

***Infrastructure Status and Needs in  
Southwestern Pennsylvania  
Produced by the University of Pittsburgh Institute of Politics  
Infrastructure Policy Committee  
January 13, 2009***

**Table of Contents**

**Introduction..... 2**

**Executive Summary..... 4**

**Navigable Waterways..... 6**

**Highways and Bridges..... 9**

**Water and Sewage Infrastructure..... 14**

**Public Transit..... 18**

**Rail Transportation..... 22**

**Air Transportation..... 25**

**Dam Safety..... 28**

**Flood Control ..... 30**

**Natural Gas..... 31**

**Acknowledgments ..... 34**

**Infrastructure Status and Needs in Southwestern Pennsylvania**  
***Produced by the University of Pittsburgh Institute of Politics***  
***Infrastructure Policy Committee***  
***January 13, 2009***

**Introduction**

In spring 2008, long before anyone was using the words “infrastructure” and “stimulus” in the same sentence, the University of Pittsburgh Institute of Politics decided that its annual Elected Officials Retreat in September should focus on infrastructure. Two main factors influenced that decision: increased awareness of Southwestern Pennsylvania’s large and still-growing infrastructure maintenance deficit, and Pennsylvania Governor Rendell’s national leadership role (along with California Governor Schwarzenegger and New York City Mayor Bloomberg) in calling for greater infrastructure investment.

In addition to educating regional leaders on the range and severity of regional needs, the Institute of Politics also convened a high-level Infrastructure Policy Committee, which met for the first time at the September 2008 retreat. The committee requested development of a primer documenting the status of each infrastructure sector, to assist the committee in establishing regional policy strategies. The scope of the committee’s concern was defined as encompassing transportation, water and sewage facilities, and other utilities.

The Infrastructure Policy Committee reviewed the first draft of this primer at its December 5, 2008, meeting and determined that the document should be revised for publication in early 2009. However, developments at the federal level forced reconsideration of the timetable. Because President-elect Obama wishes to make infrastructure investment one of his most immediate priorities, Congress is already taking up the issue and could pass legislation as quickly as next month.

As a result, the Committee has decided to release a version of its primer immediately, so as to assist the region’s congressional delegation and state officials as they participate in the shaping of what could become historic infrastructure legislation. This version is designed for federal and state policymakers, with easily reviewed bullets that highlight the region’s most urgent needs. At the same time, the Committee also wants to ensure that concern for the region’s infrastructure becomes an ongoing priority rather than a passing fad. No matter how much money the federal government appropriates this month or this year, more needs will remain or will subsequently arise. Many infrastructure sectors—especially those that lie outside of public view, such as water and sewer pipes—have been plagued by an inadequate approach to asset management, one that tends to ignore ongoing maintenance until systems have fallen into costly and extensive disrepair. This document is intended to keep all of us mindful of the enormous importance of reliable, functioning infrastructure to our economy and quality of life.

If it proves useful, the Institute of Politics hopes to update this document periodically to keep pace with changes in regional infrastructure status. We also hope eventually to encompass the electricity and telecommunications sectors, which are not covered here for proprietary reasons.

City, county, and state governments across the country have been preparing lists of specific project candidates to which they hope to apply federal stimulus funding. This primer is not such a list. While some major specific projects are identified, the emphasis here is on the overall actions needed to keep each infrastructure sector operating acceptably.

In fact, our preference is to broaden the perspective even further and to emphasize infrastructure as an integrated whole. Experts have noted that in other areas of the world, such as Europe and Australia, infrastructure planning takes place more holistically, based on overall societal goals, than in the United States where each sector tends to be addressed separately. We strongly support this holistic approach (which is often reflected in regional and county-level comprehensive planning), even though we have found it useful to organize this document by sector for clarity.

Because of the immediate context of infrastructure stimulus considerations, this document highlights identified needs where an injection of additional funds could be applied quickly and with valuable long-term impact. This emphasis should not imply that we believe more public funding is the only desirable strategy. In many cases, user fees, increased efficiency, or changing priorities will be part of the solution. Many of the specific suggestions contained in the discussions of each infrastructure sector reflect these approaches.

We do not feel it is our role to attempt a quantitative ranking of the region's infrastructure needs, but we have arranged the document so that it begins with the sectors that seem most widely acknowledged as needing urgent attention. This primer is not meant to reflect the preferences of our committee or its members, but rather to serve as an informational and educational regional infrastructure tool.

As we expect to continue updating, improving, enhancing, and circulating this document, we welcome any corrections or suggestions you wish to offer. You may submit them to the Institute of Politics at (412) 624-1837 or [iopadmin@pitt.edu](mailto:iopadmin@pitt.edu).

Thank you for your interest in Southwestern Pennsylvania's future and how an effective infrastructure can contribute to it.

*Institute of Politics Infrastructure Policy Committee*

*Paul Costa, Cochair  
Member, PA House of Representatives*

*Patricia Kirkpatrick, Cochair  
Armstrong County Commissioner*

## Executive Summary

The University of Pittsburgh Institute of Politics Infrastructure Policy Committee has directed development of this Southwestern Pennsylvania infrastructure primer, describing regional infrastructure issues in the transportation, water-related, and utility sectors. Research and interviews have highlighted the following issues regarding each sector:

- The Pittsburgh area's **navigable waterways** system is in dire straits. Pittsburgh is the nation's second-busiest inland port, and the region's economy depends heavily on water transportation. But the timelines of major, urgently needed lock and dam projects have slipped dramatically due to funding shortfalls, and the federal system of funding these projects is also in disrepair. The Port of Pittsburgh Commission and the U.S. Army Corps of Engineers, Pittsburgh District, have \$500 million of project work ready for quick action should stimulus funding become available.
- **Highway and bridge** funding in Pennsylvania remain unstable, particularly in view of the uncertainty of funding options envisioned by Act 44. The state has injected \$350 million of new funding into repairing deficient bridges and Southwestern Pennsylvania has virtually eliminated new capacity projects from its program to put more money into repairs and maintenance. Even so, PENNDOT districts report little headway in reducing the number of deficient bridges and anticipate that keeping roadways in good condition will be a growing challenge.
- **Sewage management** has the distinction of being the one infrastructure sector significantly out of compliance with federal regulations. There is evidence that many water and sewage authorities in the region have deferred investment in infrastructure maintenance. Public drinking water and sewage authorities generally cover costs through user fees, but a statewide task force found that setting drinking water and sewage rates each at 1.5 percent of median household income—a substantial increase for most users—would not fully fund anticipated needs.
- All Pennsylvania **transit** systems face great fiscal instability due to the uncertainties surrounding Act 44. Worse, the Port Authority of Allegheny County anticipates significant capital funding shortfalls regardless of Act 44 funding.
- Despite cost-cutting measures related to decreased traffic, **Pittsburgh International Airport** has a substantial backlog of capital projects. Arnold Palmer Airport in Latrobe has made rebuilding commuter service a priority.
- The region's **railroad** network is functioning well, with help from some public investment in projects with regional economic benefit. A proposed CSX intermodal terminal is the largest potential improvement slated for the region.

- Private utilities appear to have maintained their infrastructure assets adequately, but representatives of the **natural gas** industry believe authorization to levy a Distribution System Improvement Charge like that used by water companies would provide more efficient funding for capital investments.

## **Navigable Waterways**

### **Highlights**

- *River transportation is essential for Southwestern Pennsylvania's economy, as 42 million tons of freight pass through the Port of Pittsburgh each year, making it the nation's second-busiest inland port.*
- *Locks and dams on the Lower Monongahela and Upper Ohio Rivers are in extremely dire straits. On the Lower Mon, a project (begun in 1994) to upgrade two locks and eliminate one is more than a decade behind schedule. Meanwhile, the Emsworth lock on the Ohio is receiving emergency repairs. Further delays will result in more cases of inefficient emergency spending, perhaps even on a lock and dam slated for removal.*
- *Money to complete lock and dam improvements is not in sight, as the federal Inland Waterways Trust Fund has been depleted.*
- *The Port of Pittsburgh Commission and the U.S. Army Corps of Engineers, Pittsburgh District, have \$500 million of project work ready for quick action should stimulus funding become available.*

### **Background**

Compared to the roads and bridges on which nearly everyone drives, river transportation is not on the daily radar screen of most citizens. Nonetheless, it is critical for the industries that depend on the 42 million tons of freight, mostly coal and steel products, that pass through the Port of Pittsburgh each year.

Southwestern Pennsylvania's three major rivers have 17 lock and dam structures, maintained by the Pittsburgh District of the U.S. Army Corps of Engineers. Heading upstream in each case, they are:

- Ohio River: Montgomery, Dashiels, Emsworth
- Allegheny River: Locks 2 through 9
- Monongahela River: Lock 2 (Braddock), Lock 3 (Elizabeth), Lock 4 (Charleroi), Maxwell, Grays Landing, Point Marion

The Pittsburgh District also manages six locks and dams in neighboring states (downstream on the Ohio and upstream on the Mon), giving it 23 of the nation's approximately 200 such facilities. Most of them are 60 to 80 years old. Ten of the 17 structures located in Pennsylvania received grades of D or F on the ASCE's 2006 state report card. Since then the three troubled locks and dams on the Lower Mon, classified by the Corps of Engineers as "critically near failure," have continued to deteriorate. In November 2008, the Corps of Engineers awarded a \$3 million contract for emergency repairs of Allegheny River Lock and Dam 6, where a severe erosion problem was

detected the previous month. The Emsworth lock and dam, also seriously undermined by erosion and corrosion that left its gates dangerously thin, is in the midst of a five-year, \$163.8 million emergency repair project.

The Lower Mon project, which intends to replace Braddock and Charleroi and remove the structure at Elizabeth, has been characterized by erosion of timelines as well as river bottoms. It was initially approved in 1994 as a \$750 million, 10-year project, but received inadequate funding to meet the target completion date. Meanwhile, costs rose and lock and dam conditions worsened. The anticipated completion date has slipped from 2004 to 2016 and the estimated total of needed funds is still around \$750 million; without a funding boost, the completion date may be pushed back still further. Interim measures may keep the Braddock lock operating for five to eight years, but further project delays will likely create the wasteful specter of emergency repair expenditures on a structure slated for removal.

According to Pittsburgh District staff, this problem of never-ending projects results from pressure to distribute shares of available funds to many competing needs across the nation. In the 1980s two Upper Mon rehabilitation projects, at Grays Landing and Point Marion, were efficiently funded and completed for \$80 to \$90 million each. Since then, however, large projects have staggered under the hindrance of inefficient funding. Consider the Olmsted Lock and Dam, designed to replace two 80-year-old locks on the lower Ohio River, described as the busiest point (in terms of total tonnage) in America's inland navigation system. It was authorized in 1988 and initiated in 1996; nearly \$1 billion has been spent so far, with about another \$1 billion to go; the completion date has already slipped six years to 2014. The Waterways Council lists Olmsted, Emsworth, and the Lower Mon as three of its 27 infrastructure priority projects.

Without a change in funding strategy, these deadlines will slip further, because the Inland Waterways Trust Fund, which shares the cost of lock and dam projects equally with direct congressional appropriations, is out of money. This trust fund raises \$90 million a year from the barge and towing industries through a 20-cents-per-gallon fuel tax. Created in 1986, the fund had a balance of \$352 million as recently as fiscal year 2005—but it doesn't take many Olmsted-size projects to exhaust that money quickly.

Nationally, Congress has given the Corps of Engineers an annual budget of about \$5.5 billion to cover its responsibilities for flood control, coastal emergencies, and inland waterways. The remainder goes to construction and maintenance. Damaging floods and hurricanes, of which the U.S. has had a few recently, significantly drain the Corps of Engineers' capacity, and every emergency like Emsworth and Allegheny Lock and Dam 6 depletes the remaining funds further. The shifting of maintenance funds to current emergencies adds to the likelihood of future emergencies.

The barge and towing industries have resisted an increase in their tax burden, noting that other river users do not pay into the trust fund at all and decrying Congress's practice of appropriating project funds on a year-to-year basis, which results in inefficient and expensive project delivery.

The Corps of Engineers and Port of Pittsburgh Commission acknowledge the difficulty of raising public interest in a problem that might become catastrophic a decade from now, but they emphasize that further delays only increase both project costs and risks.

While decaying locks and dams are by far the most pressing threat to river navigation, the Corps and Port of Pittsburgh Commission indicate several other concerns:

- The American waterways system is not yet very high-tech, compared to Europe's satellite-aided river information systems.
- In the last federal transportation reauthorization, a provision to support "last-mile" connections from highways to other transportation modes was dropped from the final bill. Funding in this category could help with intermodal issues such as improving truck turnaround areas or signalization.
- There is some concern in the towing industry as to the adequacy of the future workforce. As with the trucking industry, the long periods of out-of-town travel make careers on the river unattractive to many.

## Highways and Bridges

### *Highlights*

- Financial limitations have virtually halted construction of new capacity on Southwestern Pennsylvania's road system. Even so, projected available funds will not be sufficient to maintain our existing road and bridge infrastructure in adequate condition.
- Southwestern Pennsylvania has more than 1,000 deficient bridges, with hundreds more edging toward deficient status. Even a major new state investment in bridge repair is only slightly reducing the backlog of deficient structures.
- Neither the state nor federal government has raised the gas tax in the last decade, and Pennsylvania's driver license and registration fees are also quite modest. Moreover, decreased driving and the advent of alternative-fuel vehicles are making per-gallon gas taxes a less effective revenue generator.
- PENNDOT and the Southwestern Pennsylvania Commission (SPC) are working to maximize the return on available funds through cost-effective programming.

### *Background*

*What is the infrastructure?* Within the 10 counties of the Southwestern Pennsylvania Commission's region lie about 300 miles of interstate highway, 8,000 miles of PENNDOT-maintained roads, and 5,300 PENNDOT-maintained bridges. Counties and municipalities bear responsibility for roadways not on PENNDOT's system. Allegheny County, for example, has maintenance responsibility for numerous major roadways and bridges that it constructed, including 800 lane miles of roadway and 520 bridges, nine of which are major river crossings. The City of Pittsburgh owns 186 more bridges. In a particularly peculiar case—the Glenwood Bridge—Allegheny County owns the bridge structure, PENNDOT owns the pavement, and the City of Pittsburgh owns the sidewalks.

Three PENNDOT districts lie in Southwestern Pennsylvania. District 10 covers Armstrong, Butler, and Indiana Counties, along with two counties (Clarion and Jefferson) not in the SPC region. District 11 includes Allegheny, Beaver, and Lawrence Counties; District 12 covers Fayette, Greene, Washington, and Westmoreland Counties.

*What condition is the infrastructure in?* PENNDOT's central office has assumed oversight of **interstate highway** maintenance since 2007, taking money from the statewide allocation before the remainder is distributed to metropolitan planning organizations, rural planning organizations, and PENNDOT districts. This priority has helped to resolve the most serious maintenance problems on the interstates.

Deficient **bridges** are a pressing problem statewide, and certainly in Southwestern Pennsylvania. Enhanced inspection emphasis and scrutiny following the December 2005 collapse of a 60-ton bridge beam onto Interstate 70 in Washington County and the 2007 Minneapolis bridge tragedy have resulted in a further increase in the already high number of bridges identified as deficient.

PENNDOT District 12 has 34 bridges of 500 or more feet in length, and 15 of them—nearly half—are rated deficient. Overall, about 700 of the district's 2,360 bridges, or 30 percent, are deficient. District 12 is allocating about 75 percent of available highway construction funds to bridge repair and replacement and hopes to address 160 bridges in the next four years; however, even this level of funding would leave 540 bridges untouched, with perhaps another 400 approaching deficient status.

While District 12 has a more intense problem, partly because the average age of its bridges is about 10 years higher than the statewide average, District 11 reports 34 percent deficient bridges (representing 26 percent of total bridge deck area) and District 10 is at almost 28 percent. The region appears to be experiencing now the consequences of generations of underinvestment.

Pennsylvania has sought to address its impending bridge crisis by devoting \$350 million in bond funds to an Accelerated Bridge Program, which is expected to make possible the rehabilitation of more than 400 bridges during the current fiscal year. But the goal of reducing bridge deficiencies to the national average of 10 percent would take 20 years to reach, even if the present extraordinary levels of bridge spending continue.

**Roads:** Historically, SPC and PENNDOT have encouraged an 80-20 funding split between infrastructure maintenance and new construction; today, funding limitations and a maintenance backlog have pushed the maintenance/new capacity ratio closer to 90-10 or perhaps even 95-5. District 12 reports that completion of improvements on Route 22 in Westmoreland County, scheduled for 2010, will leave no major new-capacity projects on its district program. In District 11, the recent completion of the missing ramps at Route 60 and Interstate 79 and the ramp from Route 28 to Interstate 279 southbound leave no major capacity expansions in progress.

Routine maintenance—items like snow plowing, salting, repaving, line painting, pothole filling, and shoulder stabilization, along with the staffing to carry them out—is funded separately with money from gas taxes and license fees. District 10's budget for routine maintenance is around \$90 million a year; Districts 11 and 12 are at about \$110 million each. District 11 reports that it has seen improved roughness ratings on its roadways in recent years but may not be able to sustain that improvement as funds become tighter. District 12 believes its pavement life suffers due to the unstable soil strata in the state's southwestern corner. A "smooth roads initiative" was among PENNDOT's top road priorities in 2004-2007 before bridge deficiencies became even more critical.

Vehicle traffic increased by 60 percent and heavy truck traffic by 83 percent between 1986 and 2006, wearing down roadways faster. But rising prices for asphalt, diesel fuel,

and road salt mean less money in the district budget for annual road paving. District 10, which has carefully analyzed the maintenance backlog on each category of roadway, suggests that roads on the National Highway System (which should be repaved every 10 years) may have to wait 16 to 30 years for attention under current revenue constraints and that District 10's minor but state-owned roads could go 100 years without a repaving.

The Pennsylvania Turnpike Commission has two major, partly completed highways on its construction program: the Southern Beltway in Washington and Allegheny Counties and the Mon-Fayette Expressway from Jefferson Hills to Pittsburgh and Monroeville.

*Funding.* At the regional level, existing road and bridge rehabilitation and new capacity construction are funded through the four-year Transportation Improvement Program (TIP), which is updated every two years. The current SPC TIP covers the fiscal years 2009-2012 and contains \$2.17 billion of projects and maintenance activity. This number is up from the total of \$1.58 billion in the previous (2007-2010) TIP. Act 44, which authorized the use of \$450 million of bond funding (to be repaid with future Pennsylvania Turnpike revenues) for roadways and bridges statewide in 2009, provided the source of funds for this increase. As neither the tolling of Interstate 80 nor the leasing of the Pennsylvania Turnpike has been approved, the future of additional Act 44 funding remains uncertain and the anticipated spike in available money may not continue beyond 2010. Meanwhile, more efficient cars and a decrease in total vehicle miles traveled have made both the federal and state gas taxes, now at 18.4 and 32.3 cents per gallon respectively, less effective revenue generators.

The outlook for federal transportation funding is also unclear. Hamstrung by declining gas tax revenues, the federal highway trust fund was fully depleted in September 2008 and received an \$8 billion emergency infusion. The federal transportation legislation bill is due for reauthorization. A commission established by Congress is expected to call for a 10-cent increase in the federal gas tax in its forthcoming report.

Public-private partnerships have occasionally made new construction possible within tight public budgets, but the marriage of private money and public processes can be difficult. Local interest in economic development often results in the public side of the partnership putting up most of the money. On the other hand, some communities that have collected project fees from developers may have to return the money because funds for the public share of new construction have become so tight. One PENNDOT staff member commented: "There are a lot of disconnects between private money and our processes. Developers want to write a check for \$5 million and go away, but our money is programmed years in advance and every dollar is spoken for, so we can't be the deep pocket for cost overruns."

*Workforce.* The state's accelerated emphasis on bridge work has raised concerns as to whether contractors will be able to staff bridge projects adequately, even as they move everyone with the requisite engineering skills from highways to bridges. The tight market for bridge contractors could also drive bid prices higher.

## ***Policy issues and opportunities***

Sources contacted for this study offered not only suggestions on how to generate more funds but also a variety of creative ideas that might help to reduce costs.

On the revenue side:

- The state gas tax increase recommended by the Transportation Funding and Reform Commission, which would be the first since 1997, has not yet been enacted. The federal gasoline tax has remained at the same level since the early 1990s.
- Policymakers may want to shift from per-gallon gas taxes to per-mile taxes on auto use, especially since some cars no longer rely solely on gas for fuel. A six-cent per mile toll is equivalent to a \$1.20 per gallon gas tax for vehicles averaging 20 mpg.
- Increasing driver license renewal and vehicle registration fees—currently set at \$28 and \$36, respectively—could generate additional transportation revenue.
- New projects may need to depend increasingly on nontraditional financing methods such as transportation development districts, development impact fees, public-private partnerships, and congestion pricing. As private investment in new construction becomes increasingly common, policymakers may wish to provide some guidance to the largely case-by-case decisions on how much each party contributes to a project. Federal and state processes could be redesigned and state legislation governing public-private partnerships could be enacted to make better use of private resources within those publicly regulated processes.

On the efficiency and cost-controlling side:

- “Project Region,” SPC’s long-range development plan, expresses a strong preference for more compact development patterns in corridors and existing communities to maximize the cost-effectiveness of infrastructure investments. It lists “revitalization and redevelopment of existing communities” and “maintenance of the existing transportation system” as top priorities.
- In several cases, adjustment of infrastructure ownership might help.
  - Traffic signal optimization can greatly improve drivers’ experience and reduce congestion, but is often hard to achieve because individual municipalities that own the signals lack the incentive or the resources to make equipment or operational improvements. Pennsylvania is one of only nine states that have no state ownership or maintenance of traffic signals. SPC believes that as

many as 80 percent of the 2,600 signalized intersections in Southwestern Pennsylvania could be improved with equipment upgrades or retiming.

- The state may be interested in transferring lightly traveled rural roads to county or municipal management.
- Allegheny County, which owns an unusually extensive and discontinuous collection of bridges and roadways, has proposed adoption of a more rational approach to road ownership based on functional classification, location, and traffic volumes. It would like to explore ownership transfer of its major bridges and up to 80 miles of major roads to PENNDOT, while acquiring other facilities as appropriate.
- Distribution of liquid fuel tax funds to Pennsylvania counties is based on the amount of gas consumption in each county in the years 1928 to 1930. This allocation method could be updated and could take into account each county's actual amount of road and bridge ownership.
- Controlling costs sometimes means saying no to things that the public might prefer. Every planned project that is delayed or dropped has its disappointed champions. Scheduling maintenance work on weekends and at night may reduce public impact but increases costs for overtime labor and special lighting. Users complain when bridges or roadways are closed completely rather than maintaining at least one alternating lane of traffic at all times; however, facilitating efficient rehabilitation often requires 50 or more continuous hours of complete closure.
- Administrative cost-saving steps that could become candidates for wider use include combining the design and build stages on project bids; combining multiple, similar bridge projects in a single bid; reducing duplicative inspection oversight; and more seal-coating instead of paving.
- Collaboration between infrastructure sectors could help to improve ridability—for example, by reducing the number of grates and manholes that lie where most vehicles' tires will hit.
- Some PENNDOT district staff would like greater flexibility to use newly developed construction materials; the extensive approval process can keep PENNDOT from using new technologies for several years after their emergence.
- State enabling legislation could facilitate the use of design-build and design-build-operate-maintain (DBOM) project contracting alternatives.
- Infrastructure and transportation costs have enhanced interest in encouraging greater use of "active transportation"—i.e., bicycling and walking.

## Water and Sewage Infrastructure

### **Highlights**

- *Southwestern Pennsylvania has perhaps the most imposing combination of water infrastructure challenges of any region in the United States.*
- *Maintaining and upgrading the region's water-related infrastructure, especially its aging and outdated sewage systems, will require billions of dollars of investment. Much of this investment is legally required under environmental regulations and consent orders.*
- *Increased state funding and user fees could fund much of the region's needed improvements. However, the Ohio watershed receives much less state and federal funding than other watersheds in the state with already established multi-state river basin commissions.*
- *The Southwestern Pennsylvania Commission voted to reestablish a regional water planning and management function. SPC has agreed to seek startup funds (\$2.7 million) and will seek other local, state and federal funding sources to sustain the effort.*

### **Background**

*Problems.* Southwestern Pennsylvania has one of the most imposing combinations of water infrastructure challenges in the United States. Problems include the nation's largest concentration of combined sewer overflows; severe flooding, exacerbated in some locations by suburban development; aging infrastructure; widespread abandoned mine drainage; overloaded sewage systems; soils that are unfriendly to on-lot septic systems; and bacterial contamination of rivers and streams.

The region's inability to solve these problems has frequently made news. In the 1990s Penn Hills became the first municipality to be convicted of criminal violations of the federal Clean Water Act after its employees falsified records of raw sewage overflows and treatment plant performance. The Allegheny County Sanitary Authority, which treats sewage from 83 municipalities, signed a consent decree in 2007, after seven years of negotiation, that will require an estimated \$4 to 5 billion of investment in system improvements over the next 18 years. The City of Pittsburgh's infrastructure "wish list," released in December 2008, included \$432 million for water and sewer system improvements. Contamination of rural water sources by industrial pollution or abandoned mine drainage has significantly affected residents of numerous communities.

*Who's responsible?* Southwestern Pennsylvania's water and sewage infrastructure management is highly fragmented. More than 260 public authorities and many of the region's municipalities provide water or sewer service. An investor-owned company,

Pennsylvania American Water, is the single largest drinking water provider. Many rural homes continue to rely on well water and septic systems; in six of the 11 counties covered by the Regional Water Management Task Force, fewer than half of households have public sewage.

Homeowners with wells and septic systems are responsible for their own infrastructure; public systems rely primarily on user fees for funding, with the average residential bills hovering around \$100 per quarter for drinking water and another \$100 for sewage. PENNVEST grants and low-interest loans have financed more than \$800 million of Southwestern Pennsylvania water infrastructure improvements in the last 10 years.

ALCOSAN is the largest example of many wastewater systems in Southwestern Pennsylvania where ownership of collection and treatment functions has been separated, with the result that downstream authorities are responsible for treating wastewater coming from tributary municipalities' collection systems.

*Amount of infrastructure.* 3 Rivers Wet Weather, which has played a prominent role in identifying and addressing water-related problems in Allegheny County, estimates that there are 6,000 miles of sewer pipe and about as much drinking water pipe in that county alone. These estimates do not count an approximately equivalent mileage of laterals—the lines connecting individual homes to the pipes—for which homeowners are responsible.

Pennsylvania American Water (PAW) has about 4,500 miles of water mains and 11,000 hydrants in its regional distribution system, which provides water to 200,000 customers. PAW operates 10 water treatment facilities in western Pennsylvania, along with numerous booster stations, water storage tanks, and related facilities. PAW reports that it expended approximately \$74 million in operating, maintaining, and improving its western Pennsylvania drinking water systems during 2008.

The Municipal Authority of Westmoreland County (MAWC) has 2,200 miles of pipe, four water treatment plants, and 120,000 customers. MAWC indicates that it has an annual budget of \$50 million, including \$34 million for operations and maintenance.

*Maintenance concerns.* With the infrastructure largely out of sight and rate increases unpopular, many municipalities and authorities have deferred maintenance. The Regional Water Management Task Force found a pattern of low customer rates and low levels of capital investment in lower-income communities, suggesting the possibility of a huge maintenance backlog.

The Governor's Sustainable Infrastructure Task Force, in its report of November 2008, projected total Pennsylvania water and sewer infrastructure system costs of \$113.6 billion for the next 20 years and total funding through current user rates of \$69.8 billion, leaving a gap of \$43.8 billion.

Two actions during 2008 made a down payment toward this infrastructure gap. The General Assembly approved \$800 million of spending on water, sewer, and dam safety projects, to be funded with gambling revenues and administered by the Commonwealth Financing Authority; in November, voters approved an additional \$400 million bond issue, with project funding to be administered by PENNVEST.

### ***Policy issues and opportunities***

- *Full cost pricing.* Many water and wastewater providers' rate structures have remained far below the actual full cost of services, resulting in billions of dollars in deferred maintenance need. The Governor's Task Force believes that it is reasonable for providers to set drinking water and wastewater rates each at 1.5 percent of its service area's median household income. It calculated that setting rates at this level across the state would reduce the funding gap from \$43.8 billion to \$6.8 billion over the next 20 years. Generally, Pennsylvania customers are paying an amount closer to 1 percent of median income for each service. Implementation of such rate increases may necessitate creation of a payment assistance program like those available in other utility sectors.

Companies regulated by the Pennsylvania Public Utility Commission (PUC) are required to charge for the full cost of service. Some have suggested placing all water and wastewater systems, not only those subject to PUC regulation, under PUC or Department of Environmental Protection (DEP) oversight to ensure that they are also practicing full cost pricing.

- *Asset management.* To combat the time bomb of deferred maintenance, the Governor's Task Force recommended requiring all water and wastewater systems to prepare long-term asset management plans.
- *Regional collaboration.* Various studies during the past decade have called for establishment of a regional entity to plan or oversee water infrastructure. In November 2008, responding to recommendations by the Regional Water Management Task Force, the Southwestern Pennsylvania Commission (SPC) voted to reestablish a regional water planning and management function. SPC has agreed to seek startup funds (\$2.7 million) and will seek other local, state and federal funding sources to sustain the effort.
- *Increase Ohio River Basin investment.* The Pennsylvania portion of the Ohio River Basin receives far less investment than do the Susquehanna and Delaware River watersheds. 3 Rivers Wet Weather analyzed the 2007 Pennsylvania budget and found more than \$11 million of state and federal funds going to the Susquehanna, \$4 million to the Delaware, and \$184,000 to the Ohio. Reinstating regional water planning at SPC may provide the vehicle for enhanced public funding comparable to other major Pennsylvania watersheds.

- *Right sizing.* Technical and regulatory requirements have become increasingly challenging for smaller authorities with limited resources. Some of these authorities have found relief through consolidation or collaboration with larger entities such as MAWC or the Indiana County Municipal Services Authority. Offering incentives for such consolidation and coordination may enhance management efficiency and quality.
- *Workforce.* There is some concern about replacing water and sewer expertise as current employees retire. Over two-thirds of authorities and municipalities responding to the Regional Water Management Task Force survey indicated an average employee age of 45 or higher.

## **Public Transit**

### ***Highlights***

- Act 44 of 2007 had appeared initially to place Pennsylvania transit systems on more stable financial footing, but crisis could reemerge in 2010 if no funding source replaces the disapproved proposal to toll Interstate 80.
- Regardless of what happens with Act 44, the Port Authority of Allegheny County faces an unresolved financial future. Factors squeezing the Port Authority include a declining share of state funds (because of growth in central Pennsylvania transit systems) and a declining share of federal rail transit funds (as more cities have built rail lines) along with labor commitments. Without an influx of new funds the Port Authority could face significant deficits in 2010.
- Transit's spike in popularity during 2008 may encourage Congress to set higher funding levels for transit in the federal transportation reauthorization—or plummeting gas prices may change the political climate for transit before Congress acts.

### ***Background***

Ten public transit agencies deliver transit and paratransit service in Southwestern Pennsylvania. The most visible component of their infrastructure is the buses owned by the transit agencies or by the private companies with which they contract for services. Public transit infrastructure also encompasses garages, maintenance facilities, park-and-ride lots, transit passenger centers, and vehicles (generally owned by separate contractors) used to provide paratransit service.

Two transit authorities were interviewed to obtain more detailed and illustrative insights:

- The Port Authority of Allegheny County provides 97 percent of the transit trips taken in Southwestern Pennsylvania. The Port Authority owns 811 buses and 48 minibuses, which travel a total of about 27 million miles per year; 83 light rail transit vehicles; two inclines; 25 miles of light rail track; and 19 miles of dedicated transit-only guideway (i.e., busways and a transit tunnel). Other assets include six maintenance facilities and garages and 63 park-and-ride locations containing nearly 15,000 parking spaces. As part of its ongoing bus replacement schedule, the Port Authority is receiving 100 new buses, including 20 hybrids, between December 2008 and June 2009.
- The Westmoreland County Transit Authority (WCTA) provides services both for commuters to Pittsburgh and on routes within the county. It contracts for its operating service but owns its 35 buses, as well as a maintenance facility and a Greensburg transit center. WCTA plans to replace 20 buses in the next three years at a total cost of about \$6.8 million.

Public transit receives a combination of federal, state, and local funding along with passenger revenue. Federal funding comes through several programs, the two largest of which are a block grant for transit systems in urbanized areas (Section 5307) and capital funds (Section 5309). State or local matching funds of 5 to 20 percent are required in order to receive these federal funds. The region has received some specially earmarked federal transit grants, such as \$348 million for the Port Authority's subway extension to the North Shore.

The financial guidance statement for Pennsylvania's 2009 Transportation Program states that the Pittsburgh urbanized area can anticipate receiving \$258.7 million of federal funds for its transit systems (or nearly \$65 million a year) during 2009-2012, with Fayette County to receive another \$4.7 million.

Act 44 of 2007 revamped the state's approach to transit funding, which had historically been relatively generous (fourth per capita behind Massachusetts, New Jersey, and New York) but unpredictable. Under Act 44, public transit in Pennsylvania received \$953 million in fiscal year 2007-2008. Sources included \$300 million from bonds that will be repaid from future Pennsylvania Turnpike revenues, along with funds from the state sales tax and the Pennsylvania Lottery. Act 44 funding is distributed for both capital and operating purposes, using formulas based on number of passengers carried, vehicle miles traveled, and vehicle hours operated. The use of cost-per-passenger performance criteria responds to the 2006 Transportation Funding and Reform Commission's call for improved efficiency.

Act 44 operating funds require a local match representing 15 percent of the state share or a 5 percent increase over the previous year's local share, whichever is less. The Port Authority's \$184.5 million share of fiscal year 2008-2009 operating funds thus required a \$27.7 million local match. Allegheny County has imposed taxes on alcoholic beverages and rental cars to raise the local funds necessary for transit. WCTA indicates that its county matching contribution was very close to the 15 percent level prior to Act 44.

Act 44's intent to place state transit funding on stable ground has been destabilized by the lack of progress in either leasing the Pennsylvania Turnpike or securing federal permission to impose tolls on Interstate 80. Without these funding sources, Act 44 statewide funding for transit is scheduled to drop from \$400 million in 2009-2010 to \$250 million the following year. According to transit representatives, PENNDOT is expressing reluctance to commit to new projects beyond 2010 due to the funding uncertainty. As one transit policymaker commented, "Without Act 44 money the operating side [of transit] is in big trouble."

The Port Authority's fiscal year 2009 operating budget of \$350.3 million includes \$206 million from the state, \$30.6 million from Allegheny County, \$25 million of federal funds, and \$88.7 million (25 percent of the total) in operating revenues. Its capital budget of \$241.8 million includes 53 percent federal, 41 percent state, and 3 percent county

funds. WCTA has a capital budget of about \$2.5 million a year and an operating budget of \$4.9 million. Close to \$1 million of its operating revenues come from fares.

The Port Authority's labor costs have received considerable attention, but other factors contribute to making this agency's current financial state precarious. First, Act 44, while it increased transit operating money overall, also introduced a new funding formula that directed greater assistance to transit agencies outside the state's two largest cities. The Port Authority received an extra \$55 million in operating funds under Act 44, but had been receiving up to \$63 million a year under the interim "flex" solution of transferring highway monies to transit. So Act 44 did not provide a financial boost for the Port Authority. Moreover, federal rail transit assistance to the Port Authority has dropped as many U.S. cities have built or expanded rail systems over the past 20 years.

As a result, the Port Authority projects a \$188 million capital budget deficit over the four-year period of 2009-2012, even if it initiates no new projects.

Transit enjoyed a resurgence during 2008, especially after gas prices shot upward. The Port Authority, which carries 65 million riders a year, has seen a ridership increase of 5 percent in 2008. WCTA had almost 20 percent more riders during July-October 2008 than in the same months of 2007. WCTA raised fares by 24 percent in February 2008, yet ridership went up 25 percent. The upcoming year may show whether transit agencies are able to retain the increased patronage that they attracted when gas prices spiked.

### ***Other policy considerations***

- The logjam over Act 44 funding could result in a continued shift toward more local funding of transit. Many other U.S. metropolitan areas have approved broad local taxes, most commonly a sales tax increase, to fund transit.
- The Port Authority and other local transit agencies are moving toward implementation of automated fare collection and use of "smart cards," which should reduce loss of revenue due to equipment failure or fare evasion and should allow for easier connections between participating agencies.
- The Port Authority's Connect 09 public outreach program and transit demand management planning effort intend to identify additional ways to improve efficiency in service delivery.
- Regionalization of public transit has been broached periodically, but most observers believe it would not cut costs. Travel patterns and population distribution in the counties surrounding Allegheny do not appear to lend themselves readily to consolidation with the Port Authority.
- Putting more people in easy reach of transit makes transit more viable. Support for transit-oriented development (TOD) and establishment of transit revitalization

investment districts (TRIDs) in locations such as East Liberty along the Port Authority's East Busway and Carnegie along the West Busway can effectively leverage existing investments in transit infrastructure.

## **Rail Transportation**

### ***Highlights***

- *Rail remains a major mover of freight in and through Southwestern Pennsylvania. The state provides financial support to projects with public economic benefit. More investment could help to rebuild the significantly downsized rail network.*
- *Possibilities for commuter rail (especially between Pittsburgh and Westmoreland County) and expanded passenger rail service (especially to and from Ohio) exist, but may require complex collaboration with railroads for which passenger trains on their rights-of-way threaten efficiency.*
- *CSX has proposed development of a new intermodal facility in or near Allegheny County, which could carry substantial economic value for the region.*

### ***Background***

The railroad system in Southwestern Pennsylvania consists of 1,332 miles of track, operated by 17 railroad companies. Three large Class 1 railroads—Norfolk Southern, CSX, and Canadian National—operate in the region. Norfolk Southern owns 491 miles, or more than one third, of the region’s track; the Buffalo and Pittsburgh Railroad is second with 194.4 miles, just ahead of CSX. Although the 17 companies are privately owned, they also function as a rail network, depending on each other for connections that extend their geographic reach.

About 70 to 90 trains a day pass through the region on Norfolk Southern’s lines. The continuing increase in freight traffic (anticipated to double by 2050), along with rising fuel costs, highway congestion, and a shortage of truck drivers, has helped to push business to railroads. However, rail infrastructure development is an expensive and inflexible undertaking—once you lay track, you can’t move it. As such, railroads need a reasonable expectation of ongoing business before committing to major rail expansion or restoration projects.

Pennsylvania contributed about \$35 million to a major renovation project in the 1990s that permits Norfolk Southern to send tall “double-stack” rail cars across the state. Norfolk Southern still has an important choke point at Port Perry, near Duquesne, where a bridge crosses the Monongahela and enters a tunnel. The tunnel is double-stacked for one track only, creating backups. In addition, lock and dam improvements could eventually affect the bridge by raising the water level.

CSX wishes to establish double-stack capacity in Pennsylvania as part of its National Gateway rail modernization program, which proposes to invest \$168 million in Pennsylvania and to create a new intermodal terminal in the Pittsburgh area. Norfolk Southern currently operates an intermodal facility at Pitcairn; its accessibility from major highways is less than ideal.

The Buffalo and Pittsburgh Railroad serves various industrial locations with lines reaching from New Castle southward into Allegheny County and eastward to Indiana County. It completed an important rail restoration in 2005, building 16 new miles of track to reestablish service to a power generating station in Homer City, Indiana County. It also serves several chemical companies in Butler County.

The Wheeling and Lake Erie (W&LE) Railway maintains a line from Ohio through Washington County that snakes northward to suburban Pittsburgh and terminates at Connellsville, Fayette County. The W&LE moves about 8,000 carloads through the region, primarily carrying coal and steel products. However, it could have several times that number of carloads within two years due to anticipated industrial developments. The W&LE has spent \$2.5 million on maintaining its Pennsylvania trackage in the last five years. Other “short line” railroads also serve industries throughout the region.

Pennsylvania state government recognizes the importance of rail transportation through its Rail Freight Assistance Program, which offers \$30 million a year (recently increased from \$20 million) to help private railroads with infrastructure improvements. Pennsylvania also awards funds to railroads through its capital budget and is considered one of the leading states in supporting rail freight, which carries about 1 billion tons a year through the state. Rail received a grade of B, the highest rating of any sector, in the American Society of Civil Engineers’ (ASCE) 2006 Pennsylvania infrastructure report card. The rail industry points out that it shoulders virtually the whole cost of maintaining its infrastructure, whereas the trucking industry receives an infrastructure subsidy through the public maintenance of highways. According to the ASCE, Pennsylvania’s public investment in rail helped remove 3.8 million trucks from highways during 2005 alone, greatly reducing congestion and road deterioration. Short line railroads also receive a federal tax credit for infrastructure reinvestment.

Passenger rail in Southwestern Pennsylvania now consists of four daily Amtrak trains stopping in Pittsburgh – the Capitol Limited between Washington D.C. and Chicago, and the Pennsylvanian to and from New York. In fiscal year 2007, 120,000 travelers boarded or got off Amtrak trains in Pittsburgh. Passenger rail travels on freight rights-of-way—with some inconvenience to both. Passenger trains receive preference and usually travel faster than freight trains, forcing freight shipments to pull off at sidings; getting all those freight trains out of the way can be difficult, causing delays on Amtrak trips. One rail representative said he tells advocates for increased passenger rail to “bring the capacity with you.”

Pennsylvania’s recent investment in passenger rail has occurred in the east, where high-speed trains travel the mountain-less corridor from Harrisburg to Philadelphia, as well as along the Northeast Corridor between Boston and Washington D.C. Two local passenger rail possibilities are under study: one going northeast from Pittsburgh along the underutilized Allegheny Valley Railroad, and a proposal for daily commuter service from Latrobe and Greensburg to Pittsburgh.

Ohio's Department of Transportation has a major passenger rail initiative in development. The "Ohio Hub" plan envisions passenger trains traveling at 110 miles per hour in up to seven corridors, including Cleveland-Pittsburgh and (added subsequently because of public input) Columbus-Pittsburgh. Ohio intends to restore trackage in downsized corridors so as to separate passenger and freight traffic as much as possible. Ohio hopes to stimulate greater Pennsylvania interest in upgrading its Keystone passenger corridor west of Harrisburg.

A planned nine-mile extension of the Kiski Junction Railroad in Armstrong County illustrates what a small amount of rail can do. Currently the Rosebud Mining Company ships 750,000 tons of coal each year from a mine at Logansport along the Allegheny River. Removing this coal requires 31,000 inefficient round trips by truck on a winding, hilly road poorly equipped for a constant diet of heavy loads. A rail connection could save an estimated 740,000 gallons of diesel fuel and enable Rosebud to increase production by 60 to 100 percent. With help from a recently awarded \$4 million state grant, this connection may be constructed within the next three years.

Regional railroads indicate that they have diversified their business activity so as not to be as dependent on a single industry; that they are sometimes aggressive in helping to recruit businesses to locate along their lines; that they can be important suppliers for emerging industries (e.g., delivering the sand used in Marcellus shale drilling); and that the funding assistance they receive for capital improvements is essential to their operations.

Reflecting the growing importance of intermodal transportation, one rail company said its biggest client is the trucking industry, which arranges to send shipments by rail over long distances and then carries them by truck to their final destination.

Overall, rail remains an efficient means of transportation with significant economic, environmental, and congestion mitigation benefits, but its increased use will require ongoing investment in rebuilding a downsized system.

## **Air Transportation**

### **Highlights**

- *Pittsburgh International Airport's capital improvement program significantly exceeds anticipated available funds. Airlines contribute to airport operating costs, but declining airport traffic is making the per-flight burden greater for airlines serving Pittsburgh.*
- *Arnold Palmer Airport in Latrobe is actively pursuing expansion of commuter service, as part of a larger effort to restore regional hub-and-spoke flights through Pittsburgh. This initiative may require some startup investment.*
- *General aviation airports play an important role in the region. Their expansion potential depends on their ability to demonstrate increased need.*

### **Background**

Airports are the only aspect of Southwestern Pennsylvania's infrastructure about which an observer might say the problem is too much capacity. But the casual observer may forget that Southwestern Pennsylvania has more than one airport. In fact, along with two commercial airports in Allegheny and Westmoreland Counties, the region has publicly owned "general aviation" airports in every county except Armstrong, where a privately owned airport is available for public use.

General aviation airports receive federal Airport Improvement Program (AIP) funds distributed by formula through a block grant to the Pennsylvania Department of Transportation. The statewide apportionment is about \$15 million a year. Allegheny County Airport, the largest regional airport in this category, receives about \$250,000 a year from this source. (The AIP has not been reauthorized since September 2007 but has remained in existence through continuing resolutions of Congress.)

State government also operates an Aviation Transportation Assistance Program, which doubled in size to \$10 million for the current budget year. Greene County received a \$198,000 state grant in 2008 to plan improvements at its airport in Waynesburg. Armstrong's public-use airport recently received funding to pave a grass runway. Several other regional airports are interested in pursuing runway extensions. To receive additional funding for capital improvements they must demonstrate a need to the Federal Aviation Administration—not a desire to expand service, but strong evidence of future users beyond what the airport can currently accommodate.

The state also distributes about \$8 million a year through its Aviation Development Program, funded by a tax on aviation fuel. The Allegheny County Airport Authority (ACAA) receives approximately \$1 million a year from this program, \$2.5 million a year of federal entitlement funds for Pittsburgh International Airport, and \$10 million to \$20

million a year in competitive discretionary funds depending on the FAA's prioritization of its project proposals.

Pittsburgh International Airport has two main sources of user revenues. Each airline passenger's ticket includes a \$4.50 passenger facility charge (PFC), collected by the airlines and remitted (except for a small administrative fee) to the airport. This revenue source generates about \$19 million per year. The ACAA and other commercial airports believe that the PFC is an efficient way to fund airport improvements and would like to see it raised from \$4.50 to \$7.50, with authorization of subsequent increases tied to inflation.

In addition, under their agreement with the ACAA, air carriers fund Pittsburgh Airport's operating expenses through rental charges and landing fees. When airport usage goes down, fees go up so as to avoid a shortfall. This arrangement enables the airport to keep a balanced operating budget in the short term, but rising fees can encourage carriers to shift their business to other airports. About \$7 million a year of these charges goes into a separate account to assist with capital projects.

The ACAA's five-year capital improvement plan for 2009-2013 includes nearly \$140 million of proposed projects. The largest item is the last phase of a \$45 million stormwater treatment plant to handle runoff that contains deicing fluids. Other projects include improvements to runways, taxiways, runway safety areas, and the Pittsburgh Airport terminal. Another \$208 million of 2009-2013 projects, including additional runway upgrades and improvements to parking garages and the Pittsburgh Airport's people mover system, are listed as desirable but not achievable with anticipated funding. Airport pavement is much more expensive per mile than highway pavement—but one mile of runway, unlike one mile of highway, can enable users to move across the country.

Cuts in passenger service, especially by US Airways, have caused Pittsburgh Airport to close some gates. However, asset maintenance is essential to meet future needs and attract additional air traffic.

Arnold Palmer Regional Airport in Latrobe hopes to provide some of that additional traffic. Its commuter service to Pittsburgh was among the casualties of US Airways' cutbacks. An FAA program to sustain "essential air service" provides subsidies to regional airports at least 70 miles from a hub—like Johnstown, Dubois, and Altoona—but Latrobe is too close to Pittsburgh. Its only current passenger service is a Northwest Airlines flight to Detroit. Because of strong constituent interest, Arnold Palmer Airport has charged Northwest only a landing fee, with no additional rental charge, to keep it flying into Latrobe.

Along with colleagues in Erie and West Virginia, the Westmoreland County Airport Authority is negotiating with commuter airlines in the hope of initiating regularly scheduled commuter service to Pittsburgh. The larger goal is to rebuild a viable hub-and-spoke system, with affordable flights from numerous smaller cities connecting to

Pittsburgh Airport and encouraging major carriers to increase their service to Pittsburgh. The rebuilding of regional air service at Arnold Palmer Airport could require some initial funding assistance, such as the installation of updated kiosks.

Arnold Palmer Airport completed a runway extension in 2007 and is currently adding new hangar space. This airport's viability is enhanced by the presence of a Latrobe-based company that provides the pilots and scheduling for companies that have chosen to share fractional ownership of corporate jets (similar to a timeshare setup) rather than to purchase their own planes or depend on commercial service.

## Dam Safety

- *More than 300 “high hazard” dams are considered deficient and the number is growing. Total repair costs could exceed \$1 billion. Pennsylvania will prioritize application of state bond funding to the dams at greatest risk, but additional money could help to keep problems from becoming worse.*

Pennsylvania has approximately 3,200 dams, one-fourth of which are categorized as “high hazard” because their failure could result in loss of life or substantial property damage. The Pennsylvania Department of Environmental Protection (DEP) has a Division of Dam Safety responsible for regulating these dams. Some of them are owned by the state Department of Conservation and Natural Resources (DCNR), the Fish and Boat Commission, or public water authorities, but many are privately owned.

The 12-county Southwestern Pennsylvania region has 637 dams; of these, 197 are classified as high hazard dams. The region’s dams are almost evenly split between public and private ownership.

Dam rehabilitations or replacements are frequently multi-million dollar projects. The Division of Dam Safety has documented more than \$35 million in expenditures on 20 dams since 1998. The money for these projects came from the state capital budget, PENNVEST, or Growing Greener.

Statewide, the Division estimates that 305 high hazard dams are deficient, and that this number will rise to more than 500 by 2010. Overall, it estimates the statewide rehabilitation funding need as \$1.2 billion for high hazard dams and \$1.44 billion for all dams. The Division has provided cost estimates for 15 state- or municipal-owned dams in Southwestern Pennsylvania:

- One DCNR dam (Ryerson Station, Greene County) is funded in the state capital budget at \$30 million.
- Eight Fish and Boat Commission dams are not funded and carry a total estimated rehabilitation cost of more than \$52 million.
- Six municipal-owned dams in DEP’s Southwest Region have a total estimated repair cost of \$14 million.

Of the \$800 million in bond funding for water-related projects that the General Assembly approved in 2008, \$35 million is reserved for unsafe dams. The Division of Dam Safety will use a risk prioritization tool to assess which dams are at the greatest risk and thus in greatest need of immediate attention. The Commonwealth Financing Authority will administer this program.

The Division has enforcement power over privately-owned dams, but Pennsylvania does not have a program to assist with private dam rehabilitation. Division staff indicate that other states have low-interest loan programs in which private dam owners can participate. On the other hand, funding is available to assist in removing dams. Where

a dam is not necessary, the Division encourages its removal, and private owners are often happy to comply because of the potential liability the dam poses. According to the Division, 51 Pennsylvania dams have been removed in the last two years.

The Fish and Boat Commission, with a projected need of \$100 million for 18 unsafe dams, has signed rehabilitation contracts for two of these dams, at recreational facilities in Cumberland and Lehigh Counties. In these cases, county and even township governments contributed funds to move the project forward.

A bill to create a \$200 million federally funded dam rehabilitation and repair program passed the U.S. House in October 2007 but did not pass the Senate.

## **Flood Control**

Flooding, a longstanding problem in Southwestern Pennsylvania, has become even more disastrous for some downstream municipalities, endangering their viability, due to the consequences of ineffective stormwater management. More thoughtful approaches to development and stormwater control can reduce the volume of rampaging waters, but many established communities depend on existing or proposed flood control projects for protection.

Both the U.S. Army Corps of Engineers and the Pennsylvania Department of Environmental Protection (DEP) participate in flood control projects. Where the Corps becomes involved—usually with regard to larger waterways such as Chartiers Creek, which devastated numerous communities after Hurricane Ivan—it provides 65 percent federal funding. The DEP then splits the remaining 35 percent of the project cost with local governments.

The DEP maintains 17 flood protection projects in Allegheny, Beaver, Butler, Indiana, Washington, and Westmoreland Counties. All of these are considered to be in acceptable condition, although one of them, covering nearly two miles of Jacks Run in the Greensburg area, is rapidly deteriorating and slated for major rehabilitation. This is one of nine DEP projects scheduled for construction within the next five years, at a total estimated cost of \$52 million.

When the General Assembly approved \$800 million in bond funding for water projects in 2008, it reserved at least \$100 million of that money for flood control. The DEP Bureau of Waterways Engineering believes that these funds, along with yearly budget allocations, will help to complete programmed projects and maintain the Department's existing flood control infrastructure.

The Corps of Engineers is currently evaluating Girty's Run and Pine Creek, which flow (respectively) through the flood-ravaged towns of Millvale and Etna on their way to the Allegheny River, as possible project locations.

Various local initiatives can help to mitigate stormwater threats. Municipalities in northern Allegheny County are collaborating to develop new detention ponds that would slow down the rush of water into Girty's Run. State Rep. David Steil has proposed legislation authorizing creation of watershed authorities to prepare and implement more effective water plans. Low-impact development approaches, such as rain barrels, rain gardens, and less use of impervious surfaces, can help to reduce runoff. Municipalities may need to change building codes so as to permit stormwater to drain from a roof into the ground rather than into a pipe.

## **Natural Gas**

*The private companies that handle natural gas transmission and distribution believe several state-level policy issues affect their ability to provide cost-effective and high-quality service. These include:*

- *Granting gas distributors the right to impose a Distribution System Improvement Charge that would reduce their need to make periodic, complicated, expensive requests for rate increases.*
- *Giving gas companies, rather than individual customers, responsibility for maintaining the connecting lines that deliver gas to individual homes.*
- *Drilling for gas in the Marcellus shale formation, an activity that offers enormous energy yield possibilities but also has posed serious environmental concerns.*

## **Background**

Unlike the natural gas infrastructure in most U.S. regions, Southwestern Pennsylvania's is split among four private companies. Three of them (Columbia, Dominion Peoples, and Equitable) each have several hundred thousand customers in the region; T.W. Phillips has 60,000.

These companies are responsible for the transmission and distribution of natural gas through about 20,000 miles of pipeline. The infrastructure also includes large underground gas storage facilities.

Various entities, some of which have corporate connections to these four gas distribution companies, compete for business as gas suppliers. The distribution companies are regulated by the state Public Utility Commission and, as such, may not make a profit on the supply of gas.

Along with regular maintenance (into which Columbia Gas alone invests an estimated \$20 million a year in this region), upgrade of aging pipes in older communities is becoming increasingly important. Columbia Gas indicates that it has approximately 2,400 miles of steel pipe, ranging from several decades to 100 years old, that are due for replacement. In 2007 Columbia Gas initiated a 20-year upgrade plan for these pipes, at a projected total cost of \$1.4 billion.

In another unusual arrangement, most western Pennsylvania customers are responsible for the connecting lines that carry natural gas from the main distribution lines to their homes. In other parts of Pennsylvania, as well as most of the United States, these service lines are owned by the utilities and are maintained and operated at the utilities' expense.

Funding to maintain the natural gas infrastructure comes from ratepayers and corporate investors. Distribution companies submit quarterly filings to the PUC demonstrating their costs of purchasing gas in order to receive “rate recovery.” Since they do not make a profit on the sale of gas, when the cost of gas goes down (as occurred in fall 2008) so does the customer charge. The companies are entitled to an approved rate of return on their costs of distributing the gas. To receive an increase in this charge they must file a “rate case” with the PUC. This is an extensive, public, negotiated process. In January 2008, for the first time in 12 years, Columbia Gas submitted a rate case, seeking an increase of approximately 10 percent; it eventually received a 6.4 percent increase that took effect this fall.

Because of the considerable cost (\$1-2 million) of pursuing a rate case, gas companies tend not to make frequent requests for smaller increases. As a result, rate cases often result in a spike in customers' bills rather than a gradual increase. Natural gas utilities would prefer an established, ongoing mechanism of recovering infrastructure investments comparable to the Distribution System Improvement Charge (DSIC) granted to water companies. Legislation for this purpose (HB 2594, introduced by Rep. Tim Solobay of Washington County) was passed out of committee in 2008 but did not reach the House floor.

The industry reports some difficulty in securing a qualified workforce, as some contractors have expressed concern about whether they can handle the work associated with infrastructure replacement. Columbia Gas indicates that it is working with the Keystone Utilities Industry Partnership, funded by the state Department of Labor and Industry, to develop a training program that would augment the pool of qualified individuals. Labor organizations have supported the industry's request for DSIC authority, because they would prefer to see a stable funding source for long-term contracting opportunities rather than the stop-and-start approach fostered by the pattern of periodic rate cases.

### ***Policy issues and opportunities***

- *DSIC.* The natural gas industry believes approval of such a charge will contribute to more consistent, cost-effective infrastructure management by spreading the costs broadly over time and reducing the need for base rate increase filings, the costs of which are ultimately passed to customers. Former Public Utility Commissioner Terry Fitzpatrick addressed this issue at the Institute of Politics retreat in September 2008. Industrial customers, however, may object to the impact of such a charge if it is based on usage levels.
- *Legislation on customer-owned service lines.* In other parts of Pennsylvania, when a leak occurs in a gas line leading to a home or business, the gas company fixes the problem at no direct charge to the customer. In western Pennsylvania, the company must turn the gas off and wait for the customer to arrange repair. The natural gas industry favors provisions that would require natural gas distribution companies to assume responsibility for all service lines.

- *Infrastructure sector coordination.* Why dig a hole or fix a road repeatedly? When a gas company digs a trench along a roadway in order to repair or replace a line, it creates an opportunity for water and sewer repairs to happen at the same time; similarly, restoration work could be coordinated with road paving plans. Columbia Gas reports that it enjoyed cooperation with the city of York so as to combine gas line replacement with sidewalk improvements.
- *Marcellus shale.* It is believed that trillions of cubic feet of natural gas lie underground in the Marcellus shale formation, much of it in western Pennsylvania. The Marcellus has been an expensive target due to its subsurface depth (usually a mile underground), but rising fuel prices made drilling into the Marcellus more attractive in the past year, creating a significant economic opportunity for the region. In recent months, however, environmental concerns, related to the use of large amounts of water in fracturing Marcellus shale and the content of wastewater released, have dampened enthusiasm about this opportunity.
- *Permitting.* Municipalities are not supposed to make money off the permitting process, but some have reportedly enacted large increases in permitting fees after learning that the gas company was planning repairs. Permitting policies also vary, with some municipalities charging up front and others imposing expensive restoration requirements—e.g., expecting a utility that digs up one shoulder of a road to repave the whole road.

## **Acknowledgments**

This document has benefited from the generous contributions of interview time and information by many parties. We particularly wish to thank:

- 3 Rivers Wet Weather, Inc.
- Allegheny County
- Allegheny County Airport Authority
- Allegheny Valley Land Trust
- Buffalo and Pittsburgh Railroad
- Columbia Gas
- CSX
- Dominion Peoples
- Municipal Authority of Westmoreland County
- Norfolk Southern
- Ohio Department of Transportation
- Pennsylvania American Water Company
- Pennsylvania Department of Environmental Protection
- Pennsylvania Department of Transportation
- Port Authority of Allegheny County
- Port of Pittsburgh Commission
- Southwestern Pennsylvania Commission
- Westmoreland County Transit Authority
- Westmoreland County Airport Authority
- Wheeling and Lake Erie Railway
- U.S. Army Corps of Engineers