

# St. Tammany Parish Louisiana

December 6–11, 2015



# St. Tammany Parish Louisiana

Bridging the Divide with the South Central Study Area  
through Resilience

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# 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 38,000 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 photo: The Tammany Trace multimodal trail over the Bogue Falaya in Covington, Louisiana. (Michael A. Stern)

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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 400 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 in recent memory, leaders in cities around the world are thinking about how to become more resilient in the face of those challenges. Resilience has taken on many meanings in many 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. Those 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 WISHES** to thank St. Tammany Parish and Greater New Orleans Inc. for sponsoring this panel, particularly Jeanne Betbeze, Gina Campo, and Ronnie Simpson, who ensured the panel's access to critical information and perspectives and facilitated an excellent seamless week of work. ULI also appreciates the time and commitment of St. Tammany Parish President Patricia Brister who made a considerable amount of time available for this panel. Thank you for inviting the panel into your community to share your challenges and to work toward solutions.

The panel would also like to thank the Kresge Foundation for its generous support of ULI's Urban Resilience Program, which has made these panels possible. The panel also extends its thanks to the nearly 60 stakeholders from St. Tammany Parish. This group of interviewees included elected officials, local business owners, community members, and government staff members. Throughout the week, the ULI panel was continually impressed by St. Tammany's rich cultural identity, unbelievable food, and commitment to improving the parish.



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# Background and the Panel's Assignment

**ST. TAMMANY PARISH, LOUISIANA**, is located on the north shore of Lake Pontchartrain, separated from the major population centers of New Orleans and Jefferson Parish by a six-mile bridge on the eastern edge of the lake and the 24-mile Lake Pontchartrain Causeway at the lake's center. The parish is included within the Greater New Orleans metropolitan statistical area.

Construction of the causeway, some 50 years ago, transformed the parish from a low-density, rural community into the fastest-growing parish in Louisiana, with the fifth-largest population in the state. The parish continues to experience both the sustained and sudden influx of residents and businesses from the coastal and flood-prone areas of southeastern Louisiana, intensifying the strain of recovery from the major disasters that have hit those areas over the past ten years.

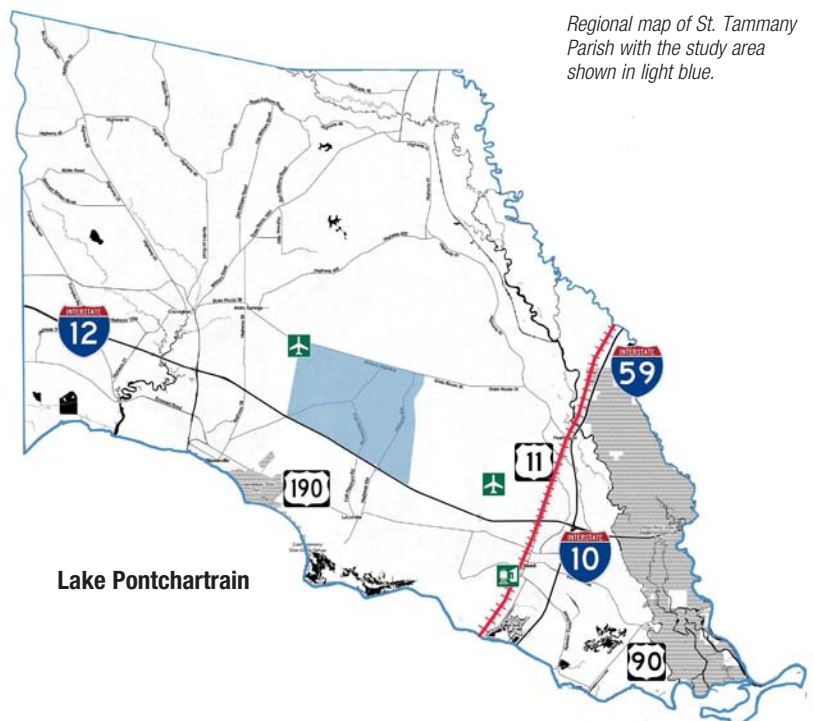
St. Tammany Parish has been affected by five major named hurricanes and a catastrophic oil spill: Hurricanes Katrina and Rita in 2005, Gustav and Ike in 2008, the Deepwater Horizon oil spill in 2010, and Hurricane Isaac in 2012. Although damage from Hurricane Isaac was substantial in its own right, its impact was particularly devastating to a community still recovering, economically and physically, from previous disasters.

The impacts, both direct and indirect, of multiple disasters have forced St. Tammany to reexamine its vision for the future and its role in the larger region, specifically with regard to resilience. The parish has engaged in several planning efforts using scientific data, stakeholder engagement, and collaborative efforts with several federal, state, and local agencies to identify specific initiatives, particularly in relation to vulnerable populations. Those agencies will direct the efforts required to prepare and adapt for future growth, climate change and sea-level rise, and

other shocks and stressors that affect communities. St. Tammany Parish and its partners are prepared not only to commence the project to protect the community, but also to engage it to be an integral part in a resilient future.

## Study Area

The study area encompasses a bit more than 28,000 acres of predominantly vacant land that has a very flat topography and is dominated by a pine savannah habitat. Within that area are four drainage basins: Bayou Lacombe, Big Branch Marsh, Cypress Bayou, and Bayou Castine. Highway 434 serves as a barrier within the Bayou Lacombe basin and has altered the watershed as a consequence. The study area is accessed predominantly



by state roads, Highway 1088 and Highway 434, from Interstate 12. Highway 36 crosses Highway 1088 and Highway 434 at the area's northern boundary. Interstate 12 forms the southern border of the study area. South of I-12, storm surge and sea-level rise are a threat to development. Because of that threat, the parish is encouraging development north of I-12.

Additional state roadways are being proposed. Proposed local road improvements in the area include Dixie Ranch Road—Highway 434 to Airport Road via Scenic Drive—and Transmitter Road widening and overlay. The study area also contains St. Tammany Regional Airport. The airport is a ten-hangar facility with upgrades underway, including the installation of new hangars, upgrades to equipment and administrative space, and extension and expansion of the runway.

The few major landowners in the study area include Weyerhaeuser/WREDCo, Edward Poitevent, the Salmen Trust, and the Wadsworth development. Additionally, the parish and its school board own some land there. A large portion of the vacant land in the study area is subject to timber leases and has historically been used as a source of timber farms. The 7,000-acre Salmen Tract, which is held by the trust of the same name, has recently come out of a long-term timber lease. The tract is now being actively considered for development.

Substantial parts of the study area are protected under the Clean Water Act and the waters of the United States regulations. A large percentage of the study area consists of pine savannah wetlands. Thus, any development requires a Section 404 permit from the U.S. Army Corps of Engineers and likely payment of mitigation credits.



*Development taking place in the study area, showing existing terrain and tree canopy cover.*



*Kickoff meeting with the ULI panel, St. Tammany Parish officials, and other stakeholders.*



*Traditional suburban development in the study area. This development's households are near each other but do not have the full benefits of increased density.*



*View of Tammany Trace multimodal trail over the Bogue Falaya in Covington.*

## The Panel's Assignment

St. Tammany Parish has spent considerable time developing a philosophy on resilience. Many grant opportunities have emerged because of multiple storm-related events that affected both the parish and the larger region. Those grant opportunities as well as other funding have provided the parish with the ability to study extensively its south central area, also known as Lacombe. The parish asked the panel to look at its resilience philosophy and the studies completed to date to begin to connect the dots on how projected growth should occur within the study area.

The parish had the following primary questions:

- What are the land use strategies and design recommendations for development in south central St. Tammany Parish?
- How can those proposed strategies and recommendations improve water quality and drainage within the study area?
- What recommended resilience strategies can be incorporated into both the immediate study area and the entire parish?

The panel was also asked to carry out the following assignments:

- Identify the best program for providing the needed stormwater detention in the study area along with water quality improvements. Consider the type of detention that is appropriate for the proposed land uses.
- Examine the need for road improvements or alternate transportation to address increased traffic. Consider the most cost-effective options for implementation on the basis of the proposed land uses and development patterns.
- Consider issues regarding the lack of affordable workforce housing, housing for an aging population, and relocating populations.
- Review and provide feedback on methods for funding the construction and maintenance of regional ponds or other natural systems infrastructure, and local infrastructure necessary in the study area for the proposed uses, and that maximize public and private funding sources, including but not limited to impact fees, property donation, and capital funding program.
- Identify the water quality improvements that the parish should require, request, or encourage property owners to incorporate in the construction of local infrastructure.
- Evaluate the feasibility of a program for water quality credits within the area. Should the parish provide credits for the donation of property for the development of a regional pond or other natural systems infrastructure? Should the parish's impact fee program be restructured with respect to the calculation and use of transportation, drainage, and water quality fees?

# Primary Observations and Recommendations

**THE PANEL DEVELOPED KEY FEEDBACK** and recommendations (more specific recommendations and priorities are included throughout this report).

The panel made the following primary observations:

- **Growth is imminent.** Only the parish can choose whether growth will produce positive change or will slowly erode everything valued within the study area.
- **There are no simple solutions.** The hard work, combined efforts, and search for multiple benefits from a single action (and single dollar) must continue.
- **The economic models of the past are not sustainable or resilient.** Public services need to be priced appropriately and must be a requirement for “harvesting benefits from the parish’s growth.” Concurrently, the parish needs to be more proactive and realistic in using proven tools to fund longer-term infrastructure.

The panel offered the following key recommendations:

- **Collaborate and cooperate for a consistent economic development strategy.** Redesign a coordinated economic development program at the local and regional levels, tied in to the greater southeastern Louisiana region but that shows a clear vision for St. Tammany Parish and a unique identity for the “Northshore.”
- **Refresh the vision and update the comprehensive plan.** A modernized and progressive code with a clearly articulated vision for the parish’s development is a win-win for the parish, the developers, and the community. It will bring predictability, reduce uncertainty, ensure consistent application of the process, and articulate expectations for development.

- **Master plan the study area as a pilot and model for resilience.** Use the south central study area as a model resilient corridor/community by developing a vision and zoning overlay that elevates natural systems, integrates economic development, and innovates for compact development and stacked benefits.
- **Develop a portfolio of transportation solutions beyond building roads.** Reduce automobile dependence by better using the existing ride-sharing lots, by incentivizing the largest employers in the region to change commuting behaviors, and by accommodating growth in a series of new town centers with walkable day-to-day services.
- **Deliberately create a range of housing choices.** In the long-range planning efforts, include a variety of housing types and densities and focus density near jobs to increase housing affordability. The parish is increasingly becoming unaffordable, which is decreasing the area’s resilience and overall quality of life.
- **Implement the water quality improvement plan as part of a holistic strategy to address water in St. Tammany Parish.** Integral to implementing the recommendations of the St. Tammany Parish Watershed Management Study is the development of a St. Tammany water quality improvement program.
- **Implement new funding strategies for necessary services.** Leverage new growth to fund and improve outdated and fragmented infrastructure through political and community leadership. Those who benefit must pay their fair share.

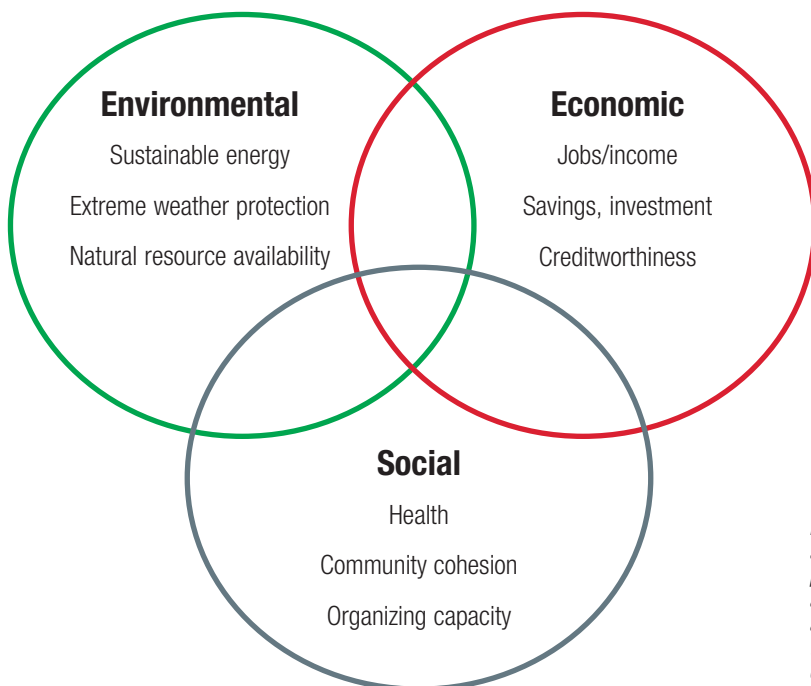
# Overview: The Need for Resilience

**EARTH'S CLIMATE IS CHANGING** in unpredictable ways. The warmer atmosphere and higher sea levels combined with extreme weather are affecting coastal and inland communities alike. Continuing as normal is no longer possible. Resilience can take on different meanings and connotations depending on specific circumstances. Communities face different risks, face those risks in different degrees, and face risks with differing capacities to adapt.

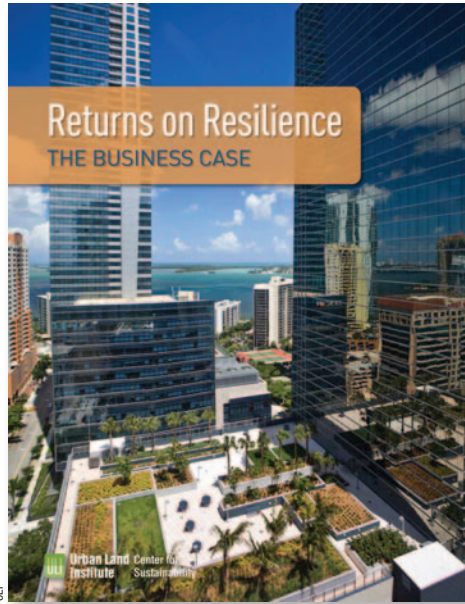
Generally, resilience is viewed as an ability to return to normal after a shock or stress. However, ULI has looked to expand this perspective—to view shocks and stresses as opportunities for a community to bounce forward. Resilience involves three interrelated and inextricably linked aspects: economic, environmental, and social. Those connections are especially critical for communities that stand to suffer the most from the effects of climate change.

More often than not, residents of those 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.

While this report was being drafted, severe rainstorms struck St. Tammany Parish with rainfall totaling nearly ten inches over several hours and hitting some isolated areas as fast as three inches per hour. Those storms caused historic flooding on the Bogue Falaya, Tchefuncte, and Bogue Chitto Rivers. More than 140 roadways were closed, 17 damage assessment teams were formed, and St. Tammany Parish President Pat Brister had to remind residents, “Just because you didn’t flood in the past, doesn’t mean you won’t flood this time.” That flooding highlights the need for resilience.



*Resilience is a three-legged stool: “the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events.” All parts need to be addressed in order for a community to bounce forward.*



ULI's 2015 report *Returns on Resilience: The Business Case* provides case studies of developers' and property owners' motivation to protect buildings and sites against climate-related threats, as well as their resilience strategies, their design and development processes, and their projects' performance.



Many of St. Tammany Parish's development patterns follow examples offered in ULI's *Resilience Strategies along the Rural-Urban Transect*. This 2015 report uses the transect, a planning tool, to look at strategies for building community resilience and how they vary as one looks across the continuum from rural lands to urban core areas.

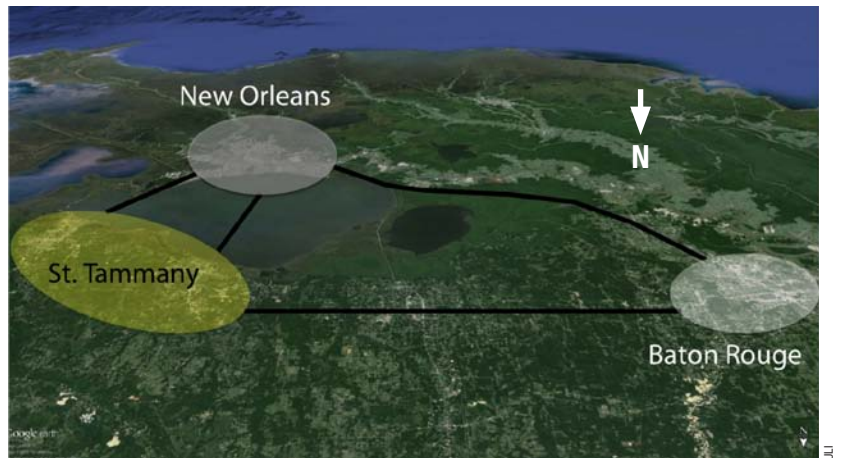
# Creating Economic Resilience

**THROUGHOUT THE PANEL'S CONVERSATIONS** with stakeholders in St. Tammany Parish, it became clear that the parish was experiencing growing pains related to its governance and built environment. These growing pains require difficult questions to be asked (and answered) that will set the parish's future course and by extension the course for future generations. Once a predominantly rural community, St. Tammany Parish has over the past two decades become increasingly suburbanized; if growth trends continue as expected, the transformation will undoubtedly continue.

The overarching question is what form that growth will take. An overwhelming majority of stakeholders told the panel that they do not want more unchecked, unplanned suburban development. Achieving a different outcome will require a change in how the parish manages the development process. There is precedent for such change in the parish itself: the decision to undergo the difficult process of converting from the old Police Jury system to a home rule charter. The citizens and administration realized that the parish had outgrown its old form of government because it inadequately addressed the issues that confront its dynamic, changing environment. So they did something about it. In the same way, deciding to plan for—instead of reacting to—growth is a way to control growth proactively instead of giving it the control.

## The Parish's Role in the Region

The two major population centers of New Orleans and Baton Rouge are the anchors of the state, and the panel thinks that the parish, and the Northshore as a whole, should not aspire to become a third. However, the Northshore—including the parish—has an important role to play in the region's need to address pressing resiliency issues, a role that has changed with new and forecasted



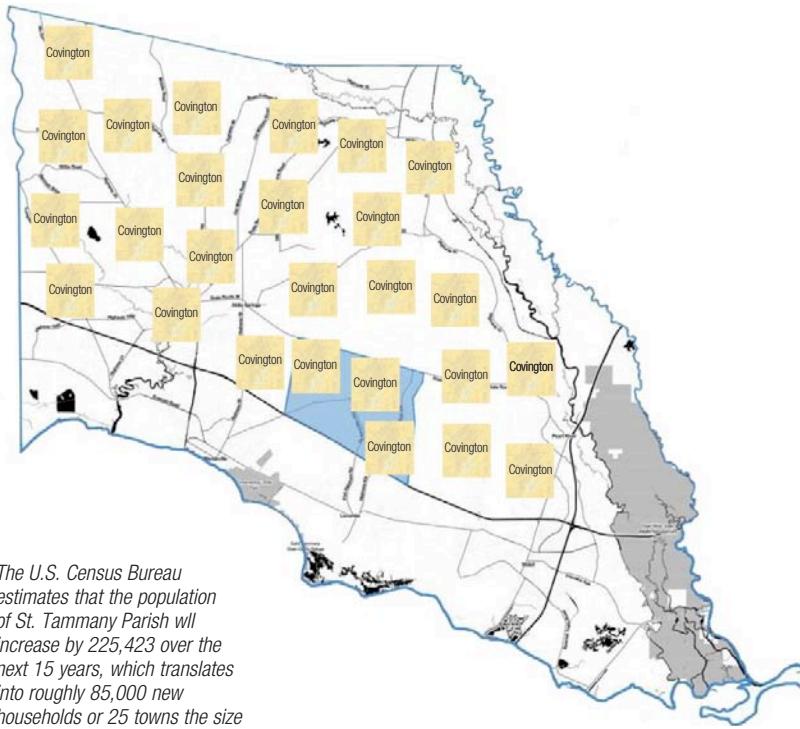
changes in the climate. Clearly, the parish wishes to be more than a bedroom community or just an escape route from New Orleans and the South Shore. Instead, the parish can be a subregion with its own character that both distinguishes it and makes it an indispensable part of southeastern Louisiana.

As St. Tammany Parish is already finding, it can be a destination for jobs and industry that seek to remain in the region but migrate to a different environment. To this end, the parish could, with careful management, reinforce its current advantages and position itself as a center of excellence that is different from its southern neighbor New Orleans, stressing a lifestyle centered on small communities with character, excellent schools, access to recreation, and other attributes. It can also capture businesses and residents who may have become uncomfortable with what is perceived as a vulnerable hazard area closer to the south. They might otherwise leave the region completely unless a viable local alternative can be found.

*The regional triangle illustrates the role St. Tammany Parish plays in the regional economy through its equidistance from New Orleans and Baton Rouge.*



ULI PANEL CREATED FROM A VARIETY OF SOURCES



The U.S. Census Bureau estimates that the population of St. Tammany Parish will increase by 225,423 over the next 15 years, which translates into roughly 85,000 new households or 25 towns the size of Covington.

## Growth Projections and Land Consumption Implications

The U.S. Census Bureau projects that St. Tammany Parish's population will almost double in the next 15 years. Many interviewees thought that projection too high, but it is not difficult to imagine how it—or an even greater one—could materialize. Even if actual growth is not that

high, or the time frame over which such growth will occur is much longer, population growth in the parish is clearly going to continue.

The changes that come with increased population—in demographics, land use, traffic patterns, and the need for services, among others—will have a huge effect on land consumption in the parish. An increase of 225,423 people translates into roughly 85,000 new households, equivalent to 25 towns the size of Covington. Under current development strategies, that growth would consume about 50 percent of available land for future development.

At the same time, new and continuing constraints on land use have imposed greater limits on how growth occurs: the storm-based redlining of land south of I-12, increasingly expensive restrictions on the use of wetlands, and the choke points of water and sewer infrastructure and roadways. The challenge is to maintain the Northshore's character while addressing these pressure points comprehensively. The panel learned that residents think it will be possible—though difficult—to do that while retaining what they like about St. Tammany Parish. By better using smart-growth techniques and slightly increasing density, there is more opportunity to grow in a more sustainable way: “villages-in-the-woods.” Under this strategy, only 6 percent of available land for future development would be consumed. (See table below.)

### Growth Consumption Calculation

	Parish total acres	Already urbanized in acres <sup>a</sup>	High protection lands <sup>b</sup>	Available for future development	Units per acre	New development for 85,000 units	% of remaining acreage consumed
Trend approach	546,560	123,814	189,000	233,746	0.71 <sup>c</sup>	119,000	50.9
Village-in-the-woods strategy	546,560	123,814	189,000	233,746	6.00 <sup>d</sup>	14,167	6.1

a. Source: Design Workshop calculation using National Land Cover Database data.

b. Source: Design Workshop calculation based on Trust for Public Land Greenprint study.

c. Calculated by dividing already urbanized area by total existing units of 88,000 per briefing book.

d. Estimated gross density within development areas. Note that this is still below the industry standard of eight units per acre for minimum level of sustainable development.



The ULI panel forming recommendations.

## Leadership and Connection

The panel applauds the parish's determination to maintain its own distinct identity within the region. Its self-reliance and independence are deeply embedded in its culture. That factor has created a friction point as the desire for autonomy at the personal and local levels sometimes conflicts with the effects of in-migration and growth, as the Northshore is inexorably becoming more integrated into the regional economy and culture. There is no question that the parish has long been codependent with the greater region; the current struggle seems to be finding equilibrium between independence and reliance on (and contribution to) the greater southeastern Louisiana region.

Recognizing that accommodating the kind of growth anticipated for the region is certain to be controversial no matter what the approach, it is critically important that government take the lead in this outreach, which requires strong political will and perhaps a bit of risk taking. The good news is that the parish is already a recognized leader in that regard—the presence of the panel is only one instance of the calls to action. Now, the parish has the chance to further engage in best practices to extend its lead. The examples set here will very likely be emulated in other regional parishes that are not nearly as far along as St. Tammany Parish.

## A Focus on Economic Development

St. Tammany Parish has an identity that is uniquely Northshore. If it manages its growth wisely, the parish

can maintain that identity, which makes it an attractive choice among those available in southeastern Louisiana for residents and businesses. A strong, singular identity represents a strong, singular marketing opportunity for the parish. Essentially, that marketing opportunity amounts to branding, which can be a compelling asset in economic development.

The panel learned, however, that current economic development on the Northshore is scattered among multiple small private efforts that are not well coordinated. Bringing together those disjointed economic development efforts into a united cooperative effort will yield many benefits, particularly if they are further coordinated at multiple levels: local, regional (i.e., the Northshore parishes), and metaregional (i.e., southeastern Louisiana). This task is clearly best initiated by local government, which has the ability to tap into higher levels of organization—up to the state and national levels—and to provide a venue for many disparate stakeholders to collaborate. The goals of the economic development program can focus on jobs and industry, of course, and should work with an eye toward enhancing the area's economic and social diversity. Regions with diverse live/work/play environments do the best job of attracting the workforce of the future, at all income levels.

## Recommendations

The panel recommends the following:

- Take a long-term view for accommodating growth. Consider various timescales, including five years, ten years, 50 years, and 100 years. The parish is building a place where its residents' children and grandchildren will be able (and *want*) to live.
- Redesign a coordinated economic development program at the local and regional levels, tied in to the greater southeastern Louisiana region.
- Ensure that government takes a strong lead in this effort, which will entail many hard decisions that will inevitably not please everyone.

# Tools for a Resilient Future

**ONCE A BEDROOM COMMUNITY** and now the fastest-growing parish in the state, St. Tammany Parish is at a crossroads in its development to address resiliency in its broadest form. The parish has an opportunity to leverage anticipated growth to create sustainable development patterns that learn from the past and proactively set the future. This approach could be not only a parish-wide model, but also a model within similar communities across the Gulf Coast states. At the center of the three elements of resilience—economic, social, and environmental—is land use. Land use and development decisions should be made in ways that enhance the three elements simultaneously in order to ensure stacked benefits.

Although St. Tammany Parish has many positive aspects with regard to resilience and forward thinking, the panel observed that resilience was being used as “an end to a means” to secure additional grant dollars and funding. However, if resilience is not looked at comprehensively and in terms of how it fits into every aspect of parish-wide decisions, the potential exists for further growth that is inconsistent with the quality of life that the parish currently offers.

Over the long term as the climate continues to change, there will be more extreme weather and sea-level rise. That factor will make it more difficult to live in New Orleans, Slidell, and other areas within the parish south of I-12. Now is the critical time to engage with the community to build a comprehensive vision and plan to ensure that all of the parish’s hazard mitigation, development, and infrastructure plans and policies help build resilience. In addition, development should be limited south of I-12.

Managing future growth patterns can provide one answer, as can the path that is taken to implementation. Within the parish, establishing a process that is transparent and

open to all is important. Because not everyone will agree, that transparency can be fraught and maybe even a bit frightening and can take more time. The panel heard from many stakeholders that there is a certain amount of planning fatigue related to planning growth in the parish, which if true will make it difficult to engage a broad constituency.

The consensus is that now is the time to act, and that action begins with establishing a concrete vision and strategy to address the many implications of growth in the parish. For that reason, the panel suggests that outreach take the form not of more planning studies but rather of education and engagement on how and why the decisions to move forward have been made, and by carefully outlining the long-term benefits the parish will realize.

## Master Planning versus Zoning

An unplanned pattern of development leads to high costs, including increased traffic, disjointed infrastructure, land consumption, very few “places” or centers of activity, and strains in affordability. To start addressing those issues, the parish has worked to develop comprehensive zoning; however, that zoning is not a comprehensive or master plan. Zoning is a good first step, but it does not provide the level of development guidance that will help St. Tammany Parish reach its economic development and quality-of-life goals—or the significant natural sensitivities and infrastructure needs.

The parish’s comprehensive plan is now nearly 15 years old and predates the uptick in growth and impacts from the disasters that have occurred over the past decade. There is a need both to get ahead of future development and to “catch up”: to ensure that the wealth of planning and technical work completed does not stay on the shelf. Doing so will provide a key opportunity to articulate the

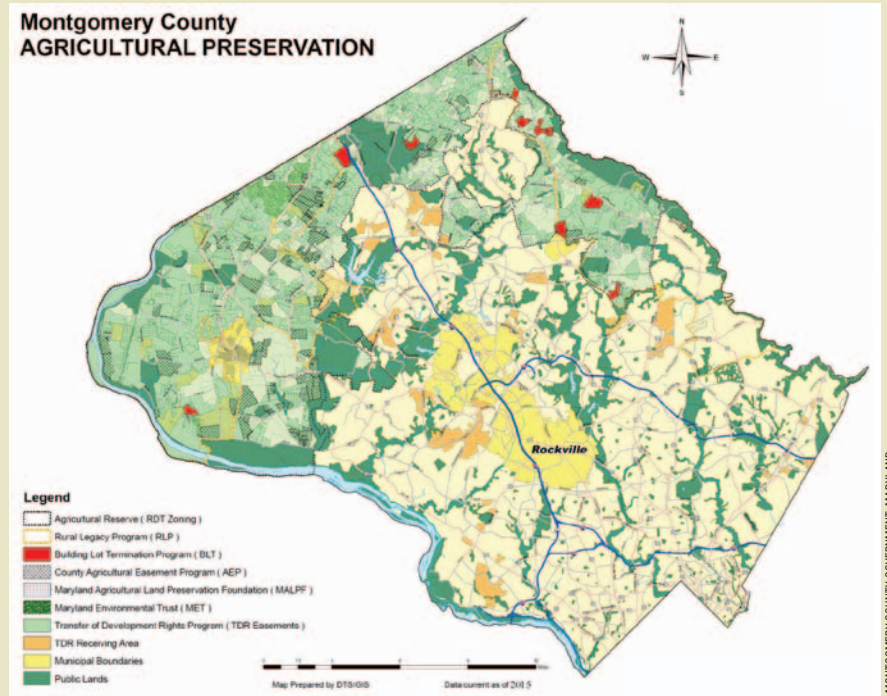
## Montgomery County Agricultural Reserve

Montgomery County, Maryland, which borders Washington, D.C., to the north, has traditionally been home to an agricultural and rural economy. In the 1980s, a third of the county, or more than 93,000 acres, was designated an agricultural reserve to preserve that cultural heritage and wide open spaces.

The agricultural reserve or rural density transfer (RDT) zone downzoned the density within this area but allows a landowner to transfer one unit per five acres to another portion of the county that is designated as a growth area. That transfer of development rights offsets property or equity loss by being located within the RDT zone. The agricultural reserve has allowed for 85 percent of the land within the RDT zone to be farmed continuously, and 90 percent is preserved under a variety of agricultural land preservation easements and programs.

Over the past 30 years, additional land protections and programs have been established to ensure that even with rapid growth of the metropolitan Washington region, the historic character and the quality of life of Montgomery County is not lost.

To learn more about this program, see Montgomery County Office of Agriculture, "Agricultural Preservation" web page, [www.montgomerycountymd.gov/agservices/agpreservation.html](http://www.montgomerycountymd.gov/agservices/agpreservation.html).



MONTGOMERY COUNTY GOVERNMENT, MARYLAND

SWOT (strengths, weaknesses, opportunities, and threats) analysis philosophy to be better able to unify and capture the recommendations of those studies.

Planning is about augmenting the values and highlighting the areas that make St. Tammany Parish a great place. The stakeholder interviews mentioned the quality of life, natural beauty and recreational amenities, safety, and good-quality schools. Looking back at the completed studies also presents the opportunity to develop a new vision for St. Tammany Parish, to update the comprehensive plan, and to develop a modernized and progressive code. A modernized and progressive code and a clearly articulated vision for the parish's development are a certain win for the parish, the developers, and the community and will provide predictability, reduce uncertainty, and ensure consistent application of the process and articulated expectations for development.

## Recommendations

The panel recommends the following:

- Limit development south of I-12 and encourage development north of I-12 within the study area.
- Build on the update of the Unified Development Code, and survey the existing plans to consolidate key recommendations; initiate a vision framework for a resilient future.
- Create guidelines for major corridors of the public realm that support placemaking, and set sustainability goals that are responsive to both resiliency and the rural context and heritage.
- Conduct a lessons-learned evaluation of at least two recent large-scale developments with a resiliency/SWOT analysis lens.

# The Path to Neighborhood Resilience

**ST. TAMMANY PARISH** has the opportunity to build on the historic principles of its historic towns and villages, such as Slidell, Madisonville, and Covington, to enhance its placemaking efforts for the future. Such enhancement is the most appropriate response to the tremendous growth the area is confronting, because it will build the long-term value and diversity that the parish seeks. By focusing on building good, walkable neighborhoods that enhance opportunities for diverse social interaction, the parish will be better able to promote public health and foster economic development by creating a public realm that is currently lacking in the community, except in certain isolated locations.

To build that public realm, the parish should follow the examples of success from Covington and other places:

- For streets and other public spaces—shared spaces that accommodate diversity and promote social interaction—ensure that all new roads function as complete streets that organize urban neighborhood grid networks, including sidewalks and street trees, and that organize homes and workplaces into interconnected towns and villages.
- Use water as a connection. Historic landings and river access systems can be used as models for extending bike, boat, and pedestrian networks into new areas of the parish, further connecting the disparate neighborhoods.
- Use the model of previously successful traditional neighborhood developments like TerraBella, but expand on them by increasing their mixed-use nature, including workplaces, in the neighborhood design to create stronger local connections, to foster walking and reduce automobile dependence, and to promote public health.

- Use native flora and fauna, such as cypress or longleaf pine, within tree buffer areas.



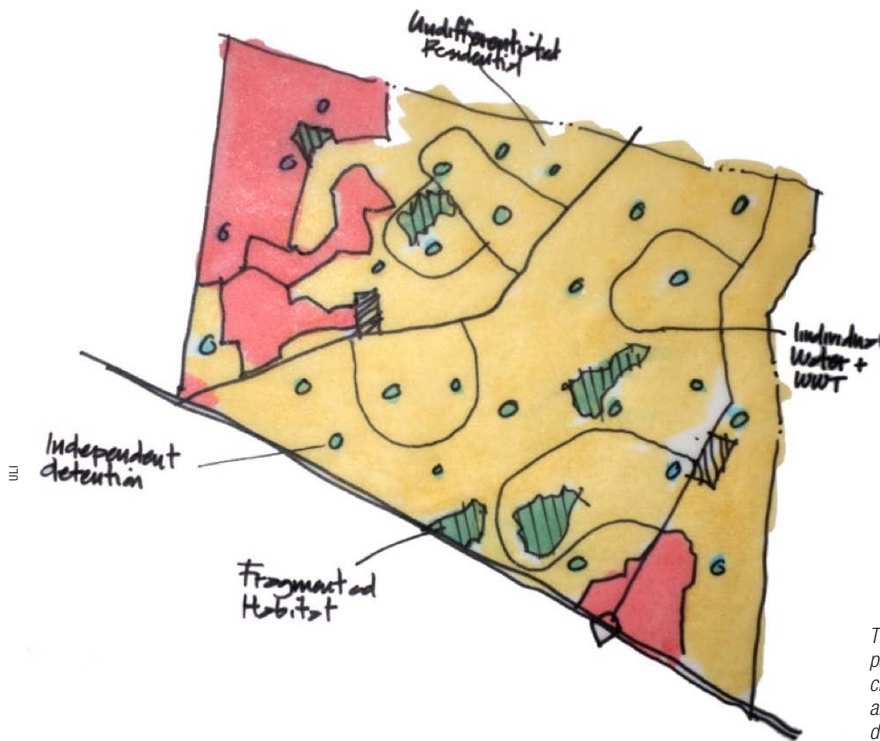
*Big Branch Bayou near the study area.*



*Covington, Louisiana, side street that could be a model for village-in-the-woods development. The trees help manage stormwater and improve water quality.*



*A strip development such as is common in St. Tammany Parish. Future development should be more walkable to help encourage fewer car trips.*



*The current development pattern in St. Tammany Parish creates fragmented communities and exacerbates existing development challenges.*

The study area can become a model resilience corridor/ community by better developing a vision and zoning overlay that elevates natural systems, integrates economic development, and innovates for compact development stacked benefits.

## Alternative Development Scenarios

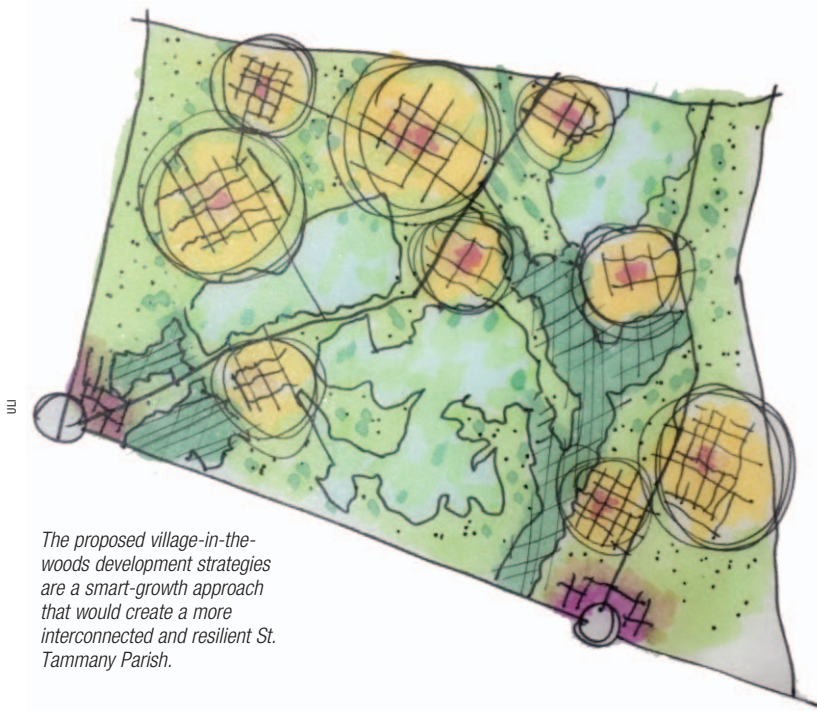
There are two paths that St. Tammany Parish can take while looking at future development. The parish could either continue to use the conventional development pattern per the existing zoning or better incorporate the historic and traditional principles of the parish's past with creating a village-in-the-woods development pattern.

### Conventional Development Pattern per Existing Zoning

Per the parish's existing zoning, the study area would be largely developed as continuous, undifferentiated single-family subdivisions with large pockets of industrial and commercial development at the periphery. This develop-

ment pattern has several disadvantages that limit the parish's potential:

- It results in a fragmented and disconnected system of natural habitats that will not promote ecological health.
- Wetland mitigation will be difficult, if not impossible, to achieve, given current U.S. Army Corps of Engineer regulations.
- A dispersed and individualized system of stormwater detention ponds will be hard to manage and maintain over the long term.
- Individually developed and managed water and wastewater systems will pose similar challenges to long-term water and wastewater management.
- Current traffic and transportation challenges of single-use, disconnected development are exacerbated.
- There is no enhancement or development of the public realm of the parish.



*The proposed village-in-the-woods development strategies are a smart-growth approach that would create a more interconnected and resilient St. Tammany Parish.*

**Village-in-the-Woods Neighborhood Alternative Development**

An alternative, smart-growth approach to development will present numerous advantages over the conventional development pattern:

- It will enhance storm resilience by using the natural infrastructure of streams, wetlands, and waterways as an integral part of the overall stormwater management system.
- It will increase development potential for the greater site by managing these issues holistically.

- More focused, mixed-use development patterns will promote public health through walkable/bikeable neighborhoods by creating an interconnected street and road network that will reduce traffic demands.
- It will establish a new character of the public realm that encourages public interaction and social diversity through the physical form of the neighborhoods.

**Recommendations**

The panel recommends the following:

- Build community support for preservation of natural resources and climate adaptation.
- Extend multimodal connectivity throughout the parish. For example, the Tammany Trace multimodal trail could be extended throughout the parish to provide additional mobility options for residents.
- Use the south central study area as a model resilient corridor/community by developing a vision and zoning overlay that elevates natural systems, integrates economic development, and innovates for compact development and stacked benefits.
- Build on the existing urban fabric of historical places for infill development, mixed-use communities, and place-making.

# Developing Mobility Resilience

**MANY TIMES THROUGHOUT** the panel's interviews, traffic and congestion were considered the Achilles' heel to growth. More than just hearing these concerns, the panel experienced firsthand the challenges of peak rush-hour traffic and congestion in the morning and evening.

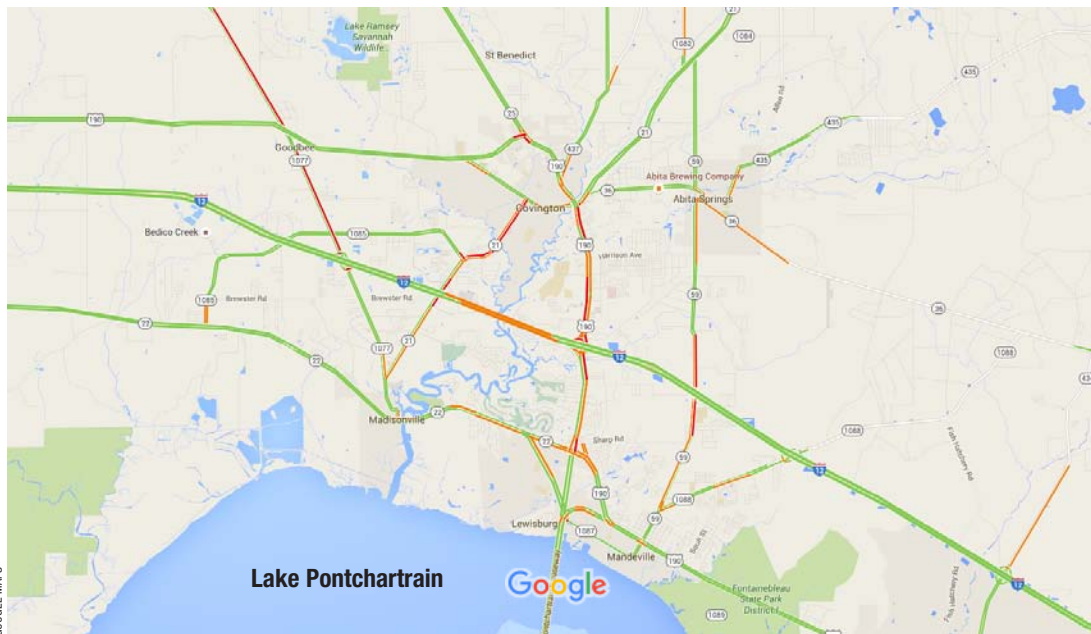
Traffic bottlenecks, congested intersections, and gridlock are not unique to St. Tammany Parish. Across the country, many places that have grown rapidly and in relatively unbounded landscapes are now experiencing considerable transportation challenges. Although the problem is most visibly manifested in long waits at traffic lights or increased commute times, the solution cannot be found in a one-line response.

One axiom about traffic and roadways, gathered from experience around the country, is *wider roads only bring more traffic*.

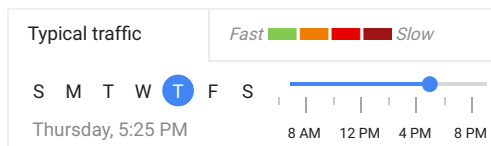
Although adding more lanes may offer some temporary relief, the mobility challenges facing St. Tammany Parish are multifaceted and require a longer-term shift in strategy and thinking. The path to mobility resilience includes a range of techniques, many of which are identified in other sections of this report.

## Mobility Is Quality of Life

The panel recognizes that in the near term these solutions will not resolve the immediate challenge many face in



Typical traffic congestion on a weekday at 5:30 p.m.





today's automobile-dominated parish. The region needs additional north–south connectors and increased vehicle mobility to strengthen day-to-day access—as well as to improve resilience in times of evacuation or emergency. But any future road planning must be done holistically and with an eye toward balance and stacked benefits. One dollar invested in pavement must provide two or three times its cost in wide community benefits for resilience: economic, social, and environmental.

The panel believes the answer lies in part in redefining the basic building blocks of development, and in so doing changing the distances that parish residents (and nonparish residents, for that matter) must travel to accomplish their day-to-day tasks. This approach proposes to create multiple new “small-town nodes” or villages-in-the-woods in new development areas such as the study area, connected by roads, trails, and, eventually, small-scale public transport (or even driverless cars!). Because each of those nodes would contain everyday services within walking distance of their centers, the number of daily vehicle trips could be reduced and the pressure on roadways imposed by heavy cross-parish trips lessened. This approach depends on a very long-term view of what the parish will look like when those 85,000 households have been added.

Mobility networks are not just a transportation strategy; they are an economic development strategy. Today's high-quality employers are going where the talent is, rather than the talent going where the jobs are located. And those talented people want opportunities to work and have a quality of life where they do not have to drive long distances and where they have access to alternative transportation.

Shifting away from sole reliance on the automobile requires first understanding that the “road you are on will not end well.” Leaders, their staffs, and the community must work together to commit to a nuanced, layered, and diligent process to build—over a decade or two—a connected mobility network. That mobility network is vastly different from a road or transportation network. St. Tammany Parish has a significant opportunity to create a unique language of walkways and trails that define the parish as forward

## “Need a Bike? Carmel's Got an App for That”

In April 2015, Carmel, Indiana, an Indianapolis suburb, contracted with Zagster to provide a flexible bike-sharing program to better connect the downtown, arts district, Monon Greenway rail trail, and neighborhood parks. Initially, the program began only in Carmel with two docking stations and 22 bicycles (six adult tricycles) but in the last year has grown to two additional cities with nine stations and 70 bicycles (eight adult tricycles). Even with a small startup and the winter season, nearly 3,000 rides have been made, and over 1,600 new members have joined. The bike-sharing program is designed to promote recreational and “bike tourism,” but it also helps those who live and work near a docking station. The city estimates that a majority of the rides generated would not have occurred had the bike-sharing program not been in place.

Zagster, a Cambridge, Massachusetts, company, manages the program and leases the equipment to Carmel. The city pays Zagster \$1,300 per year per bicycle and a one-time fee of \$8,600 to set up the docks and equipment. The cost for the user is \$3 an hour with a limit of \$24 for 24 hours. Memberships can be purchased that allow a user to ride for less than an hour without being charged (\$15 per month or \$75 annually). A bike lock is included with each rental so the bicycle does not need to be docked if the rider wants to stop at one of the many community businesses.

For more information about Carmel, Indiana's bike-sharing program, visit [www.carmel.in.gov/index.aspx?page=514](http://www.carmel.in.gov/index.aspx?page=514).

thinking and committed to a tangible expression of what makes it a different, unique, and good place to settle.

If successful, St. Tammany Parish can retain, and likely improve, its quality of life. The parish will also strengthen community health and resilience and reduce long-term maintenance costs and the environmental impacts associated with a region dominated by asphalt and cars.

## Recommendations

The panel recommends the following:

- Create more live/work/play environments where, ideally, people can walk to at least one or two destinations daily and can travel short distances when they drive.
- Strategically attract and locate more jobs within the parish that provide appropriate levels of household income and career growth, thereby minimizing long commutes across the bridge to New Orleans and across the parish.
- Require more fine-grained land use mixes through proper planning and zoning to bring live/work/play components into proximity of one another.
- Increase opportunities for non-single-car transport by encouraging and supporting the expansion of third-party ride-sharing, bike-sharing, and on-demand driver programs, such as Lyft, Uber, BCycle, and Zagster.
- Think generationally when designing neighborhoods and road networks, so rubber-tire multimodal transportation options can operate efficiently when the community is ready.
- Work diligently to expand pedestrian and bicycle alternatives to vehicular travel. For example, continually expand the success of the Tammany Trace and require integrated, connected pedestrian networks in new developments that link the population and destinations but that are appropriate to the rural character of St. Tammany Parish.

# Building Social Resilience

**THE ST. TAMMANY PARISH COMMUNITY** is an attractive place with several often-cited positive factors, including overall quality of life, good educational opportunities, safety, and the strength of its residents. Although the quality of life is an overarching theme, it includes abundant natural beauty and outdoor recreational opportunities.

St. Tammany Parish also has a highly regarded public school system that draws new residents, particularly families with small children. New investments have shown a dedication to expanding education, including the construction of Northshore Technical Community College, which focuses on science, technology, engineering, and mathematics, and a planned advanced technology high school. Safety—in both the lack of crime and neighborhood cohesion—is cited as a point of pride in the community as well. Finally, the strength of individuals in the community against adverse challenges is another point of pride. There is a spirit of cooperation in the parish, of coming together and pulling through after natural disasters.

Although St. Tammany Parish has been perceived as a wealthy suburb of New Orleans, part of the community has urgent needs. According to the St. Tammany Parish Department of Health and Human Services, changes in demographics, including growing diversity and a larger aging population, will increase those needs in several areas.

Poverty in the parish reached 14 percent in 2012, with child poverty at 20 percent. Affordable rental housing is also scarce, creating hardships for young families starting in the community and also for the workforce, largely concentrated in the public sector, retail, and health care. The dependence on automobiles as the sole form of transportation to needed services exacerbates these issues, as the vulnerable residents of the community are often those without access to vehicles or the ability to use bicycles on the parish's multimodal Tammany Trace trail.

*ULI's Building Healthy Places Initiative highlights 21 tasks to improve the physical activity, food, water, environment, and social health of a community.*

*More detailed examples can be found in ULI's Building Healthy Places Toolkit.*

**PHYSICAL ACTIVITY**

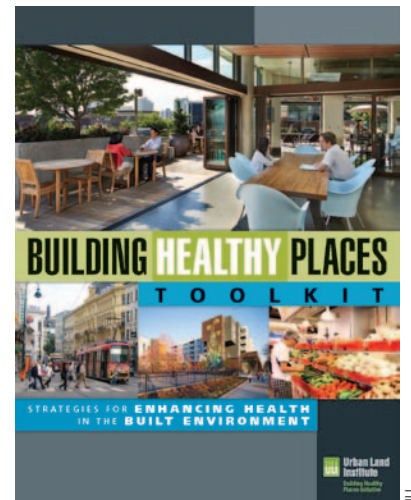
- Incorporate a mix of land uses
- Design well-connected street networks at the human scale
- Provide sidewalks and enticing, pedestrian-oriented streetscapes
- Provide infrastructure to support biking
- Design visible, enticing stairs to encourage everyday use
- Install stair prompts and signage
- Provide high-quality spaces for multigenerational play and recreation
- Build play spaces for children

**HEALTHY FOOD AND DRINKING WATER**

- Accommodate a grocery store
- Host a farmers market
- Promote healthy food retail
- Support on-site gardening and farming
- Enhance access to drinking water

**HEALTHY ENVIRONMENT AND SOCIAL WELL-BEING**

- Ban smoking
- Use materials and products that support healthy indoor air quality
- Facilitate proper ventilation and airflow
- Maximize indoor lighting quality
- Minimize noise pollution
- Increase access to nature
- Facilitate social engagement
- Adopt pet-friendly policies



## Built Environment and Health

As it grows and changes, St. Tammany Parish has opportunities to affect the health and wellness of its existing and future residents through careful planning and design. Increasing evidence correlates health with the built environment. At the scale of individual homes and neighborhoods to the scale of the larger region, future growth in St. Tammany Parish can have a positive influence on health.

Building on the parish's existing assets, including its natural open space and quality of life, while addressing growing concerns related to housing and transportation, a coordinated community health effort could leverage funding while providing a metric for success. Individual and community health issues in the parish include obesity, diabetes, and related chronic diseases, as well as mental health issues related to depression, anxiety, and suicide. Lifestyles driven in part by land use patterns contribute to poor health, creating a lack of mobility and traffic congestion and discouraging healthy alternatives to transportation, such as walking and biking. Fragmented, undifferentiated development can exacerbate physical and mental isolation, which creates risks in times of disaster.

A critical path to building resilience can be addressed at the natural intersection of health and the built environment. St. Tammany Parish has successfully begun to invest in mental health services and should continue to be proactive in this area. The parish should consider future locations of mental health and other health services in relation to the most vulnerable populations. Recreational amenities such as the Tammany Trace contribute to positive health outcomes, and future recreational planning should provide outdoor access with a broader connected network of paths, trails, and open space. Incorporating resilience planning and placemaking through the natural and built environments is an opportunity to enhance everyday lifestyles and health while planning smartly for disaster events.

## Housing Choices

Housing choices are currently limited in St. Tammany Parish, creating a key area of opportunity for improvement

in the community. Fifty-two percent of the housing stock was built after the 1990s and comprises predominately large-lot single-family homes in limited-access residential subdivisions. The focus on single-family homes has led to a situation where available rental opportunities are more expensive than owning a home. That factor puts St. Tammany Parish out of reach for young families who want to buy their first home, many of whom have critical jobs in the parish, such as in government or health care.

Moreover, in such a housing environment, a single crisis such as a job loss can quickly leave a family with children homeless, which is a real concern within the parish. About 1,100 of the 38,000 school-age children in St. Tammany

## Park Prescriptions

In Washington, D.C., pediatricians have begun prescribing park time. An inventory of District-wide parks was created to provide health care professionals with a tool to show which parks to prescribe near where children live. This inventory has the potential to influence future park planning. (See ParkRx website, [www.aapdc.org/prx/](http://www.aapdc.org/prx/).)

**Joseph E. Cole Park/Wheatley Ed. Campus**

**National Park Service**

**PARK GRADES:**  
**Cleanliness: A**  
**Accessibility: A**  
**Activity Level: High**

1299 Neal St NE  
 Washington, DC 20002

**CONTACT INFORMATION:**  
 (202) 344-3800  
**HOURS:**  
 8AM - sunset  
**Pets:** Not Allowed

**GETTING THERE:**  
**Metro:** 17 minute walk from New York Avenue Metro (green and yellow lines)  
**Bus:** 8 bus stops within 2 block radius:  
 NE Monetta Av & NE Neal St  
 NE Florida Ave & NE Monetta Ave  
 NE Monetta Av & NE Owen Pl  
 NE Trinidad Av & NE Neal St  
 NE Florida Ave & NE 12th St  
 NE Florida Av & NE 13th St  
 NE K St & NE 12th St  
 NE Florida Ave & NE Trinn

**Parking:** street, limited

**SPECIAL FEATURES:**  
 Fountain, Great playground

**Things to Do!**  
**Play basketball, soccer, run on the track!**

**SPORTS AMENITIES:** Basketball Court, Soccer Field, Track, New basketball courts (2), new soccerpen field (turf), new playground equipment (2 areas—one for older children and one for younger)

**PLAYGROUND:** Very clean playground in good condition

**PATH** Difficulty Rating: **Easy (one foot)**  
 Path (2 - 4 ft wide, About 1 mile; concrete (only good for walking or running) long) has a Flat/Gentle slope.  
 Loop Paths are clean and in good condition.

**Park Information**

**Restrooms:** No restrooms available

**Drinking fountains:** No drinking fountains available

**SIZE** - Larger than football field

**SAFETY:** Lighting, Perceived to be safe in daytime

**PARK EXTRAS** - Benches, picnic tables, and trashcans all available

**AESTHETICS** - The park is barely shaded by trees and buildings. Very new, very clean. In a fairly quiet neighborhood.

AMERICAN ACADEMY OF PEDIATRICS DISTRICT OF COLUMBIA CHAPTER, PARK RX

*A description of the Joseph E. Cole Park/Wheatley Education Campus found through the Park Rx search includes park grades and a list of park amenities.*

St. Tammany Parish, Louisiana, December 6–11, 2015

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*The Groves is an affordable housing development in St. Tammany Parish. Increased housing diversity is needed to ensure that the parish remains economically resilient.*



Parish have faced homelessness, and 48 percent of all school-age children receive free lunches at school. Current services, such as the short-term voucher system for hotels and programs that lend tents to the homeless, are insufficient to meet the urgent need of those families.

Longer-term solutions to the affordable housing crisis require a new land use pattern for the future. An increase in density in key areas, those closest to jobs, will increase the type of housing choices available to the St. Tammany community. Housing choice in a community is critical, as it allows families to start small, increase in size with children, and then shrink again after children move out and start their own families. A greater mix of densities and housing types, placed closer and more accessible to jobs, will help reduce individual transportation costs and community-wide traffic and will increase housing affordability.

Furthermore, by creating additional housing options, communities become more resilient. For example, the Cleveland Clinic in Cleveland, Ohio, is working with surrounding neighborhoods to provide workforce housing. Employees can walk to work, which increases their ability to quickly respond in an emergency and contributes to their everyday lifestyle.

## Aging Population

The panel heard from many stakeholders about their desire to accommodate the growing senior population, including the ability to keep elderly parents nearby. Additionally, like many communities across the country, the aging baby boomer generation will create the need to plan for this population. In a disaster, land use conditions exacerbate mobility options,

disproportionally affecting senior citizens. Keeping seniors as an active part of the community is good not only for their own health but also for the greater good of the community and its families. The parish should plan for easily accessible daily services and consider the location where these populations should live in relation to services. Ideally, that area should be outside of an immediate evacuation zone. Successful plans in other communities have engaged seniors in disaster planning to ensure that they have the knowledge that they and their families need to respond in a worst-case scenario.

## Recommendations

The panel recommends the following:

- Increase the number of affordable and workforce housing units within St. Tammany Parish. The parish is becoming increasingly unaffordable and will likely continue to be unless additional housing options are created. More affordable options can increase the quality of life for all residents, especially seniors and those with families.
- Focus on reducing parish-wide obesity. Although St. Tammany Parish is considered the healthiest parish in Louisiana, the state is one of the least healthy in the nation according to the Robert Wood Johnson Foundation.
- Align future transportation planning with the most vulnerable populations in mind, and seek ways to improve the service provided by COAST (Council on Aging, St. Tammany) to ensure that its program is self-sustaining.
- Increase social cohesion. Knowing one's neighbors and having places to congregate are critical factors, since in many cases neighbors respond in a crisis before the first responders arrive.
- Encourage physicians to discuss mental health at every primary care visit. Suicide in St. Tammany Parish occurs predominantly among wealthier white males, but trends identified by the Department of Health and Human Services show an increase in the number of women committing suicide. Disasters typically have a two-year lag; plan for getting ahead of the problem immediately after a disaster occurs.

# Fostering Environmental Resilience

**ST. TAMMANY PARISH IS HOME** to numerous scenic rivers, streams, and bayous. One of the overarching themes stemming from the interviews with the parish stakeholders can be summed up in one sentence: “St. Tammany Parish equals water.” This theme was reinforced during the panel’s tour of the study area. The panel reviewed a number of documents dealing with water in the parish, including the South Central Study Area Plan (2011), the St. Tammany Parish Watershed Management Study (2014), the outline of a water quality improvement program for St. Tammany Parish (2015), and the Drainage Impact Fee Study for St. Tammany Parish (2012).

The panel endorses the recommendations of the St. Tammany Parish Watershed Management Study, which addresses overarching study area issues, especially those questions the panel was asked. The framework and issues regarding “water” can be divided into four categories: (a) natural water, (b) stormwater, (c) wastewater, and (d) potable/reclaimed water. Natural water and stormwater quantity is a constraint or concern, whereas the major issues with wastewater and potable/reclaimed water are quality related. For St. Tammany Parish to address water issues, they cannot be isolated.

The recommendations in chapter 7 of the Watershed Management Study report addresses both water quantity and quality in St. Tammany Parish. Those recommendations include changes to local wastewater and drainage ordinances; implementation of a number of regulatory changes, including the adoption of the Louisiana Department of Environmental Quality’s Outstanding Natural Resource Program; and participation in the department’s ecoregion-based use attainability analysis revised dissolved oxygen criteria.

Integral to implementing the recommendations of the St. Tammany Parish Watershed Management Study is the development of a water quality improvement program for St. Tammany Parish. That program is still being developed. Any decisions relative to wastewater, stormwater, and conservation and any regulatory revisions should carefully consider the information in these studies that have been undertaken on behalf of the parish. The panel encourages a subsequent review of the South Central Study Area Plan by any consultant the parish hires to implement a water quality improvement program. The St. Tammany water quality improvement program is still in outline form.

## Green Infrastructure in St. Tammany Parish

Programs that incentivize businesses and residents to install water management features such as green infrastructure on private property include grants, rebates, and credit programs. By encouraging private sector participation, such programs can help communities install retrofits more cost efficiently and meet stormwater and groundwater goals more quickly. In smaller or more rural developing communities, funding and valuation of green infrastructure can be viewed as a barrier to implementation of an effective stormwater management approach.

There are ways to reduce capital costs and to plan more effectively for long-term operations and maintenance. Reliable benefit/cost analysis helps communities adequately plan for green infrastructure implementation and long-term operations and maintenance. As those programs mature, more data will become available about the life-cycle costs and savings of this approach.

Green infrastructure encompasses many practices that retain runoff on site, from bioretention and green roofs to

## Building a Network to Preserve Natural Assets and Prevent Flooding

Climate change is a major threat to the Houston-Galveston area. In July 2015, the Risky Business Project published a report titled *Come Heat and High Water: Climate Risk in the Southeastern U.S. and Texas*. That report found that by 2050 (a) Texas will have double the days exceeding 95 degrees; (b) about 4,500 additional heat-related deaths will occur annually in the region, with nearly half that increase coming in the next five to 15 years; (c) Galveston will experience a sea-level rise of up to two feet; (d) storm-related losses along the coast will increase by \$650 million per year; and (e) both worker productivity and crop yields will decrease in the Southeast.

To address current and potential future impacts of climate change, local leaders in the Houston-Galveston area came together to complete a green infrastructure and ecosystem service planning initiative for the entire region, since they realized that climate change was a regional problem not an individual community's problem. Originally, the plan began with eight core counties but increased to 13 counties.

Since this area is vast, the plan needed to incorporate multiple types of ecosystems, such as prairies, tidal wetlands, nontidal wetlands, bottomland forest, upland forest, and water bodies and floodplains. Each of those landscapes is connected by a system of linkages or corridors with an effort to identify "high-quality" areas. This effort is believed to be able to increase the region's water quality, air quality, water supply, stormwater management, and flood protection and to help sequester carbon.

The program has public support. In a survey by the Houston-Galveston Area Council, 95 percent of respondents agreed that steps should be taken to preserve the region's wetlands, forests, prairies, and shorelines.

For additional information on this program, see the Conservation Fund's "Ecosystem Services for Houston-Galveston" web page, [www.conservationfund.org/projects/green-infrastructure-plans-for-houston-galveston](http://www.conservationfund.org/projects/green-infrastructure-plans-for-houston-galveston).

porous pavements. Many such practices are detailed in the Greater New Orleans Urban Water Plan ([livingwithwater.com](http://livingwithwater.com)) and rely on the natural processes of infiltration and evapotranspiration and use soils as a filter to treat and manage stormwater and groundwater.

Green infrastructure type, performance requirements, and sizing are important and often-analyzed cost considerations. Communities frequently examine such cost-efficiency metrics as the cost per square meter of green infrastructure, the cost per liter of storage provided, or the cost per gram of pollutant removed. Many local and site-specific factors, such as land value and environmental conditions, can heavily influence costs and make them more variable.

## Low-Impact Design

One option for the study area would be to implement low-impact development (LID) measures. LID is an innovative stormwater management approach whose basic principle

is modeled after nature: manage rainfall at the source using uniformly distributed decentralized microscale controls.

LID's goal is to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source. Techniques are based on the premise that stormwater management should not be viewed as stormwater disposal. Instead of conveying and managing or treating stormwater in large, costly end-of-pipe facilities located at the bottom of drainage areas, LID addresses stormwater through small, cost-effective landscape features located at the lot level. Those landscape features, known as integrated management practices, are the building blocks of LID.

Almost all components of the urban environment have the potential to serve as integrated management practices. They include not only open space but also rooftops, streetscapes, parking lots, sidewalks, and medians. LID is a versatile approach that can be applied equally well to

## Dealing with Stormwater Runoff in Small Cities

In April 2011, Lancaster, Pennsylvania, released its comprehensive Green Infrastructure Plan that offered a vision of providing more livable, sustainable communities and solutions to combat stormwater pollution. The 25-year plan is designed to address the city's billion gallons of stormwater runoff that mixes with raw sewage and flows annually into the Congesta River and eventually reaches the Chesapeake Bay.

The U.S. Environmental Protection Agency began enforcing its limits on nitrogen, phosphorous, and sediment pollution with a \$37,500-per-day fine, so Lancaster needed to act. Because of the high cost of gray infrastructure, the city developed a two-part strategy that increases the efficiency and capacity of existing infrastructure and employs green infrastructure to manage additional stormwater. This green infrastructure approach provides a higher return on investments and provides multiple benefits:

- Environmental—recharges groundwater and provides natural stormwater management, reduced energy usage, and improved water quality

- Social—beautifies and increases recreational opportunities, improves health through cleaner air and water, and improves psychological well-being
- Economic—reduces future costs of stormwater management and increases property values

To fund the plan, Lancaster has a utility structure or “stormwater utility” that allocates the costs of stormwater management and water pollution control on the basis of the amount of impervious surface area on each parcel. This stormwater utility can be lowered if the property owners install green infrastructure to reduce the stormwater runoff of impervious service areas. Some rebates, grants, and credits are provided to property owners since stormwater facilities are being installed on private property.

For additional information, see the city of Lancaster's “Green Infrastructure” web page, <http://cityoflanasterpa.com/business/green-infrastructure>.

new development, urban retrofits, and redevelopment and revitalization projects.

## Green Infrastructure and Water Quality Credits

In many places, the primary driver in a stormwater credit system is Clean Water Act compliance. A water quality credit allows for stormwater retention trading between properties and lets developers comply with new regulations at the least cost. Pilot programs involving state and federal regulators will allow “green infrastructure” as an alternative to traditional water quality management. The framework for a “best practice” on how to determine the appropriate scale and efficacy is still being formulated in larger cities. Green infrastructure programs are in their early stages in Washington, D.C., and Philadelphia, and

in smaller cities, such as Lancaster, Pennsylvania, and Oswego, New York.

Even the larger municipalities often lack the internal capacity and expertise to manage a comprehensive green infrastructure program, which are critical to the program's success. Often a third-party facilitator may be needed to measure and create a functioning green infrastructure market.

Green Infrastructure on private property is still in its infancy in many areas, and aggregation to reach an accurate scale can be difficult. Long-term performance of green infrastructure and a subsequent water quality credit system predicated on certain ownership structure can inhibit future development opportunities and present maintenance challenges. It is the panel's opinion that St. Tammany Parish should include the development of a framework providing credits for the donation of property for development of



a regional pond or other natural systems infrastructure as part of the parish's water quality improvement program.

## Impact Fees

Just like other local governments, St. Tammany Parish has limited options for generating the money it needs to build and expand infrastructure, including roads, drainage systems, and wastewater treatment. New developments call for infrastructure expansion, and many jurisdictions require those creating the demand to pay their fair share.

Although increasing property taxes may be an option for bringing in more revenue, it is one that often prompts aggressive opposition from homeowners and business owners. To help pay for growth, some government agencies charge impact fees on new development. An impact fee is a one-time charge imposed on new construction, such as housing developments or office complexes, and is designed to offset the financial impact the project will have on local infrastructure.

In 2012, Duncan Associates conducted a drainage impact fee study for St. Tammany Parish. The study's primary purpose was to update the parish's drainage impact fees. The study also calculated updated fees in lieu of on-site detention, most of which apply to the lower parts of the watershed and addressed the issue of revenue credits.

Currently, St. Tammany Parish charges an impact fee through an ordinance, but funds are being used project by project. A centralized or decentralized (or combination of the two) wastewater treatment solution needs to be implemented, but it is best made at the local level where the planning decisions can take into account the specifics of the system. By better using already-existing tools, the parish can better implement some of the recommendations within the St. Tammany Parish Watershed Management Study.

## Community Facilities District

One option for development in the study area is the establishment of a Community Facilities District. A Community

### Seton Urban District

The Seton Urban District is a suburban community in southeastern Calgary, Alberta, that was developed as a planned community with multiple landowners. The community is one of the most comprehensive mixed-use developments in North America and, by 2030, is expected to serve the equivalent of Alberta's third-largest city with 120,000 residents inhabiting the area. Seton's plan includes over 2 million square feet of office and retail space, a 16-acre regional park, and public amenities centered on a main street. This community was created in partnership between the city of Calgary, home builder Brookfield Residential, and existing landowners. Calgary required the developers and landowners to work together to design and pay for a community-wide infrastructure plan. That decision resulted in a much better overall design than if each parcel of land was developed as a separate tract.

For more information, see Brookfield Residential, "The Seton Urban District" web page, [www.setonurbandistrict.com/index.php/about/](http://www.setonurbandistrict.com/index.php/about/).



*Seton Urban District plan showing how individual landowners can partner to create a well-planned community.*

Facilities District is set up by local government agencies to obtain community funding for public works, services, improvements, and development. Funding is used for building parks, roadways, sewers, stormwater drainage, signage, streetlights, landscaping, and related improvements.

## Recommendations

The panel recommends the following:

- Implement the water quality improvement plan. This plan should consider solutions for both the natural and built environments. Incorporate green infrastructure and low-impact design. Accept that water will be a part of any development and should be incorporated into the planning.
- Institute an “infrastructure first policy” for greenfield development. Ensure that infrastructure is funded and under construction before major investments.

# Conclusion

**THE PANEL FOUND THAT** its time in St. Tammany Parish exceeded its expectations. The panel learned about the challenges, both natural and constructed, that the parish faces. The panel applauds the parish's leadership and organizational acumen. The parish has accomplished much in a very short time. Although the parish is still early in its evolution as a jurisdiction, it has had to deal with the challenges that emerged from unforeseen growth and the consequences of that growth, while also addressing the unintended consequences of land use decisions made prior to its charter.

St. Tammany Parish faces no small challenges. No simple answers and single-bullet solutions exist. Complexity and hard work lay ahead. There will be tough decisions, changed ways of working, and new costs that must be borne by all. Those issues will require constant deliberation, new ways of doing business, and the creation of new tools to change the patterns of development that seriously threaten the parish's economic foundation and its valuable way of life. However, St. Tammany Parish has something that many other communities do not: the engine for growth. How the parish chooses to direct, harness, and shape that growth is a critical tool for what it will look like in 20 years.

The following are the top recommendations for creating resiliency in St. Tammany Parish:

- Think generationally in planning, funding, and implementation, which every year will move the parish closer to a long-term vision of what it wants to be and what it will need to get there.

- To capture new, high-quality jobs and new households, think and act strategically and with one voice—to tell a differentiated and compelling story.
- Create wonderful new live/work/play “villages-in-the-woods”—balanced with acres of protected and connected natural infrastructure that builds long-term resilience.
- Establish more integrated, walkable, and compact places that ensure the ability to maintain the setting that is the essence of those places.
- Harness and direct growth to increase prosperity and generate a stronger, more resilient local economy—while increasing opportunities for dignified housing and broad educational opportunities for all.
- Leverage new growth to fund and improve outdated and fragmented infrastructure through leadership and the political will to require those who benefit to pay their fair share.

The panel believes that St. Tammany Parish has a bright future—*but only if the parish gets it right.*

# About the Panel

## Jim Heid

*Panel Chair  
Healdsburg, California*

Heid is a developer, strategic real estate adviser, and sustainable development consultant. He is known for his ability to effectively distill the complex layers of community design and real estate development into understandable concepts that lead to actionable outcomes.

An active member of ULI, Heid has written numerous articles and publications on the subject of sustainable community development and resilience, including a recent white paper titled *Resilience Strategies along the Rural–Urban Transect*. He is a founding member of the Responsible Property Investment Council, coinstructor for programs in sustainable community development and mixed-use development, and founder of the Small Scale Developers Forum under ULI's Real Estate Entrepreneur Programs. He has been responsible for developing large-scale community and regional sustainability programs, including the Pearl Rating System for the Emirate of Abu Dhabi, and currently serves as an expert adviser to BioRegional's One Planet Living program.

Since 1994, Heid has participated in ULI Advisory Services panel assignments spanning all property types and geographies. His contributions have included the city of Los Angeles's CleanTech review, urban regeneration assignments in Chicago, Illinois, Columbus, Ohio, and last year, in the Buffalo City metropolitan municipality in South Africa. With a special focus on large-scale regional land and community assignments, he has served in Blaine County, Idaho, and Amelia Island and Port St. Lucie, Florida. In 2011, Heid chaired a complex international panel assembled at

the invitation of the mayor of Moscow, Russia, to review and advise on the proposed regional expansion strategy for the highly urbanized city. And last year, he chaired one of ULI's resiliency panels for a complex regional review of strategies in three Northern Colorado communities: Estes Park, Fort Collins, and Loveland.

His firm, UrbanGreen ([www.urbangreen.net](http://www.urbangreen.net)), advises legacy landowners, governments, real estate developers, and capital market providers seeking tangible answers to the rapidly evolving discussion surrounding sustainable and resilient land development. Current projects include providing sustainability and development advisory services for the Queen Lili'uokalani Trust on a large mixed-use, mixed-income development in Kona, Hawaii; providing conservation development expertise to a third-generation Canadian ranch family embarking on the development of 3,000 acres in the Bow River Valley; and providing visioning and planning support to a publicly traded company working on three master-planned communities within its 270,000-acre landholding outside Los Angeles, California.

Heid spent five years of his early career working in New Orleans (1982–1987) as a landscape architect. Before founding UrbanGreen, he worked as an urban designer/land planner and real estate strategist with Design Workshop (1987–1993) and EDAW (1994–2000), where he also served as chief operating officer.

Initially trained as a landscape architect at the University of Idaho, Heid went on to earn a master of science in real estate development from the Massachusetts Institute of Technology as a way to more effectively integrate the realms of economics, development, and design.

## Margaret Kaigh Doyle

*Skillman, New Jersey*

Doyle has over three decades in the maritime and energy sectors. As part of the corporate development team at Gas Technology Institute, she is responsible for the development and stewardship of all of GTI's liquefied natural gas (LNG) training programs, including small-scale applications of LNG as a transportation fuel.

Before joining GTI, Doyle was the vice president of development and LNG solutions at the U.S. Maritime Resource Center. She is a longstanding member of the U.S. Coast Guard Chemical Transportation Advisory Committee and chairs the CTAC subcommittee tasked with developing recommendations for safety standards for the design of vessels carrying natural gas as a cargo or a fuel. Doyle also participates on the U.S. delegation to the International Maritime Organization on LNG matters.

Before joining the resource center, Doyle was general manager of the Marine Response Alliance, a consortium of the world's foremost emergency towing, lightering, salvage, and marine firefighting companies. She is best known for her work at the International Association of Independent Tanker Owners as well as for serving as the executive director of the Chemical Carriers Association for more than a decade. Throughout her tenure with the tanker owners' group and CCA, Doyle represented 85 percent of the worldwide chemical tanker fleet at the international, federal, and state levels.

A graduate of the U.S. Merchant Marine Academy at Kings Point, New York, Doyle holds advanced degrees from Pennsylvania State University and George Washington University. She is a three-time recipient of the U.S. Coast Guard Public Service Commendation. In 2010, she received the U.S. Merchant Marine Academy's Outstanding Professional Achievement Award.

## Tracy Gabriel

*Washington, D.C.*

Gabriel is an innovative urbanist, planner, and problem solver committed to place-based solutions to complex urban challenges and to building great places and sustainable neighborhoods. She has over a decade of experience managing large-scale projects in New York City and Washington, D.C. Currently, Gabriel is associate director at the D.C. Office of Planning where she directs all neighborhood and community-based planning work, including small area plans, neighborhood and corridor plans, revitalization plans, and studies and planning initiatives throughout the District of Columbia. Projects sit at the nexus of community revitalization, economic development, and physical design and include plans for the redevelopment of federal assets, such as Walter Reed Medical Center and St. Elizabeths Hospital; plans for neighborhoods undergoing transition, such as Southwest, Mid City East, and Anacostia; strategic studies, such as the transformation of the District's industrial land; and neighborhood retail revitalization. She also spearheads the implementation of neighborhood resiliency and sustainability policy and has applied the EcoDistrict model for community development. She has managed a range of tactical urbanism, public art, and creative place-making projects.

Before joining the D.C. Office of Planning, Gabriel was vice president for development at the New York City Economic Development Corporation where she managed large-scale and high-profile development projects and neighborhood-wide initiatives, such as plans for the Queens waterfront, Willets Point, Long Island City, and the Applied Science/Cornell campus. Her projects spanned oversight for planning, design, and land use approval processes and integrated real estate, infrastructure, and capital planning in connection with mixed-use redevelopment and open space.

Gabriel began her career as a planning and real estate consultant at Phillips Preiss Shapiro Associates focused on downtown, waterfront revitalization, and neighborhood planning. She graduated summa cum laude from George Washington University and received her master's in city planning from the Massachusetts Institute of Technology. Gabriel was a Fulbright Scholar, completing economic development research in Damascus, Syria.

## Ladd Keith

*Tucson, Arizona*

Keith is a planning faculty member and leads the sustainable built environments degree program at the University of Arizona's College of Architecture, Planning, and Landscape Architecture. His research interests are in the integration of climate change adaptation science and policy for the urban planning and design of cities. He has taught a number of courses, including Sustainable Development, Sustainable Design and Planning, Public Participation and Dispute Resolution, Regional Planning, and Planning Theory.

An active member of the Urban Land Institute, Keith currently serves on the ULI Center for Sustainability Advisory Board as well as on the Sustainable Development Council. In the past, he was the chair of ULI Southern Arizona as well as a founding member of the ULI Southern Arizona Young Leaders Group and ULI NEXT.

Keith currently serves on the city of Tucson's Planning Commission, where he was elected chair in 2013 and led the Plan Tucson: General and Sustainability Plan public participation process, which was ratified by voters and will guide city planning policy for the next decade. He has also served on the subcommittee for the Infill Incentive District and has worked on the Unified Development Code, the Sustainable Land Use Code update, and Urban Agriculture Code updates.

Keith is a native Tucsonan and a graduate of the University of Arizona with a master of science in planning. Before earning his master's degree, he received a bachelor of arts in media arts with a minor in Japanese.

## Alan Razak

*Philadelphia, Pennsylvania*

Razak is a principal of AthenianRazak LLC, a Philadelphia-based company that consults on, creates, and manages real property. He has four decades of commercial real estate experience, encompassing development and project management, finance, architectural design, and consulting. His diverse real estate background includes managing the development process, both as owner and as a consultant as owner's representative, on projects that include residential, office, and commercial, as well as specialized expertise in data centers and other highly technical facilities.

AthenianRazak was formed in 2011 in a merger of Athenian Properties and Razak Company, which Razak founded and led. He was responsible for the development of Main Line Jaguar Land Rover, Pembroke North Condominium, 5035 Ritter Road for the Administrative Office of Pennsylvania Courts, the Curtis Institute of Music's Lenfest Hall, and other projects. He has also led real estate consulting and development assignments for such clients as the Children's Hospital of Pennsylvania, Walnut Street Theatre, Swarthmore College, the Rock School of Dance, Natural Lands Trust, CSX, Conrail, Digital Realty, Berkadia, Vanguard Group of Mutual Funds, Montgomery County (Pennsylvania), Drexel University, and the city of Philadelphia, among others. He currently leads the team that is developing a new \$82 million practice facility and corporate headquarters for the Philadelphia 76ers.

Before forming Razak Company in 2003, Razak was a principal with a Philadelphia real estate consulting and investment advisory firm, consulting on a broad variety of assignments across the spectrum of real estate issues. Throughout the 1980s, as a partner at developer Rouse & Associates, he managed such high-profile projects as a 400,000-square-foot Washington, D.C., office building and the development of a 20-acre Penn's Landing urban mixed-use project.

He began his career as an architect, working on the design of multifamily residential, commercial, and health care projects in the Midwest and Pacific Northwest, and for purely sentimental reasons he maintains his status as a registered architect in Pennsylvania. Razak has served on the Central Philadelphia Development Corporation's board of directors, is chairman of the board of the Philadelphia Shakespeare Theatre, and is a full member of the Urban Land Institute, where he developed and currently teaches several workshops for real estate practitioners internationally. He holds a bachelor's degree in arts and design from the Massachusetts Institute of Technology, a master's degree in architecture from the University of Washington, and an MBA with a concentration in real estate from the Wharton School of the University of Pennsylvania.

## Michael A. Stern

*Philadelphia, Pennsylvania*

Stern leads cross-disciplinary design firm Strada's efforts in urban design, master planning, site design, and landscape design. He has been involved in aspects of planning, urbanism, and public landscapes throughout his career. The focus of his work has been to improve the quality of urban environments through the practical application of sound design principles rooted in enduring values of urbanism. That pursuit has led him through a broad range and scale of projects, from urban garden design to planning new edge cities.

A native New Yorker, Stern came to Pittsburgh in the 1990s and became involved in major urban design and planning efforts for the city. He led the Pittsburgh Downtown Plan, the first comprehensive master plan for the greater downtown area in 35 years, and the Pittsburgh Regional Parks Master Plan. Those documents are still touchstones more than a decade after their completion.

In 2014, Stern moved to Philadelphia to help lead Strada's office there. His charge is twofold: to assist with the ongoing integration of both offices and to expand the services in the Philadelphia area to include urban design and landscape architecture—his primary design roles in the firm.

In addition to his project work at Strada, Stern has lectured widely. He has published and edited numerous articles and journals on planning, urban design, and landscape design theory. Stern earned his master of landscape architecture from Harvard University Graduate School of Design and his bachelor of arts in anthropology from Grinnell College.

## Lindsey Wilke

*Salt Lake City, Utah*

Wilke is driven by a passion to enhance the quality of the public realm through sustainable urbanism and community design. She believes strongly that considering human factors at an urban level can and should inform all planning and design work. Her diverse background in sustainability, urban design, community engagement, and architecture gives her a deep understanding of the importance of people to place, landscape, and contextual design and how those elements inform one another.

Wilke joined HKS Architects in 2012 as an urban and architectural designer. She has been a key contributor to the firm through her research focusing on the intersection of community planning and health. Many of her projects reflect this approach, concentrating on how health can be a catalyst for urban growth and renewal or even a component of resilient planning at a community level. She has presented on community resiliency planning with the American Meteorological Society and published a white paper through the American Institute of Architects' Academy of Architecture for Health titled "The Health and Wellness of People and Communities."

Wilke's current project in Cleveland is a 52-acre health care campus undergoing a major transformation. She is working with the hospital administration, city organizations, and the project team to redesign a campus that positively affects the adjacent neighborhoods and ultimately the health of the Cleveland community.

Before joining HKS, Wilke worked as an urban designer at evolveEA in Pittsburgh. There, she helped lead grass-roots community efforts in ecodistrict design and planning,

working closely with community leaders to shape a vision for resilient Pittsburgh neighborhoods.

Willke received a bachelor of science in architecture from the Georgia Institute of Technology and a master's degree in architecture from Clemson University. After completing her degrees in architecture, she went on to pursue a master's degree in urban design at the University of Colorado Denver. In 2011, Willke received a fellowship in urban design at Carnegie Mellon University where she continued her studies in sustainable urban design and community capacity building.





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