

The Pennsylvania Department of Transportation (PennDOT) rated 44 percent of Pennsylvania's roads fair or poor in 2012. This is an increase of approximately 2 percent over the last year, a trend that has been consistent since 2009. If this trend continues, over half of Pennsylvania roadways will be rated fair or poor by the year 2015. Pennsylvania's highway network consists of 41,000 miles of state highways and 79,000 miles of local roads. Pennsylvania has the seventh largest number of state-owned highways in the nation. The state also ranks eleventh for total lineal miles of roadway. Pennsylvania's 8.8 million drivers travel nearly 100 billion miles on these roads every year. Over 34 percent of travel along Pennsylvania's 1,855 miles of interstate roads is truck traffic, more than double the national average.

Without construction of new roadways and lanes to increase capacity, Pennsylvania's roadways will continue to create congestion and delays. In major urban areas, traffic congestion costs the average commuter 182 hours of delay and 86 gallons of wasted fuel per year. That is equivalent to over 4 weeks of vacation time and a month's worth of fuel for a vehicle with average gas mileage. Statewide congestion is estimated to cost drivers over \$3.7 billion per year in lost time and wasted fuel. Maintaining Pennsylvania's expansive roadway system is a constant challenge.

BACKGROUND

In 2010, the Pennsylvania State Transportation Advisory Committee estimated the state faced a \$3.5 billion annual gap in total unfunded transportation needs. Of the \$3.5 billion, \$2.6 billion attributes to the unfunded annual transportation roadway and bridge needs. It was estimated that without additional funding, these gaps would grow to \$6.7 billion and \$4.7 billion respectively by 2020. Currently, the state funding gaps are estimated at \$3 billion for roadway and bridge needs and \$5.2 billion for total unmet transportation needs.

Pennsylvania's infrastructure deficit is the result of underfunding and a critical lack of long-term planning until Act 89 was signed into law in November, 2013. Inability of Pennsylvania's Legislative and Executive Branches to develop a workable funding program for the Commonwealth's infrastructure has resulted in an unsustainable roadway system. While the recently signed Act 89, was a good first step, long-term funding remains inadequate to meet the needs of Pennsylvania's families and businesses.

Due to recent economic challenges, vehicle travel through the State has remained constant since 2009. Based on the rate of population growth and the expected rise in number of licensed drivers, by 2030, vehicle travel in Pennsylvania is projected to increase by another 15 percent.

State traffic safety—as indicated by the traffic fatality rate—has been stable over the last five years. However, Pennsylvania's 1.3 fatalities per 100 million miles of travel is

significantly higher than the national average. Rural non-interstate routes are particularly concerning with fatality rates nearly 2.5 times higher than the state average. Roadway conditions on these rural routes contribute to approximately one-third of fatal and serious crashes. In 2011, the cost of serious crashes where roadway features were likely a contributing factor was approximately \$2.7 billion; these costs included lost productivity, lost earnings, medical costs, emergency services, but, of course, no one can assign a dollar value to a life lost.

For decades, funding sources for Pennsylvania's transportation projects have remained stagnant as the purchasing power of these funds has been diminished by inflation and rising costs. Further, the amount of funding from the flat per-gallon taxes which provide much of the financial support for these projects is decreasing as fuel-efficient and alternative fuel vehicles reduce consumption—over 10 percent in the last decade. When compared to the price of gas, the average driver is paying less than half in terms of tax as a percent of fuel cost than they were a decade ago. However, on November 25, 2013, Act 89 passed and will phase in an additional \$2.3 billion per year over the next five years. This plan will help to close some of the \$3 billion gap between Pennsylvania's well documented highway and bridge needs and the current revenue available.

For these reasons, this committee has determined that the grade for Roads in Pennsylvania for the 2014 Report Card for Pennsylvania's Infrastructure is a D-. This grade is unchanged from our 2010 Report Card and is based on the continued deterioration in overall International Roughness Index (IRI) pavement condition rating, increasing congestion, and stagnant safety performance, but tempered by the promise of near-term improvement that the new transportation funding is expected to provide.

CONDITION AND CAPACITY

Chart 1 shows the percentage of roadway in the Poor and Fair Categories in each classification and their change from 2009 through 2012. The Interstate system has remained stable through the period; however, all other classifications are showing steady downward trends. Even the interstates, which have an overall average rating of excellent, still have 4 percent (over 100 miles) rated in poor condition. Imagine if it were all on a single roadway corridor - that would represent a trip from Harrisburg to Philadelphia on a 65 MPH Interstate all on a poor roadway. Statewide, including all state roadways of all classifications, the amount of poor-condition roadways has risen 7 percent (an additional 2,800 miles), bringing the total for poor condition roadways to 23 percent (nearly 9,800 miles). That could be considered as a trip across the state 25 to 30 times, or 3 to 4 trips across the country, all on poor state-owned roadways.

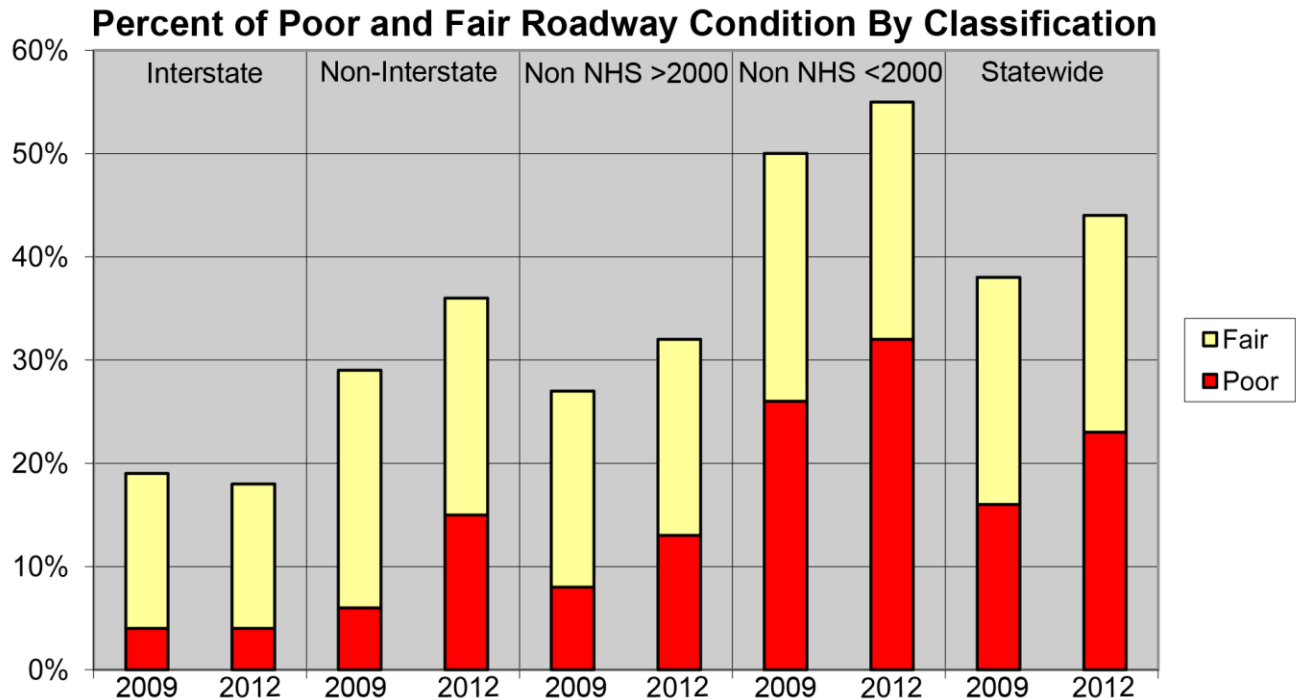


CHART 1

(Condition data from PennDOT Bureau of Maintenance and Operations)

NHS – National Highway System

>2000 or <2000 Average Daily Traffic (ADT) in vehicles/day

The 79,000 miles of roadway in Pennsylvania owned by local governments and other non-state entities are not rated by PennDOT for condition, but it is reasonable to assume they would be in equal or worse condition. This means an additional 18,000 miles of non-state owned roadway would also be rated as Poor for a total of 27,500 miles of poor roadway (virtually a trip around the world). Unfortunately, the total of roadway mileage rated Poor in Pennsylvania equals the total roadway mileage in Maryland and is greater than the total mileage of nine other states.

Over the prior decade (2000 – 2009), the condition discrepancy between the national average and Pennsylvania’s roads had been reduced, even considering that Pennsylvania has some of the oldest highways in the nation. Since then, pavement condition has begun to worsen again, with the 2012 overall average condition rating equal to what it was in 2005. Pennsylvania has as many roadway miles as any state that experiences severe winters. Pavements are susceptible to cracking and expanding due to the temperature and weather changes (freeze/thaw cycles). Also, the chemicals used during snowy/icy conditions, while critical for safe travel, contribute to the decreased life of a pavement when compared to more temperate states.

One key to a successful roadway infrastructure program is to have sufficient funds to support roadway construction, maintenance, rehabilitation and emergency situations. PennDOT has shifted its focus to bridge replacement and rehabilitation, mainly to

address similar deteriorating conditions and critical needs in that area. This shift has taken funding away from roadway maintenance and its “Maintenance First” philosophy, drastically cutting the construction of new roadway miles to nearly nothing. The financial limitations have created a challenge to providing accessibility for roadway users while maintaining roadway structural integrity and safety.

POLICY OPTIONS

Federal funding has a significant impact on Pennsylvania’s highway conditions, roadway safety, quality of life and economic development. In 2012, MAP-21 (the Moving Ahead for Progress in the 21st Century Act) was signed into law, and was the first federal highway authorization enacted since 2005. MAP-21 funds highway programs in Pennsylvania at an annual level of \$1.6 billion through September 2014. Unfortunately the funding levels of MAP-21 are no different than the earlier funding levels, and MAP-21 will expire in September of 2014. MAP-21 allocates money to the states from the Highway Trust Fund, which is funded by the collection of the federal gas tax that has been stagnant at 18.4 cents per gallon since 1993. These funding levels are inadequate for maintaining and improving Pennsylvania’s roadway system. Based on current spending and revenue trends, the U.S. Department of Transportation estimates that the Highway Account of the Highway Trust Fund will encounter a shortfall in August, 2014. To avoid a funding crisis, congress must take action.

However, the majority of funding for roadways and transportation in Pennsylvania comes from the Commonwealth. Funding sources such as the gas (liquid fuels) tax, vehicle registration, license fees, etc., are placed into the Motor License Fund, which is constitutionally protected for highway use only. Together they provide roughly \$3.5 billion per year, approximately two-thirds of which is used for highway and bridge projects. The remainder is used mostly to support the State Police (16 percent) and subsidize local roadways (11 percent). The primary source of funding to the Motor License Fund comes from gas taxes which are from three sources: a flat tax of 12 cents per gallon (unchanged since 1987), the Oil Company Franchise Tax of 19.2 cents per gallon (unchanged since 2006), and a 1.1 cent per gallon fee for the Underground Storage Tank Indemnification fund for a total of 32.3 cents per gallon.

Act 88 of 2012, although it provides no funding, creates a legal mechanism to develop Public-Private Transportation Partnerships, which can act as an important tool in solving some of Pennsylvania’s transportation needs. The act provides the ability for PennDOT and other public entities to enter into agreements with private partners to design, build, finance, operate, and/or maintain a transportation facility. This will allow PennDOT to leverage the financing power of the private sector to assist in solving Pennsylvania’s transportation needs.

In response to the *Transportation Funding Advisory Commission Report* of August 2011, the State Senate passed Senate Bill 1 in June of 2013. This would provide \$2.5 billion of the \$5.2 billion needed to close the state’s transportation funding gap and would phase out Act 44 over 8 years. The bill was passed on a vote of 45 to 5 with overwhelming bipartisan support. Finally, in November 2013, the Pennsylvania House was able to pass its version of the bill, providing \$2.3 billion phased in over the next five

years. The Senate approved these revisions, and Act 89 of 2013 was signed into law on November 25, 2013. The funding provided by this Act is expected to help reverse the deterioration of Pennsylvania roadways and pay for new projects to increase capacity and safety improvements.

RECOMMENDATIONS

A new approach to road infrastructure funding is needed, one in which we think of the solution as a long-term investment, not merely a one-time cost. The long-term solution to maintaining and improving Pennsylvania's roads must be comprehensive and should include the following considerations:

- Fewer fatalities;
- Smoother, stronger and longer-lasting pavements;
- Better accommodations for commercial vehicles, including seamless intermodal freight movement;
- Reduced commuting time and congestion; and
- Road users paying for the roads they use

A well-considered and comprehensive transportation solution will position Pennsylvania to maintain a high quality of life for state residents, increase the number of jobs, attract high-tech industries, improve mobility of goods and services through Pennsylvania to support domestic commerce, and be more competitive in the global market.

Specific recommendations supported by the four Pennsylvania sections of the American Society of Civil Engineers are:

- Obtain stable highway funding through innovative programs that are more appropriately tied to economic conditions; Advocate the need for a reauthorized and long-term federal surface transportation program;
- Encourage the use of life-cycle cost analysis principles to evaluate the total cost of projects;
- Encourage the use of cost-benefit analysis principles in evaluating and prioritizing projects before they are undertaken;
- Continue to use PennDOT's Smart Transportation principles in road design;
- Support environmental review streamlining of transportation projects;
- Use creative financing and project delivery strategies to advance the program (such as public-private partnerships and design/build) and deliver projects more efficiently;
- Advocate for additional research and development funding;
- Tolling and/or mileage-based user fees must be considered in the development of revenues for the maintenance and improvement of the surface transportation system.

- A 25 cent per gallon increase in the motor fuels user fee
- The user fee on motor fuels should be indexed to the Consumer Price Index (CPI),
- The creation of a permanent commission to determine the levels at which motor fuel user fees should be set, and when those fees should be increased
- Marcellus Shale extraction fees to help fund roadway improvements.

SOURCES

- PennDOT, *Highway Statistics*, 2012. Available at <http://www.dot.state.pa.us/Internet/Bureaus/pdPlanRes.nsf/PlanningAndResearchHomePage?OpenFrameset&Frame=main&src=HomePageHighwayStatistics?readform>
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ASCE POLICY STATEMENTS

- ASCE Policy Statement 276: [Integrated Truck and Highway Design \(PS 276\)](#)
- ASCE Policy Statement 367: [Highway Safety \(PS 367\)](#)
- ASCE Policy Statement 382: [Transportation Funding \(382\)](#)
- ASCE Policy Statement 454: [Intelligent Transportation Systems \(PS 454\)](#)

- ASCE Policy Statement 496: [Innovative Financing for Transportation Projects \(PS 496\)](#)
- ASCE Policy Statement 497: [Surface Transportation Research Funding \(PS 497\)](#)
- ASCE Policy Statement 526: [Public Private Partnerships \(PS 526\)](#)