A SUSTAINABLE DEVELOPMENT PANEL REPORT

Tradition
Biloxi, Mississippi

Urban Land Institute

Tradition
Biloxi, Mississippi

Developing a Sustainable Master-Planned Community

January 13–18, 2008
A Sustainable Development Panel Report

ULI–the Urban Land Institute
1025 Thomas Jefferson Street, N.W.
Suite 500 West
Washington, D.C. 20007-5201

About ULI–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 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 40,000 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.

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About ULI Advisory Services

The goal of ULI's 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, brownfields 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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Acknowledgments

On behalf of the Urban Land Institute, the panel thanks Joseph C. Canizaro for envisioning a sustainable community at Tradition and for sponsoring ULI's first sustainable development panel. The panel appreciates the opportunity to help shape Tradition as a living project that will define sustainability at the community level and contribute to the Mississippi Gulf Coast's recovery and growth.

The panel sends special thanks to the entire Columbus Communities team, including Gerald Blessey, Jamie Carpenter, Brynn Joachim, Jeffrey M. Riopelle, and Rhonda Waits for their diligent preparations and support of the panel during its time on site. The panel also extends special thanks to the Prince's Foundation for the Built Environment for its contributions to the panel.

Finally, the panel thanks all the community leaders who shared their time and ideas in the interview process. Everyone who participated in the panel process provided vital insight and demonstrated the teamwork, civic dedication, and ingenuity needed to make Tradition a great success.

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Foreword: The Panel's Assignment

Tradition is a new, developing master-planned community located near Biloxi, Mississippi, the heart of the Mississippi Gulf Coast. Columbus Communities hopes to develop Tradition in a manner that embraces the best practices of sustainable community development and inspires other developments on the Gulf Coast and around the country to do the same. Columbus Communities sponsored a ULI Sustainable Development Panel to identify best practices for sustainable community development and apply them to Tradition. The panel met in Biloxi, January 13–18, 2007. This report documents the panel's recommendations.

Regional Background

The Mississippi Gulf Coast offers an excellent climate, a fast-growing economy, and more than 75 miles of beaches on the Gulf of Mexico. Tradition is located in the heart of the Gulf Coast, approximately 15 miles north of the beaches, Gulfport, and Biloxi. In 2005, Hurricane Katrina devastated the entire region with storm surge and wind damage. The Gulf Coast community responded to Katrina with an energized approach to rebuilding with higher land use standards, a stronger economy, and an enhanced quality of life.

The Mississippi Gulf Coast's economy traditionally relied on the seafood industry. Today, the region's robust, diversified economy relies on tourism, the military, and shipping. Dubbed the "Mississippi Miracle" by the national media, the region's economic growth followed the introduction of legalized dockside gaming in 1992. The region is now the third-largest gaming venue in the United States. It is also home to significant military and NASA installations at Keesler Air Force Base, Stennis Space Center, and the Naval Construction Battalion Center at Gulfport. Keesler Air Force Base has grown as a result of recent base closings in other parts of the nation and now contains the second-largest hospital in the U.S. Air Force system. The State Port at Gulfport has become one of the three largest ports on the Gulf of Mexico and continues to grow. The Northrop Grumman shipyard in Pascagoula is the nation's largest builder of U.S. Navy vessels.

Location map.

The region's economic and population centers remain clustered along the beach, particularly in the traditional centers of Biloxi and Gulfport. These areas suffered the most significant damage from wind and storm surge during Katrina because of their proximity to the Gulf. Post-Katrina development trends indicate a shift of new residential and commercial development to the north of Interstate 10. High insurance rates continue to affect housing affordability throughout the region.

Biloxi is a major regional tourism, employment, and population center.

The Study Area

Tradition is located ten miles northeast of Gulfport and ten miles northwest of Biloxi, in the heart of the Mississippi Gulf Coast. The site is 4,800 acres of rolling terrain that ranges in elevation from 50 to 170 feet. The site had no flooding in Katrina. Formerly used as a pine plantation, the site is heavily wooded with slash pine intended for paper production. The site has abundant natural lands; 40 percent of the land is classified as wetlands, and De Soto National Forest borders the site on the southwest, east, and northeast.

Regional map.

Improved highways provide congestion-free connections between Tradition and other key Gulf Coast destinations. Tradition Parkway, a new, four-lane boulevard, traverses the site and connects to Highway 90 at the beach between Gulfport and Biloxi. It provides quick connections to Interstate 10, Biloxi, and Gulfport. The Gulfport-Biloxi International Airport is a 15-minute drive from Tradition. Downtown Biloxi and downtown Gulfport, both important business centers, are within a 15-minute drive.

Harrison County zoned Tradition as a master-planned community in 2001 and adopted a development agreement that outlines entitlements at Tradition. The development agreement currently entitles Columbus Communities to build 15,500 residential units and 2 million square feet of commercial space. Following the panel's visit, on April 7, 2008, William Carey University broke ground for construction of its new Gulf Coast Campus at Tradition and plans to begin classes for 750 students at Tradition in fall 2009. This campus will replace the former campus that was destroyed by

St. Patrick Catholic High School opened at Tradition in 2007.

Hurricane Katrina. William Carey plans to grow to serve 3,000 students within ten years. St. Patrick Catholic High School opened a new campus for 600 students at Tradition in fall 2007.

Several prominent planners and architects have developed studies, master plans, and village-level plans for Tradition. EDSA developed a master plan for Tradition in 2006 that anticipates eventual development of a traditional neighborhood development (TND), an active adult community, two golf courses, and a mixed-use town center. The plan uses preserved wetlands and open space as an interconnected fabric to separate and define development areas.

The first area of development was the Village at Tradition, initiated by Columbus Communities in 2006. The Village is a 312-acre TND designed by Architects Southwest, a noted TND design firm based in Lafayette, Louisiana. Infrastructure for the Village is nearly complete, including water, sewer, fiber optics, roadways, and the future community library. More than 20 homes are currently under construction in the Village. The Village Center, composed of 60,000 square feet of neighborhood retail and marketplace, will begin construction in fall 2008.

The Panel's Assignment

Columbus Communities invited a ULI Sustainable Development Panel to help define and recommend appropriate sustainable development practices for Tradition. Columbus Communities requested the panel's assistance in making Tradition a national model for large-scale, greenfield, sustainable community development. As part of the assignment, the sponsor asked the panel to establish a definition for sustainable development for Tradition and translate that definition into a vision that would

The Village at Tradition features traditional architecture and a variety of housing sizes.

provide a foundation for future design, program, business, construction, and operations decisions at Tradition. The sponsor also asked the panel to explore the following specific issues:

- What market exists for housing, commercial, and civic uses at Tradition? What strategies should the sponsor pursue to attract residents with diverse incomes, experiences, and backgrounds? What is the market for sustainable development on the Gulf Coast?
- What types of employers and how many jobs should Tradition seek to attract to support an equitable jobs-to-housing balance? What opportunities may exist to attract "green" industries (for example, modular homebuilding, sustainable products research) to Tradition?
- Will the current master plan lead to development of a sustainable community? If not, how should the mix of uses be changed to better support a sustainable community? What pedestrian, bicycle, and transit facilities should be included to provide sustainable transportation alternatives?
- What green infrastructure and green building standards and technologies should be used at Tradition to minimize the development's carbon footprint? What land should be committed to open space, and how should that open space be programmed to optimize opportunities for green infrastructure that contributes to a sustainable community?
- What are the economics of sustainable development, including additional construction costs and operational cost savings during the life of the structure? How should this cost premium be managed over time? What public and private funding sources should be pursued to assist with these costs? How should long-term cost savings from sustainable development practices be considered in the economic model?
- What metrics and benchmarks should the sponsor use to measure Tradition's sustainability? How should these metrics evolve over time?

ULI recruited 13 volunteers for an expert panel to address these questions. The panel members organized into teams to address the issues of economic, social, and environmental sustainability and collectively created a sustainability definition and vision for Tradition.

Defining a Sustainable Tradition

Current efforts to develop sustainable communities continue a long tradition of efforts to create vital, enduring communities. Reston, Virginia; Columbia, Maryland; The Woodlands, Texas; and many others showcase the evolution of community-building strategies since the 1960s. More recently, in the 1990s, developers began building smaller-scale communities that emphasized a carefully crafted public realm and social fabric. Dubbed the new urbanism and traditional neighborhood development, these communities captured market interest and inspired developers to find new ways to build communities that encourage social integration, create memorable experiences, and reduce automobile dependency.

In parallel, growing interest in green building and sustainability inspired land developers around the world to explore the potential of sustainable communities. Unlike other community development models, the sustainable community requires an integrated, whole-systems approach to making decisions that ensures economic, social, and environmental sustainability goals are achieved in balance. Today's leading examples and evolving models combine lessons learned from the best community developments of the past century with emerging strategies for programming, design, construction, operation, and governance. As a result, the term "sustainable community" defies a single definition. However, sustainable communities seek to achieve the following goals:

- Positively contribute to their environment, region, and surrounding communities;
- Support an intergenerational and demographically diverse population;
- Achieve carbon neutrality at a minimum and carbon absorption at best;
- Create memorable and enduring places to live;

The Village at Tradition follows the principles of traditional neighborhood design, including people-friendly and landscaped streets.

- Remain flexible and adaptable to changing markets, lifestyles, and trends;
- Promote economic vitality for residents, businesses, institutions, and their developer;
- Evolve their governance and leadership from the community base; and
- Openly share their lessons, so that others can build on their success.

The Triple Bottom Line

Sustainable community developers must create a decision-making process that enables them to continuously monitor their development against sustainability goals. Many practitioners rely on the concept of a triple bottom line to evaluate a community's consistency with sustainability goals. Whereas traditional developments rely on a single bottom line—economic return to the developer—to guide development decisions, sustainable communities strive to make decisions that achieve a triple bottom line of economic, environmental, and social sustainability.

The triple bottom line is best described using the metaphor of a stool with three legs: economic, social, and environmental sustainability. The three legs must remain balanced to keep the stool upright. Similarly, a community developed using only one leg of analysis cannot fulfill its responsibilities to the environment, the regional economy, and its residents. The panel recommends that Tradition adopt a triple bottom line to guide the project's evolution and development from this point forward.

Making Tradition's Vision Sustainable

The panel recommends that Tradition refine its vision statement to reflect a commitment to sustainability and the triple bottom line, as follows.

Existing Tradition Vision Statement

Tradition is a residential and commercial community with a vibrant quality of life created in a sustainable mixed-use development based on excellence in education, environmental stewardship, health and wellness, the arts, and traditional architecture.

Proposed Tradition Vision Statement

Tradition is a richly diverse community that aspires to achieve excellence in education, arts and culture, environmental stewardship, and health and wellness—leading to a vibrant, enduring quality of life for the community and the region.

Objectives to Guide Development at Tradition

The panel recommends that the sponsor use the following seven objectives to guide Tradition's development in a balanced, sustainable manner:

- Build the community around education and foster a culture of lifelong learning.
- Institute capacity for continuous, progressive economic development.
- Establish social, natural, and physical connectivity as the core principle of the community.
- Move toward carbon neutrality through progressive planning, construction, and efficient use of resources.
- Continuously increase the diversity and health of the community's human and natural systems.
- Establish strong leadership for successfully executing Tradition, while rejuvenating the region and advancing the real estate industry's understanding of sustainability.
- Establish a research foundation to become a center for research, education, and marketing of sustainability and diversity.

The following sections of the report detail recommendations to support the preceding objectives; the recommendations are organized into three categories that mirror the triple bottom line concept: social, environmental, and economic sustainability. Each section describes how these seven objectives can be met using a range of strategies, time frames, programs, and partners.

Economic Sustainability

Economically sustainable communities generate economic activity that contributes to, rather than compromises, the environmental and social dimensions of the community. They offer many opportunities to work within the community, participate in meaningful careers, and foster new businesses and networks while providing financial returns to their developers, homeowners, stakeholders, and surrounding communities.

Tradition has the opportunity to become an economically sustainable community by providing opportunities for residents to both live and work. The jobs-to-housing ratio measures the harmony between employment and dwelling units in a specific area, commonly referred to as the "jobs-housing balance." The jobs-to-housing ratio is simply the number of jobs in a community divided by the number of housing units in that community. The panel recommends that Tradition target 0.5 jobs for every dwelling unit. Assuming a full buildout of 15,500 dwelling units, Tradition should target 7,750 jobs.

Creating and maintaining a strong jobs-to-housing ratio contributes to economic, social, and environmental sustainability. Establishing a strong business base in the community could provide a more diverse revenue base to support schools, community amenities, and public services. Additionally, locating jobs in the community can reduce commutes and enhance residents' mental health and ability to engage in active family and community life. From an environmental perspective, growing employment within the community reduces vehicle miles traveled, which leads to reduced air pollution and fuel consumption.

Tradition should design a community governance structure and framework that can transition seamlessly from the development stage into full new-town operation. This structure must enable the town to provide necessary public services, including economic development, infrastructure, public safety, and civic facilities, well into the next century. Developing a stable, long-term capacity for progressive economic development will help ensure the community's economic sustainability.

The panel encourages the sponsor to implement the following recommendations to help Tradition achieve economic sustainability.

Build Capacity for Sustainable Economic Development

Tradition should strategically recruit the right mix of commercial services and employers to create a self-sustaining community that optimizes the inputs and outputs generated by those enterprises. The result is a "closed loop" community whose businesses contribute to the community's overall synergy and vitality, resulting in lower environmental impacts. The sponsor should pursue the following actions to achieve sustainable economic development:

Immediate

Work with state and local economic development agencies to influence policies to attract new businesses, particularly businesses that share Tradition's commitment to sustainability. Partner with those entities to create the necessary economic development tools to ensure businesses will locate to Tradition.

Create an organic economic development system led by the developer to attract businesses to Tradition. Business attraction efforts should initially focus on opportunities identified in the August 2007 market analysis prepared by TIP Strategies, including geospatial technology, security technology, avionics, green building systems, and composites.

Midterm

Recruit a health and wellness center to Tradition, as recommended in the TIP Strategies report. The center will support Tradition's commitment to health and wellness, help manifest (both symbolically and practically) a healthy lifestyle, and attract residents and employers who may view the center as a tool to reduce health care costs, attract higher-quality employees, and improve productivity.

Encourage Ongoing Workforce Development

Tradition's long-term economic sustainability will rely on an educated, skilled workforce attractive to employers. The community should support a workforce that is educated and motivated for success in an era focused on sustainability in the following ways.

Immediate

Align with key regional employers to identify workforce development and job-training needs to support their corporate strategic plans and human resources needs.

Recruit providers, including William Carey University, to locate at Tradition and offer educational programs that meet employers' needs, offer continuing education for nontraditional students, and lifelong learning opportunities for residents.

Midterm

Establish a Gulf Coast Institute for Sustainability Technology to incubate sustainability-oriented businesses that make more and better use of appropriate technology, materials, and designs. The institute can emphasize sustainable business practices, optimum use of clean and green technology and renewable resources, and help develop the Gulf Coast region's local and indigenous expertise. Businesses incubated in the institute can become long-term economic anchors at Tradition.

Promote Ecotourism

Tradition should become a partner in regional efforts to encourage ecotourism, which is defined as tourism with a heightened sense of responsibility and interest about the environment. The community's location adjacent to De Soto National Forest and within the Pascagoula River Basin offers many opportunities to provide recreational and educational ecotourism opportunities. Additionally, ecotourism at Tradition will foster a stronger sense of stewardship among Tradition's residents, help connect residents of the entire Gulf Coast to the natural environment of the region, and establish Tradition as a key destination in the region.

Midterm

Lead the development of a regional ecotourism initiative by exploring alliances with the public and private agencies that are advocates and overseers for the Gulf Coast, the De Soto National Forest, and the Pascagoula River Basin in programming ecotourism related activities.

Long Term

Develop a hotel/resort/conference center at Tradition to accommodate visitors and guests of the community and as a hub for ecotourism activities in the region, to support marketing efforts, and to facilitate retail and office development.

Tradition features many natural areas, much open space, and a growing public art program.

Social Sustainability

Socially sustainable communities provide opportunities for people to live, work, prosper, and recreate all while taking pride and actively participating in the area where they live. Such communities enable residents to engage in the community while providing a healthy, safe, equitable, secure, and inclusionary environment.

The panel encourages the sponsor to foster social sustainability at Tradition by providing the right amenities, building dynamic community programs, and planning for long-term educational needs. The right actions in these areas will attract residents diverse in geographic origin, age, household composition, and religion and fulfill residents' expectations for a lively, integrated community. If Tradition provides the framework for a socially sustainable community, residents will be more likely to take ownership of the community and contribute to developing its long-term quality of life. The panel recommends the following actions to promote social sustainability.

Provide Amenities to Support Community

The right amenities will attract residents to Tradition and provide the foundation for lively community life. Amenities should respond to residents' needs and desires, foster interaction among neighbors, help provide stewardship for the natural environment, respect diversity, and support a healthy, safe lifestyle. Amenities will shape the community's character and enable residents to meet their recreational, social, and spiritual needs. Properly programmed, organized, and designed amenities will enable residents to casually meet one another, make friends, socialize, take recreation, and actively participate in community life. In a broader sense, amenities should provide essential needs such as educational and religious services.

The panel recommends building amenities based on the following recommendations:

Immediate

Establish a pedestrian and bicycle trail network throughout Tradition with connections to De Soto National Forest. The trail network will promote sustainability by providing alternative transportation options, promoting recreation, and enabling residents to interact with natural areas. Over time, the trail network could connect to the Pascagoula River.

Plan and build parks to serve a variety of passive and active recreation uses. Each park should be carefully planned to support specific uses, including athletic fields, community gardens, and community events. The sponsor should also consider building tennis courts in the short term.

Create community gardens. The gardens should feature raised beds with high-quality soil for vegetable cultivation. The sponsor should rent the garden plots to residents for a nominal fee on a first-come, first-served basis. In other sustainable communities, community gardens are in high demand and provide a fun way for residents to meet people and interact with the natural environment.

As Tradition builds out, the Discovery Center will become a community library and information center.

Create water features and fountains. Water features improve the community's aesthetics and build community by providing fun and interaction between people and water, particularly for young children.

Midterm

Build an outdoor recreation center with state-of-the-art playground equipment, rope courses, and other attractions. The center will benefit residents and attract other visitors to the community. Visitors will support local businesses and improve the community's visibility to potential residents.

Create a beach house to provide residents with a connection to the Gulf. The beach house would enable residents to enjoy the ocean without living in hurricane-risk areas and would ameliorate Tradition's lack of beach access. Tradition could integrate shuttle service to the beach house into the overall transportation strategy discussed later in this report.

Provide a nondenominational chapel for worship, weddings, and community gatherings. Chapels prove a popular and visible symbol of a community's diversity in many new towns.

Establish a farmers market to connect residents to local growers and nutritious food. The market could start at the Village Center and move to the Town Center as development progresses. The market requires limited investment and will also help draw potential residents into the community. The U.S. Department of Agriculture can provide resources to assist in establishing the market.

Long Term

Build one golf course at Tradition, instead of the two courses currently planned. The golf course should support sustainability goals by achieving Audubon International or equivalent certification and including a state-of-the-art irrigation system that uses secondary water to maintain the grass and low-impact drainage systems to minimize runoff into natural waterways. Audubon International certification recognizes courses that mitigate ecological impact and provide habitat for birds.

Plan for long-term civic needs, including a town hall, fire stations, police stations, and churches. The sponsor should engage leaders of various religious denominations to work with Tradition to meet the long-term needs of a religiously diverse community.

Establish an equestrian center. The equestrian center supports local culture and can take advantage of the mild climate and future trails into the adjacent forest. The equestrian center will contribute to Tradition's evolution as a center for active recreational lifestyles and draw potential residents to visit Tradition. Industry experience suggests the equestrian center may require ongoing subsidy but will provide an important center for community interaction and outdoor recreation.

Establish a Regular Program of Community Events

Regular programs and events will sustain community life by engaging residents and creating strong social networks. Programs should encourage healthy lifestyles and promote sustainability values. Residents in sustainable communities rely on community events and programs to meet one another and establish friendly relationships, share common interests, and participate in continuous neighborhood improvement.

Community programs should start immediately and grow as the community's population increases. The sponsor should assign the community program to an existing staff member and create a new position to manage programs as the number of residents increases. The sponsor should regularly monitor residents' satisfaction with the program and ensure that programs support the community's sustainability goals.

The panel recommends the following actions to build community programs:

Immediate

Establish community events and activities when the first residents arrive. Activities should occur on a regular basis, monthly at a minimum. In the short term, a member of the current team should organize and implement activities. Over time, a formal homeowners association could assume management of events and programs. Basic events could include holiday celebrations, a new-resident welcome party, movie nights, and play groups.

Midterm

Expand community programming as Tradition's population grows. Expanded activities could include organized interest clubs (book clubs, wine tasting, bible study), trail walks, annual events, community gardens events, teenager play groups or "nights out," sporting events (5K runs, pickup leagues), educational sessions around disaster preparedness and other topics, and the like. Over time, the sponsor may need to hire a "community director" to coordinate, plan, and design programs.

Use Tradition's fiber-optic infrastructure to establish Web-based community resources, including a community intranet with a blog, calendar, newsletter, bulletin board, account payment section, trip planner, and reservations site. The sponsor could create a monthly or quarterly printed newsletter to supplement the intranet.

Long Term

Plan the right governance and fee structures to support community programming. If the sponsor decides to incorporate Tradition, sales taxes could support a wider range of community programs, including concerts, art exhibits, festivals, and fairs.

Establish an Education Master Plan

High-quality education is a critical community and regional need and is a key to increasing sales and attracting high-quality jobs. During the interview process, the panel heard great concern about the quality of local education. Families, particularly, are attracted to communities that provide superior education for their children.

The panel recommends that the sponsor create a long-term education master plan that will provide the necessary infrastructure, programs, human resources, and leadership to attract a diverse student body and meet residents' expectations. A vibrant community gets engaged in education and promotes its continuous improvement, adopting lifelong learning as a community value. The early inclusion of a high school and university at Tradition represents a great first step that needs to be complemented soon.

The sponsor should take the following actions to address Tradition's educational needs:

Immediate

Create a long-term education master plan for Tradition that includes infrastructure, number and type of educational institutions, location, teacher support strategy, funding, resources, and so on. The sponsor should create the plan in partnership with relevant authorities, organizations, and interested parties. The plan could also include an academy for sciences and the humanities for gifted high school students, a laboratory school, a charter high school for training students in sustainable building trades and crafts, a charter elementary school for excellence in reading, math, and science or other regional educational assets. The plan should be built around the values of sustainability, with emphasis on healthy living, resource efficiency, and environmental stewardship.

Midterm

Develop the first elementary school at Tradition. An elementary school will attract residents, particularly families with young children, and cannot be built too early or too late. The school should be planned and built in partnership with the school district or as a charter school. Moreover, it should be built to high green building standards. The U.S. Green Building Council's LEED for Schools program can help in designing a more sustainable school with green building materials, more natural light, better indoor air quality, and open spaces. Research shows that children who attend more sustainable schools learn more and obtain higher standardized test scores.

Long Term

Build additional schools and educational facilities as the community builds out.

Establish a sustainable development center for the community. The center could host exhibits, talks, tours, and other programs. The center's mission could be to advance sustainable development research and education. Programs could include scholarships for college students to conduct sustainability research, grants for schoolteachers to improve their sustainability skills, partnerships with schools to create sustainability curricula, programs to educate residents about sustainable lifestyles, a land trust for natural habitat areas within Tradition, and exhibits about climate

change and other global environmental problems. The center would partner with educational institutions, governments, and nonprofit organizations to present programs. The center's board could advise community leaders on evolving sustainability strategies. The center could also showcase Tradition's efforts to become sustainable. The building itself could be LEED-Platinum certified.

Environmental Sustainability

Environmentally sustainable communities strive to integrate natural and human systems to optimize long-term community health and well-being. Communities accomplish this goal using various techniques, which include natural infrastructure, green building systems, community organization, and high mobility. The techniques must be applied at the regional, community, village, and block scales and must shape land use, community design, horizontal and vertical construction, and long-term operations and management.

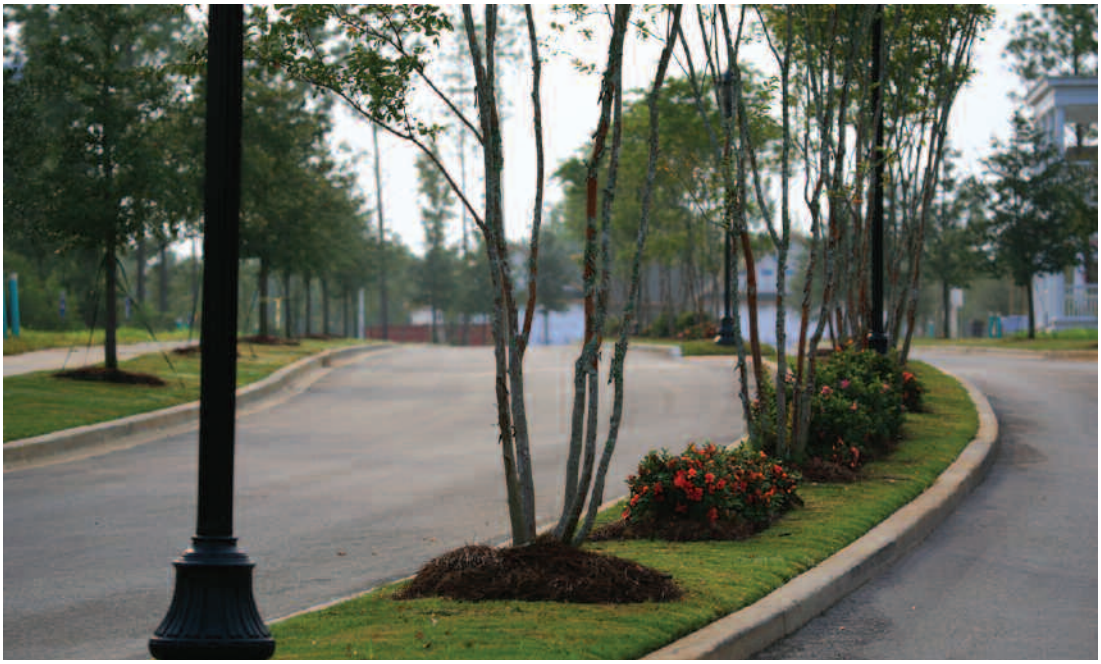
The panel grouped its environmental sustainability recommendations under six priorities:

- Understand and connect to the bioregional context.
- Understand the land, and leverage the site's natural systems.
- Refine the master plan to be more sustainable from the start.
- Reduce automobile dependency while improving mobility and access.
- Develop an integrated approach to infrastructure design, development, and management.
- Implement a phased green building system.

Details on each priority follow.

Understand and Connect to the Bioregional Context

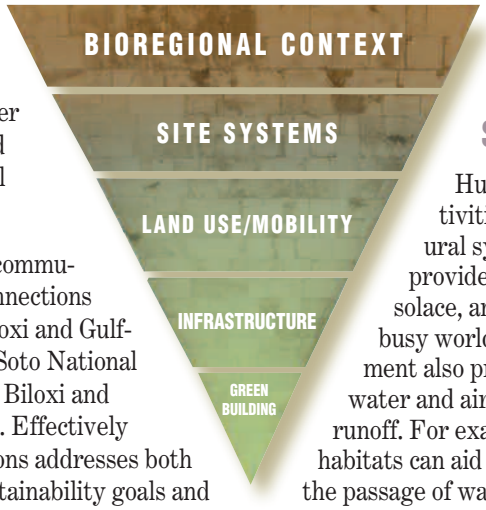
Sustainable communities connect the ecosystem of their site to the ecosystem of their watershed. A watershed is a unit of land with a common low point. Ecological connections ensure that the various energy flows inherent in the site's natural ecosystem are maintained or improved during the



Landscaped medians bring nature into the heart of Tradition.

Environmental sustainability priorities.

development process through the implementation of ecosystem services. This issue is addressed further in "Understand the Land and Leverage the Site's Natural Systems."



In the case of Tradition, the community should build regional connections with the existing cities of Biloxi and Gulfport, the Gulf of Mexico, De Soto National Forest, Tiger Creek, and the Biloxi and Tchoutacabouffa river basins. Effectively leveraging regional connections addresses both social and environmental sustainability goals and should be dealt with through programs, partnerships, and construction techniques that tie Tradition to the natural ecosystems.

The panel recommends the following actions to foster connections to the bioregional context:

Immediate

Execute an environmental analysis of the regional watersheds to gain a clear understanding of their overall hydrology, species interactions, flora, and fauna.

Determine critical connections for water flow and species migration, and within the community build vehicular and pedestrian bridges, habitat overpasses, and necessary flood control devices to protect those connections. Implementation should continue throughout the project's life.

Establish a partnership with the U.S. Forest Service at the De Soto National Forest to allow integration and connection of its trail system and forest management strategy to Tradition.

Establish an ongoing monitoring system for water quality and quantity, species migration, and biodiversity. Continue monitoring throughout the project's life.

Midterm

Establish the Tradition beach house and marina on Biloxi Beach, and establish a partnership with the Coast Transit Authority to provide express service from Tradition to the beach house. (Buy land now.)

Understand the Land and Leverage the Site's Natural Systems

Human, social, and economic activities depend on healthy natural systems. The environment provides food, fiber, species habitat, solace, and recreation potential in a busy world. A healthy natural environment also provides services—it cleanses water and air and slows stormwater runoff. For example, the local woodland habitats can aid flood protection by slowing the passage of water into watercourses. Services provided by the natural environment are referred to as ecosystem functions and have a measurable human and economic value. The habitats and organisms that give rise to the ecological processes are described as the ecological assets, and they should be protected, as with any economic resource, to ensure ecosystem services are maintained.

Tradition should aim to enhance ecosystem services by providing a properly understood, designed network of ecological connectivity. Good ecological structure not only helps biodiversity, but it also enhances amenities that promote community health and well-being. The tools used to protect the ecological assets and processes can be called "green infrastructure." Tradition should develop its green infrastructure in partnership with De Soto National Forest and the Nature Conservancy. Federal funds may be available for reforestation efforts.

The panel recommends the following actions to leverage the site's natural systems:

Immediate

Establish a natural assets inventory, and prepare a natural assets management plan.

Identify opportunities, a strategic plan, and a best practices manual for sustainable urban drainage, including creating a reed-bed system or constructed wetlands for biofiltration.

Build a forest trail network, and enhance ecological connections within the site and in connection with the region.

Implement a successional planting strategy for existing slash pine woodlands to transition to native hardwood forests. Establish a nursery on site to provide saplings for planting.

Midterm

Identify sites, strategies, and standards for green roofs on large buildings, including retail structures.

Establish a natural environment interpretation and education program.

Long Term

Explore potential for carbon trading using retained or enhanced forest resources to offset Tradition's carbon emissions.

Continue monitoring and reporting on the health of natural systems and implementing green infrastructure.

Explore potential for carbon neutrality and thereafter carbon absorption.

Refine the Master Plan to Be More Sustainable from the Start

The current Tradition Master Plan reflects the conventional master-planned community model. Because of the limited development at Tradition to date, the sponsor can recast the master plan to provide a more progressive framework for developing Tradition as a model sustainable master-planned community.

The recast master plan should use existing natural systems as the organizing force for land uses. Tradition can be a community that is characterized by a vibrant and robust natural open-space system that provides ecological, recreational, and economic value to its residents. Open space should be planned and programmed as a primary land use just like residential and commercial uses. Surveys consistently show that a high percentage of buyers in master-planned communities value access to conservation land and trail systems over most other community amenities, including golf.

Tradition offers an opportunity to provide a high-quality green infrastructure that could include a wide range of active and passive outdoor recreational activities, such as hike/bike trails, outdoor discovery and play facilities, community gardens, and conservation lands for animal and bird habitats and observation. The panel offers recommendations to improve the master plan in the following subgroups.

Refine the Open-Space Plan

Open space provides value in many ways. Residents value proximity and access to open space and are willing to pay a premium to live adjacent to conservation land. Open space also provides functional and ecological value for rainwater management, animal habitat, and recreation. Tradition's open-space plan should consider more than just wetlands as the spine of the open-space system. Identify ecologically valuable land that should be included in the open-space system, such as animal habitats. Although golf should be included at Tradition, consider reducing the number of courses and replan one of the golf courses as Tradition's natural/open-space system.

The panel recommends the following actions to refine the open-space plan:

Immediate

Create a comprehensive, diverse, and connected open-space plan for Tradition that is based on the on- and off-site natural and ecological systems.

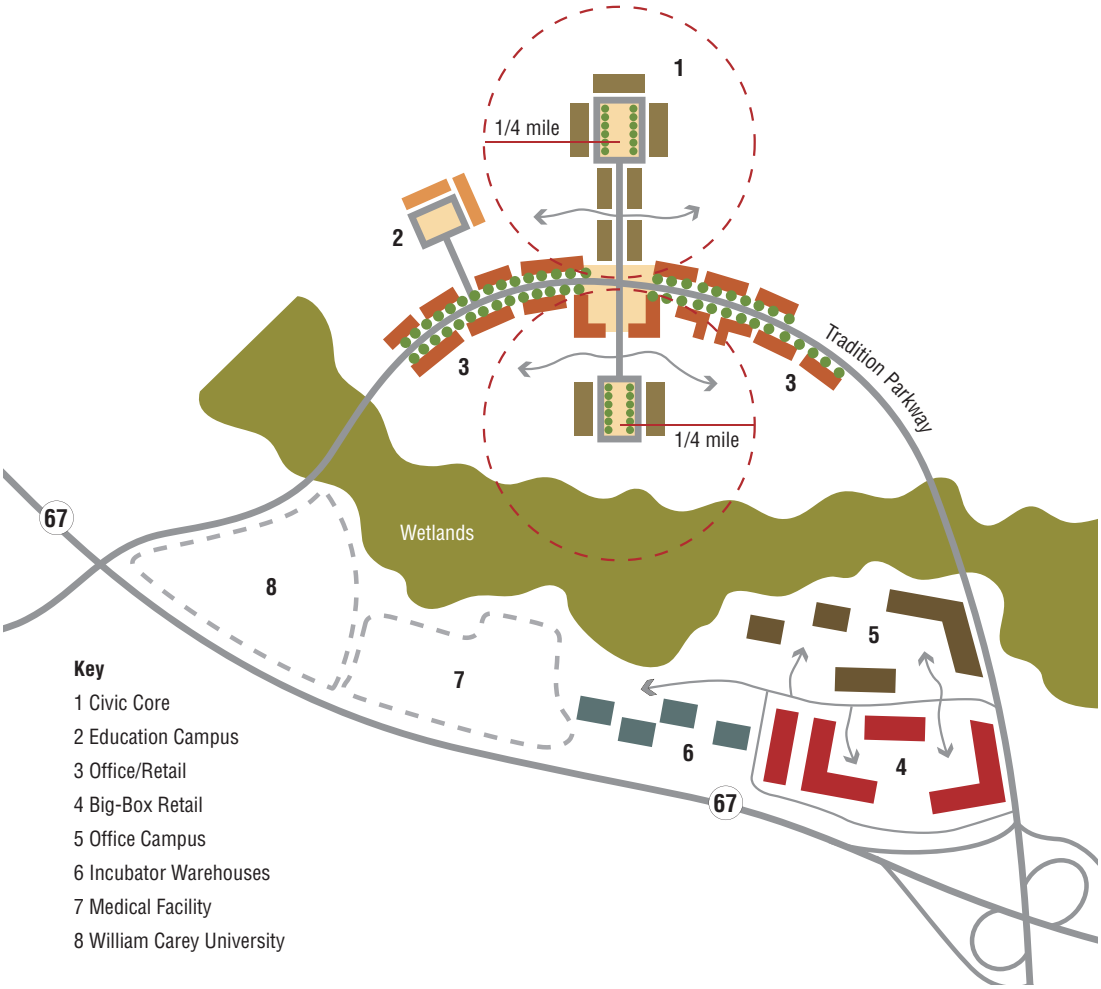
Use a density gradient/transect approach as a way to reorganize the master plan. The current master plan does not create a hierarchy of uses from low to high density in way that provides an interesting and diversified land use plan.

Rethink/Relocate the Town-Center Core

The current town-center plan is organized around three nodes, anchored by the university, a research node, and a retail area. Wetland areas divide the three anchor areas. The panel recommends ensuring that the town-center plan encourages a mix of uses, particularly residential, in each node. Furthermore, the panel recommends creating alternative transportation routes, starting with pedestrian connections, within and among the three nodes. The panel also suggests exploring the feasibility of relocating the town center with Tradition Parkway as its central spine rather than its

Tradition's open-space plan should connect development areas and link to surrounding natural systems.

Organizing development densities along a transect will distribute uses from highest to lowest density across the site, eventually fading to open space.



The town-center plan could use Tradition Parkway as its central spine and link uses with short walks and alternative transportation options.

boundary. This change would provide a larger area of contiguous, developable land and reduce the effect of development on sensitive wetlands.

The panel recommends exploring the following options for revising the town-center plan:

Immediate

Explore the feasibility of reorganizing the town center around Tradition Parkway as its central spine.

Ensure that the plan creates a mix of uses, including residential, an activity node, and walkable connections within and among the nodes.

Relocate the currently planned research area from the town-center plan to the southeast corner of the existing town-center parcel at the intersection of Highway 67 and Tradition Parkway to take advantage of highway access.

Revise the Village Plan

The panel believes that the existing village plan focuses too much on high-end buyers. The panel recommends that the Village Center nonresidential program be reduced in size and that the residential product in the Village be more broadly diversified in price point. Diversification of price points will appeal to a broader range of buyers. Diversifying price points will foster a diverse, socially sustainable community.

The panel recommends the following actions to revise the village plan:

Smaller lots in future phases of the Village will diversify housing price points.

Immediate

Replan the Village to include a broader range of single-family and multifamily units, and increase the unit count to approximately 1,200 units.

Reduce Automobile Dependency While Improving Mobility and Access

As a sustainable community, Tradition should make it easy for residents to access community facilities, employment, and homes without relying on their private vehicles. Providing nonautomobile transportation options is a hallmark of sustainable communities. Using conventional vehicles powered by fossil fuel as the primary means of transportation for most people would represent a significant environmental challenge and lower the quality of life for residents by increasing stress, contributing to respiratory problems, decreasing family time because of long commute times. Tradition can foster a healthier community and a healthier planet by incorporating a diverse mix of transportation options and optimizing linkages between them.

The reduction in vehicle miles traveled by single-occupant vehicles is a key measure for achieving environmental sustainability. A good transportation plan starts with a strong land use plan that efficiently mixes uses to create walkability and connectivity and that leverages communications technology to reduce the need to travel for work or information. The next step is to design and facilitate a seamless web of transportation modes, including biking and walking, that offers maximum mobility and minimum use of fossil fuels. Technology plays a role by offering clean fuels and vehicles that produce low emissions.

Many resources and partners are available to help Tradition achieve these goals. Depending on demand and site design, the Coast Transportation Authority can deliver services ranging from special transportation for the disabled and elderly to vanpools and fixed-route, scheduled bus service. Federal and state transportation funds are available for transportation enhancements such as bike and pedestrian trails. Advice on technical matters and best practices is available from a range of government and nonprofit sources to assist in plan-

Diverse housing sizes in the Village will create opportunities to attract a mix of residents while upholding the high design standards already established.

ning, designing, and funding of transportation systems, streets, and public spaces and trails.

The panel offered its mobility recommendations in the following subgroups:

Design and Implement a Multimodal System of Transportation Alternatives

Tradition should feature a multimodal transportation system that provides residents the opportunity to go from one place to another without driving. The system may include internal routes and external routes that would connect residents and visitors from Biloxi, Gulfport, and other entertainment, dining, and employment centers. The system should offer seamless connections between modes and easy access to schedules, easily acquired travel passes, well-designed transfer facilities, and economic incentives such as discounts for multiple rides. Although full implementation would be a long-term goal, early planning should consider the need for bus stops, shelters, and other system requirements.

Alternative transportation strategies, such as bicycle-sharing programs, could be implemented on a trial basis with as few as 100 residents. The local weather in Tradition, which is relatively warm, could add to the success of such a system.

Several examples of successful bicycle-sharing programs exist in Europe and the United States. Costs to the sponsor for a bicycle-sharing program include purchasing bikes and installing racks. The user picks up a bicycle at a rack (for a nominal fee or for free), uses it, and then returns the bicycle at another rack. This system helps the user avoid having to purchase the bike and having to return it to the starting point of the trip.

For those having to carry more things, having to transport more people, or wanting to avoid the Gulf Coast's frequent rain, another possibility is an electric car. Some, like the GEM (Global Electric Motorcars) brand, can be plugged in for recharge at standard outlets, they can reach speeds of up to 25 miles per hour, and they are obviously more environmentally benign than conventional vehicles. Their price is comparatively high, but again, they could be part of a share program, or in some cases, their cost could be embedded in the price of high-end homes. A car-sharing program could also include other types of models.

As an example, pickup trucks could be shared and used when needed, allowing families to own small cars for their day-to-day needs, but providing a solution for those cases when they need to carry large cargo.

The panel recommends the following actions to provide alternative transportation options:

Immediate

Plan transportation services with Coast Transportation Authority, Gulfport-Biloxi International Airport, and other public and private transportation providers. Test a local, neighborhood circulator, or a ride-on-demand route and vehicle.

Explore uses of the fiber-optic system to enhance mobility, support telecommuting, and deliver transit schedules and information.

Review emerging car-sharing programs and free bike programs to assess what might work best for Tradition.

Midterm

Implement shuttle service, using low-emission, clean-fuel vehicles.

Initiate pilot regional transport services. Assist local providers in obtaining necessary government funding for expanded services.

Set up pilot car-sharing and free bike programs for residents within the community. Begin to offer residential products that provide only one-car parking, and rely on use of the car-sharing program.

Long Term

When a critical mass of the community has been built, transition support of the internal and external transit routes to the Coast Transit Authority.

Design Pedestrian- and Bicycle-Friendly Streets and Trails

Tradition is already planning for and building sidewalks and trails, which are the first components of a walkable community. The system should be enhanced to enable residents to access most activity centers on foot, by bicycle, or in a wheelchair. The continued incorporation of trees along the streets and in public spaces would make the streets and public spaces more beautiful and provide shade (important in the warm Mississippi climate) that will encourage walking and use of the public domain.

Successful urban places, such as the experimental new village of Poundbury—on the outskirts of Dorchester in the county of Dorset, England—view streets as public spaces that are shared by people and vehicles and also contribute to urban form. Properly designed streets are safe and vital; they enable greater density than conventional automobile-first standards for street design. Streets can be designed using proven traffic-calming and urban design models. Organizations such as the Prince's Foundation for the Built Environment and the Congress for the New Urbanism can provide inspiration and technical support for this approach. The master plan should incorporate such treatments where appropriate.

The panel recommends the following actions to create pedestrian- and bicycle-friendly streets:

Immediate

Place a priority on the careful and thoughtful design of streets, sidewalks, and the adjoining public realm to make sure pedestrian activity is both functionally accommodated and a pleasant experience.

Midterm

Work with nonprofit organizations such as the Rails-to-Trails Conservancy, local transportation providers, and the Mississippi Department of Transportation, to obtain enhancement and other funds to support trails and street-side and public space improvements.

Long Term

The success of street and public space trees, public spaces, and trails depends as much on long-term maintenance as on being built in the first place. A good management plan will combine public, private, and volunteer attention to this task.

Develop an Efficient Goods-Delivery System

Tradition should strive to reduce inefficiencies in goods delivery. Although goods distribution by companies such as FedEx and UPS by definition means fewer individual trips, much inefficiency still exists in the current system, caused by less-than-full delivery vehicles, particularly on return

trips. Tradition cannot solve all these inefficiencies, but it may have local synergistic opportunities to reduce them.

Immediate

Explore options for delivery of packages and groceries and using locally grown food that will reduce redundant trips, half-empty carriers, and empty return trips.

Research and identify possible partnerships with delivery services.

Midterm

Implement pilot programs, such as options for daytime package delivery to community centers when residents are at work.

Develop an Integrated Approach to Infrastructure Design, Development, and Management

Adopting an integrated approach to infrastructure design, development, and management will reduce development costs and inherent risks while maximizing a broad range of benefits. Integration means designing infrastructure that works with the project's natural systems.

Tradition should embrace a more integrated and holistic approach to infrastructure planning. To reduce capital costs, maximize the long-term value of the community, and reduce long-term operating and maintenance costs, the sponsor should rethink infrastructure elements using a whole-systems and progressive approach that captures the best practices of sustainable infrastructure. For example, the sponsor should take advantage of opportunities to link the conventional infrastructure (such as roads, storm drainage, and street/landscape) with well-designed natural systems (such as landscaped bioswales integrated into a functional lake and drainage system). In this example, an integrated approach will reduce costs of storm-drainage piping and improve the water quality of the project's runoff while potentially creating real estate premiums.

The panel grouped its infrastructure recommendations into the following subsections.

Roads, Trails, and Paths

Tradition should offer an integrated system of roads, trails, and paths that provide access for movement of people and vehicles. The system should be built with locally available, low-impact materials and labor to further support Tradition's sustainability. The panel recommends the following actions to create a roads, trails, and paths system:

Immediate

Use permeable paving where practicable, and explore use of locally available paving materials.

Develop alternative design standards to minimize road widths and incorporate other sustainable design features.

Provide trail and path network linkages to the Town Center.

Drainage and Water Quality

Tradition should incorporate its drainage and water-quality infrastructure with existing natural systems. Understanding and planning to use the site's natural bioregional systems can further reduce long-term liability and maintenance costs. For all actions, the panel recommends that monitoring and adoption of new technology continue over time. The panel recommends the following actions to enhance drainage and water-quality systems:

Immediate

Develop an enhanced stormwater management system, and redesign the lake to be a functional water-quality element in the system.

Install additional erosion control measures.

Utilities

Communities can significantly advance their sustainability by building and managing more sustainable utility systems and encouraging conservation among their residents. The panel encourages the sponsor to explore opportunities to integrate natural systems into the water and sewer system, explore more sustainable sources for electricity, and continuously explore and adopt new technology. As with all recommendations, the

Green building techniques could help reduce energy consumption and create a sustainable community at Tradition while respecting the established traditional architecture standards.

panel encourages the sponsor to monitor the success of sustainability efforts over time.

Using linkages that "close the loop" in the movement of people, goods and services, and wet and dry utilities will help reduce maintenance costs, create community amenities that improve the sustainability of the community, and provide amenities that enhance the financial value of the community. The panel recommends the following actions to support sustainable utilities:

Immediate

Establish a water balance model for the community, and then project current baseline use to evaluate the magnitude of change required. Develop appropriate standards to achieve balance over time.

Evaluate alternative collection, transmission, and treatment options for wastewater, including centralized and decentralized approaches such as STEP (septic tank effluent pumping), STEG (septic tank effluent gravity-draining), grinder pumps, MBR (membrane bioreactors), or constructed wetlands.

Implement erosion control measures, and install bioswales and other landscaping to help in stormwater management.

Conduct an energy assessment for the community, and explore alternative clean sources and uses of energy.

Include productive landscaping and community gardens, and identify a climate-appropriate landscaping palette.

Explore on-site energy storage options, possibilities for distributing energy back to the grid, and cogeneration and trigeneration opportunities.

Design and install a geothermal heat source loop in the lake during early construction for future connection.

Midterm and Long Term

Explore the feasibility of developing wastewater discharge outlets to a biological waste treatment facility.

Create a constructed wetland demonstration system to treat black water and recharge wetlands, and monitor its performance. Scale up over time.

Waste Management

Reducing waste produced by the community creates a healthier community and a healthier planet. At Tradition, the sponsor should lead efforts to reduce community waste by encouraging recycling, providing alternative waste management opportunities, and continuously monitoring and adopting new technology. The panel recommends the following actions to manage waste:

Immediate

Develop a waste management plan, including a management strategy for green waste resulting from clearing the land.

Establish a community recycling program for household, business, and green waste streams.

Analyze the feasibility of using biomass for energy.

Midterm and Long Term

Design and implement a construction waste diversion program consistent with green building standards.

Implement a Phased Green Building Program within Tradition

Green building has rapidly become the most accepted tool for building structures that are more resource efficient, healthier to occupy, and less damaging to their site and region. Currently, green building is being promoted as a significant method to reduce greenhouse-gas emissions or carbon footprint because such products use less energy on an ongoing basis than conventionally built structures.

Key elements of a green building program address where the building is sited and its orientation, how the site is prepared, how the building is constructed, and what materials are used. A green building program often requires a modified design process with experienced design professionals, but it results in significant savings in water and energy—and hence operating costs.

To take advantage of green building's potential to affect sustainability at the community level, an analysis of the community's priorities for sustainability should be completed at the beginning. Through this analysis, the focus, emphasis, and metrics of what the program is meant to accomplish can be determined.

From this baseline, programs typically fall into two categories: prescriptive or performance based. Prescriptive programs define what a builder or developer must do to achieve an implied set of goals (for example, use HVAC with 85 percent efficiency rating; put air-conditioning ductwork in air-conditioned space). Performance-based programs define what goal needs to be achieved (for example, reduce energy use by 30 percent) and allow the builder or developer to determine its preferred method.

In markets where the concept of green building is new, prescriptive programs may be most effective because a builder's limited resources (time, money, focus) can be spent on implementing the techniques, training, and finding sources for required materials. Over time, as practices become more mainstream, moving to a performance-based system may be better suited to help achieve the community's stated goals while also allowing the builders to innovate and use different means and methods on their projects.

At the community level, green building programs are typically required by the master developer and apply to anyone that is building or developing products within the community. The program or level of attainment can be made part of the purchase and sale contract and then reinforced in detail in the community's design standards.

Programs currently exist to either guide or certify designers, developers, and contractors on how to build more green. These programs were developed by a number of organizations that could serve as valuable resources and partners for Tradition. They include the U.S. Green Building

Council (www.usgbc.org), a national nongovernmental organization that authored the highly regarded LEED (Leadership in Energy and Environment Design) program for new construction. Another regional resource and partner is the Atlanta-based Southface Energy Institute, which has developed both a residential green building program (Earthcraft) for hot, moist climates and a green community certification. The U.S. Environmental Protection Agency's Energy Star program and the U.S. Department of Energy's Building America program (in association with its Florida-designated contractor) could provide valuable guidance in developing a program that will have the most effect, given the region's difficult climatic issues and the local construction trades' lack of green building experience.

The panel recommends the following actions to design and implement a green building program for Tradition:

Immediate

Complete a projection of community energy use, water use, and waste generation over Tradition's buildout using conventional building techniques.

Establish targets for reduction from this potential. Define what role green building should play in meeting those targets. Frame Tradition's green building strategy around this analysis.

Construct all Tradition-initiated buildings to a recognized standard (LEED for nonresidential, Earthcraft, or other for residential) to better understand market acceptance and construction issues. Anticipate a 2 to 5 percent cost premium over conventional construction.

Research potential training partners and grants to begin training builders and their trades in green building.

Implement the Tradition green building training program in conjunction with identified partners (technical school, local home builders association, or others).

Midterm

Building on knowledge gained in the immediate term, expand target to attain LEED-Silver certification for all nonresidential buildings being constructed in Tradition. Cost premium should decline as green building practices become more commonplace.

Long Term

Refine green building program to attain ultimate targets necessary to meet metrics defined in the baseline business-as-usual model.

Measuring Success

The panel recommends establishing quantitative targets for sustainability at Tradition and monitoring these targets over time. Tradition's management team should review the measures, celebrate the community's achievements, and identify areas to improve the community's sustainability.

Over time, the leadership could revise the targets to ensure that the community continuously strives for a balanced approach in achieving social, environmental, and economic sustainability. Concrete measures and reliable monitoring are the key to ensuring and communicating Tradition's role as a model for sustainable community development and management.

The panel recommends that Tradition's management create a set of targets based on the panel's work, publications by peer institutions, and internal sustainability goals. All targets should reflect the overall vision statement for the community.

Targets should measure the community's success in achieving key sustainability benchmarks (i.e., reduction in vehicle miles traveled, reduction in carbon emissions, accommodation of diverse income groups, protection of the environment, and more). The figure on the following pages provides examples of possible indicators that can be measured. The panel encourages the sponsor to revise, expand, and weight this list to reinforce the community's sustainability vision.

Tradition can use a variety of tools to report on the community's achievement of its sustainability goals and to encourage focus on specific goals. Through the recommended Gulf Coast Institute for Sustainable Technology and the Tradition sustainable development center, the community could sponsor an annual or biannual Tradition sustainability conference to review, analyze, and discuss the metrics of sustainability at Tradition and to evaluate innovations emerging from Tradition as a living laboratory of the techniques of sustainability. Tradition's communication system and social organizations can also help educate and encourage residents to adopt sustainable practices and lifestyles. Throughout the community, the sustainability targets can be an organizing and energizing element.

The table on the following pages suggests measures that Tradition could use to monitor the effectiveness of sustainability strategies. The panel recommends developing these measures to correspond to Tradition's sustainability goals and updating them over time to reflect changing priorities and opportunities.

Sustainability Measures

Economic Indicator	Unit
Jobs/housing balance	Ratio of jobs to dwelling units
Sales	Home sales per year
Economic diversity	Housing affordability

Social Indicator	Unit
Participation in community clubs	Percentage of residents who belong to at least one club
Satisfaction with community	Percentage of residents who express satisfaction with the community
Academic achievement	Standardized test scores (SAT and ACT)
Voter participation	Percentage of residents who vote in local elections at Tradition precincts
Physical activity	Percentage of residents who meet the Surgeon General's minimum exercise requirements

Environmental Indicator	Unit
Residential energy consumption	Energy per square foot per year
Commercial energy consumption	Energy per square foot per year
Residential water consumption	Gallons per year per home
Commercial water consumption	Gallons per year per square foot
Greenhouse-gas emissions	Tons per year per person
Trip generation	Trips per household per week
Biodiversity	Number of species in the community
Stormwater quality and quantity	Total suspended solids, pollutants, turbidity, and peak volumes

[1] The panel defines affordable housing as attainable for households earning area mean income or less.
[2] National averages reported by Energy Star.
[3] Energy consumption includes fuel consumption, electricity usage, emissions captured by trees, etc.

How to Measure	Compare to
Survey employers and calculate in-house	Target of 0.5 jobs per dwelling unit
Document sales and calculate in-house	Local developments
Survey affordable housing inventory[1]	Other local communities

How to Measure	Compare to
Survey club leaders	–
Survey residents	–
Obtain from school district	National and state averages
Obtain from local government	National and state averages
Survey residents	National averages

How to Measure	Compare to
Form partnership with utility to regularly obtain data	State averages
Analyze bills for each building	National averages[2]
Form partnership with utility to regularly obtain data	State averages
Analyze bills for each building	National averages
Establish baseline and system for recording[3]	–
Conduct periodic studies with a traffic counter	National averages
Annual monitoring and measurement	Predevelopment analyses and surrounding samples
Test sampling following storm events	Predevelopment analyses and surrounding samples

About the Panel

Daniel C. Van Epp

Panel Chair
San Diego, California

Executive vice president and chief operating officer for Newland Communities, Van Epp has overall responsibility for its four operating regions of Newland Communities and its regional presidents nationwide. He is also heading up Newland's new urban mixed-use efforts and its 10 million-square-foot Union Park project in Las Vegas, Nevada. He brings three decades of experience in real estate development and leadership to the panel.

Van Epp was senior vice president of the Rouse Company and president of its affiliate, the Howard Hughes Corporation, where he was responsible for the planning, development, and production of numerous residential, retail, and office projects totaling millions of square feet. While at the Howard Hughes Corporation, he led the development of the 22,500-acre Summerlin community in Las Vegas. He has been the recipient of numerous industry and civic awards.

Van Epp is a cum laude graduate of Virginia Tech and a trustee of the Urban Land Institute.

Hank Baker

Denver, Colorado

During his 30 years in real estate development, Baker has had direct responsibility for the acquisition, design, development, and management of over $1 billion in urban real estate projects. He opened Forest City's Denver office in June 1998 and is currently responsible for developing the overall image and marketing efforts for the 4,700-acre mixed-use Stapleton Redevelopment project as well as coordinating efforts relative to economic development, education, and telecommunications. Located ten minutes east of downtown Denver, Stapleton will become a community of 12,000 homes and 13 million square feet of office and retail space as well as over two square miles of parks and open space. By late 2007, more than 3,200 Stapleton homes had been sold and occupied with more than 2 million square feet of commercial space leased. Additionally, Baker has been actively involved in the early visioning, design, and marketing for the 12,000-acre Mesa del Sol development in Albuquerque, New Mexico.

From 1986 to 1992, Baker was vice president in charge of Forest City's San Francisco office and, from 1995 to 1998, was vice president–marketing for Irvine Apartment Communities, a division of the Irvine Company, owner of the 90,000-acre master-planned Irvine Ranch in southern California.

Baker is a graduate of Cornell University and a member of the Urban Land Institute, the Cornell Real Estate Council, and the University of Colorado Real Estate Council. His community involvement includes serving on the boards of the Public Education Business Coalition, Metro Denver Economic Development Corporation, CTEK Stapleton business incubator, and Stapleton Foundation.

Francisco Benavides

Murray, Utah

Benavides is the sustainable development, health, safety, and environment manager for Kennecott Land, a land development company whose goal is to build enduring communities on Salt Lake Valley's West Bench. Kennecott Land is a subsidiary of Rio Tinto, a leading global mining company. Benavides' role at Kennecott Land includes orchestrating its efforts in sustainable development, positioning the company for recognized excellence in environmental stewardship, and realizing the company's commitment to an injury- and illness-free workplace. His work has help embed sustainability in how Kennecott operates, and it has

demonstrated the tangible benefits of operating under a sustainability model. The company has obtained various national and international certifications and awards for building design, environmental management, outstanding safety performance, and sustainability reporting.

Previously, Benavides held environmental, health, and safety management positions at Intel Corporation in different countries. He holds a PhD in environmental science with a policy specialization and a master's degree in chemical engineering with an environmental focus. He has been a speaker at meetings organized by ULI, the U.S. Environmental Protection Agency, and other organizations.

Hooper Brooks

London, United Kingdom

Brooks is the director of international programs for His Royal Highness Prince Charles' Foundation for the Built Environment and responsible for representing the organization internationally and developing and managing the foundation's international portfolios.

Throughout his career, Brooks has been dedicated to promoting sustainable planning and design. Previously, he was program director for the environment at the Surdna Foundation in New York City, a family foundation with an 80-year history. This past year, Brooks has had an appointment as Lecturer teaching a seminar on land use planning for master's degree students at Yale University's School of Forestry and Environmental Studies.

Brooks received a BA from Harvard College, majoring in architectural sciences, and a master's degree in landscape architecture from the Harvard Graduate School of Design. He is a former vice president at the Regional Plan Association, addressing conservation and development issues in the New York tristate metropolitan region.

Nicholas R. Corker

Watford, United Kingdom

Corker has over 20 years' experience in the private, public, and voluntary sectors. As a sustainable development professional, he has a leaning toward ecology, particularly that of systems. He is interested in the way settlements work. As a member of the Society for the Protection of Ancient Buildings, he has an active interest in vernacular architecture, particularly farmsteads and mills. Corker is currently working on a BRE Trust project exploring the characteristics of sustainable communities. He has wide experience of participatory planning, contributing to design panels, design coding, and negotiation.

Since joining BRE, he has been proactive in sustainable communities research and practice. He has contributed to a range of Enquiry by Designs for the Prince's Foundation for the Built Environment (Walton on the Naze, Ballater, and Ellon). He is also BRE's coordinator for the Prince's Foundation demonstration house.

For five years, Corker worked in local government, most recently as a natural environment team leader managing biodiversity, landscape architecture, and environmental impact assessment for a county council. His work included developing Chester Heritage Farm, a historic Roman and medieval landscape, identifying sustainable directions of growth using environmental appraisal techniques, reviewing environmental impact assessments, and contributing to supplementary planning guidance. Before that, he was a borough council's sustainable development coordinator. His responsibilities included Upton, a sustainable urban extension, farmers markets, and the Upper Nene Valley Country Park. Planning work included sustainability appraisal of local development frameworks, reviewing environmental impact assessments, writing the council's sustainable development strategy, and devising an urban forest strategy.

Corker spent ten years working in agricultural colleges, teaching and researching sustainable land use, developing curriculum, leading academic staff, managing a sustainable farm project, and undertaking extension work. His early experience included leading conservation volunteer teams for the British Trust and running a rural practical conservation business in North Wales. He is a qualified drystone waller and forestry worker.

Patrick Curran

Los Angeles, California

Curran is an associate with SWA Group, an urban design and landscape architecture firm in Los Angeles, California. Over his ten-year career, he has worked on a wide range of project scales with a rigorous focus on sustainability and the operative nature that landscape contributes to the development of urban plazas in regional development plans. His practice concentrates on the urban–wild land interface, the collaboration of design with science, and the opportunities to use landscape as a means of finding sensitive solutions to contemporary infrastructure problems. His project portfolio includes hydrology reclamation strategies, large-scale landscape restoration, urban parks, and infill development project in the United States, New Zealand, Mexico, and Asia.

Most recently, Curran served as the project manager for Mountain House Creek, a three-mile, 500-foot-wide urban infrastructure for a new town in San Francisco's East Bay. Accommodating 15,000 new residents, the restoration project facilitates stormwater management runoff, wildlife habitat, and community recreation. Currently, he is overseeing the design and planning of a new open-space restoration development in the upper watershed of Kunming, China. He directed the initial master plan in 2002 and has seen the project through to its current construction of over 150,000 square meters of mixed-use development and the restoration of over 200 hectares of open space.

Curran earned a master's in landscape architecture from the Harvard Graduate School of Design and a bachelor's of landscape architecture from the University of Oregon. He is an executive officer for the American Society of Landscape Architects' Sustainable Sites Initiative, a founding member of the Kounkey Design Initiative, and a LEED-accredited professional since 2001. Over the past four years, Curran has presented extensively at universities and professional organizations, both domestically and internationally, about the emerging paradigms of sustainability and infrastructure-based landscapes.

Jim Heid

San Francisco, California

Heid is a real estate developer, adviser, and author, focusing on creation of communities that provide a positive contribution to their environment, region, and residents. In 2000, he founded UrbanGreen, LLC, to act as development partner and adviser to legacy landowners, institutions, and land development companies that embrace principles of sustainability. He is currently an adviser to national land developers and legacy landowners working to pursue sustainable development at the community scale in more than 14 states and four countries.

Before founding UrbanGreen, Heid worked as a land planner and adviser with Design Workshop (1987–1993) and EDAW (1994–2000), where he also served as chief operating officer and senior vice president. In 1994, he earned a master's of science in real estate development at Massachusetts Institute of Technology.

Heid is a member of the U.S. Green Building, the Congress for New Urbanism, and the American Society of Landscape Architects. He is a Council of Landscape Architectural Registration Boards registered landscape architect.

Jeff Kingsbury

Zionsville, Indiana

Kingsbury is the managing principal of Greenstreet Ltd., an Indiana-based real estate development, brokerage, and consulting firm. His experience includes more than 15 years in the planning and development of 25 urban, suburban, rural, and resort master-planned communities in California, Colorado, Idaho, and Illinois, totaling over 9,000 homes. He has managed the sale of over 1,000 homes and $350 million in residential real estate and consulted on planning, development, and corporate strategy issues for public and private sector clients in a dozen states.

He has held senior executive positions with McStain Neighborhoods and Durango Mountain Resort in Colorado; Kirkwood Mountain Resort in California; Grossman Company Properties in

Boise, Idaho; and the Shaw Company in Chicago. His homebuilding and project development experience includes some of the leading sustainable development projects in the nation: the 4,700-acre redevelopment of Denver's Stapleton International Airport, the nation's largest urban redevelopment project (ULI Award for Excellence); Belmar, a 100-acre regional mall redevelopment in Lakewood, Colorado (ULI Award for Excellence); Lowry, a 1,900-acre redevelopment of the Lowry Air Force Base in Denver; Hidden Springs, an 1,800-acre rural community outside Boise, Idaho; Prairie Crossing, a 667-acre master-planned community in Grayslake, Illinois; and Homan Square, a 55-acre redevelopment of the former Sears, Roebuck and Co. world headquarters in Chicago (ULI Award for Excellence).

Kingsbury holds degrees in urban planning and development and environmental design from the College of Architecture and Planning, Ball State University, where he is also adjunct professor of urban planning. He is an author of the book *Developing Sustainable Planned Communities* (ULI, 2007) as well as a teacher and frequent speaker on sustainable development issues.

William G. Lashbrook III

East Brunswick, New Jersey

Lashbrook began a banking career with the Bank of New York in 1973. He held various positions in corporate lending before moving into real estate in 1984 and has been active in commercial real estate lending ever since. He left the Bank of New York in 1993 to join MidLantic as the real estate credit officer, a position he retained while moving to the Pittsburgh headquarters, following PNC's acquisition of that bank in 1996. Moving to the production side in 1998, Lashbrook started a residential lending group that focused on national homebuilders and multifamily lending.

In 1999, Lashbrook started a new position in portfolio and business risk management within PNC's Real Estate Group. The goal was to operate real estate lending as a business, not just as a portfolio of loans, which required the development of new tools and systems for risk/return analysis, profitability reporting, and interfacing with bank regulators and oversight groups. He was involved in PNC's strategic real estate diversification efforts, including acquisitions. In early 2005, he left Pittsburgh and moved back to the product side of the business by taking over responsibility for PNC's commercial real estate lending activities in New Jersey.

Lashbrook graduated with a BA in political science and economics from Duke University in 1973 and received an MBA from Seton Hall in 1976. He has served on the board of directors of the National Multi-Housing Council and is a member of the Urban Land Institute, where he chairs that organization's Urban Development–Mixed Use Gold Council. He has been a ULI Advisory Panel member for projects in Washington, D.C., Detroit, Virginia Beach, and Raleigh. He is a member of ULI's Program Committee and currently sits on its Policy and Practice Committee. He is a member of the board of directors for the New Jersey Chapter of the U.S. Green Building Council. Currently residing in Hopewell, New Jersey, he was a member of the Township of Hampton, Pennsylvania, Planning Board for six years, chairing it for four years.

Franklin A. Martin

Boise, Idaho

Martin is the managing member of Martin Community Development, LLC. He is responsible for the development of Hidden Springs, Idaho, an 1,800-acre planned community in the Boise front foothills. Hidden Springs was the 2000 recipient of the "Best in American Living" Platinum Award for Smart Growth sponsored by *Professional Builder* magazine and the National Association of Home Builders.

Between 1971 and 1997, Martin was responsible for the development of more than 3,000 homes, primarily in the metropolitan Chicago market. From 1989 to 1997, he was chief operating officer of Shaw Homes, Inc., an affiliate of the Shaw Company. During this period, he oversaw the development of several award-winning communities, including Garibaldi Square, Homan Square, Luther Village, Prairie Crossing, and the Reserve at the Merit Club.

Martin is chair of the Urban Land Institute's Sustainable Development Council and the ULI Idaho District Council. He is a member of the National Association of Home Builders and the Ada County, Idaho, Planning and Zoning Commission. Martin has chaired six ULI Advisory Service panels and served on two other panels. He received a bachelor's degree in economics from Hanover College and an MBA in finance from the University of Chicago. He is a licensed real estate broker in Idaho and Illinois.

Frederick L. Merrill, Jr.

Watertown, Massachusetts

For more than 25 years, Merrill has led master-planning and implementation strategies for commercial real estate development, large-scale land development, master-planned communities, institutional landholdings, downtowns and urban districts, and military base reuses. He directs interdisciplinary planning and design teams across all phases of planning and implementation, including public participation and consensus building throughout the entire governmental/regulatory approval process.

Merrill's current practice includes leading an interdisciplinary team in the transformation of a low-density residential master-planned community into a higher-density mixed use "medical city" with a range of residential, commercial, retail, and civic uses; developing a new high-density sustainable master-planned community with a broad range of commercial and employment uses; envisioning a master plan for a new district related to a major research university that is based on social, economic, and environmental sustainability; forming a redevelopment strategy for a campus-downtown urban district for a combined city/university client; and transforming a former military base into a new town with a balance of residential, employment, commercial, and civic uses.

A frequent presenter at national planning and real estate development conferences, Merrill is a co-instructor at the Harvard University Graduate School of Design's Executive Education Seminar Program. A resident of Lexington, Massachusetts, Merrill served seven years on the town's Planning Board, including two years as chairman. He earned a master's of city planning and an MS in architectural studies from the Massachusetts Institute of Technology and a BS in land economics from the University of Wisconsin–Madison. Merrill is a member of the Urban Land Institute's Sustainable Development Council.

Thomas Murphy

Washington, D.C.

A senior resident fellow, ULI/Klingbeil Family Chair for urban development, Murphy joins six other ULI senior resident fellows who specialize in public policy, retail/urban entertainment, transportation/infrastructure, housing, real estate finance, and environmental issues. His extensive experience in urban revitalization—what drives investment, what ensures long-lasting commitment—is a key addition to the senior resident fellows' areas of expertise.

Since January 2006, Murphy has served as ULI's Gulf Coast liaison, helping coordinate with the leadership of New Orleans and the public to advance the implementation of rebuilding recommendations made by ULI's Advisory Services panel last fall. In addition, he worked with the Louisiana state leadership, as well as with leadership in hurricane-affected areas in Mississippi, Alabama, and Florida, to identify areas appropriate for ULI involvement.

Before his service as the ULI Gulf Coast liaison, Murphy served three terms as the mayor of Pittsburgh, from January 1994 through December 2005. During that time, he initiated a public/private partnership strategy that leveraged more than $4.5 billion in economic development in Pittsburgh. Murphy led efforts to secure and oversee $1 billion in funding for the development of two professional sports facilities and a new convention center that is the largest certified green building in the United States. He developed strategic partnerships to transform more than 1,000 acres of blighted, abandoned industrial properties into new commercial, residential, retail, and public uses, and he oversaw the development of more than 25 miles of new riverfront trails and urban green space.

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