such as cell phone use, eating while driving, or even interacting with other passengers while driving. This campaign alerts drivers

to the results of distracted driving and promotes Pennsylvania's Texting While Driving Ban which prohibits a driver from sending, reading, or writing text-based communication on a wireless device while their vehicle is in motion. Another driver behavior this campaign addresses is impaired driving. Impaired driving includes driving while influenced by alcohol, drugs, or prescription medication. This campaign promotes the 'Don't Drive Impaired' tagline and recommends a designated driver or use of alternate modes of transportation that doesn't require the impaired person to drive to safely traverse the roadways. As well, the campaign promotes the HERO Campaign to encourage the use of designated drivers. And finally, Be Safe PA promotes seat belt use for all persons in a vehicle. According to PennDOT, using a seatbelt increases the chance of surviving a crash by up to 60%.

Not only does Be Safe PA campaign for various driver safety issues, but it also is a campaign to educate the public about bicyclists and pedestrians. The Pennsylvania Vehicle Code includes rules and regulations for bicyclists on Pennsylvania's roadways. The campaign aims to remind motorists of some of the rights that bicyclists have while riding on the road such as drivers should pass bicyclists allowing four feet between the vehicle and the bicyclist and that motorists should remember to look for bicyclists (and other road users) prior to opening vehicle doors. The campaign promotes pedestrian safety by reminding motorists of pedestrians' rights such as a driver must yield to a pedestrian in a crosswalk and motorists rights such as the pedestrian must yield to vehicles when crossing where there is no crosswalk. The Pennsylvania Vehicle Code identifies the rights and rules for pedestrians.

These are just a few of the educational programs and campaigns that PennDOT promotes to help address driving behaviors and promote safety for all types of road users. For more information, please refer to the sources section at the end of this document.



Enforcement

PennDOT works with a variety of agencies to promote safe driving across the state and develop enforcement programs that target some of the driver behaviors that contribute to crashes on roadways.

To target enforcement of aggressive driving, PennDOT works with state and local enforcement agencies to conduct aggressive driving enforcement. One partnership includes the Highway Safety Network. The Highway Safety Network is a non-profit organization that coordinates between transportation and enforcement agencies to develop programs and enforcement strategies with the goal of reducing crashes on roadways.

Seat belt use is required for the front seat driver and passengers. As well, anyone 18 years old or under is required to wear a seatbelt or be properly secured in a child safety seat. To help enforce seat belt use and regulations, Pennsylvania participates in the National Click It or Ticket campaign in coordination with state and local police departments during May and November of every year.

In addition to enforcement of active work zones using Automated Work Zone Speed Enforcement (AWZSE), PennDOT works with state and local enforcement agencies to combat speeding and aggressive driving in work zones. A violation identified using the AWZSE carries a civil penalty that are only fines, and a driver will not receive penalty points. A violation identified by an enforcement agency is considered a criminal violation and a driver can incur fines and penalties.

FUNDING SOURCES FOR SAFETY IMPROVEMENTS

There are a variety of funding sources to address safety improvements. These can include but are not limited to roadway, pedestrian, and bicycle improvements. Additional improvements to address bicycle and pedestrian safety can be found in the Berks County Greenway, Park and Recreation Plan and the Reading Area Transportation Study Berks County Bicycle and Pedestrian Transportation Plan. The following identified funding sources represent a portion of the possible sources available to help fund transportation related safety improvements.

Highway Safety Improvement Program

The Highway Safety Improvement Program (HSIP) is a federally-funded program that focuses on safety improvements that reduce crashes and significantly reduce fatalities and serious injuries on all public roads. The HSIP requires a data-driven approach to improve safety on all roadways. PennDOT receives federal funds for its HSIP program. They distribute approximately 70% of those funds to its regions based on fatalities, serious injuries, and reportable crashes.

Safe Streets and Roads for All (SS4A)

Safe Streets and Roads for All (SS4A) is a grant program administered by the U.S. Department of Transportation. The goal of the grant program is to support regional, local, and Tribal plans, projects, and strategies that will prevent roadway fatalities and serious injuries. There are two types of grants available through the SS4A grant program. The Action Plan Grant provides funding to applicants that want to develop or complete an Action Plan that includes goals, safety analysis, addresses equity, provides strategies and identifies projects, evaluates policies and processes, measures to analyze progress, and is a collaborative effort among stakeholders. The Implementation Grant through SS4A provides funding to implement projects and strategies identified in an Action Plan. These can include things such as applying low-cost roadway safety treatments, installing pedestrian safety enhancements and closing network gaps, development of bikeway networks, and intersection improvements.

U.S. Department of Transportation Federal Railroad Administration Railroad Crossing Elimination Grant Program

The U.S. Department of Transportation FRA Railroad Crossing Elimination Grant Program provides funding for highway-rail or pathway-rail grade crossing improvement projects that focus on improving the safety and mobility of transportation users and goods. Eligible projects include but are not limited to improvement or installation of protective devices, signals, and signs; measures to improve safety related to a separation, closure, or track relocation project; and track relocation. Eligible recipients include states and territories, political subdivision of a state, federally recognized Indian Tribe, local governments, public port authorities, MPOs, or a group of any of the aforementioned.

Transportation Alternatives Set-Aside (TASA)

The Transportation Alternatives Set-Aside program is designed to provide funding for projects and activities that are considered an alternative transportation project. Transportation alternatives are considered to include on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation, and enhanced mobility, community improvement activities, environmental mitigation, trails that serve a transportation purpose, and safe routes to schools projects. The Infrastructure Investment and Jobs Act (IIJA) enables funding for this program through 2026. This program requires project sponsors to coordinate with their MPO or RPO and PennDOT staff to discuss their project application, the overall project, and PennDOT policies and procedures for use of TASA funds for a project.

PennDOT Multimodal Transportation Fund

The PennDOT Multimodal Transportation Fund (MTF) provides grant funding for projects that improve the transportation system to ensure safety and reliability for all road users. The program provides financial assistance to municipalities, councils of governments, businesses, economic development organizations, public transportation agencies, and ports and rail freight entities to improve transportation assets that enhance communities, pedestrian safety, and transit revitalization. Examples of eligible projects includes but is not limited to projects that enhance streetscapes, lighting, sidewalk enhancements, connectivity between transportation assets, bicycle lanes, crosswalks, and transit-oriented development.

Department of Community and Economic Development Multimodal Transportation Fund

The Pennsylvania Department of Community and Economic Development administers a Multimodal Transportation Fund grant program that encourages economic development and improvements that ensure a safe a reliable transportation system for all road users. Grant funds may be used for development, rehabilitation, and enhancements of transportation assets that can include streetscapes, lighting improvements, sidewalk enhancements, pedestrian safety improvements, and improves connectivity of transportation assets and transit-oriented development. The grant is available for municipalities, councils of governments, businesses, economic development organizations, public transportation agencies, and rail and freight ports.

PennDOT Safety Grants

PennDOT provides a variety of safety grants utilizing federal funds. The safety grants are administered by the National Highway Traffic Safety Administration (NHTSA). The grant opportunities fund projects, programs or strategies that address critical safety needs based on an analysis of crash data. There are a wide variety of eligible applicants and generally include state and local governments, Pennsylvania state-related universities, and nonprofit organizations.

TIP PROGRAMMED PROJECTS

As noted at the beginning of this document, RATS approves a Transportation Improvement Program (TIP) for the Metropolitan Area encompassing Berks County. The current FFY 2023-2026 TIP programs 131 projects totaling \$303,243,660 for phases over the four years of the program. Of those 131 projects, 105 projects address the highway and bridge system totaling \$241,354,231. Of the 105 highway and bridge programmed projects, 16 projects are programmed specifically to address safety on Berks County roadways. Safety may be incorporated in many of the other projects programmed within the TIP as a result of the type of improvement programmed. For the purposes of this document, the following tables identify the projects that are programmed on the FFY 2023-2026 TIP that focus specifically on improving safety.

There are 7 projects programmed for a total of \$10.3 in HSIP funds that address safety in the region. The following are the HSIP-funded programmed projects:

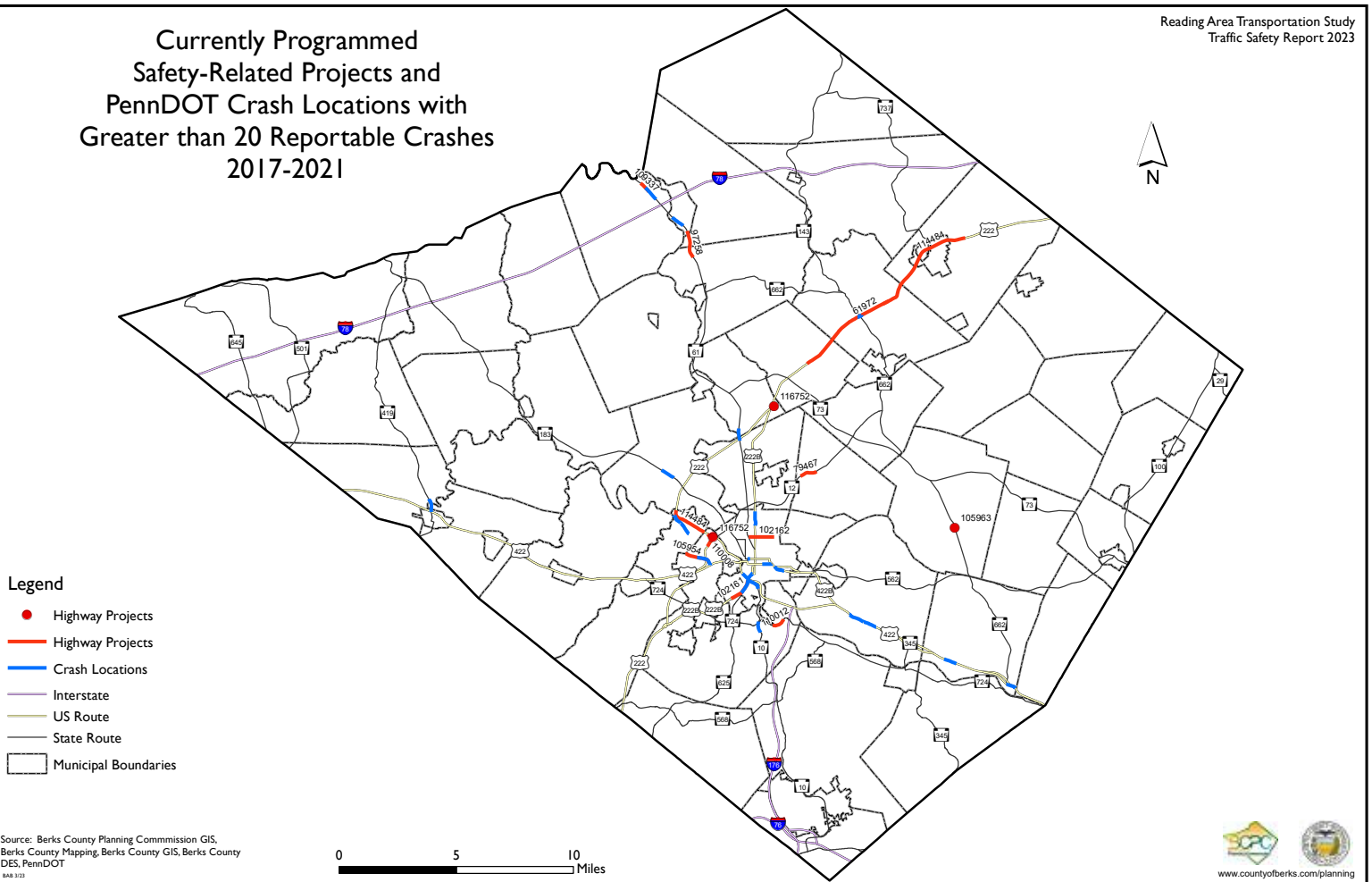
MPMS #	PROJECT	DESCRIPTION AND LOCATION
114484 & 117632	RATS High Friction Surface 2023 and 2025	This project involves application of a high friction surface treatment to various identified locations within Berks County
79467	SR 12 / Elizabeth	Project involves shoulder widening, removal of a narrow bridge, installation of a hybrid roundabout at Elizabeth Avenue and a traffic signal with realignment and a southbound left turn lane on PA 12 at Skyline Drive in Alsace Township.
61972	US 222 Widening	Widening of US Route 222 from Schaeffer Road to the Kutztown Bypass in Richmond, Maiden creek and Maxatawny Townships. The highway will be widened to four lanes, a median barrier will be installed and roundabouts at Pleasant Hills Road and Richmond Road.
105963	Route 662 and Oley Turnpike Intersection	Construct a roundabout at the intersection of PA662 (Memorial Highway) and SR 2020 (Oley Turnpike Road) in Oley Township.
102162	SR 2014 Spring Street Safety Corridor	Corridor improvements to the entire length of SR 2014 (Spring Street) from Centre Avenue (SR 61) to 13th Street in the City of Reading. This project will upgrade traffic signals to provide higher visibility by adding larger signal heads, brighter illumination with LED modules, and additional signal heads over travel lanes with protected phasing where needed. Signal Coordination using new controller equipment will reduce congestion and improve safety through radio interconnection.
105954	SR 3023 State Hill Road from Colony Drive to SR 222 SB Ramps	Corridor safety improvements along State Hill Road between Colony Drive and the US 222 Southbound on-ramp in Wyomissing Borough. Improvements to be considered include, widening, access management, roundabouts at Woodland Road and at Greenwood Mall/ mall entrance, traffic signal updates and coordination.
117603 (LRTP Only)	SR 3023 State Hill Road – SR 222SB to Norfolk Southern RR	Improvements to State Hill Road (SR 30323) with the addition of a roundabout at US 222 Southbound ramps and addition of a roundabout combining the US 222 Northbound ramps with Spring Street in Wyomissing Borough

In addition, the TIP includes projects that address safety throughout the region that are not funded using HSIP funds. The following identifies the 9 programmed projects that support the achievement of safety targets:

MPMS #	PROJECT	DESCRIPTION AND LOCATION
114484 and 117622	RATS AWPM 2023 and 2025	These projects involve the installation of all weather pavement markings on various routes in various municipalities in Berks County
91658	TOC Operator - Berks	This project funds an operator working in the Traffic Operations Center in District 5-0 who monitors cameras, message boards and radio systems along I-78, I-176, Us 222 and US 422 in Berks County.
94900	Freeway Service Patrol	This project funds the freeway service patrol on US 422, US 222 and PA 12 in the urban area of Berks County.
116752	Dynamic Curve Warning Signs - RATS	This project involves the installation of Dynamic Curve Warning Signs at various locations within the US 222/ US 422/ PA 12 interchange in Wyomissing Borough and at the northern end of the US 222 expressway in Ontelaunee Township to reduce crashes and improve safety
109337	61 Median Barrier - Tilden	This project will add a median barrier on PA 61 from Lowland Road to a point approximately 0.4 miles north in Tilden Township
97258	SR 61 Median Barrier – Perry /Windsor	This project will add a median barrier on PA 61 from Zion’s Church Road to 4 th Street in Perry and Windsor Townships and Hamburg Borough.
110008	222SB Auxiliary Lane - Wyomissing	This project involves the addition of an auxiliary lane to US 222 Southbound between the Berkshire Boulevard overpass and the Paper Mill Road Interchange in Wyomissing Borough to improve both safety and congestion.
110012	724 Fence Barrier	This project involves the upgrade of an existing concrete barrier and fence system to better withstand the debris and rocks that fall down the slope onto SR 724 between Valley Stream Road and Kennel Drive in Cumru Township.
102161	Lancaster Ave (US 222 Bus.) Corridor Improvements	This project involves corridor safety improvements along SR 3222 (Lancaster Ave. / US 222 Bus.) from Kenhorst Boulevard to PA 10 in the City of Reading. Study phase only in TIP. Balance in LRTP

The following map identifies the distribution of the projects mentioned above that are programmed on the current TIP that were based on previous crash history information.

Currently Programmed Safety-Related Projects and PennDOT Crash Locations with Greater than 20 Reportable Crashes 2017-2021



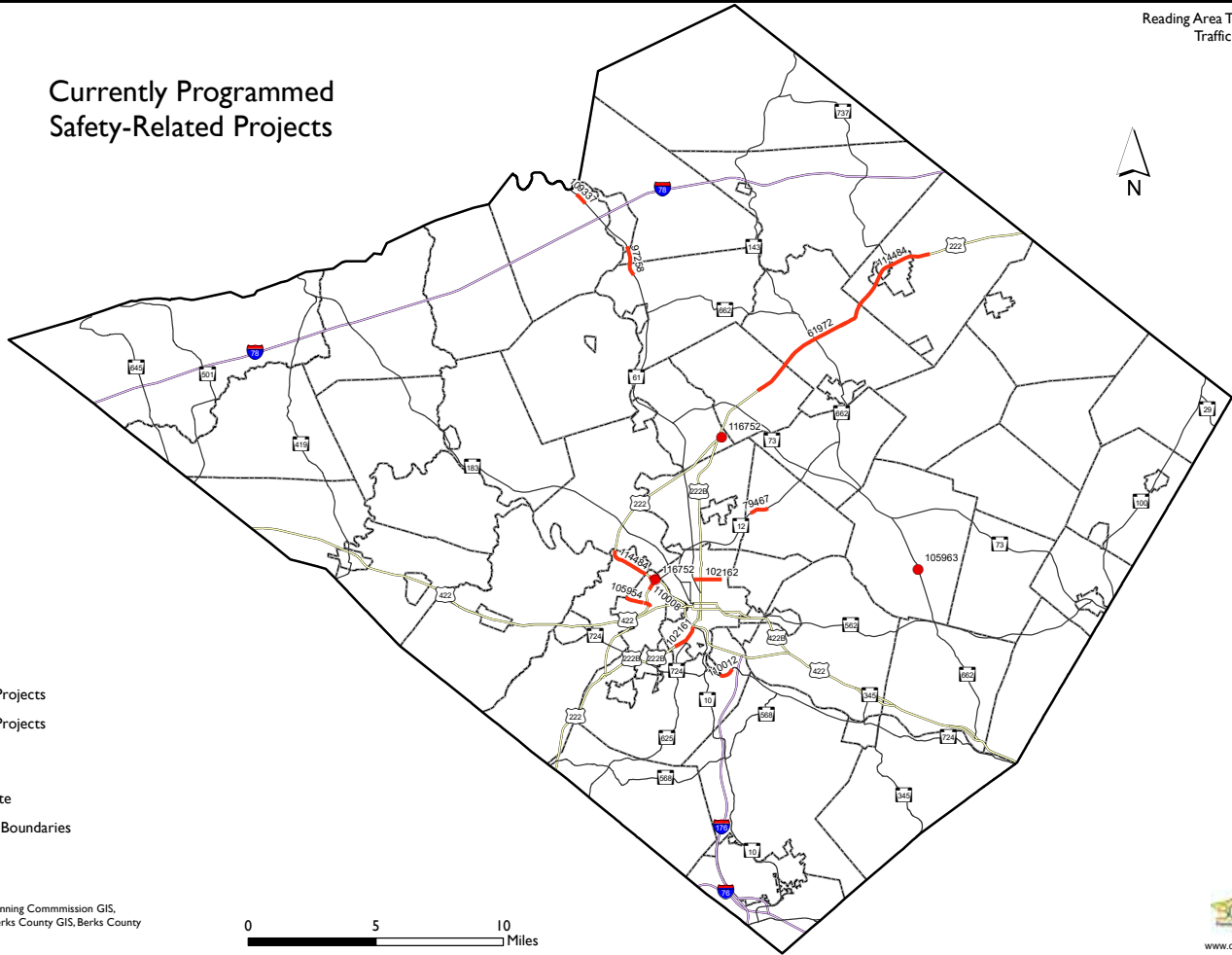
Source: Berks County Planning Commission GIS,
Berks County Mapping, Berks County GIS, Berks County
DES, PennDOT
BA8.3/23

The following map identifies the locations of currently programmed safety-related projects on the FFY 2023-2026 TIP in relation to crash history information from 2017-2021 that identifies locations with more than 20 reportable crashes. Many of the projects programmed specifically to address safety on Berks County roadways will help reduce crashes in several of the identified locations. In addition, other projects that are programmed to address different issues including congestion and roadway improvements will improve safety at many of the crash locations identified on the map.

To view all the programmed projects on the current TIP, PennDOT created an internet-based mapping tool that allows interested parties to view the projects included in the TIP and to obtain more information about a proposed project. Users may zoom in or out to view project locations. Clicking on the project link provides a pop-up screen giving project specific information. To view this tool, copy and paste the following address in your browser: <https://gis.penndot.gov/OneMap/>. To view the most recent TIP for Berks County, select the Area of Interest as Berks County. Select Planning for the Category. Finally, choose TIP Map as the Map Template.

Currently Programmed Safety-Related Projects

Reading Area Transportation Study
Traffic Safety Report 2023



- Legend**
- Highway Projects
 - Highway Projects
 - Interstate
 - US Route
 - State Route
 - Municipal Boundaries

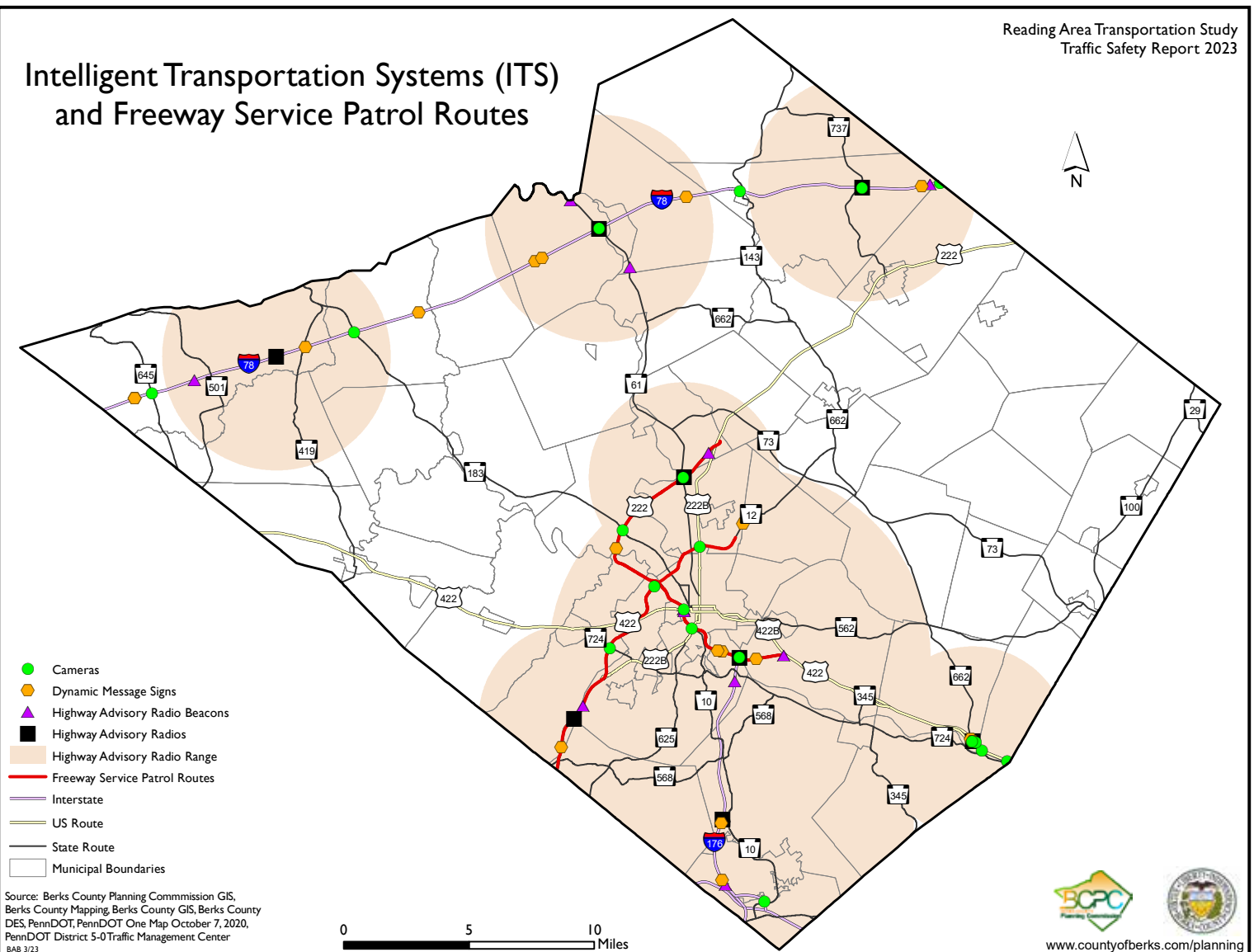
Source: Berks County Planning Commission GIS, Berks County Mapping, Berks County GIS, Berks County DES, PennDOT
1/18/2023



Additional projects programmed on the TIP help address emergent safety issues on Berks County roadways. Intelligent Transportation Systems (ITS) elements such as cameras and dynamic message signs, as well as emergency sign trailers to aid in rapid response help improve roadway safety for all users. PennDOT maintains a traffic management center at PennDOT District 5-0 headquarters in Allentown that provides coordinated regional operations by 24-hour a day monitoring of major state roads in the county and the installed ITS elements. ITS projects and investments in Berks County are identified on the following map and are an integral part of the state and regional ITS network. The county's ITS system allows PennDOT to share up to the minute data with police, fire, and public works departments of various agencies in the area. PennDOT receives data from the Computer Aided Dispatch (CAD) from the Berks County 911 center, which provides notifications of incidents without the police having to send updates. This information helps PennDOT respond to incident more quickly and with the right equipment. These quick response times allow traffic lanes to become unobstructed faster, thus reducing traveler delay and secondary crashes. ITS information is disseminated to the public via a website (www.511pa.com) that shows video images, weather updates, and lane closures caused by incidents and construction.

In March 2019, the Freeway Service Patrol, a program aimed to enhance motorist safety along portions of State Routes 12, 222, and 422 in Berks County, was introduced. This public/private partnership utilized the existing ITS infrastructure to inform roving tow truck patrol units of incidents occurring on these highways during AM and PM peak traffic hours. The drivers of these patrols are trained to assist police agencies as requested, secure crash scenes, provide first aid, and control traffic. When a vehicle has rendered its driver stranded on the shoulder of the highway, the patrol unit will tow the vehicle and driver to the closest exit. Services included are providing fuel, jump starts, directions, and changing flat tires with no cost to the motorist.

Intelligent Transportation Systems (ITS) and Freeway Service Patrol Routes



Source: Berks County Planning Commission GIS, Berks County Mapping, Berks County GIS, Berks County DES, PennDOT, PennDOT One Map October 7, 2020, PennDOT District 5-0 Traffic Management Center
BAB 3/23



www.countyofberks.com/planning

SOURCES

Federal Highway Administration Safe System Approach

<https://highways.dot.gov/safety/zero-deaths>

Federal Highway Administration Proven Safety Countermeasures

<https://highways.dot.gov/safety/proven-safety-countermeasures>

Federal Highway Administration Strategic Highway Safety Plan

<https://highways.dot.gov/safety/hsip/shsp#:~:text=A%20Strategic%20Highway%20Safety%20Plan%20%28SHSP%29%20is%20a,fatalities%20and%20serious%20injuries%20on%20all%20public%20roads.>

National Strategy Toward Zero Deaths

https://www.towardzerodeaths.org/wp-content/uploads/2019/12/TZD_National_Strategy.pdf

World Health Organization Decade of Action for Road Safety 2021-2030

<https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/decade-of-action-for-road-safety-2021-2030#:~:text=The%20Global%20Plan%20aligns%20with%20the%20Stockholm%20Declaration%2C,of%20timely%2C%20life-saving%20emergency%20care%20for%20the%20injured.>

PennDOT Strategic Highway Safety Plan

<https://www.penndot.pa.gov/TravelInPA/Safety/Documents/Pennsylvania%E2%80%99s%202022%20Strategic%20Highway%20Safety%20Plan.pdf>

PennDOT Traffic Safety and Driver Topics

<https://www.penndot.pa.gov/TravelInPA/Safety/TrafficSafetyAndDriverTopics/Pages/default.aspx>

PennDOT Pennsylvania Crash Information Tool

<https://crashinfo.penndot.gov/PCIT/welcome.html>

Highway Safety Network

<https://highwaysafetynetwork.org/#projects>

Pennsylvania State Police Safety Resources

<https://www.psp.pa.gov/public-safety/Pages/safety-resources.aspx>

Pennsylvania State Police John R. Elliott HERO Campaign

<https://herocampaign.org/about/>

Federal Highway Administration Highway Safety Improvement Program

<https://highways.dot.gov/safety/hsip>

U.S. Department of Transportation Safe Streets For All Grant Program

<https://www.transportation.gov/grants/SS4A>

Transportation Alternatives Set-Aside

<https://www.penndot.pa.gov/ProjectAndPrograms/Planning/Pages/Transportation%20Alternatives%20Set-Aside%20-%20Surface%20Trans.%20Block%20Grant%20Program.aspx>

PennDOT Safety Infrastructure Improvement Programs

<https://www.penndot.pa.gov/TravelInPA/Safety/Pages/Safety-Infrastructure-Improvement-Programs.aspx>

PennDOT Multimodal Transportation Fund

<https://www.penndot.pa.gov/ProjectAndPrograms/MultimodalProgram/Pages/default.aspx>

Pennsylvania Department of Community and Economic Development Multimodal Transportation Fund

<http://dced.pa.gov/programs/multimodal-transportation-fund/#>

U.S. DOT Federal Railroad Administration Railroad Crossing Elimination Grant Program

<https://railroads.dot.gov/grants-loans/competitive-discretionary-grant-programs/railroad-crossing-elimination-grant-program>

PennDOT Safety Grants

<https://www.penndot.pa.gov/TravelInPA/Safety/Pages/Safety-Grants.aspx>

Reading Area Transportation Study Transportation Improvement Program

<https://www.countyofberks.com/departments/planning-commission/transportation-reading-mpo/plans-and-programs/ffy-2023-2026-transportation-improvement-program>

Reading Area Transportation Study Long Range Transportation Plan

<https://www.countyofberks.com/departments/planning-commission/transportation-reading-mpo/plans-and-programs/2045-long-range-transportation-plan>

Reading Area Transportation Study Berks County Bicycle and Pedestrian Transportation Plan

<https://www.countyofberks.com/departments/planning-commission/transportation-reading-mpo/plans-and-programs/bicycle-and-pedestrian-planning>

Reading Area Transportation Study

January, 2023

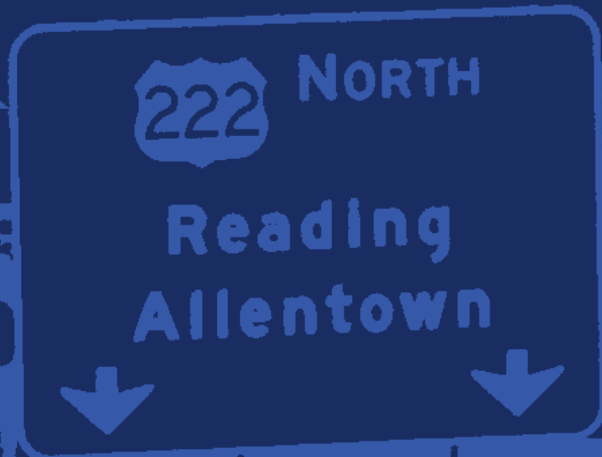
Coordinating Committee

PennDOT District 5-0	Mr. Michael W. Rebert, District Executive (Chairman)
PennDOT Central Office	Mr. Mark Tobin, Acting Div. Chief, Center for Program Development and Management. Mr. James Mosca, Transportation Planning Manager*
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Berks County Planning Commission	Mr. Thomas McKeon, Board Member (Vice Chairman) Mr. Alan Piper, Transportation Planner III (MPO Secretary)*
City of Reading	Ms. Donna Reed, Council Member Mr. O. Chris Miller, Council Member*
Berks County Boroughs	Mr. Brian Hoffa, Borough Council Member (Sinking Spring Borough)
Berks County 1st Class Townships	Mr. Samuel Kalbach, Township Commissioner (Cumru Township)
Berks County 2nd Class Townships	Mr. Michael Kocher, Township Supervisor (Spring Township)
South Central Transit Authority / Berks Area Regional Transportation Authority Reading Regional Airport Authority	Mr. Greg Downing, Executive Director Mr. Keith Boatman, Assoc. Director of Capital Projects/Planning Mr. Kevin Barnhardt, Board Member

Technical Committee

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Berks County Planning Commission	Mr. Michael Golembiewski, Transportation Modeler Mr. Glenn Knoblauch, BCPC Board Member*
City of Reading	Mr. Kyle Zeiber, Department of Public Works
City of Reading	Mr. Timothy Krall, Department of Public Works
South Central Transit Authority /	Mr. Keith Boatman, Assoc. Director of Capital Projects/Planning
Berks Area Regional Transportation Authority	Ms. Lauri Ahlskog, Manager of Transit Planning & Compliance*
Reading Regional Airport Authority	Mr. Zackary Tempesco, Airport Manager

* denotes alternate



READING AREA TRANSPORTATION STUDY

TRAFFIC SAFETY REPORT

2023