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## Migration and Employment in the Pittsburgh Region

■ *By Christopher Briem*

Migration is a major factor in regional population trends, but also a factor in the changing labor supply. Pittsburgh's recent economic history is in many ways shaped not only by the loss of heavy industry across the region, but also by the loss of population and workers who moved out of the region as a result of changes in industrial structure and the local labor market.

Individual employment circumstances and job search are major factors impacting the pattern of population migration flows within the United States. Population migration within the country is motivated by different factors. Nationally over 36 percent of all individuals who moved to a new county between 2010 and 2011 did so for employment-related reasons: 1) a new job or job transfer, 2) to look for work, or 3) a result of a lost job. Other reasons for migration include relocation for educational opportunities, migration upon retirement, and family reasons. Longer-distance moves are more likely

to be for employment reasons, with over 59 percent of moves of more than 500 miles estimated to be for employment-related reasons.

Here data from the Public Use Microdata Sample (PUMS) of the 2006-2010 American Community Survey (ACS) program are used to provide a description of how migration is currently affecting the regional labor force within the Pittsburgh Metropolitan Statistical Area (MSA), which includes Allegheny, Armstrong, Beaver, Butler, Fayette, Washington, and Westmoreland counties.

The ACS program is an ongoing national survey of the non-institutionalized population within the United States (see *PEQ*, June 2011). The ACS data here was compiled from five years of survey results collected between 2006 and 2010. ACS respondents were asked their residence one year prior to the date they were questioned, which could have been in any of the five years. The responses to

■ ■ ■ *continued on page 2*

## Brownfield, Greenfield: A Hedonic Estimation of the Remediation and Redevelopment of the Slag Heap at Nine Mile Run

■ *By Benjamin Robinson*

The remediation and redevelopment of brownfield sites has been a historically popular tool for economic development for states and municipalities. Prior to redevelopment, brownfields create economic and ecological stress on surrounding communities, provide little to no revenue in property or business taxes to local municipalities, and create a hazardous environment for humans and other forms of life to inhabit.

The processes that contaminated a site and contributed to its brownfield status act as barriers to entry for community investment and economic activity while decreasing property values and contributing to blight. Despite these drawbacks, contaminated lands can be recycled to have new uses while providing local governments with more revenue.

The cleanup process relieves the area of an environmental hazard and, over time, leads to improvements in the area's environmental quality. All over the country, but especially in the Pittsburgh region, municipalities have pursued brownfield development due to the plethora of former industrial sites that were once the region's foremost sources of employment, wealth, and identity.

The city of Pittsburgh has been at the forefront of brownfield redevelopment, as evidenced by the many projects built on former industrial sites. It helped finance the cleanup and subsequent construction of the Summerset at Frick Park community, a residential development built on a former slag heap along the Nine Mile Run watershed. Summerset at Frick Park holds a significant place in our region's brownfield

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## Migration and Employment in the Pittsburgh Region

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that question and other information collected on individuals' current labor force status can be used to describe what parts of the region's labor force are most impacted by migration.

The resulting data reflect average annual migration rates. The universe here is limited to the currently employed workers in the Pittsburgh MSA, and each worker is categorized as employed in one of over 500 individual occupations. The results here are summarized for a set of 23 major occupation groups.

First, 2.6 percent of the Pittsburgh region's current workforce was estimated to have lived outside of the Pittsburgh MSA one year prior. These recent arrivals include workers who previously lived elsewhere in the United States, plus international immigrants who lived elsewhere in the world.

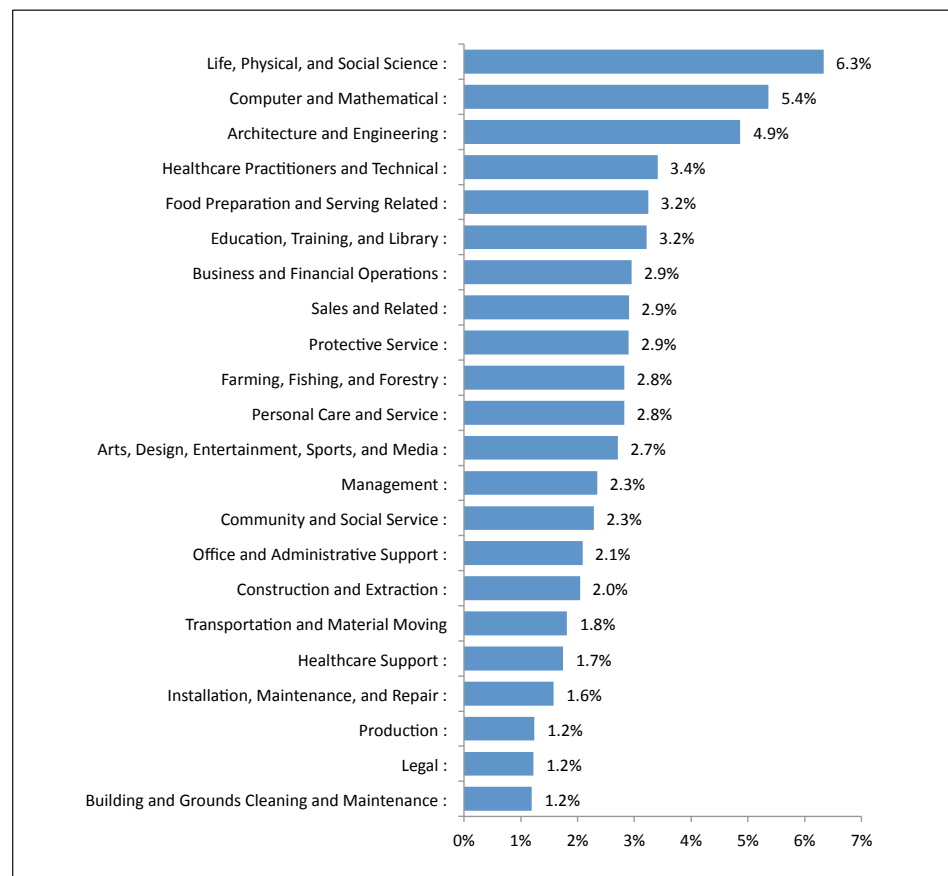
New movers to the region comprise significant and important shares of occupations in Pittsburgh (see Figure 1). Occupations which currently rely most heavily on new arrivals to the region include *Life, Physical and Social Scientists*, in which 6.3 percent of currently employed workers are estimated to have lived outside the region a year earlier, along with *Computer and Mathematical Occupations* (5.4 percent) and *Architectural and Engineering Occupations* (4.9 percent). The large number of *Healthcare Practitioners* in the Pittsburgh area included 3.4 percent new arrivals to the region in the recent period.

Recent migrants employed in the Pittsburgh region were predominantly younger workers (see Figure 2). Over 70 percent of these new arrivals were under the age of 35, with 55 percent between the ages of 22 and 34. Fewer than 5 percent of movers were age 55 or over.

This pattern of worker migration is consistent with national patterns. The highest migration rates are registered by workers in their 20s and decline as people age, up to retirement ages. This concentration of migration among younger workers means that changing patterns of regional migration flows are likely determined by changing patterns of migration among younger workers.

Nationally rates of population migration within the United States have significantly

**Figure 1. Percentage of Employed Workers by Major Occupation Group\* who Resided Outside of the Pittsburgh MSA One Year Prior, 2006–2010** \* Excludes military-related occupations



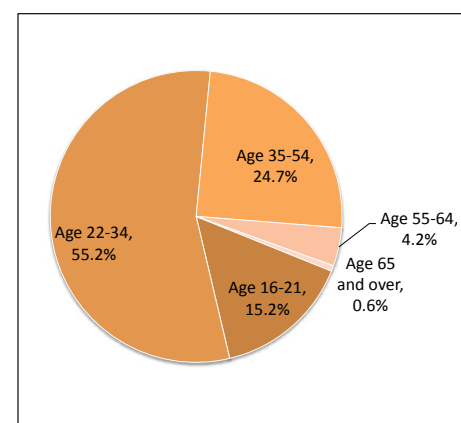
Source: American Community Survey

slowed over the last decade, and, in particular, following the onset of a national recession in 2007. For a comparison, between 1999 and 2000, an estimated 3.1 percent of the U.S. population moved to a new state. And for the period 2010 to 2011, the comparable rate of migration dropped to 1.6 percent of the U.S. population.

New migration data show a change in the region's workforce, reflecting growth in many skilled occupations. Today, population changes in Pittsburgh are showing the impacts of our recent shift to net in-migration for the region as a whole, from the long term decades of negative net migration.

*Data and analysis of the spatial patterns of population migration impacting the Pittsburgh region are available in the following publication available on the UCSUR Web site under Technical Reports: (www.ucsur.pitt.edu). Migration Trends in the Pittsburgh Region: Update Through 2010, December 2011.*

**Figure 2. Age Distribution of Employed Workers in the Pittsburgh Region who Resided Outside of the Pittsburgh MSA One Year Prior, 2006–2010**



Source: American Community Survey

## Brownfield, Greenfield

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redevelopment because it is one of the only sites to be transformed from contaminated land to a planned community and zoned for residential rather than commercial use.

The Nine Mile Run watershed is a group of streams that runs along the Monongahela River near Squirrel Hill South, Swisshelm Park, and Frick Park, the city's largest public park (see Figure 1). Summerset's previous uses were a substantial factor in the deterioration and pollution of the Nine Mile Run watershed over the years. From 1922 to 1972, 17 million cubic meters of slag, a chemical byproduct of steel manufacturing, was dumped along the site, polluting much of the watershed and its valley.

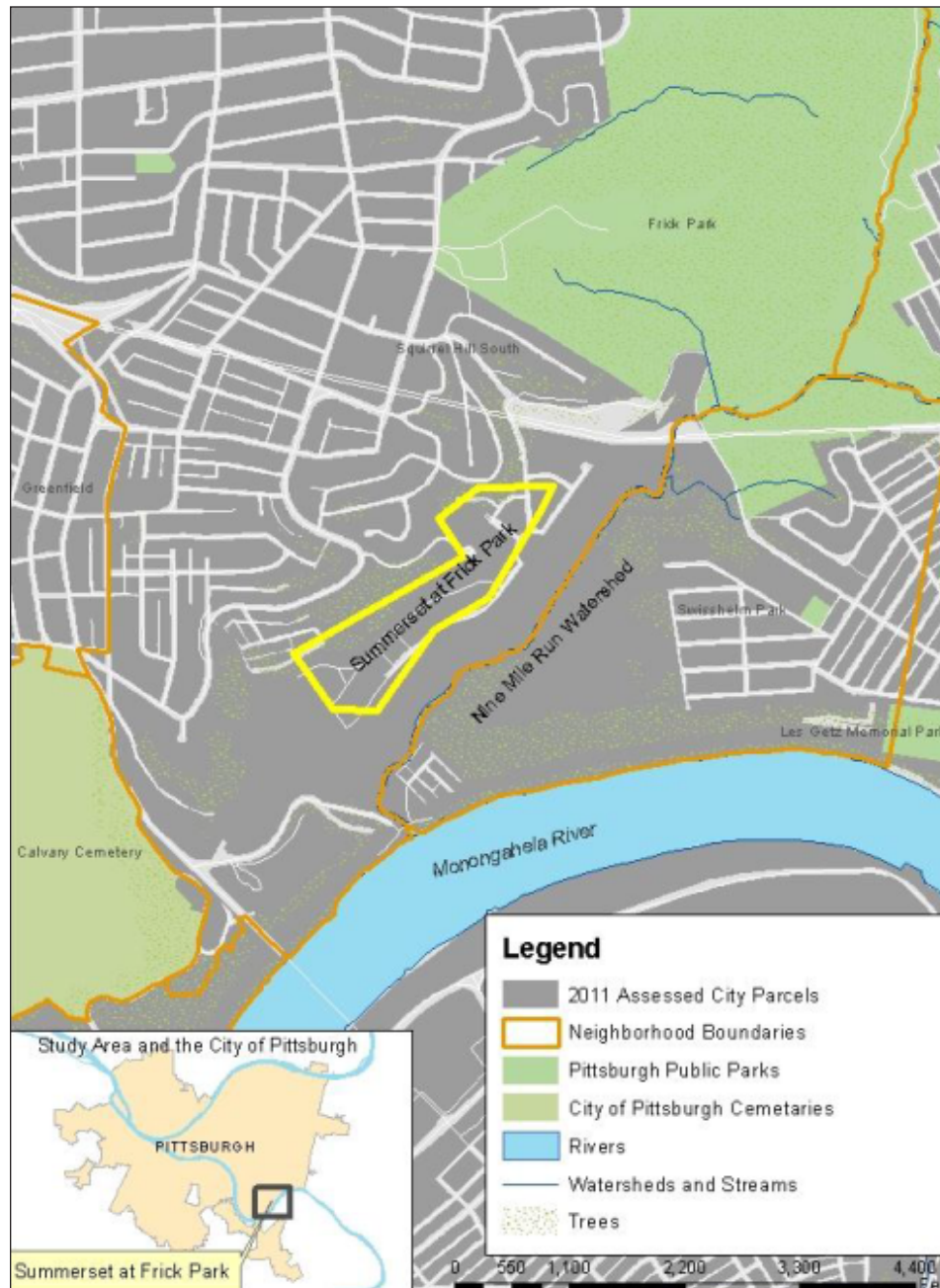
Eventually, using funds from the Environmental Protection Agency Brownfields Pilot Program, the URA was able to leverage Pennsylvania state funds to obtain the needed capital to buy the site and began developing plans for its reuse. In 1996, the master plans for the remediation and redevelopment of the brownfield site were released followed by groundbreaking in 1999, and by 2007, the first phase of the development was completed.

According to figures from the Urban Redevelopment Authority of Pittsburgh (URA), approximately \$261 million in private and public funds have and will be spent on the development and the clean-up of the Nine Mile Run watershed (see Figure 2).

Using sales data for home sales in Allegheny County, a hedonic price model of the brownfield remediation and redevelopment process was estimated. The analysis investigates how the market prices for homes changed in the area surrounding Summerset from 1990 to 2009 in response to the change in environmental quality. Finally, a difference in differences approach was applied to estimate the total effect the remediation and redevelopment had on surrounding property values (i.e. the premium homes sold close to Summerset received after remediation and redevelopment) and if the results of this analysis are similar to those of other studies.

Hedonic price modeling is an empirical approach used to determine the value of non-market goods. Hedonic pricing functions predict the value of an object over time as other

**Figure 1. Summerset at Frick Park and Study Area**



Source: Allegheny County Office of Property Assessments

variables that are determinants of its value change. Within this framework, researchers can investigate how different characteristics of goods are valued by consumers in the marketplace, even intangible and difficult to conceptualize market goods such as environmental quality. By including basic assumptions in the formulation of the model, such as the efficient markets hypothesis, research can describe, predict, and evaluate the effects of programs that aim to improve the environmental quality of

urban areas. Due to the political ramifications, high costs, and uncertain outcomes of redeveloping brownfields, hedonic methods offer a way to unpack the total impact brownfield redevelopment can have on the property values of surrounding communities.

Using the hedonic pricing approach with sales data from Allegheny County, housing characteristics were selected to control for variation in the quality of the homes.

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## Brownfield, Greenfield

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The interaction between the time period of the development process and the distance from the environmental hazard was used to estimate the total effects of the brownfield remediation and redevelopment process. Measures of distance were created as a way of determining whether a property sale was close or far from the brownfield site—distances of 500, 750, 1000, and 2000 feet from the boundary of the site were selected. Three timeline variables account for the time at which the sales occurred between 1990 and 2009 to denote specific milestones in the redevelopment process. Applying this nomenclature, all sales occurring after 1997 were denoted as “Post-Announce,” all sales occurring after 1999 were labeled as “Groundbreaking,” and all sales occurring after 2007 were indicated as “Completion.”

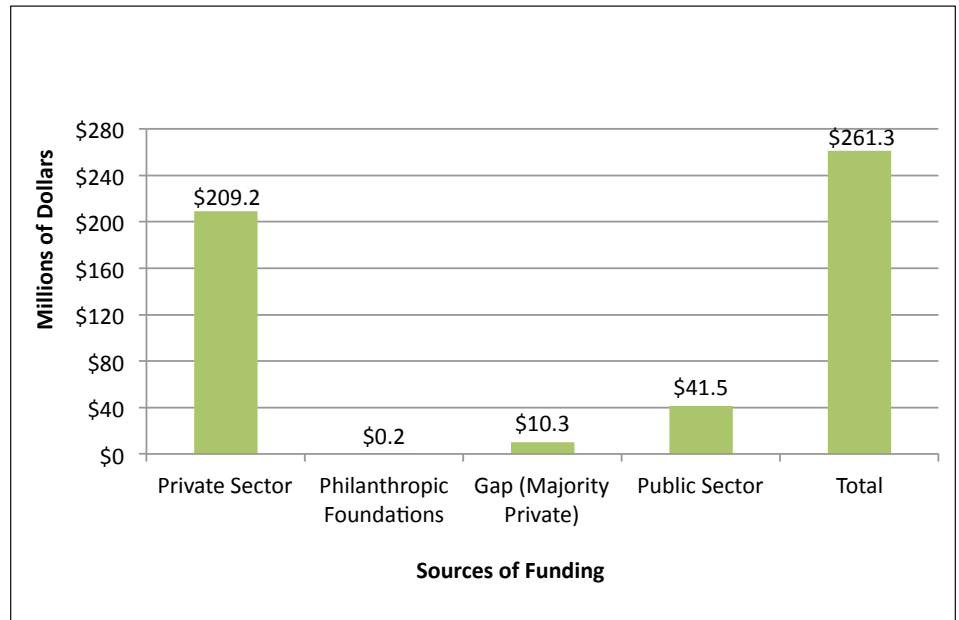
With the results grouped by distance and interaction factors, properties situated within 500 feet of the brownfield site and sold after the announcement of plans to redevelop the slag heap at Nine Mile Run (i.e. the “Post-Announce” period) received a strong and significant premium of 44 percent in the sale price. This announcement effect persisted in both the group model, which included all the stages of development, and the individual model.

These results demonstrate the impact the redevelopment process had on sales within 500 feet of the brownfield site: the closest unit of interest in this study (see Table 1). While this model provides the best picture ( $R^2=.6443$ ) of what happened to homes sold very close to Summerset, the sample size is much smaller than the other models. Nevertheless, standard variations were not large enough to indicate a significant problem with the sample.

As proximity to the brownfield site increased, the impact of the remediation and redevelopment fell, indicating that as distance from properties to the brownfield site increases, the home sale premiums associated with the increased environmental quality fall.

In academic and empirical research about the external effects of brownfield remediation and development, results varied in their size but almost all results were positive and significant. In this analysis, the further defined

**Figure 2. Development Costs of Summerset at Frick Park, by Source (2012)**



Source: Urban Redevelopment Authority of Pittsburgh - Economic Development Dept., 2011

distance to the brownfield site, the more the results diverged due to the incorporation of the increased values of the sales of other homes that are less affected by the negative amenities of the Nine Mile Run slag heap than others.

For these reasons, I believe the most accurate results define closeness to the brownfield as less than 500 feet from the site. Although this makes the sample size smaller, the households near Summerset at Frick Park accrue the benefits of living in relative proximity to a new residential housing development along with the added amenities of being close to affluent East End neighborhoods and civic institutions.

As is the case in most brownfields, Summerset’s redevelopment was costly. The URA estimated the total public costs at over \$40 million. In this more methodologically detailed analysis, it is found that property values of nearby properties—within 500 feet of the brownfield site—increased by at least 44 percent more than homes sold in the same time period but outside the 500 foot zone.

Using a dataset comprised of the complete listing of properties surrounding one mile of the borders of Summerset at Frick Park, the incremental property value increase of all the listed properties after the remediation and redevelopment of the slag heap at Nine Mile Run (controlling for differing features of houses) is

estimated to be \$405 million, much larger than the \$260 million dollar investment.

Because of Pittsburgh’s place as a brownfield redevelopment innovator, more work should be done to determine if the redevelopment of other regional brownfield sites that were developed into residential communities, such as Washington’s Landing, derive similar benefits to neighborhoods surrounding the development. In the case of Summerset at Frick Park, the data show that a significant “Announcement” effect occurred, which, with the research on the efficiency of the capitalization of real estate markets, is a welcomed result.

The ultimate lesson of brownfield remediation and redevelopment for local and municipal governments is that the effects of land recycling policies and incentives can have a meaningful impact on neighborhood revitalization and community development. However, that impact can vary in size depending on previously mentioned factors and future support provided to the community by the public and private sectors.

*Benjamin Robinson graduated from Pitt in April with a BA in urban studies and economics. He will begin his MPA program at the University of Southern California in the fall.*

**Table 1. Regression Results with Proximity Defined as 500 Feet**

VARIABLES	(1) Proximity = 500 Ft. All Years	(2) Proximity = 500 Ft. After 1997	(3) Proximity = 500 Ft. After 1999	(4) Proximity = 500 Ft. After 2007
Proximity = 500 Ft. Homes Sold After 1997	0.576*** (0.188)	0.440*** (0.0845)		
Proximity = 500 Ft. Homes Sold After 1999	-0.137 (0.194)		0.355*** (0.0853)	
Proximity = 500 Ft. Homes Sold After 2007	-0.0510 (0.137)			0.183 (0.123)
Constant	-94.39*** (7.452)	-86.54*** (5.771)	-77.59*** (6.054)	-76.02*** (5.290)
Observations	3,978	3,978	3,978	3,978
R-squared	0.644	0.644	0.641	0.640
Standard errors in parentheses, N = 3978, R <sup>2</sup> = .6443 P<0.01				

## UCSUR Names Recipient of 12th Annual Steven D. Manners Awards

The University Center for Social and Urban Research (UCSUR) annually awards the Steven D. Manners Faculty Development Award for promising research and infrastructure projects at the University of Pittsburgh. These awards honor the memory of Steve Manners, a sociologist who began working at the Center in 1974 and served as its Assistant Director from 1989 until his death in September 2000. His research and service to the Center and the University community were dedicated to improving social conditions in the urban environment.

UCSUR made the first Steve Manners awards in 2001. The 2012 Steven D. Manners award winner is:

**Nicholas G. Castle**, PhD, MHA, FGSA, Professor, Department of Health Policy &

Management, Graduate School of Public Health. "Bullying in Nursing Homes."

Little is known about the frequency and seriousness of bullying abuse in the more than 17,000 nursing homes in the U.S. Pilot data suggest that the scale and scope of resident abuse is high in nursing homes. This study will use vignette methodology to assess both the severity and frequency of bullying. Nurses' aides who provide 80 – 90 percent of the direct care to nursing home residents will be the primary source of data for this study.

*For more information about the Steven D. Manners Faculty Development Awards, contact UCSUR at 412-624-5442.*

## Students Work on Urban and Regional Projects

This summer, the Urban and Regional Analysis program at UCSUR is pleased to have the following students working with us on our projects.

**Caesar DeChicchis** is an MPA student at the Graduate School of Public and International Affairs. Caesar completed his BA at Temple University in 2007 with majors in geography and economics. He has spent the past year at UCSUR working on the Pittsburgh Neighborhood and Community Information System (PNCIS) and on projects with the Pittsburgh Public Schools, the Pittsburgh Youth Study, and Keep Pennsylvania Beautiful.

**William Cole** completed his first year in the MPA degree program at GSPIA, with a major in policy research and analysis. He served as a U.S. Marine from 2001-2007 and is president of the University of Pittsburgh's Student Veteran Association. William has a BA in philosophy from the University of California at Santa Barbara with a concentration on Ethics and Public Policy. He is a member of the Leadership Portfolio Program at the Johnson Institute for Responsible Leadership at GSPIA. Will is working on the project: Economic and Community Impacts of the University of Pittsburgh.

**Kira Pronin** comes to UCSUR from the MPA program at GSPIA in Policy Research and Analysis. Kira will begin the doctoral program in Political Science at Pitt in the fall. She has a Master in Economics from the University of Bergen and a Master of Social Sciences from the University of Helsinki. This summer, she is also working on the project: Economic and Community Impacts of the University of Pittsburgh.

**Lloyd Hedlund** graduated with a BA in Political Science and Urban Studies from Pitt in April. Lloyd worked on the PNCIS Users Conference. Lloyd is a native of Durham, N.C. and is seeking new opportunities in the fall.

# Pittsburgh Neighborhood and Community Information System Users Conference

■ By Sabina Deitrick

The Pittsburgh Neighborhood and Community Information System (PNCIS) held its third annual Users Conference on Friday, June 8 at the University Club on the University of Pittsburgh campus. Just over 100 people attended for an afternoon of strategies and projects aimed at reducing neighborhood blight and improving the quality of life in Pittsburgh and Allegheny County. PNCIS is a project in the Urban and Regional Analysis program at UCSUR.

Chris Walker, director of research and assessment at the Local Initiatives Support Corporation (LISC), was the featured speaker. Chris focused on LISC's Building Sustainable Communities Initiative, a comprehensive, community-driven strategy of change in 106 neighborhoods in 25 cities in the United States. Between 1999 and 2012, LISC has helped with \$1 billion in investment in the sustainable communities neighborhoods, with assistance conducted in many forms, including real estate loans, program grants, and equity.

Chris demonstrated the role and importance of neighborhood information systems in LISC's Sustainable Communities Initiative with examples linking data and community improvements in Providence, Milwaukee, Indianapolis, and St. Paul. Along with PNCIS, data collaboration initiatives in these cities are partners in the National Neighborhood Indicators Partnership (NNIP), housed at the Urban Institute in Washington, D.C. PNCIS works actively with these neighborhood-level information systems through NNIP (see *PEQ* June 2010).



Chris Walker, LISC



From left to right, James Esch, Lauren Byrne, Sarah Stroney, Waverly Duck, Chris Walker

LISC's Sustainable Communities program demonstrates a model for performance measurement and evaluation criteria that can be used for community development programs in Southwestern Pennsylvania. Comparable information and consistent measurement formats create opportunities for communities and organizations to demonstrate their success and build on positive change. These models allow communities to compare themselves to neighborhoods in cities with similar market conditions and set realistic development goals through the projects and plans they pursue.

Chris Walker also offered a major challenge to the group. Many times, with administrative data, places faced an "information gap" in finding reliable indicators to assess neighborhood conditions. Today, in many places with neighborhood information systems, open data systems, and other accessible information, organizations face more of an "analysis gap" rather than an information gap. How can the information that is available and accessible be used for performance and evaluation for organizations working to improve neighborhood conditions?

In the second session of the afternoon, local users shared their information applications,

success stories, and challenges. Their presentations demonstrated that many in the region have moved to reduce the "analysis gap," using information available on neighborhood conditions through PNCIS and other sources with sound methods and analytic techniques. Good analysis was demonstrated by:

- **Sarah Stroney**, project manager of the Regional Industrial Development Corporation. Sarah reflected on her work as a student intern in East McKeesport, sponsored by the Local Government Academy. Sarah developed a tracking system and data base to identify and survey vacant properties and their conditions in the community. This information was then used by the municipality to set up plans for code enforcement, demolition, and rehabilitation of these properties. Sarah's work demonstrates the importance of student interns working with smaller municipalities to "fill the analysis gap" that arises from limited capacity and constrained resources.

- **Waverly Duck**, PhD, assistant professor in sociology at the University of Pittsburgh. Dr. Duck showed multiple ways that students in the classroom use PNCIS in their study and analysis of neighborhood conditions. In his Pitt classroom, students received their first



experience in the use of data in a broader community analysis, coupled with qualitative methods of interviews and observational techniques. This provided students with a robust experience to learn applied research methods in community settings and become familiar with data and Pittsburgh neighborhood conditions in the process.

- **Lauren Byrne**, executive director, Lawrenceville United, and James Eash, community planning and project coordinator, Lawrenceville Corporation. Lauren and James discussed the changes in the Lawrenceville

neighborhood of Pittsburgh and the multi-methods of analysis in which they've been engaged over the past two years. The results of the Lawrenceville Mover Survey, conducted at UCSUR in 2011 (*PEQ* June 2012), were discussed as the neighborhood moves to a larger planning process for the Upper Lawrenceville area. The survey information has been used to analyze the neighborhood's housing market and develop programs for housing rehabilitation and preserving affordable housing options.

The conference was supported by the Pittsburgh Partnership for Neighborhood

and Community Development (PPND) and the University Center for Social and Urban Research. UCSUR operates PNCIS in agreement with PPND, a leader in community development in the city of Pittsburgh, and a LISC Affiliate. The conference also included a brief presentation of UCSUR's Quality of Life survey and a series of posters using PNCIS data were also on display for conference goers.

*All presentations and podcasts are available on the UCSUR Web site, [www.ucsur.pitt.edu](http://www.ucsur.pitt.edu).*

## Port Authority Impact of Route Eliminations

The Port Authority of Allegheny County has proposed a 35 percent service reduction to cope with a looming \$64 million budget shortfall. These proposed cuts will eliminate 46 of 102 routes. Using route data provided by the Port Authority, UCSUR was able to create a map of the routes slated for elimination in September if the financial picture remains unchanged.

Using Geographic Information Systems (GIS), a map layer of transit routes was created from the online data feed provided by the Port Authority. Each of the 102 routes were then coded based on their planned status in September. Based on other studies, we defined a reasonable distance from a transit route as 2,000 feet (0.38 miles). GIS software was then used to identify the number of people and jobs located within 2,000 feet of transit routes using block-level employment and demographic data.

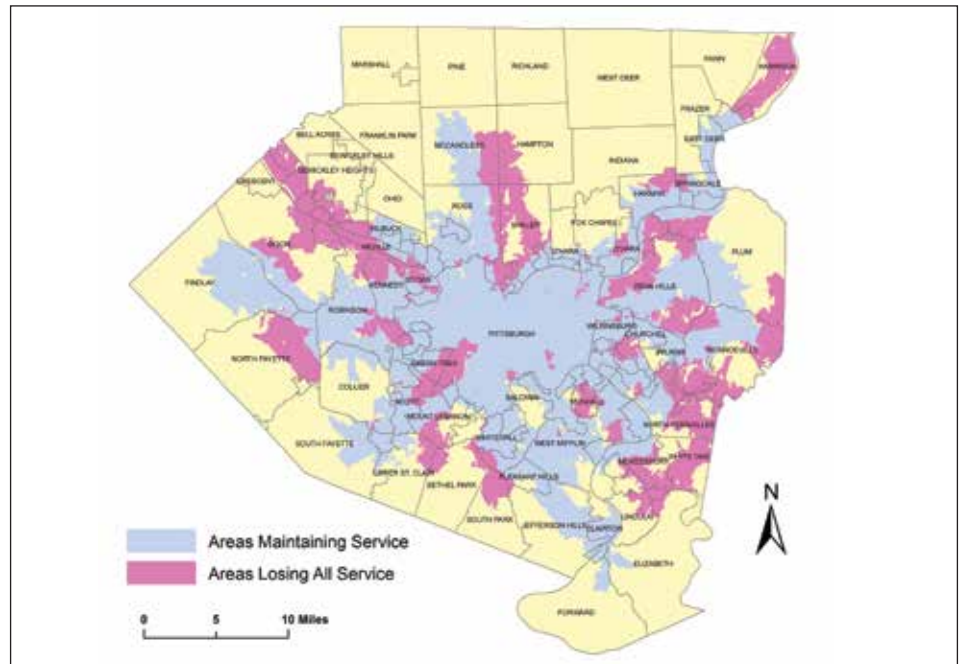
The proposed route eliminations and service reductions to Allegheny County's transit system will have a severe effect on many riders and communities, especially those losing service entirely. Using block-level data from the 2010 Census and the Census' Local Employment Dynamics Dataset, we estimate that:

- 227,334 Allegheny County residents will lose reasonable access to transit from their residence; and
- 88,825 jobs will no longer be reasonably accessible from a transit line.

Following the proposed eliminations, 53 percent of all County residents will still have reasonable access to transit from their home, down from 71 percent before the cuts, and 71

percent of all County jobs will remain accessible to transit, down from 85 percent before the cuts.

### Port Authority Impact of Route Eliminations



### Impact of Port Authority Route Eliminations on Residents and Jobs

Status	2010 Population		2010 Primary Jobs	
	Number	Percent	Number	Percent
Currently with service	870,998	71%	544,379	85%
Currently without service	352,350	29%	98,252	15%
Scheduled to maintain service after cuts	643,664	53%	455,554	71%
Scheduled to lose service after cuts	227,334	19%	88,825	14%
<b>Total Allegheny County</b>	<b>1,223,348</b>	<b>100%</b>	<b>642,631</b>	<b>100%</b>

Source: 2010 Census and the Census Local Employment Dynamics Dataset



# University of Pittsburgh

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