



SCENARIO PLANNING IN A PANDEMIC

How to Embrace and Navigate Uncertainty

By Emma Zehner

Local authorities focus on quickly getting services back up and running, returning to previous systems and making them as effective as possible in the new context. After a year of upheaval, staff and the wider public have little appetite for change.

—“Race Back to Normal” scenario, Social Finance

EARLIER THIS YEAR, the U.K.-based nonprofit Social Finance carried out a weeklong scenario planning exercise for local governments. The process asked officials to imagine four potential futures as they looked toward pandemic recovery: Innovation Against the Odds, Civic Renewal, Central Command and Control, and Race Back to Normal (Social Finance 2020).

The four scenarios varied along two axes—responsibility, referring to whether the crisis response is directed by the central government or localities, and transformation, which described whether localities would use the crisis to drive systemic change or, alternatively, quickly return to old ways. A guiding question drove the exercise: faced with the COVID-19 pandemic, how can local authorities change and adapt to meet the emerging needs of communities over the next year?

Originally developed as a tool to refine military and corporate strategies, scenario planning enables communities to create and analyze multiple plausible versions of the future. Unlike traditional planning approaches that tend to assume one likely or desired outcome, scenario planning encourages users to embrace uncertainty and imagine multiple endpoints.

Since the onset of the current pandemic, the practice has gained renewed attention and taken on new relevance across many industries, which are all facing uncertainties not accounted for in their routine planning processes. Universities that unexpectedly sent their students packing mid-semester have developed scenarios to determine what the fall semester might look like and how to prepare accordingly for various options. At the onset of the pandemic, hospitals used real-time scenario planning to prepare for different outcomes related to facility supplies, staff capacity, and financial management. Businesses, transit agencies, and nonprofits across the country are using the method to navigate a new baseline of uncertainty.

“This pandemic has helped people understand the purpose and value of scenario planning,” said Sarah Philbrick, a socioeconomic analyst at the Metropolitan Area Planning Council (MAPC), the regional planning agency for metropolitan Boston. “Normally people view uncertainties as far-fetched scenarios and think they could never really happen. However, with COVID, people are now able to see how dramatically things can shift in a short amount of time. This is a prime opportunity for practitioners to talk about this method and use it with others.”

Originally developed as a tool to refine military and corporate strategies, scenario planning enables communities to create and analyze multiple plausible versions of the future.

Scenario Planning for Local Governments

Scenario planning was first incorporated into urban planning projects in the 1990s and marked the beginning of a gradual shift away from traditional planning, which has largely ignored uncertainty, according to Robert Goodspeed, professor at the University of Michigan and author of the new Lincoln Institute book *Scenario Planning for Cities and Regions: Envisioning and Managing Uncertainties* (Goodspeed 2020). Planning that narrows in on one future can result in plans that are poorly suited for implementation, said Goodspeed, who is also a board member of the Consortium for Scenario Planning, a peer network launched by the Lincoln Institute (see sidebar). For example, inflexible plans have seen homes flooded because they were built in areas that were thought to be safe from storms, public funds wasted on infrastructure to accommodate overestimated growth, and extensive mismatches between affordable housing types and residents' needs.

"Plenty of places are not happy with conventional trends and have sought scenario planning out as a method to envision a more sustainable future," Goodspeed said. "And now, amidst COVID-19, local leaders who have not previously participated in these types of activities are seeing the value, and urban and land use professionals are realizing how all long-range plans need to be mindful of major uncertainties."

Scenario planning for urban planners varies in several ways from scenario planning for businesses. As Goodspeed explains in his book, the primary stakeholder for a business is typically the business itself. "Scenario-based urban planning, in contrast, has many stakeholders whose participation is closely linked with research and technical analysis, and it may use evaluation criteria to compare scenarios," he writes (Goodspeed 2020).

The methodology, which takes two main forms—normative and exploratory—is used



Scenario planning allows participants to gain a clear understanding of challenges and opportunities ahead. Credit: Time's Up Linz via Flickr CC BY 2.0.

most often to help define long-range transportation and land use plans. In a normative scenario plan, the goal is to reach a specific target or "future." The scenarios come into play in how stakeholders choose to get to the future. Each scenario for reaching the desired outcome will have benefits and drawbacks that planners and community members must weigh.

With exploratory scenario planning, stakeholders identify "driving forces" and combine these elements into several possible futures. Then, the group outlines appropriate responses for each scenario. "Through exploratory scenario planning, it is acknowledged that the future cannot be predicted, but preparation and proactive action can and should take place," writes Janae Futrell, who previously worked as a consultant at the Lincoln Institute, in a PAS memo for the American Planning Association (Futrell 2019).

In her memo, Futrell cites the example of the Greater Philadelphia Futures Group, a regional coalition formed to identify the various driving forces most likely to shape the region through 2050. For instance, the group has considered how the introduction of autonomous vehicles will affect the metro area. Participants outlined four scenarios that might result from this vehicular

shift and developed strategies that would be successful regardless of which reality plays out. This summer, the coalition will issue a futures report informed by the digital revolution, rising inequality, and climate change, incorporating the pandemic and recent racial justice protests into each scenario's narrative.

Planning departments had already begun to recognize the value of scenario planning for hazard mitigation and climate resilience work, as well as for internal capacity-building exercises. (See page 22 to learn how Lake Michigan communities are using scenario planning to prepare for unknown climate futures.) Now its very premise—embracing uncertainty—turns out to be perfectly suited for the times.

Planning departments had already begun to recognize the value of scenario planning for hazard mitigation and climate resilience work. Now its very premise—embracing uncertainty—turns out to be perfectly suited for the times.

CONSORTIUM FOR SCENARIO PLANNING

The Consortium for Scenario Planning is a community of practice launched by the Lincoln Institute of Land Policy that helps to foster growth in the practice of scenario planning at all scales. Through research, peer-to-peer learning, networking, training, and technical assistance, the Consortium helps communities develop better plans to guide a range of actions, from climate change adaptation to transportation investment. The Consortium also convenes researchers and software providers to develop more effective tools and reduce barriers to entry.

To learn more, visit www.scenarioplanning.io.

Adapting the Tool for a Pandemic

“Traditionally, [scenario planning] is used to consider long-term trends and promote big picture thinking,” the report from Social Finance explains. “However, in crisis situations such as COVID-19, scenario planning can be a useful technique to help interpret and respond to rapid change, as it allows organizations to anticipate and manage uncertainty” (Social Finance 2020).

Many of the basic strategies of exploratory scenario planning can be useful for looking at pandemic recovery scenarios, with one notable exception: timeframe. In the middle of a pandemic, timelines and expectations can be different. Whereas typical plans that incorporate scenarios might project 30 to 50 years into the future, the day-by-day variation of COVID-19 makes 12 to 18 months a more digestible timeline.

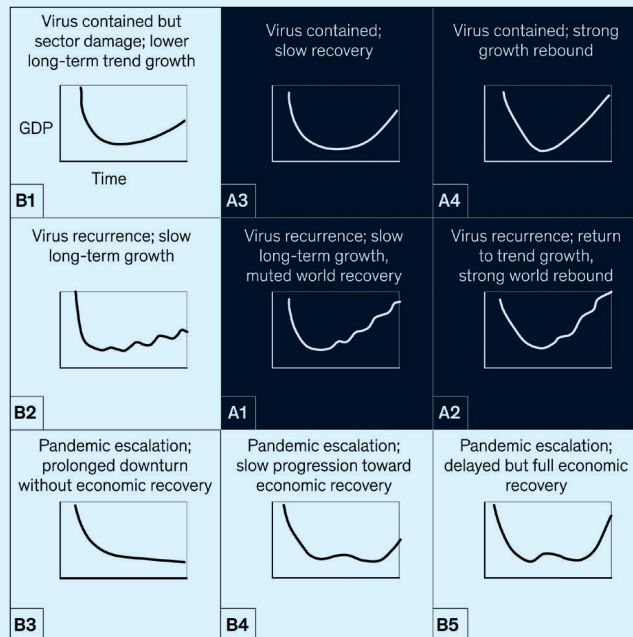
“The pandemic is a tangible thing you are reacting to, so people's current use of the tool is more reactionary instead of the more standard anticipatory approach,” explained Heather Hannon, director of the Consortium for Scenario Planning.

Transit agencies, for example, are adjusting scenarios every week and working on the fly to create pop-up bike lanes and parklets. “With fewer staff and constrained budgets, transit agencies are preparing for a staggering number of scenarios,” wrote Tiffany Chu, a commissioner at San Francisco's Department of the Environment, in *Forbes* (Chu 2020).

In May, WSP, a professional services firm based in Canada, published “Public Transportation and COVID-19: Funding and Finance Resiliency: Considerations When Planning in an Unprecedented Realm of Unknowns.” The report recommends scenario planning as a tool for public transportation staff and includes some of the factors agencies will have to consider, such as higher cleaning and sanitizing costs, higher absenteeism, demands for higher wages, and changing ridership patterns (WSP 2020).

Scenarios for the Economic Impact of the COVID-19 Crisis

McKinsey & Company developed this set of potential economic impact scenarios by analyzing two major uncertainties associated with the pandemic: the spread of the virus (Y axis) and the effects of economic policy (X axis). The scenarios range from one in which the virus escalates and a prolonged economic downturn occurs (B3) to one in which the virus is contained and there is a strong economic rebound (A4). Credit: Exhibit from “Covid-19: Implications for business,” June 2020, McKinsey & Company, www.mckinsey.com. Copyright © 2020 McKinsey & Company. All rights reserved. Reprinted by permission. McKinsey continues to update this article at <https://www.mckinsey.com/business-functions/risk/our-insights/covid-19-implications-for-business>.



Lisa Nisenson, vice president of the national design and professional services firm WGI and a member of the Consortium for Scenario Planning, is also considering how scenario planning can be useful in responding to COVID's impact on the mobility industry. Will transit and shared-use companies rebound? Will telecommuting stick over the long run? Will open streets be temporary?

“Any time you have different alternative ways that the future could unfold, taking a deliberate look at how it could unfold is never a bad idea,” Nisenson said. “That said, the ability to figure out how things unfold very much depends on your confidence in the variables. In this case, you want to assemble stakeholders and experts who can describe the variables, the directions the variables could take, and benchmarks for monitoring the situation based on your organization's needs.” In a recent mobility plan, Nisenson said, the company identified ideas for ‘distancing while in motion,’ including bicycling and a popular open-air electric shuttle, that would also address long-term mobility and sustainability goals.

Nisenson added that successful COVID planning can involve a combination of methods

that include scenario, anticipatory, and strategic planning, as well as the Delphi method of assembling experts. “This process illuminates one of scenario planning's benefits: stakeholder engagement,” she said.

Goodspeed emphasized that COVID scenario planning projects will differ from typical scenario planning projects by bridging unconventional communities. For instance, hazard and disaster staff are often siloed from long-range land use and transportation planners, but now will likely become central to any comprehensive recovery plan.

At MAPC, Philbrick has been working with the housing and economic development teams to sketch out a three- to five-year timeline for economic recovery in the Boston metro area. The project focuses on the possible scenarios for housing demand by income levels based on possible employment patterns and the pace of recovery by sector. “Because none of the many questions we have can really be answered, the only real option is scenario planning,” Philbrick said. “Choosing any sort of point estimate when you have very little to base it off of is just irresponsible.”

A Nimble Tool for Resource-Constrained Governments

One of the common misunderstandings about scenario planning is that it always requires expensive software and outside consultants. Now, more than ever, municipalities are resource-limited and largely unable to come up with the extra funds needed for such expenses, and may lack the time and resources to look to the future. But Goodspeed and Hannon—who is leading an internal scenario planning process at the Lincoln Institute—said smaller-scale versions of scenario planning can still be helpful, and exploration and experimentation are the keys to a productive process.

“In the current moment, organizations starting from scratch probably still should frame a project to focus on a particular plan or decision, allowing them to dip their toes in the water and explore methods and figure out how to use them effectively,” Goodspeed recommended. “For those who already have more experience, this is probably a good time to broaden or deepen their practice. For example, they could incorporate more exploratory scenarios or involve experts from new fields like public health.”

Hannon noted that the Consortium for Scenario Planning maintains a list of resources on its website, as well as opportunities for peer exchange and other information (CSP 2020). The Lincoln Institute is also releasing a comprehensive manual in partnership with the Sonoran Institute that will provide users with tools and guidance for managing a scenario planning process. Social Finance has developed a template for those attempting to do shorter-term scenario planning online. The organization suggests tools as simple as online Word documents, Zoom, and virtual whiteboards.

“Planners can do a lightweight version without the burden of consultants or software tools,” Hannon said. “Don’t worry about a data-intensive version, just get people together and start brainstorming.” □

Emma Zehner is communications and publications editor at the Lincoln Institute of Land Policy.

“Planners can do a lightweight version without the burden of consultants or software tools. Don’t worry about a data-intensive version, just get people together and start brainstorming.”

REFERENCES

- Chu, Tiffany. 2020. “In a Pandemic, Transportation Ushers in a New Era of Agile Experimentation.” *Forbes*, May 12. <https://www.forbes.com/sites/tiffanychu/2020/05/11/transportation-agile-experimentation>.
- CSP (Consortium for Scenario Planning). 2020. <http://www.scenarioplanning.io/>.
- Futrell, Janae. 2019. “How to Design Your Scenario Planning Process.” *PAS Memo*. July/August: 1–20. <https://www.planning.org/publications/document/9180327/>.
- Goodspeed, Robert. 2020. *Scenario Planning for Cities and Regions: Managing and Envisioning Uncertain Futures*. Cambridge, MA: Lincoln Institute of Land Policy. <https://www.lincolninstitute.org/publications/books/scenario-planning-cities-regions>.
- Social Finance UK. 2020. “Local Government Futures: Scenario Planning for Councils.” London: Social Finance. https://www.socialfinance.org.uk/sites/default/files/scenario_planning_local_government_0.pdf.
- WSP. 2020. “Public Transportation and COVID-19: Funding and Finance Resiliency: Considerations When Planning in an Unprecedented Realm of Unknowns.” <https://www.wsp.com/-/media/Campaign/US/Document/2020/Public-Transportation-and-COVID-19.pdf>.

Great Lakes Communities Use Scenario Planning to Prepare for Rising Waters

By Emma Zehner

THE NATIONAL DIALOGUE about rising waters tends to focus on coastal states like Florida and New York, with inland states largely absent from the conversation. But residents in Michigan, which has one of the longest coastlines in the continental United States, are also contending with changes that are leading local officials to reexamine their coastal management policies. As climate change amplifies Lake Michigan's natural fluctuations and brings increased storminess, communities are beginning to plan for an uncertain future.

Historically, for every decade or so residents have endured high waters, the next has brought retreating levels—and a wave of new lakeside development. This seesawing system, which can involve differences of up to six feet in water levels over the course of a few years, is masking a more gradual pattern of coastal erosion, according to Richard Norton, a professor of urban and regional planning at the University of Michigan. The focus on extremes, he said, has sidelined action on coastal management.

In 2014, Norton and a team of researchers started working with the City of Grand Haven and the Charter Township of Grand Haven, neighboring communities on the southeast perimeter of the lake, to think beyond current conditions and discuss best coastal management practices for the long term. At the center of their approach is a method called scenario planning.

Scenario planning allows communities to plan for an unpredictable future by exploring multiple possibilities of what could happen. The framework—which the Consortium for Scenario Planning, an initiative of the Lincoln Institute of Land Policy, promotes through technical assis-

tance, educational resources, and a network of practitioners—has shown potential in these jurisdictions, which sit in one of the most politically conservative counties in the state and are home to residents who have varying views about the risks of climate change.

Historically, for every decade or so residents have endured high waters, the next has brought retreating levels—and a wave of new lakeside development. This seesawing system is masking a more gradual pattern of coastal erosion. The focus on extremes has sidelined action on coastal management.





A house in Grand Haven Charter Township sits precariously close to the shore in December 2019, following several months of intense storms. Credit: Courtesy of Grand Haven Charter Township.

The Role of Local Planning

Local governments have a unique opportunity to help shape the future of coastal areas. While the National Flood Insurance Program influences private development, local governments make the majority of “public decisions that shape private development in high-risk coastal zones,” Norton and his coauthors wrote in an article published in the *Journal of the American Planning Association* (Norton et al 2019).

However, few jurisdictions are fully embracing the role. About 40 percent of master plans from 60 Michigan Great Lakes communities studied didn’t include any discussion of coastal area management issues, according to research by Norton in the mid-2000s. At the time, three quarters of the plans hadn’t adopted any meaningful coastal area management policies.

Coastal management concerns are often edged out by factors including other planning issues, the role of coastal properties in providing property tax revenues, emotional attachments to properties, and resistance to government regulation, Norton said.

A multidisciplinary and multiuniversity team of researchers led by Norton wanted to see if scenario planning, known as a technical process,

could be simplified and adapted to the context of municipalities that lack the technology and capacity to conduct extensive analyses. Funding for the project came from the Michigan Coastal Zone Management Program of the Department of Environment, Great Lakes, and Energy and was supported through a grant under the National Coastal Zone Management Act of 1972. The project was also supported by the nonprofit planning firm Land Information Access Association, which provides technical assistance to local leaders through its Resilient Michigan program.

A few years ago, the team reached out to several towns, including the City of Grand Haven and Grand Haven Charter Township, to discuss the possibility of embarking on a consultant-led scenario-planning process. At the time, both communities were in the middle of updating their master plans. Like most of the state’s 122 jurisdictions on Lake Michigan, the two communities have small populations with limited staff capacity.

The communities signed on, and an extended planning process ensued. From 2014 to 2016, local officials, planning commissions, the city council and township board, and residents from the two places took part in over 20 working meetings and presentations.

Weighing Scenarios

Central to the process was the identification of three “climate futures.” Researchers created the scenarios, based on a 20- to 50-year planning horizon, by using easily available data, including historic water level data and FEMA maps, and basic GIS analysis. In the “lucky” future, water levels remain low and the community experiences one 50-year storm (as classified by FEMA). The “expected” future assumes average water levels and one 100-year storm. The “perfect storm” scenario is characterized by high water levels and a 500-year storm.

“The process helped people understand that we weren’t just looking at the worst-case scenario,” said Jennifer Howland, community development manager for the City of Grand Haven.

As a next step, the cross-sector team drew on a variety of off-the-shelf data related to planning and development to outline three options for how the local governments could respond in each climate future. In one scenario, the governments maintained existing structures. In a second, residents were permitted to build out based on what current zoning allows. A third option incorporated a series of best management practices (BMPs), ranging from setbacks in nearshore zones to restrictions on building

within wetlands. Combining the climate futures and management options, the researchers presented nine scenarios for local officials and residents to consider. They shared the fiscal, environmental, and land use impacts of each.

In the City of Grand Haven’s “lucky” future, for example, if residents continue to build out under current zoning regulations, 207 structures will be damaged. If residents adopt BMPs, this number falls to 59.

A “lucky” future in which the township builds out under the current zoning regulations results in \$11.6 million in potential damages in areas that currently house properties bringing in \$194,015 in net annual revenue. In the “perfect storm” scenario, building out under current zoning regulations results in \$89 million in potential damages in areas that hold properties bringing in \$358,000 in annual tax revenue.

Researchers also calculated the discrepancy between the land area designated as high-risk erosion areas by the state and the land area that they calculated would be inundated in the three climate futures. The land area identified by the state was much smaller than the land area identified as high-risk by researchers, highlighting the important role local governments can play in filling the gap.

Management Options	Climate Futures		
	Lucky	Expected	Perfect Storm
Current Development	Scenario 1A	Scenario 1B	Scenario 1C
Current Zoning Build-Out	Scenario 2A	Scenario 2B	Scenario 2C
BMP Build-Out	Scenario 3A	Scenario 3B	Scenario 3C

As part of the scenario planning process, consultants and local officials developed nine futures for communities to consider. Credit: Richard Norton, as presented at the Consortium for Scenario Planning annual conference in 2019.

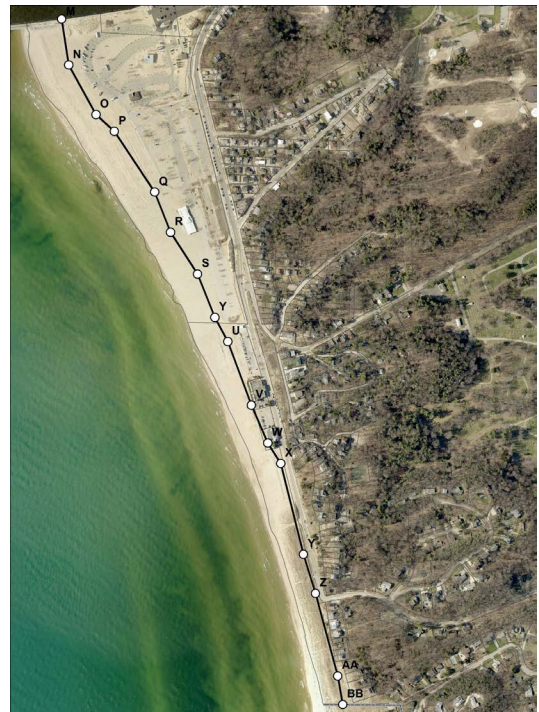
“When we first presented the materials, there were looks of shock and surprise, but once people processed the information and understood that these are reasonable futures we should be thinking about, there was less opposition,” Norton said. “If we had just gone straight to announcing setbacks, that would have been hugely controversial.”

“When we first presented the materials, there were looks of shock and surprise, but once people processed the information and understood that these are reasonable futures we should be thinking about, there was less opposition.”

Local officials also used other strategies to help the conversations along. Howland emphasized that science-based maps and aerial images of historic shorelines made the analysis more poignant for residents. Stacey Fedewa, community development director for Grand Haven Charter Township, said focusing on the weather-related impacts of climate change was an effective way to bring the global issue to the local level.

“If we flood from a big storm, we will be without power, the roads will be flooded, the businesses will be shut down,” Fedewa said. “Trucks wouldn’t be able to enter. If we are able to bounce back faster by being resilient, businesses shut down less [and] employees come back to work sooner than they would have otherwise.”

The sessions were also important in demonstrating that building close to the shore and using armoring measures such as seawalls and riprap can create long-term damage to natural beaches. This “stop nature” inclination, as Norton calls it, is exacerbating erosion of adjacent beaches and contributing to the annual foot of shoreline erosion in high-risk erosion areas.



In 2018, the City of Grand Haven adopted a beach overlay district. Shoreline protection measures are restricted lakeward of the line. Credit: City of Grand Haven.

In their resulting master plans, the two jurisdictions incorporated recommendations from the process to varying degrees. The body of the City of Grand Haven Master Plan includes regulatory and infrastructure policies recommended by the researchers. The city also updated its sensitive areas overlay district and added a beach overlay district based on aerial images presented by the researchers that show the high water mark changing over time. It established new rules for shoreline protection measures in the beach overlay district area, limiting such measures with the exception of specific types of seasonal fencing (City of Grand Haven 2016). A homeowners guidebook helps property owners understand what they can do and provides alternatives (LIAA 2018).

In the township, the planning director and commission included conceptual overviews and policy recommendations in the body of their plan, but chose to relegate the more detailed analyses

to the plan's appendix out of concern about resistance in the politically conservative community (Grand Haven Charter Township 2016). The township also considered new proposals to prohibit seawalls—which can interrupt natural sediment transport processes, creating larger waves and more erosion that wears down the walls over time—and to increase the setback for new construction to 200 feet from the high ordinary water mark, a significant change from the current 50-foot setback. The proposals went before voters last fall but did not pass—in part because officials were focused on taking steps to protect homes from record high water levels—and regulatory decisions remain with the current authority, the Michigan Department of Environment, Great Lakes, and Energy.

“Water levels will go back down again,” Norton said. “They always have. So how can we help town officials keep this on the agenda when there is not a crisis?”




The Grand Haven waterfront is a draw for tourists and residents alike. The city's new master plan includes regulatory and infrastructure policies aimed at protecting it from the worst impacts of climate change. Credit: H. Michael Miley via Flickr CC BY 2.0.

Scaling the Approach

Norton believes scenario planning is a promising tool for local decision making and thinks the fact that these governments incorporated coastal management policies in their master plans is an important step. “The simplicity of the methods is helpful,” he said. “They are focused on decisions: should they adopt setbacks or not?” Norton does acknowledge that even this simplified method typically requires some in-house expertise, such as the ability to manipulate ArcGIS.

He hopes some of the lessons learned, about both scenario planning and shoreline management, can be applied in other communities, ideally with the help of outside consultants who can provide the analysis needed at a reasonable cost or without the need for outside consultants at all. And word does seem to be spreading in the region: Howland has shared the city’s work with neighboring communities along the lake and presented at a dune symposium in East Lansing. Fedewa has encouraged Spring Lake Township, north of Grand Haven, to utilize the resources of the Resilient Michigan program.

Norton, who now plans to expand his work to nearby Lake Huron, said scenario planning is an ideal tool to prepare for the uncertainty inherent in an age defined by rising waters, no matter what type. “What we are doing is very applicable in ocean coastal settings too.”

Norton, who now plans to expand his work to nearby Lake Huron, said scenario planning is an ideal tool to prepare for the uncertainty inherent in an age defined by rising waters, no matter what type. “What we are doing is very applicable in ocean coastal settings too.” 

Emma Zehner is communications and publications editor at the Lincoln Institute of Land Policy.



To protect against storms and flooding, Grand Haven provides sandbags and sand to property owners. Credit: Courtesy of Grand Haven Charter Township.

REFERENCES

- City of Grand Haven. 2016. *City of Grand Haven 2016 Master Plan*. Grand Haven, MI. <https://grandhaven.org/residents/grand-haven-master-plan/>.
- Grand Haven Charter Township. 2016. *Grand Haven Charter Township 2016 Master Plan: Executive Summary*. Grand Haven Township, MI. <http://www.ghc.org/wp-content/uploads/master-plan/ExecutiveSummary.pdf>.
- LIAA (Land Information Access Association). 2018. *Living in Sensitive Areas: A Homeowners Guide for Residents of Grand Haven*. Grand Haven, MI: City of Grand Haven. May. <https://grandhaven.org/living-in-sensitive-areas-homeowners-guide/>.
- Norton, Richard K., Stephen Buckman, Guy A. Meadows, and Zachary Rable. 2019. “Using Simple, Decision-Centered, Scenario-Based Planning to Improve Local Coastal Management.” *Journal of the American Planning Association*. 85 (4): 405–423. <https://www.tandfonline.com/doi/full/10.1080/01944363.2019.1627237>.