

2017

# District 1 Report Card

## Interstate Construction

District 1 is poised to begin major reconstruction and preservation effort

Pages 16

## Multimodal Initiatives

Working to provide a more comprehensive transportation system

Pages 26-27

## Collaboration & Community Partnerships

Planning considers present, future needs

Pages 11, 25



**pennsylvania**  
DEPARTMENT OF TRANSPORTATION

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## By the Numbers

**\$24.1M**

Redirected savings from the **District's Recycled Asphalt Pavement** Program from 2007 to 2016

**5,653**

**ADA curb ramps** installed from 2008 to 2016

**98%**

Repeat participants with Active Work Plans in the district's **Agility Program**

**\$51.34**

Funds needed **per segment mile** in District 1, which is the third lowest amount in the state

**131 vs. 144**

District 1 overall median IRI score in 2015 versus the state average

**8.9%**

District 1 bridges that are **structurally deficient**, which is below the statewide rate of 14.4%

**\$183M**

Value of 73 projects let in 2016, the **largest construction program** in the history of District 1

**\$103.2M**

**Maintenance allocation** for all six counties for 2016-2017, down slightly from \$103.3 million in 2015-2016

**83**

Average **annual inches of snowfall** in District 1, which is the highest in the state

**\$14.2M**

Maintenance costs for the **winter of 2015 to 2016**, an amount under the \$17 million budgets for the winter season

**Innovation:** District 1 is very proud of its reputation for being an innovative organization.

We challenge the status quo every day as we work to provide a better transportation system for the public we serve.

We are proud of our:

- Leadership role in developing Recycled Asphalt Paving;
- Advancing Smart Transportation Planning;
- Ongoing efforts to improve and maintain pavement quality; and
- Processing driveway permits at one of the fastest turnover rates in the state.

## From the District Executive

*"To handle yourself, use your head; to handle others, use your heart." - Eleanor Roosevelt*

Colleagues,

President Trump has called for ramping up infrastructure investment throughout the country. How large an investment that might prove to be, how a new infusion of capital will be used, and on what timeline have yet to be determined. But, we need to be prepared and, in this context, we need to redefine success for Pennsylvania.

This could present a revolutionary opportunity for innovation; using new technology and new materials to move commerce more efficiently and safely throughout the Commonwealth.

To that end, Secretary Richards has outlined her top three priorities for the coming year. Although it is no surprise within the transportation community, changes will be required in our culture and our business model as we move boldly forward. The three priorities that Secretary Richards has discussed are:

1. Maintenance Operations and Interstate Preservation
2. PennDOT Connects
3. County Transformation

Clearly, the maintenance arm of our business has been leaning into the wind when it comes to adequately resourcing the fundamentals of our operations. They have been the pioneers and innovators — doing more with less — and have been extraordinarily successful overall in keeping positive momentum. However, there is a tipping point that has been reached. Since 2006, maintenance funding has been \$1.286 billion for the entire state. What else has remained the same within that timeframe? This bottom line needs to change and the change needs to create even more value to our customers.

In November 2013, Act 89 was passed and now we have an opportunity to invest smartly in upgrading our fragile infrastructure that has been underfunded for decades. Customer expectations are rightly high and we must be prepared to deliver on commitments and continue to seek ways to use those dollars to create value.

The 2015 County Transformation initiative was intended to reinvigorate and reconstitute the business of maintenance at PennDOT. This initiative requires a strong and healthy commitment to our investment plan and a strong and more flexible partnership with AFSCME.

The Secretary has a vision to link the long-range transportation plan (orchestrated by our MPO and RPO partners) to municipal comprehensive plans and to PennDOT's Mobility Plan. PennDOT Connects is the means to carry this vision forward. Every project will require a discussion with local leaders on land use and transportation, community aspirations, and needs. There will be no weak link in this triad...and decisions related to projects should be better focused and more purposeful moving forward.

Infrastructure is first and foremost intended to connect people. It should be oriented towards the people...with their goals and their sense of purpose in mind. Our customers have put their trust in us to ensure we keep Pennsylvania strong and vital.

The next several years may present us with expanding opportunities to put that trust and our service toward a most promising future.

*William G. Petit, P.E.*

District Executive, Engineering District 1

## District Overview

More than 585,000 people live in District 1. Residents have a median age of 43 years and a median annual household income of approximately \$43,000. The District covers 4,370 square miles of land and includes 204 municipalities. On average, vehicles travel 11.2 million miles every day on District 1 roads.

The District also features:

- **3,689 linear miles** of state highway; sixth most among the 11 PennDOT districts
- **346 miles of Interstate** (center lane); second most among the PennDOT districts
- **8.9 percent** of the District's 2,061 bridges are considered structurally deficient; second lowest percentage in the state
- **8,466 snow-lane miles**; fifth among the PennDOT districts
- **83 inches of snowfall** a winter on average, highest District average in the state



	Crawford	Erie	Forest	Mercer	Venango	Warren	District Total
State Highway Miles	910	779	201	741	529	529	3,689
Interstate Miles	54	146	0	116	30	0	346
National Highway System Miles	65	185	14	97	84	82	527
State Bridges Over 8 Feet Long	499	575	76	423	222	266	2,061
Airports	2	3	0	2	1	1	9
Transit Authority System	1	1	0	1	1	1	5
Welcome Centers	0	1	0	1	0	0	2
Roadside Rest Areas	2	2	0	2	2	0	8
Park-and-Ride Lots	1	1	0	1	0	0	3
Operating Railroads	4	7	0	2	2	2	8 *
Ports	0	1	0	0	0	0	1
Planning District	Northwest RPO	Erie MPO	Northwest RPO	Shenango Valley MPO	Northwest RPO	Northwest RPO	

\* Some railroads run through several District 1 counties

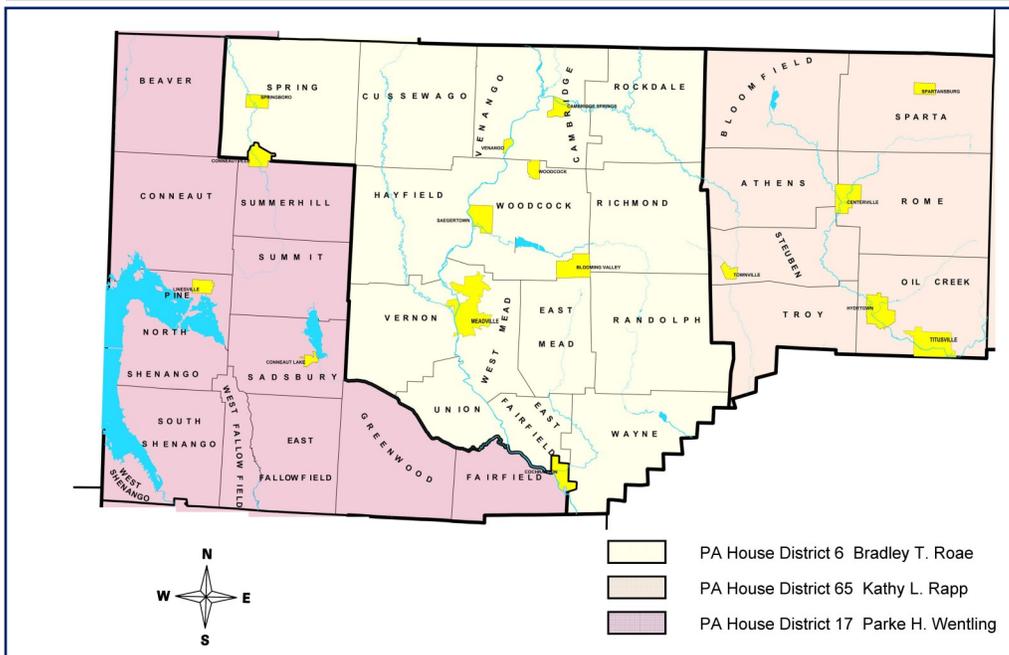
## Crawford County Overview



**Crawford County Maintenance Building**

- ◆ Location — 18492 Smock Highway, Meadville
- ◆ Phone number — (814) 332-6880
- ◆ Manager — Aaron Fox
- ◆ Staff and equipment — 74 operators, 37 plow routes, seven mechanics, and seven stockpiles

County population	87,801
Median age of residents/household income	42 years/\$43,622
Land area	1,012 square miles with 35 townships, 14 boroughs, and two cities
Average vehicle miles traveled daily	1,883,345 miles
Bridges	State-owned — 499 total; 68 structurally deficient (13.63%) Locally-owned — 130 total; 58 structurally deficient (44.62%)
County IRI score	138 overall; 55 for interstates
Average annual snowfall/snow lane miles	90 inches/1,964 miles



**Crawford County has 910 miles of state highway maintained by PennDOT, the eighth highest amount in Pennsylvania.**

**A listing of 2017 construction projects scheduled for this county is available in the appendix.**

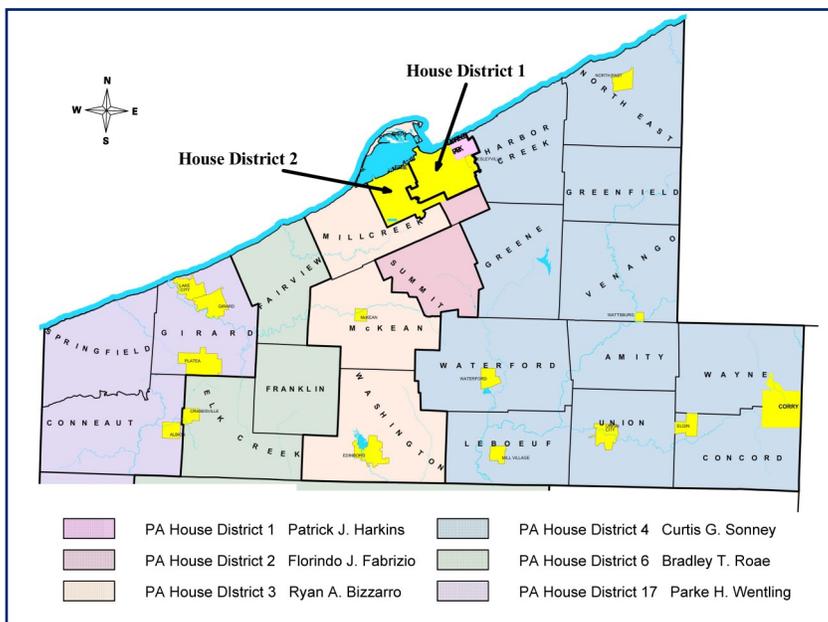
## Erie County Overview



**Erie County Maintenance Building**

- ◆ Location — 9031 Peach Street, Summit Township
- ◆ Phone number — (814) 871-4411
- ◆ Manager — Robert Miller
- ◆ Staff and equipment — 87 operators, 38 plow routes, eight mechanics, and seven stockpiles

County population	278,443 (most populated in the District)
Median age of residents/household income	39 years/\$45,560
Land area	799 square miles with 22 townships, 14 boroughs, and two cities
Average vehicle miles traveled daily	4,528,045 miles
Bridges	State-owned — 575 total; 25 structurally deficient (4.4%) Locally-owned — 117 total; 44 structurally deficient (37.6%)
County IRI	110 overall; 59 for interstates
Average annual snowfall/snow lane miles	104 inches/2,072 miles



**D.Y.K.**

**Erie County is home to the Port of Erie - the largest inland port in Pennsylvania, and the largest dry dock and crane on the Great Lakes.**

**A listing of 2017 construction projects scheduled for this county is available in the appendix.**

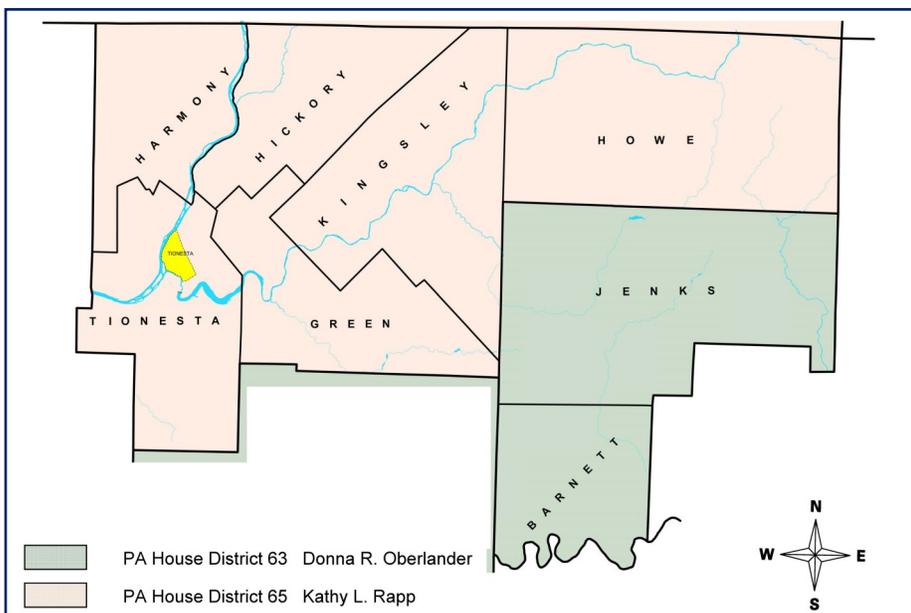
## Forest County Overview



**Forest County Maintenance Building**

- ◆ Location — 645 Elm Street, Tionesta
- ◆ Phone number — (814) 755-3589
- ◆ Manager — Adam Elms
- ◆ Staff and equipment — 19 operators, nine plow routes, three mechanics, and three stockpiles

County population	7,649 (least populated in the District)
Median age of residents/household income	42 years/\$36,037
Land area	428 square miles with eight townships and one borough
Average vehicle miles traveled daily	146,771 miles (lowest in the state)
Bridges	State-owned — 76 total; seven structurally deficient (9.21%) Locally-owned — 13 total; seven structurally deficient (53.9%)
County IRI	157 overall
Average annual snowfall/snow lane miles	72 inches/405 miles



**D.Y.K.** Unique among most counties in Pennsylvania, Forest County is managed jointly with Warren County.

A listing of 2017 construction projects scheduled for this county is available in the appendix.

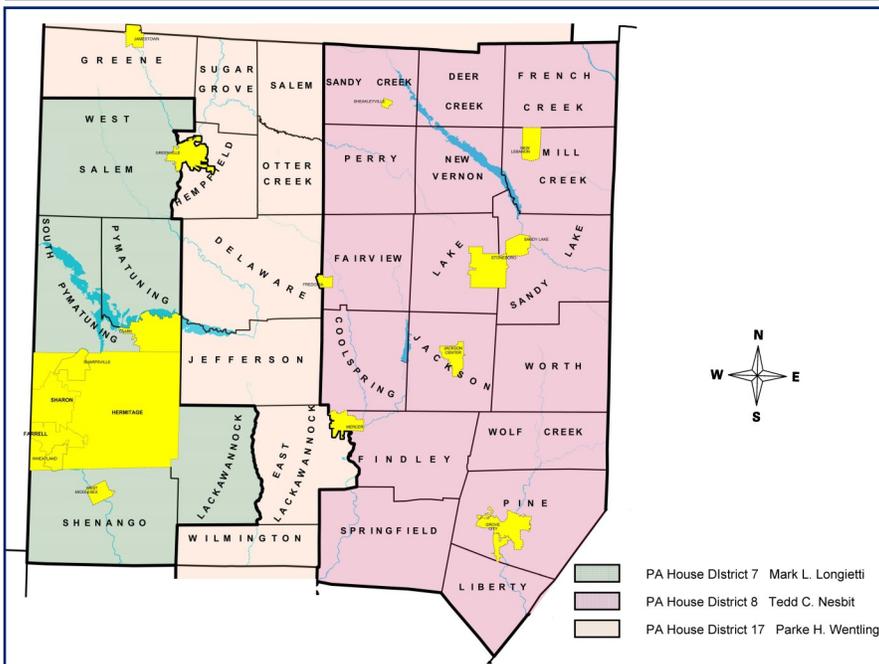
## Mercer County Overview



**Mercer County Maintenance Building**

- ◆ Location — 215 North Maple Street, Mercer
- ◆ Phone number — (724) 662-5350
- ◆ Manager — Darrell Chapman
- ◆ Staff and equipment — 79 operators, 35 plow routes, six mechanics, and five stockpiles

County population	115,739
Median age of residents/household income	44 years/\$43,715
Land area	673 square miles with 31 townships, 14 boroughs, and three cities
Average vehicle miles traveled daily	2,926,885 miles
Bridges	State-owned — 423 total; 30 structurally deficient (7.1%) Locally-owned — 173 total; 39 structurally deficient (22.5%)
County IRI	111 overall; 40 for interstates
Average annual snowfall/snow lane miles	39 inches/1,765 miles



**D.Y.K.**  
**Mercer County maintenance employees organize a public open house that draws about 1,000 of school children and community members every year.**

**A listing of 2017 construction projects scheduled for this county is available in the appendix.**

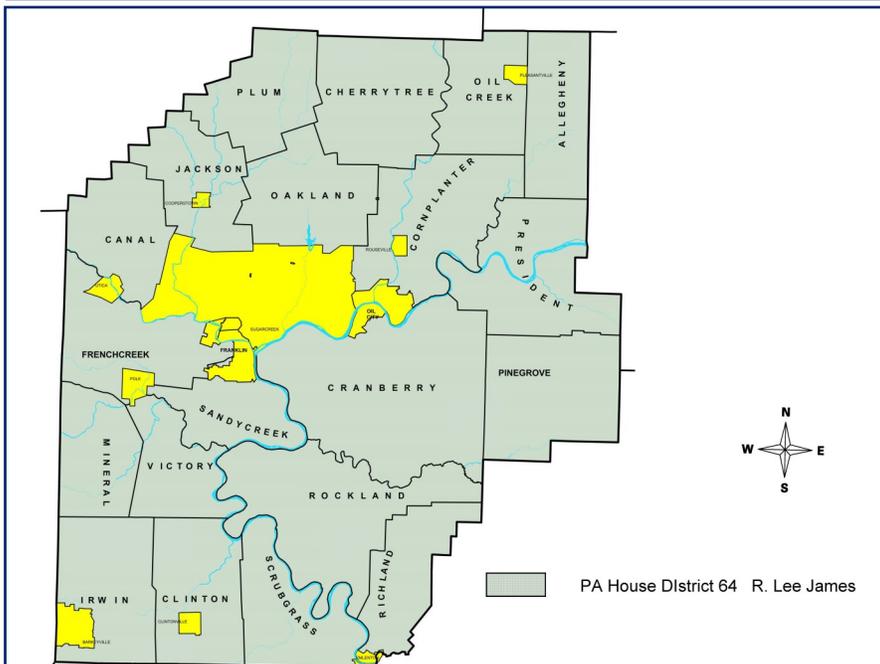
## Venango County Overview



**Venango County Maintenance Building**

- ◆ Location — 1460 Pittsburgh Road, Sandycreek Township
- ◆ Phone number — (814) 432-3115
- ◆ Manager — Garrett Westover
- ◆ Staff and equipment — 51 operators, 25 plow routes, five mechanics, and five stockpiles

County population	54,265
Median age of residents/household income	45 years/\$43,291
Land area	574 square miles with 20 townships, nine boroughs, and two cities
Average vehicle miles traveled daily	1,345,209 miles
Bridges	State-owned — 222 total; 25 structurally deficient (11.3%) Locally-owned — 67 total; 26 structurally deficient (38.8%)
County IRI	147 overall; 62 for interstates
Average annual snowfall/snow lane miles	40 inches/1,198 miles



**D.Y.K.** Venango County is home to 32 miles of continuous paved bike trail that runs from Oil City to Emlenton.

A listing of 2017 construction projects scheduled for this county is available in the appendix.

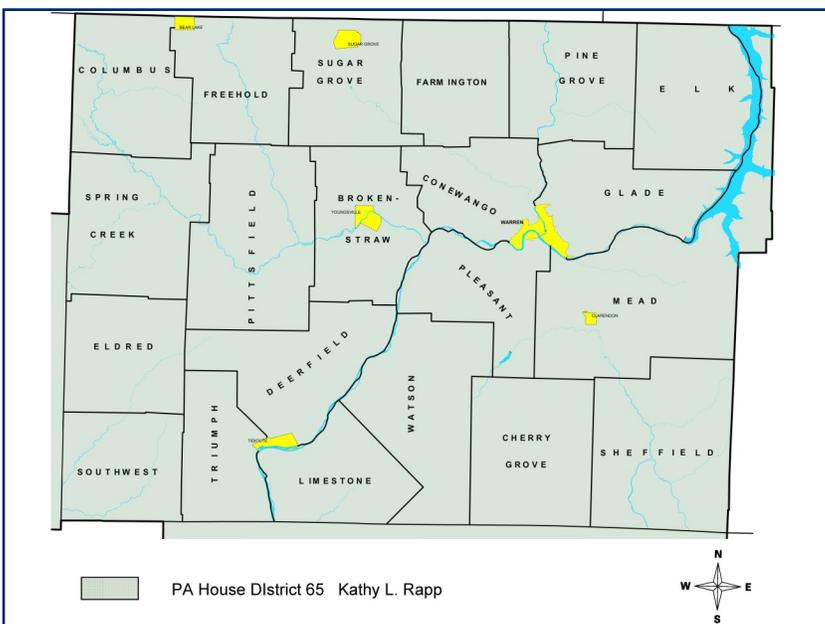
## Warren County Overview



**Warren County Maintenance Building**

- ◆ Location — 20745 Route 6, Conewango Township
- ◆ Phone number — (814) 723-3500
- ◆ Manager — Adam Elms
- ◆ Staff and equipment — 50 operators, 23 plow routes, five mechanics, and six stockpiles

County population	41,218
Median age of residents/household income	46 years/\$44,391
Land area	884 square miles with 21 townships, five boroughs, and one city
Average vehicle miles traveled daily	761,932 miles
Bridges	State-owned — 266 total; 29 structurally deficient (10.9%) Locally-owned — 66 total; 27 structurally deficient (40.9%)
County IRI	171 overall
Average annual snowfall/snow lane miles	108 inches/1,122 miles



**D.Y.K.** Warren County has the second highest snowfall average of any Pennsylvania county with 108 inches per year.

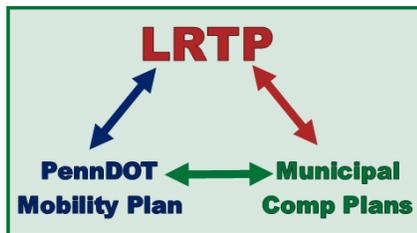
A listing of 2017 construction projects scheduled for this county is available in the appendix.

## Collaborative Planning

PennDOT is committed to bettering our transportation system and our communities through collaborative planning.

We look for creative solutions to sustain and expand mobility throughout the state. This means evolving our planning process to reflect changing demographics and technological innovation.

Through PennDOT Connects, District 1 is tasked with working alongside our planning partners to consider community needs at the beginning of the planning process. This will ensure the best allocation of our resources and maximum benefit to our communities today and into the future.



Without the input of our planning partners and community members, crucial elements may not be included in the early stages of a project. Identifying those issues or needs later can result in project delays and higher costs.

Our goal is to make every investment as safe and effective as it reasonably can be for every community.

### Early Considerations

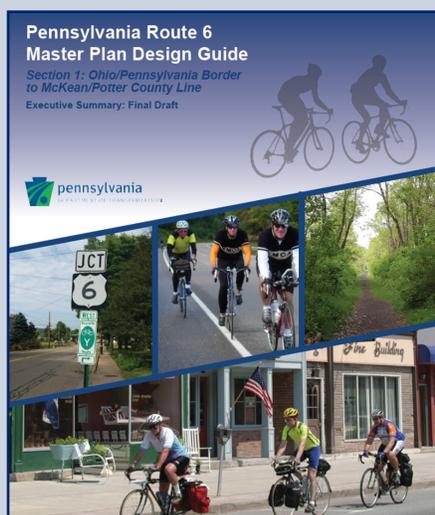
- Safety issues and concerns
- Bicycle and pedestrian accommodations
- Transit and multimodal
- Stormwater management
- Current and potential freight-generating land uses
- Transportation operations
- Emergency services accommodations
- Planned development
- Long-range transportation plans
- Regional planning studies
- Community comprehensive plans and zoning
- Other proposed transportation improvements
- Natural, cultural, or social environment impacts
- Right-of-way and utilities
- Anticipated public opinion
- Community or cultural events
- Maintenance agreement requirements

## Route 6 Corridor Bicycle Initiative to Begin in District 1

An initiative to make the historic Route 6 corridor more bicycle friendly is expected to begin with a pilot project in District 1.

Route 6 has long been recognized for the tourism and recreational opportunities available along its length. The historic highway passes through scenic rural areas of Pennsylvania linking historic sites, state parks and picturesque small towns that regularly attract many visitors interested in traveling the state by bicycle.

It was this potential to support the economic development of local communities through a focus on bicycle-related tourism that sparked



PennDOT's initiative to make the historic Route 6 corridor more bicycle friendly.

The pilot project covers the Route 6 Corridor in District 1 and is intended to evaluate bicycle level of service, existing and potential trail connections, and infrastructure improvements. Once completed, the pilot could be expanded to include the entire Route 6 corridor.

The first of three sections of PennDOT's Route 6 Master Plan Design Guide focuses on the 150 miles from the Ohio/Pennsylvania border, through District 1, to the McKean/Potter county line in District 2. That includes the 30-mile segment of Route 6N in District 1 from the Ohio/Pennsylvania line to Route 19 in Erie County.

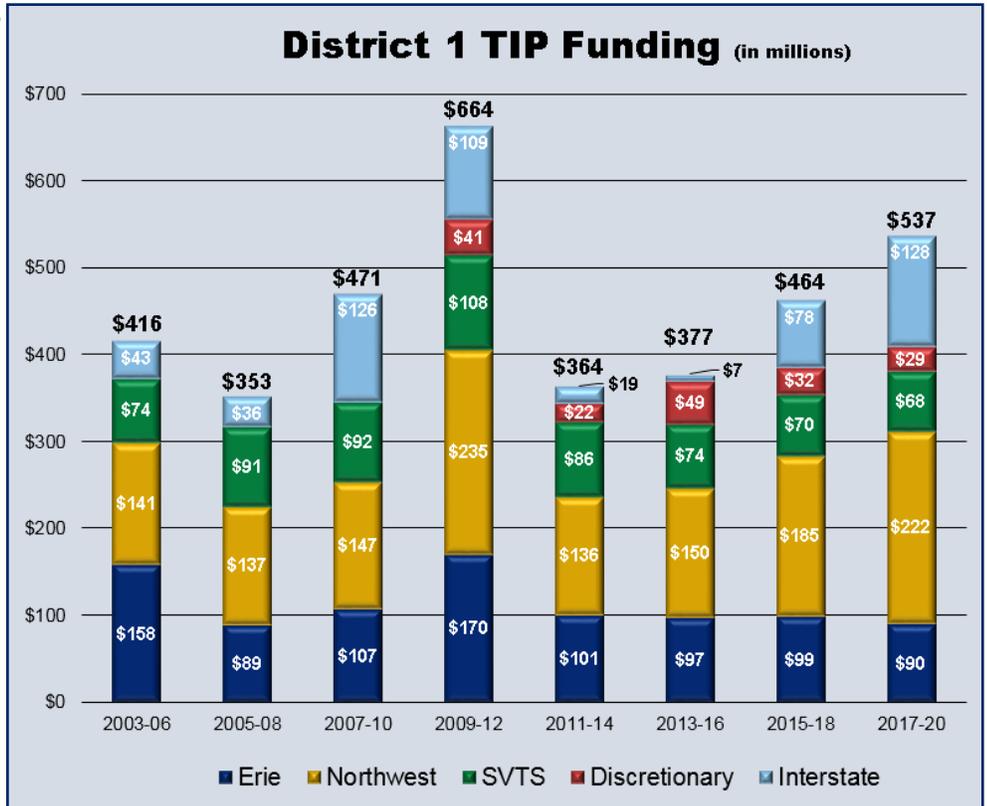
## How We Invest Our Money

Before major road and bridge projects can begin, they first must be included on the Transportation Improvement Program (TIP), a four-year funding plan that is updated every two years.

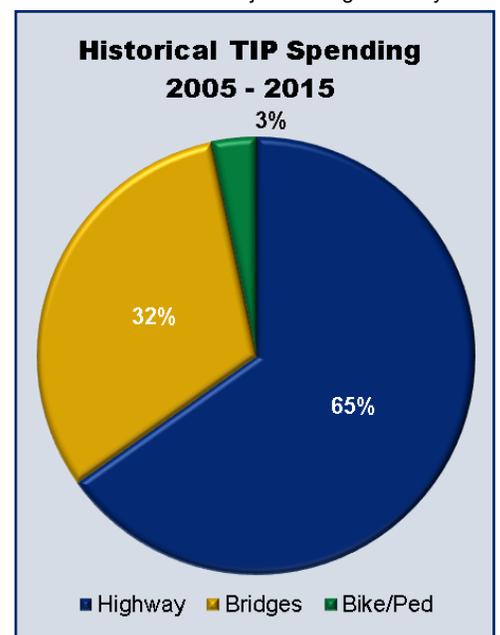
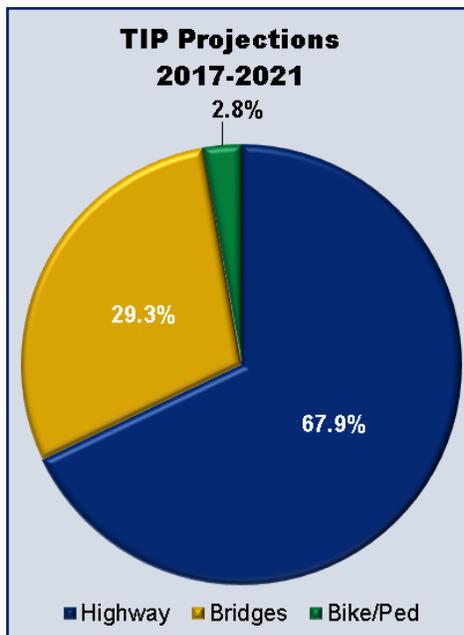
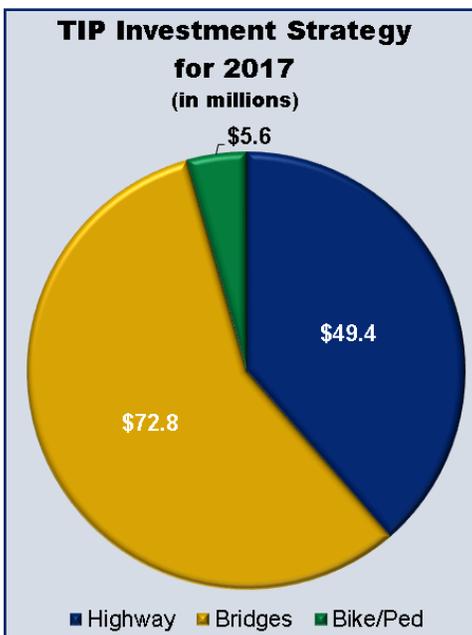
District 1 works with its planning partners — the Erie MPO, Shenango Valley MPO and Northwest RPO — to set funding priorities.

For District 1, the four-year TIP that begins in 2017 has 154 state projects estimated to cost \$500 million. They include 77 bridge projects, 57 road projects, 10 pedestrian/bike projects, eight landslide/wall projects and two railroad projects.

The TIP also has 19 projects, estimated at \$17 million, for assets owned by local municipalities. They include 17 bridge projects, one pedestrian improvement and resurfacing one local road on the federal aid route system.

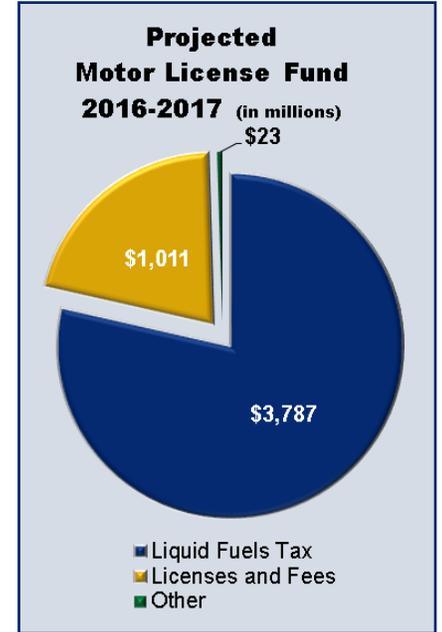
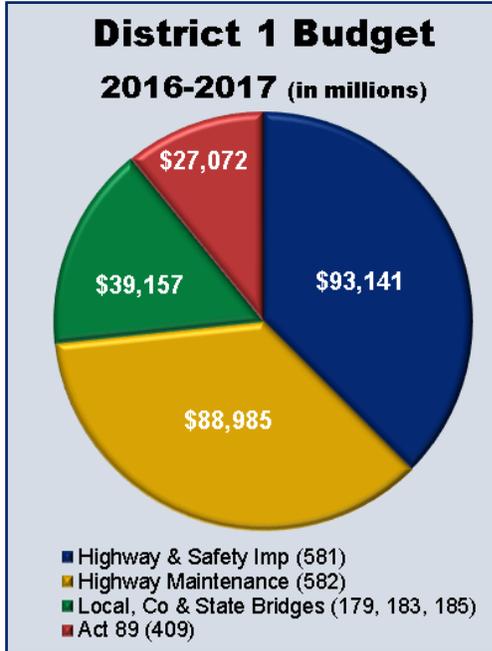
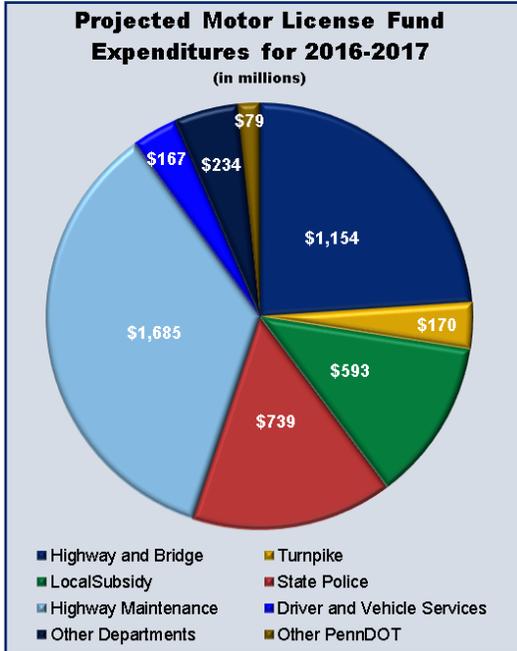


Source: Multimodal Project Management System



As in 2016, District 1's 2017 portfolio includes a large investment in bridges when compared with recent years. The overall 2017 TIP entails a nearly three-fold increase to bicycle/pedestrian projects compared to historical trends. In addition, District 1 is investing \$19.1 million in fixing failing landslides and retaining walls on the 2017 TIP.

## How We Fund Our Highways

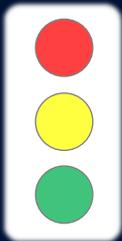


Source: Bureau of Fiscal Management

PennDOT receives financing through the Motor License Fund. The majority of the money in this fund is gathered through the liquid fuels tax. Money is also placed in the fund from licenses and fees.

Funds for capital projects — most large highway and bridge projects — are channeled through planning partners.

Money for activities such as winter services, pothole patching, drainage, seal coat, some paving work and other maintenance work, is allocated by formula to individual Districts and County Maintenance Units.

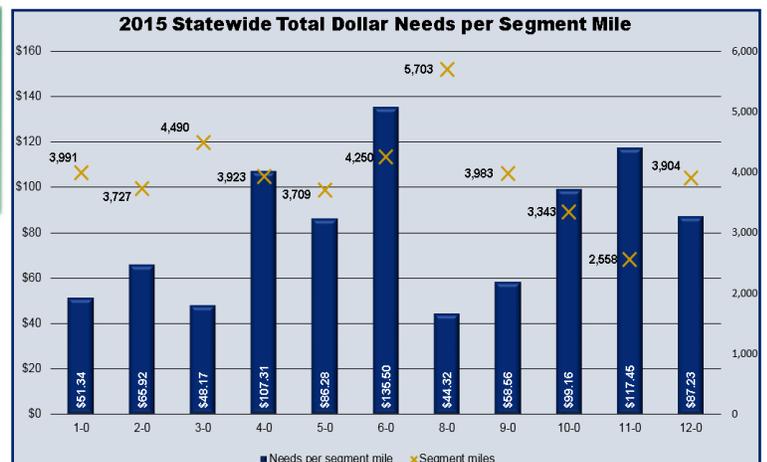


Ten municipalities within District 1 were chosen to receive a combined \$615,891 in funding through PennDOT's "Green Light-Go" program, which is made possible by Act 89. The money must be used to upgrade traffic signals. The communities receiving money are Meadville in Crawford County; Erie, Albion, McKean, and Wesleyville in Erie County; Hermitage, Shade Gap, Sharpsville, and Worth Township in Mercer County; and Mead Township in Warren County.



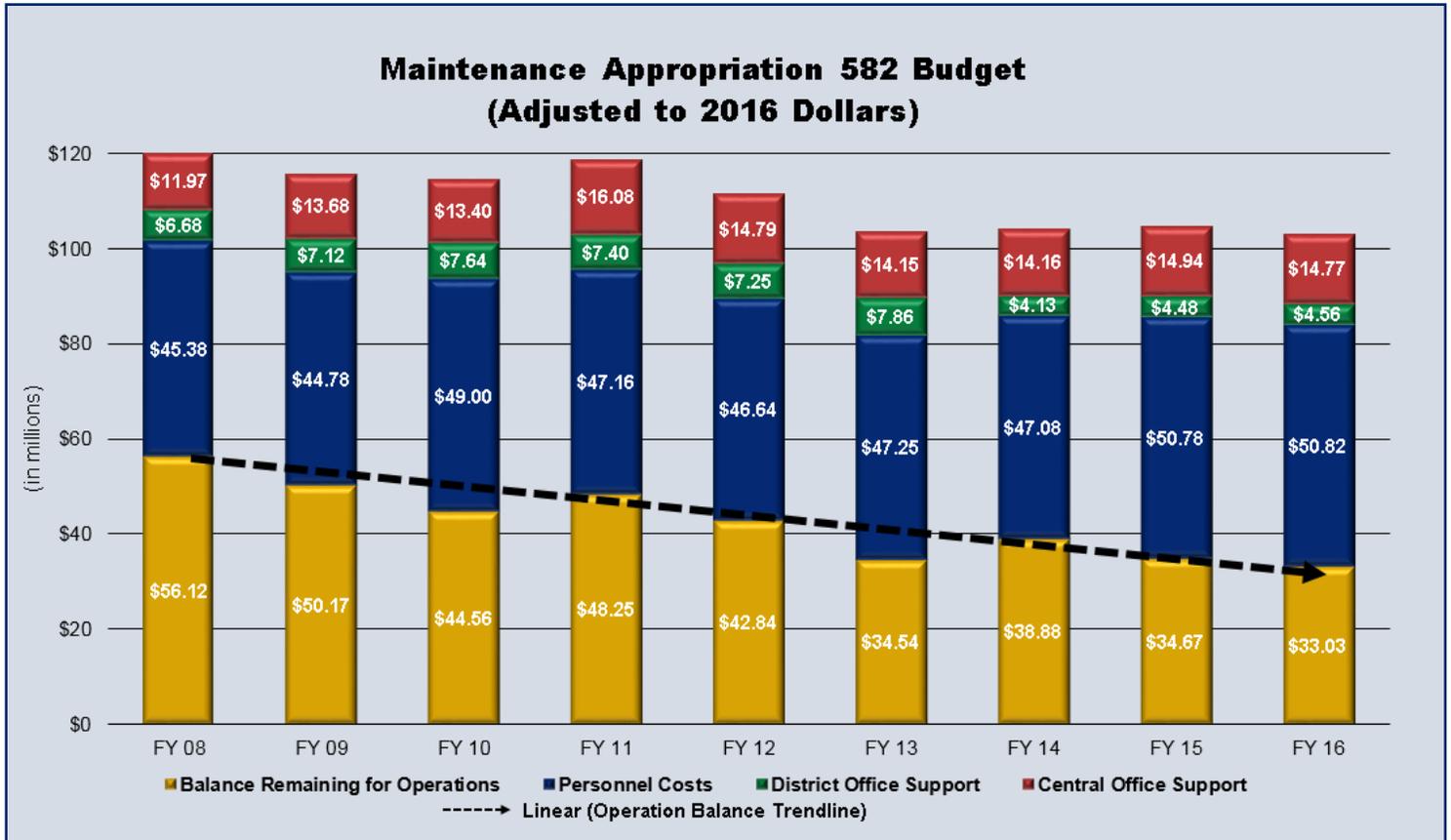
District 1 historically has one of the lowest dollar needs per segment mile in the state, an indicator of a disciplined maintenance and investment strategy.

Continuously increasing costs and the erosion of buying power have made it increasingly more difficult to maintain District 1's low level of dollar needs per segment mile. Our workforce continues to promote the use of technology and a culture of innovation to stretch available dollars; a platform that continues to serve us well.



Source: 2015 State of Maintenance Backlog Report

## Maintenance Allocation

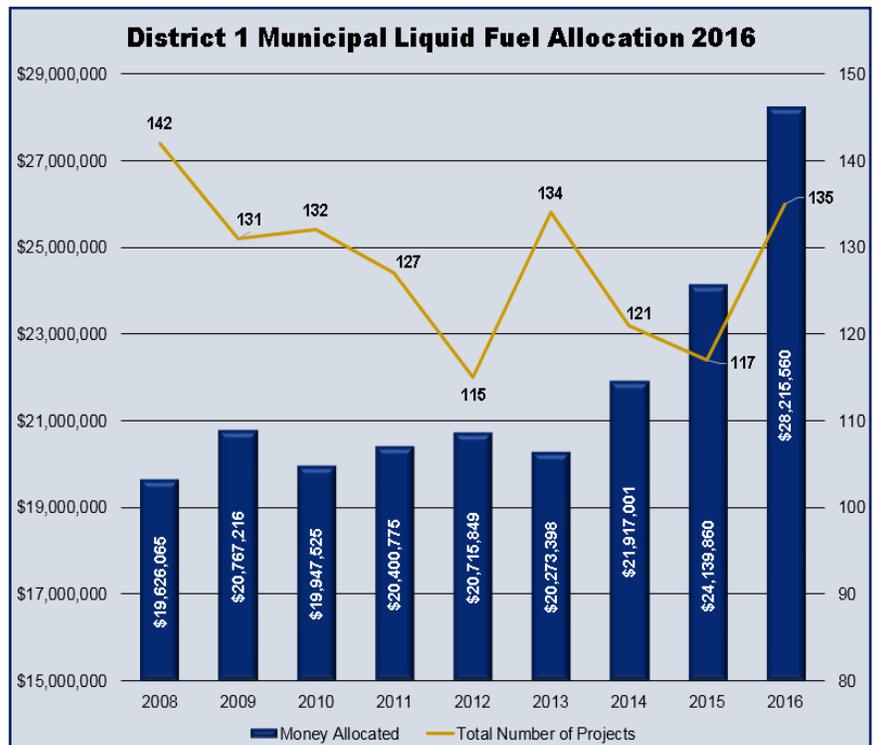


Source: SAP

The table above illustrates the reduction in resources available to County Maintenance Units for operations — everything from snow plowing to summer maintenance and paving projects — as a result of higher costs and the erosion of buying power.

Efforts are underway through PennDOT’s County Transformation Initiative to identify best practices and innovative measures counties can develop and employ to help operate as efficiently as possible and help offset at least some loss of buying power.

As the table to the right shows, municipalities received a significant increase in Liquid Fuel Allocations, which is the money that helps cities, counties, boroughs and townships improve and maintain their transportation systems. Act 89 is expected to push municipal allocations across the state to \$495 million by 2019, an increase of approximately 54 percent over pre-Act 89 levels.



Source: Budget Allocations

## Competitive Enterprise

**Vision:** Shaping the Future of Transportation Built on Customer Service Excellence.

**Mission:** To advance our commitment to excellence and continuous improvement while encouraging and promoting innovation, creativity and entrepreneurialism.

Seeking ways to place greater focus on exceeding customer expectations and promoting innovation and transparency, District 1 launched its Competitive Enterprise initiative.



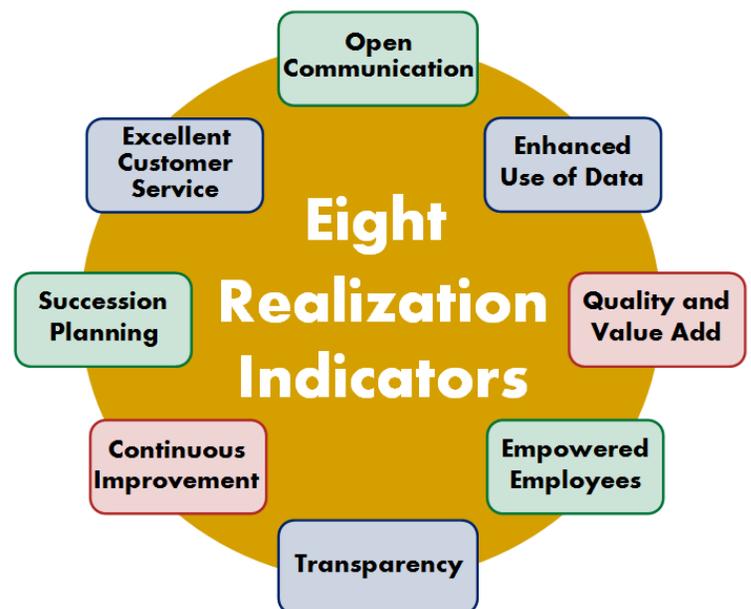
Since the creation of the Competitive Enterprise initiative, the District has developed surveys, focus groups, training and other means of gathering feedback and communicating with employees and customers.

These methods include the following:

- Districtwide Dashboard performance metrics were redeveloped in 2015.
- Three rounds of external focus groups have been conducted since 2011, with sessions in Erie, Venango and Mercer counties. The results showed satisfaction and communication was improving, and education was important.
- Surveys of external customers and stakeholders helped identify areas the district needed to

address in order to improve products and services.

- Internal Communication Survey, completed for the seventh time in 2015, continues to serve as an avenue for employees to give input on district operations.
- Leadership Training and a Mentoring Program were developed and conducted in-house.



### Examples of the Realization Indicators In Action

1. Excellent Customer Service (*Working Toward a "Thank You"*) — Customer Care Center
2. Enhanced Use of Data (*Accurate Data Drives Our Decisions*) — Automated Vehicle Location system
3. Quality and Value Add (*Quality is Non-Negotiable*) — Pavement Quality Task Force
4. Empowered Employees (*Our Employees Make a Difference*) — Work Smart 20/20
5. Transparency (*What I Know, You Know*) — Report Card
6. Continuous Improvement (*We Challenge the Status Quo Every Day*) — Recycled Asphalt Pavement
7. Succession Planning (*You Are PennDOT's Future*) — Cross-training program
8. Open Communication (*Communication is a Two-Way Street*) — External Customer Survey

## Interstate Strategic Plan

District 1 is launching its largest construction effort since the interstate highways were built in northwestern Pennsylvania. That effort is the reconstruction and preservation of those interstates.

The reconstruction effort is poised to begin in 2019 with work on 3.5 miles of I-90 from the Ohio line to a point just east of Route 6N in Springfield Township, Erie County. Construction costs are estimated at approximately \$38 million.

A rest area and two overhead bridges are included in this section of highway.

This is part of a larger project to reconstruct the 18 westernmost miles of I-90 from the Ohio line to Route 832. The cost of that — an estimated \$202.7 million.

And that is only a start toward addressing the region's interstate highway needs. The cost of interstate projects needed in District 1 over the next 12 years rings up at an estimated \$1 billion.



**District 1 has 346 miles of interstate, including 146 miles in Erie County.**

### 12-Year Priority Projects

- Reconstruct the 18 westernmost miles of I-90 in Erie County
- Restoration of 15 miles of I-80 from the Ohio state line to the Mercer exit in Mercer County
- Preservation of 6.5 miles of I-80 from the Mercer exit eastward to mile marker 12.5 in Mercer County
- Preservation of eight miles of I-80 from the Clintonville exit to the Emlenton exit in Venango County
- Preservation of 13 miles of I-79 between the Albion/Edinboro exit to the junction with I-90
- Preservation of seven miles of I-80 from the Grove City/Sandy Lake exit to the Clintonville exit in Venango County
- Preservation of 11 miles of I-90 in Erie County from the Harborcreek exit to the New York state line
- Preservation of five miles of I-79 from the junction with I-90 to the West 12th Street exit in Erie County
- Preservation of seven miles of I-86 from the New York line westward in Erie County
- Preservation of the 4.3 miles of Interstate 376 in Mercer County



### Bridge Rehabs

Work on interstates in northwestern Pennsylvania in 2017 will focus on the rehabilitation of the Swamp Bridges on I-79 over Conneaut Swamp in Greenwood Township, Crawford County.

The \$11.3 million construction project will rehabilitate and preserve the decks on the two 3,600-foot-long bridges that were built in 1969. The two-year project is expected to be completed in the fall of 2018.

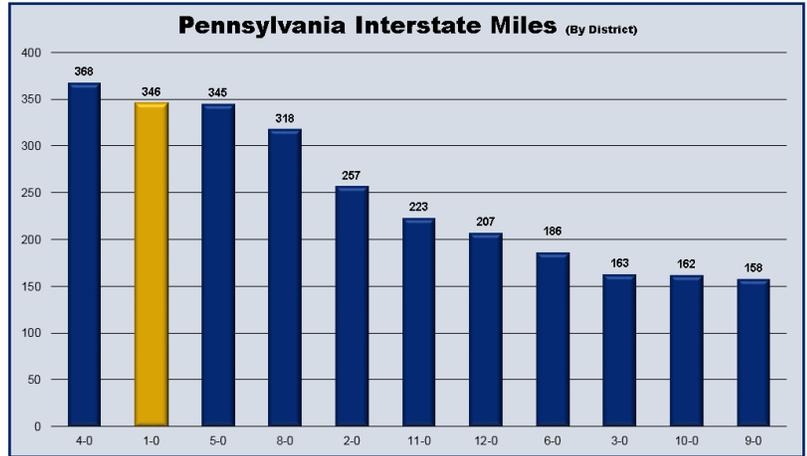
## Working Toward a Smooth Ride

With 39,790 miles, Pennsylvania ranks fifth in the nation for miles of state-owned highways. Only North Carolina, Texas, Virginia, and South Carolina own more roadways. Pennsylvania is the only one of those top five states that has a large number of winter freeze and thaw cycles.

The highway system is divided into the following four categories:

- Interstates;
- National Highway System (NHS);
- Non-NHS Highways with Average Daily Traffic (ADT) of more than 2,000 vehicles per day;
- Non-NHS Highways with ADT less than 2,000 vehicles.

PennDOT maintains 1,856 miles of Interstates, 5,540 of NHS, and 32,403 miles of non-NHS roadways.



\* As measured in Center Lane Miles



**Pennsylvania's interstate system carries 24 percent of all the state's traffic.**

## Pavement Smoothness

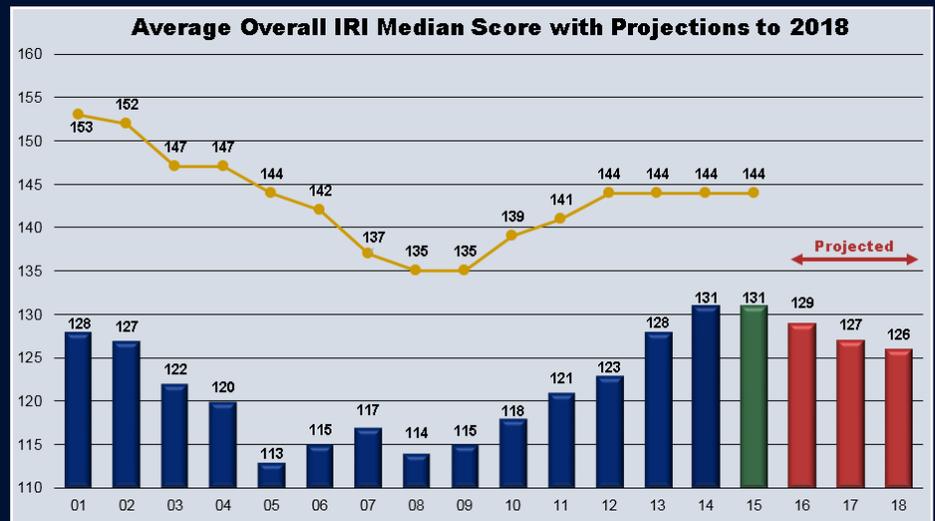
PennDOT and the U.S. Federal Highway Administration measure road smoothness by the International Roughness Index (IRI).

IRI is obtained by using lasers to measure bumps and dips in the roadways.

It has four levels of rating: Excellent (<60), Good (60-94), Fair (95-170), and Poor (>171). The lower the number — the smoother the road.

In 1998, Pennsylvania roads measured 168 on the IRI scale. The District 1 score was 148.

After an increase in the liquid fuels tax in 1998, additional funds were available to improve roadways, which was reflected in lower IRI scores. By 2005, the state IRI number fell to 144 and the District 1 number to 113.



Source: 2015 State of the Pavement Smoothness Reports

In more recent years, road surface quality has suffered as funding became more restricted and District 1 directed as much of its resources as possible to replace or rehabilitate structurally deficient bridges.

Funding through Act 89 has enabled the district to resurface roads and begin undertaking cyclic reconstruction work required to address road base repairs, drainage and other subsurface issues to help improve road smoothness and serviceability.

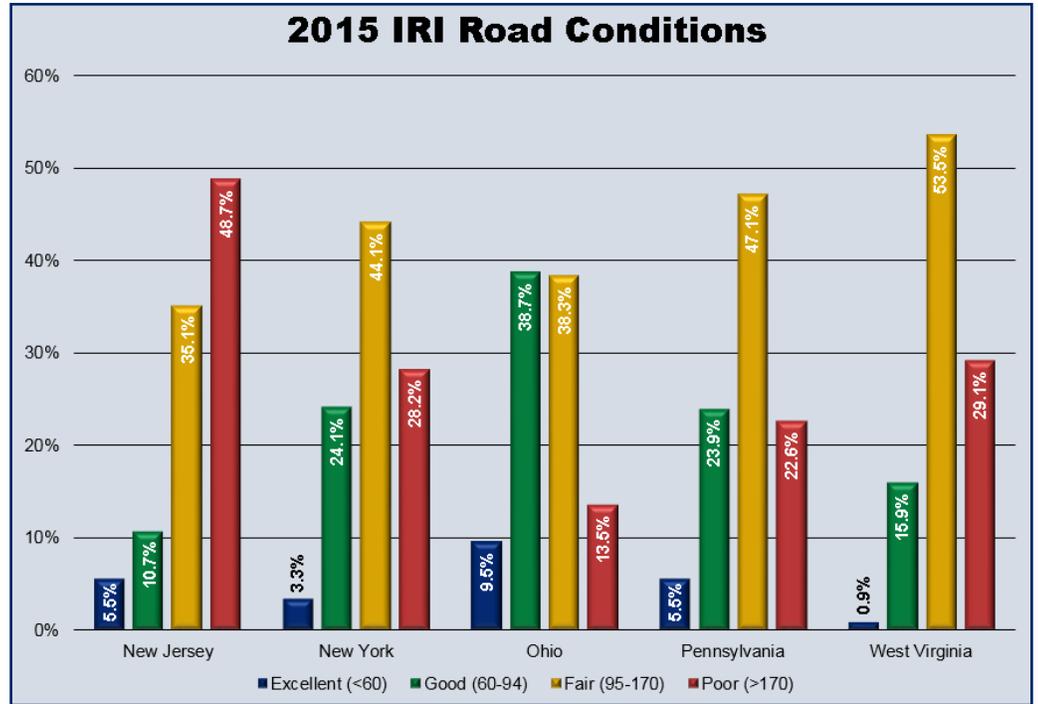
## Comparing IRI Ratings

Pennsylvania maintains more miles of state roads than West Virginia, more than twice as many as Ohio, and almost as many as all the New England states, New York and New Jersey combined.

Other states support roads with tolling, bond financing and funding from an assortment of taxes. Pennsylvania has relied upon the Motor License Fund, and operates mostly on a “pay-as-you-go” basis.

Still, statistics show that Pennsylvania’s highway system International Roughness Index (IRI) is very competitive with those of neighboring states.

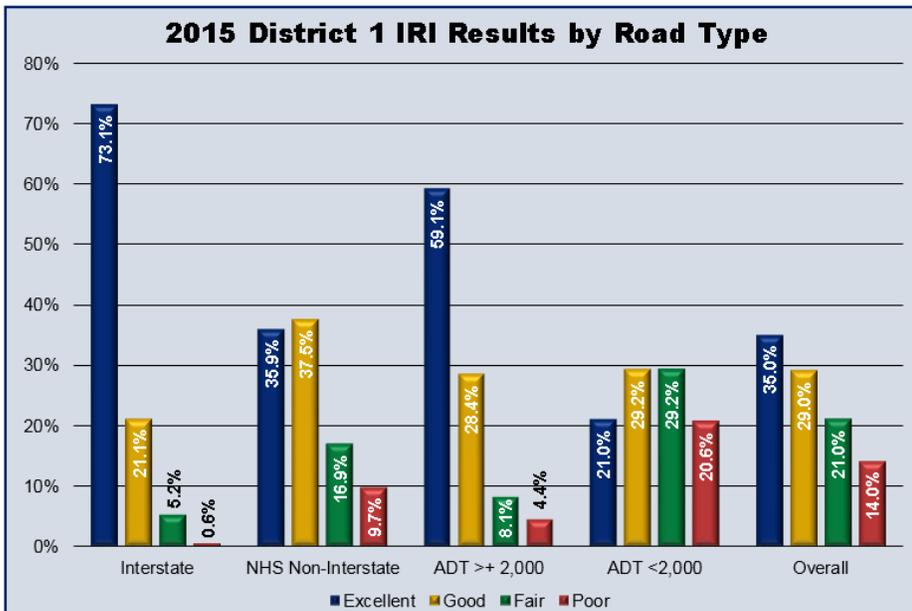
District 1 had the overall smoothest roads in the state for 14 of the last 18 years for which data is available.



Source: 2015 State Transportation Statistics Report by the Bureau of Transportation Statistics, U.S. Department of Transportation

### Total Miles of Roadway Owned by States

Texas	80,423
North Carolina	79,568
Virginia	58,512
South Carolina	41,373
<b>Pennsylvania</b>	<b>39,790</b>
West Virginia	34,409
Ohio	19,232
New York	15,047
New Jersey	2,340



Source: 2015 State of the Pavement Smoothness Reports

**Pennsylvania maintains almost as many miles of roadway (39,790 miles) as all the New England states, New York, and New Jersey combined (40,084 miles).**

## Overall Pavement Quality

Pavement quality in District 1 ranks excellent and good on most roadways. This is demonstrated through the Overall Pavement Index (OPI) scores of individual state-owned roads.

The OPI is calculated by using the International Roughness Index (IRI) and the pavement distress scores for each roadway.



**In District 1, there are 3,047 miles of roadway with an OPI classification of excellent or good.**

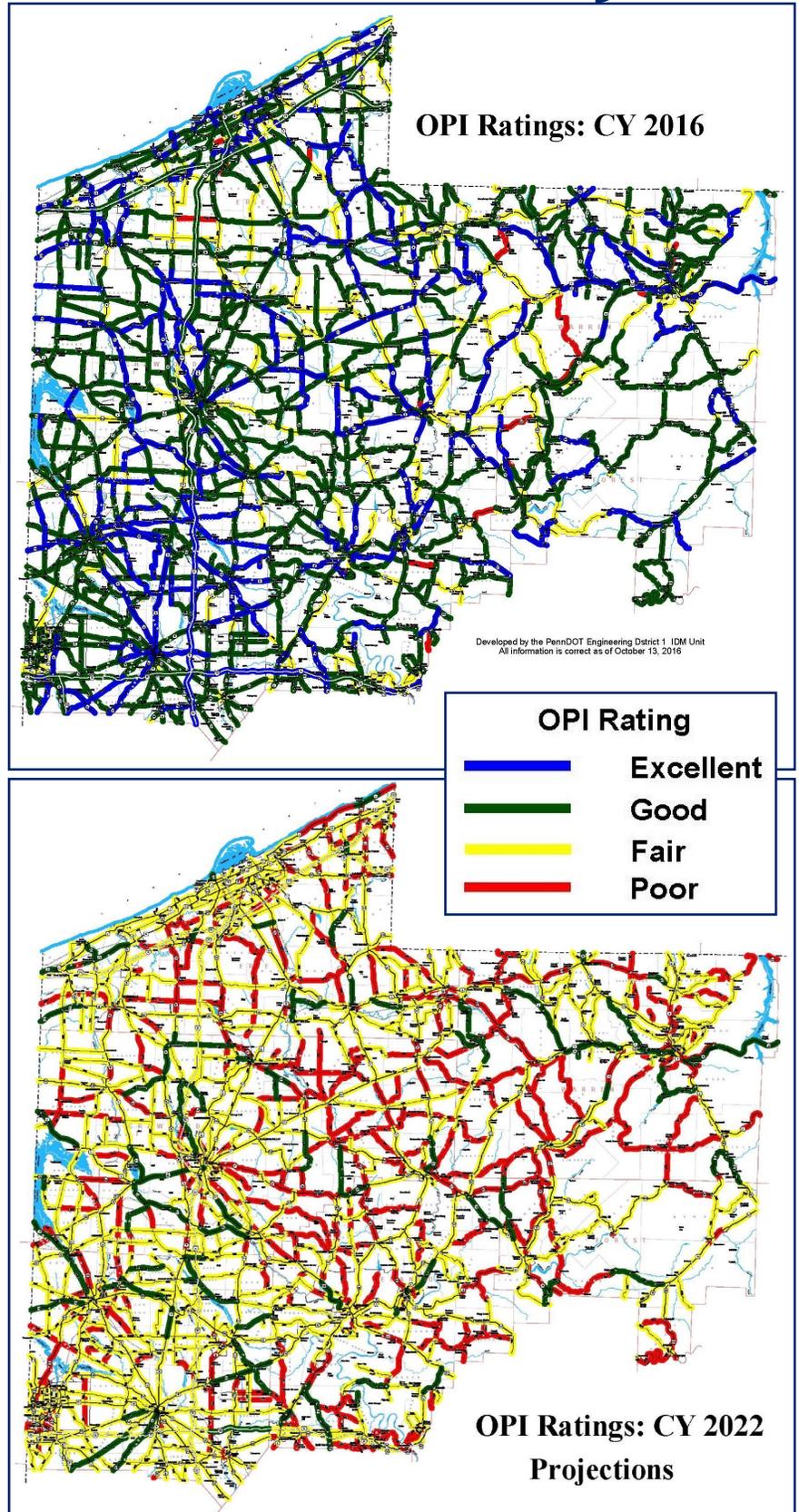
Roads are graded based on their type: interstate, national highway system (NHS), non-NHS with an average daily traffic (ADT) of 2,000 or more, and non-NHS with an ADT of less than 2,000.

The top map on the right offers a look at the current OPI scores of roadways in District 1. Most are in excellent (blue) or good (green) condition.

Keeping the roads in excellent and good condition requires maintenance and planning.

The bottom map is a projection of the roadway conditions in seven years if nothing is invested into the District 1 transportation system. Many of the roads will fall into the fair (yellow) or poor (red) categories.

**These maps illustrate the importance of maintaining, preserving and sometimes rebuilding our roadways in order to provide our customers with the level of service they have come to expect from PennDOT.**



## Surface Improvement Program

The Surface Improvement Program (SIP) in District 1 had a significant drop in the past decade due to the rising costs of road construction and resurfacing outpacing increases in the funds to pay for the work.

District 1 will continue to use innovative strategies to stretch valuable resources and increase surface improvement miles.

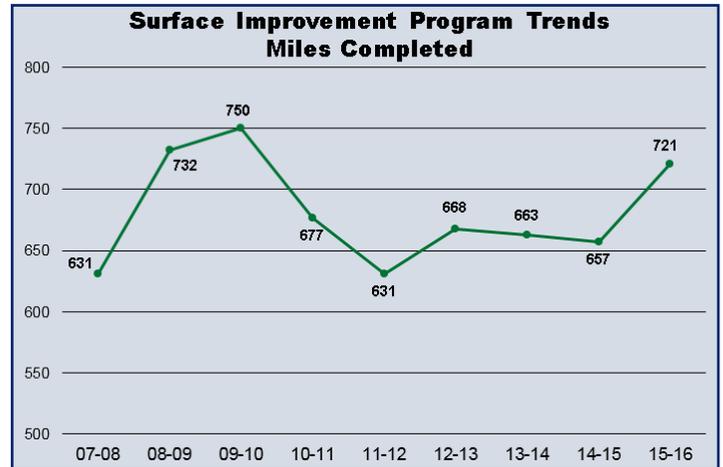
Two examples of our initiatives include Recycled Asphalt Pavement (RAP) and the Pavement Quality Task Force (PQTF).

**Seal coat — 473 Miles**  
**RAP paving — 32 Miles**  
**In-house paving — 161 Miles**  
**Miscellaneous — 55 Miles**

The PQTF seeks ways to produce more durable pavements with a goal of a 10-year service life. The group has developed asphalt mix requirements, leading to many firsts for PennDOT, including the use of warm mix asphalt in a stone matrix pavement.

Among the group's accomplishments are the following:

1. District longitudinal joint density special provision that spurred a statewide effort.
2. Piloted projects in gyrations, mix formulas, vendors, oil types, and voids in design.
3. District aggregate special provision that requires blending aggregates.
4. Verification process for theoretical specific gravities that led to a statewide process.
5. Warm Mix Asphalt (WMA) usage with uniform asphalt content coating of aggregates, increases film thickness, and reduces aging of the AC binder.



Source: PennDOT Plant Maintenance Report

6. First WMA Stone Matrix Asphalt (SMA) which led to statewide use.
7. District lab to verify producer results and assist maintenance work.
8. Proactive SMA implementation with 100 percent SMA usage on interstates.
9. Spring pavement reviews.
10. Pavement database to monitor and generate reports on PQTF implementations, mix design provisions, oil used, and vendors.



**The work of District 1's Pavement Quality Task Force has extended the average pavement service life in our region by an estimated two to three years.**

## Sharing Innovative & Best Practices

The Pennsylvania Asphalt Pavement Association (PAPA) hosted its 2016 bus tour in District 1. Representatives from PennDOT, FHWA, PA Turnpike Commission, paving and road construction companies, and consultants spent three days touring 160 miles of roads across the region to see successful projects that featured Stone Matrix Asphalt, cold-in-place recycled pavement, ultra-thin friction course, Superpave, and some pilot initiatives.



## Leading the Way to Cost Savings

District 1 pioneered and refined the process of using Recycled Asphalt Pavement (RAP) to support its Surface Improvement Program (SIP).

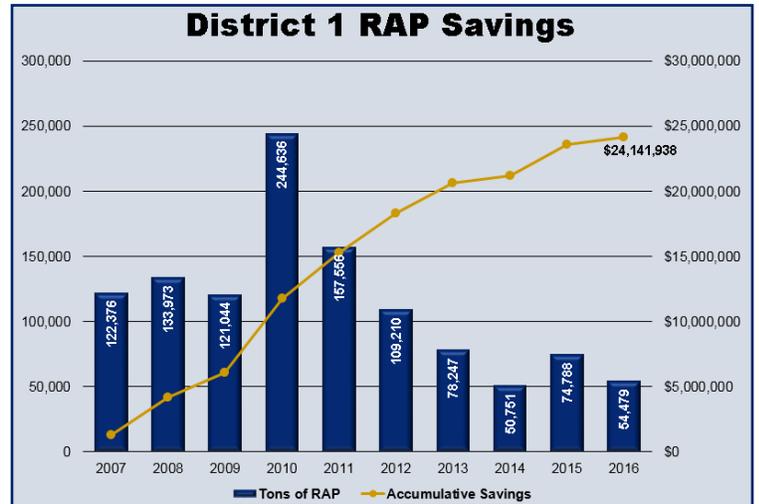
RAP is a process that gathers asphalt pavement millings from resurfacing projects, mixes them with cold oil and applies the mixture to low-volume roads and road shoulders at a

fraction of the cost of hot-mix, virgin asphalt.

The threshold for RAP usage has been 5,000 Average Daily Traffic (ADT) with less than 10 percent truck traffic.

Innovative techniques — such as cold-in-place recycling, RAP base courses, and shoulder construction — have increased the applicability of RAP and expanded its use to some higher volume roadways.

In 2016, District 1 piloted a research project with Penn State University in which 20 pounds of portland cement



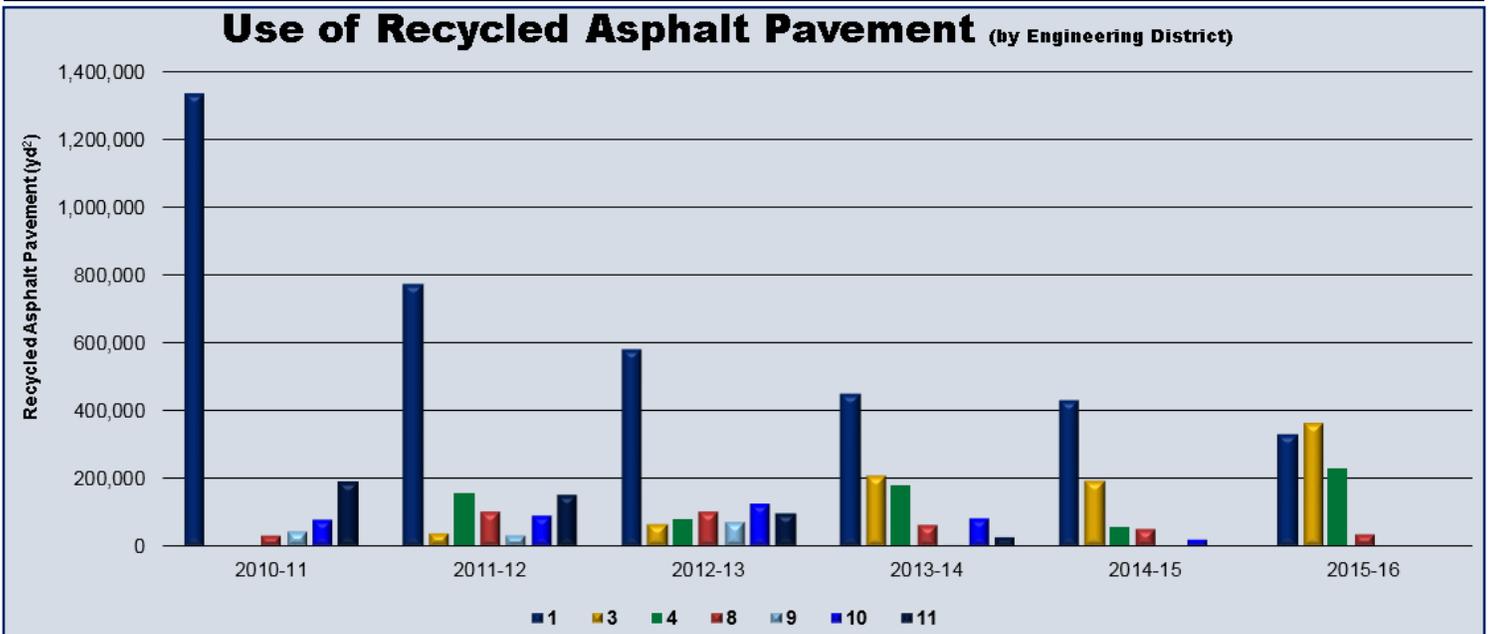
Source: RAP Report

were added to each ton of RAP placed on portions of Route 8 and Route 208 in Venango County.

The focus was on improving the quality and longevity of the pavement in hopes that RAP can be used on roads with a higher ADT and more truck traffic.

In 2016, District 1 completed 32 RAP miles, using 54,479 tons of millings at a cost of \$35.88 per ton.

**District 1 has been looking for ways to cut costs by using aggregate fines, the byproduct of crushing millings for the RAP process. In Mercer County, the fines will be used in a pavement overlay — an IDEA pilot project with Penn State.**



Source: PennDOT Plant Maintenance Report

## Maintenance Unit Bridges

During winter dark hours, District 1 Maintenance units precast channel beams, hybrid boxes and inlet boxes for county-based bridge crews to use on their projects during the summer construction season.

While the District 1 Maintenance unit bridge forces have long precast beams for their own use, and even precast some for other PennDOT districts, 2016 marked the first time the district has precast channel beams for a municipal partner.

Sparta Township in Crawford County received eight PennDOT channel beams for one of its bridge projects. Employees from the Crawford County Maintenance crew precast the beams during winter dark hours when they were not busy clearing ice and snow.

The beams were used as part of a replacement project for the structurally deficient Hatchtown Road Bridge.

Particular to this project, the Crawford County bridge team agreed to construct the bridge for the township. PennDOT offered engineering and the major portion of construction under a reimbursement agreement that used state and federal funding.

The district is involved in the process with McKean Township, Erie County for a bridge on Pine Tree Road in 2017. The Crawford County team will precast a hybrid box for that location. Several more municipalities have expressed interest in taking advantage of this process over the next few years.

As for state-owned bridges, budgetary constraints continue to limit the number of projects that can be done. The county maintenance bridge crews plan to precast two box culverts and numerous inlet boxes to support the 2017 bridge program.

**The cost savings of the Maintenance Bridge Unit Precast Channel Beam program in 2015 was \$302,500 when compared to vendor costs.**



Along with being an effective usage of dark hours, the precast program helps stretch limited resources and reduce the number of structurally deficient bridges.

Maintenance bridge unit savings are based on the cost of contracts for similar work.

Department Force bridge projects primarily involve small, simple bridges on secondary roads.

	Bridge Replacements	Preservation Projects
2010	10	24
2011	14	23
2012	13	16
2013	10	12
2014	9	21
2015	7	29
2016	7	19
<b>Total</b>	<b>70</b>	<b>144</b>

**The Crawford County Maintenance bridge unit collaborated with Sparta Township to complete a replacement of the Hatchtown Road Bridge. A first in District 1 and an effort that saved the township an estimated \$50,000.**

## Structurally Deficient Bridges

Pennsylvania ranks ninth in the country for the number of state-owned bridges with 25,367.

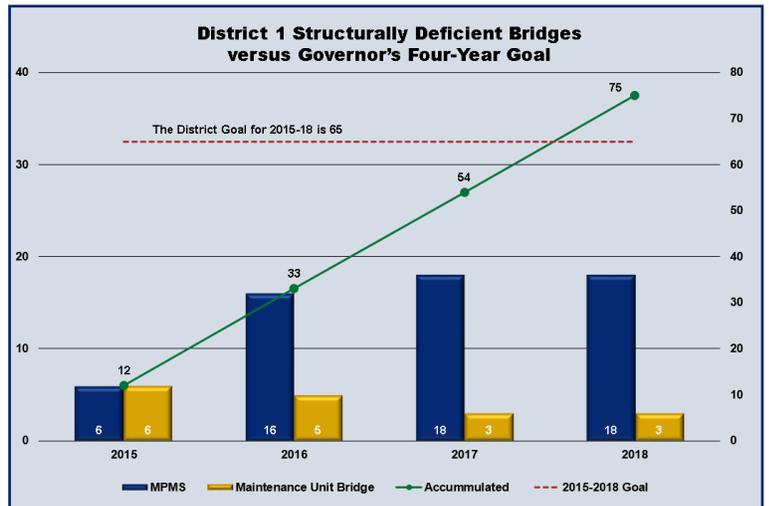
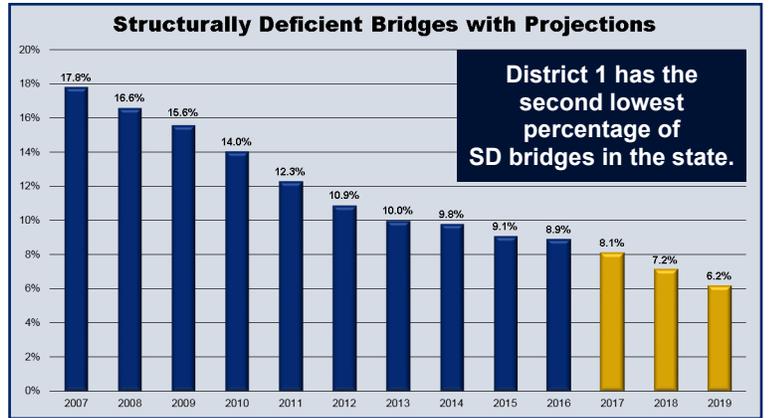
The average Pennsylvania bridge is 54 years old versus the national average of 43 years. With modern construction techniques and materials, PennDOT is now building bridges that are expected to last 100 years. The challenge is replacing aging bridges fast enough.

About 300 bridges statewide fall into the Structurally Deficient (SD) category every year.

# District 1 completed work on 15 structurally deficient bridges in 2016.

Federal law requires all bridges 20 feet or longer to be inspected at least every two years. SD bridges are typically inspected more often, require significant maintenance and repairs, and eventually need to be rehabilitated or replaced.

In District 1, the health of state-owned bridges is relatively strong. But the local bridge system is in need of support. The number of PennDOT-owned SD bridges in District 1 remains below the statewide rate of 14.4 percent, while locally-owned bridges in five of the six counties in District 1 exceed the local-bridge statewide average of 32.6 percent.



	State-Owned Bridges	Percentage SD
District 1	2,061	8.9%
District 2	2,183	16.9%
District 3	2,887	3.6%
District 4	2,093	19.3%
District 5	2,143	16.4%
District 6	2,755	16.7%
District 8	3,396	13.9%
District 9	2,083	12%
District 10	1,625	20%
District 11	1,800	16.3%
District 12	2,341	19.2%

\*As of December 29, 2016

## Rating our Bridges

**Structurally Deficient (SD)** — A SD rating does not mean a bridge is unsafe. It means the bridge has deterioration to one or more of its major components — the bridge deck, superstructure, and substructure. Although deterioration is present, a SD bridge is safe. Weight restrictions may be posted if the bridge can only carry certain loads safely.

**Functionally Obsolete** — This means the bridge is no longer, by design, functionally adequate for its task. It does not indicate anything of a structural nature. A bridge may receive this designation if it does not have enough lanes to accommodate traffic flow, space for emergency shoulders, or clearance for oversized vehicles.

**Bridge Closure** — A bridge will be closed if it is deemed to be unsafe for travel.

## Rehab, Replace & Preserve

The Hunter Station Bridge in Forest County is among the bridge replacements started in 2016 and carrying over into 2017. The \$23.7 million project calls for a new bridge to be built upstream from the existing steel truss structure, which will be demolished.

During the 2016 construction season, District 1 completed work on 40 bridges, including nine replacements, 12 rehabilitations, one removal and 18 preservation projects.

Notable projects included rehabilitation of the Wyattville Bridge in Venango County, preservation of the Center Street Bridge in Venango County, the reopening of the Mead Avenue Bridge in Crawford County, replacement of the Race Street Bridge in Mercer County, and waterproofing four major bridges in Erie County — three on the Bayfront Connector and one on Sterrettania Road.

The rehabilitation of the Smock Bridge in Crawford County, and the preservation of the Sugar creek Drive Truss Bridge in Venango County started in 2016 and will continue in 2017.

There are 17 bridge projects scheduled to start in 2017 including replacement of the Russell Truss Bridge in Warren County, the Route 19 bridge over Munnell Run in Crawford County, and the West Middlesex Viaduct in Mercer County. Rehabilitation of the Interstate 79 bridges over Conneaut Swamp in Crawford County and the Lamson Run Bridge in Erie County are also on the schedule.



**A scenic overlook will be built near the new Hunter Station Bridge. It will include five educational panels and a remnant of the old bridge.**

District 1 RBR Bridge projects in 2017	
<b>Crawford</b>	Route 886 (Main Street)
<b>Erie</b>	Grubb Road (SR 4011)
<b>Forest</b>	Route 666
<b>Mercer</b>	Route 173 Route 318 Lamor Road (SR 3020)
<b>Venango</b>	Route 427
<b>Warren</b>	Route 957 Route 27

\* As of February 17, 2017

The Rapid Bridge Replacement (RBR) Project reached District 1 in 2016 with work on six bridges in Crawford and Warren counties through the Public Private Partnership program with Plenary Walsh Keystone Partners.

In 2017, nine structurally deficient (SD) bridges are scheduled to be replaced. Seven more bridges are scheduled for replacement in 2018. In all, 24 bridges in District 1 are included in the overall program to replace 558 small, SD bridges statewide in three years.

## Treatment Extends Life of Pipes at Cost Savings

District 1 is taking a new approach to extend the lives of 95 of the 188 corrugated metal arch pipes that carry streams under roads.

The program will line rusting pipes with concrete using a shotcrete process – spraying concrete at high velocity using compressed air, a hose, and nozzle. The lining is expected to extend the service life of each pipe by 50 years.

Three pipes in Crawford County and three pipes in Mercer County will be the first to receive the treatment. The bid for using the shotcrete process to rehabilitate the six pipes totaled \$219,523.

With an estimated replacement cost of \$250,000 to \$400,000 per pipe, the first-year savings of the program is approximately at \$1.5 to \$2 million.



## Planning for the Future



PennDOT is instituting a Complete Streets methodology to its project planning. This means creating roads that are safe, comfortable, and convenient for travel for everyone, regardless of age, ability, or transportation method.

This takes into account the needs of motorists, pedestrians, bicyclists, and public transportation riders.

The goals of the program are to:

- Make the needs of all users a standard part of the transportation planning practices;
- Shift transportation investments so they create better streets resourcefully;
- Make streets better each time PennDOT works on them, not just via capital planning;
- Save money by minimizing the need for retrofits;
- Gradually create a complete network of roads that serve all users; and
- Work with stakeholders and the community to find innovative solutions that help make active living possible.

### Multimodal Efforts

District 1 provided support for an Erie Bayfront Study to look at alternatives for improving the efficiency, safety, traffic flow, and multimodal use of Erie's Bayfront Parkway. Study goals seek to better connect Erie's Bayfront area to its downtown street grid. District 1 assisted by providing traffic analysis, bicycle and pedestrian plans, alternative roadway and transit concepts, and potential funding sources.

Spurred by the Governor's Action Plan and potential Lord Corporation development, the Hershey/Edinboro Road intersection improvement project (2017) will help alleviate traffic congestion for this heavily traveled corridor in Erie County by widening the road and adding turn lanes at the intersection.

District 1 has several active Land Use Studies including, Route 322 in Crawford County, Route 19 in Erie and Mercer counties, and State Street and Route 208 in Mercer County.



**The newly added District 1 Transportation Planning Specialist Supervisor serves liaison to regional planning partners, municipal and county planners, along with a wide range of other agencies that have an interest and involvement in transportation and multimodal development.**

## Multimodal Initiatives

The following multimodal initiatives are moving forward within the northwest region on Pennsylvania:

- Park 'n Ride Lots — Maintained at three locations; one each in Crawford, Erie, and Mercer counties.
- Multimodal Facility — Facilitated the effort to replace Oil City's closed parking garage with a transit facility. Demolition at the site started in early 2017. Multiple alternatives for possible developments are being considered, including the repurpose and relocation of a portion of PennDOT's parking lot to serve the community.
- Pedestrian — 13 pedestrian/ADA improvement projects planned over the next three years.
- Rail Terminals — Continued support of efforts to study or develop rail projects in Erie, Mercer and Crawford counties, like at the Sharpsville Furnace facility in Mercer County.
- Streetscapes — Six projects - two completed, two in progress, and two slated to be let in 2017.
- Air — Served as a stakeholder during the Master Plan update process for the Erie International Airport.



### Multimodal Transportation Fund Awardees in 2016-2017

<b>City of Farrell, Mercer County</b>	Repaving Hamilton Avenue	\$467,400
<b>City of Sharon, Mercer County</b>	Neighborhood Revitalization	\$663,770

**District 1 participated in the development of strategic plans for the Erie International Airport, Erie Metropolitan Transit Authority, and Port of Erie.**



The Port of Erie is the only inland port in Pennsylvania that can accommodate ocean vessels. Shipping traffic on Lake Erie is among the highest on the Great Lakes. Phase II of the dry dock rehabilitation project received \$550,000 in DCED multimodal funding in 2015.

As part of the five-year plan, port officials are working with Donjon Marine to upgrade the facilities to capture additional winter work and accommodate expanded shipbuilding and repair opportunities.



A \$1 million grant was awarded to Novolipetsk Steel for rail improvements at its Farrell, Mercer County steel plant to help the operation remain competitive and preserve more than 700 jobs.

The grant will allow for the rehabilitation of 8,300 feet of track, crossties and ballast, and grade crossings within the 13-mile rail network at the plant.



**From 2010 to 2015, PennDOT provided \$2,772,068 for seven projects at the Erie International Airport, to help ensure the continuation of flights for more than 150,000 passengers annually.**



**District 1 has two Mercer County bicycle-related improvement projects scheduled for 2017. One is to create a bike lane and improve sidewalks on Route 518, Broadway Avenue, and State Street. The other is the creation of bike and pedestrian trail in Springfield Township.**

## Public Transportation

When it comes to providing cost-effective public transportation, PennDOT has challenged transit authorities statewide to look beyond the city and county limits and start thinking regionally.

In District 1, five of the six counties, Crawford, Erie, Mercer, Venango and Warren, offer public bus services. All those counties, as well as Forest County, offer shared-ride programs.

PennDOT has recommended a regionalization of the systems that serve Crawford, Forest, Venango and Warren counties, as well as Clarion County in District 10. This helped spur an agreement between Venango and Crawford counties to combined administrative duties.

In 2016, PennDOT announced plans to build compressed natural gas (CNG) fueling stations at 29 public transit agency sites in five years. The move is expected to create a savings of \$100 million in a 10-year period.

Four of the stations will be built in District 1, including the following:

- Crawford Area Transportation Authority in 2017;
- Erie Metropolitan Transportation Authority in 2018, includes public fueling;
- Mercer County Regional Council of Governments in 2019; and
- Transit Authority of Warren County in 2021.



The 2016 consolidation of administrative duties of the Crawford Area Transportation Authority (CATA) and the VenanGo Bus systems is expected to save the groups \$500,000 over the next 10 years.



### EMTA Expansion

The Erie Metropolitan Transit Authority (EMTA) is in the midst of a multiyear infrastructure expansion thanks to a PennDOT grant.

The \$62 million project, when finished, will give the EMTA a facility double the size of its former headquarters.

PennDOT provided \$40 million for the project, which includes the following phases:

- **Phase 1** — Maintenance facility and small bus storage; opened in October 2015.
- **Phase 2A** — Administration building, large bus storage, diesel fueling and bus wash; construction starts in early 2017.
- **Phase 2B** — Parking garage, transit center, retail space; to be completed by 2019.
- **Future Phases** — Natural gas fueling station; to be completed by 2020.

### PennDOT Transportation Alternative Program (TAP) Awardees in District 1 for 2017

Crawford County Commissioners, Crawford County	Comprehensive updates to Water Street	\$475,000
City of Meadville, Crawford County	Mill Run footbridge repairs	\$219,940
City of Erie, Erie County	West 18th Street streetscape plan	\$175,745

## Summer Maintenance Services

PennDOT's County Maintenance employees are the most visible faces of the Department.

County maintenance managers and field crews plan the paving, patching, cleaning and other tasks on the region's roads and bridges.

District 1 also uses an equipment-sharing program that allows counties to schedule usage of specialized pieces of equipment, such as pavers, chippers, pugmills, rollers, oil distributors, graders, and loaders.

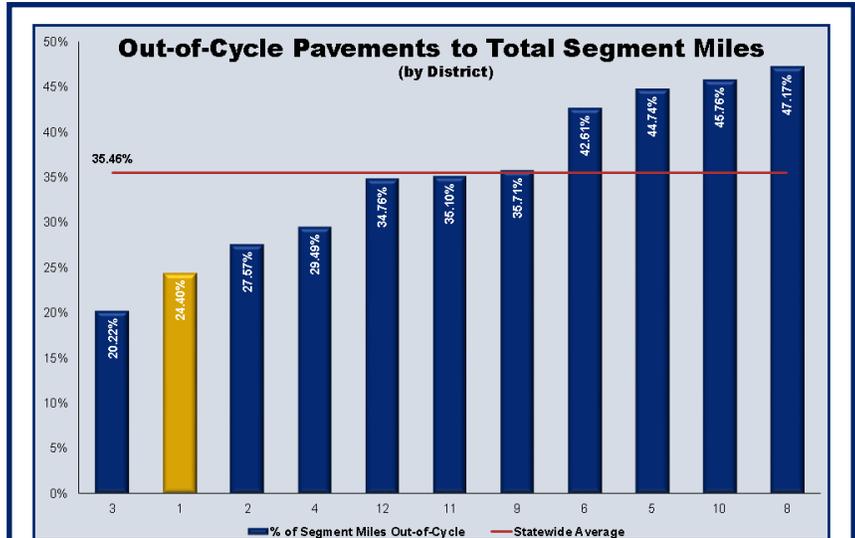
Planning and scheduling are the keys to making equipment-sharing work, and that starts in the fall. Equipment is assigned and schedules are adjusted to resolve conflicting needs.

**↔ The District 1 Maintenance Unit equipment-sharing program created a savings of more than \$292,000 in 2016.**



### Planned 2017 Summer Activities

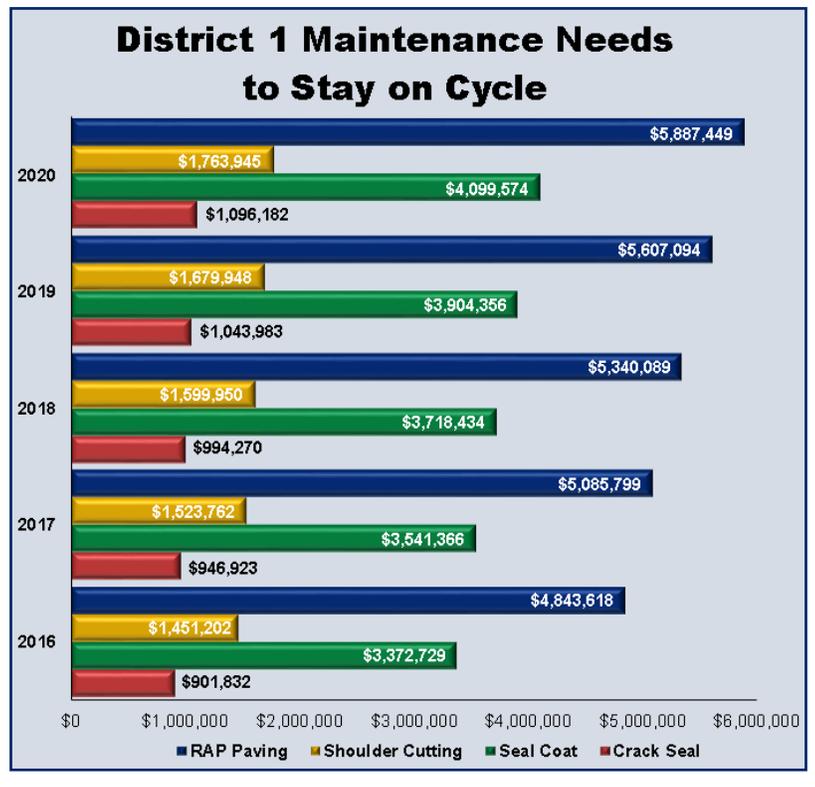
- Patching — 3,628 tons
- Seal Coating — 1,923,840 gallons
- Crack Sealing — 1,346 miles
- RAP Paving — 49 miles
- Shoulder Cutting — 1,025 miles
- Ditch Cleaning — 825,561 feet
- Pipe Replacement — 12,944 feet
- Bridge Cleaning — 1,480 bridges



District 1 works to keep pavement maintenance on cycle in order to maximize the service life of the roadways.

The task is made difficult by the limited funding provided to the county maintenance units. Once a roadway or county system becomes out-of-cycle, the funding limitations make it even harder to make up ground.

While county budgets have remained predominately flat, the cost of keeping pavement on cycle climbs each year.



## Winter Maintenance Services

Whether the winter is mild or harsh, District 1 focuses on providing safe and passable roads while controlling costs and managing winter services. During storms, the primary focus is on the interstates and major routes. Roads will not be free of ice and snow while precipitation is falling.

Following the introduction of the state's new reverse auction purchasing system, salt prices fell going into the winter of 2016-2017. Prices range from \$44.78 to \$65.99 per ton, a decline from the year before when salt costs were \$65.53 to \$73.27 per ton.

**Erie County will be introducing a new winter weather treatment strategy on Interstate 90.**

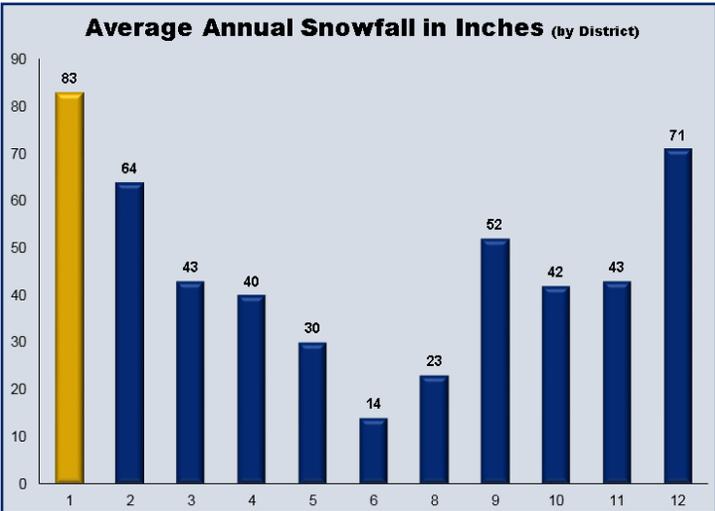
During the winter of 2015-2016, District 1 used 49,361 tons of salt, 1,442,200 gallons of brine, and 52,077 tons of anti-skid materials.

As a region, the counties of District 1 have an average of 83 inches of snow a year. This includes Erie County, which averages 104 inches and Warren County, which averages 108 inches.

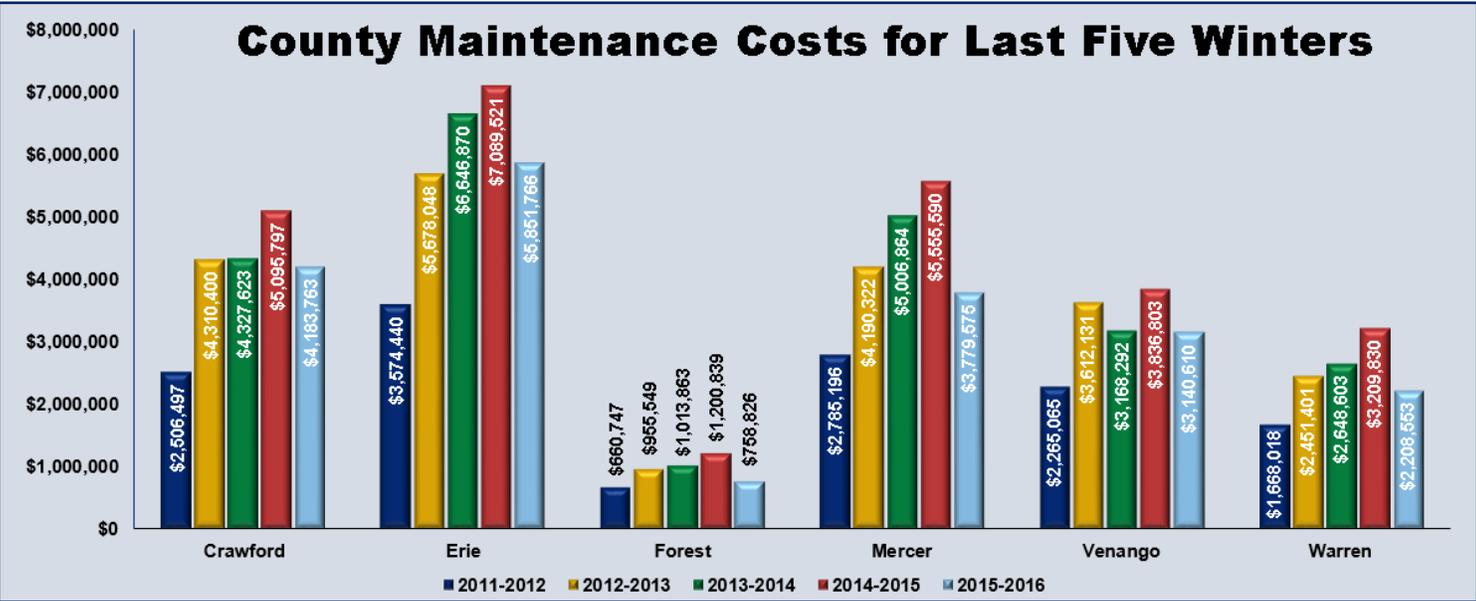
**District 1 is piloting the use of a dump truck with an ejector bed for better material dispersal while treating the roadways during winter weather events.**

### County Salt Prices (per ton)

	2016 Prices	2015 Prices	Savings
Crawford	\$65.99	\$66.72	\$0.73
Erie	\$44.78	\$65.53	\$20.75
Forest	\$64.99	\$73.27	\$8.28
Mercer	\$59.99	\$67.18	\$7.19
Venango	\$56.99	\$69.57	\$12.58
Warren	\$51.19	\$71.30	\$20.11



Source: PennDOT Winter Service Guide



Source: SAP

## Safety & Technology

PennDOT uses technology to help keep the public informed of road conditions. Through the statewide website [www.511PA.com](http://www.511PA.com), people are able to view routes with active work zones, find weather alerts, live stream the view from traffic cameras perched along interstates and more.

In 2016, all of PennDOT's plow trucks were equipped with Automated Vehicle Location (AVL) technology — meaning the public can view the trucks on interstates and expressways this winter at [www.511PA.com](http://www.511PA.com).

The AVL unit in each truck sends a cellular signal through the system showing where a truck is located and how much material is being spread from the truck. The AVL system is part of Governor Wolf's GO-TIME initiative that leverages inter-agency coordination and collaboration to maximize efficiency, modernize state government operations, and provide the highest quality services.

A free 511 mobile app can be downloaded from Googleplay or the iTunes store.



### Keeping an Eye on Things



In District 1, there are 17 highway cameras, mostly along Interstates 79 and 90, and the Bayfront Highway in Erie County, and Interstate 80 in Mercer County.



Images from the cameras are streamed live to the district's traffic dispatch center in Oil City. PennDOT employees staff the center 24 hours a day from November through March. They monitor cameras, weather forecasts and other data as they dispatch and coordinate the district's efforts to keep roads safe and passable during winter months.

### Computer Upgrades Completed at 26 Stockpile Locations

Technology upgrades were done at 26 of the district's permanent stockpiles, increasing opportunities for work-related communication and training. A desktop computer, monitor, printer, and internet router were installed at each stockpile in 2016. Wireless internet is available to foremen with laptop computers, helping to eliminate their reliance on cell phone hotspots.

The goal of the effort is to complete administrative work more quickly and efficiently, as well as provide direct access to weather forecasts, radar, and other data. Processes are being developed for the electronic rather than physical transmission of department documents and forms, further increasing efficiency.

Greater access to computers will also streamline training for employees stationed at the county stockpiles as modules become available online.



## Customers & Communication

The Internet gives PennDOT the ability to communicate with customers at an ever-increasing pace.

Traditional information distribution through television, radio and print media, is supplemented with the use of a district-run Twitter account (511PAerie) and webpages on the new statewide website [www.penndot.gov](http://www.penndot.gov). These efforts are further supported by the statewide Facebook (Pennsylvania Department of Transportation), Instagram (pennsylvaniadot), and YouTube (PennsylvaniaDOT) accounts.

This leads to greater access for and greater expectations from our customers. Grievances are sometimes posted on social media accounts before any direct notification is given to the county, district or central office.



Reports and issues can also be made through the Customer Care Center system. From there, each concern is assigned to a PennDOT employee and addressed in a timeline appropriate to the complaint.

Motorists are also given an opportunity to give feedback through the annual Customer Survey.

Nearly 1,000 people completed the questionnaire in 2016, rating the importance of different transportation initiatives and programs.

The survey also gives customers an opportunity to leave contact information in order to speak with a PennDOT representative.

### CUSTOMER SURVEY

The PennDOT team in northwest Pennsylvania is again asking our customers in Crawford, Erie, Forest, Mercer, Venango, and Warren counties for feedback to help us improve our organization and the services we provide. [Click here to take the survey.](#)



**Safety outreach is a year-round effort. The District 1 press office works with area radio stations to record PSAs, local and state police to hold press events, and schools to do safety presentations. Notable programs include the teen driver competitions and safety weeks.**

## Keeping Our Workers & Contractors Safe

Work zone safety ranks high among the concerns for PennDOT. In 2016, vehicle intrusions in work zones occurred throughout District 1, and one of them resulted in a major injury to a contractor employee.

The following were typical of work zone intrusions recorded in 2016:

- *March 9 — During a pothole patching operation in Mercer County, a driver failed to slow down while driving into the passing lane and struck another vehicle, causing minor damage.*

- *April 19 — During a crack sealing operation in Forest County, a motorist drove around two stopped vehicles. He maneuvered through the work zone, crossing back and forth as necessary.*
- *Aug 30 — A crew was performing a mill and fill operation in Warren County and vehicles were stopped when the second driver in the queue moved out of line, passed the flagger, and into the work zone. Two other vehicles followed. The foreman stopped the vehicles.*



As part of the ongoing effort to promote work zone safety, the Traveling Worker's Memorial was on display during the 21st annual Mercer County Open House.

The District also has committees at the district and county levels that are dedicated to reinforcing a culture of safety for all PennDOT workers and contractors.

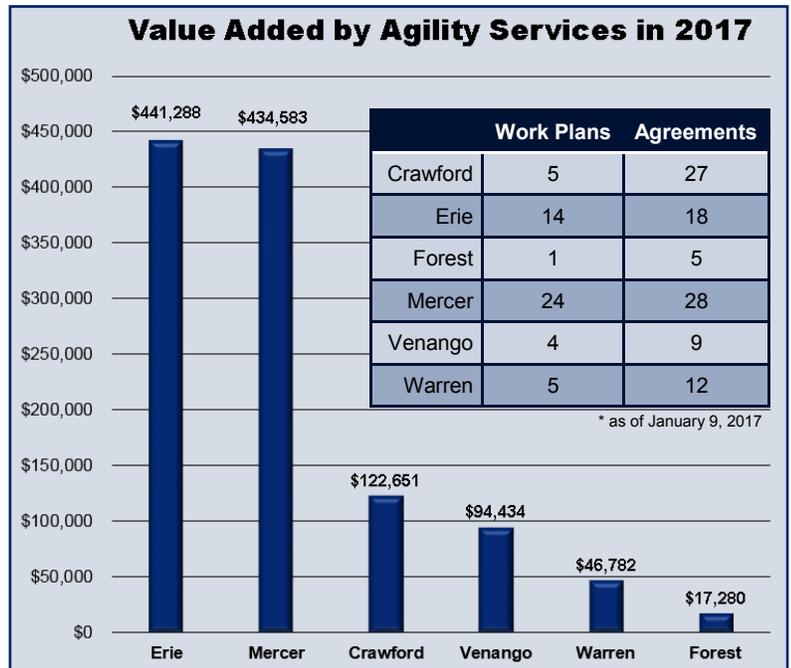
## Community Relationships

Caring for all the district's roadways and highways requires cooperation with the local municipalities.

Through PennDOT's Agility Program, the state builds and strengthens relationships with local communities and governments by coordinating maintenance efforts to share manpower, equipment, and knowledge without exchanging money. These innovative partnerships better serve customers and employees.

The Agility Program participants include local governments, locally-funded organizations, state and federal agencies, educational partners, and labor groups.

District 1 has 53 Active Work Plans in the Agility Program, as of January 9, 2017. Of those, 98 percent include repeat participating groups. District 1 work plans make up 26.4 percent of all such arrangements statewide and have a service value of nearly \$1.16 million.



Source: District 1 Municipal Services

**In 2015-2016, District 1 had 24 winter services Agility Agreements, of which 93 percent were repeat participants. About 175 miles of roads were maintained for a reciprocal value of nearly \$310,000. There were 28 winter agreements with municipalities with a cost of \$757,989.**

### Path of Cooperation

PennDOT strives to work with municipalities to provide a safe place for pedestrians and bicyclists to travel alongside state-owned roadways and bridges.

As part of construction projects, the district considers the need for new or updated walkways, and includes such features into the design and construction costs.

Though the district is tasked with building the sidewalks, it is the responsibility of the city, borough, or township to provide ongoing maintenance.

It takes the cooperation of the district and local governments to provide pedestrians with the safe walkways they deserve.

District 1 has been working to comply with the Americans with Disabilities Act (ADA) to make the region's curb ramps more easily navigated by the disabled.

This includes the installation of 5,653 curbs since 2008, including 1,597 in the City of Erie, 520 in the City of Meadville and 207 in Millcreek Township. The total cost of ADA ramp construction since 2008 is \$28,265,000.

### Number and Cost of 2016 Ramps

Erie	265	\$1,325,000
Crawford	51	\$255,000
Mercer	129	\$645,000
Venango	87	\$435,000
District Total	532	\$2,660,000

## Mitigating Our Impact

PennDOT works with federal, state and local environmental groups to ensure that the region's natural beauty and wildlife remain for generations to come.

This is done through several methods, including:

- Wetland banks
- Wildlife surveys
- Archeological studies
- Stormwater management

District 1 preservation efforts include maintaining three wetland banks: Polk Wetland Bank, Venango County; Polk Woodcock Habitat Initiative, Venango County; and Houghton Wetland Bank, Crawford County. Within each bank is a combination of emergent vegetation, scrub shrub and open water.

When the situation warrants, the District 1 environmental unit will do archeological studies at potential worksites, especially bridges. In recent years, two of those studies have unearthed relics of former Native American villages, one dating back as much as 9,000 years. Relics are cleaned, cataloged and returned to the property owner. With permission, the artifacts can also be donated to a state museum.

### Environmental Stewardship

Mussel and aquatic species surveys have become a more routine part of the PennDOT construction process.



If a project area is determined to have the potential to impact a threatened or endangered species, the district's environmental department works with various federal and state organizations to ensure proper measures are taken.

This includes a biological assessment with mitigation such as fencing off habitats, or planning and carrying out an approved relocation plan.



**Between 2008 and 2016, approximately 112,000 threatened and endangered mussels were relocated from the Allegheny River under the Hunter Station Bridge.**

**The mussels were put into waterways in six states and the Seneca Nation in New York.**

## Managing Stormwater Drainage

The state highway system includes a large number of stormwater management facilities constructed by PennDOT to capture drainage.

The facilities installed vary on a case-by-case basis. Examples include ditches, retention basins, and rock check dams.

There is a constant need to maintain Best Management Practice (BMP) to ensure proper functionality and minimize the risk of failure.

In 2010, Pennsylvania revised its policy to further mitigate the impact of highways and stormwater drainage on the environment.

There have been 13 stormwater management plans

established in District 1 since that time. As a result, there are 345 BMP facilities the district is required to maintain in the following counties:

- Crawford — 23
- Erie — 98
- Forest — 15
- Mercer — 83
- Venango — 126

In cities and boroughs, it is the local government's responsibility to maintain drainage facilities.

Within townships, PennDOT works with the local government to determine responsibility for facilities. Along highways, the duty falls to PennDOT.

## Right Sizing the System

As part of PennDOT's ongoing efforts to make the best use of allotted resources, the state examines all bridges slated for replacement based on purpose and need, which now also answers the question: Is this bridge still needed?

Bridges are evaluated based on proximity to other bridges, rate of vehicular traffic, emergency service needs, and, at times, replacement costs.

Based on these characteristics, PennDOT officials may identify a bridge as redundant. The designation does not automatically lead to removal.

PennDOT officials first seek input from members of the community.

If a bridge is determined to be no longer necessary, it is removed only after its useful life has expired or an

emergency arises.

Bridges currently under review are Pond Road Bridge in Springfield Township, Erie County; South Perry Street Bridge in the City of Titusville in Crawford County; Wallace Avenue Bridge in Conneaut Township, Crawford County; Cemetery Road Bridge in Spring Creek Township, Warren County; and Ohl Street Bridge in Greenville Borough, Mercer County.

The McBride Viaduct in the City of Erie has been designated a redundant bridge and is slated for removal.

The Mercer County MPO and Northwest RPO have completed studies to identifying redundant bridges owned by counties and local municipalities. The process is underway for other planning organizations in District 1.

### Redundant Bridges Demolished since 2012 (including locally-owned bridges)

District 1	6
District 2	4
District 3	2
District 4	6
District 5	5
District 6	8
District 8	4
District 9	4
District 11	1
District 12	6

Source: January 27, 2017 report

## Traffic Signals, Speed Limits & PennDOT

PennDOT owns no permanent traffic signals in the northwest region — none. Signals are all owned by the municipality in which they are located..

But PennDOT does have oversight responsibilities for both signals and speed limits.

If a municipality requests it, PennDOT will conduct a traffic signal warrant analysis to determine what traffic control is needed at an intersection. This includes an evaluation of traffic volume, crash history, school and railroad proximity, and sight distance.

Prior to any analysis, the municipality must agree to follow the recommendations given. The municipality also has to agree to take financial responsibility for the installation and maintenance of a signal if one is found to be warranted.

Speed limits are another area where PennDOT and municipalities each have responsibilities.



Municipalities must submit a request for any change in a speed limit on a state road. Any alternation in a speed limit on a state-maintained roadway must be made on the basis of an engineering and traffic study performed by PennDOT.

PennDOT maintains speed limit signs on roads posted with limits greater than 35 miles an hour; while municipalities are responsible to maintain speed limit signs on roads posted at 35 miles and hour and lower.

## Roundabouts

The first roundabout constructed in District 1 has produced a significant improvement in highway safety.

Compared to a similarly sized signalized intersection, studies show single-lane roundabouts experience:

- 90 percent fewer fatal crashes
- 75 percent fewer serious injury crashes
- 40 percent fewer pedestrian crashes
- 10 percent fewer bicycle crashes

Roundabouts also carry about 30 percent more traffic during peak flow conditions and reduce delays.

The roundabout at the southern intersection of Route 19 and Route 97 in Waterford Township, Erie County, has been an example of this. Since its opening in 2014, there has been less than two reportable crashes per year, all with no injuries.

 **National studies show, compared to a signalized intersection, roundabouts have 90 percent fewer fatal crashes.**

In the five years before the roundabout was built, 25 people were injured, three seriously, in 27 reportable crashes at the intersection. These included three head-on and 10 angle crashes.

More roundabouts are planned in District 1:

- Erie County — Single-lane roundabout at Route 5 and Millfair Road in Fairview and Millcreek townships.
- Crawford County — Two single-lane roundabouts are under construction in the Saegertown area. Long-term plans include a multi-lane roundabout in the Meadville area.
- Mercer County — Single-lane roundabout at Connelly Boulevard and Broadway Avenue in Sharon.



### Navigating Roundabouts

To help motorists learn the proper way to navigate single-lane and multi-lane roundabouts, PennDOT developed a four-minute instructional video. It takes viewers through the rules for drivers, pedestrians, and bicyclists, and also addresses how large trucks maneuver through the circular intersections. It can be viewed online at PennDOT's YouTube channel.

## Roundabouts under Construction in Crawford County

Construction of the first single-lane roundabout in Crawford County began in August 2016 at the intersection of Routes 198 and 6 in Saegertown. It is part of a larger \$3.14 million project scheduled for completion by late July 2017.

A second roundabout is being constructed on the northern end of the borough, also at an intersection of Routes 198 and 6. Preliminary work started in October 2016. The \$7.29 million project includes a major rehabilitation to the Brookhauser Road Bridge, which spans French Creek. The project is scheduled to be completed by late October 2017.



## Permits & Posted Roads

A **Highway Occupancy Permit (HOP)** is required for an encroachment upon a state road by anyone — utility companies, municipal authorities, developers, builders, contractors, or private citizens.

District 1 issued 835 permits in 2016:

- Utility permits issued — 605
- Driveway permits issued — 199
- Miscellaneous permits issued — 31

District 1 has one of the fastest permit processing rates in the state — 6.8 days. The statewide average is 12.9 days.

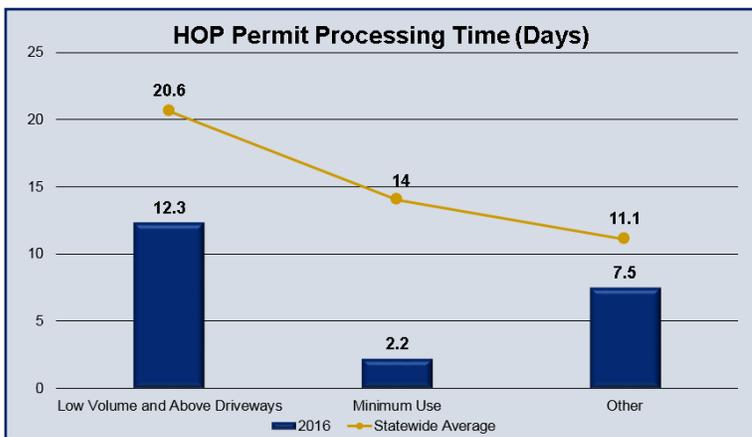
**Utility Permits** may be issued to install, repair, replace, connect, remove, or disconnect privately, publicly or cooperatively owned lines, facilities and systems which directly or indirectly serve the public or any part thereof.



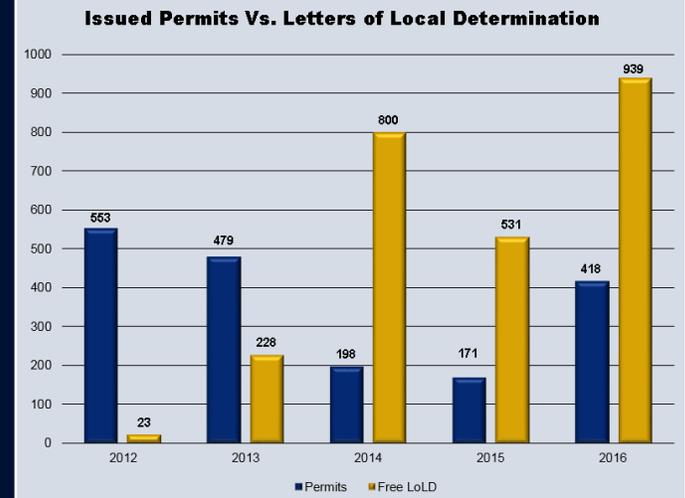
**On average, the review time for a permit in District 1 is 6.8 days.**

**Driveway/Local Road Permits** may be issued to install, alter, or remove a driveway, street or other means of passage of vehicles between the highway and abutting property.

**Miscellaneous Permits** may be issued to perform seismograph testing, embankment alterations, surface openings, roadway improvements; construct, replace, or remove curb and/or sidewalk; connect to department drainage facilities; open test holes; install, repair, replace or remove non-utility structures, tipples, conveyors, pedestrian overhead crossings, subways, mines or pedestrian underpass crossings.



Source: District 1 Permit Department



Source: District 1 Posted and Bonded Roads Department

District 1 has historically had a large number of small haulers in the timber, aggregate, and shallow gas/oil industries so our workload has shifted from issuing permits that required bonding and damage repairs to issuing a large number of free Letters of Local Determination (LoLD). LoLD-holders typically haul less than 700 loads per year on a posted road. They are not required to bond the road and cannot be assessed damages.

## Rural Road Preservation Through Collaboration

District 1 is working to build a stronger relationship with the U.S. Forest Service in order to minimize the effects of timber hauling on posted roads.



The district has provided training for the timber industry at the Forest Service facility in Warren County. Both PennDOT and the Forest Service are working closely to try to minimize the damage done to state roads.

District 1 is looking for opportunities to use the Agility Program as a way to further the collaboration and provide some services needed by both agencies, such as brush cutting and pipe placement.

## Low Cost Safety Improvements

Roadway safety improvements don't have to come with a high price tag.

Through the efforts of its traffic unit, District 1 has been able to engage in several low cost safety initiatives geared toward creating safer highways throughout the region, including LED stop signs, tree trimming and rumble strips.

**LED stop signs** — Eight flashing LED bulbs dot the perimeter of each sign. The lights maintain a blinking pattern, day and night, making the signs more visible to motorists. Solar panels are affixed to each sign to power the bulbs. Each sign also has a six-volt battery backup.

**Tree trimming** — The tree removal eliminates fixed object hazards to an errant vehicle. Trimming branches provides enhanced visibility and sight distance at intersections and curves. These efforts help decrease the rate and severity of single-vehicle and fixed-object crashes. The 2016 contract included trimming along interstates and roadways in Crawford, Erie, Mercer, Venango, and Warren counties.



The first LED stop sign in District 1 was installed July 2015 on Polk Cutoff at the intersection with Route 8 in Venango County. In January 2016, four of the signs were installed on Route 832 at the intersection with Route 98 in Erie County.

**Rumble strips** — Centerline and edge line rumble strips are a proven way to reduce fatalities and injuries due to crashes. District 1 is working to ensure the placement is data-driven with the safety of all system users in mind, including bicyclists and pedestrians. Comparison data shows 39 percent fewer fatal or

injury head-on and sideswipe crashes in the five-year period after rumble strips were milled into roadways throughout the district. There was also an 18 percent reduction of single-vehicle, run-off-the-road crashes. Rumble strips were milled into roadways in all six of the counties in District 1.



In 2016, District 1 milled an additional 59 miles of centerline rumble strips and seven miles of edge line rumble strips on roadway in Crawford, Erie, Forest, Mercer, Venango, and Warren counties.

## Addressing the Concerns of Our Customers

A handful of low-cost safety improvements were put into place on Route 308 and Eau Claire Road in Clinton Township, Venango County in 2016.

The move was prompted by a call from a concerned customer and an area legislator, who were worried about slow moving traffic in the area, the Amish community in particular.

Route 308 near the Butler County line is the main roadway between

Interstate 80 and a major employer in the area.

After a meeting at the site, the district traffic unit and Venango County Maintenance put together several low-cost safety upgrades on both roadways.

The improvements included:

- Two new buggy signs;
- SLOW pavement markings; and
- Stop bar and pavement markings.



## Slide & Emergency Repairs

Slide repairs will be done at various locations on nearly 12 miles of Route 62 in Warren County. The work area starts near the Tidioute bridge and continues to just south of the intersection with Route 6.

A minimum of eight large slide areas have been identified for these projects, all extending into the southbound lanes of Route 62. Repairs will include improvements to the shoulders of both lanes.

Work will include geosynthetic reinforced soil slopes, soldier pile walls, undercutting, and drainage improvements. Areas will be resurfaced, as needed, to improve ride quality.

All design work was performed in-house.

The needed repairs will be done through two projects:

- 62-20M — Estimated construction cost of \$3 million
- 62-GRS — Estimated construction cost of \$8 million



Route 322, Crawford County



Austin Hill Road, Warren County

## Emergency Repair Projects

District 1 Design, Maintenance, and Construction employees respond to emergency repair projects with efficient solutions that balance the safety and convenience of our customers. Examples from the last two years include:

When a slide caused a portion of Route 322 near Cochranton Borough, Crawford County to collapse in late 2015, PennDOT employees took only three days to assemble repair plans.

After a bridge on Interstate 80 over Route 718 in Shenango Township, Mercer County was struck by a large truck, employees had repairs and inspections completed in three days.

It took only three weeks to repair a collapsed retaining wall and restore normal traffic on Austin Hill Road (SR 2022) in Sheffield Township, Warren County.

## Learning to Speak PennDOT: Common Acronyms

- **AADT** — Annual Average Daily Traffic
- **ACE** — Assistant Construction Engineer
- **ADA** — Americans with Disabilities Act
- **ADE** — Assistant District Executive
- **ADT** — Average Daily Traffic
- **AVL** — Automated Vehicle Location
- **BMP** — Best Management Practice
- **BMS** — Bridge Management System
- **BOMO** — Bureau Of Maintenance & Operations
- **CATA** — Crawford Area Transit Authority
- **CMAQ** — Congestion Mitigation and Air Quality
- **CNG** — Compressed Natural Gas
- **DE** — District Executive
- **EIS** — Environmental Impact Statement
- **EMTA** — Erie Metropolitan Transit Authority
- **FFY** — Federal Fiscal Year (Oct. 1-Sept. 30)
- **FHWA** — Federal Highway Administration
- **GIS** — Geographic Information System
- **HAR** — Highway Advisory Radio
- **HOP** — Highway Occupancy Permit
- **HSIP** — Highway Safety Improvement Program
- **IRI** — International Roughness Index
- **ITS** — Intelligent Transportation Systems
- **LoLD** — Letter of Local Determination
- **LOS** — Level Of Service
- **LTAP** — Local Technical Assistance Program
- **MPMS** — Multimodal Project Management System
- **MPO** — Metropolitan Planning Organization
- **NHS** — National Highway System
- **NHTSA** — National Highway Traffic Safety Administration
- **OPI** — Overall Pavement Index
- **OSHA** — Occupational Safety and Health Administration
- **PAPA** — Pennsylvania Asphalt Pavement Association
- **PE** — Preliminary Engineering
- **PHMC** — Pennsylvania Historical and Museum Commission
- **PM** — Project Manager
- **PSA** — Public Service Announcement
- **PQTF** — Pavement Quality Task Force
- **PTC** — Pennsylvania Turnpike Commission
- **QA** — Quality Assurance
- **RAP** — Recycled Asphalt Pavement
- **RBR** — Rapid Bridge Replacement
- **RFP** — Request For Proposal
- **ROW** — Right of Way
- **RPO** — Rural Planning Organization
- **RTK** — Right To Know
- **SD** — Structurally Deficient
- **SIP** — Surface Improvement Program
- **SMA** — Stone Matrix Asphalt
- **SR** — State Route
- **STC** — State Transportation Commission
- **STIP** — Statewide Transportation Improvement Program
- **TAC** — Transportation Advisory Committee
- **TAP** — Transportation Alternative Program
- **TIP** — Transportation Improvement Program
- **TYP** — Twelve Year Program
- **WMA** — Warm Mix Asphalt

**Contact our  
Community Relations Coordinator**

**Jim Carroll**

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