

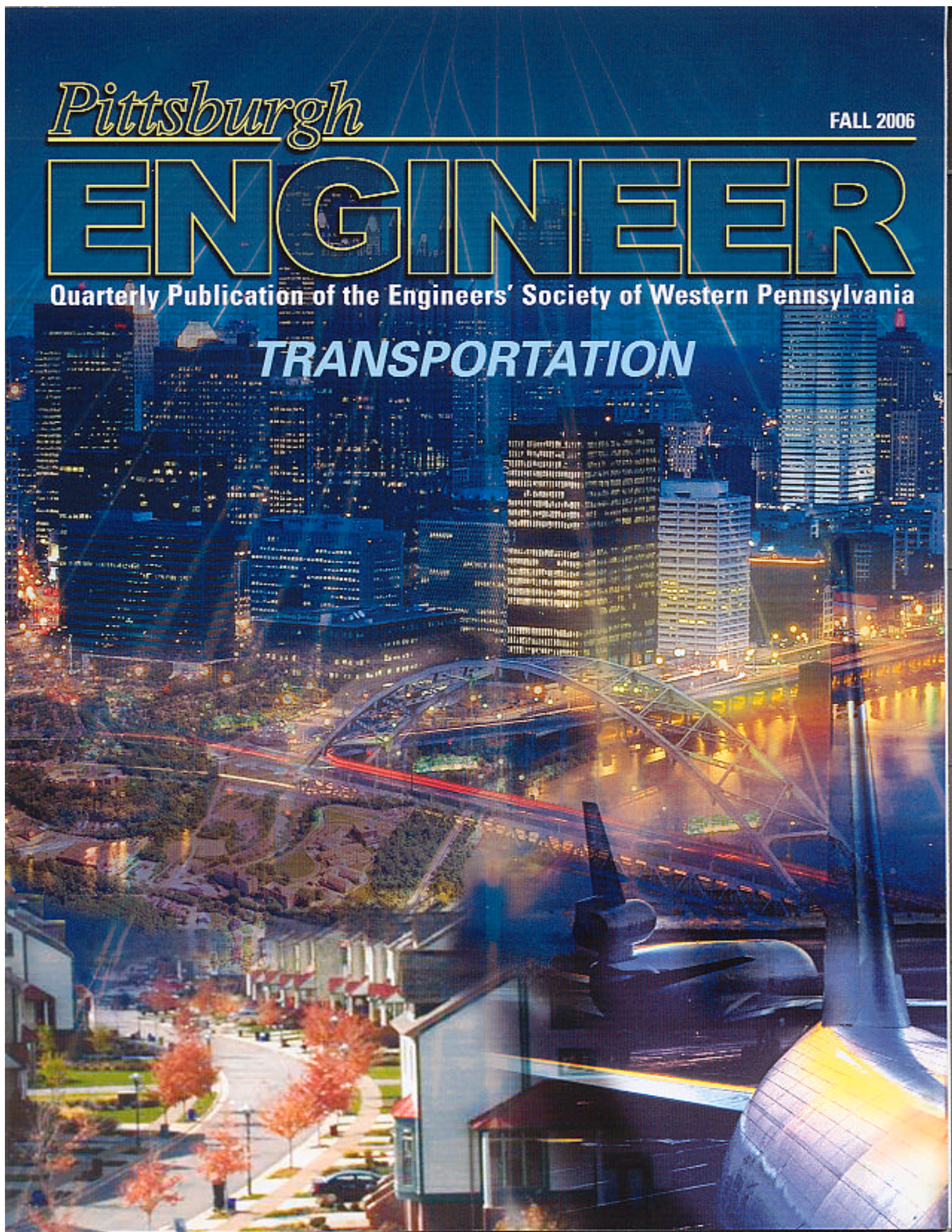
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FALL 2006

ENGINEER

Quarterly Publication of the Engineers' Society of Western Pennsylvania

TRANSPORTATION



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ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA

The Pittsburgh Engineers' Building

337-4th Avenue

Pittsburgh, Pennsylvania 15222

Telephone: 412-261-0710 Fax: 412-261-1606

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Guest Editor

Allen D. Biehler, PE, Pennsylvania Transportation Secretary Chair

Daniel J. Tis, S/D Engineers Inc.

Editor-in-Chief

Dave Teorsky, ESWP

Art Direction & Layout

Douglas Smith, Phoenix Publications

Rob Loree, Phoenix Publications

Dave Moniot, S/D Engineers Inc.

Tiffany Merovich-Winter, Aker Kvaerner

Michael P. Roarty, Mascaro Construction Company, LP

Chriss Swaney, Carnegie Mellon University School of Engineering

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Rethinking the Course of Transportation

**Moving to Connections that Knit
a Strong Community Fabric and
Build a Stronger Pennsylvania**

by Allen D. Biehler, PE
Pennsylvania Transportation Secretary



As we survey the landscape of southwestern Pennsylvania and wonder why transportation networks and land use patterns developed as they did, we need to recall some history.

Without question, the rise of the automobile after World War II laid out the concrete and asphalt route we still largely follow. The go-where-you-want, when-you-want nature of the automobile is incredibly attractive. From waiting on street corners and setting personal schedules to match those of the bus or trolley company, the automobile

driver has moved to a sphere of total control, over personal environment and timetable. At least, that was the ideal.

Through the 19th and first part of the 20th centuries, common conveyances were the order of the day. The progression went from horses, horse drawn carriages, canal boats, railroads and then street railways. Buses started their rise in the 1930s, but the war years postponed the coming rise of the automobile. Public transit ridership nationally peaked at 23.4 billion in 1946. Annual ridership on Pittsburgh Railways Company buses and trolleys peaked a year later at 247 million.

Expressways Gain Favor

You know the rest of the story. Pennsylvania delivered the nation's first four-lane superhighway, the Pennsylvania Turnpike, in 1940, whetting appetites for the high speed experience. Many states built their first expressways in the late 1940s and early 1950s. The first sections of the Parkway East between Churchill and the Boulevard of the Allies opened in 1953.

In 1956, President Dwight Eisenhower signed the Interstate Act, and the federal government embraced the concept of subsidizing automobile travel in a way not extended to other modes. In 1958, the federal government transferred from the states to the Interstate Commerce Commission the authority to discontinue commuter rail service and immediately those services started to disappear. The allure of train travel gave way to that of smooth and high speed travel in personal vehicles – and American's love affair began. Privately-held transit companies watched their customer base and revenue fall away. Pittsburgh Railways Company reached its low point in 1962 at 63 million annual riders.

A Missed Opportunity

Some voices offered perspective.

"To conserve and enhance values in existing urban areas is essential. But at least as important are steps to promote efficiency and livability in areas of future development. Our national welfare therefore requires the provision of good urban transportation, with the properly balanced use of private vehicles and modern mass transport to help shape as well as serve urban growth."

A sound transportation manifesto. It's from President John F. Kennedy's 1962 message to Congress calling for a new program of federal capital assistance for mass transportation.

While that message led within two years to the start of federal subsidies for transit, the nation's failure to fully adopt Kennedy's vision has brought it to a place that darkens personal mobility's promise. Though drivers can still control their personal environment, they can no longer be sure of the schedule thanks to growing congestion. Fuel price and availability loom as frustrating bumps on the road. Public transit sputters along, lacking the strong and certain funding generated by the highway financing structure. An eat-the-seed-corn approach to financing robs transit of the ability to develop the facilities and services that could win over new riders.

Bigger Issues Posed

Beyond personal inconvenience, our present position poses larger economic issues. The lure of on-demand and wide ranging mobility allowed people to leave behind the old communities and head for the new frontier of spacious suburbia. But the exodus was such that the government highway subsidies could not keep pace, and people are frustrated when they can't move as freely as they demand in their new spaces. Likewise, the outward migration has scattered the population, limiting public transit possibilities, not to mention undermining core communities. Abandoned retail spaces, deteriorating housing and the feel of places left behind can infect what should be vital urban communities, places whose well being is intrinsic to the health of

the broader society.

While laying a network of interstates that attracted throngs of trucks, the federal government had little or nothing to offer railroads, except the freedom to make it on their own. The deregulation-inspired reorganization has produced stronger railroads out of the ashes of the 19th century iron horses that rusted away in the 1960s and 1970s. But even with their success, the new generation of railroads can't match the investments needed to build the kind of rail corridors that would allow a better national freight balance.

Meeting the Challenges

Where do we go from here? In my role as Pennsylvania Transportation Secretary, I help shape the choices that can answer some of the mobility questions facing us. I see the realities of where we stand every day: bridges increasingly in distress, a large highway system in need of more extensive maintenance and an elusive goal of balancing transportation, and by extension ensuring sensible, productive land use.

Governor Edward G. Rendell, responding to the potentially gloomy outlook for Pennsylvania's core communities, has offered a variety of programs that are restoring both the look and outlook of our communities. Such programs as Home Town Streets/Safe Routes to Schools are putting the power of government to work in fostering city and town improvements. His approach is sparking renewal and triggering economic revival in the wonderful places so many Pennsylvanians call home.

The challenge for PennDOT is to facilitate the building of places and

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communities rather than mere projects. Integrating land use design and transportation holds the promise of delivering a transportation system that has staying power.

A Variety of Voices

I am grateful to the editors of Pittsburgh Engineer magazine for this opportunity to explore these issues as guest editor of their fall Transportation issue. To help me, I have called on a number of transportation, government and private sector colleagues to offer anecdotes, observations and insights into the present circumstances and the potential choices to be made.

Urban developer Mark Schneider and Dan Santoro, Assistant Manager of Cranberry Township, offer a conversation about their common ground, delivering sensi-

ble, livable communities, be it in the booming outer ring or in the surprisingly vibrant inner cores of the region. Both places have much in common when it comes to linking land use and transportation.

Dennis Davin, Allegheny County's Director of Economic Development in association with George Darakos, and Rich Feder, Director of Transit Planning for Port Authority of Allegheny County, review the promise of transit-oriented development. Their article paints a vivid portrait of the potential for new opportunities that a coordinated transportation and land use approach can bring to the region.

Caren Glotfelty, Director of the Heinz Endowments' Environment Program and writer Johnna Pro review the transit needs for the vibrant, but congested Oakland section of the city and make the

case for better connections to downtown Pittsburgh.

Kent George, Executive Director and CEO of the Allegheny County Airport Authority, reviews the dramatic changes Pittsburgh International Airport has seen since September 11, 2001. Rather than a hub for US Airways, the airport has evolved into an origination and destination point and the transformation has consequences for the region.

With more people actually going to and from the airport instead of just changing planes, the surrounding transportation network has a greater role to play. The Findlay Connector soon will provide new access from the west and will join the Southern Expressway as the highway portion of the transportation mix to and from the airport.

Moreover, the region has public transit assets that have and can further strengthen connections to the airport. Beginning in November 1996, Port Authority of Allegheny County started the 28X Route bus service that connects Oakland and Downtown to the Airport via the West Busway. The route has consistently strong ridership seven days a week, runs nearly 20 hours a day, and is the 30th busiest out of PAAC's 210 bus routes. In 28X service, both airline passengers and service workers have a reliable and low-cost way to reach the airport and bypass frequent congestion on the Parkway West. The West busway, already built to light-rail standards, could serve as a ready-made addition to extended light rail service to the airport once the North Shore connector is in place. An additional connection to Oakland would make sense as well. An Oakland, Downtown to the Airport light rail line has been predicted to take as many as 10,000 vehicles a day off the Parkway.

The article by Craig Lewis, Norfolk Southern's Vice-President of Corporate Affairs, brings us to the choices we face about freight. While trucks are integral to our economy and the rapid shipment of goods, the proliferation of truck traffic (82 percent growth in Pennsylvania alone over the last 20 years), poses the possibility of congestion crimping this crucial commercial flow. Meantime, rail freight has made gains as the rail industry has consolidated under deregulation. But without the same generous revenue stream for its system as enjoyed by highways, rail freight does not have all the green lights it should to take its rightful place in a balanced national transportation network.

One telling sign of the gap is the

fact so many truck terminals are going up adjacent to the interstate system but without regard to rail connections. It would seem simply common sense to look for ways to build intermodal connections. The railroads are doing this to some extent, witness the growth in their intermodal business as Norfolk Southern outlines in its accompanying article. But more needs to be done.

Looking to Balanced Transportation

In general, the answers to Pennsylvania's and the nation's transportation problems lie in approaches that promote more balanced transportation. The target is more sustainable places and more cost effective use of public dollars. Such change will not be easy.

At PennDOT, the culture is evolving and embracing what is popularly known as Smart Transportation. The unrelenting fiscal reality is the Commonwealth must live within constraints. As such, PennDOT must learn new approaches, ones not always spelled out in the requisite highway engineering manuals. Some of the themes we stress are:

- Remember that money counts.
- Preserve and leverage existing investments.
- Choose projects with a high value/price ratio.
- Keep safety as top priority in every project.
- Look beyond level-of-service measures.
- Accommodate all modes of travel.
- Enhance the local network.
- Build towns not sprawl.
- Understand the context and plan and design within that context.

- Develop local governments as strong land use partners.

You will find a number of these principles in evidence in the article by Dan Cessna, PennDOT's District Executive for District 11-0. Dan describes the latest design for one of Pittsburgh's classic congested corridors – Route 28 from the Heinz plant to Millvale. The "ultimate solution", as he calls it, is one that balances cost, function and fit within the corridor. And, oh yes, will deliver improved mobility.

PennDOT's efforts include bringing along its partners in the Federal Highway Administration, the various resource agencies who weigh in on transportation decisions, Metropolitan and Rural Planning Organizations, municipalities, and our design partners – the consultant industry. Simply building more lanes to more distant points can lead to a dead end. Funds will run out long before any of those grand plans get even close to fruition. Taking a new look at land use and its role in transportation is the smarter route to a better tomorrow.

I hope you find our review of these issues thought provoking. The exercise is not intended to be merely academic. We face tough choices. Consensus is the door through which we must pass. That door opens with the power of careful thought by as many people as possible. I hope this issue of Pittsburgh Engineer spurs you to consider where we are and where we should go. I look forward to you joining us in setting our course for a vibrant and prosperous Pennsylvania. ■



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The Urban vs. Suburban Myth

How transportation funding reform can benefit all of us

by Mark Schneider

Sitting down with Dan Santoro, Assistant Manager of Cranberry Township, for a conversation about transportation and land use I can't help but smile when I think of what most policy makers would think if they saw us together – "What could they possibly be talking about?"

As Managing Partner of Fourth River Development, my experience as a private developer has been in urban Brownfield developments, such as Washington's Landing and Summerset at Frick Park, which created new high density urban communities intent upon capturing emerging new markets.

PARK PLACE EYE-LEVEL PERSPECTIVE



URBAN DESIGN ASSOCIATES

Park Place Commons



Washington's Landing

On the other end of the spectrum, Dan is helping to manage one of the region's fastest growing suburbs, which, prior to recent planning efforts, has expanded in the traditional post WWII suburban model of low density housing developments—focusing little on public transportation. A model which is not as much the fault of communities as it is a product of transportation policy and market forces.

So often it's assumed that conversations about land use and transportation funding are framed by an "us versus them" mentality, but the truth is that we have a lot in common. Whether we are discussing developments in an urban setting or a suburban setting, we are both coming face-to-face with the challenges of creating sustainable communities that effectively address the form and layout of their transportation systems.

The process begins when we look at that big picture, and then leads to one crucial question—"What kind of communities do we want to live in?"

Mark: From a developer's perspective, I believe it is all about creating choices. A rapidly growing part of the market wants a traditional neighborhood development, but with more freedoms. Our population is becoming more outdoor oriented—they want places to run, bike, and spend time with their families. They don't want to have to get in cars to recreate, shop or

go to work; and so we want to build communities that address these needs.

Our aim is to create neighborhoods that offer walkability, but still maintain the highest standards. We can do this by offering high tech, high fabric houses and the latest in environmentally friendly materials.

Dan: In Cranberry, we've recognized that the traditional way of thinking—"less density is better"—is not always the case. For us, it has caused increased traffic, lack of public transportation options, and the never ending expansion further and further out.

Our newest development, Park Place, is moving Cranberry in a new direction. As our first traditional neighborhood/mixed-use development, it will offer formal urban parks, important green spaces, a variety of housing options at varying densities and increased transportation options. We believe there is a real market for this type of development.

Elected Officials in Cranberry are not trying to think about where we will be in 10 years, but how we can stay competitive in the long term—where we do we want to be in 50 years? The objective is to make Cranberry into a model of suburban smart growth.

But the road to creating these non-traditional developments has not been smooth. Both urban and suburban decision makers face the difficult task of challenging the status quo—never an easy task.

Mark: In most cases these new developments require a complete rethinking of the infrastructure paradigm. We even sent Jeffery Parobek of GAI consultants, our Summerset Project Engineer, down to the Seaside Institute in

Florida, a model community that serves as a living laboratory on architecture, planning and urban affairs. We needed the engineers to gain a totally different perspective on installing roads, utilities, and public services. The gas, electric and cable companies are so used to working with low density developments that their initial instinct is to place the utilities far apart; and we needed them to rethink all of that in order to support a high density development. Even the Post Office proved to be a complication! We had to convince them to deliver to the house, instead at the end of the driveway—even though door-to-door delivery is more cost effective, and energy efficient, for them.



Summerset – Frick Park Townhomes

Dan: For us, a real challenge was creating a new model for our public services. Traditional transportation design still revolves around the arterials roadway, and in order to support these new communities those traditional models need to be retooled. We needed to think about things like: street design, pedestrian mobility, provision of public services, public transportation, and the creation of a grid affording residents easy access in and out of their neighborhoods. The notion of narrower streets with parking, and proposed that they might be designed for more than just the flow of vehicles (the largest one imaginable), was completely foreign.

In the case of Park Place, we had to sit down with the engineers, public works and public safety officials to see what difficulties we would be facing. We even went as far as to paint an obstacle course that contained the widths of the alleys and then brought in garbage trucks to find out if the trucks could fit...Were the corners too sharp? Were the alleys wide enough? Sometimes it meant we redesigned the plans, and sometimes it meant we redesigned the operations, including such things as the use smaller trucks; but the important part of the exercise was that we all collaborated on the process.

Many of these challenges stem from the fact that Pennsylvania's decision makers have not yet recognized the importance of linking transportation funding, as well as transportation policy, to land use issues.

Mark: For Brownfield development, the biggest challenge is finding the resources to get the site back to "even" so that you don't pass those additional costs



Summerset – Brownfield Site

along to the buyer or have to cut the quality of the product. In the past, officials have been skeptical about Brownfield developments, which do require substantial public investment in infrastructure, utilities, etc. However, when they see projects like Washington's Landing or Summerset, and how the market is responding to them, then it becomes much easier to convince people of how smart these development investments can be, and just how crucial public

infrastructure and transit funding are to the future growth of our communities.

Dan: A big hurdle for us is that traditional tools are all that are available to us and they are no longer adequate for addressing our transportation needs.

For example, we are facing real difficulties in accessing public transportation resources for Cranberry Township. What we'd like to see is a public transportation system that



Summerset at Frick Park Area

circulates throughout the community, allowing for connections, park 'n' rides, etc.; while at the same time helping decrease the congestion that exists. Unfortunately, without public transportation funding these projects will never get off of the ground.

If anything has become clear, it's that the importance of linking transportation and land use, and the challenges that it presents, affect us all – whether public official or private developer; urban dweller or suburbanite; Brownfield or greenfield; engineer or postal worker.

Mark: In the end, it's all about leadership. High growth markets like New Jersey, Atlanta and California are increasingly focusing transit resources on projects that address land use. In these places, the market is actually pushing public policy in a more forward thinking direction.

So how can we get Pennsylvania decision makers to support local officials and get them the resources they need to support projects that link transportation and land use? It doesn't matter if it's an urban or a suburban project, in order to respond to the market the Transportation Improvement Program (TIP) process needs to become more flexible so plans that encourage denser developments and projects that link transit and land use get prioritized. Let's raise the bar! Require more commitment to addressing land use issues. This would encourage municipalities to respond to the market, while at the same time creating sustainable communities.

Dan: What we need to demonstrate to a broader audience is that there are alternatives to current models, and that these models can help us address the problems we are now facing. In Cranberry Township, we've been

lucky to have strong leadership, but what we're lacking are the resources to bring about these reforms. Flexibility in TIP, and other infrastructure programs, that recognize linking transportation funding and land use are crucial to the future of our communities. Cranberry has seen how the market is responding to these innovative new projects, and Mark's work has proven it as well.

We can't stop the growth, and we don't want to, but we cannot continue to grow only in the way we have in the past. It is about creating the best quality of life that we can for our residents. ■

Mark Schneider, Managing Partner of Fourth River Development, has worked been working to strengthen public and private community partnerships for 25 years.

Dan Santoro, Assistant Manager of Cranberry Township, has been a practicing local government planning professional for over 15 years.



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Transit-Oriented Development in Southwestern Pennsylvania

by **Dennis Davin**, Director, and **George Darakos**, Special Projects Manager, Allegheny County Department of Economic Development and **Richard Feder**, Director of Transit Planning, Port Authority of Allegheny County

Background

Transportation and land use are interconnected. The pattern of land use determines what kinds of transportation are needed, where transportation facilities should be located, and the number of persons and vehicles using the transportation facilities. In turn, the location of transportation facilities is a major factor in the development of homes, business, cultural institutions, parks, etc.

Southwestern Pennsylvania is a prime example of the relationship of transportation and land use. The heavy industry that emerged in this region in the 1800s relied upon the rivers and railroads for transportation of raw materials and finished products.

Development of streetcars and commuter rail helped shape the urban corridors and provided transportation to rural areas, as well as connections to other cities via the "interurban" rail cars and intercity trains. Automobile transportation has had a great impact on urban form beginning in the 1950s and continuing today.

A look at the history of public transportation in southwestern Pennsylvania illustrates the connection with land use.

History of Transit and Development

The first public transit lines date back to 1840 when horse-drawn omnibuses provided service to the City of Pittsburgh's East End neighborhoods. Inclined planes and cable cars permitted transit service to and through neighborhoods situated on Pittsburgh's hills. By 1902, when the Pittsburgh Railways Company was formed, electrically-powered streetcars were the predominant transit technology in Pittsburgh.

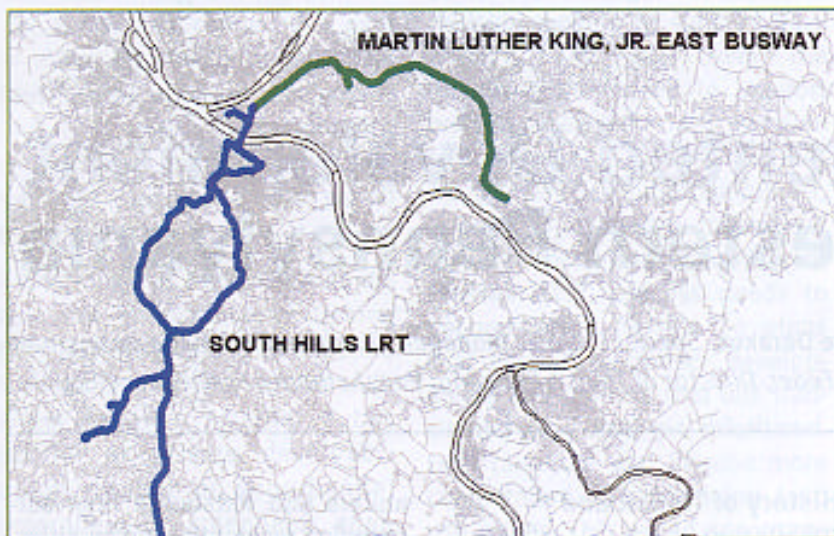
The new transit lines opened up large areas for development. Houses were built along or within easy walking distance of transit lines. Retail uses were either close to the homes or on the ground level of multi-story buildings which had residential units on the upper floors. Streets were built with sidewalks to facilitate pedestrian movements, and, in wealthier communities, shade trees were planted to enhance the quality of the pedestrian experience.

Meanwhile, railroads entered Allegheny City in 1851 and the City of Pittsburgh during the following year. Initially, the railroads were built for long distance transportation, but local passenger services were soon added to bring com-

muters into Pittsburgh from surrounding residential communities. The higher speeds of the commuter trains allowed people to travel even further to and from their place of work. Development clustered around stations located in City neighborhoods such as East Liberty and residential suburbs such as Wilksburg, Sewickley and Edgewood.

Some of the early steam railroad and electric traction companies actively promoted development on their lines in order to generate more riders. Kennywood was built by the Monongahela Street Railway Company to stimulate usage of its line. The Pittsburgh & Castle Shannon Railroad (predecessor to the current Overbrook LRT Line) planned and advertised home lots in Overbrook and Castle Shannon and later developed a picnic grove, a Methodist summer camp and a zoo.

After Port Authority acquired the assets of Pittsburgh Railways and 33 other transit companies in 1964, it began planning for major new transit investments. This effort culminated in the Early Action Program which proposed a new rapid transit line linking the CBD with the South Hills (which became the LRT) and the South and East Busways.



Martin Luther King, Jr. East Busway and South Hills LRT

The South Hills LRT and the Martin Luther King, Jr. East Busway are the two most heavily used fixed guideway transit facilities. An important factor in their high level of use is that they were built along established transportation corridors around which communities developed.

The South Hills rail system extends for 25 miles from Pittsburgh serving the South Hills communities of Pittsburgh and Allegheny County. The system was a former trolley system whose development dates back over 100 years, and which was rebuilt to light rail standards over a

20-year period, culminating in the opening of the Stage II Overbrook line in 2004.

The East Busway opened from downtown Pittsburgh to Wilkinsburg in 1983, and was extended to Swissvale/Rankin in 2003. The busway was built along a railroad corridor that used to be a commuter rail corridor serving long-established eastern city neighborhoods and suburbs.

Increased Interest in Transit-Oriented Communities

There is great and growing interest in transit-oriented communities. Transit-Oriented Communities are compact and walkable areas that offer a mixture of land uses and housing options within proximity of a transit stop or station. They are development on a pedestrian scale, i.e., they include sidewalks and other amenities that facilitate access by pedestrians.



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The interest in these communities is being experienced in southwestern Pennsylvania as well as across the United States. A study by the organization Reconnecting America, and Federal Transit Administration, showed that demand for compact housing near transit in the United States is likely to more than double by 2025.

In our region, there are major redevelopment projects taking place in downtown Greensburg, Uniontown, and Washington. The \$50 million second phase of Southpointe in Washington County will be pedestrian friendly. Southside Works is a \$450 million pedestrian and transit-oriented major expansion of the South Side neighborhood of Pittsburgh. Over \$500 million of development has occurred along the East Busway since it opened in 1983. Opportunities to pursue transit-oriented development along the LRT are described later.

Regional Efforts in Advancing Transit-Oriented Development

How are the regional transit systems responding to this interest?

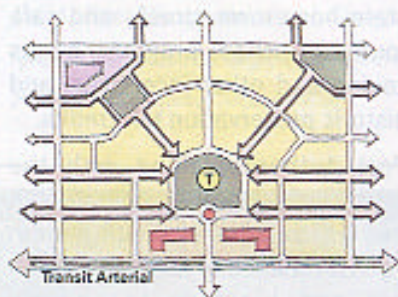
Southwestern Pennsylvania Commission (SPC), Port Authority and the other transit operators in the ten-county region recently completed a Transit-Oriented Communities Toolbox as part of the Regional Strategic Transit Vision Study.

To promote the creation of environments that are friendly to transit and pedestrians, the report, A Toolbox for Transit-Oriented Communities in Southwestern Pennsylvania was written. As it is named a *toolbox*, the report is intended to be a resource for communities to participate in the Transit Vision – communities that want to realize the benefits of public transportation and facilitate economic development. The toolbox describes the advantages of integrating transit and land use decisions and illustrates how such investments can be leveraged and achieved in a community.

Recognizing that developers build developments, that municipalities approve the plans and zoning, and the importance of responding to the market demand, SPC and the transit operators are using the

Toolbox, as well as a brochure that summarizes the toolbox, as part of a program to educate the public and entities involved in development regarding how to develop in a transit-friendly manner.

The characteristics of Transit-Oriented Communities include: walkable neighborhoods, mixed-use and appropriately dense developments, pedestrian scaled, intermodal, and coordinated development with diverse housing choices that encourage transit usage. For example, the following figure excerpted from the toolbox encourages connected streets that provide a focus to a town center, with parks serving different parts of the community and a transit stop or station serving the center of the community.



encouraged: connected streets

The Toolbox and brochure point out the many benefits that Transit-Oriented Community developments offer to the region, to local governments, the community, residents, developers and business owners, and transit customers.

Creating and funding any development can be a challenge, and Transit-Oriented Development is no exception. However, there are many tools available to municipalities to encourage and facilitate development of transit-friendly design, including zoning code modifications, mixed-use zoning districts, development standards and design guidelines, bonus zon-

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ing, transit overlay districts, and planned residential development. Illustrated transit station area plans, derived from significant public and private input, are a tool that a transit agency can be very instrumental in preparing.

A range of resources is available to communities to advance specific transit-oriented projects from planning to implementation. The toolbox and brochure describe a number of resources, including joint development with the transit system, business improvement district, housing and community development programs, the Smart Commute Mortgage, transportation development districts, transit revitalization investment districts, federal transportation enhancement funds, main street programs, state hometown streets and safe routes to school program, bonus zoning and other incentives, and historic preservation tax credits.

Port Authority, along with the other regional transit operators in the ten counties of southwestern Pennsylvania are using the toolbox and brochure to educate developers and municipal officials on the demand and need for community design that is sensitive

to the market demand for walkable, transit-oriented communities.

In addition, transit operators are working with their respective counties to advance transit-oriented developments where there are opportunities to do so.

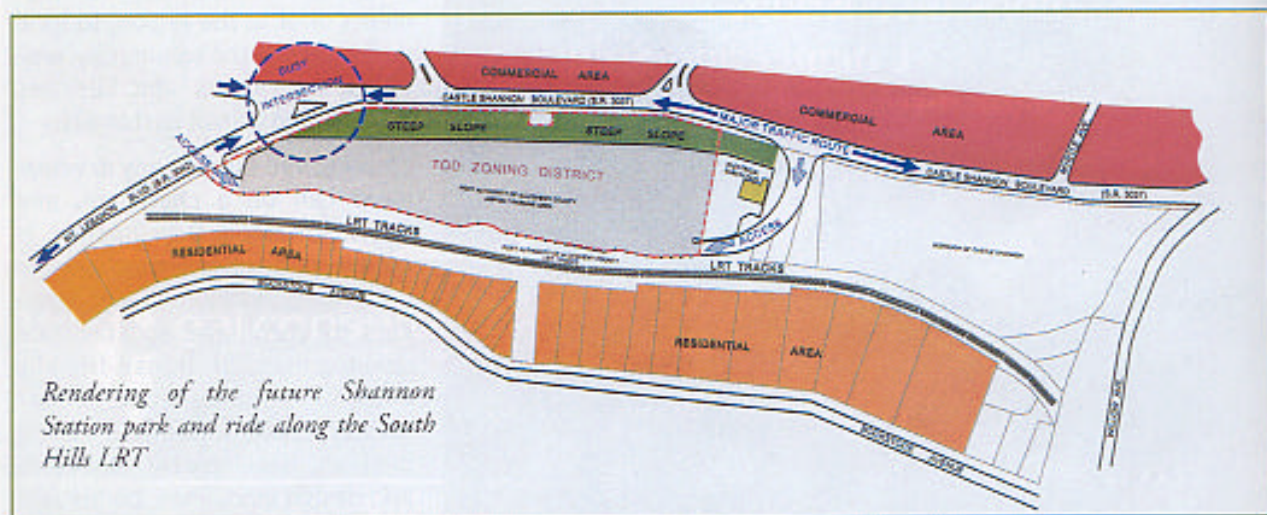
Pursuing Transit-Oriented Development Opportunities through Public - Private Partnerships

One challenge that Allegheny County has faced over the past decade is how to develop underutilized properties that are located near major transit facilities. Many of the County's older communities find themselves unable to generate new tax revenue through new development, because they are already built to capacity. Smart redevelopment of these underutilized properties is necessary for these communities to remain viable. Development around Port Authority's park and ride and light rail station sites is one of the key strategies mentioned in Allegheny County Chief Executive Dan Onorato's Six-Point Transportation Plan which includes:

- Downtown to Oakland rapid aerial transit;

- Downtown to Airport rapid aerial transit;
- Use of existing rail corridors;
- Commercial use of Port Authority busways;
- Development of Port Authority transit stops and surrounding areas;
- Creation of a regional transportation authority.

Allegheny County Economic Development (ACED) has begun exploring different options to help spur Transit Oriented Development in the region through a partnership with the Port Authority. Just recently, ACED was awarded a Transit Revitalization Investment District (TRID) planning grant to begin laying the foundation for Transit-Oriented Development along Port Authority's light rail line in Castle Shannon, Dormont, and Mount Lebanon. A TRID study will assist the local government, the Port Authority, and ACED find alternative sources of funding in the future, jump start current development initiatives, and generate new ideas to help our communities grow more efficiently. This study will take a hard look at using multi-modal methods of transportation to move people and how to rebuild walka-



ble communities that have been impacted by the growth of automobile usage.

For example, at Port Authority's Shannon Station light rail station in Castle Shannon, plans are underway for a new transit village that will transform the current 500 space park and ride lot into a mixed use development with over 110 new residential apartments units, retail, and a structured park and ride. This will create a living center that directly links residents to our light rail system, making public transportation an easy and smart alternative to the automobile, and will reintroduce the seven acre parking lot as a source of tax income for the school district, municipality, and Allegheny County. Port Authority will not only benefit through increased ridership, but will also create a new revenue stream through the business agreement with the developer, JRA Development Group, Inc.

Planning and coordinating development efforts throughout the County are critical to maintaining the character of our communities and ensuring future success. We've recognized how important it is to take a step back and look at the big picture. That is why we're in the midst of creating "Allegheny Places", Allegheny County's new Comprehensive Plan. Listed below are some of the plan's goals as they relate to transportation:

Coordinates economic, transportation and community development;

Encourages investment in existing business districts through infill or redevelopment to help preserve undeveloped land;

Maintains residential neighborhoods, expands housing opportunities and creates Transit Oriented Development centers within existing urban business districts;

Coordinates new or improved trans-

it facilities and other significant infrastructure;

Enhances investment by sharing resources equitably.

These are just some examples of how land use policies and transportation play critical roles in economic development for our region. Allegheny County Economic Development and the Port Authority look forward to continuing and strengthening coordinated development efforts to make the region a better place. ■

(History information included herein obtained by Port Authority Lead Transit Planner David E. Wohlwill from the following: Joel A. Larr, "Transportation and Changing Spatial Patterns in Pittsburgh, 1850—1934" Public Works Historical Society, 1978)

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Oakland to Region: "Let's Connect!"

The best way for southwestern Pennsylvania to reap the benefits of educational, cultural and high-tech innovations is to build a comprehensive transit system that provides access for all.

by Caren Glotfelty and Johnna Pro

It is 90-plus degrees on this day in Oakland when John Bogaard stands on the sidewalk of a bustling Craig street sipping a mango smoothie to stay cool as he waits on customers shopping the outside sale at Snow Lion imports. Bogaard, a transplanted Washingtonian who came to Pittsburgh in the 1970s to study at Carnegie Mellon University, just a few blocks away from the store, surveys the scene around him. It is a hodgepodge of cars, buses, bikes – even a moped or two – and sidewalks, cross-

walks, pathways filled with people. All of this is pressed onto a narrow strip of street and sidewalk between Forbes and Fifth avenues.

"Thirty years ago, practically every building on Craig Street was a home," Bogaard points out. "Today, it's just a lot more congested."

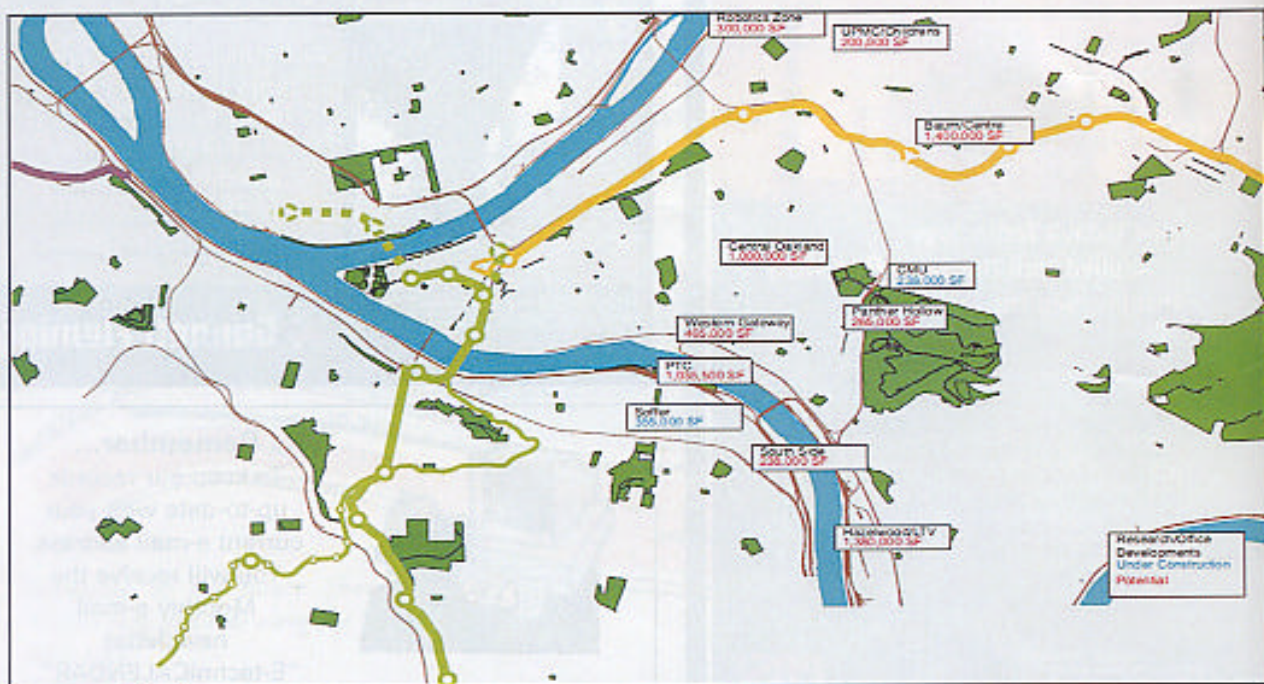
Few would disagree.

The compact neighborhood of Oakland has as many characteristics of a center city, says Ivan Makhoul, owner of the popular Ali Baba restaurant, as the actual city



photo by Jim Struzzi

John Bogaard



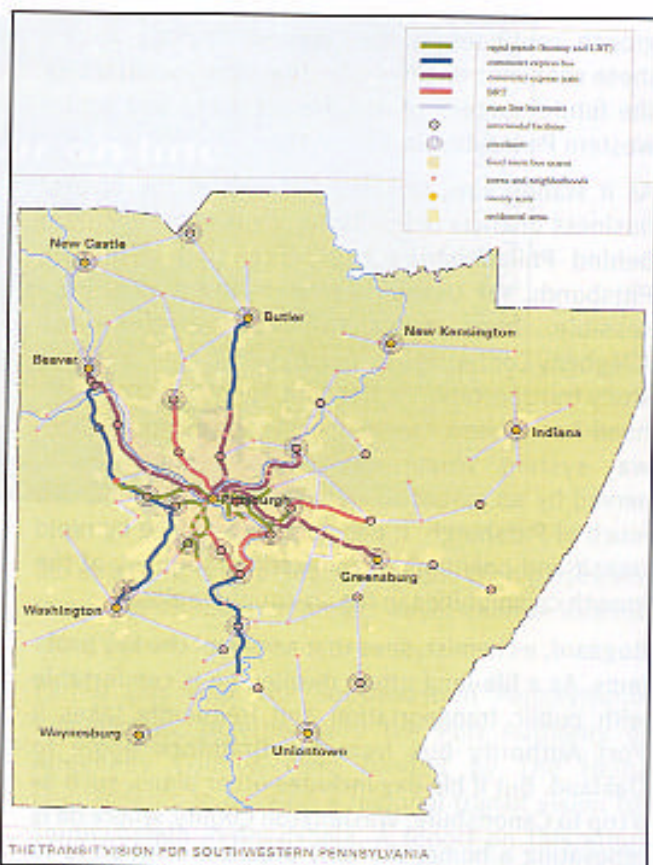
Greater Oakland

core. He should know, having watched the community grow from his vantage point as owner of one of the first businesses on Craig Street.

"If you take Oakland out, the city dies," he says pointedly, echoing what politicians, civic leaders and foundation officers like those of us at The Heinz Endowments have been saying for years in terms that are less blunt.

Oakland, with its five hospitals and three universities, is not just the hub of Pittsburgh's future; it is the hub of the region's future. Linking the neighborhood to Downtown – and to surrounding counties – with a convenient, affordable transit system is a priority for the city's economic future, one of the few remaining, essential pieces to ensure the region's transformation from its steelmaking past to a medical-research, high-technology future.

"Connecting Downtown and Oakland will fill a critical gap in our transportation infrastructure," says Allegheny County Chief Executive Dan Onorato who has made transportation to and from Oakland a priority of his administration. "As new developments take root in Downtown and



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growth continues in the Oakland corridor, linking these economic engines is increasingly important for the future success of Allegheny County and southwestern Pennsylvania."

As it stands now, Oakland has one of the busiest business districts in Pennsylvania, ranking just third behind Philadelphia's city center and downtown Pittsburgh. Yet Oakland remains frustratingly inaccessible. Trans Associates, contracted by the Allegheny Conference on Community Development to study transportation in Oakland, found the neighborhood has limited connections to the regional highway system. What's more, although Oakland is served by an extensive transportation network, like much of Pittsburgh, it has no direct service by rapid transit and only limited connections to many of the growth communities in the 10-county region.

Bogaard, a chemist, sees that as one of the key problems. As a life-long urban dweller, he is comfortable with public transportation and frequently takes a Port Authority bus from his Braddock home to Oakland. But if his day includes other plans, such as a trip to Canonsburg, Washington County, where he is renovating a home, the only practical solution is to drive because the region ringing Pittsburgh is not well served by its existing transit systems.

Bogaard could get to Washington County on public transportation, he says, but not easily or conveniently.

That makes him all the more sympathetic to the challenges faced by more than 40,000 Oakland workers each day at universities, hospitals, businesses and cultural institutions. About 58 percent of these workers live outside of Pittsburgh's city limits, including 6,000 people who travel in from surrounding counties.

But with few commuting choices, most in this group – 78 percent – are forced to drive to work, as opposed to the 22 percent who use some form of transit.

Business owners such as Makhoul, who celebrate Oakland's exploding growth and its attendant economic prosperity, also find it frustrating that getting around has become increasingly more difficult in recent years.

"Helicopters, we need helicopters to get the people in and out," he says, only half-jokingly.

He remembers a time when he could leave his Squirrel Hill home and drive to his popular Middle-Eastern restaurant in just two or three minutes.

These days, the drive can take 20 or more minutes, so he has given it up.

"Now I walk it in the same time," he says.

Circulation within Oakland and adjacent neighborhoods could be vastly improved with a transit circulator system that links key Oakland locations with the Monongahela River corridor and connects to the overall regional transit system. In order to make transit

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2. Public transportation provides accessibility for all people.
3. Public transportation and land use are inextricably linked.
4. Public transportation can facilitate and support growth.
5. Public transportation is environmentally friendly and contributes to sustainability.
6. Public transportation is an efficient and productive use of limited transportation resources.
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a viable transportation option, transit access is needed not only for commuters coming in and out of Oakland, but also for getting around Oakland during the day to all of the specialized work spaces, once they are there. The kind of new rider a more accessible system would attract might be a physician who has to see a patient at the Veterans Administration Hospital, then teach a medical school class at Salk Hall, then visit a

lab or a clinic on the South Side, and then participate in a for-profit research project at yet another location along Second Avenue.

Earlier this year, the Southwestern Pennsylvania Commission, together with the Port Authority of Allegheny County, were funded by The Heinz Endowments to develop a regional transit vision for southwestern Pennsylvania. A report on this effort

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urges community leaders and citizens to look at the region's system of public transportation holistically, to understand the interrelationship between transit and land use, and to realize the value, in real dollars and public perception that a modern, truly regional transit system could bring to the Pittsburgh region.

Implementing the entire set of recommendations could cost billions of dollars through the next 30 years. But the report also shows that, by concentrating development into land-use patterns that avoid sprawl, transit could become more cost-effective and the region could save money in costs for new sewer, water, and secondary road infrastructure. In addition, a transit system that is improved to be more efficient and accessible will stimulate new development along routes that are served.

Those findings received significant public attention in a 2003 study by The Brookings Institution titled *Back to Prosperity: A Competitive Agenda for Renewing Pennsylvania*. The study, commissioned by the Endowments and the William Penn Foundation in Philadelphia, looked at the relationships among Pennsylvania's economy, growth trends and governmental policies. The report describes the profound changes in the past few decades that have caused the state's economy to lag behind, including the

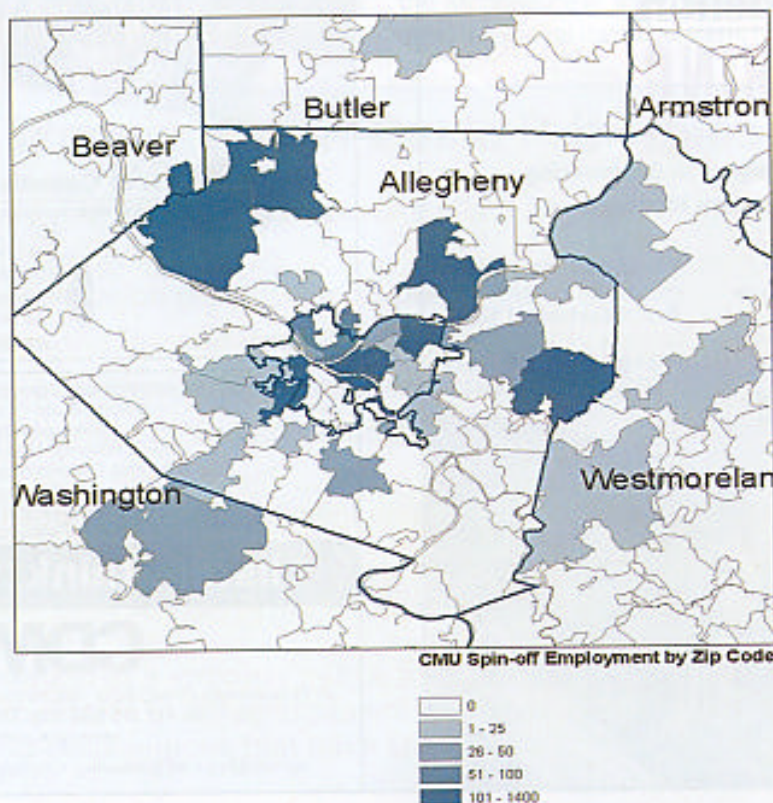
failure of planners to see the power of public transit to influence land-use policies.

Nowhere is that more evident than in southwestern Pennsylvania, which is experiencing one of the nation's slowest growth rates at the same time it reports one of the fastest sprawl rates. The Brookings report makes clear that development without transit outside of the urban center is making us less economically competitive with other regions of the country.

Two years ago, in his address to 2,000 participants in the Western Pennsylvania Nonprofit Summit, Heinz Endowments President Maxwell King pointed out that the fundamental question posed by the Brookings report and the issue of public transit "is not whether southwestern Pennsylvania will prosper, but how it will prosper. Just at the moment that Pittsburgh is beginning to feel the potential power of a new economy fueled by the high-tech sector — will this new world drive a wedge further between the haves and have nots?"

The answer to King's question will, in large part, depend on how well connected the outlying areas are to Oakland, the center of emerging technology and research.

Those who oversee tech-sector businesses, educational and medical facilities understand that they



play a vital role here. They continue to invest in Oakland and adjoining neighborhoods in spite of the challenges of density, access and cost, thereby spurring region-wide growth as spin-off companies create jobs which, in turn, create regional markets for services and products. Success already is evident.

Residents of Washington, Fayette and Butler counties can point to new businesses and new jobs as a direct result of spin-off businesses created by research dollars now flowing into the University of Pittsburgh and Carnegie Mellon University.

What's more, Fayette, Washington and Armstrong all now are home to new companies whose owners wanted to be located near one of the country's premier research centers.

But if such successes are to continue, getting people and products into and out of Oakland has to be a priority for everyone.

That means looking to understand the influential role that an effective, multi-dimensional transportation system can play in stimulating and serving economic development, and its power to burnish the image that the region presents to the world.

Experts say short-term solutions will ease the congestion temporarily: new adjusted bus routes in Oakland and to other nearby neighborhoods such as the South Side; direct service to Oakland from the suburbs; and even better signage directing drivers to

institutions and parking garages will help to move traffic through the neighborhood.

For the long-term, though, creating a transit system that allows people to leave their cars at home is essential to sustaining the growth created by more than \$1 billion in research funding that flows to the region annually through Oakland.

As study after study has shown, there are numerous options available, from people movers to rapid transit. And the good news is that those who shape public policy now, finally, are talking about transit as it relates to other development, not just in Oakland, but throughout western Pennsylvania.

Transforming the vision of a cohesive transit system from dream to reality won't come easily or without a massive influx of state and federal dollars. But a committed effort to creating a public transit system worthy of Oakland's importance, will boost the prospect of a thriving region for generations to come. And the value of that to southwestern Pennsylvanians? Priceless. ■

(Caren Glotfelty has been director of The Heinz Endowments' Environment Program since 2000. Johnna A. Pro is a Harrisburg- and Pittsburgh-based writer. She worked for 18 years as a reporter for the Pittsburgh Post-Gazette.)

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Pittsburgh Aviation Dealing with Constant Change

The Evolution of a Key Transportation Asset

by Kent G. George,
Executive Director and CEO,
Allegheny County Airport Authority



Pittsburgh International Airport is now attracting more origination and destination traffic.

If there is one constant in the aviation business, that constant is change. Since the tragic events of September 11th, the industry and especially Pittsburgh International Airport have been in the throes of constant change.

On a macro basis, the airline industry was flying with full airplanes, low fuel costs and excess capacity prior to September 11th. Following September 11th, capacity was reduced within the industry due to the passengers' trepidation to fly. Additional challenges facing the industry related to labor costs, competition from low-cost carriers (LCC) and increasing political tension worldwide.

In Southwestern Pennsylvania, Pittsburgh International Airport realized its highest passenger

count ever with over 20.5 million passengers in 2001. US Airways was the primary carrier with over 510 departures a day to 110 non-stop destinations. They employed over 11,500 people in the region and were clearly the predominant carrier with over 89% of the total traffic. Fast forward to today and you will see a completely different landscape. Since 2001, US Airways has endured two bankruptcies and a merger with America West Airlines. Happily they are still in existence, defying the odds of the experts from around the world. They are still the number one carrier at the Pittsburgh International Airport with approximately 51% of the total traffic. But, their daily departures have now been reduced to approximately 170 and their employment is now at 2,700 people in the region.

Very clearly Southwestern Pennsylvania is not alone in the changes that have affected the industry. Since September 11th, there have been no fewer than seven airlines that have experienced bankruptcy. Standouts in those seven have been United, Delta and Northwest Airlines. That of course has also affected Southwestern Pennsylvania with their operations at PIT. Those bankruptcies along with increased political tension, higher fuel costs and the drastic readjustment of labor agreements throughout the industry have taken their toll. At a point during these changes, critics were saying that Pittsburgh would not survive and would be the first airport to default on their debt. To the contrary, what has happened is that the community has pulled together to ensure cost efficient, quality air service for the region. During those dark times, the Airport Authority, County Executive Dan Onorato and the Allegheny Conference pulled together a group of the region's key stakeholders from the corporate community and formed the Regional Air Service Partnership. Their goal was to attract and enhance new and existing Air Service.

The Airport Authority had already been successful in attracting AirTran Airlines to Pittsburgh which started service in 2000. However, attracting major low-cost airlines was a challenge until Independence Air and America West began service in Pittsburgh. Independence Air entered into bankruptcy and is now no longer in existence. America West merged with US Airways following their second bankruptcy and is now known as US Airways and doing very well, not only in Pittsburgh, but throughout their system.



Fueling: Southwest Airlines has added more flights at Pittsburgh International Airport.



JetBlue Airways began service in June 2006.

Two additional carriers have launched service and as a result dramatically changed the landscape for commercial aviation in Southwestern Pennsylvania. Those carriers are Southwest Airlines, which started service in May of 2005 and JetBlue in June 2006. The Airport now has 300+ departures a day to approximately 65 different locations.

What does this all mean? Pittsburgh International Airport, designed and built as a connecting hub airport largely to accommodate US Airways growing hub function in the 1990's has changed. PIT has emerged primarily as an Origination and Destination airport (O&D). While we served a little over 10,600,000 passengers in 2005, about one-half of where we were in our peak

years, the O&D focus has not only stabilized, but grown. The Pittsburgh local aviation market is a healthy one despite the substantial drop in the number of connecting passengers.

As a result, the focus at PIT has switched from once needing additional gates and airfield capacity to more locally based infrastructure. For example, demand for parking has outpaced supply due to the increase in regional passenger traffic. This summer, parking at the airport has reached full capacity on a number of occasions. An additional 1,200 parking spaces are currently under construction and will be completed this fall.

Additional highway access is another blessing. The coming of the Findlay Connector, between the airport and Route 22, will

improve access from the west and add to the highway network previously improved with the addition of the Southern Expressway.

In addition, an important public transit link is in place to help further integrate the airport into the region. In 1996, Port Authority of Allegheny County (PAAC) added the 28X bus service between Oakland, downtown and the airport. By using the West Busway, the service assures riders a quick trip to the airport, bypassing a portion of the Parkway West that can experience congestion delays. Riders have responded. The route ranks 30th of PAAC's 210 bus routes in popularity. Service is provided 20 hours a day, seven days a week. Contrary to the experience with most public transit routes, weekend ridership nearly matches



Center Core: Pittsburgh International Airport still among the best in the world.

that of the weekday: 1,333 people a day on Saturday, 1,286 a day on Sunday and 1,604 a day during the week. This service helps workers reach the airport and can attract airline travelers looking to avoid congestion on the Parkway West.

The drop in flights as US Airways contracted and reshaped itself meant less opportunity for so-called belly freight shipments from the airport. These are shipments sent in the cargo holds of scheduled airliners and the drop in flights means more of this cargo is leaving the Pittsburgh area by ground.

Regardless, air cargo at the airport is poised for growth. Advancing air cargo will stimulate new economic development in the region and help to attract new business and jobs. We are in a unique position since we are centrally located and we have the capacity to handle

more air cargo. From January to June 2006, more than 75 million pounds of cargo passed through the airport from more than 20 different airline and cargo carriers.

Three air cargo buildings provide more than 183,000 square feet of warehouse capacity. The airport offers access to 63% of the national industrial output by overnight truck or one-hour flight. More than 5,000 acres are designated as an active Foreign Trade Zone (FTZ). PIT Fuel Farm is an activated FTZ with significant fuel savings. This savings offers an extra advantage for cargo shippers.

World airborne cargo will grow at 6.4% per year during the next 20 years. The greatest air freight market growth is expected in those markets linked to Asia. The Allegheny County Airport Authority continues to put our

name and our assets in front of cargo airlines while preparing for and exploring more international opportunities.

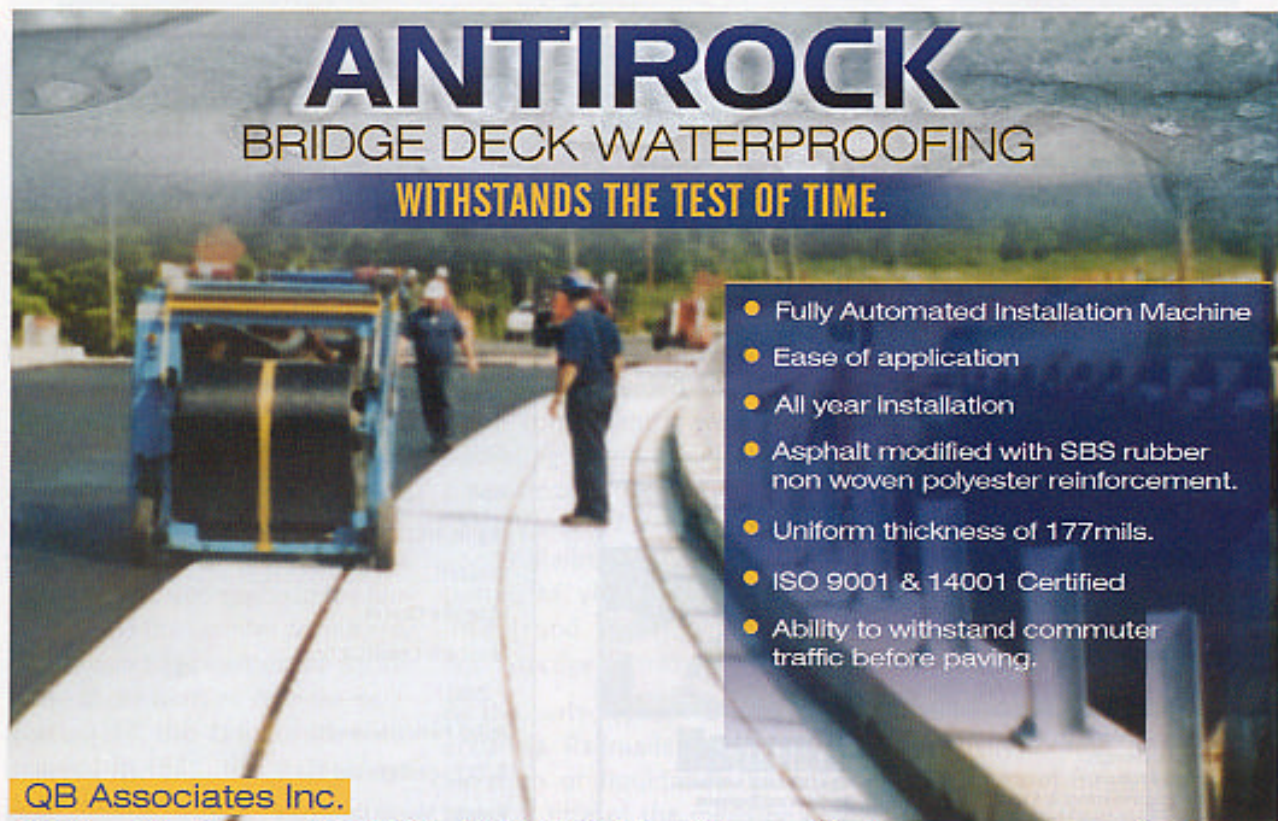
Despite the challenges posed by the dramatic changes in the airline industry, Pittsburgh International Airport did not default and will not default on its financial obligations. We are able to meet all of our operating needs and are in the process of constructing between \$30 million and \$70 million worth of capital improvements on a yearly basis.

A few of these improvement projects concern security and customer service. Since September 11th, the screening of passengers through the security checkpoint has been transferred from the airlines to the federal government under the Transportation Security Administration (TSA). The security checkpoint was reconfigured fol-

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lowing the takeover by TSA of security with new equipment and new personnel. During peak times of travel, in the beginning the checkpoint would be effected by wait times of anywhere from ten to 30 minutes. As US Airways reduced their flights and new airlines began offering more competitive fares, regional passenger traffic grew and impacted wait times at the checkpoint. At times it was as long as 45 minutes to one hour, a situation viewed by the Airport Authority as completely unacceptable. Those lines, along with the increased demand placed on the airport's parking facilities, had to be addressed.

An alternate security checkpoint was built and began operation prior to the holiday season in November and December of 2004. Wait times since the checkpoint opened have not exceeded 20 minutes at the

busiest times. Recently the security checkpoint realized a record when more than 8,200 passengers were processed with an average wait time of 4.5 minutes for the passenger – this on the day following the All Star Game.

Another security enhancement that has improved efficiency is the in-line baggage solution for screening of checked bags, installed for the airlines that use the south side terminal. This project enables a passenger to check their bags at the counter as they did prior to September 11th, the bag would then travel through an automated system, be scanned by explosive detection equipment and then proceed on to the passengers' destination. Another in-line system will be installed on the north side of the terminal building in the next 12 to 18 months. The costs of these security upgrades

exceed \$37 million and has all been paid for through the fees and charges of the airport users.

In conclusion, the industry, and especially Pittsburgh International Airport, is faced by change on a daily basis. However, the supply side of the equation is now dispersed between 13 airlines, providing competition both in service and frequency of service. On the demand side, passengers that traveled to other airports due to the high costs of airline tickets previously at PIT are now returning to PIT to enjoy better competition and low fares. The facility is still one of the best, if not the best, in the Country and the Airport Authority is prepared to ensure that continues for all our customers; the taxpayers of Southwestern Pennsylvania, the airlines and tenants at PIT and the passengers utilizing our facilities.

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Eastbound Doublestack Approaching Rockville Bridge

Pennsylvania and Norfolk Southern *Let the Partnership Continue*

by Craig Lewis

Norfolk Southern's Vice-President of Corporate Affairs

Railroads are among the oldest American industries. They got their start on the East Coast more than 175 years ago, bringing coal and other natural resources to the ports and hauling imported goods to the hinterland. As the country developed, railroads made possible the settlement of the frontier. With the completion of the transcontinental railroad in 1869, the states were truly United.

After 1900, automobiles, and then

airplanes provided faster and more convenient travel. Trucks, operating over publicly-owned paved roads, became convenient conveyances for all manner of goods. Railroads, once the transporter of virtually all intercity freight and passengers, were in rapid decline by mid-century.

By the early 1970s, the inevitable occurred. Railroads faced nationalization or liquidation because about a fifth of the industry was bankrupt. Too much track served

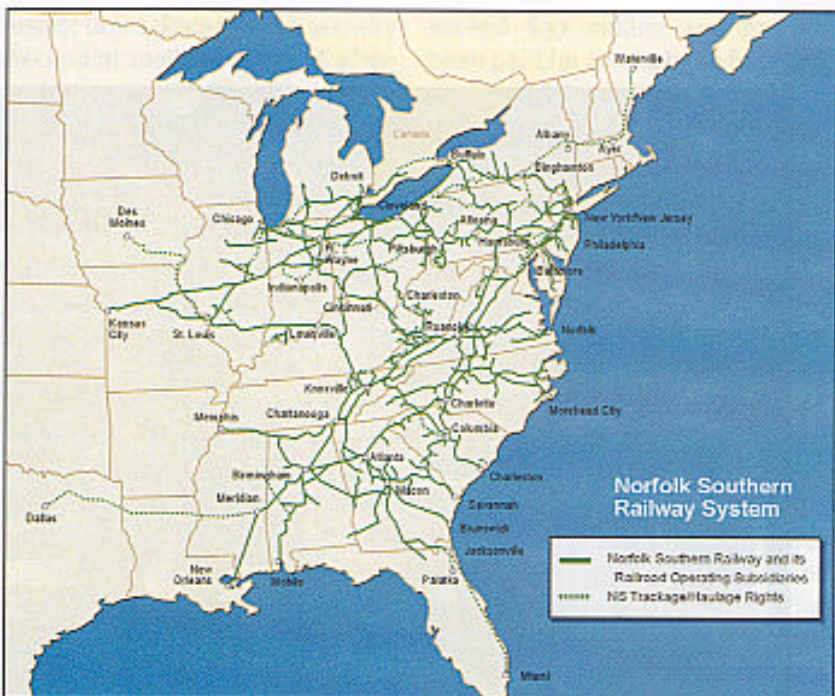
not enough traffic. Oppressive government regulation was partially to blame, and once it was substantially reduced, railroads restructured by reducing the capacity of their plant to match the freight available to them.

In the past 30 years, major railroads have reduced their track mileage, improved workforce productivity six-fold, and doubled output (tons of freight multiplied by miles transported, or "ton-miles"). Freight hasn't

disappeared; it's just changed radically, and railroads have figured out how to handle more of it. As a result, today's railroads are healthy and profitable.

In North America seven major railroads produce by far most of the ton-miles. In western Pennsylvania, the major carriers are Norfolk Southern and CSXT, which are owned by shareholders in the private sector. They pay taxes and they build and maintain their own plant, typically without public investment.

Nearly everyone knows what a freight train looks like, but they might not know what it carries. To begin with, it is pulled by two or three 4,000 hp diesel-electric locomotives, many of which are constructed in Erie, Pa., by General Electric. Following the locomotives is a train of freight cars, sometimes two miles or more in length. Each car can carry up to 110 tons of freight, and each train can have as



NS System Map



*Eastbound Commodity Freight
Near Gallitzin*



I-81 and Doublestack Train

many as 150 cars in it.

"Unit" trains haul one commodity for one customer from one origin to a single destination. Most coal and grain moves this way. About half of U. S. electricity is generated from burning coal, and railroads haul most it. Grain travels from the Midwest to mills and factories producing everything from chicken feed to corn flakes.

General commodity trains carry freight from numerous origins to numerous destinations. Each train might contain cars carrying steel, paper, plastic products, or building materials such as cement, lumber and wallboard. Trains of this type are sorted en route at large classification facilities. Conway Yard west of Pittsburgh is one example.

A railroad is mass transportation in its purest form. Here is what separates a train from a 40-ton truck: the train is enormously labor- and fuel-efficient, while the truck offers

flexible and ubiquitous service. Marrying the best attributes of each mode has resulted in "intermodal" service, where truck trailers (or steamship containers, which bring overseas goods to U.S. markets) are loaded on rail cars for transport over longer distances (typically 700 miles or more). Trains haul the trailers and containers between intermodal terminals; transportation between the terminals and the customers' loading docks is provided over the road by trucks. In short, the trains provide the wholesale transportation, while trucks perform the retail counterpart.

Intermodal freight is the railroads' fastest-growing business. At Norfolk Southern, a Fortune 500 company that grossed \$8.2 billion in 2005, intermodal represents 21 percent of its freight revenue. And intermodal revenue has sustained double-digit growth for the past three years. Far from being the

arch enemies of yore, truckers who entrust their trailers and containers to railroads for the long haul are now rail's biggest customers.

The challenge to railroads and truckers alike is accommodating growth. As vehicle-miles-traveled continue to outpace highway construction, as air quality issues become more urgent, and as undeveloped land becomes harder to find, delivering freight will become more challenging. Getting better utilization from existing highways will help, but sooner or later, more capacity will be needed.

Increasingly, public policy makers and planners are asking: Is building more highways the answer or does rail offer an alternative? Can rail make a dent in the number of trucks vying for space on Pennsylvania's highways? If so, what needs to happen? One answer is more tracks for trains carrying trucks. Rail companies are already spending more than



Rutherford PA Intermodal Terminal & Doublestacked Containers



Westbound Unit Coal Train from Mon Coalfields at Sewickley

\$8 billion of their own money in 2006 for more capacity, but it's not nearly enough. To have a meaningful impact, public-private partnerships will be needed.

More than most states, Pennsylvania has a history of such partnerships. The best example is its joint doublestack clearance improvement project, completed with Conrail in the mid-1990s. Thanks to more than \$100 million in public and private spending (Pennsylvania's share was about \$38 million), Conrail enlarged vertical clearances across the Commonwealth so that truck and steamship containers, stacked two high on rail cars, could be transported. The motivation for Pennsylvania to contribute was economic development: keeping the port of Philadelphia competitive and offering Commonwealth industries multiple, efficient transportation options already available in neighboring states.

Was the \$100 million project worth

it? On the railroad side, the increase in productivity has been enormous. Trains of "doublestacks" routinely haul 250 containers at a time with a crew of two. On the highway, each one of these containers would have been pulled by a truck tractor with a driver. At the project's completion, Conrail began operating six doublestack trains a day. Just ten years later, Norfolk Southern (which absorbed Conrail in 1999) operates 40 trains a day, with more to come.

From the Commonwealth's standpoint, the doublestack project has been an unqualified success. Doublestack trains operate regularly to and from the port as well as greater Philadelphia. The growing volume has induced Norfolk Southern to build or enlarge huge intermodal facilities capable of handling doublestacks at seven Pennsylvania locations. In fact, intermodal freight is a predominant source of Norfolk Southern revenue in the largest

Pennsylvania freight markets. The leverage created by public investment has stimulated private investment, development and employment on many levels.

The time is right for more such partnerships. Today's challenge is to augment highway capacity by enticing more trucks onto trains. One untapped source of intermodal traffic is shorter-haul trucks – those traveling fewer than 500 miles. Rails find this business uneconomical today, but with facilities built specifically for this market, it could become viable. Norfolk Southern has done enough research on the subject to believe that, with the right partnership, shorter-haul intermodal trains can succeed commercially, freeing highway space.

Working with PennDOT, Norfolk Southern can develop services to reduce truck traffic on key arteries in the Commonwealth. This will yield clear public benefits: less highway congestion, less highway wear and tear, and fewer environmental consequences – all valid reasons for public investment. For its part, Norfolk Southern would partner in the shorter-haul intermodal concept, just as Conrail partnered in the doublestack clearance project.

With its Conrail doublestack project, Pennsylvania worked creatively to advance the Commonwealth's competitiveness. As a result, it is reaping enormous benefits today. Once again, the time is right for out-of-the-box thinking to address a critical transportation issue. ■

Defining the Ultimate Solution to Transportation Challenges

by H. Daniel Cessna, PE,
District Executive, District 11

The Pennsylvania Department of Transportation is defining the "ultimate solution" to transportation challenges; one that addresses needs, blends well into the fabric of the community, is supported by stakeholders and customers and is affordable. As major transportation arteries become busier and delays increase due to bottlenecks, transportation professionals are challenged to develop effective solutions that are innovative, but don't necessarily represent the "typical textbook engineering solution." Current guidelines cannot always be easily or successfully applied to our urban highway network. Our mission has evolved to focus on effectively addressing transportation needs while considering stakeholder input and community impact to deliver improvements which are affordable and fit within a constrained transportation budget.



View of Route 28 (East Ohio Street) looking toward the City of Pittsburgh

As we worked to right-size our transportation program and focus on projects which preserve our existing system, we are carefully focusing a small portion of our funds on projects that enhance system capacity and improve traffic flow. We have utilized a project specific "right-sizing" approach to ensure the transportation system enhancements we are advancing make the best use of scarce resources and are supported by the customers and stakeholders the improvements will serve.

In the Pittsburgh region, motorists are familiar with the difficulty of navigating the bottlenecks on Route 28 (East Ohio Street) as they approach or leave Pittsburgh to the northeast. Route 28, a limited access expressway to the

north, converges to an open access stretch of highway with multiple signalized intersections. This 2.5 mile stretch of traffic-choked highway is a 35 mph, 4-lane highway wedged between the foot of a mountain to the west and a railroad and river to the east — not the most accommodating place to expand a highway. These issues are not easily resolved; otherwise, Route 28 would have already been completed. Discussions for improvements to this section of highway began in the 1960's.

In 1997, PennDot initiated preliminary engineering for this section of Route 28. The project needs identified included: providing system continuity; improving roadway capacity, roadway safety, roadway

geometry and features; and should also be consistent with transportation planning. Since that time, various proposals for the configuration of the highway were considered. While most of the proposals provided excellent solutions to some issues, they were not widely received because of various engineering elements.

In the summer of 2005, PennDot re-initiated efforts to address the original project needs while thoroughly considering stakeholder input. PennDot and engineering consultant, Michael Baker, Jr., Inc., have been working with local stakeholders and Norfolk Southern Railroad to develop "Alternative 7", which is considered a reasonable, collaborative solution to the many issues affecting this section of highway.

This spring, the District presented Alternative 7 to the public. The project was widely accepted for simultaneously enhancing a gateway to Pittsburgh while improving travel on a major congested corridor. The planned improvements to Route 28 from the Heinz Plant in Pittsburgh to the Millvale Interchange will provide travel relief to some 60,000 motorists daily. As important as this project is for Pittsburgh, it also provides a significant enhancement to all of Southwestern Pennsylvania by providing non-stop travel from Kittanning, PA, to the north to southwest destinations like the Pittsburgh International Airport.

This context sensitive solution blends well into the mountainous topography which exemplifies the Pittsburgh region. The project will appropriately address: safety concerns, continuity issues with adjacent sections of the highway corridor, improve capacity issues, and eliminate choke point bottlenecks

at the 31st and 40th Street inter-sections while preserving the historic St. Nicolas Church and the existing rail capacity of NS.

"What problems are we trying to solve and at what cost?"

Project development is advancing, with environmental clearance expected by the end of 2006. The environmental clearance will allow the project to advance to final design and right-of-way acquisition. With these stages set, the District plans to break ground on this highway project in 2009, while continuing to work with the Southwestern Pennsylvania Commission on the Transportation Improvement Plan and other stakeholders to complete the funding strategy for this \$130 - \$140 million highway improvement. Previous alternatives had costs in excess of \$200 million.

Important features improving the capacity of this section of highway include a single point urban diamond interchange at 31st Street and a "Florida-T" intersection at



40th Street - "Florida-T"

40th Street. Both of these configurations effectively separate through-traffic from traffic accessing the 31st and 40th Street Bridges. The Florida-T, also known as a continuous green T intersection, is a signalized intersection that allows at least one of the through movements of the major road to operate continuously. This is accomplished by channelizing the left turn movements into a merging lane in the median area. Safety through this section of highway is enhanced with the addition of a safety barrier separating northbound and southbound traffic, lanes widened from 10 ft to 11 ft and the addition of two ft shoulders. Previous alternatives provided 12 ft lanes and full width shoulders (10 ft right, 4 ft left). These features created a much wider cross-section which caused significant impacts to the vegetated hillsides. Our design speed of 50 mph remains unchanged.

Improvements to the geometry of the highway will allow a posted speed limit of 45 mph, which matches adjacent sections of highway to the north and south and is increased over the current posted speed of 35 mph. Travel during peak periods on this section of highway can easily exceed 10 minutes today, occasionally up to 20 minutes depending on traffic light delays. In the design year 2030, travel speed is anticipated at 3 minutes at 40 mph compared to a no-build alternative of 14 minutes at 10 mph. Additionally, traffic will be managed from our Pittsburgh Regional Traffic Management Center by expanding our ITS through this area.

The mountainous terrain requires substantial retaining walls to ensure slope stability. Previous alternatives required 32,000 ft of 16

ft average height walls compared with 12,000 ft of 12 ft average height walls. This drastic reduction in the amount of retaining walls not only saves considerable cost, but will go a long way to preserve the green hillsides which beautify Southwestern Pennsylvania.

Advancing regionally significant projects such as this requires fortitude, organization, persistence, patience, and forces transportation professionals to continually ask, "What problems are we trying to solve and at what cost?"

District 11's design team led by Assistant District Executive Cheryl Moon-Sirianni, PE, Jeff Clatty, PE, Senior Project Manager, Pat Remy, Environmental Manager, along with our Traffic Engineer Todd M. Kravits, PE, our consultant design team led by Greg M. Cerminara, PE, of Michael Baker Corporation, Tony Mento, PE, of the Federal Highway Administration and myself worked together in a collaborative process of monthly project meetings over the last year continually asking these tough questions as we plugged through



Current Alternative at 31st Street Single Point "Tight" Urban Diamond

potential solutions and pitfalls. We had to be willing to move away from the typical textbook engineering solution, while collaborating on what would be the ultimate solution considering the project needs and stakeholder input.

Our willingness to make decisions on important issues in the meetings allowed us to move forward quickly. We planned what stakeholders we had to meet with and when, considering their input at each step to ultimately present the

project to the public this past spring and have a solution that was widely received. Delivering a project, which can be constructed in a tight urban environment, requires consideration of construction phasing, materials selection, and construction methodology. We know that constructing this highway improvement without significant traffic restrictions will not be easy. We utilized our Value Engineering / Accelerated Construction Technology Transfer (VE/ACTT) process for this project,

	PREVIOUS ALTERNATIVE	CURRENT ALTERNATIVE
DESIGN SPEED	50 mph	50 mph
RETAINING WALLS	32,000' @ avg. 16' height	12,000' @ avg. 12' height
LANE WIDTH	12'	11'
SHOULDER WIDTH	4' Left—10' Right	2' Left—2' Right
	CURRENT CONDITION	FUTURE CONDITION
ACCESS	Full access to businesses and residences	Restricted access provided to one historic structure
INTERSECTIONS	Signalized with full access	Grade separated

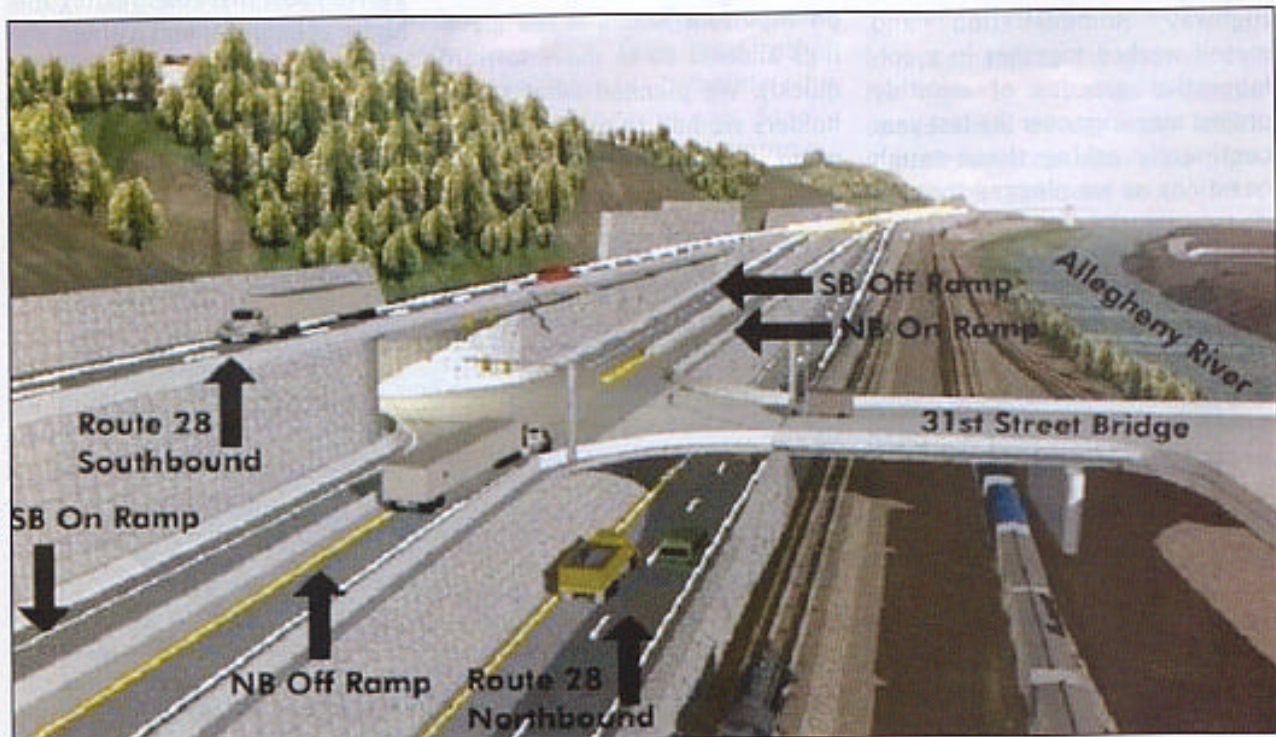
led by Chief Engineer M. G. Patel, PE, to develop effective solutions to material selection, constructability, work zone traffic control, and construction phasing. Our VE/ACTT process invites contractors to the table for a 2-day session to work with our engineering staff by asking questions related to the project which allows our team to evaluate situations to develop effective solutions and ultimately deliver a project which can be constructed affordably and with the least potential impact to our customers. Construction is anticipated to be phased over a 3-year period, with the first stage including the realignment and relocation of approximately 5,000 ft of NS rail line and the reconstruction of two spans of the 31st Bridge nearest to Route 28.

A link to view the East Ohio Street

project information has been created on the lower left corner of the District 11 home page, www.dot.state.pa.us/district11. This link provides access to all of the information including the presentation, project maps, and renderings presented at the meetings.

This planned highway improvement is yet another stage of improvement projects for this area. Work continues to progress on the Mae West Bend project on PA 8 in Etna. Additionally, highway projects are planned for two existing sections of PA 28 in Etna, and the direct connection from PA 28 South to Interstate 279 will begin construction in 2007. The 78-year-old 31st Bridge is also undergoing a complete rehabilitation which stages well with the complete reconstruction of this section of Route 28.

Application of the typical textbook engineering solution with wide lanes, shoulders and elaborate interchanges, would have continued to stall this project. We have worked diligently with stakeholders to develop the ultimate solution, which considers the tight topography of an urban highway, even further restricted by a parallel railroad, mountain, river and other environmentally sensitive features. Our focused approach, concentrating on specific improvements which meets the needs of the proposed highway improvement while blending well within the fabric of the community is an approach leading to success in advancing not only this project, but many others. This approach is vital to improving safety and mobility on our vast transportation system. ■



Previous Alternative at 31st Street



Michael G. Bock, a 1991 graduate of the Duquesne School of Law Evening Division is a partner and construction law practitioner with Schnader Harrison Segal & Lewis, LLP. He is a registered Professional Engineer and currently the President of the Engineers' Society of Western Pennsylvania (ESWP).

The Law School is proud of Mr. Bock's accomplishments in both the professions of Law and Engineering.

Best wishes to you and the Engineers' Society of Western Pennsylvania in the New Year.

...on the Combination of Engineering and Law:

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...on the Duquesne University School of Law Evening Division:

"With my J.D. degree in hand from Duquesne Law School's Evening division, I've been practicing construction law for approximately fourteen years. I typically represent contractors, owners, design professionals and surety companies. I believe my clients appreciate the fact that I've 'been there' and can identify with their legal problems based on firsthand experience. This makes for a very effective and enjoyable working relationship. Also, I've found my legal skills, combined with my background in engineering and construction, to be a very marketable 'package' to construction industry clients."

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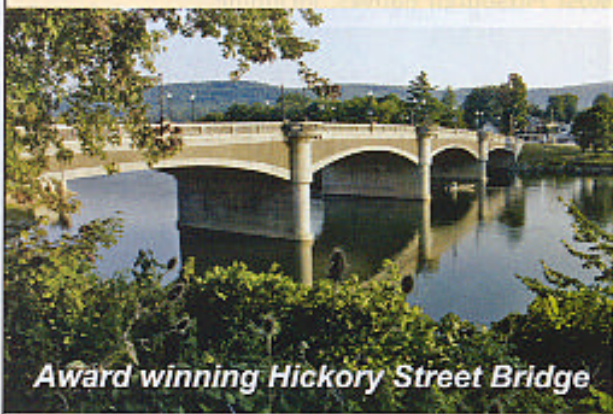


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IBC 2006

Advancing Bridge Technology Globally

by **Chriss Swaney**



Ken Wright talks with Chriss Swaney

Bridges are such a familiar part of everyday life that sometimes we almost forget they are there. Only when a bridge is closed for repairs and we have to take a long detour do we realize how difficult life would be without them.

Most Pittsburgh natives, including

famed historian David McCullough, will tell you that they feel a special connection with bridges because they have played an important part in history.

Sometimes the role has been a connector of people, and other times a divider of people. Bridges bring people together across this blue planet in every conceivable way.

So it should come as no surprise that bridges attracted more than 1,200 bridge engineers, policy makers, academics, suppliers, builders and designers from North America, Europe and Asia to the 23rd annual International Bridge

Conference (IBC).

The three-day annual conference held June 12-14 at the Pittsburgh Hilton Hotel is sponsored by the Engineers' Society of Western Pennsylvania (ESWP) founded in 1880. The ESWP is one of the oldest engineering societies in the United States with more than 800 members and 30 affiliated technical societies.

"When it comes to bridges, Pittsburgh is the living icon," said Lisle Williams of the consulting firm DMJM Harris and an active participant on the conference committee. "We have steel and concrete and segmental and cable-stayed and truss bridges right in our backyard," said Williams.

About 1,700 bridges cross rivers, creeks, valleys and highways in



Chuck Seim and Chriss Swaney



Jeff Campbell from Michael Baker chats with Chris Swaney

Allegheny County. They range from the dynamic Fort Pitt Bridge to historic bridges like the 31st Street Bridge and the under-renovation Homestead Grays Bridge, toured recently by an ESWP audience.

"By definition, a bridge is 20 feet or longer, and using that definition we beat Venice, Italy hands down as the City of Bridges," said Williams.

Bridges have meaning. And that's why ESWP's International Bridge Conference is billed as the pre-eminent forum in the bridge engineering world.

"We had 120 exhibitors showcasing what has become a revolution in new materials that has ultimately brought a proliferation of forms," said Kenneth J. Wright of HDR Engineering Inc. and General Chair of the 2006 IBC.

Because of high construction and repair costs, Wright said engineers seek paints and specialized coatings that maximize the life of a bridge. The Society for Protective Coatings, a conference co-sponsor and resource for many exhibitors, is headquartered in the Strip District.

"We've been coming to this conference for the past 12 years and have found it to be a great networking tool," said Jerry V.

Clodfelter of Texas-based CBSI. "It's good to get out and see what the industry is thinking about, and this conference is a great place to do just that."

More than 100 exhibitors promote their goods and services making the second floor of the Hilton Hotel a major

one-stop shopping center and information exchange.

"We can talk to each other about current trends and best practices," said Jeffrey J. Campbell of Michael Baker Jr. Inc. and a member of the 2006 IBC Executive Committee. "The seminars are super and the exposure we get helps us recruit the next generation into the dynamic field of engineering," he said.

Technical seminars held in conjunction with the conference enable professional civil engineers to keep their certificates current. Seminar topics included everything from discussions about accelerated bridge construction to bridge inspection software.

"We are simply the leaders when it comes to this kind of conference," Williams said. "We were also very proud to have the state of Delaware featured this year."

Dennis O'Shea, assistant director of design for the Delaware Department of Transportation, praised confer-

ence organizers for their attention to detail and useful seminar topics.

"We were delighted to be able to share some of our outstanding bridge design projects with our peers from around the country and the world," O'Shea said.

Each year, the IBC features a state at the conference. But next year, the IBC has asked China to showcase its bridges, some of them of record setting scale, as a major new player in the global economy at next year's conference.

IBC organizers said their invitation to the Chinese was greatly streamlined after an advance team took a tour of a statue of the famed Chinese engineer and educator Mao Yisheng at Carnegie Mellon University's campus earlier this year. Mao, who earned the first Ph.D from the Carnegie Institute of Technology (now Carnegie Mellon) in 1919, designed two of China's most famous modern bridges—the Qiantang River Bridge near Hangchow and the Yangtze River Bridge at Wuhan.

The IBC 2007 conference is scheduled for June 3-6, 2007 at the Pittsburgh Hilton. Please mark your calendar now. ■



Jerry Clodfelter from CBSI talks with Chris Swaney

Construction Update Beginning May 2006



Dennis O'Shea and Jiten Soneji

John A. Roebling Medal

by Chriss Swancy

When Charles Seim talks about bridges, his eyes shine and his ever-present grin grows even brighter than normal. Near old bridges give him goose humps. He works outside a lot climbing all over bridges, feeling out their construction, looking for ways to improve and maintain them. He says that working with bridges is so much fun that he couldn't imagine doing anything else.

His passion for bridges and lifetime achievement in bridge engineering was recognized at the 23rd annual International Bridge Conference (IBC), June 12-14, in Pittsburgh.

Seim, who has worked on San Francisco's historic Golden Gate Bridge, was awarded the prestigious **John A. Roebling Medal** by the Engineering Society of Western Pennsylvania (ESWP). The award is given to honor a lifetime of achievement in bridge engineering.

"Major achievements may include design, construction, research and educational endeavors," said Carl Angelloff, chairman of the IBC Awards Committee and manager of business development coatings at Bayer Materials Science, LLC. "This award is given to individuals who are very passionate about their work, and Charles Seim is the epitome of what the Roebling Award represents," said Angelloff.

Since 1988, more than 18 engineering professionals have been awarded the Roebling award, named for famed bridge builder John Roebling who was the chief engineer of the Brooklyn Bridge and the designer of the Sixth Street Bridge in Pittsburgh. The German-born Roebling conceived of the idea of using wire rope in bridge building. His original plant was located in Saxenburg, PA.

Seim, an independent consultant for T.Y. Lin International, has spent 52 years building and working with bridges. Between 1954 and 1980, Seim was the bridge engineer for nine toll bridges in California. He spent the second half of his career at the world famous T.Y. Lin International where his peer Man-Chung Tang was awarded a Roebling medal in 1998 from the ESWP.

"I've never had a dull day," said Seim, who was responsible for replacing the old concrete deck of the famed Golden Gate Bridge with much lighter and safer steel plates. In the past decade, more than 4.1 million vehicles have crossed the 2,727-meter Golden Gate Bridge which looms mountain-top high across San Francisco bay.

Seim says bridges seemed to be in his DNA. As a child, he recalls spending hours building bridges with his erector set. His passion matured and he received a degree in civil engineering at the University of California.

Like most veteran bridge builders and designers, Seim has seen just about every kind of bridge that can be built.

His biggest pet peeve is that most of the people responsible for bridges are not practitioners, but politicians. "We need money to maintain our old, decaying infrastructure," Seim said. "I'm totally frustrated."

A vocal advocate for increasing spending for improving U.S. infrastructure, Seim's colleagues describe him as a "technicolor bridge engineer in a monochrome landscape."

And that landscape is a global one. "I am busy right now with a project in China," Seim said. "I just can't seem to slow down."

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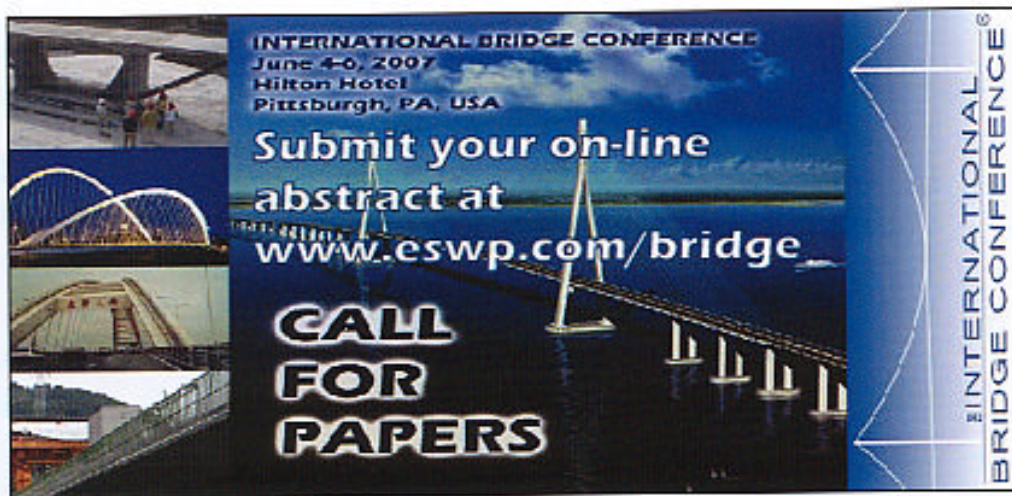
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IWC International Water Conference®

October 22-26, 2006, Omni-William Penn Hotel, Pittsburgh, PA. Sponsored by the ESWP.

Luncheon with Port Authority

October 30, 2006. Join the new CEO of Allegheny County Port Authority, Stephen G. Bland for this informative discourse. Registration starts at 11:30, with a lunch following at noon.

Luncheon with ALCOSAN

November 20, 2006. Join the CEO of ALCOSAN, Arletta Williams, for a talk on this organization's plans. Registration starts at 11:30, with a lunch following at noon.

Luncheon with PennDOT

January 29, 2007. Join the Secretary of Transportation, Allen D. Biehler, PE, who will share PennDOT's vision. Registration starts at 11:30, with a lunch following at noon.

Technical Society Fair at the Pittsburgh Engineers' Building

March 7, 2007 from 5:30 p.m. to 8:30 p.m.

For more information and to make reservations for a booth for your organization, please view the ESWP web site at www.eswp.com

Reservations for all of the above events can be made through ESWP by calling 412-261-0710. Additional details on these events will be forthcoming – *check our web site!*