A ULI Advisory Services Panel Report

Duluth
Minnesota

September 13–18, 2015

Urban Land Institute

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Strategic Advice for Lincoln Park and the Miller Creek Watershed

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Urban Land Institute

THE KRESGE FOUNDATION

About the Urban Land Institute

THE MISSION OF THE URBAN LAND INSTITUTE is to provide leadership in the responsible use of land and in creating and sustaining thriving communities worldwide. ULI is committed to

- Bringing together leaders from across the fields of real estate and land use policy to exchange best practices and serve community needs;
- Fostering collaboration within and beyond ULI's membership through mentoring, dialogue, and problem solving;
- Exploring issues of urbanization, conservation, regeneration, land use, capital formation, and sustainable development;
- Advancing land use policies and design practices that respect the uniqueness of both the built and natural environments;
- Sharing knowledge through education, applied research, publishing, and electronic media; and
- Sustaining a diverse global network of local practice and advisory efforts that address current and future challenges.

Established in 1936, the Institute today has more than 36,000 members worldwide, representing the entire spectrum of the land use and development disciplines. Professionals represented include developers, builders, property owners, investors, architects, public officials, planners, real estate brokers, appraisers, attorneys, engineers, financiers, academics, students, and librarians.

ULI relies heavily on the experience of its members. It is through member involvement and information resources that ULI has been able to set standards of excellence in development practice. The Institute has long been recognized as one of the world's most respected and widely quoted sources of objective information on urban planning, growth, and development.

Cover photos: Sarene Marshall and Steven Gu (bottom left)

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About ULI Advisory Services

THE GOAL OF THE ULI ADVISORY SERVICES program is to bring the finest expertise in the real estate field to bear on complex land use planning and development projects, programs, and policies. Since 1947, this program has assembled well over 600 ULI-member teams to help sponsors find creative, practical solutions for issues such as downtown redevelopment, land management strategies, evaluation of development potential, growth management, community revitalization, brownfield redevelopment, military base reuse, provision of low-cost and affordable housing, and asset management strategies, among other matters. A wide variety of public, private, and nonprofit organizations have contracted for ULI's advisory services.

Each panel team is composed of highly qualified professionals who volunteer their time to ULI. They are chosen for their knowledge of the panel topic and screened to ensure their objectivity. ULI's interdisciplinary panel teams provide a holistic look at development problems. A respected ULI member who has previous panel experience chairs each panel.

The agenda for a five-day panel assignment is intensive. It includes an in-depth briefing day composed of a tour of the site and meetings with sponsor representatives; a day of hour-long interviews of typically 50 to 75 key community representatives; and two days of formulating recommendations. Long nights of discussion precede the panel's conclusions. On the final day on site, the panel makes an oral presentation of its findings and conclusions to the sponsor. A written report is prepared and published.

Because the sponsoring entities are responsible for significant preparation before the panel's visit, including sending extensive briefing materials to each member and arranging for the panel to meet with key local community members and stakeholders in the project under consideration, participants in ULI's five-day panel assignments are able to make accurate assessments of a sponsor's issues and to provide recommendations in a compressed amount of time.

A major strength of the program is ULI's unique ability to draw on the knowledge and expertise of its members, including land developers and owners, public officials, academics, representatives of financial institutions, and others. In fulfillment of the mission of the Urban Land Institute, this Advisory Services panel report is intended to provide objective advice that will promote the responsible use of land to enhance the environment.

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About Urban Resilience Panels

WITH MUCH EXTREME AND DAMAGING weather occurring recently, city leaders around the world are thinking about how to make their cities more resilient in the face of those challenges. Resilience has taken on many meanings in different contexts. The Urban Land Institute has joined a number of partner industries to create a shared definition of resilience: the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events. Implied in that definition is the ability not just to recover and bounce back, but also to bounce forward and thrive.

The Kresge Foundation has provided generous funding support to ULI to undertake a series of Advisory Services panels to assess how cities can better prepare for changes deriving from global climate change. These changes range from rising sea levels and exacerbated drought and air temperatures to more extreme conditions, such as floods and wildfires.

The objective of such panels is to offer advice and guidance to communities that will assist in their formulation of plans and policies and that will, in turn, create stronger responses to and recoveries from such events.

Acknowledgments

THE URBAN LAND INSTITUTE THANKS Ecolibrium3, the Duluth Local Initiatives Support Corporation (LISC), and the city of Duluth for their support in sponsoring this panel, particularly Jodi Slick, founder and CEO of Ecolibrium3; Pam Kramer, executive director of LISC; Ben VanTassel, senior planner for Duluth; and Keith Hamre, director of Duluth's Planning and Construction Services, who ensured the panel's access to critical information and perspectives and who facilitated an excellent, seamless week of work. ULI thanks these entities and individuals for inviting the panel into your community to share your challenges and work toward solutions.

The Kresge Foundation also deserves sincere thanks for its generous support of ULI's Urban Resilience Program, thereby making these panels possible. The panel would also like to thank the many stakeholders from Lincoln Park, the Miller Creek Watershed area, and Greater Duluth. This group of interviewees included elected officials, local business owners, community members, and municipal staff members. Throughout the week, the ULI panel members were continually impressed by Duluth's entrepreneurial spirit, rich cultural history, and commitment to improving the city.

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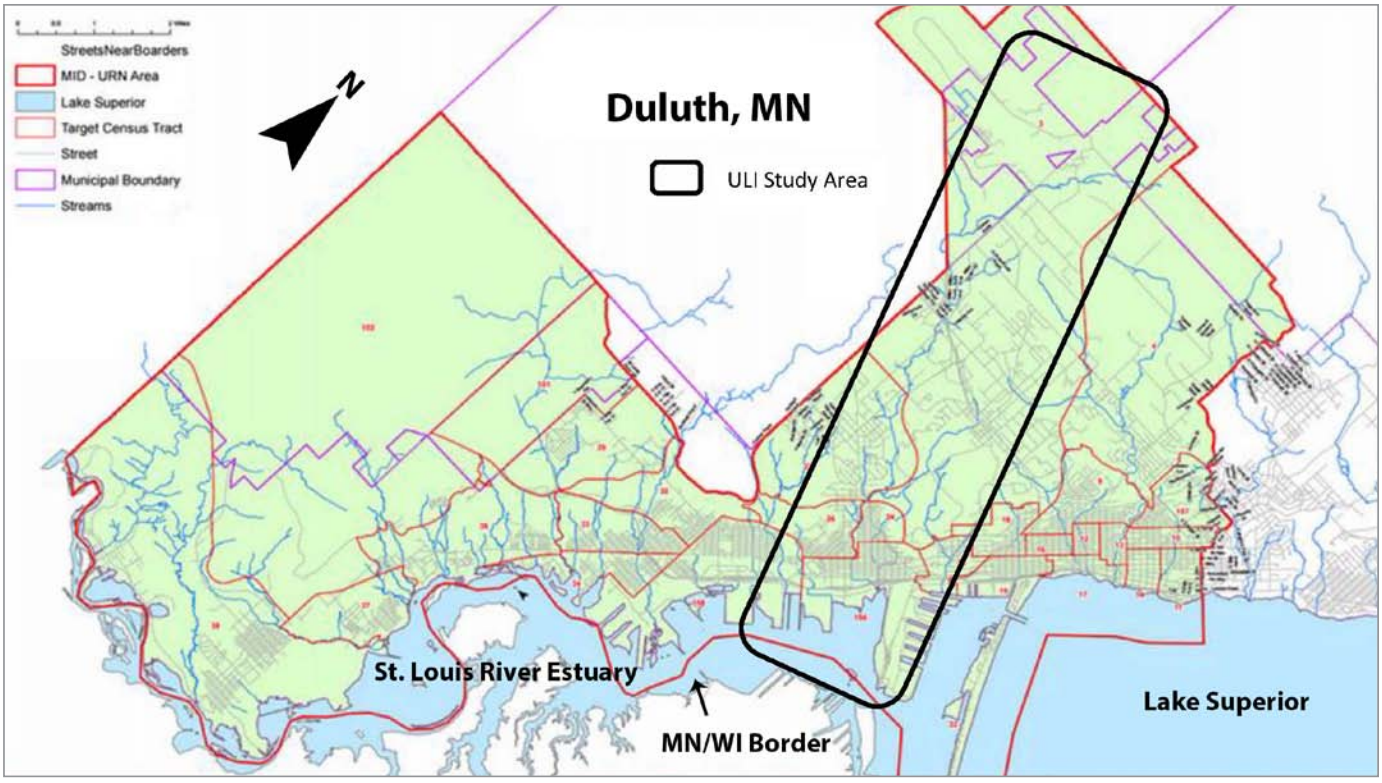
Background and the Panel's Assignment

WITH A POPULATION OF 86,238 (2014 census), Duluth is the third-largest city in Minnesota and is across the St. Louis Bay from Superior, Wisconsin. It is 26 miles long, extending along the shores of Lake Superior and the St. Louis River, and is five miles wide at its widest (averaging 2.5 miles wide). A cross section would show an "above the bluff" area that drops 680 feet over one mile to the river and lake level. The city has more than 47 creeks (26 named trout creeks) that cut into the Duluth gabbro—a granular igneous rock that makes up the hillside—and empty into the St. Louis River or directly into Lake Superior. Duluth is the second-largest city on the lake and is home to the largest port in the Great Lakes system.

Because of the city's wide array of attractions and activities, it welcomes 3.5 million tourists each year. In addition, it is home to two hospitals serving the region (St. Luke's and Essentia Health), several local colleges and universities, and a robust growing economy. The diversity in its appeal is clear in the accolades it receives:

- The 16 Best Places to Live in the U.S.: 2014 (*Outside* magazine);
- 6 Vacation Destinations That Can Improve Your Work, 2014 (*Forbes* magazine);
- Best Places for Business and Careers 2013 (*Forbes* magazine);

Map of Duluth, Minnesota.



PLANNING DIVISION, CITY OF DULUTH

- Top Port City, 2011 (Railway Industrial Clearance Association); and
- Top 5 Small City for Livability, 2010 (*Money* magazine).

The city's momentum is being fueled by two key cohorts—baby boomers and millennials—who are choosing Duluth for its employment opportunities and lifestyle. To meet the demand, new rooftops are being added, and the retail is quickly following. The city is enjoying rising occupancy levels and new development. Further, the benefits of this new tide of activity are felt in every submarket.

A satellite view of the study area.

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Study Area

Extreme rainstorms affected the community of Duluth on June 19 and 20, 2012, resulting in severe riverine and flash flooding. Except for far western neighborhoods along the St. Louis River that experienced riverine flooding exacerbated by a dam failure, most of the damage in Duluth was caused by flooding from the hillside creeks. The panel examined resilience in one priority watershed to determine recommendations that can build disaster and community resilience. The study area is the Miller Creek Watershed, which encompasses the regional Miller Hill retail center at its headwaters and the Lincoln Park neighborhood, Duluth's lowest-income neighborhood, at its outlet to the St. Louis River estuary.

The study area is a major focus for the state of Minnesota's application to the National Disaster Resilience Competition. It is Minnesota's most severely affected and distressed area with unmet recovery needs. Minnesota has defined community resilience as being prepared to deal with anticipated effects of climate change. The state has established five layers of resilience that should be addressed: housing, economic revitalization, resource management, energy transition, and health.

Miller Hill Commercial Corridor

The Miller Hill commercial corridor includes a major shopping mall, strip malls, big-box stores, a business park, and the Duluth International Airport. Development has filled

At the mouth of Miller Creek, the Miller Hill commercial corridor is home to many big-box stores such as Target.

ULI/KLADE HARE

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A view of the more industrial area of the Lincoln Park neighborhood.

much of the wetlands over the years through practices such as channeling Miller Creek as long ago as the 1930s. The development has caused watershed pinch points that can result in flooding and economic loss even during rainstorms that are less extreme. During the June 2012 floods, while this commercial corridor became a favored kayaking spot, it experienced high levels of property damage and loss of businesses. The corridor is a major employer for residents who live downstream and throughout the region.

A major challenge to land use is the corridor's expansion over the years in Duluth and the neighboring city of Hermantown. Placement of retail locations affects tax revenues, which can result in different approaches to attract businesses. To maintain a resilient watershed and to reduce the effects of flooding on the hillside neighborhoods, planners should work to retain water above the bluff; however, economic development desires can complicate this priority. The state of Minnesota is developing a watershed plan guided by the One Watershed, One Plan legislation passed by the state legislature in 2013, an approach that is bringing about cooperation in this area.

Lincoln Park

Lincoln Park is a neighborhood on the western end of Duluth that once had a vibrant commercial corridor. However, the retail area has fallen into disrepair with vacant storefronts, and the neighborhood developed an unpopular reputation. Although many light industrial businesses have been in the area for years, historically these businesses, the main retail area, and the residential areas have had little connection to one another.

Lincoln Park has two business corridors: the larger main Superior Street and Michigan Street area, and a string of commercial properties on Third Street that has greater connection to residential properties. Both currently lack everyday businesses (grocery store, drug store, etc.), and non-neighborhood residents have concerns about safety, particularly in the evening. Although housing in the district is the most affordable in town, it also represents the oldest housing stock, and many residents face energy poverty because of the cold climate and inefficient structures. Lincoln Park residents also have health challenges: on average, their life span is 11 years shorter than residents of neighboring zip codes. Although the area's namesake Lincoln Park is large and has many hiking trails, the area lacks green space and is not suitable for walking to neighborhood amenities. Residents, business owners, and the city all desire to see this area become an accessible, walkable neighborhood with a vibrant economic center.

Recently, new businesses have opened in the neighborhood, thereby beginning a revitalization trend by refurbishing the buildings they inhabit and by forming the Advance Lincoln Park group. Although building improvements are needed throughout Lincoln Park, the newer businesses in particular have a desire to improve energy efficiency of the older buildings they occupy. This desire has led to a recent collaboration among engineering students at the University of Minnesota Duluth, the local nonprofit Ecolibrium3's Solar and Duluth Energy Efficiency programs, and neighborhood businesses; the collaboration explored adding energy efficiencies, adding renewable energy options, and obtaining Leadership in Energy and Environmental Design (LEED) certifications. In addition, the Lincoln Park Business Group, Ecolibrium3, the city of Duluth, and Minnesota Power are looking at siting a demonstration solar garden at the entrance to the neighborhood along the newly constructed Cross City Trail.

The median annual income in Lincoln Park is $34,847, compared with $43,799 for Duluth as a whole. One-third of the neighborhood's residents live in poverty. The graduation rate at Denfeld High School (the high school that primarily serves this neighborhood) is 83 percent, which places it in the bottom 50 percent of Minnesota high schools. The low graduation rate continues over time with more than 10 percent of the Lincoln Park population over age 25 currently without a high school diploma or General Education Development test certification. More than 16 percent of the residents in Lincoln Park have a disability. Approximately 18 percent of the households have no vehicle, whereas most social services and amenities such as grocery stores are outside of the neighborhood. Public transportation is available on main thoroughfares. However, because of the unusual geography of the city, bus travel can be cumbersome and unusually time consuming.

The Panel's Assignment

Although the Miller Hill retail corridor does not include Lincoln Park, these areas are inextricably linked through Miller Creek. The panel was asked to examine the following questions in the Miller Creek and Lincoln Park study area:

- What above-the-bluff strategies should be used to ensure highest and best use of land while reducing downstream stormwater effects? What mechanisms should be employed to ensure multijurisdictional planning for climate adaptation? What, if any, land use modifications should be made in the Miller Hill commercial corridor?
- Minnesota defines resilience by examining different layers that include housing, economy, natural resources, energy, and health. Given the opportunities for neighborhood revitalization in Lincoln Park and for Lincoln Park's low-income population, what are the best strategies to increase disaster resilience while addressing ongoing stressors and vulnerabilities? Can economic revitalization of the Lincoln Park business district and improved health and quality of life of neighborhood residents occur in tandem? Can greater access to the St. Louis River and green space be created? What are the best opportunities for addressing health inequities and food deserts? (Food deserts are defined by the U.S. Department of Agriculture as urban neighborhoods and rural towns without ready access to fresh, healthy, and affordable food.) How can old housing stock be addressed, and how can the transition to greater density begin? Where are the best opportunities for this transition in the study area?
- What is the integrated strategy to develop resilience that connects neighborhoods and commercial areas in the Miller Creek Watershed? What is the strategy that connects the Miller Creek Watershed to the rest of Duluth? How can strategies developed for this watershed be applied across Duluth? What infrastructure strategies will lessen effects of climate change and reduce long-term costs?

The Panel's Primary Recommendations

After conducting 91 interviews with stakeholders, touring the study area, and reviewing the briefing materials, the panel made the following recommendations for physical changes:

- **Enhance and reforest the headwaters east of the airport.** The land parcel to the east of the airport runway is not only owned and maintained by the airport, but it is also the headwaters of Miller Creek. The headwaters of streams are the most fragile portions of the entire stream system. Protecting the headwaters should be a priority and should be done by planting additional trees to protect the stream, to provide cover for the stream from solar exposure, and to provide for quantity and quality control of the water.
- **Improve the affected stream valley.** Relocated and channeled stream segments and denuded stream banks along with eroded side slopes are just some of the results occurring in the affected stream valley. Variable stream valley buffers should be applied to all portions of the creek that have not yet been developed.

- **Rechannel the streams.** Streams that have been channeled have diminished natural capacity to store and infiltrate water, to absorb storm flows, and to provide habitat for wildlife. Such a restoration will return the natural sinuosity of the creek and will improve the creek's ability to absorb and detain storm flows.
- **Reduce the effect of large impervious areas on roofs and parking lots.** The panel recommends against overbuilding parking lots and roadways, and calls for constructing multistory buildings on reduced footprints instead of large single-story buildings. Bioswales, enhanced tree grates, and subsurface water storage should also be added wherever possible to infiltrate water to improve its quality and quantity.
- **Improve stormwater management control of quantity and quality.** As many existing facilities as possible should be retrofitted to meet the new stormwater management (SWM) regulations and to augment the area with new facilities such as subsurface storage in existing parking lots. Further improvements to control stormwater in the watershed can be made by transforming unimproved low-lying areas into additional SWM facilities.
- **Remove built choke points.** Multiple choke points in the form of culverts restrict the flow of stormwater during large rainstorms. These culverts should be replaced with either a larger culvert or, preferably, a bridge that would reduce or eliminate the constriction and allow fish to move unimpeded through streams.
- **Reduce thermal loading.** Miller Creek, a natural trout breeding stream, is suffering from excessive thermal loading, which is affecting both the trout and the macroinvertebrates they feed on, which are very sensitive to temperature. The panel suggests that eliminating existing areas of standing water exposed to the sun can also have a significant effect on reducing thermal loading.
- **Incorporate complete reconstruction of Miller Creek from Second Street to beyond Michigan Street.** The panel suggests Miller Creek be daylighted down to the lake to provide a water amenity throughout the Lincoln Park neighborhood, to increase property value, and to provide another avenue for piping out stormwater.

In addition to the physical improvements in the upper watershed, the panel suggests focusing economic development in the Lincoln Park neighborhood and lower watershed area:

- **Establish the Lincoln Park Craft District.** The panel recommends dedicating two blocks on either side of Superior Street to mixed-use planning. The area will become a neighborhood town center that offers food and services and locally made goods to area residents, employees, and visitors.
- **Establish the large-scale opportunity district.** The panel suggests that the area from Michigan Street to the river be dedicated to such a district. The large spaces and warehouses found in this area have the market potential for serving port-related businesses and a nascent craft cluster.
- **Institute a storefront center.** A vacant neighborhood storefront could house a modest nonprofit organization or foundation that promotes Lincoln Park. Ideally, the center would feature data, inventories, maps, and plans available for review by current and future property owners, tenants, and residents.

The panel's recommendations for social changes and programming are as follows:

- **Incorporate the three principles of resilience.** Resilience involves three interrelated and inextricably linked aspects—economic, environmental, and social. With resources scarce and needs high, interventions must advance resilience on several fronts simultaneously.
- **Understand and continue to monitor the land economics that affect the study area.** As demographics and job opportunities change, the city should continue to evaluate the present and the projected needs in housing, work space, and amenities.

- **Convene senior city and public authority staff members to manage the project.** The mayor or a designee should oversee the area's development by establishing the following: goals, objectives, budget, capital sources, and deadlines. In addition, the project manager should monitor progress, make course corrections, cajole partners, and act as a cheerleader and champion for the undertaking. By following in the footsteps of pioneers, developers and property owners will present the city with new concepts in housing, living and working space, and mixed-use development.
- **Improve data, communications, public relations, and branding.** Ensure that the city's various departments clearly communicate with each other to improve coordinated efforts to improve the study area.
- **Improve transportation connections between Lincoln Park and the rest of the city.** Different modes of transportation such as driving, biking, or riding the bus need to be improved between the neighborhoods and the universities in the area and made as pleasant as possible for the rider or driver.
- **Ensure an effective Lincoln Park business group.** One effective Lincoln Park business group is needed. Such a group could be patterned after the Main Street America program that was originated by the National Trust for Historic Preservation. That program emphasizes the Four Point Approach of design, organization, promotion, and economic vitality.
- **Coordinate and amplify initiatives on health, energy, food, and home improvements.** Two large medical centers, the University of Minnesota Duluth, and the utility companies are in the area to sponsor such initiatives. As such, the neighborhood's financial institutions and foundations need to be fully present and marshal their considerable resources to help coordinate these programs to fruition.
- **Match job training with employment needs.** Technical training is needed to provide a qualified employment pool for existing and new businesses in the city as well as in this neighborhood. The university and other local education institutions should engage with employers to design appropriate programs.
- **Incorporate inclusionary community-based decision making.** Duluth needs to emphasize hearing the voices of generation X and millennials as well as the voices of African Americans and Native Americans. If these groups do not organize—or if decision makers do not embrace them—such job training and social support initiatives won't succeed or won't matter.

A Case for Economic, Environmental, and Social Resilience

REPRESENTING MORE THAN 750,000 professionals, ULI and other land use organizations have adopted a definition of resilience as the ability "to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events." Whereas some may think resilience simply involves bouncing back following disasters, resilience relies on creating the conditions that allow communities to persist and thrive despite adversity. For climate change–related threats and new normals in the face of the effects of extreme weather, resilience is about "bouncing forward" and enabling a better, stronger future than before.

Resilience involves three interrelated and inextricably linked aspects—economic, environmental, and social. Those connections are especially critical for communities that stand to suffer the most from the effects of climate change. More often, residents of these vulnerable communities live in often-precarious environmental circumstances and have fewer social and economic resources at their disposal to help cushion the blow of adverse events.

Economic Resilience

Economic growth and development generally move in tandem. However, a slight but distinct difference exists between the definitions of economic growth and economic development. In table 1, three types of economic categories—economic growth, economic development, and economic resilience—are presented.

Economic Growth

Economic growth refers to growth in outputs. Average salaries of workers in a city, for example, remain constant, but the population of the city increases over time. *Economic development* occurs when the current structure of the economy changes over time, and these changes result in growth in outputs. An increase in the number of jobs in the construction industry in a city, for example, occurs because the demand for new housing exceeds the supply of existing housing. More skilled workers and artisans are needed to build new housing and the demand for these construction workers leads employers to pay higher salaries and wages.

Economic resilience refers to the capacity and ability of the economic base of a defined region (e.g., nation, state, county, city, neighborhood) to return to (or improve upon) its previous state after an external adverse shock leads to economic stress in the region. A dramatic increase in the price of gasoline because of an oil embargo

Table 1: Understanding Economic Development

Category	Definition	Example	Measurement
Economic growth	Growth in outputs.	Population grows over time. Income remains constant.	Change in aggregate income.
Economic development	Growth in outputs occur from a change in the structure of industry sectors.	Employment growth by sector. Income grows over time.	Change in income per capita.
Economic resilience	The capacity and ability of the economic base to return to (or improve upon) its prior state after an external adverse economic shock or stress.	Natural disaster. Change in energy production.	Change in gross domestic product (city, county, state, nation).

Sources: Urban Land Institute; Urban Analytics Inc.

Table 2: Socioeconomic Profile, 2015 versus 2020

	2015			2020 (projected)		
	0.5 miles*	1.0 miles*	City	0.5 miles*	1.0 miles*	City
Population	4,077	7,063		4,067	7,033	
Median age (years)	30.7	32.6		31.6	33.9	
Median household income	$27,305	$27,588	$43,064	$30,270	$30,812	$47,026
Average household income	$36,994	$39,037	NA	$41,172	$43,578	NA
Per capita income	$15,392	$17,317	$25,896	$17,140	$19,345	$28,221
Households	1,690	3,118		1,688	3,108	
Owner-occupied units Percentage of total	876 52%	1,578 51%		876 52%	1,577 51%	
Renter-occupied units Percentage of total	814 48%	1,540 49%		812 48%	1,531 49%	
Average household size	2.38	2.24				
Median house value	$127,865	$130,547	$132,673	$149,138	$151,034	$145,767

Sources: Esri Demographic and Income Comparison Profile August 24, 2015; U.S. Census Bureau; Urban Land Institute.

Notes: *Distance is a radius centered at 2700 block of West Third Street. NA = not available.

or the displacement of people and jobs caused by a flood or hurricane are examples of an external shock to the economic base.

Socioeconomic Profile

An August 2015 snapshot of the socioeconomic profile within a half-mile and one-mile radius of the 2700 block of West Third Street in the Lincoln Park neighborhood was prepared and the findings of this snapshot are presented in table 2. A review of additional radii distance points (not shown in table 2) confirms a pattern; as the distance increases away from the downtown area of Lincoln Park, average per capita income, average and median household income, and the median market value of housing increases. This pattern indicates that the Lincoln Park neighborhood can benefit from a directed effort of various economic development programs (implemented by various stakeholders) to improve the overall socioeconomic profile of the neighborhood.

Employment

Employment data by industrial sector for Minnesota, St. Louis County, Duluth, and Lincoln Park for 2000, 2010, and the first quarter of 2015 are presented in table 3. By the end of the 2000–2010 period, Minnesota lost 32,289 jobs (1.3 percent of its employment base). This loss was partly a result of the 2007–2009 national recession. The state's economy rebounded from the beginning of the first quarter of 2010 to the end of the first quarter of 2015 with an increase of 132,931 jobs (5.5 percent).

Duluth fared well during 2000–2010 with an increase of 1,273 jobs (2.3 percent) and continued to add jobs during 2010–2015 with an increase of 1,420 jobs (2.6 percent). During 2000–2010, the Lincoln Park neighborhood lost 1,090 jobs (a decrease of 31.5 percent), recovering about three-quarters of those lost jobs from the beginning of the first quarter of 2010 to the end of the first quarter of 2015.

Stakeholders identify the Duluth economy as consisting of five primary sectors: educational services, health care and

Table 3: Employment by Industrial Sector

	Minnesota			St. Louis County			Duluth			Lincoln Park		
Industrial sector	2000	2010	1Q 2015	2000	2010	1Q 2015	2000	2010	1Q 2015	2000	2010	1Q 2015
Accommodation and food services	193,967	204,100	213,339	8,780	9,075	8,781	5,311	5,755	5,784	214	221	223
Administrative and support and waste management and remediation services	128,864	123,187	127,361	2,780	3,008	2,644	2,092	2,145	1,807	563	209	229
Arts, entertainment, and recreation	44,541	48,501	43,212	2,251	2,074	1,819	1,461	1,198	1,086	68	63	50
Construction	126,892	95,168	101,399	4,129	3,559	3,613	2,380	1,900	2,124	—	—	—
Educational services	183,992	215,329	233,153	7,752	7,997	8,356	5,001	5,245	5,423	—	—	29
Finance and insurance	128,747	134,647	137,430	2,871	3,366	3,251	2,082	2,176	1,917	80	—	50
Health care and social assistance	313,368	420,016	456,753	17,916	24,852	25,255	12,587	17,477	18,013	—	—	399
Manufacturing	395,519	292,203	313,397	6,388	4,113	4,374	3,388	2,687	2,606	525	266	251
Mining	7,204	5,223	5,998	4,574	2,808	3,333	—	—	—	—	—	—
Other services (except public administration)	87,863	83,136	86,405	3,293	3,071	3,397	2,009	1,885	2,052	241	154	316
Professional, scientific, and technical services	127,426	124,785	143,671	2,758	3,183	3,655	1,859	2,108	2,787	—	52	—
Public administration	113,901	125,365	122,925	NA	5,680	5,683	4,024	3,747	3,598	192	243	252
Real estate and rental and leasing	35,903	36,081	37,902	2,074	972	1,015	684	685	782	—	45	35
Retail trade	306,979	278,375	284,605	13,046	11,672	11,959	7,320	6,381	6,463	544	261	350
Transportation and warehousing	109,191	91,919	96,719	3,948	2,318	2,713	2,682	1,203	1,494	633	564	703
Wholesale trade	129,861	123,894	130,591	2,659	2,139	2,220	1,575	1,136	1,212	401	293	291
Total	2,434,218	2,401,929	2,534,860	85,219	89,887	92,068	54,455	55,728	57,148	3,461	2,371	3,178
Change		**2000–10**	**2010–15**		**2000–10**	**2010–15**		**2000–10**	**2010–15**		**2000–10**	**2010–15**
Aggregate		–32,289	132,931		4,668	2,181		1,273	1,420		–1,090	807
Percentage		–1.3%	5.5%		5.5%	2.4%		2.3%	2.6%		–31.5%	34.0%

Sources: City of Duluth Department of Planning and Community Development; Urban Land Institute; Urban Analytics Inc.

Notes: The five areas of greatest growth for Lincoln Park are highlighted. NA = not available; — = not applicable.

social assistance, public administration, retail trade, and transportation and warehousing. Upon reviewing data on Duluth's economic base, the panel identified two additional industrial sectors that have continued to grow in the past 15 years—accommodation and food services, and professional, scientific, and technical services. Duluth's economic development efforts would be well served by focusing on increasing jobs in these two sectors. The city is strategically located in the northeast region of Minnesota. Employers in Duluth have access to an international seaport, four major railways, an international airport, and a major interstate.

Within the Duluth, Minnesota–Superior, Wisconsin, metropolitan statistical area (MSA), hourly wages in the professional, scientific, and technical services sector are below the national average; but these lower wages are offset by lower housing costs in the region. Hourly wages in the MSA for selected jobs in the professional, scientific, and technical services sector compared to the national level are as follows: computer and information systems ($52.81 in the MSA versus $64.22 nationally), data entry ($13.39 versus $14.45), and engineers ($36.47 versus $45.87). It would be interesting to analyze the purchasing power of the hourly rates against average housing values for single family, townhouse, and multifamily for-sale units in the city and compare this analysis to a respective analysis at the national and state of Minnesota levels. The findings from this analysis could then be used by the city's economic development authority to attract new businesses and workers and to help promote the benefits of living and working in Duluth.

Market Potential

Panel members interviewed 91 stakeholders and analyzed published market and employment data for Duluth and Lincoln Park from 2000 through the first quarter of 2015. When compared to the analysis of published market and employment data, the interviews revealed

- A consensus between the market potential and stakeholder desirability for some land uses;
- No consensus for other land uses; and
- A mismatch between certain land uses desired by residents in Lincoln Park and other stakeholders in the city and the market potential for those various land uses.

A matrix summarizing the findings from the interviews (see table 4) identify seven residential land uses, eight retail land uses, four office land uses, four industrial land uses, and three lodging land uses for a total of 26 residential and nonresidential land uses. The matrix was color coded, with green cells representing consensus, yellow cells representing no consensus, and red cells representing a mismatch between what stakeholders desire and the market potential in the Lincoln Park neighborhood.

The panel concluded that although residents and stakeholders representing various interests desire a grocery store in the Lincoln Park neighborhood with at least 10,000 square feet of space, the existing market potential for a store of that size is low.

The findings shown in table 4 should not be considered as cast in stone but rather should be used as a starting point in discussions among the city, its economic development authority, and residents and stakeholders. Agreement should be reached regarding the programs and policy initiatives the city's economic development authority should implement to promote the Lincoln Park neighborhood and encourage employers to relocate or expand into the neighborhood. To maintain economic resilience after natural disasters such as flooding, the city needs to create and implement a disaster risk reduction program today; such efforts will go a long way toward ensuring future economic stability and growth in this neighborhood.

Where Duluth Fits in the Regional and State Economies

Duluth plays a vital and viable role in the Minnesota economy. As the regional economic hub of northeast Minnesota, the city's 16 industrial sectors contribute to the state's gross domestic product (GDP) and provide stable and meaningful employment opportunities to the region. In those 16 sectors are stable employment opportunities; however, some sectors are not immune to the effects of a national recession. Whereas the employment sectors that

Table 4: Existing Market Potential versus Stakeholder Desirability in Lincoln Park

	Market potential			Stakeholder desirability		
	High	Medium	Low	High	Medium	Low
Residential						
Detached single-family home			X	X		
Rowhouse/townhouse			X			X
Multifamily condo			X			X
Multifamily rental (market rate)		X	X	X	X	
Multifamily rental (workforce)		X	X	X	X	
Multifamily rental (affordable)	X			X		
Group and special needs	X			X	X	X
Retail						
General merchandise			X		X	
Home improvement			X			X
Grocery store, ≤10,000 sq ft		X		X		
Grocery store, ≥10,000 sq ft			X	X		
Restaurants			X	X		
Smaller food-service restaurants (such as carryouts)	X	X		X		
Craft outlet		X			X	
Entertainment			X		X	
Office						
Medical/professional office		X			X	
General office			X		X	X
Corporate headquarters			X			X
Back office/call center			X		X	X
Industrial						
Self-storage		X				X
Warehouse and transportation	X				X	
Light manufacturing		X		X		
Craft and specialty manufacturing	X			X		
Lodging						
Hotel, full service			X			X
Hotel, limited service			X		X	
Motel			X			X

Source: Urban Land Institute.

Notes: Market potential is based on an analysis of economic data and a review of various published reports; stakeholder desirability is based on ULI panel general conclusions from its interviews with stakeholders representing various interests. Data are for September 2015.

Mismatch **No consensus** **Consensus**

are stable (e.g., health care, civil engineering) are expected to continue to remain stable, the panel members are concerned that other less stable sectors (e.g., arts, entertainment) may not be economically resilient in the future as global market fluctuations will affect local markets.

Conclusion

Lincoln Park and the city of Duluth have come to an economic fork in the road. The economy of the neighborhood and the city can continue to grow or can slide into decline. To grow into the future, economic growth and

development strategies must be designed to strengthen economic resilience in the face of future external shocks (such as flooding and other natural disasters) and must be implemented. Duluth cannot rely on its historical economic drivers (such as its international seaport, coal and other minerals, and other natural resources) to sustain the economy into the future. External pressure from foreign exports into the United States at prices significantly lower than such goods manufactured in this country threaten the manufacturing sector of Duluth as well as the entire Midwest region. Fluctuations in the GDP of foreign economies and increasing political and economic instability in foreign countries may adversely affect the economy of Duluth. Today, events taking place halfway around the world can and do affect local economic development.

At the local level, Duluth needs to approve and implement growth strategies to strengthen economic development and economic resilience. Such strategies must deploy new investment capital from private and public sectors to stimulate the economy and for the economy to benefit from the multiplier effect of new capital injection. The city must position itself to embrace 21st-century technologies to compete not just regionally but globally. Emerging industrial clusters—such as (a) prototyping and 3-D printing, cloud-based computing, and informatics and (b) public/private partnerships in research and development opportunities centered on the city's historical sectors of mining and metallurgy, forest products, energy, and biofuels—will position the city and its economy to weather adverse economic shocks. In the next section of this report, the panel looks at regionally significant projects and why the city must embrace alternative strategies to attract a diverse and competitive employment sector.

Environmental and Social Resilience

Extreme weather and natural disasters have long presented risks, but climate change is fueling a variety of additional environmental risks. Energy production and use contribute to local air pollution. And a warming atmosphere, accelerated by the burning of fossil fuels, is changing precipitation patterns, thus resulting in historic droughts in some locales and increasingly devastating storms and floods in others.

Economic strength is a key way for communities to overcome the shocks from such extreme natural events. Secure jobs, sufficient savings, the ability to borrow, and other measures of financial health help strengthen businesses and households over the long term and help buffer the effects of adverse events, be they economic or environmental. Communities with a mix of incomes have more flexibility to help support those in need during times of crisis.

Especially in cases where adverse events are regional or widespread, the social health of a neighborhood is a critical ingredient to its resilience. Or, as some have said, "your neighbor is your first responder." Communities with strong social bonds and interaction—where neighbors know one another and have spaces for gathering—are better able to respond to and recover from shocks. Social bonds also contribute importantly to resident health, which is a critical ingredient in resilience of individuals, and the capacity for residents to organize and represent themselves helps ensure they have access to outside resources and decision makers.

Resilience in the Miller Creek Watershed

The Miller Creek Watershed exhibits vulnerabilities on all three components of resilience: economic, environmental, and social. The 2012 floods exposed persistent challenges to resilience in the area.

The watershed faces a host of environmental risks, starting with its complex geography and geology. Steep, rocky slopes and poor soils make for difficult building and transportation conditions. The pursuit of a typical suburban, automobile-centric development in Duluth and neighboring jurisdictions over the past several decades has led to extensive destruction of natural wetlands at the top of the bluff. Exacerbated by channeling the creek, these conditions contribute to flash floods that barrel their way to the St. Louis River below, thereby causing flooding and

additional contamination to an area historically polluted by heavy industrial uses.

As climate change leads to a warming environment, Duluth can expect increasingly intense precipitation and flooding. Although temperatures are warming faster here than many other places in the United States, Duluth's cold climate still requires significant energy for home heating, and energy inefficiencies in the city's older building stock continues to contribute climate-changing carbon pollution.

Economically, the Miller Creek area also has numerous challenges. Existing employers and traditional jobs in the industrial and commercial sectors, combined with a lack of skills and education among workers, has led to persistent joblessness in certain demographic groups. The lower-income population does not have the savings or earnings to keep up maintenance on older homes, thus creating a spiral effect of inefficiencies and energy poverty, with some residents spending a majority of their income on heat and utilities.

As local businesses and services have closed, neighbors face bigger transportation and economic burdens to meet their basic needs and find employment. In the words of one interviewee: "Many people are one shock away from homelessness or difficult decisions" (e.g., between paying for food and heat).

A host of social vulnerabilities exist in the Miller Creek Watershed that make the community less able to withstand small or large adversities. Health is a primary concern. The residents have little access to fresh and healthy food, face a high rate of disability, and die 11 years earlier, on average, than residents of neighboring areas. Many live in older homes with maintenance significantly deferred. This lack of maintenance leads to high rates of disrepair, which, exacerbated by damages from the 2012 floods, creates unhealthy and unsafe living conditions. Lack of access to cars, as well as the absence of walkable spaces, downtown areas, and gathering destinations, contributes to isolation and erodes community cohesion. The area has been the city's primary recipient of residents with chronic needs for mental illness, chemical dependencies, and criminal histories.

Ideal Conditions and Approach

The panel recommends the following guiding principles for building community resilience in the Miller Creek Watershed and beyond:

Take the long view. Climate change is a slow-moving phenomenon. Although trends point to worsening future effects, another severe storm may be years away. Likewise, economic and social weaknesses have built over decades. Time, patience, and resources are needed to turn the tide on these trends. Do not expect a quick fix or silver bullet. Balance patience with persistence, recognizing that resilience will be built little by little and that incremental improvements are important and beneficial.

Look for win-win-win opportunities. With resources scarce and needs high, interventions must advance resilience on several fronts simultaneously. Rather than addressing one risk at a time, prioritize investments—including in ongoing infrastructure—that can provide economic, environmental, and social benefits all at once. Low-hanging fruit in this respect may include, for example, the following:

- *Increase building energy efficiency*, which helps save residents money, reduces the carbon pollution that contributes to climate change, improves resident comfort and health, and raises property values.
- *Protect and expand green space*, which can improve stormwater retention and reduce flood risk, can provide recreation and social opportunities that drive a stronger sense of community and better resident health, and can help attract additional investment in the neighborhood.
- *Establish mixed-income and mixed-use developments,* which serve a range of needs and people at once and support the economic and social diversity that provides resilience against the shocks that might disrupt a single sector or group.

The Vision for Resilient Duluth

For an upper Midwest industrial city that built its prominence on mining natural resources and its port, remarkably, Duluth in 2015 has not only survived the downturn in its historic industries and the exodus of its population, but has also positioned itself well for potential future success, growth, and resilience.

Focusing on its natural scenic beauty, topography, and strong seasonal weather patterns, Duluth has become a vibrant upper Midwest tourist destination that today attracts residents with strong values and entrepreneurial spirits who love the outdoors. Duluth has already developed a vibrant Lake Superior waterfront for tourism with attractive retail, a six-mile walkway, and a variety of family-oriented activities. Duluth is well on its way to offering 100 miles of mountain biking trails as well as facilities for cross-country skiing, rock climbing, kayaking, and so forth. Currently the St. Louis River corridor is being restored, thereby creating natural habitat for wildlife and recreational uses for area residents.

Duluth's population has stabilized. Traditional areas of industrial employment in mining and transport as well as the newer sectors of health services and education are poised for growth. Potential areas for employment growth are businesses aligned with the outdoors such as artisan crafts and engineering. These sectors suit Duluth's unique characteristics and also match well with millennials' and gen-Xers' desired attributes in the locations where they live, work, and play.

Although Duluth citizens may feel somewhat frustrated at not having progressed further and faster on their economic growth and improvement plans for the city, they should be proud of their city's accomplishments and continue to work for progress on these efforts. Compared with other Midwest communities that have experienced similar downturns over the past century, Duluth is well positioned for the future. Challenges do exist. And no one would suggest that the path forward is easy or could be accomplished quickly. But Duluth has the work ethic and tenacity to achieve its goals if it works efficiently and collaboratively with a common vision.

The Panel's Approach

This panel was asked to focus on the Miller Creek Watershed area and the Lincoln Park neighborhood, particularly in conjunction with Minnesota's application for the National Disaster Resilience Competition (NDRC) of the U.S. Department of Housing and Urban Development (HUD). Minnesota is a finalist for a significant grant that would fund further recovery projects from past storms, including projects in the area the panel was asked to study. It quickly became clear that economic, environmental, and social challenges of this watershed are representative of challenges throughout Duluth with its 47 creeks. Flooding occurs in a significant number of locations in the city. Using the Miller Creek Watershed as a test case for improving the flood plain absorption and retention basins will provide Duluth, as well as Minnesota, with solutions that can be replicated in other important watershed areas.

Resilience—in its comprehensive definition including economic, environmental, and social factors—is particularly crucial to the Miller Creek Watershed and the Lincoln Park neighborhood. The panel recognized and respected the resources being dedicated to the St. Louis River corridor and viewed this work as essential to Duluth's future resilience.

However in speaking with residents, business leaders, government officials, community organization leaders, and other stakeholders, the panel realized that the Miller Creek Watershed and Lincoln Park neighborhood are essential to Duluth's economic growth and ability to become a sustainable thriving community. Lincoln Park has become a place where entrepreneurs can launch their new, innovative businesses on a cost-effective basis. It contains vacant structures suitable for light manufacturing, incubator crafts, experimental restaurants and breweries, and retail storefronts.

The authentic and practical nature of this area and its proximity to Duluth's water, trails, and other outdoor amenities should provide millennials and gen-Xers with

many of the characteristics they search for in places to work, play, and live. However, improving connections and access to the other areas of Duluth in all directions will be key to success.

Further, the perceptions and the realities of the challenges of living in this neighborhood must be addressed from the perspective of what is appropriate housing stock, how to ensure safety of residents, and how to integrate disenfranchised minority groups and diverse income levels into a cohesive community.

Programs and projects that address economic growth, attract new businesses, address social equality, and make the neighborhood attractive and safe for all must all be included in the city's considerations and recommendations to transform the area into a truly resilient community.

A proliferation of local, county, and state public agencies; public sector officials; business associations; community groups; community residents; health organizations; and educational institutions have increasing interest in and a variety of perspectives on the Miller Creek Watershed and Lincoln Park neighborhood. This interest can enhance the community if such talented resources back a common vision supported by the city's leadership and work collaboratively to implement that vision. Ensuring that all of the expertise available to the community—including the excellent medical and higher education resources—are thoroughly engaged in this vision will strongly benefit the success of the endeavor.

Not all of these projects and programs will comply with the HUD NDRC grant. The city will need to commit to undertake and to find funding for these additional programs to implement the NDRC projects and to successfully develop Lincoln Park into a model resilient community.

Site-Specific Recommendations

TO ADDRESS THE ENVIRONMENTAL concerns related to climate change, the panel has recommended several strategies to address stormwater flooding along the Miller Creek Watershed. The panel divided the watershed into three distinct sections: the Upper Watershed, Middle Watershed, and Lower Watershed.

The Miller Creek Watershed

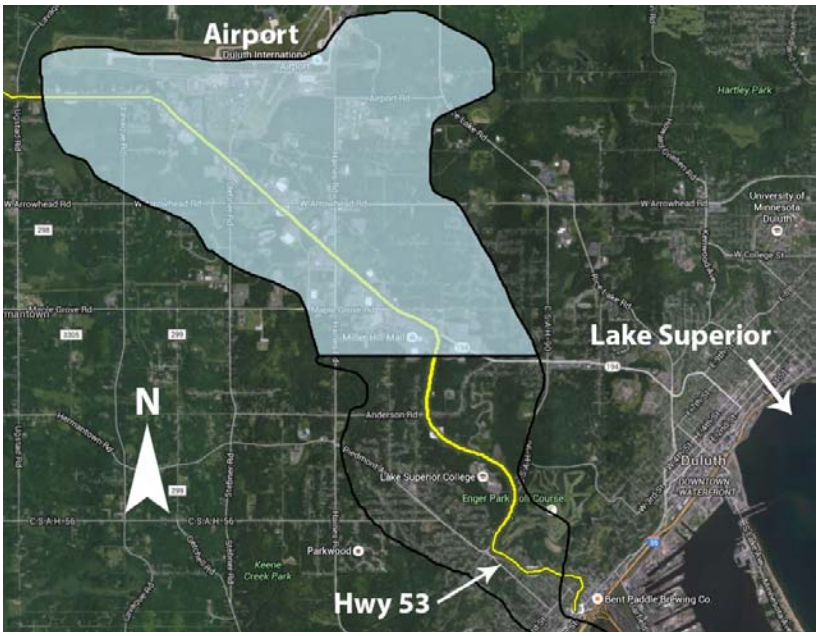
The Miller Creek Watershed begins at the Miller Hill commercial corridor, follows Miller Creek down through Lincoln Park, and ends at the St. Louis River Estuary. Each region has its site-specific issues and recommended solutions, as follows.

Upper Creek Enchancements

The panel recommended the following solutions to issues found in the upper section of Miller Creek.

Limited forest and canopy cover. The land parcel to the east of the airport runway is owned and maintained by the airport; it is also the headwaters of Miller Creek. It is lightly forested and significantly lower in grade than the runway. There are no immediate plans to use the space for airport operations. The headwaters of streams are the most fragile portions of the entire stream system, and protecting them should be a priority. Forests provide cover, reduce solar exposure, and, thus, limit thermal loading. Leaf litter from the trees provides filtering to the surface water and helps retain moisture, and the trees' root systems provide soil stability. Adding 100 trees an acre to this airport parcel as well as to any other open parcels along the stream valley will provide stream protection, cover from solar exposure, and provide for quantity and quality control of water.

Upper Creek Watershed area.



ULI/KRAIG WALSLEBEN

Affected stream valley. Miller Creek and its stream valley have been significantly affected over time, to the detriment of the creek's ability to control floods and provide other natural functions. Relocated and channeled stream segments and denuded stream banks, along with eroded side slopes, are just some of the results of the affected stream valley. Those portions of the Miller Creek stream valley that have been negatively affected should be evaluated for stream restoration, and the portions of the creek that have not yet been significantly affected need to be protected.

Segments of the creek, such as the segment behind the Gander Mountain store, that have not yet been significantly affected, should be given additional protection. Variable stream valley buffers should be applied to all portions of the creek that have not yet been developed. A minimum setback from the stream should be established and expanded to include floodplains, wetlands, wetland buffers, and steep slopes.

Channeled stream. Streams that have been channeled have diminished natural capacity to store and infiltrate

water, to absorb storm flows, and to provide less wildlife habitat. Stream segments that have been channeled but are in areas that have not been developed, such as that found behind the Kohl's department store, are prime candidates for restoration. Such a restoration will return the natural sinuosity of the creek and will improve the creek's ability to absorb and detain storm flows.

Large impervious areas on roofs and in parking lots. Impervious areas prevent stormwater from infiltrating into the ground, and this results in reduced time of concentration (the time it takes water to flow from the point where it hits the ground to the bottom of the watershed). The faster the time of concentration is, the more intense the storm flows will be and the greater the chance will be for flash flooding. Impervious surfaces can also result in an increase thermal loading and, in the case of paved surfaces, can increase the loading of pollutants such as hydrocarbons and chlorides.

Minimizing impervious surfaces is the first step. Next, do not overbuild parking lots and roadways; build multistory buildings on reduced footprints instead of large single-story buildings. Retrofit existing parking lots to first remove areas of excess parking and then add trees to provide cover from the sun. Add bioswales and enhanced tree grates wherever possible to infiltrate water to improve its quality and quantity. Finally, provide subsurface storage to help detain the stormwater and to control its release to the receiving stream.

Minimal SWM control of quantity or quality. Because of the ever-evolving requirements of SWM control, the mix of control types found in the Miller Creek Watershed and its respective effectiveness is highly varied. As a result, the health of Miller Creek has suffered significantly. Efforts should to be made to retrofit as many existing facilities as possible to meet the new SWM regulations and to augment the area with new facilities such as the subsurface storage in existing parking lots, as previously mentioned.

Additional improvements to control stormwater in the watershed can be made by transforming unimproved low-lying areas into additional SWM facilities. Examples are the low-lying areas behind the Kohl's department store and the Gander Mountain store. These areas can be designed to act as detention facilities during large rainstorms, thereby taking pressure off the stream and off natural and built choke points.

Built choke points. Multiple choke points in the form of undersized box culverts exist in the upper Miller Creek Watershed. These culverts restrict the flow of stormwater during large rainstorms. Whereas the restriction is not always bad, it is dependent on its location and what is affected by the resulting backwater condition. If the resulting backwater inundates an unimproved low-lying area, homes, businesses, and infrastructure are not harmed; but if the inundation affects homes and roadways, the condition must be corrected. There are at least four culverts in and around the shopping mall and surrounding shopping centers that act as choke points in which resulting inundation affects roadways and commercial businesses.

Thermal loading. Miller Creek, a natural trout breeding stream, is suffering from excessive thermal loading, which is affecting both the trout and the macroinvertebrates they feed on, which are very sensitive to temperature. As previously discussed, the addition of a tree canopy to the stream valley, the addition of trees to parking lots, and the direct reduction of impervious surfaces can have a significant effect on reducing thermal loading.

In addition to those actions, eliminating existing areas of standing water exposed to the sun can also reduce thermal loading. Such an area can be found at the corner of Maple Grove Road and Miller Trunk Highway, where an existing SWM facility is intended to provide stormwater control for the highway. The facility has a permanent water pool to control water quality. Yet without tree cover, this pool has constant exposure to the sun and, as a result, has increased thermal loading. All future SWM facilities should avoid using a permanent pool to control water quality, and existing facilities should be retrofitted to replace the standing pool with a wetland bioretention system.

ULI/KRAIG WALSLEBEN

Middle Creek Watershed area.

Lower Creek Watershed area.

Middle Creek Enhancement

The panel recommended the following solutions to the issues found in the middle section of Miller Creek.

Limited forest and canopy cover. The Middle Watershed of Miller Creek can be characterized as having low-impact residential and parkland uses. Whereas the creek affects its surroundings just as any urban creek would, these effects are minimal when compared with those found in the Upper and Lower watersheds. However, there are opportunities for improvements.

Miller Creek is well forested from where it crosses under Route 53 south of Lake Superior College to where it passes Erikson Road. However, areas in that section can be augmented to further enhance the benefits of a forested stream valley.

Protecting the existing forest should also be a priority. Easements or covenants should be used to ensure that the existing forest is not removed. Furthermore, a program to eradicate invasive species needs to be initiated to ensure the forest is dominated by native species, and a deer management program must be begun to control predation on the forest vegetation.

Affected stream valley. The pressures on this portion of the creek are limited, thanks to the larger residential lots on the west side and Lake Superior College on the east side. To ensure that this portion of the creek remains healthy in the future, a variable stream valley buffer should be applied to include a minimum setback that expands to include the floodplain, wetlands, wetland buffers, and steep slopes.

Lower Creek Enhancement

The panel recommended the following solutions to the issues found in the lower section of Miller Creek.

Insufficient conveyance capacity. The Lower Watershed of Miller Creek—from Skyline Parkway to the St. Louis River—has two very different conditions.

- The Lincoln Park portion—from Route 53 south to Third Street—is characterized by an open section creek that quickly drops in elevation through the park.
- From Third Street south to the lake—the residential and commercial section—the creek flows underground for about 1,700 feet through a 10-foot × 16-foot culvert.

The portion of the creek that passes through the park is not of immediate concern. The presence of shallow bedrock has limited the cutting and erosion of the creek bed, and the steep grade has ensured that the water has sufficient velocity to be conveyed through the space with minimal flooding.

Concern lies with the portion of Miller Creek that flows through the culvert under 26th Street. The size and slope of the existing culvert is insufficient to convey the volume

of water that can be associated with the large storms. Although minor improvements could be made to the inflowing headwall to provide a more effective transition from an open section creek to an enclosed creek, (such as raising the elevation of the alley at the headwall to ensure the center line grade is at least a foot above the top of the culvert), they fail to address the culvert's inability to convey the storm volume.

Four possible solutions. The possible solutions to resolve the problem of a culvert with insufficient capacity are as follows:

- Replace the culvert with one of sufficient type, size, and slope to convey the required volume.
- Create an open channel with fixed structured walls sized to convey the same required volume.
- Return the creek to a more natural open section configuration, which has gentle side slopes and width from top of bank to top of bank capable of containing the storm volume.

The following analysis of the four options shows that each option has its pros and cons.

Culvert option. The replacement of the existing culvert with a larger culvert will do the following:

- Allow for the retention of the existing street pattern.
- Limit effects on adjacent private properties.
- Allow use of the space above the culvert.

The culvert option, however, will have negative effects:

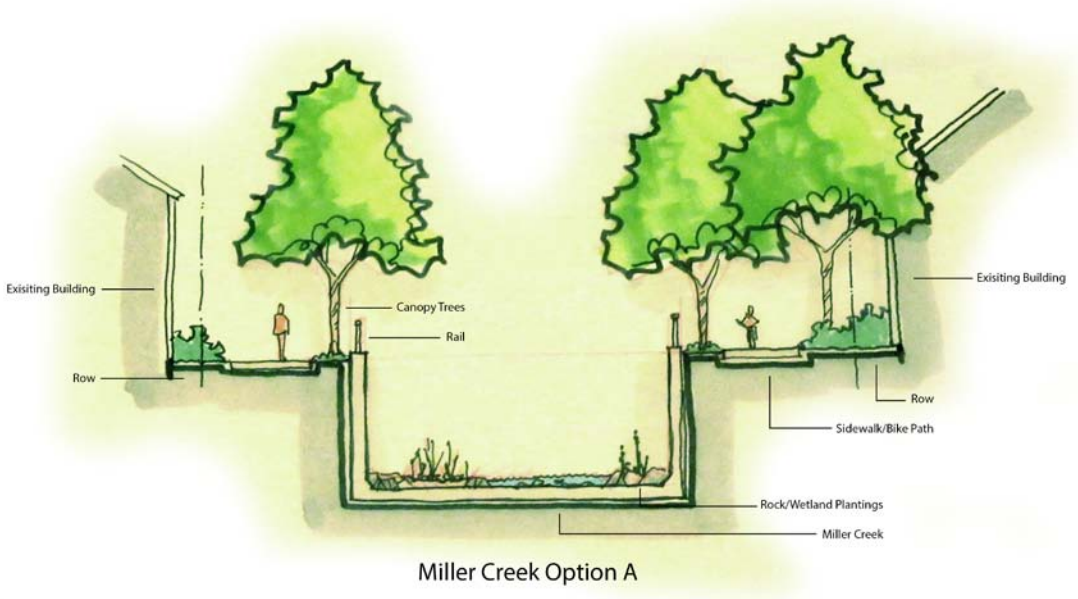
- Limit the stream's natural functions of storm flow absorption.
- Fail to provide quality wildlife habitat.

Open channel option. The open channel option will do the following:

- Convey the required volume that the enclosed culvert carries.
- Limit effects on the adjacent private properties.

However, the open top will also have negative effects:

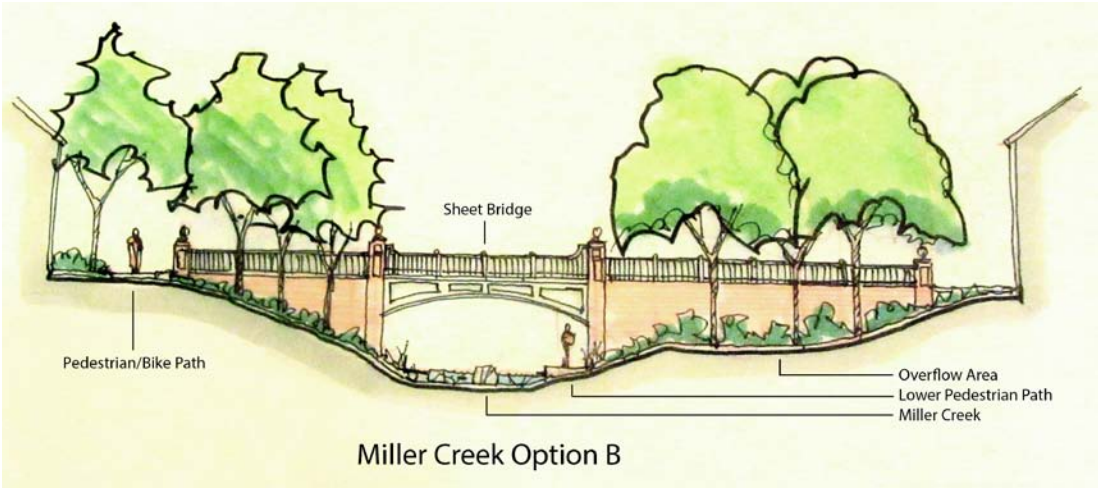
- Eliminate the use of 26th Street.
- Affect cross streets.



Miller Creek Option A

ULI/DANIEL ANDERTON

An open channel would have a limited impact on adjacent properties, but it presents a potential safety hazard for residents.



ULI/DANIEL ANDERTON

A natural stream would present a more ecologically friendly option, but at the expense of interfering with the street network.

- Present a safety hazard for accidental falls, and allow trash to build up.

Natural stream option. The open section natural stream option will do the following:

- Present a more ecologically friendly option.

However, this option will have negative effects:

- Interrupt the street grid network.
- Affect adjacent private properties because of the large cross section needed to safely convey the storm volume.

Hybrid option. The resulting recommendation is a hybrid of these options. While both the C1 and C2 options (see facing page) are hybrids, the panel strongly recommends C2 as the preferred option due to its positive environmental externalities. Such a solution combines the conveyance efficiency of a property-sized culvert with its minimal effect on adjacent private properties with some of the esthetic and functional values of an open section natural creek that can promote social interaction among the users.

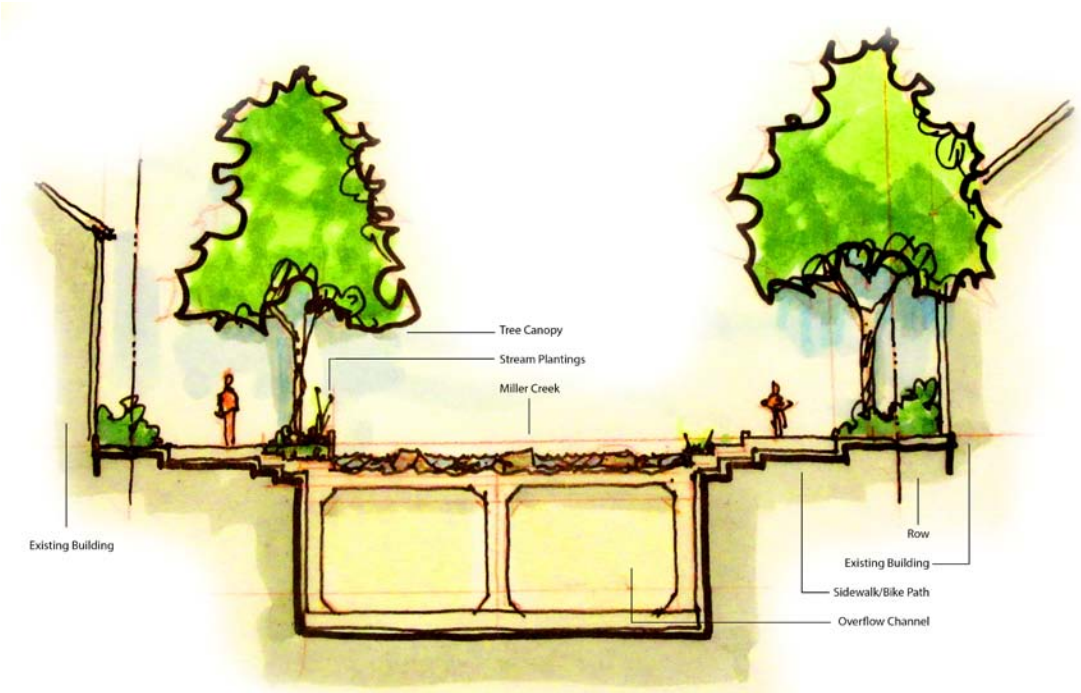
The intent is to replace the existing culvert under 26th Street with a properly sized culvert or culverts capable of safely conveying the storm flows. The culvert replacement would occur within the limits of the existing right of way to minimize the effect on adjacent private properties. On top of the culvert would be a designed channel that would convey the base flow of the stream along the surface, thus providing an extended visible and physical connection to the creek.

This design would be done by intercepting the base flow of the creek immediately north of Third Street and conveying

FLICKR/RON COGSWELL

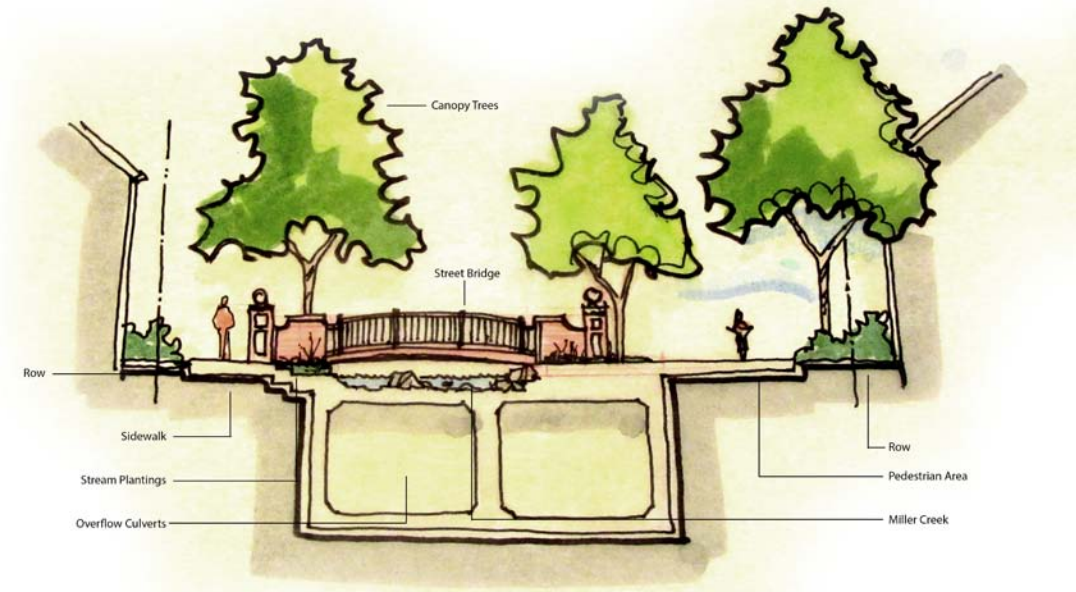
Case Study: Carroll Creek, Frederick, Maryland

An example of the hybrid approach can be found in Frederick, Maryland, where Carroll Creek passes through the city. Because of the disastrous floods of 1972 and 1976, the city of Frederick created the Carroll Creek Park: Master Plan and Implementation Strategy in 1991. The flood control project used an underground system of rectangular concrete conduits to direct stormwater under downtown Frederick. Carroll Creek Park is now a downtown destination and has improved the economic and social viability of the area.



Miller Creek Option C1

ULI/DANIEL ANDERTON



Miller Creek Option C2

ULI/DANIEL ANDERTON

A hybrid of an open channel and a natural stream (shown at both top and bottom) will provide the optimal benefits of both options while eliminating their negative characteristics. The panel strongly recommends option C2 (bottom) because it incorporates permanent surface flow, as well as underground overflow that produces the most positive results.

ULI/DANIEL ANDERTON

The panel divided the Lincoln Park neighborhood and surrounding areas into three sections: the craft district (orange), mixed-use neighborhood (yellow), and larger-scale opportunity district (white).

the base flow on the surface in the specially configured channel down existing 26th Street to Michigan Street. This flow effectively replaces the street with the creek, but without having to affect adjacent properties. Storm flows would be intercepted above Third Street by a weir and directed to the culvert below the surface channel, thereby safely conveying the storm volumes through the community to the lake.

This hybrid approach simultaneously enhances environmental and physical resilience by retaining habitat qualities for fish passage while safely conveying storm volumes. At the same time, this solution provides a new common green space that could enhance social cohesion in the community, raise home values, and attract additional economic activity in the neighborhood.

Neighborhood and Districts

In addition to the physical infrastructure improvements on Miller Creek, the panel then considered other aspects related to the resilience of the Lincoln Park neighborhood. To undertake a more fine-grained analysis, Lincoln Park was divided into three subareas—the mixed-use residential neighborhood mainly south of Third Street, the mixed-use Lincoln Park Craft District as the commercial core, and the large-scale opportunity district from Michigan Street to the riverfront. For each of these subareas, the panel has defined the geographic area, a vision, attributes to build on, challenges and impediments to overcome, and recommended programs.

Lincoln Park Craft District—Mixed Use

Geographical area. Mixed-use residential neighborhood two blocks on either side of Superior Street between Point of Rocks and 22nd Street.

Vision. A neighborhood town center mainly along Superior Street offers goods and services to area residents, employees, and visitors and provides a homegrown location for craft industries. Now, the two anchors of the street attract destination customers. Over time, the middle portion of the street will have Miller Creek as the new water

ULI/STEVEN GU

ULI/STEVEN GU

Frost River Trading Company (right) and Bent Paddle Brewery (far right) are two examples of successful artisan and craft businesses started and based in Duluth.

feature. Current efforts need to focus on this segment, not the entire Superior Street.

Attributes to build on. The panel highlighted the following important characteristics on which to build.

- An existing street of authentic historic structures
- Street improvements to calm traffic and improve pedestrian safety
- Commercially successful homegrown businesses with on-site manufacturing and retail sales, for example, Frost River Trading Company and Aerostitch
- At least one regional destination restaurant, Duluth Grill
- Possible acquisition of a building by the Duluth Art Institute for eventual occupancy
- Buildings with potential for residential units on the second floor

Challenges and impediments. The panel found the following challenges for this section of the study area.

- Expense of renovating older structures
- Potential for flooding—until Miller Creek infrastructure improvements
- Need for a critical mass of commercial activity to attract more businesses

Recommended programs. The panel made the following recommendations to address the challenges and impediments.

- New subsidized infill housing, for example, owned and managed by the American Indian Community Housing Organization
- Commercial retail on first floor; work space or residential on upper floors
- New mixed-income, market-rate multifamily housing using density bonus allowed along transit corridors
- Infill with commercial services catering to local residents
- Incentives for businesses that will add to existing destination retail uses
- Active and passive recreational spaces for residents and visitors to the Miller Creek and Lincoln Park trail system
- Supportive housing options in the district, accessible to transit
- Rehabilitation of the Esmond Building (not necessarily targeted as a single-user market, but as a mixed-income product consistent with current affordable housing mandates)
- Improvements to Lincoln Park from previous flood damage

The pattern of redevelopment has already begun, and the panel recommends that redevelopment be continued as a high priority. Renovating the Esmond Building would be a project to move forward by using a combination of funds from the NDRC and other sources traditionally used for mixed-use projects with ground floor commercial and residential above. The unit mix and affordability composition needs to be studied further; initially, it would lend itself to a neighborhood serving commercial uses such as coffee shops and small restaurants, dry cleaners, drug stores, beauty salons and barber shops, and so forth.

Another infill use would be medium-density residential to fit the neighborhood scale along Superior Street with transition to low density toward First Street and higher density toward Michigan Street. In addition, some of the existing buildings may lend themselves to a live-and-work or a loft-style project. A building survey to examine and assess such potential should be conducted as part of the economic revitalization program. Market-rate housing must be added to the mix of residential projects instead of only affordable housing projects. Mixed-income projects typically use financing sources such as 20/80 tax-exempt bonds with 4 percent tax credits, new markets tax credits, and possibly historic tax credit programs. Market feasibility will continue to be an issue until the market rents increase to justify using fewer subsidies.

In addition to development and redevelopment of buildings, Duluth must continue the infrastructure repair and improvements to upgrade the streetscape, thereby creating a more pedestrian-friendly environment. This work would include street lights; street trees and other landscaping; sidewalk repair; traffic calming and safe crosswalks for pedestrians; and utility upgrades for water, electricity, sewer, and high-speed Internet. Transportation and wayfinding signs also need to be addressed for bus service time schedules and routes; bicycle and skateboarding on dedicated lanes on the streets; and walking and running on sidewalks, paths, and trails.

To further enhance the transition of this district, a marketing plan must be created. This campaign needs to include key neighborhood business leaders, representatives from the Lincoln Park business district, the Duluth Economic Development Authority, and other neighborhood leaders. With the changing media dynamics, heavy emphasis on Internet marketing tools will be essential to appeal to the millennials. Millennials will be the primary audience for new craft businesses similar to those businesses already established in this district. Millennials will also be renters drawn to this neighborhood for a lifestyle similar to many industrial and commercial transition neighborhoods in other cities.

Mixed-Use Neighborhood

Geographical area. Skyline Parkway to Third Street, the area most affected by the flood in the Lower Watershed, as well as the area between 21st Avenue West and the railroad tracks.

The Esmond Building on West Superior Street incorporates residential and commercial uses. ULI/STEVEN GU

Vision. Upper Lincoln Park becomes a vibrant, mixed-income residential neighborhood with access to its vibrant neighborhood commercial center along Superior Street.

Attributes to build on. The panel highlighted the following important characteristics on which to build.

- Affordability of many properties
- Good quality of many structures
- Little needed physical improvements on the majority of housing
- Access to public transit along Third Street
- Potential for businesses related to industrial heritage

Challenges and impediments. The panel found the following challenges for this section of the study area.

- Physical improvements are needed on some dilapidated structures (visible).
- Some structures are not adequately renovated after the flood (not visible).
- Public funding sources for rehabilitation are unclear.
- Older house floor plans may not appeal to younger generations.
- Some areas are not well served by transit.
- Reputation for being unsafe—real or imagined—discourages new residents.
- Concentration of low-income population raises questions about area improvement over time.

Recommended programs. The panel made the following recommendations to address the challenges and impediments.

- Buyouts for derelict housing
- Systematic site-by-site rehabilitation in short time frame
- Housing rehabilitation from housing rehabilitation funds and local foundations

The neighborhood along Third Street to First Street generally consists of low-density residential single-family homes with mixed-use commercial and residential along Third Street. Neighborhood transition recommendations include removing blight, implementing a clean and safe program for all building owners, and renovating existing flood-damaged homes. Such homes would be restored by using grants to finance the removal of mold and repairs to or replacement of damaged foundations, sheet rock, and other parts of structures. In addition to programs to remedy flood damage, a program exists to provide loans and grants for utility upgrades for insulation, window upgrades and replacement, solar panel installation, and appliance replacement with energy-efficient appliances. Demolition of some structures may be necessary and desired to further revitalize the neighborhood.

The land use beyond the existing low-density residential pattern would include commercial uses such as convenience markets, bakeries, coffee shops, and so forth. Mixed-use commercial and residential projects similar to those described are possible for the Lincoln Park Craft District and for the Great Lakes laundry building project at 23rd Avenue West and Superior Streets that will renovate a commercial building into apartments, an eco laundry, and gallery and coffee shop space. As the economy improves and the neighborhood revitalization in the Lincoln Park Craft District is well along its way, the opportunity for new infill projects will appear.

Projects could include low-density and small-scale residential housing to be sold to workers with incomes from 80 percent to 120 percent of the area median income. Also viable could be the construction of small-scale multifamily residences to be rented or sold as demand emerges. Furthermore, mixed-use residential and commercial projects could serve the neighborhood. In addition to affordable housing projects, mixed-income projects should also be a preferred choice similar to what has been described previously.

A strong need exists for neighborhood programs that could include a Housing Rehabilitation Fund. Such a program would use funds from the HUD NDRC grant. Homes damaged by flooding should be identified, and each home should be surveyed to compile a list of improvements that qualify for funding. In addition to flood damage, energy efficiency audits should be conducted in each of those homes. It may be necessary to find other funding for energy efficiency improvements. Furthermore, for households that qualify as low income, funds should be provided as grants instead of loans. For households that do not qualify for grants, low-interest long-term loans should be made available as part of this funding.

Many of the homes are owned by investors and occupied by residents from either low-income or workforce households; therefore incentives could be provided for owners to keep rent affordable by forgiving the long-term loan annually. Such terms would apply as long as the household income did not increase beyond set thresholds and the rent was maintained at a fixed ratio to household income of 30 percent. This strategy would cap speculative rental increases and maintain affordable rental housing in the neighborhood, thereby relieving gentrification pressures that often force low- and moderate-income households out of the area.

Originally an old ironworks building, Clyde Iron Works reopened as a successful restaurant and meeting space for both locals and visitors.

ULI/STEVEN GU

Large-Scale Opportunities District

Geographical area. From Michigan Street to the river (one block overlap with the transit-oriented development district two blocks on either side of Superior Street).

Vision. Build on the two end nodes that are already somewhat established: the Clyde Park and Duluth Heritage Sports Center on Lincoln Park to the west and the Crafts District on the east side. Provide easily accessible employment opportunities for area residents.

Attributes to build on. The panel highlighted the following important characteristics on which to build.

- Visibility from Interstate 35, elevated above the area
- Relatively low rents and sale prices
- A mix of vacant buildings, from storefronts to the former Post Office
- Adequate parking on the street and in lots for smaller businesses
- Market potential for businesses serving port businesses and nascent craft cluster
- Proximity to potential workforce in the Lincoln Park residential area

Challenges and impediments. The panel found the following challenges for this section of the study area.

- Convoluted access off Interstate 35
- Few local services for employees
- Safety considerations for employees after dark
- Limited transit service west of 24th Avenue West despite the nearby transit maintenance yard

Recommended programs. The panel made the following recommendations to address the challenges and impediments.

- Completion of the bookend of development: Duluth Heritage Sports Center and the Crafts District
- Encouragement for business and property owners to improve landscaping and building aesthetics
- Creation of access to the river for walking paths for workers and residents
- Creation of food options for workers and residents
- Improvement of streetscapes, sidewalks, pedestrian crosswalks, and so forth
- Creation of job training for Lincoln Park residents for port employment and other jobs

This area consists of many large- and medium-scale industrial businesses that may stay in this area; but over time, some users may relocate. When medium and heavy industrial companies relocate, opportunities open up for adaptive use of buildings by light industrial businesses. Examples include Clyde Iron Works, Bent Paddle Brewing Company, and Aerostitch. Other commercial buildings have become light manufacturing. An example of this is Frost River Trading Company.

Opportunities will also be created to use vacant lots alone or in conjunction with demolition of neighboring buildings to assemble parcels for new commercial and mixed-use projects. Some of these projects may also include residential use. In many cities, millennials and empty nesters want to locate in neighborhoods that have interesting and eclectic restaurants, coffee shops, and galleries and that also have affordable housing; this area lends itself to large-scale residential rental and mixed-use projects.

Infrastructure repair and new utilities will be necessary for adaptive use of buildings and new projects in this area. Similar to the discussion about the Lincoln Park Craft District, infrastructure improvements must be evaluated and addressed for the entire area rather than for individual projects.

Housing

An overall strategy to be applied to all districts is the creation of supportive housing. Center City Housing Corporation is proposing to develop a site in the Lincoln Park neighborhood

ULI/STEVEN GU

An example of housing stock found in the Lincoln Park neighborhood.

for the very low-income community. Over the past 20 years, Duluth has lost a large number of single-room occupancy and efficiency units for low-income singles, and the homeless population has grown. The poverty rate has continued to climb with 25 percent of the population of Lincoln Park currently at or below the poverty level.

The neighborhood's housing stock is old; most of the housing was built in the early 1900s. Currently, the vacancy rate is under 2 percent and very low-income people have a difficult time finding affordable housing. Low- and moderate-income households are putting pressure on the housing market that is usually available for the very low-income and homeless residents. Thus, very low-income people have few housing options.

West Superior Street in the Lincoln Park neighborhood is a depressed area with old buildings, empty storefronts, a high percentage of rental housing, and bad housing conditions. The area is in need of significant revitalization. The Esmond Building (formerly the Seaway Hotel) was badly damaged during the 2012 flood. Before that, the owner made minimal improvements to the building over the past 25 years; the conditions in which residents live are questionable, at best. Since the flood, the Housing and Redevelopment Authority of Duluth has purchased the building.

To address this issue, local developers, the city of Duluth, the Housing and Redevelopment Authority of Duluth, and low-income housing providers have created a three-step plan. This plan includes developing a 50-unit permanent supportive housing project on West Superior Street for some residents living in the Esmond Building, renovating the existing Esmond Building, and purchasing a parcel of land to develop for the future housing needs of the Lincoln Park neighborhood.

To address those needs, the Center City Housing Corporation will develop the 50-unit housing project for disabled single adults who are homeless or at risk of being homeless and will purchase land for future development. The 50-unit building will be new construction with office space for supportive services for the residents. It will operate as a Housing First model and will use Harm Reduction Principles in all of its programming. Financial supports, mental and physical health, and education and job training will be available to residents to help them improve their lives. All units will be affordable with rental subsidies for some units to ensure affordability.

Social Infrastructure and Programming

THE PANEL RECOMMENDS FOCUSING not only on environmental resilience, but also on economic and social resilience. In addition to physical improvements, social infrastructure and programming must be in place to support these initiatives. On the basis of the data gathered, the panel recommends the following improvements and supports to build a more resilient Lincoln Park and Miller Creek Watershed.

Local Government

The role of local government is critical to the improvement of the area. The panel recommends the following to increase the effectiveness of local government's involvement in the study area.

Convene Senior City and Public Authority Staff Members to Manage the Project

First, senior city staff members need to meet regularly. The mayor or the mayor's designee should set goals, objectives, budgets, capital sources, and deadlines. In addition, the mayor or the designee should monitor progress, make course corrections, cajole partners, and so forth. By following in the footsteps of pioneers, the developers and property owners will present Duluth with new concepts in housing, living and working space, and mixed-use development. According to one stakeholder, a response from the city of "We've never done it that way before" is simply unacceptable.

All too often city planners, economic developers, code enforcers, public works employees, police officers, and fire fighters think they understand each other's positions and are in agreement, when they are not. They point to each other as the cause for uncompleted projects and programs. It is just as important to get public authorities and corporations to agree. Those groups include housing and redevelopment, economic development, transit, water, sanitary, soil conservation, airport, port, soil conservation, and regional development. The mayor controls most of those. But the panel's collective experience is that sometimes public authorities and corporations don't play ball the way they might. It will take their resources as well as the city's to improve the area.

Improve Data, Communications, Public Relations, and Branding

Everyone in the area must work together to produce better data, better communications, and better public relations. Regarding Duluth's east–west "divide," the panel was astonished by the disconnect between the perception of Lincoln Park among city residents and the reality: it is much better and safer than the panel was led to believe. To address this poor perception, the city should work to document how safe the city is and communicate the reality to the residents.

The panel offered three suggestions for improving communication:

- Immediately develop a list, a chart, and a map of all of the projects—public, private, and not for profit—currently underway in Lincoln Park. Ensure that the maps and project lists are well publicized.
- Ask a restaurant to play host to monthly coffees to share programs about what's underway in Lincoln Park.
- Start a Lincoln Park blog patterned after successful neighborhood blogs in other cities. Communicate directly with people instead of relying on intermediaries or gossip.

Improve Links between Lincoln Park and the Rest of Duluth

The panel has already demonstrated the need for good streetscapes, parks, and a renewed creek. Lincoln Park also needs effective routes such as sidewalks, trails, greenways, and public transit leading from the neighborhood to other parts of the city. University and college students will be attracted to living in a vibrant neighborhood. The city needs to make sure that the 15- to 20-minute drive, bike ride, or bus ride from the neighborhood to the university and colleges is as pleasant as possible.

Develop Funding Sources for Projects and Programs

Funding sources for these initiatives are crucial. Not all items recommended for the Miller Creek Watershed and Lincoln Park revitalization for resilience will qualify for the HUD NDRC application. The panel thinks that the application for the qualifying projects connected to this geographic area is well conceived and well aligned with HUD's selection criteria. However, HUD does not intend to provide all the necessary funds. The application details a lengthy and appropriate list of possible additional funding sources for the various types of projects, including the following:

- Community development block grant funds
- State housing agency financing
- PACE (Property-Assessed Clean Energy) financing
- Philanthropic gifts
- Tax increment financing
- Tax abatement
- Dedicated tax levy to support housing programs
- State housing funds
- City bonding
- Special legislation
- Employer-assisted programs
- Renegotiation of utility franchise fees
- Earned income strategies

Public Health

Public health is another key issue frequently discussed in interviews, examined in briefing material, and heard in conversations with local residents.

Coordinate and Amplify Lincoln Park Neighborhood Initiatives

There is a great need to coordinate and jump-start Lincoln Park neighborhood initiatives on health, energy, food, and home improvements. As panel members heard from stakeholders, one initiative is connected to the other. The panel was impressed with the initiatives currently underway. The two hospitals, the university (especially its medical school), the utility companies, and the area's financial institutions and foundations need to be fully present and marshal their considerable resources to help bring these coordinated programs to fruition.

Socioeconomic Mobility

Whereas there are general strategies to increase economic development throughout the study area, the panel argues that targeted programs are needed to increase socioeconomic mobility in Lincoln Park's most financially vulnerable. Several programs to do just that follow.

Match Job Training with Employment Needs

Job training and placement are another area of concern for low- and moderate-income households. Technical training is needed to provide a qualified employment pool for existing and new businesses in the city as well as in this neighborhood. Job-training programs should be designed with input from employers in Duluth.

For example, Lake Superior College has been working with Community Action Duluth, the city, SOAR Career Solutions, and Duluth LISC on workforce and job training. Duluth LISC is working with the University of Minnesota

Duluth cultural entrepreneurship major, a program on small business development and access to healthy food. Even at the high school level, opportunities exist to work with local employers to create engaging training programs.

In addition, other educational institutions, including the University of Minnesota Duluth and the College of St. Scholastica, should be engaged so graduates who are interested in living in Duluth can be matched with employers in the city and region. Internships with business and industry are among many ways to engage students in community activities. Recently, engineering students joined in a pilot program with Ecolibrium3 to conduct an energy audit and renewable designs for several businesses. The success of this collaboration has provided an opportunity to advance retrofits of commercial buildings and to build small business resilience.

Accessibility

A community can only be resilient if all members of the community have their concerns and issues addressed. The panel heard in interviews that this open communication has not always been the case. Increasing accessibility to public forums and increasing the number of initiatives to improve the neighborhood is crucial.

Include Gen-Xers, Millennials, African Americans, and Native Americans

The panel heard concerns that members of generation X, millennials, African Americans, and Native Americans are not always listened to when community decisions are made in Duluth. The Lincoln Park neighborhood has a relatively large share of African Americans and Native Americans. New types of housing will attract gen-Xers and millennials. If these groups do not organize—and if decision makers do not embrace them—the initiatives won't succeed or won't matter.

Conclusion

RESTING AT THE SHORES of Lake Superior, Duluth was an important economic engine for the Great Lakes region during much of the 20th century. With the change in technology and economic markets, the city was challenged with meeting modern demand. Although Duluth survived the 2008 financial recession, the impending economic, environmental, and social changes pose great threats to the city's most vulnerable communities. The panel proposes that Duluth has an opportunity to take advantage of its strengths to grow resilient neighborhoods in its most disadvantaged communities, such as Lincoln Park.

This panel report outlines three important pillars of resilience: economic, environmental, and social. With limited resources, the panel aimed to provide recommendations that address resilience from a holistic perspective. From increasing energy efficiency in old housing stock to establishing a craft district, Duluth has many opportunities to immediately begin improving itself. The panel hopes that the recommendations given Duluth help the city reach its goal for holistic resilience.

About the Panel

Rick Dishnica

Panel Chair
Point Richmond, California

Dishnica is president of the Dishnica Company LLC, which was formed in 1999 to pursue his individual investment goals, to develop infill housing both for rent and for sale in the San Francisco Bay Area, and to provide real estate and management consulting services to the real estate industry. Most of his work has been in the entitlement and development of residential properties in the San Francisco Bay area for his own account and as a consultant. From 2008 to 2012 he provided workout consulting services for two major clients—a residential developer and a real estate lender. In 2012, he refocused his consulting practice to develop rental housing and is now pursuing other residential investment opportunities.

Dishnica was an executive vice president and the chief operating officer of American Apartment Communities, a privately held real estate investment trust from 1994 through March 31, 1999, with responsibility for all apartment operations, development, and rehabilitation. Until its merger with United Dominion Realty Trust in 1998, American Apartment Communities owned and managed directly or through subsidiaries in this portfolio, 54 apartment communities containing 14,141 units in nine states (Ohio, Indiana, Michigan, Kentucky, California, Oregon, Washington, Colorado, and Florida). The total asset value as of the date of the merger was $787 million. Another portfolio containing an additional 4,000 units was retained to continue the business of American Apartment Communities.

Since 1982, he was also an executive vice president of the Klingbeil Company, predecessor to American Apartment Communities, with operating responsibilities for the western United States. During this period, he was directly responsible for the development of 304 apartment units in San Francisco on the site of the former Winterland Auditorium called 2000 Post. In addition, he was involved in developing three other apartment projects comprising 1,012 units in the San Francisco Bay Area. He was responsible for obtaining lower floater tax–exempt bond financing for all of these projects, a new financing technique for financing apartments in the 1980s. All of these projects were in infill locations. During the period 1989–1993, he also served as the chief financial officer and chief operating officer of K/W Realty Group, a Klingbeil-affiliated company in the for-sale housing business. His role in this company included overseeing the joint venture development of 42 subdivisions with more than 4,000 units of housing for sale, most of which were located in three major metropolitan markets.

From 1980 to 1982, Dishnica was a principal of Comstock Ventures Limited, a real estate venture capital company. From 1978 to 1980 he was vice president of Fox and Carskadon Financial Corporation where he was responsible for the solicitation, analysis, negotiation, and management of real estate development joint ventures. From 1973 to 1978, he was an assistant vice president with Union Bank in San Francisco, with responsibility in the areas of commercial lending, real estate construction lending, and loan workouts. Before his employment with Union Bank, he served as an officer in the U.S. Navy achieving the rank of lieutenant with assignments in Vietnam and as the officer-in-charge of a minesweeper. Dishnica received his master of business administration from the University of Southern California in 1974 and his bachelor's degree from Ohio State University in 1968.

Dishnica is a past trustee of the Urban Land Institute. He is a member of the ULI Governance and Nominating Commit-

tee and is on the advisory board of the ULI Rose Center for Public Leadership in Land Use. He was vice chair for councils and was on the ULI Operating Committee. He is also a member of the ULI Multifamily Council (Blue Flight) and was its past chair. He was also chair of the Governance Committee and past chair of the ULI San Francisco District Council. He is also a member of and was a director of the National Multifamily Housing Council. He was an independent director of BlackRock Apartment Value Fund III. He is also a member of the board of the International House, Berkley at the University of California, Berkeley, and serves on its house committee as its chair and on the finance committee. Dishnica served a six-year term as a member of the board of trustees of Children's Hospital Foundation Oakland from 1988 through 1994, finally serving as its treasurer and chairman of the investment committee responsible for an endowment in excess of $60 million. Dishnica was on the board of trustees of Bentley School from 1990 through 2003 and served as its president from 1993 to 1997, during which time he was responsible for developing a high school to expand Bentley's programs. He also served for four years as a commissioner on Berkeley's Landmarks Preservation Commission from 1999 through 2003.

Daniel Anderton

Gaithersburg, Maryland

Anderton has served in the region for more than 30 years and has been directly involved in the creation of communities with services in all aspects of land use planning and physical planning including the following: comprehensive and master planning, urban and mixed-use planning, site planning, redevelopment planning, affordable housing, rezoning, subdivision planning, small town revitalization, and landscape architecture. He has proven project management experience in the applicability of planning, zoning, subdivision, and landscape architecture. He also has extensive experience with local and state government development review processes and effective working relationships with local and state agencies, boards, commissions, and public officials in multiple jurisdictions.

Anderton has a goal to create communities that are comfortable, sustainable, and inclusive to a wide demographic of residents and business owners while also being marketable for either public or private developers. He takes care to ensure that a conceptual design's integrity and density is maintained through the planning process. By carefully planning floor/area ratio and densities, by providing for a mix of diverse building and product types and phasing, and by incorporating traditional and neotraditional styles, community developments are poised to capture the needs of the market and a wide cross section of prospective renters, buyers, and shop owners.

Anderton has been involved with, and completed, hundreds of projects involving direct interaction with citizens, developers, planning boards, county councils, mayors, public utilities, state highway officials, and other parties. The juggling of everyone's interests throughout the completion of a plan or project is extremely important. The goal is to make it through the design and planning process with the majority of stakeholders feeling as though they have succeeded in having their personal vision incorporated into the community.

Anderton graduated with a bachelor's degree in landscape architecture and environmental planning from Utah State University in 1983 and with a master's degree in landscape architecture from the University of Illinois in 1985.

Anderton is currently employed by Dewberry, a national planning, engineering, and architectural firm, where he is responsible for community planning and urban design. He has worked for architects, engineers, landscape architects, and horticulturalists throughout his career, thus giving him a unique and holistic perspective of community planning and urban design.

Dean D. Bellas

Alexandria, Virginia

Bellas is president of Urban Analytics Inc., a real estate and urban planning consulting firm providing urban development analytical services to public, private, and

institutional-sector clients. Consulting services include fiscal and economic impact studies, market research and economic base studies, analyses of real estate development economics, and project feasibility studies. Since 1996, Bellas has conducted consulting assignments in 11 states and the District of Columbia. Bellas has written or cowritten more than 60 research reports on the fiscal and economic effects of real estate development.

In addition to Urban Analytics, Bellas is affiliated with the Catholic University of America where he holds the position of lecturer in the School of Architecture and Planning. Previously, he has been a lecturer in the School of Professional Studies in Business and Education at Johns Hopkins University and in the School of Management at George Mason University. Bellas has also taught candidates for the CFA (certified financial analyst) designation on behalf of the Washington Society of Investment Analysts.

Bellas is a full member of the Urban Land Institute and has participated in a variety of ULI activities including five Advisory Services panels at Oak Creek, Wisconsin; Queen Creek, Arizona; Merced, California; Chicago, Illinois; and Duluth, Minnesota. He sits on ULI's national Public Development and Infrastructure Council, regionally on the ULI Baltimore/Washington, D.C., Transit-Oriented Development Council, and locally on the ULI Washington District Regionalism Initiative Council. He has served on the ULI Washington technical advisory panel for Prince George's County, Maryland.

Bellas received a bachelor's degree in business administration from Western New England University with a concentration in finance, a master's degree in urban and regional planning from George Washington University, and a PhD in public policy with a concentration in regional economic development policy from George Mason University. Bellas is a member of the National Economists Club and Lambda Alpha International, an honorary society for the advancement of land economics.

William Lawrence

Wakefield, Rhode Island

Lawrence brings more than 30 years of in-depth background and experience in real-world problem solving, strategy formation, feasibility assessment, and project management for complex real estate development projects. Lawrence is principal of Cityscope Inc., a real estate consulting, brokerage, property management, and development company founded in 1995. The company specializes in evaluating the market and financial feasibility of larger-scale projects of all types. When project potential looks particularly attractive, the firm assembles multidisciplinary teams to implement a development program and acts as the project developer.

Before restarting Cityscope in 2013, Lawrence was the managing director of Consulting Services for TR Advisors (TRA) for five years, a Boston-based boutique real estate consulting and asset management firm with specialized expertise in the disposition and management of transportation-related and publicly owned real property. TRA is designated by the Massachusetts Bay Transportation Authority as its real estate representative in the Greater Boston area. With Jones Lang LaSalle, TRA is also managing different aspects of the Chicago Transit Authority's real estate assets. Lawrence managed numerous market and financial feasibility studies for communities with transit-oriented development and intermodal transportation facilities.

Before starting Cityscope, Lawrence was director, Seaport Planning and Development at the Massachusetts Port Authority, where he planned and developed a diverse portfolio of public sector real estate assets on 400 acres. Before that, he created and directed public sector real estate consulting groups in Los Angeles and Boston for the Kenneth Leventhal & Company, a national CPA firm. Previously, he founded and managed for 12 years the William C. Lawrence Company, a market feasibility and economic

development consulting firm in Pasadena, California, and for three years, he managed environmental policy planning at the Irvine Company, a large new community developer in Orange County, California.

Lawrence has a master's degree in city and regional planning from the Harvard University Graduate School of Design, a master's degree in business administration from Pepperdine University, and a bachelor's degree in political science from Trinity College. He was awarded the Thomas J. Watson Traveling Fellowship to study new town planning in Europe and India after college.

He is currently a full member of the Urban Land Institute and has been a full member of NAIOP, the commercial real estate development association, and the Council on Urban and Economic Development. Interested in regional planning issues, Lawrence was a gubernatorial appointment to the Boston Metropolitan Area Planning. He has his real estate broker's licenses in Massachusetts and Rhode Island.

Sarene Marshall

Washington, D.C.

Head of the Center for Sustainability, Marshall oversees ULI's activities in the areas of climate change, energy, sustainability, and resilience, including the Greenprint Center for Building Performance and the Urban Resilience Program. Through the work of the Greenprint Center for Building Performance and Urban Resilience Program, the Sustainability Center will provide leadership and support to land use professionals who invest in energy performance and portfolio resilience while reducing risks caused by the changing climate.

While at the Nature Conservancy, Marshall bolstered the Conservancy's efforts to reduce its environmental footprint by managing carbon, waste, water, and recycling. She also worked with the Conservancy's Latin America region to develop new initiatives on food security, water security, and smart infrastructure. During her time at the Conservancy, Marshall served as managing director for the global Climate Change program and associate director of Forests and Climate program—two of the Conservancy's largest programs. She also led change management, globalization, and strategic planning projects on behalf of the Conservancy's executive team.

Before her 12 years at the Nature Conservancy, she held positions with Mercer Management Consulting (now Oliver Wyman), a subsidiary of Marsh and McLennan Companies, and the World Wildlife Fund. Marshall holds a master of business administration and a master of arts in international studies from the University of Pennsylvania's Wharton School/Lauder Institute. In addition, she earned a bachelor of arts in international studies from George Washington University.

Richard Reinhard

Washington, D.C.

Reinhard is principal of Niagara Consulting Group, which specializes in bringing people together to work on sustainable solutions to complicated problems. He has spent more than three decades improving cities, leading organizations in the public, private and not-for-profit sectors throughout the United States and in Canada and the United Kingdom.

He was deputy executive director of the DowntownDC Business Improvement District. He directed the Infrastructure Initiative at the Urban Land Institute. He has managed urban revitalization organizations in Richmond, Buffalo, and Atlanta in the United States and in Londonderry, Northern Ireland. Rick served as chief of staff to the mayor of Buffalo and chief operating officer of a Toronto-based real estate development corporation. Working as a consultant to Buffalo's mayor, he pieced together the successful Buffalo-Niagara Medical Campus. Reinhard began his career as a newspaper reporter in his hometown of Syracuse.

As an adjunct faculty member, Reinhard has taught planning and public policy at five major research universities.

He cofounded the Urban Design Project at the University at Buffalo.

He has a bachelor's degree from the College of William and Mary and a master's degree from Rice University. He was a Loeb Fellow in Advanced Environmental Studies at the Harvard University Graduate School of Design.

Lynn Thurber

Chicago, Illinois

Thurber is the chairman of LaSalle Investment Management, a global real estate money management firm with about $55 billion of assets under management, investing in private real estate as well as publicly traded real estate companies on behalf of institutional and individual investors. In her role as chairman, Thurber advises the firm's senior management team and heads its global committees on sustainability and risk management for its portfolios worldwide. She also chairs the Jones Lang LaSalle committee for the firm's coinvestment activity. Thurber is also chairman of the board of Jones Lang LaSalle Income Property Trust, a U.S. Securities and Exchange Commission–registered, nontraded real estate investment trust (REIT).

Thurber is a member of the board of Duke Realty Corporation, a U.S. publicly traded REIT, and a member of the board of Investa Property Group, an Australia-based real estate owner, developer, and fund manager.

Before becoming chairman, Thurber was the chief executive officer of LaSalle Investment Management from March 2000 to December 2006 and copresident from December 1994 to March 2000. Before Alex Brown, Kleinwort Benson (ABKB) Realty Advisors' merger with LaSalle Partners in 1994, Thurber was chief executive officer of that company. Before joining ABKB in 1992, she was a principal at Morgan Stanley & Co.

Thurber earned a master's degree in business administration from Harvard Business School and a bachelor's degree from Wellesley College. Thurber is the immediate past global chairman of the board of Urban Land Institute (July 2013–June 2015). She formerly chaired the Pension Real Estate Association and is also a past member of the board of directors and executive committee of the Association of Foreign Investors in Real Estate, of the board of the Toigo Foundation, and a past member of the Real Estate Information Standards Board. She is currently a member of the Chicago Network and the Wellesley College Business Leadership Council.

Kraig Walsleben

Germantown, Maryland

Walsleben joined Rodgers Consulting Inc. (RCI) in 1989. Through his tenure at RCI, he has worked as a planner, surveyor, natural resource specialist, team leader, and project manager. Assigned as the leader of an engineering team in 2000, Walsleben has directed the planning and engineering effort of multiple award-winning mixed-use developments in the Washington, D.C., metropolitan area, creating thousands of residential lots and millions of square feet of employment space. Since 2013, these projects have conformed to the strict new Environmental Site Design regulations for stormwater management in Maryland. As a project manager, Walsleben continues to use his broad industry knowledge to guide his clients' projects through the challenging engineering and regulatory environment.

A member of multiple citizen and professional advisory boards, Walsleben was a founding member of the Water Quality Advisory Group for Montgomery County, Maryland, which helped guide the county in its adoption of the state-mandated Environmental Site Design guidelines. A licensed landscape architect, he holds undergraduate degrees in fish and wildlife management and landscape architecture as well as a master's degree in planning from the University of Virginia.

A ULI Advisory Services Panel Report

Urban Land Institute

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