



GROWING PAINS: A BURGEONING JERSEY CITY CONTENDS WITH AGING WATER INFRASTRUCTURE

THE INVESTMENTS JERSEY CITY NEEDS IN ORDER TO KEEP GROWING.

JERSEY CITY'S waterfront location, across the Hudson River from lower Manhattan, has fueled successive waves of economic growth. For much of the 19th and 20th centuries goods arrived in Jersey City, first via the Morris Canal and later via the many freight rail lines that terminated at the waterfront, to be transferred to ships destined for New York City and points beyond. This commercial activity helped make Jersey City the nation's 23rd largest city by 1930 with a population of 316,715. As freight transportation patterns changed over the following 50 years, the shippers and railroads abandoned the city, and by 1980 population had declined by one-third to 223,532.

But its location in the shadow of Manhattan meant the area was not inactive for long. Massive investments in the waterfront's roads and water infrastructure in the 1980s laid the groundwork for redevelopment. By the 1990s, Jersey City's excellent transit connections and comparably lower office rents than across the river proved an irresistible lure for the back-office operations of financial firms and related businesses, transforming Jersey City into "Wall Street West" and boosting employment by 14,000 jobs between 1999 and 2010. The so-called "Gold Coast" also became home to residential towers, and catalyzed an influx of young people citywide. In the first decade of the 21st century, the number of new residential building permits issued quadrupled from the previous decade, catapulting Jersey City from eighth in the state to first in issuance of such permits.

Despite this, much of the city still faces traditional urban challenges, including a combined sewer and stormwater system that pollutes water, exacerbates flooding and

causes sewer backups. At the same time, however, residents and visitors are rediscovering the city's waterways as a place for recreation. The following stories help illustrate this juxtaposition of old and new:

Gold Rush to the Gold Coast: How millions in water infrastructure investments spurred Jersey City's waterfront redevelopment.

Making Urban Waterways an Urban Asset: The interest among Jersey City residents in recreation on the rivers and how it is escalating the demand for cleaner water.

It Takes a Village (To Build a Rain Garden): How one community group is utilizing an Internet startup to connect money and local resources that will promote and develop neighborhood projects to manage stormwater.

With continued investments, Jersey City's waterways and water infrastructure can aid future redevelopment and help the city achieve its ambitious plans for growth.



Opposite: Once dominated by rail infrastructure, Jersey City's waterfront is now home to over 16,000 residential units and 16.1 million square feet of office and retail space, with nearly another 18,000 units and 2.5 million square feet of office and retail approved or under construction. Photo credit: Newport Associates Development Company.

Above right: By 1945, rail infrastructure and docks dominated the Jersey City waterfront. After reaching its peak population in 1930, Jersey City would lose a third of its residents by 1980. Photo credit: Newport Associates Development Company.

GOLD RUSH TO THE GOLD COAST:

HOW MILLIONS IN WATER INFRASTRUCTURE INVESTMENTS SPURRED JERSEY CITY'S WATERFRONT REDEVELOPMENT



This view from Liberty State Park, with the neighboring skylines of Jersey City's Gold Coast (left) and lower Manhattan (right) shows that proximity to Manhattan has played an important role in Jersey City's redevelopment. The city led the state in the number of new residential building permits issued between 2000 and 2009.

A S NEW YORK City approached financial collapse in the 1970s, Jersey City faced its own problems. It had lost 30 percent of its population, the once-bustling waterfront was abandoned, and its infrastructure was in disarray. On July 15, 1982, a 72-inch aqueduct pipe carrying water from Jersey City's reservoirs in Morris County ruptured in Secaucus, leaving the city and its residents without water for three days. Restaurants were ordered closed, the National Guard was dispatched to the area to provide bottled water to hospitals and nursing homes, and tanker trucks were set up from which residents could fill bottles, pails and buckets with water.

"The area was a mess when I started here [in the 1980s]," says Bill Wissemann, senior project engineer for Newport Associates Development Company, describing the 280-acre waterfront site that would become known as Newport. "There was mud everywhere, junkyard dogs and rats. The platform to enter the [Newport PATH] station was in the middle of nowhere, and very few

people used it. The city's combined sewer system was stuck in the 'Open' position, allowing sewage to flow into the Hudson River each day, even during dry weather."

Jersey City had recognized these problems in 1980 when it approved a revised redevelopment plan for the area. Then, in July 1982, the same month as the water-main rupture, the city applied to the federal government for a \$45 million Urban Development Action Grant (UDAG) to make the 280-acre Newport site ready for development. The city ultimately received \$40 million in UDAG funds along with a \$25-million loan guarantee and \$10 million of Community Development Block Grant floating funds to be used for the acquisition and remediation of the site, demolition of structures, relocation of residents, and development of new road, water and wastewater infrastructure. Developers Melvin Simon & Associates and the LeFrak Organization each contributed an additional \$30 million towards the initial construction, which began in 1985.

Among the improvements made with the public and private investment funds was the installation at the start of the project, rather than in stages, of infrastructure sized to accommodate the site's full build-out, something Wisemann said was more cost-effective in the long run. The six sewer outfalls that were either rusted open (serving as an open pipe into the Hudson during low tides and overwhelming the system with seawater during high tides) or rusted shut (creating sewage backups in the neighborhood) were consolidated into two new outfalls, and the site's combined sewer system was separated into stormwater and sanitary lines, thus preventing a potential 2.8 million gallons of sewage from entering the Hudson each day. A high-pressure 30-inch water line, 10 inches larger than what was required initially, was installed to serve not only the Newport site but also future development anticipated along the rest of the waterfront.

Thirty years later, the Jersey City waterfront bears no resemblance to the barren mudscape that Wiseman remembers. Sitting in his new waterfront office, 17 stories above the Hudson overlooking the New York and Jersey City skylines, Wisemann lists the elements that comprise Newport's success: 4,870 residential units, 618 hotel rooms, and 4.4 million square feet of office space across 46 buildings; 13.5 acres of parks; and 1.2 miles of the Hudson River Waterfront Walkway. According to Newport Associates Development Company, Newport's residents earn an average annual income of \$116,000. The neighborhood



The Hudson Riverfront Walkway in Jersey City provides recreational opportunities and waterfront access for residents, employees and visitors, and serves as a segment of the 2,900 mile East Coast Greenway, which is currently under development.

Photo credit: NJTPA.

provides employment to 20,000 office workers each day; the Newport PATH station, which served 600 commuters each day before the project began, now serves 16,000. And the Newport project is only 82 percent complete, with approvals in place for 21 additional buildings, including 3,420 residential units and 602,600 square feet of office space.

The Newport project is credited with catalyzing Jersey City's waterfront transformation, which now features glass-draped residential and office towers, including New Jersey's tallest, the Goldman Sachs Tower. Walkers, joggers and cyclists enjoy a paved path along the Hudson – one section of the East Coast Greenway, a pathway that will one day travel the entire Eastern Seaboard from Florida to Maine. Visible to the north is a dramatic view of the New Jersey Palisades; to the east, the Manhattan skyline; and to the south, the Statue of Liberty, Ellis Island and Liberty State Park.

What is not visible is the underlying infrastructure that made the waterfront revitalization possible, including the new water mains and separate storm and sewer lines. The multi-million-dollar public-private investment has spurred a complete transformation of the waterfront area. Wisemann is visibly proud of Newport's success: By installing infrastructure at the outset of the project, the

LeFrak Organization was able not only to create an entire mixed-use community but also to provide the necessary foundation for the successful redevelopment of the entire waterfront area.



The decline of rail commerce on the Jersey City waterfront left the neighborhood that would later become known as Newport underutilized. The infusion of \$75 million in grants and financial assistance for site preparation and infrastructure replacement subsequently catalyzed redevelopment in Newport.

Photo credit: Newport Associates Development Company.

MAKING URBAN WATERWAYS AN URBAN ASSET

THE INTEREST AMONG JERSEY CITY RESIDENTS IN RECREATION ON THE RIVERS, AND HOW IT'S ESCALATING THE DEMAND FOR CLEANER WATER.

EMILIO DELIA BELIEVES that water-based recreation is a great part of the urban lifestyle in Jersey City. As a kayak enthusiast, Emilio brings neighborhood kids out onto the water to experience their community from a completely different perspective, but acknowledges that his launching a boat in certain areas of Newark Bay causes some people to do a double take. "Some people ask me, 'Is that even legal?'" he says. But DeLia and others believe that, thanks to continuing improvements in water quality, it's time to change these perceptions.



Capt. Bill Sheehan, the Hackensack Riverkeeper uses pontoon boats for his popular eco-cruises on the Hackensack River and New Jersey Meadowlands. He is well aware of the challenges he faces in getting people onto the river. "If you scare people away from the water, they will treat the river as if it should just be paved over. But if

you get these same people onto the river and draw attention to its natural and recreational assets, they will want to use and protect these waterways." Hackensack Riverkeeper records the number of people who visit their paddling centers as a way to emphasize to decision-makers why access to a clean, fishable and swimmable river is important.

Above: Hackensack Riverkeeper Capt. Bill Sheehan and his organization bring 10,000 people to the Hackensack River each year for recreation and to build support for improving the waterways. Photo credit: Hackensack Riverkeeper.

Unfortunately, although water quality has improved significantly, more improvements are needed. Sheehan recognizes when it is unsafe to venture onto the Hackensack River because of the 11 combined sewer outfalls (CSOs) on the Jersey City side. "We're very sensitive about letting people go out on the day of, and the day following, a rain event," he says. "If someone still wants to do so, we insist that they seriously wash their hands afterward or risk getting ill." To get this message out, Hackensack Riverkeeper recently produced a short video, "The Truth About CSOs,"¹³ in which Sheehan takes viewers on a tour of the Hackensack during an overflow event. In the video, Sheehan mentions that when he points out CSOs on his tours, people are dumbfounded, believing that these were done away with decades ago.

Jersey City is blessed with not only the Hackensack but also the stunning Hudson River estuary, on which Liberty State Park fronts. For the past five years, park visitors have been able to join the park's resource specialists for an interpretive two-hour kayak eco-tour to learn about the estuary's many fish, shellfish and migratory birds. According to Deputy Park Superintendent Jonathan Luk, the park hosts between 25 and 30 kayak tours each season for as many as 13 people per trip. Since they are taking people out into an urban aquatic environment, the staff acknowledges the need to check New York City's water quality monitoring stations. (New Jersey's cities do not post results of water quality testing after rain events, when combined sewer overflows may occur.) Luk mentions that in 2013, adverse water quality resulted in only one day on which conditions were unsuitable for a kayak tour.

Jersey City also enjoys a vibrant recreational fishing scene. Unfortunately, not all those who fish understand that poor water quality means that their catch may not



be safe to eat. Two local fishermen described the countless people who use the Hudson and other urban waterways for subsistence fishing. Both stressed that the water is a lot cleaner today than it once was in terms of visible pollutants, but acknowledged that quality issues still exist. One believes that one of the biggest threats comes from people flushing prescription medications down the drains and into the waterways, which interferes with the sexual development of winter flounder. The other remarks, “When you hear the warnings that pregnant women should not consume certain fish, it makes me nervous. I know that these fish are migratory and travel from the Atlantic Ocean and up the Hudson, but it must be human nature that makes me decide to keep a fish I catch on the ocean side of the Verrazano Bridge, but release the ones I catch on the other side.” In addition to these concerns, Newark Bay is part of the dioxin-contaminated Diamond Shamrock Superfund site; since dioxin in the sediment can make its way up the food chain and into the fish, its consumption by humans can become a cause for concern.

DeLia, Hackensack Riverkeeper, Luk, and others are evidence that the demand to use the waterways around Jersey City for kayaking, boating and fishing is growing. Managed correctly, access to waterways will help Jersey City and neighboring municipalities continue to attract new residents, businesses and visitors.



Top: Liberty State Park’s kayak eco-tours help visitors explore the Hudson River estuary.

Photo credit: Liberty State Park.

Above: These brightly colored signs found along the Hudson and Hackensack rivers surrounding Jersey City indicate the nearby presence of a combined sewer outfall, warning people not to use the water “During and Following Wet Weather,” because “Contact with Water May Cause Illness.”

IT TAKES A VILLAGE (TO BUILD A RAIN GARDEN)

HOW ONE COMMUNITY GROUP IS UTILIZING AN INTERNET STARTUP TO CONNECT MONEY AND LOCAL RESOURCES THAT WILL PROMOTE AND DEVELOP NEIGHBORHOOD PROJECTS TO MANAGE STORMWATER.

JERSEY CITY'S BURST in development activity may be enviable to other cities, but it is not without its challenges; more development creates a greater strain on the underlying infrastructure. Jersey City Planning Director Bob Cotter describes the city's infrastructure as a tale of two cities: the new and the old. The newly redeveloped parts of the city, such as the waterfront, were originally built on filled-in marshes reclaimed for industry. When industry left, new developments like Newport began with a complete overhaul of the underlying water infrastructure, and most new developments now have separate storm and sewer systems that function well. The city's historic districts, however, face infrastructure problems typical of older cities, such as century-old water pipes and a combined sewer and stormwater system that covers 63 percent of the city. In response, Jersey City's Municipal Utilities Authority spends millions annually in capital improvements to its infrastructure.

The daunting costs involved in such urban water and wastewater system upgrades are challenging cities to seek out alternative and innovative

approaches. Many are installing green infrastructure, which mimics natural systems to capture stormwater locally before it enters the sewer system. The design of green-infrastructure elements can also help to beautify neighborhoods. Sustainable Jersey City (SJC) is promoting the use of green infrastructure in Jersey City.



Co-founder Erin Barnes's "crowd-resourcing" website ioby.org has helped communities raise \$732,011 towards 282 projects. The company notes that 58 percent of donors also end up volunteering with projects. Photo credit: ioby.



The Jersey City Municipal Utilities Authority routinely makes capital investments in the city's water collection and distribution systems ("gray" infrastructure) in addition to the investments it is making to comply with federal requirements.

Photo credit: Jersey City Municipal Utilities Authority.

SJC is partnering with the web-based platform ioby, which offers a new way to fund green infrastructure. ioby (In Our Back Yards) stands for the opposite of NIMBY (Not In My Back Yard), and was founded to bring small-scale sustainable development projects to fruition in urban neighborhoods through the use of "crowd-resourcing." According to ioby's website, "Crowd-resourcing combines the concepts of crowd-funding (the ability to pool small donations made online to a specific cause or project) and resource organizing (enlisting local activists and advocates to ensure success of a cause or project)." To date, 71 percent of ioby's projects serve some form of social justice objective.¹⁴ According to Erin Barnes, ioby's co-founder and executive director, "We might not be able to change the world, but we can at least do something on the block."

Since its start in New York City, ioby has expanded its operations to neighborhoods across the country. Most donors live within two miles of the project to which they contribute, and make an average donation of \$35. Green

infrastructure-related projects that are currently seeking funding through ioby.org are taking place in Pittsburgh (to fund a green infrastructure plan), Memphis (to plant a rain garden) and New York City (to fund a floating garden on the Gowanus Canal and a rain garden in Brooklyn).

SJC was the first organization in Jersey City to utilize ioby, through which it successfully raised \$4,598 for its “Rain Gardens +ART Campaign” in Jersey City’s Five Corners neighborhood. SJC matched the donations it received from ioby with foundation funding, and will use the money to install a rain garden demonstration project, which will include art installations around the site as a way to draw awareness to the project. SJC founder and Chairwoman Debra Italiano explains that “through our collaboration with community arts organizations, individual artists, the New Jersey Tree Foundation and our host site partners, SJC aims to show how connecting social, environmental and economic impacts can transform Jersey City into a more sustainable place to live and work.” She is planning another collaboration with ioby to develop rain gardens and a water-capture system for a local school that has been affected by flood events. For ioby’s Erin Barnes, who has a particular interest in urban water systems, “This is a great partnership for us. They are doing very interesting work.”

The screenshot shows the ioby.org project page for "SJC's Rain Gardens +ART Campaign". At the top, the ioby logo is displayed with the tagline "Now in your backyard". The project title is "SJC's Rain Gardens +ART Campaign" with a subtitle: "A validated initiative to educate and engage Jersey City stakeholders about green infrastructure benefits and inspire more projects across all of our neighborhoods." The funding status is prominently displayed as "\$4,598 RAISED OF \$4,598 GOAL" and "\$0 STILL NEEDED", with a large "funded!" badge. Below this, there is a "volunteers needed!" section and a "where it's at" map. A video player is visible in the lower section of the page.

SJC raised \$4,598 in small donations on ioby.org to fund its “Rain Gardens +ART Campaign.”

Image credit: ioby.



The grassroots organization Sustainable Jersey City (SJC) is working to highlight the importance of green infrastructure in Jersey City as a way to address stormwater locally and to beautify communities.

Photo credit: Sustainable Jersey City.



Notes

CAMDEN

- 1 Whitman, Walt. *Leaves of Grass*. 1900.
- 2 Camden SMART. "Camden SMART 2014 Trailer." YouTube video, 2:09. Posted by "Camden Smart," January 29, 2014. <https://www.youtube.com/watch?v=rULgne7stg4>
- 3 DeNardo, Mike. "Admiral Wilson Boulevard Floods Despite Costly Drainage Project." KYW Newsradio 1060, April 19, 2011. Accessed April 9, 2014. <http://philadelphia.cbslocal.com/2011/04/19/admiral-wilson-boulevard-floods-despite-costly-drainage-project/>
- 4 Delaware Valley Regional Planning Commission. *US 30 Corridor Study: Camden County, New Jersey*. Delaware Valley Regional Planning Commission, July 2002. Accessed April 9, 2014. <http://www.dvrpc.org/reports/02028.pdf>
- 5 The terms infiltration and inflow refer to the unintended entry of water into a sanitary sewer line through defects in the line, and can come from rainwater that is absorbed into the soil either from above or from the water table below.

HOBOKEN

- 6 Walk Score ranks neighborhoods and municipalities on a scale of 0-100 depending upon as-the-crow-flies proximity to everyday amenities such as restaurants, grocery stores, schools and parks. Hoboken's Walk Score is 95, which puts it at the top of Walk Score's list for small cities (population 50,000-100,000). The average Walk Score of New Jersey's 61 largest municipalities is 59.
- 7 OMA, Royal HaskoningDHV, Balmori Associates and HR&A Advisors. "Resist, Delay, Store, Discharge: A Comprehensive Strategy for Hoboken." Plan presented at the Hoboken City Council Meeting as part of the Rebuild By Design initiative, March 5, 2014.
- 8 Rebuild by Design. "Resist, Delay, Store, Discharge: a comprehensive strategy for Hoboken." Accessed April 16, 2014. <http://www.rebuildbydesign.org/project/comprehensive-strategy/>
- 9 Together North Jersey. "Hoboken Green Infrastructure Strategic Plan." Accessed April 16, 2014. http://togethernorthjersey.com/wp-content/uploads/2014/04/20140404_Hoboken-Report_sm.pdf
- 10 City of Hoboken. "Southwest Park Design Concepts." Accessed April 16, 2014. <http://www.hobokennj.org/content/wp-content/uploads/2013/10/SW-Park-4-Design->
- 11 LEED (Leadership in Energy and Environmental Design) Certification is the U.S. Green Building Council's audit-based system that awards points to green buildings based on the number of sustainable actions taken. Certifications start with Basic and move up through Silver, Gold and Platinum.
- 12 The Hostess Building is not without its share of environment-sustaining features: It boasts a 20,000-sq.-ft. green roof, the first of its kind in Hoboken. [Concepts.pdf](#)

JERSEY CITY

- 13 Hackensack Riverkeeper. "The Truth About CSOs." YouTube video, 7:26. Posted by "Hackensack Riverkeeper," November 26, 2013. <https://www.youtube.com/watch?v=wBY3idYRkbw>
- 14 ioby. "About ioby." Accessed April 8, 2014. <http://www.ioby.org/about>.

PASSAIC

- 15 Williams, William Carlos. *In the American Grain*. 1925. Reprint, New York: New Directions, 2009.
- 16 Beale, David T., Karin Platt, Robert B. Nicholas, John P. Leidy, and John Kolesar, Director. *Pollution Control on the Passaic River*. Princeton, New Jersey: Center for the Analysis of Public Issues, 1972.
- 17 National Park Service. "Lowell National Historic Park (1978-2008): 30 Years of Preservation and Innovation for Future Generations." Accessed April 11, 2014. http://www.nps.gov/lowe/parkmgmt/upload/NPS_30th%20-%20small.pdf. Similar to Paterson, Lowell was developed in the early 19th century as a planned industrial community for the production of textiles. Following a decline similar to Paterson's, parts of Lowell were declared a National Historic Park in 1978, becoming the nation's first urban national park. However, success did not happen overnight; the restoration and revitalization of Lowell has continued to the present. Thirty years later, in 2008, 3,850,000 square feet or 77 percent of the historic mills have been rehabilitated, attracting nearly 700,000 visitors annually
- 18 Hamilton Partnership for Paterson. "Mill Mile –Paterson Great Falls National Park." YouTube video, 1:35. Posted by "HamiltonPartnership," April 23, 2013. https://www.youtube.com/watch?v=owlZ_L1R-bE
- 19 Passaic Valley Water Commission. "2012 Water Quality Report." Accessed April 8, 2014. http://www.pvwc.com/water%20quality/PVWC_1605002_2013CCR_2012WQReport.pdf
- 20 The PVWC Consumer Confidence Report reads: "Lead: Passaic Valley Water Commission PWS ID NJ1605002 exceeded the lead action level during the July 1 - December 31, 2012, monitoring period. Customers were notified about this in the lead brochure that was mailed out in December 2012. Additional information is provided elsewhere in this report regarding steps you can take to reduce your exposure to lead in drinking water and how to obtain additional copies of this report and a copy of the lead brochure."
- 21 The PVWC Consumer Confidence Report details action being taken: "PVWC is moving forward with design and construction of satellite corrosion control treatment systems to reduce the potential of lead dissolving into the water. These treatment systems are being phased in as part of the reservoir improvement project where each phase will provide treatment to specific areas of the distribution system. Once the reservoir improvement project

is completed and the uncovered finished water reservoirs are replaced by covered storage tanks, the entire service area will receive corrosion control treatment. In addition, PVWC continues implementing a multi-faceted lead public awareness and education program.”

22 According to the USGS Stream Gauge in Little Falls, N.J. (immediately upstream of Paterson), of the 25 largest recorded floods in the past century, 11 occurred in the past 25 years, with nine being considered major floods (at least two feet over flood stage), and two being considered moderate floods (at least one foot over flood stage).

23 Malinconico, Joe. “Paterson ready to approve 11 buyouts on city’s north side.” Paterson Press, May 27, 2013. Accessed April 9, 2014. <http://www.northjersey.com/news/paterson-ready-to-approve-11-flood-buyouts-on-city-s-north-side-1.565713>

24 Passaic County Department of Planning and Economic Development, with assistance from Parsons Brinckerhoff. “Moving Passaic County: Transportation Element of the Passaic County Master Plan.” Accessed April 16, 2014. <http://www.passaiccountynj.org/DocumentCenter/View/126>

ABOUT NEW JERSEY FUTURE



Founded in 1987, New Jersey Future is an independent not-for-profit organization, working for better development and quality growth in the Garden State. New Jersey Future focuses on promoting smart growth and advancing implementation of the State Development and Redevelopment Plan by conducting research and analysis on key issues, building consensus for broad solutions, hosting events to educate and inform, and implementing plans on the local level to build stronger, more resilient communities.

ABOUT THE AUTHORS



Chris Sturm,
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Chris Sturm directs New Jersey Future's policy development and advocacy across a host of issues including state and regional planning, sustainable infrastructure, and incentives for compact, equitable development.

She spearheaded the adoption of legislation authorizing better cluster development tools, and is frequently quoted in the media. Chris serves as a trustee for the Council on Affordable Housing and the Environment, and is a member of the Clean Water Council of New Jersey and the New Jersey Climate Adaptation Alliance. Her career experience includes serving as the assistant director of the Capital City Redevelopment Corporation, as well as working for the MSM Regional Council (now PlanSmart NJ), the Eagleton Institute, and the Office of State Planning. She holds a master's degree in public affairs from the Woodrow Wilson School at Princeton University, where she concentrated in urban and regional planning.



Nicholas Dickerson,
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Nick focuses on policy and planning initiatives ranging from research to on-the-ground implementation, focusing on issues including water and natural resources, sustainable infrastructure and ways to develop compact, livable communities.

Prior to joining New Jersey Future, he served as the community and natural resource planner for Pike County, Pennsylvania, where he monitored implementation of the county open space plan, provided planning assistance to local municipalities, coordinated the county's shale gas task force and communicated with print and televised media on planning projects. Recently Nick was selected to participate as a member of the Environmental Leadership Program's Eastern Regional Fellowship Class of 2014.