

City of Wilmington

Urban Design

Guidelines to manage equitable, resilient, and sustainable growth

DRAFT



SPECIAL THANKS TO THE WILMINGTON CITY COUNCIL:

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Cover Photo
Will Page Photography for WDI

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“Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody.”

- Jane Jacobs



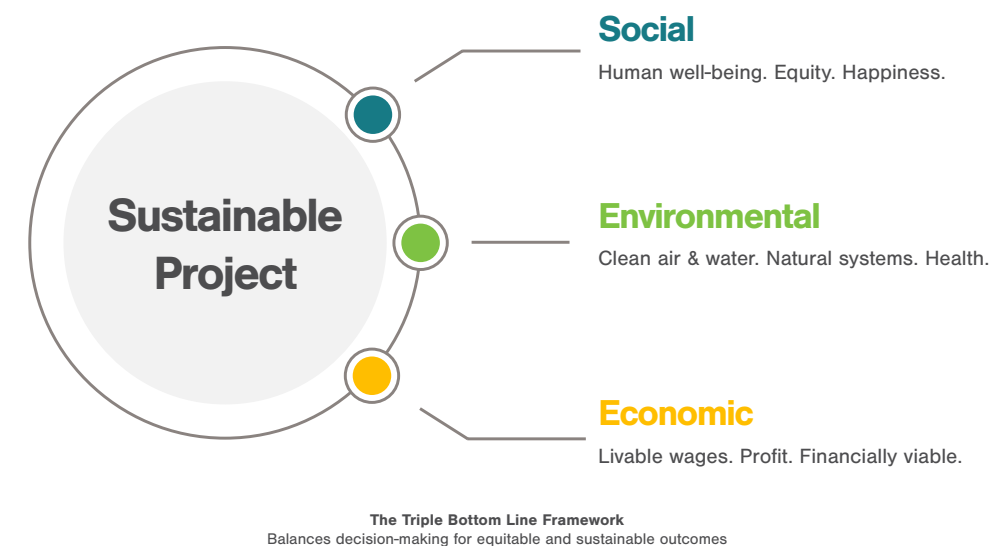
Historic Downtown Wilmington
Will Page Photography for WDI

Introduction

This document is a comprehensive and sustainability-focused capital project toolkit designed to guide the implementation of the *Create Wilmington Comprehensive Plan*. It provides a framework for construction and development that considers multi-generational impacts and acknowledges the need to address impacts of historical decisions on marginalized and vulnerable communities.

Much of Wilmington’s charm comes from its coastal and riverside proximity, historical importance, and walkable neighborhoods. Our success in implementing prior urban design practices has contributed to our national appeal. For example, the *Riverwalk* promenade, the *Brick Streets Program*, and the *Historic District* expansion are all recommendations from the city’s original *Urban Design Policy* adopted in 1989. These endeavors have helped Wilmington share its culture with visitors while protecting its natural and cultural assets for future generations.

This toolkit provides guidance and information on best urban design practices. It is organized by the **Triple Bottom Line** framework to balance the environmental, social, and economic impacts for capital projects. Ecological integration, human well-being, and transportation & economy each represent the distinct triple bottom line categories. Additionally, policy guidance from the *Create Wilmington Comprehensive Plan* is summarized for each topic area with relevant policies listed in the appendix.



Two types of recommendations are presented throughout the document:

Design Guidelines. The guidelines identify specific tools and best practices that should be considered during the early phases of project conception and design.

Big Ideas. These are initiatives that could provide additional direction and support for each theme. Each big idea is tied to a related *Strategic Plan* focus area and initiative to assist departments in efforts to seek funding for these important tools.

“The strength of the team is each individual member. The strength of each member is the team”

- Phil Jackson



For Project Managers & Staff

These Urban Design guidelines require collaboration among fields that have often operated independently from one another. These guidelines encourage staff to consider creative project delivery methods that may differ from those used in the past.

General Guidelines

- All capital projects should use an interdisciplinary design review process to maximize positive social, environmental, and economic impacts. Early collaboration will save time and money.
- Long-term maintenance requirements should be considered along with initial up-front project construction costs when determining the most appropriate design approach.
- Designers are asked to incorporate the recommended design guidelines into projects, to the greatest extent feasible.

Project Stakeholders

- To make it easy to identify potential stakeholders, icons are provided in each section to highlight the city departments, city divisions, and outside agencies to include in project development.
- For best project outcomes, all stakeholders must be represented early in project concept development. Again, early collaboration will save time and money.



Public Works



Stormwater



Parks & Rec



Urban Design



Wave Transit



Utility Providers



Planning & Development



Facilities



Resilience Manager



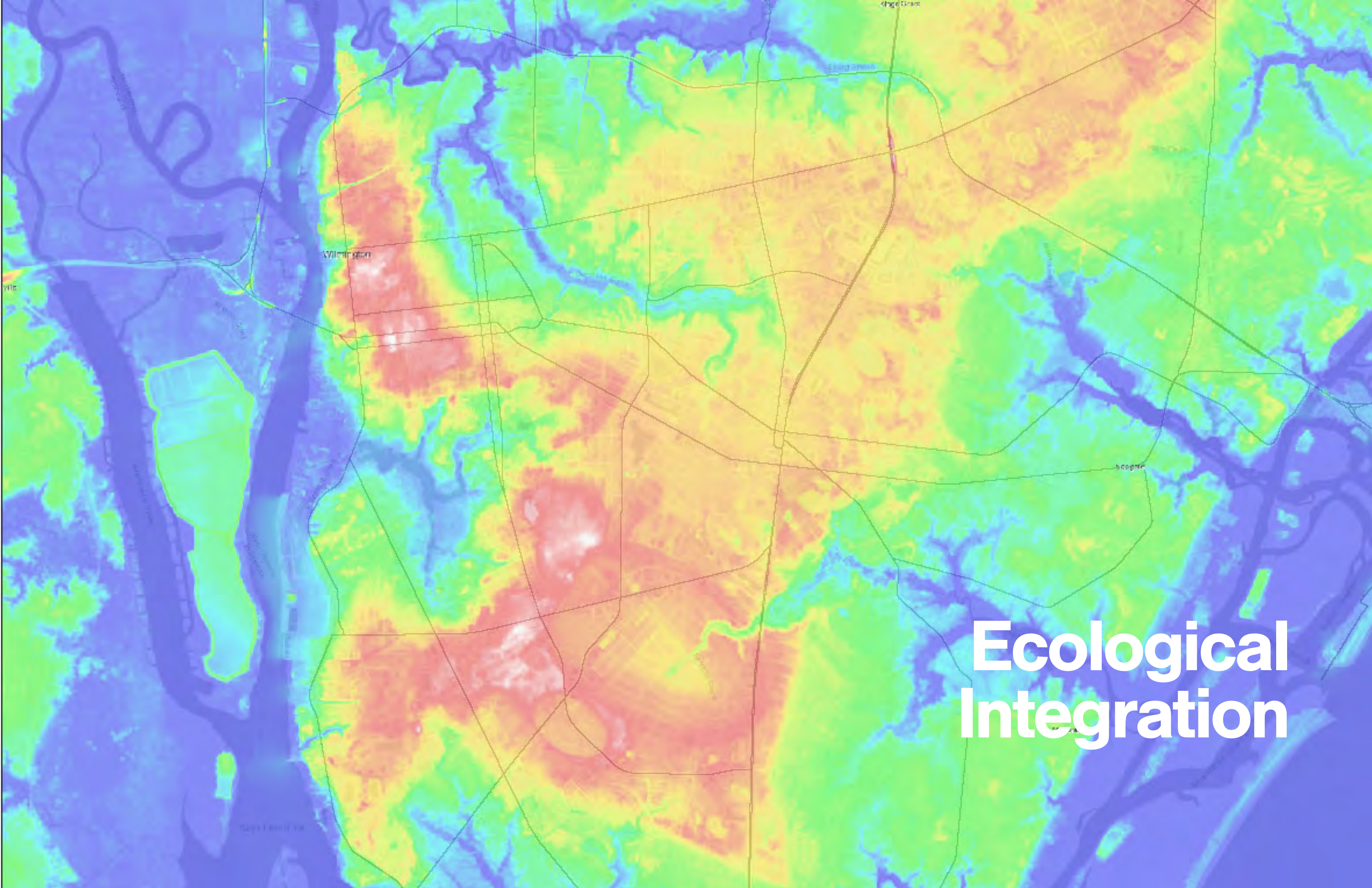
Engineering



Arts Council



Wilmington Downtown Inc



Ecological Integration

“The goal of life is to make your heartbeat match the beat of the universe, to match your nature with Nature.”
 - Joseph Campbell

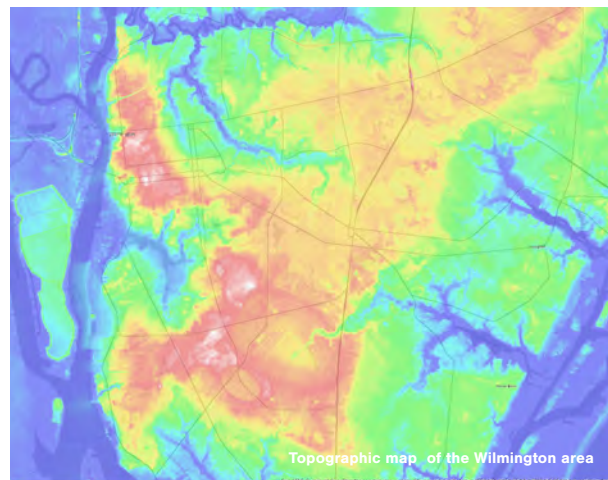


Natural Infrastructure

Wilmington’s natural ecosystems are primary components of our community’s quality of life, safety, and beauty. Given our coastal and riverside proximity and our reliance on them as primary sources for food, recreation, and economic benefit, it is essential that we maximize the health of our environment. Transportation and infrastructure systems often divert pollutants to the environment with detrimental effects on local wildlife. Our infrastructure provides ample opportunity to introduce systems such as native landscape plantings and stormwater filtration that not only clean pollutants from our air and water, but come with many additional benefits such as increased biodiversity and habitat, enhanced well-being for people, and strengthened climate resilience.

Design Guidelines

- 1.1 Integrate green infrastructure, native vegetation, wildlife habitat, and natural stormwater infiltration into project designs.
- 1.2 Incorporate *Urban Forest Master Plan* recommendations into project designs. Align tree standards and specifications with urban forestry industry standards and best practices.
- 1.3 Minimize impacts to natural areas and wetlands. This includes buildings and roadways, and their stormwater runoff.



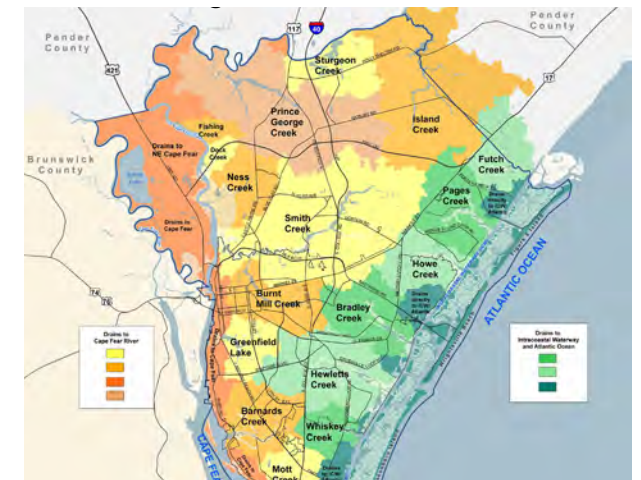
Create Wilmington Comprehensive Plan Direction & Guidance

Protect, restore, enhance, and maintain watersheds. Manage stormwater runoff from buildings, roads, and parking lots to minimize stormwater system pollution. Enhance major transportation corridors with landscaped pedestrian-friendly public spaces. Minimize development in natural areas and wetlands. Locate open space and greenways along riparian buffers to provide environmental and recreational benefits. Enhancement of NCDOT corridors as pedestrian-friendly public spaces adorned with trees and landscaping should be prioritized.

Big Ideas

Develop a **Stormwater Management Plan** to identify green infrastructure, habitat and stormwater treatment projects that clean our watersheds. (Strategic Plan Focus Area: Develop an efficient, accessible, and sustainable multi-modal transportation network and city infrastructure - Initiative 3.2)

Continue to maintain and update the **Urban Forestry Master Plan** to identify green infrastructure, habitat, and stormwater treatment projects that clean our watersheds. (Strategic Plan Focus Area: Develop an efficient, accessible, and sustainable multi-modal transportation network and city infrastructure - Initiative 3.2)



“Setting an example is not the main means of influencing others, it is the only means.”
- Albert Einstein



Wilmington's Fire Station No. 3
LEED Silver Certification

Public Facilities

Public facilities such as buildings, sewage and water treatment plants, public parking areas, community centers, and parks are significant features in any cityscape. We should promote exceptional design practices with our facilities since the condition and appearance of municipal properties establishes a commitment to quality. It offers the city an opportunity to lead by example, meet our clean energy and greenhouse gas reduction goals, lessen environmental pollution, and expand accessibility for people of all ages and abilities. Cities across the world are now using green certification programs to highlight their commitment to sustainability and promote practices that work best for their communities.

Design Guidelines

- 2.1 Incorporate passive design strategies in buildings to improve energy efficiency and reduce greenhouse gas emissions.
- 2.2 Incorporate on-site renewable energy production or identify design parameters that will allow for future installation.
- 2.3 Design parks and roadways to manage pollution and stormwater runoff from surrounding areas, where possible.



Cities are part of their local ecosystems
Photo by Tyler Butler on Unsplash

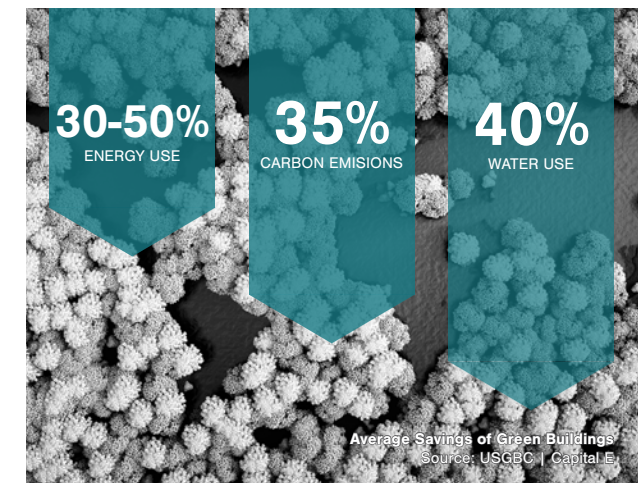
Create Wilmington Comprehensive Plan Direction & Guidance

Incorporate sustainable design and energy efficiency measures practices in capital projects. Consider best practices that optimize long-term viability, versatility, energy efficiency, and neighborhood compatibility while minimizing maintenance costs and environmental impacts. Encourage brownfield redevelopment, adaptive reuse, and redevelopment of underdeveloped and blighted properties Energy efficiency measures should be incorporated into municipal projects to reduce material use, fuel costs, and carbon emissions. The **Capital Improvements Plan** should align with the **Create Wilmington Comprehensive Plan**.

Big Ideas

Adopt a **Sustainable Municipal Building Policy** that promotes use of sustainable building practices for municipal operations. (Strategic Plan Focus Area: Develop an efficient, accessible, and sustainable multi-modal transportation network and city infrastructure - Initiative 3.1)

Design and/or retrofit public facilities to serve as **Community Refuge Points** to maintain safe temperatures and provide power during sustained power disruptions. (Strategic Plan Focus Area: Create a safe, healthy, and engaged community - Initiative 1.3)





“Plan for what is difficult while it is easy,
do what is great while it is small.”
- Sun Tzu, The Art of War



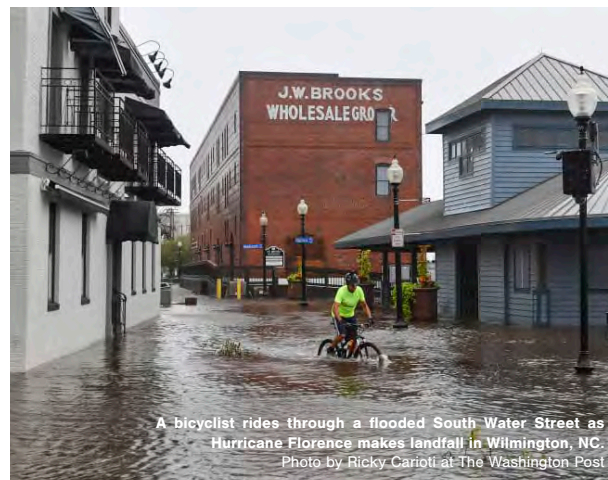
Hurricane Florence nears the east coast in 2018
Photo by NOAA

Resilient Utilities

Utilities are essential components of any city and we should consider their resiliency as essential as well. Many residents have experienced firsthand what happens when a storm or other natural phenomenon disrupts the power grid. Natural and human-made systems change and we should design our utilities to prepare for and adapt to our changing world. The success of any sustainable system includes the ability to quickly and independently recover from impacts and shocks, and evolve as needed. Communities should identify their strengths and weaknesses to minimize impacts to critical systems during disasters and work with utility providers to develop an implementation strategy for resilience.

Design Guidelines

- 3.1 Design and implement resilient utilities with redundancy and diversification to ensure that critical functions can be maintained during disruptions.
- 3.2 Develop flexible and adaptive utility infrastructure that can adjust to changing conditions and demands. Integrate real-time monitoring, predictive analytics, and automated responses to disruptions.
- 3.3 Integrate resilient utility projects into the city’s *Capital Improvement Plan*.



A bicyclist rides through a flooded South Water Street as Hurricane Florence makes landfall in Wilmington, NC.
Photo by Ricky Carioti at The Washington Post

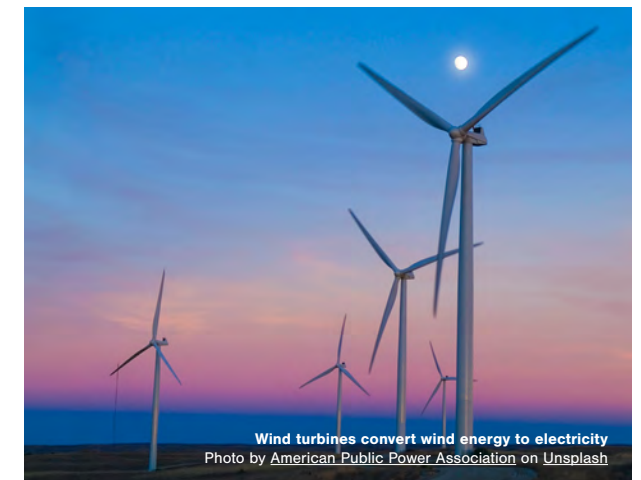
Create Wilmington Comprehensive Plan Direction & Guidance

Minimize impacts from flooding, increased shoreline erosion, loss of wetlands, and saltwater intrusion from rising sea levels in planning and design of infrastructure. Analyze vulnerability of critical infrastructure, identify vulnerable populations, evaluate capacity to respond, and identify measures to reduce vulnerability. Support efforts to develop renewable energy sources and reduce greenhouse gas emissions as part of a comprehensive resilience strategy.

Big Ideas

Create and maintain a **Resilience Plan** that identifies opportunities for environmental conservation and regeneration and considers natural resources for storm buffers, food supply & production, and recreation. (Strategic Plan Focus Area: Create a safe, healthy and engaged community - Initiative 1.3)

Partner with utility providers to develop and implement a **Utility Resilience Plan** that identifies risks and vulnerabilities to utility systems and identifies strategies to protect these systems from outages. (Strategic Plan Focus Area: Create a safe, healthy and engaged community - Initiative 1.3)



Wind turbines convert wind energy to electricity
Photo by American Public Power Association on Unsplash



**Human
Well-being**



“If you plan cities for cars and traffic, you get cars and traffic. If you plan for people and places, you get people and places.”
- Fred Kent



Hillsborough Street in Raleigh, NC offers accommodations for all users and space for events
Photo by North Carolina State University

Equitable Mobility

Transportation systems that prioritize equitable modes of travel enhance the city’s urban ecology, support the health and well-being of its residents, and increase economic gains and property values. Our street networks should allow all people to travel, incorporating people of all abilities and modes of travel. The use of motor vehicles should not discourage pedestrian, bicyclist, and transit riders from using the public right-of-way. The ability to safely and comfortably use the street, whether on foot, bike, or transit, should be considered integral to project design from the beginning, rather than as “additional” or “special” design elements added onto a vehicular-focused street design.

Design Guidelines

- 4.1 Prioritize mobility projects in historically underserved communities.
- 4.2 Ensure transportation facilities support the multi-modal mobility needs of all people regardless of age, size or ability.
- 4.3 Integrate Complete Streets concepts, Walk Wilmington recommendations, and Comprehensive Greenway Plan recommendations into all transportation projects.



Bikeshare offers low-cost transportation options
Photo by nextbike on Unsplash

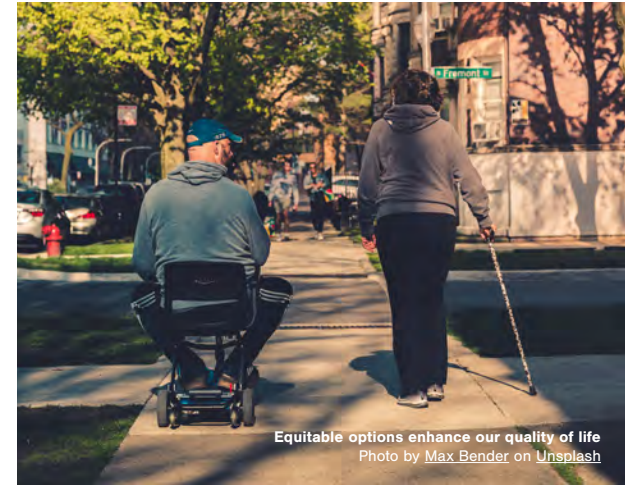
Create Wilmington Comprehensive Plan Direction & Guidance

Promote an integrated, multi-modal transportation system that offers safe and attractive choices among travel modes. Provide enhanced bicycle and pedestrian circulation, access and safety. Provide mobility for all types of transportation modes and users through complete street design. Design streets as public spaces that are scaled for pedestrians and enhanced with street trees and landscaping according to the guidance provided on Growth Strategy Map 3: Corridors and Complete Streets for different street types.

Big Ideas

Develop a **Complete Streets Policy** and associated street design guidelines that identify a range of elements that may be employed to improve mobility based on community context and feasibility. (Strategic Plan Focus Area: Develop an efficient, accessible, and sustainable multi-modal transportation network and city infrastructure - Initiatives 1.2 and 2.2)

Create a **Bicycle Improvement Plan** to guide multi-modal investments. (Strategic Plan Focus Area: Develop an efficient, accessible, and sustainable multi-modal transportation network and city infrastructure - Initiative 1.2)



Equitable options enhance our quality of life
Photo by Max Bender on Unsplash

“Everybody needs beauty as well as bread, places to play in and pray in, where nature may heal and give strength to body and soul.”

-John Muir



Parks with active amenities provide significant increases in physical activity
Greenfield Park, Wilmington

Public Health & Greenspace

An extensive body of research shows that living near nature and greenspace provides a wide range of both physical and mental health benefits. Natural parks and green infrastructure can offer cleaner air, cleaner water, and places to play, exercise, and relax. Vegetated parks help to regulate temperatures of developed areas and act as mini-processing centers for air purification. They also provide opportunities for community events and other social interactions, which also increase our sense of well-being. As we plan for the future with our community park needs, we should also find opportunities to address historical injustices in the location and quality of these facilities to provide equitable access for all.

Design Guidelines

- 5.1 Design flexible greenspace to balance ecological, programmatic, and passive park needs to the greatest degree possible.
- 5.2 Prioritize acquisition of open space in the areas identified on the *Priority Areas for New Parks* map of the *Parks Master Plan*.
- 5.3 Prioritize construction and maintenance of Greenways, Streetscapes, and other Green Connections for inclusion in the city’s *Capital Improvement Plan*.



Public parks are vital to community health
Photo by www.wilmingtonandbeaches.com



Create Wilmington Comprehensive Plan Direction & Guidance

Consider safety, security, ease of use, and equity when planning, designing, constructing, and maintaining greenways, blueways, and trails. Facilitate multi-modal connectivity to trails and greenways. Incorporate sustainable design principles into development and management of park facilities. Increase park space, improve existing park spaces, and prioritize maintenance and amenities throughout Greater Downtown. Leverage parks, leisure, natural resources, streetscapes, public realm enhancements, and arts and cultural amenities as key economic development assets.

Big Ideas

A Parks & Recreation/Urban Design initiative to create **Parks Branding Standards** that include consistent signage and site furnishing standards across the park network. (Strategic Plan Focus Area: Develop an efficient, accessible, and sustainable multi-modal transportation network and city infrastructure - Initiative 3.1)

Revitalize Greenfield Park, our city park, through appropriate staffing, landscape maintenance, facility maintenance, and litter abatement. (Strategic Plan Focus Area: Create a thriving, inclusive, and affordable community of neighborhoods - Initiative 3.3)



Wilmington offers many opportunities for active lifestyles
Greenfield Park, Wilmington

“Art should be something that liberates your soul, provokes the imagination, and encourages people to go further.”

- Keith Haring



Raleigh offers the nation's largest art park connecting people with art and nature
Photo by www.visitraleigh.com

Public Art

Public art creates fun and engaging opportunities to share stories of our coastal environment, cultural diversity, and unique history. It is also an equitable and effective way to connect with our neighbors as it is publicly viewable, inexpensive to create, and installs quickly compared to other enhancements. Our streetscapes, plazas, and parks are enriched by art, creating a sense of community pride. Art supports our local businesses and economy by enlivening our neighborhoods through cultural tourism and increased foot traffic. Investments in public art are an investment in our community and implement programs that reinforce our commitment to a vibrant and walkable community.

Design Guidelines

- 6.1 Integrate art into all capital project designs. Consider murals, sculpture, architecture, and landscape, as appropriate.
- 6.2 Find opportunities to celebrate our people, culture, and stories through the arts to foster a sense of community pride.
- 6.3 Prioritize art in downtown, economic centers, and along major corridors.



Bijou Park Mural
Photo by Chad Cramer

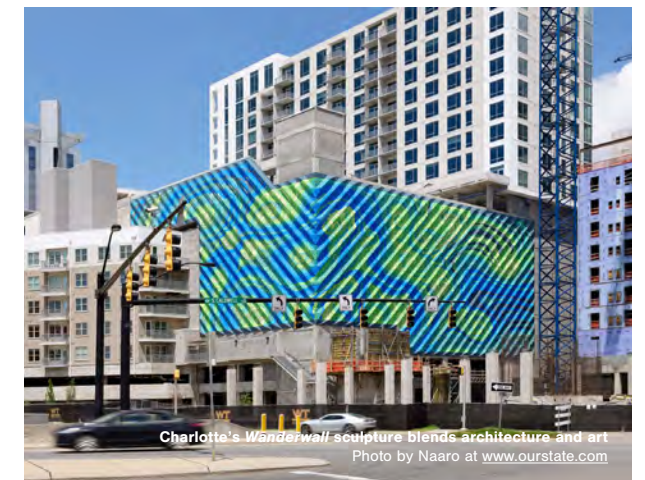
Create Wilmington Comprehensive Plan Direction & Guidance

Create and foster community and neighborhood identity through inclusion of public art in public projects, community facilities, greenspace, and along greenways. Include an arts component in all RFPs/RFQs as city properties are redeveloped. Promote adequate funding of programs and facilities through collaborative partnerships, including direct financial and in-kind support from public and private sources. Foster and encourage emerging arts districts. Foster strong partnerships with local historic preservation and arts groups to identify and promote Wilmington's extensive heritage and cultural resources.

Big Ideas

Develop a **Cultural Arts Plan** to identify, expand, and enhance artistic and cultural opportunities. (Strategic Plan Focus Area: Cultivate an environment for economic job growth, job creation, and cultural vibrance - Initiative 1.2)

Explore options to establish a permanent funding source for public art such as a **Percent-for-Art Program**, or similar. (Strategic Plan Focus Area: Cultivate an environment for economic job growth, job creation, and cultural vibrance - Initiative 1.1)



Charlotte's Wanderwall sculpture blends architecture and art
Photo by Naaro at www.ourstate.com

Transportation & Economy





“Adding car lanes to deal with traffic congestion is like loosening your belt to cure obesity.”
 - Lewis Mumford

Charlotte's hybrid streetcar
 Photo by Frankie Lopez on Unsplash



Efficient Mass Transit

Wilmington is the eighth largest city in North Carolina and home to the state's largest port. Our population is expected to grow exponentially over the next 25 years, which will place enormous pressure on our transportation infrastructure. Adding vehicle travel lanes to roads does not solve this problem and has been proven to increase induced demand - more lanes equals more traffic. This means we will have to create ways to move large amounts of people and goods around without creating more traffic. Many of North Carolina's cities have a rich public transportation heritage and we can find options that embrace that tradition while providing modern solutions for current and future transit opportunities.

Design Guidelines

- 7.1 Deliver projects that increase equitable options for transportation including bike amenities, public transit, light rail, bus rapid transit (BRT), greenways, and ferry service with automobile needs.
- 7.2 Connect *Economic and Mixed-use Centers* with non-automobile transit options to reduce greenhouse gas emissions, ease congestion, and reduce parking needs.
- 7.3 Design projects to minimize conflicts and enhance safety between pedestrian, bike, vehicle facilities, and freight infrastructure.



Historic Wilmington Streetcar
 Photo by Wilmington Star News

Create Wilmington Comprehensive Plan Direction & Guidance

Adding lanes to increase traffic capacity should be considered only after all other alternative approaches have been considered. Increase vehicle dispersion and circulation. Coordinate transportation decisions, strategies, and investments to support land use goals. Target transportation facilities, services, and investments to accommodate anticipated population growth in mixed-use centers, commercial corridors, and neighborhoods. Coordinate transportation planning with the Growth Strategies Maps. Promote an integrated, multimodal transportation system. Consider returning a fixed guideway system to Wilmington.

Big Ideas

Begin the studies and analyses to bring the **Historic Wilmington Streetcar**, or light rail, back as a component of the city's transportation network. (Strategic Plan Focus Area: Develop an efficient, accessible, and sustainable multi-modal transportation network and city infrastructure - Initiative 1.2)

Collaborate with WAVE Transit to **Increase Transit Service** along primary corridors to reduce traffic, and support Transit-Oriented Development. (Strategic Plan Focus Area: Develop an efficient, accessible, and sustainable multi-modal transportation network and city infrastructure - Initiative 1.2)





“Uptown is for people who have already done something. Downtown is where they’re doing something now. I live uptown, but I love downtown.”

-Andy Warhol

Wilmington’s Riverwalk
Photo by Will Page Photography for WDI

Economic Centers & the Riverfront

Downtown’s location along the Cape Fear and Northeast Cape Fear Rivers are the heart of Wilmington’s charm and heritage. Downtown’s prominent location allows it to serve as Wilmington’s cultural and economic center. From shops and restaurants to festivals and markets, downtown draws locals and visitors alike. The relationship between downtown and the river is also symbolic and intertwined with our history. Both visual and physical access to the riverfront should be encouraged, maintained, and enhanced to strengthen and support these important destinations. Providing clear wayfinding and encouraging safe pedestrian and bicycle infrastructure supports downtown’s vitality and offers amenities that help businesses thrive.

Design Guidelines

- 8.1 Prioritize the design and maintenance of the riverwalk, its connection points, and other city gateways.
- 8.2 New parks, plazas, greenspace, pedestrian facilities, and bicycle facilities throughout economic centers and the riverfront should be prioritized.
- 8.3 Maintain street and park landscaping to a high standard; expect maintenance cycles to be higher in economic centers. Trees and bushes should be kept planted and trimmed.



Wilmington’s Riverwalk
Photo by Will Page Photography for WDI

Create Wilmington Comprehensive Plan Direction & Guidance

Downtown should be served by the broadest range of transportation options, including sidewalks, bike lanes, greenways, roadways, streetcars, and buses. Private use of at-grade public space in the form of sidewalk cafés, street furnishings, vending, performance, and sales should be encouraged. Public uses along the river, including access to the river, should be encouraged. The strategic transformation of public and private spaces into meaningful places through placemaking should be encouraged. Connect downtown to other economic centers with multi-modal transit options.

Big Ideas

- Partner with downtown groups to create a **Wayfinding Master Plan** inclusive of local and regional destinations, public transit, and parking locations. (Strategic Plan Focus Area: Cultivate an environment for economic job growth, job creation, and cultural vibrance - Initiative 2.2)
- Conduct a **Market Value Analysis** of the city to determine market viability to prioritize and leverage investments for neighborhood revitalization. (Strategic Plan Focus Area: Cultivate an environment for economic job growth, job creation, and cultural vibrance - Initiative 1.1)



“If you want to lift yourself up,
lift up someone else.”
-Booker T. Washington



Downtown Austin, Texas
Photo by Carlos Adams on Unsplash

Private Development

Often, the best solutions come from collaboration between public and private entities. These partnerships offer a unique opportunity to guide sustainable development. Incentives are the most effective and popular strategies to encourage green building. These incentives can come in many forms, such as expedited review and permitting, density and height bonuses, tax credits, grants, and fee waivers, to name a few. Rewarding developers or homeowners who use sustainable building practices can encourage innovation and environment-friendly building technologies. Additionally, any project that utilizes public incentives should be subject to an interdisciplinary design review process to ensure high quality and function.

Design Guidelines

- 9.1 Encourage density along corridors to facilitate the greatest ease of transit use for those without vehicles; this is how to manage growth.
- 9.2 Design all building frontages regardless of use type or location to enhance the pedestrian experience.”
- 9.3 Prioritize access and provide amenities for pedestrians, cyclists, and transit riders in the design of sites and buildings. Private cars should not be prioritized.



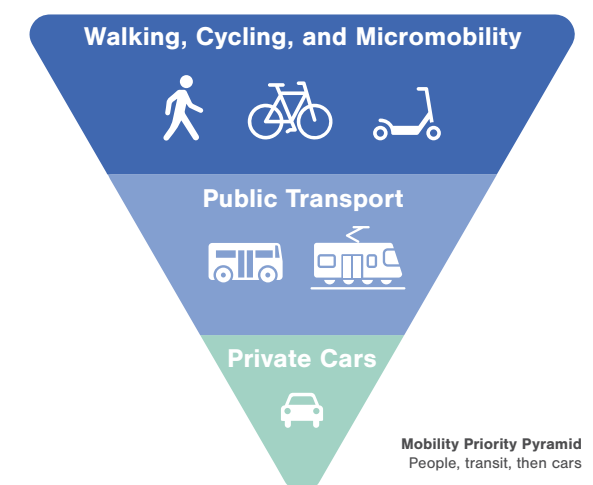
Create Wilmington Comprehensive Plan Direction & Guidance

Promote mixed-use development providing a range of services within walking distance of integrated residential development. Support developments that reduce reliance on single-occupancy vehicle trips. Transportation facilities, services, and investments should be targeted to promote and accommodate anticipated population growth in mixed-use centers, commercial corridors, and neighborhoods. Transit-oriented development should be encouraged. New development or redevelopment utilizing energy efficiency techniques should be encouraged.

Big Ideas

Create a **Green Building Program** to create and offer green building incentives that encourage sustainable growth and rehabilitation. (Strategic Plan Focus Area: Cultivate an environment for economic job growth, job creation, and cultural vibrance - Initiative 1.1)

Incentivize **Transit-Oriented Development (TOD)** along designated corridors, primary intersections, mixed-use Centers, and Areas of Opportunity. (Strategic Plan Focus Area: Create a thriving, inclusive, and affordable community of neighborhoods - Initiative 1.3)



Appendix

Create Wilmington Comprehensive Plan policies

The following is a collection of *Create Wilmington Comprehensive Plan* policies that relate to the *Recommended Urban Design Guidelines*. The urban design guidelines recommended in this document could be considered implementation strategies for the Comprehensive Plan. This document is organized by the triple bottom line sustainability framework that considers the environmental, social, and economic impacts of an endeavor rather than just the cost. The groupings that follow are organized uniquely from the Comprehensive Plan document; however, the policy numbers have remained the same for easy reference.

Ecological Integration

Natural Infrastructure

2.2.8

New roadway projects and major reconstruction projects should preserve desirable existing trees where possible, or plant new street trees where necessary. Multi-lane roads should be enhanced with landscaped medians when possible.

2.4.1

The majority of the city's streets should be designed as public spaces that are scaled for pedestrians and should be enhanced with appropriate street trees and landscaping.

2.1.3

New roadways and widening of existing roadways should utilize context-sensitive design to minimize impacts on historic buildings, neighborhoods, parks, and sensitive natural areas.

4.2.4

Greenways should be employed as vegetative buffers to improve stormwater management and water quality. Park land and greenways along riparian buffers and waterways will provide environmental and recreational benefits.

6.1.1

Restoration, protection, enhancement, and maintenance of watersheds should be a priority. Existing programs and partnerships with the University North Carolina at Wilmington and other partners to address water quality should be continued and expanded.

6.2.2

Opportunities and incentives to mitigate the loss of sensitive areas that occur as part of the development process should be identified. Impact reduction and avoidance measures should be based on criteria that take environmentally sensitive natural areas and habitats into consideration.

6.2.4

The design and construction of public facilities such as roads, sewers, or stormwater control, should utilize best management practices to minimize impacts on sensitive natural areas, open space, and conservation areas.

6.3.1

Tree preservation should be a priority in developments where significant clusters of trees can be protected for meaningful impact and appearance. Planting of street trees with frequent spacing should be a priority where the density of buildings, infrastructure, and required grading make the preservation of existing trees unfeasible.

6.3.2

The use of native vegetation and xeriscaping should be encouraged and the use of invasive species discouraged. All municipal projects should set an example with appropriate plant selection.

6.3.3

The city should collaborate with the Wilmington Metropolitan Planning Organization, North Carolina Department of Transportation, and others to enhance streetscapes as identified in adopted corridor plans using appropriate tree species.

6.3.5

The city should actively plan to protect and enhance the urban forest for future generations with a program to steward the grand trees of the city. New trees should be planted in ways that provide the type of tree canopy that contribute to the areas over all aesthetic and quality of life.

6.8.2

The city should collaborate with regional partners to monitor and protect groundwater resources on an ongoing basis, and to continuously examine alternative technologies and sources to better ensure adequate water supply to sustain future growth and economic development.

6.8.3

To protect the water supply from the cumulative impacts of development, the city should collaborate with partners in the region to support improved practices upstream of freshwater intake to reduce nutrient loading, focusing on agricultural, land clearing and development in riparian areas.

8.1.6

Interconnections through the watershed system, interconnectivity through the hydrologic cycle, and the protection of existing creeks and streams should be recognized in new stormwater policies. Watershed-based approaches to water supply planning and stormwater management, including the design of public rights-of-way, to promote a holistic view of the entire water system should be considered.

8.1.7

Comprehensive policies and solutions that promote healthy watersheds while addressing other infrastructure objectives and needs should be developed. Stormwater best management practices, considering anticipated demographics changes, redevelopment priorities, and technological improvements should be evaluated and employed.

8.1.8

The impacts on the stormwater system from major sources of stormwater runoff, including buildings, roads, and parking lots should be considered. Sustainable infrastructure techniques that use soils and vegetation to capture, clean, and reuse stormwater runoff to reduce runoff velocity.

8.1.9

Discharge control methods that control both peak flow and volume of stormwater that are economically, aesthetically, and environmentally acceptable, as well as effective in stormwater management, should be utilized.

9.1.6

Visual and natural assets, including public viewsheds, boulevard medians, tree-lined streets, wetlands, the river and creeks, and scenic corridors should be retained and enhanced.

Public Facilities

4.3.4

The reuse/redevelopment of vacant lots, public or utility-owned property, underutilized school sites, and oversized streets for parks and recreation amenities should be facilitated.

6.1.3

Retrofits to reduce stormwater runoff in public projects should be prioritized in locations where they yield the most cost effective volume reduction.

6.6.1

The city should incorporate sustainable design in capital projects and should adopt policies and recommendations for low-impact development, energy efficiency, and water conservation features.

6.7.1

Energy efficiency measures should be incorporated into municipal project design, construction, and upgrades to reduce resource use, fuel costs, and carbon emissions, and to serve as an example to private development.

6.9.2

Brownfield redevelopment, redevelopment of underutilized and blighted properties, and adaptive reuse or repurposing of existing buildings should be encouraged and incentivized.

8.1.14

Cross-departmental and cross-agency collaboration should be encouraged to ensure maximum efficiency and environmental stewardship.

8.2.1

Best practices for all city facilities and capital projects should be considered, including practices that optimize long-term viability, versatility, energy efficiency, neighborhood compatibility, and minimize maintenance costs and environmental impacts. The capital improvements plan, long-range construction plans, and planned growth in services should be aligned with the Comprehensive Plan, projected growth, and demographics changes.

Resilient Utilities

6.5.1

The city should work to minimize impacts to developed and developable land from flooding, increased shoreline erosion, loss of wetlands, and contamination of ground water by saltwater under scenarios of sea level rise and increased flooding. Consideration should be given to long-term sea level rise scenarios in planning, design, and cost determination for infrastructure, such as roads, water and wastewater systems, and electric utilities.

6.5.3

Future planning should include strategic analysis under scenarios of vulnerability of the critical infrastructure, identifying vulnerable populations, evaluating the city's capacity and readiness to respond, and identifying measures to reduce vulnerabilities.

6.5.5

If public facilities are damaged due to hurricanes or coastal storms, they should be relocated, strengthened, elevated, or otherwise rebuilt to minimize the likelihood of damage in a future event.

6.7.2

New development or redevelopment utilizing energy efficiency techniques should be encouraged.

6.7.3

Efforts to develop renewable energy sources and reduce greenhouse gas emissions should be supported.

Human Well-being

Equitable Mobility

1.2.4

Development and infrastructure investments should promote healthy communities and active lifestyles by providing enhanced bicycle and pedestrian circulation, access, and safety.

1.3.3

Development should provide pedestrian and vehicular connections between and within individual development sites to provide alternative means of access along corridors.

2.2.9

Bridge monitoring, maintenance, and rehabilitation should be coordinated with the North Carolina Department of Transportation and the Federal Highway Administration. Bridge improvements, including provisions for all travel modes, should be considered when roadway investments are being pursued.

2.3.2

An integrated, multimodal transportation system that offers safe and attractive choices among travel modes should be promoted.

2.4.1

The majority of the city's streets should be designed as public spaces that are scaled for pedestrians and should be enhanced with appropriate street trees and landscaping.

2.4.2

Complete street design standards that provide mobility for all types of transportation modes and users should be promoted on all streets.

2.4.3

New roadway projects and major reconstruction projects should provide appropriate and adequate right-of-way for safe and convenient movement and amenities for all users, including bicyclists, pedestrians, transit riders, and motorists.

2.4.5

Complete street amenities should be designed with all users in mind, with multimodal amenities appropriate for the type of roadway. The use of undivided multi-lane streets should be limited; raised and/or landscaped medians should be used where feasible, to provide safe landings for pedestrians and vehicle travel.

2.6.1

Bicycle and pedestrian circulation, access, and safety should be enhanced, especially along corridors, downtown, in activity and employment centers, within densely-developed areas, at transit stations, and near schools, libraries, and parks.

2.6.2

A continuous bicycle and pedestrian network should be provided within and between existing and new developments to facilitate safe and convenient travel. New subdivisions, mixed-use developments, and large-scale commercial developments should include safe pedestrian walkways or multiuse paths that allow direct links between roadways and major destinations, transit stops, and schools.

2.6.3

New development, redevelopment, street reconstruction, and resurfacing projects should include bicycle and pedestrian facilities as appropriate for the roadway character. Existing development should be retrofitted with connections where possible.

2.6.4

Where possible, and especially along identified pedestrian priority streets, tools such as protected left turns, pedestrian head start, raised crosswalks, curb extensions, medians, pedestrian refuge islands or mid-block crossings, and restricted right turns on red should be used to improve pedestrian and bicycle movements and safety.

2.6.5

Safe and convenient pedestrian and bicycle facilities should be maintained and should be universally accessible, adequately lit, and properly designed to reduce conflicts between motor vehicles, bicycles, and pedestrians.

2.6.6

Pedestrians and bicyclists should be accommodated on bridges, interchanges, and over and underpasses, where permitted by law. Bicycle lanes and wide sidewalks should be included in all new bridges and over and underpasses.

2.6.7

The city's greenways, blueways, and trails network should be treated as part of the city's transportation network and connections should be planned for accordingly.

2.6.9

Infrastructure that encourages students to walk or bike safely to school should be supported. The city should continue to coordinate with the WMPO to partner with New Hanover County Schools, the Wilmington Police Department, and the North Carolina Department of Transportation to identify funding and opportunities to enhance walking routes to school.

2.6.11

Wherever appropriate, roadways and rail corridors should be retrofitted with bicycle and pedestrian facilities such as multi-use paths, cycle tracks or bike lanes, bike boxes, and bike detectors.

2.6.12

The city should continue to coordinate with the WMPO to work with partners to identify creative funding solutions for bike and pedestrian infrastructure, including partnerships with the Cape Fear Public Utility Authority, the North Carolina Department of Transportation, parks and recreation partnerships, and public-private partnerships.

2.8.1

Safe routes for motorists, transit riders, bicyclists, and pedestrians should be provided. The city should work with its partners to improve the multimodal system to enhance safe transportation options across modes.

9.2.3

The appearance, identity, and safety of streets should be prioritized through the appropriate use of pedestrian elements such as sidewalks, crosswalks, street lights, landscaped areas, street furnishings, signage, and traffic signals and signals management.

9.2.5

Along pedestrian priority streets, sidewalks should be designed and managed in a way that promotes pedestrian safety, efficiency, and comfort, providing adequate space for street trees, pedestrian traffic, and social activities such as sidewalk cafes.

9.2.6

Streets should be designed as public spaces that are scaled for pedestrians, especially along corridors designated as special character streets and pedestrian priority streets in the Growth Strategies Maps.

9.4.2

Visually cohesive streetscapes should be created. Visual character should be enhanced and preserved through landscaping, underground utilities, street furniture, signage, and median plantings.

9.5.2

Clear and safe pedestrian networks within, through, and between neighborhoods should be enhanced. Opportunities to connect existing neighborhoods to adjacent commercial centers and community facilities and services should be explored.

8.1.14

Cross-departmental and cross-agency collaboration should be encouraged to ensure maximum efficiency and environmental stewardship.

Public Health & Greenspace

4.1.2

Siting, land acquisition, co-location, programming design, and construction opportunities should be coordinated between interdepartmental and external partners to align with growth projections and demographic information.

4.2.1

Safety, security, ease of use, sustainability, and equity should be considered when planning, designing, and constructing new and maintaining existing greenways, blueways, and trails.

4.2.2

Neighborhood connectivity to trails and greenways should be facilitated. Connections between neighborhoods, shopping centers, schools, transit stops, and employment centers should function as transportation alternatives in addition to recreational amenities.

4.2.4

Greenways should be employed as vegetative buffers to improve stormwater management and water quality. Park land and greenways along riparian buffers and waterways will provide environmental and recreational benefits.

4.2.5

Wilmington's greenway/trail network should include multi-use paths that connect other greenways, parks, and schools. New greenways should be designed to serve both recreational and transportation needs.

4.3.4

The reuse/redevelopment of vacant lots, public or utility-owned property, underutilized school sites, and oversized streets for parks and recreation amenities should be facilitated.

4.4.2

Sustainable design principles should be incorporated into the development and management of parks facilities.

5.5.1

Parks, leisure, natural resources, streetscapes, public realm enhancements, and arts and cultural amenities should be leveraged as key economic development assets and part of the city's economic development infrastructure.

9.2.2

Parks, plazas, and other gathering spaces should be designed to be attractive, accessible, and usable through the orientation and design of adjacent buildings, connections to nearby areas, and should allow for informal and programmed events.

10.5.3

Partnerships that result in increased park space, improvements to existing park space, and additional amenities throughout Greater Downtown should be encouraged.

10.5.4

Non-motorized connections to new and existing parks facilities, into and through Greater Downtown, should be prioritized.

Public Art

5.6.2

Recreation, events, and attractions that enhance the strengths of Wilmington's tourism sector should be promoted. Strong partnerships with local historic preservation and arts groups should be fostered to identify and promote Wilmington's extensive heritage and cultural resources.

7.1.1

Public art should help create and foster community and neighborhood identity and should be part of public projects, community facilities, greenspace, and along greenways. Public art should be part of the planning process for all municipal projects.

7.1.2

Wilmington's potential to showcase and fund public art and provide a coordinated vision through partnerships, coordinated leadership, and planning should be maximized and standards, tools, and best practices that encourage public art should be considered.

7.1.3

An arts component commensurate with the magnitude of a development project should be included in all requests for proposals/qualifications as city-owned properties are developed and redeveloped.

7.2.1

Existing arts and cultural facilities, programs, and resources should be supported and maintained and the city should work in partnership with New Hanover County and the arts community to develop a range of venues and resources.

7.3.2

Adequate funding of programs and facilities should be ensured through collaborative partnerships. Direct financial support and in-kind support from both public and private sources is necessary to support and grow a healthy arts community.

7.3.3

Emerging, organic arts districts should be fostered and encouraged. Arts and entertainment districts should be promoted and sustained, establishing districts where existing and emerging clusters are identified. Designation of arts and entertainment districts should be used as an economic development tool for the city, New Hanover County, and the region.

9.2.7

Reclaimed materials, public art, heritage trees, stormwater infrastructure, and other features should be used in the design of public spaces whenever possible.

Transportation & Economy

Efficient Mass Transit

1.3.1

Transportation decisions, strategies, and investments should be coordinated with and support the city's land use goals.

1.3.5

Transportation facilities, services, and investments should be targeted to promote and accommodate anticipated population growth in mixed-use centers, commercial corridors, and neighborhoods.

1.3.8

Pedestrian-friendly and transit-supportive development patterns should be promoted along multimodal corridors and areas identified for intensive transit investments.

2.1.1

Transportation planning and development, expansion, and investment in transportation facilities should be coordinated with the Growth Strategies Maps.

2.1.2

Safe and attractive transportation choices among all modes should be encouraged through street patterns that consider multimodal transportation alternatives and access to and circulation between adjacent neighborhoods, parks, and commercial and employment centers.

2.2.1

Gaps in the street system should be eliminated by providing for network connectivity. The existing grid network should be preserved and extended where feasible to increase overall connectivity.

2.2.6

Adding lanes to increase traffic capacity should be considered only after the street exceeds an established threshold of full capacity and all other alternative approaches have been considered. Improvements to the street network should increase vehicle dispersion and circulation.

2.2.7

Ongoing regional transportation planning efforts should be supported to coordinate planning, operations, and funding priorities and to identify existing and future transportation corridors that should be linked across jurisdictional boundaries.

2.3.2

An integrated, multimodal transportation system that offers safe and attractive choices among travel modes should be promoted.

2.4.3

New roadway projects and major reconstruction projects should provide appropriate and adequate right-of-way for safe and convenient movement and amenities for all users, including bicyclists, pedestrians, transit riders, and motorists.

2.5.1

Quality transit services that enhance mobility options, meet the needs of city residents and visitors, focus on transit-dependent households, and incorporate age-friendly elements should be promoted.

2.5.2

The possibility of returning fixed-guideway systems to Wilmington and the region should be considered.

2.5.4

Where opportunities exist, right-of-way for future transit should be preserved. New development and redevelopment should provide transit easements for planned alignments, rail stations, and bus stops within existing and planned transit corridors as appropriate.

2.5.5

Local and regional bus service along key corridors should be enhanced. Transit efficiency, including improved frequency of routes and transfer time, should be promoted within the Wave Transit system.

2.5.6

Bus shelters, seating, lighting, trash receptacles, and related elements should be provided at transit stop locations. Developments located within planned transit corridors, as shown on the Growth Strategies Map, should coordinate with Wave Transit to provide bus stop facilities at appropriate locations.

2.5.7

The use of transit facilities should be encouraged through enhancing the bike and pedestrian network near transit stops and sufficient sidewalk infrastructure should be installed near all transit stops. Where necessary, enhancements to make sidewalks compliant with the Americans with Disabilities Act (ADA) should be prioritized.

2.5.8

Features such as traffic signal priority, queue jumps, and exclusive transit lanes to improve transit reliability should be encouraged, where possible.

2.9.3

Roadway and railway design and retrofit, to include complete streets upgrades, should balance the needs of freight movements along with the needs of all other types of transportation.

5.5.4

High-quality transit service and facilities are basic and necessary components of the region's transportation system and should be provided to help attract employers and choice riders in an increasing competitive arena.

6.4.1

Walkable and bikeable communities, public transit, and integrated land use and transportation planning should be promoted and encouraged to help reduce motor vehicle emissions.

10.2.2

The construction of a mixed-use, multimodal transit center downtown, with bike and pedestrian connections, should be encouraged to provide a transit hub accommodating service for passenger rail, public transit, and private transit providers.

Economic Centers & the Riverfront

2.6.1

Bicycle and pedestrian circulation, access, and safety should be enhanced, especially along corridors, downtown, in activity and employment centers, within densely-developed areas, at transit stations, and near schools, libraries, and parks.

9.2.1

The strategic transformation of public and private spaces into meaningful places through placemaking should be encouraged. Wilmington should have a robust, well-connected network of public and semipublic spaces.

10.2.1

Downtown should be well served by the broadest range of transportation options, including bikeways,

sidewalks, greenways, roadways, streetcars, and buses. Enhanced transit service, including circulators, which may be buses, rubber-tire trolleys, or modern streetcars, and car and bike sharing programs should be encouraged.

10.2.3

Non-automotive circulation among downtown activities and employment centers should be encouraged and pedestrian safety should be promoted.

9.1.4

A unified system of vehicular and pedestrian wayfinding signs, kiosks, and other environmental graphics should be created to provide directions for bicyclists, pedestrians, and vehicular travelers. Wayfinding systems should link physical and digital elements.

9.1.5

Memorable and distinctive gateway entrances to the city should be created, along with the points of entry into individual neighborhoods and neighborhood centers. Views of the downtown skyline from gateway corridors should be preserved.

9.1.7

Wilmington's image as a riverfront city should be enhanced by protecting, restoring, and improving river views, public access to the river, and riverfront recreation.

9.3.5

Where appropriate, indoor uses moved outdoors, such as dining areas and small merchandise displays on walkways and plazas, should be employed to activate the streetscape, while outdoor spaces moved indoors, such as atriums and courtyards, may also be used to improve views, exposure to light, and encourage social interaction.

10.2.2

The construction of a mixed-use, multimodal transit center downtown, with bike and pedestrian connections, should be encouraged to provide a transit hub accommodating service for passenger rail, public transit, and private transit providers.

10.2.3

Non-automotive circulation among downtown activities and employment centers should be encouraged and pedestrian safety should be promoted.

10.2.7

As redevelopment occurs throughout downtown, sidewalks should be widened, where appropriate, to enhance the downtown pedestrian experience. Along identified priority pedestrian streets, new development and infrastructure projects should enhance pedestrian and bicycle safety and such elements should be given equal priority to vehicular traffic flow.

10.3.3

New investments and development that position Greater Downtown as the center of the region for headquarters, jobs, urban housing, arts and cultural opportunities, and transit options should be encouraged.

10.5.3

Partnerships that result in increased park space, improvements to existing park space, and additional amenities throughout Greater Downtown should be encouraged.

10.5.4

Non-motorized connections to new and existing parks facilities, into and through Greater Downtown, should be prioritized.

10.6.4

Private use of public space in the form of sidewalk cafés, street furnishings, vending, performance, and

sales should be encouraged, as appropriate. Public uses along the river, including access to the river, should be encouraged, where appropriate.

10.6.6

A high-quality, unified wayfinding system, including an effective system for identifying public and private parking decks, should be promoted and maintained.

11.2.4

When considering historic resources, the complete context should be preserved, when possible, as historic landscapes, open spaces, streets, and public viewsheds are critical to the context of our historic buildings and the city's overall character and uniqueness.

Private Development

1.3.4

Mixed-use development that provides a range of services within walking distance of integrated residential development should be promoted as a way to help reduce motor vehicle trips. Developments that reduce reliance on single-occupancy motor vehicles should be supported.

1.3.5

Transportation facilities, services, and investments should be targeted to promote and accommodate anticipated population growth in mixed-use centers, commercial corridors, and neighborhoods.

1.3.6

Transit-oriented and transit-ready development should be promoted around existing and planned transit stations and stops.

1.3.7

Sites within proximity to planned or proposed major transit lines should be developed with a relatively high residential density and a mix of uses to take full advantage of and support the city's and the region's investment in transit services.

1.3.9

Development near major road intersections or interchanges should cluster to create a node or nodes at the intersection, preferably including vertical and horizontal mix of uses.

2.5.9

Transit-oriented development should be encouraged. Planning for transportation, transit stop locations, public spaces, density, and land use should be coordinated, and high-density, mixed-use development patterns should be encouraged around express bus lines, the planned multimodal transportation center downtown, and any future transit stations.

6.6.2

Low-impact development and infill and redevelopment projects should be encouraged based on measurable performance criteria and taking advantage of existing infrastructure. Redevelopment should receive incentives that level the playing field relative to economic advantages of "greenfield" development.

6.6.4

Historic preservation, adaptive reuse, and rehabilitation of buildings should be encouraged to maximize location efficiency and embodied energy.

6.7.2

New development or redevelopment utilizing energy efficiency techniques should be encouraged.

6.7.3

Efforts to develop renewable energy sources and reduce greenhouse gas emissions should be supported.

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Executive Summary: Urban Design Guidelines

The following Executive Summary of Urban Design Guidelines is intended to provide the community and decision-makers with a concise list of the recommendations contained in this document.

Urban Design Guidelines

Ecological Integration

Natural Infrastructure

- 1.1 Integrate green infrastructure, native vegetation, wildlife habitat, and natural stormwater infiltration into project designs.
- 1.2 Incorporate **Urban Forest Master Plan** recommendations into project designs. Align tree standards and specifications with urban forestry industry standards and best practices.
- 1.3 Minimize impacts to natural areas and wetlands. This includes buildings and roadways, and their stormwater runoff.

Public Facilities

- 2.1 Incorporate passive design strategies in buildings to improve energy efficiency and reduce greenhouse gas emissions.
- 2.2 Incorporate on-site renewable energy production or identify design parameters that will allow for future installation.
- 2.3 Design parks and roadways to manage pollution and stormwater runoff from surrounding areas, where possible.

Resilient Utilities

- 3.1 Design and implement resilient utilities with redundancy and diversification to ensure that critical functions can be maintained during disruptions.
- 3.2 Develop flexible and adaptive utility infrastructure that can adjust to changing conditions and demands. Integrate real-time monitoring, predictive analytics, and automated responses to disruptions.
- 3.3 Integrate resilient utility projects into the city's **Capital Improvement Plan**.

Human Well-being

Equitable Mobility

- 4.1 Prioritize mobility projects in historically underserved communities.
- 4.2 Ensure transportation facilities support the multi-modal mobility needs of all people regardless of age, size or ability.
- 4.3 Integrate **Complete Streets** concepts, **Walk Wilmington** recommendations, and **Comprehensive Greenway Plan** recommendations into all transportation projects.

Public Health & Greenspace

- 5.1 Design flexible greenspace to balance ecological, programmatic, and passive park needs to the greatest degree possible.
- 5.2 Prioritize acquisition of open space in the areas identified on the **Priority Areas for New Parks** map of the **Parks Master Plan**.
- 5.3 Prioritize construction and maintenance of Greenways, Streetscapes, and other Green Connections for inclusion in the city's **Capital Improvement Plan**.

Public Art

- 6.1 Integrate art into all capital project designs. Consider murals, sculpture, architecture, and landscape, as appropriate.
- 6.2 Find opportunities to celebrate our people, culture, and stories through the arts to foster a sense of community pride.
- 6.3 Prioritize art in downtown, economic centers, and along major corridors.

Transportation & Economy

Efficient Mass Transit

- 7.1 Deliver projects that increase equitable options for transportation including bike amenities, public transit, light rail, bus rapid transit (BRT), greenways, and ferry service with automobile needs.
- 7.2 Connect **Economic and Mixed-use Centers** with non-automobile transit options to reduce greenhouse gas emissions, ease congestion, and reduce parking needs.
- 7.3 Design projects to minimize conflicts and enhance safety between pedestrian, bike, vehicle facilities, and freight infrastructure.

Economic Centers & the Riverfront

- 8.1 Prioritize the design and maintenance of the Riverwalk, its connection points, and other city gateways.
- 8.2 New parks, plazas, greenspace, pedestrian facilities, and bicycle facilities throughout **Economic Centers** and the riverfront should be prioritized.
- 8.3 Maintain street and park landscaping to a high standard; expect maintenance cycles to be higher in **Economic Centers**. Trees and bushes should be kept planted and trimmed.

Private Development

- 9.1 Provide density along corridors to facilitate the greatest ease of transit use for those without vehicles; this is how to manage growth.
- 9.2 Building frontages prioritized for the pedestrian experience is desired for all development, including all uses and zoning designations.
- 9.3 Site and building design should prioritize walking, cycling, and microtransit - followed by public transport. Private cars should not be prioritized.

