



# FLAGLER AVENUE STREETSCAPES

A Proposal for Resilient Urban Design  
in New Smyrna Beach, Florida

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***"If you want to make a change in the world, change your streets."***  
**- Jeff Speck & Janette Sadik-Khan, 2022**

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**Mount Holyoke College 2026**

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Thom Long, and Serin Houston

# ABSTRACT

While the natural environment is especially vulnerable to climate threats, the built environment is a primary catalyst of the very forces that exacerbate climate change. In the built environments we live in, car-centric planning and unsustainable rates of development cause air temperatures to rise through the urban heat island effect, reduce nature’s ability to adapt and recover from environmental threats, intensify the frequency and severity of climate disasters, and force public spaces to become humid, unwelcoming, and hostile towards people. These impacts are particularly detrimental to precarious urban landscapes such as coastal regions, where urban heat, eroding waterfronts, biodiversity loss, and climate disasters are already prominent. However, urban design and planning provide opportunities for these landscapes to foster a resilient, inclusive, and vibrant climate future for coastal communities.

To demonstrate that these transformations of public space are possible, I analyze three prominent theoretical frameworks of urban design. While these theories may be successful in isolation of one another, this thesis aims to find applications and critiques of the individual theories and proposes a comprehensive framework for fostering better human experience through urban design. I argue that urban design and planning play a critical role in creating public spaces that are resilient, inclusive, and vibrant while addressing the causes and impacts of coastal climate change for a sustainable future. I explore the case study of Flagler Avenue in New Smyrna Beach, Florida, as an opportunity to create a comprehensive urban design proposal that demonstrates how these theories may be realized in the planning and design of coastal streets to foster enjoyable human experiences, bring communities together, and imagine sustainable climate futures.

# GLOSSARY

## **ADAPTATION**

“Adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change”.

*(UNFCCC Adaptation Committee, n.d.)*

## **(URBAN) AMENITY**

Functional facilities or services open to the public such as parks, playgrounds, green spaces, public wi-fi spaces, public transportation, bus shelters, libraries, cultural centers, recreation centers, and sports complexes.

*(Urban Design Terminology, 2022)*

## **BLUE SPACE**

Refers to visible water features “such as waterfront parks, harbors, ports, marinas, rivers, open air streams, canals, lakes, ponds and fountains (that) are thought to improve quality of life and help moderate urban heat islands.”

*(Urban Design Terminology, 2022)*

## **BUILT ENVIRONMENT**

The elements or features of a space that are created or built by people rather than natural processes.

*(Davidson & Dolnick, 2004, p. 97)*

## **BUILT FORM**

“Refers to the function, shape and configuration of buildings as well as their relationship to streets and open spaces.”

*(Urban Design Terminology, 2022)*

## **CAR-CENTRIC PLANNING**

“Urban planning that privileges the private automobile as a primary transportation mode, often to the exclusion of people who walk, bike, or use public transit.”

*(What Is Car-Centric Planning?, n.d.)*

## **CLIMATE CHANGE**

“A global phenomenon that largely impacts urban life. Rising global temperatures causes sea levels to rise, increases the number of extreme weather events such as floods, droughts and storms, and increases the spread of tropical diseases. All these have costly impacts on cities’ basic services, infrastructure, housing, human livelihoods and health. At the same time, cities are a key contributor to climate change, as urban activities are major sources of greenhouse gas emissions.”

*(Cities and Climate Change, 2024)*

**COASTAL RESILIENCE** The ability to efficiently and effectively recover from hazards that pose a threat to coastlines, specifically tropical cyclones, hurricanes, storm surges, flooding, sea level rise, rising ocean temperatures, heat waves, extreme precipitation, and toxic algae blooms.  
(Falconer, 2024)

**COMPLETE STREETS** “An approach to planning, designing, building, operating, and maintaining streets that enables safe access for all people who need to use them, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.  
(*What Are Complete Streets?*, n.d.)

**DENSITY** “Refer(s) to the number of people inhabiting a given urbanized area,” often measured by residential units per acre.  
(*Urban Design Terminology*, 2022)

**EXPERIENCE** The unique emotional, mental, and imagined perception of an observer as they interact with and process their surrounding urban environment.  
(Perry, 2012)

**EYES ON THE STREET THEORY** Jane Jacobs’ theory that neighborhoods were safer when there were “residents and shopkeepers who are naturally drawn to the life of the street, and who, in the course of their activities, monitor the street.”  
(Lewyn, 2017)

**(URBAN) FABRIC** “Describes the physical characteristics of urban areas (such as) streetscapes, buildings, soft and hard landscaping, signage, lighting, roads and other infrastructure.”  
(*Urban Design Terminology*, 2022)

**FACADE** “The principal wall of a building that is usually facing the street and visible from the public realm.”  
(*Urban Design Terminology*, 2022)

**FORM-BASED CODE (FBC)** A planning framework and guideline “that fosters predictable built results and a walkable public realm by using physical form—rather than separation of uses—as the primary basis and focus for the code and standards.” Most notably utilized by New Urbanism.  
(*What Is a Form-Based Code?*, n.d.)

**GREEN INFRASTRUCTURE (GI)** “An interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to people and wildlife.”  
(Benedict & McMahon, 2006, p. 1)

**GREEN STORMWATER INFRASTRUCTURE (GSI)** “Aims to reduce flooding and water pollution by absorbing and filtering stormwater while providing a natural relief to the built environment, improving the street aesthetic, and delivering benefits to the community.” Interventions include bioswales, rain gardens, permeable paving, street trees and planting, and passive irrigation.  
(“*Green Infrastructure and Stormwater Management*,” n.d.)

**HISTORIC DISTRICT** “A district or zone designated by a local authority or state or federal government within which buildings, structures, appurtenances, and places are of basic and by plan or physical development.”  
(Davidson & Dolnick, 2004, p. 219)

**HOSTILE ARCHITECTURE** “An urban design strategy that utilizes elements of the built environment to intentionally guide or restrict behavior deemed undesirable by urban leaders. It often targets people who use or rely on public space more than others.” Hostile architecture is an intentional design choice that polices where people are allowed to exist by making urban spaces unwelcoming.  
(Erlenbusch, 2023, p. 4)

**HUMAN SCALE** “Refers to a size, texture and articulation of physical elements that match the size and proportions of people and, equally important, correspond to the speed at which people walk. Building details, pavement texture, street trees and street furniture are all physical elements contributing to human scale.”  
(Duignan, 2015)

**IMAGEABILITY** “The quality of a place that makes it distinct, recognizable and memorable. A place has high imageability when specific physical elements and their arrangement capture attention, evoke feelings and create a lasting impression.”  
(Duignan, 2015)

**INCLUSIVE** “Inclusive planning involves recovering public spaces, rethinking mobility, and creating cities where people have basic services at their disposal within 15 minutes.” Inclusive cities offer opportunities for everyone to participate in, independent of their economic circumstances, gender, ethnicity, disability, age, sexual identity, nationality, or religion.  
(Lerner, as cited in Menéndez, n.d.)

<b>INDIVIDUALISM</b>	An approach to the “design and development of cities (that) prioritizes the needs, preferences, and private interests of individual citizens or property owners over collective well-being, public spaces, or community needs.” ( <i>Individualism in Urban Planning</i> , n.d.)
<b>MAIN STREET</b>	“An inclusive and resilient place that has a thriving local economy, is distinctive and rich in character, and features welcoming spaces and diverse businesses for residents and visitors.” ( <i>Main Street America: About</i> , n.d.)
<b>MITIGATION</b>	“Measures taken to eliminate or minimize damages from development activities, such as construction in wetlands or regulatory floodplain filling, by replacement of the resource or other means of compensation.” (Davidson & Dolnick, 2004, p. 271)
<b>MIXED USE</b>	“Provides three or more significant revenue-producing uses; fosters integration, density, and compatibility of land uses; and creates a walkable community with uninterrupted pedestrian connections.” (Urban Land Institute, 2019)
<b>NEW URBANISM THEORY</b>	“A planning and development approach based on... walkable blocks and streets, housing and shopping in close proximity, and accessible public spaces. New Urbanism focuses on human-scaled urban design.” ( <i>CNU: What Is New Urbanism?</i> , 2015)
<b>PEDESTRIAN FRIENDLY</b>	“The density, layout, and infrastructure that encourages walking and biking within a subdivision or development, including short setbacks, front porches, sidewalks, and bike paths.” (Davidson & Dolnick, 2004, p. 302)
<b>PLACEMAKING</b>	“Prioritizing the experience people have as they spend time in public places (by) enhancing those spaces, making them vibrant and active, and serving the needs, wants, and hopes of the communities where they live. A collaborative process to better connect community members to the spaces and people around them.” (Charlotte Urban Design Center, n.d.)
<b>PUBLIC SPACE</b>	“A legal open space on the premises, accessible to a public way or street, such as yards, courts, or open spaces permanently devoted to public use.” (Davidson & Dolnick, 2004, p. 320)

<b>QUALITY OF LIFE</b>	“A comprehensive measure (of) the well-being of individuals, communities and societies... that can be used to evaluate efforts to improve cities.” ( <i>Urban Design Terminology</i> , 2022)
<b>RESILIENCE</b>	“The ability of a community to ‘bounce back’ after hazardous events such as hurricanes, coastal storms, and flooding – rather than simply reacting to impacts.” (National Oceanic and Atmospheric Administration, 2024)
<b>RESTORATIVE URBANISM</b>	An urban planning and development practice that “heals the past harms inflicted on the built environment, natural landscape, social condition, and economic opportunity.” ( <i>CNU 32 Focus: Restorative Urbanism</i> , 2023)
<b>SMART GROWTH</b>	“A planning strategy that seeks to foster community design and development that serves the economy, community, public health, and the environment.” (Urban Land Institute, 2019)
<b>(URBAN) SPRAWL</b>	“Low-density land-use patterns that are automobile-dependent, energy and land consumptive, and require a very high ratio of road surface to development served.” (Davidson & Dolnick, 2004, p. 384)
<b>STREET LIFE</b>	“An expression of the most ancient function of a city – a place for people to come together, all kinds of people, face-to-face.” (Kent et al., 2023)
<b>STREETSCAPE</b>	“The character or scene observed along a street and as created by natural and manmade components including: width, paving materials, plantings, lamp posts, traffic lights, benches, and the forms of surrounding buildings.” (Davidson & Dolnick, 2004, p. 397)
<b>SUCCESSFUL</b>	To achieve a desired outcome or end goal. For the purposes of this thesis, success is defined as a sustainable transformation of public space into a walkable community that benefits all people, the environment, and the economy. A successful implementation of urban design will provide convenient and enjoyable experiences of place for people while protecting the natural environment within an urban space. (Gardner, 2026)
<b>SUSTAINABLE</b>	“Community use of natural resources in a way that does not jeopardize the ability of future generations to live and prosper.” (Davidson & Dolnick, 2004, p. 403)

## SUSTAINABLE DEVELOPMENT

“Development that maintains or enhances economic opportunity and community well-being while protecting and restoring the natural environment upon which people and economies depend. Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.”

(Davidson & Dolnick, 2004, p. 403)

## TACTICAL URBANISM

“Refers to a rapid and low-cost and scalable approach to making temporary changes to the urban environment, often in urban gathering areas.”

(Urban Design Terminology, 2022)

## URBAN DESIGN

“A collaborative and multidisciplinary process that focuses on how the elements of our city - buildings, streets, parks, and plazas are designed, built, and arranged in relation to one another, and how people experience the city.”

(Urban Design Visual Guide, 2023)

## URBAN HEAT ISLAND EFFECT

The result of buildings and surfaces such as pavement replacing blue and green infrastructure that naturally cool an urban area, causing cities to be hotter than surrounding rural areas. The Urban Heat Island Effect often lowers quality of life and introduces health risks.

(Urban Design Terminology, 2022)

## URBAN VIBRANCY

Lively street life with a “positive activeness that makes an enjoyable experience”; a diverse number of people and activities during different times of day and seasons.

(Lai et al., 2022)

## WALKABILITY THEORY

Refers to the successful implementation of four conditions that are met throughout a city or street: “a walk... must be useful, safe, comfortable, and interesting.”

(Speck & Sadik-Khan, 2022, p. 11)

## ZONING

“The classification of land by types of uses permitted and prohibited and by densities and intensities permitted and prohibited”; “The process of classifying land into areas and districts, such areas and districts being generally referred to as “zones” and the prescribing and application in each area and district of regulations concerning building and structure designs, building and structure placement, and uses to which land, buildings, and structures within such designated areas and districts may be put.”

(Davidson & Dolnick, 2004, p. 458)

# INTRODUCTION

## The Role of Urban Design

*Flagler Avenue Streetscapes* began as a curiosity into the role that urban design plays in addressing climate change. While the natural environment is especially vulnerable to climate threats, the built environment is a primary catalyst of the very forces that exacerbate climate change. In the built environments we live in, car-centric planning and unsustainable rates of development cause air temperatures to rise through the urban heat island effect, reduce nature’s ability to adapt and recover from environmental threats, and intensify the frequency and severity of climate disasters. These impacts are particularly detrimental to precarious urban landscapes such as coastal regions, where urban heat, eroding waterfronts, biodiversity loss, and climate disasters are already prominent.

**By definition, urban design “focuses on how the elements of our city - buildings, streets, parks, and plazas are designed, built, and arranged” within a city, and how this impacts the human experience of an urban space.**

(Urban Design Visual Guide, 2023, p. 5).

## The Status Quo

In American cities, the human experience is often neglected to prioritize cars, parking lots, and highways, reducing the space we as people are allowed to take up. The dominance of cars and pavement, in addition to the reduction of biodiversity in natural ecosystems, cause public spaces to become humid, unwelcoming, and dull. The deprecating human experience of these urban environments is a direct result of intentional planning. Since the early 20th century – the age of General Motors, Robert Moses, the

empire of highway systems, and the race for bigger and faster cars – our urban fabric has been designed to prioritize the convenience of personal vehicular travel at the expense of public space and natural landscapes (Speck & Sadik-Khan, 2022, p. 76). Without a revolutionary change, modern urban planning continues to force our perception of hostile architecture and design of public space as the status quo. We are socially engineered to believe – without question – that the standard for urban life is defined by vehicles, suburbs, and individualism.

## The Need For Change

As climate change intensifies, urban spaces become more vulnerable to climate threats and less capable of responding and adapting to these threats. There is an urgent need for change, which I argue must begin by addressing the causes of climate change, not just its impacts. Our current approach to planning and design of the built environment is unsustainable and requires a radical shift in how we think about cities and the role that people and nature play in them. Urban design provides an opportunity to reshape the built environment in a way that restores natural ecosystems, creates better human experiences, builds community, fosters a collective approach to urban life (as opposed to individualistic approaches), prevents costly future destruction from climate threats, and sustains these changes for future generations.

## Methodologies of Change

Urban design plays a critical role in fostering resilient, inclusive, and vibrant places. By communicating the need for change and the possibilities of better human experiences through visualization, urban design allows people to envision a positive climate future that benefits everyone. In academia on urban green infrastructure (UGI), “co-benefits,” where one UGI intervention has multiple beneficial functions, strengthens the argument to implement the proposal (Gaffin et al., 2012, p. 704). For urban design, co-

benefits may appear as one design intervention that provides opportunities for social, ecological, and economic benefits. Well-planned cities are able to simultaneously address climate change and create welcoming public spaces for people to enjoy and experience. To achieve these successfully, urban design must market itself as beneficial to all components of a city – intriguing for people, stimulating for the economy, and supporting resilience and restoration efforts for coastal ecosystems. Urban design provides an opportunity to transform hostile, precarious, and unsustainable public spaces into positive experiences of people-friendly places. By providing the community and stakeholders in urban planning with real visuals of sustainable climate futures that benefit everyone, radical transformation of urban design can foster positive human experiences of a resilient, inclusive, and vibrant urban dynamic.

## Overview & Purpose

To demonstrate that these transformations of public space are possible, this thesis pulls from prominent theoretical frameworks of urban design. While these theories may be successful in isolation of one another, this thesis aims to find applications and critiques of the individual theories and proposes a comprehensive framework for fostering better human experience through urban design. I argue that urban design and planning play a critical role in creating public spaces that are resilient, inclusive, and vibrant while addressing the causes and impacts of coastal climate change for a sustainable future.

### RESILIENT

The ability to prepare for and recover from environmental and climate threats, including the urban heat island effect, hurricanes, sea level rise, storm surges, biodiversity loss, and ecosystem degradation.

### INCLUSIVE

Providing basic needs and services within 15 minutes of residences, offering social, economic, and cultural opportunities for everyone, and recovering public spaces for the people.

### VIBRANT

Street life that fosters lively, positive, and active human experiences with diverse types and numbers of people and activities that exist during different times of day and seasons.

# LITERATURE REVIEW

To understand how urban design can achieve this, I conducted an in-depth exploration and critique of prominent theoretical frameworks in urbanism, planning, and design ranging from the mid-20th century to modern day, as well as precedent studies that relate to each theory.

By examining the history and timeline of urban theories that focused on transformation of people-centric places, I selected the Main Street Approach, New Urbanism, and General Theory of Walkability. These theories span across decades but each touch on similar themes with diverse approaches to urban design. I believe that the three chosen theories are applicable in addressing climate change through creating resilient, inclusive, and vibrant public spaces.

## Main Street Approach

### *History of Main Street America*

Beginning in 1977, a team of designers, planners, local leaders, and residents worked to revitalize local downtown districts, formally establishing the Main Street America group three years later (*Main Street America: Who We Are*, n.d.). In the post-World War II era, shopping malls, made up of parking lots and big box stores, and sprawl development, characterized by cookie-cutter single-use neighborhoods that prioritize vehicular access, diverted economic investments from local downtowns, commercial districts, and pedestrian shopping hubs (Main Street America, 2017, p. 4). The Main Street America movement took off across the country as grassroots leaders of small-town and local business districts aimed to redirect city life back into unique downtown areas that serve the people that use them. Through an interdisciplinary

approach, Main Street America engages communities involved in economic development, urban planning, historic preservation, finance, and public affairs (*Main Street America: How We Work*, n.d.).

Main Street America's mission describes how their approach "advances shared prosperity, creates resilient economies, and improves quality of life through place-based economic development and community preservation in downtowns and neighborhood commercial districts" (*Main Street America: About*, n.d.). While this mission statement outlines the comprehensive approach of Main Streets, it incorporates many urban design buzzwords that can be misconstrued easily without further elaboration. In contrast to existing downtowns, Main Streets aim to increase *shared prosperity*, which is reflected in the symbiotic relationship between economic investment and community life and returns this investment towards developing places with benefits shared by the collective community. *Resilient economies* focus on smaller, local efforts that keep the investment within the community, such as establishing a diverse typology of businesses that serve both residents and visitors. As a result of resilient economic development, a higher *quality of life* for residents of a community is reflected in the physical manifestation of this development - people-centric, inclusive, accessible, and welcoming places that reflect what the community wants. These three goals - shared prosperity, resilient economies, and quality of life - are accomplished through *place-based economic development*, which is created through planning and designing visually-appealing and high-quality places that bring people to commercial hubs and allow them to shop, eat, and linger in a public space. People will additionally be drawn to restaurants and retail businesses if the economic development incorporates an "edge effect" (see [Walkability Step 9](#)) and therefore invites sustained human activity that exists between time spent walking to and from the place. These goals are further accomplished through *community preservation*, which refers not only to the historic preservation of buildings and the character of the built environment, but to the rich and unique social networks that already exist in a community.

## What is a “Main Street”?

**Main Street’s approach is aimed to be treated as a framework for community placemaking and revitalization, rather than a prescriptive, one-size-fits-all treatment.**

However, a Main Street is often characterized by its inclusive and resilient character that celebrates local businesses, sociocultural diversity, and welcoming spaces for public enjoyment (*Main Street America: About*, n.d.). This may be visually represented by two- to three-story buildings that serve as destinations for pedestrians – such as restaurants and shops – with apartments above to maximize economic output per square foot and bring people closer to everyday errands. For Main Streets in Boston, this may look like long rows of brick brownstone townhouses decorated with full tree canopy coverage with some cafes and mixed-use office buildings; for coastal Florida, these streets may be defined by palm tree-lined sidewalks that border short blocks of retail stores and ice cream shops. Each Main Street is uniquely defined by its neighborhood character and physical layout, but all of them follow a general path towards complete community transformation.

## Four Points of Community Transformation

Main Street America addresses resilient and revitalizing community transformation through their Main Street Approach, which aims to establish a self-sustaining economy made up of “retail and wholesale businesses, personal and professional services, government, entertainment, dining, industry, worship, lodging, and public assembly” (Main Street America, 2017, p. 3). To achieve this, their Main Street Approach argues that the following Four Points of community transformation – economic vitality, design,

promotion, and organization – must work simultaneously (Main Street America, 2017, p. 4). Economic vitality works to create a self-sustaining economy by incorporating a diverse mix of new and existing businesses, as well as managing property development along the Main Street to gradually transform and revitalize the community. Design adapts the physical and visual characteristics of the downtown environment in order to “foster accessible, people-centered public spaces” by embracing the unique features and historic character that make the commercial district stand out (Main Street America, 2017, p. 4). Promotion refers to the strategic placement and marketing of the downtown to attract the community towards a “hub of economic activity” (Main Street America, 2017, p. 4). By promoting the defining assets of a commercial district, residents and visitors associate a positive image with the community’s central downtown and support the local self-sustaining economy, or the “buy-local experience” (Main Street America, 2017, p. 4). Whether physical, environmental, social, or governmental, the organization



Photo by: Michael Rosebrock, via Main Street America



National Main Street Center, 2016

of a commercial district is fundamental in transforming a community. Within the planning and design realm, creating a strong foundation between local leaders, business owners, and city planners ensures that there is partnership across all sectors. Outside of this realm, a broad community engagement approach will create additional foundations for a sustainable “organizational capacity” (Main Street America, 2017, p. 4).

# Transformation Strategies

Following a 2015 in-depth examination on how Main Street communities were progressing towards their goals, Main Street America found common findings and adjusted the approach by incorporating key takeaways from the report (Main Street America, 2017, p. 6). The study revealed that the approach was most successful in communities that used it as a framework rather than a universal prescription, prioritized strategy and outcomes over process, flexible in changing strategy and focuses during economic development, and promoted inclusive community engagement. With this feedback, the Main Street Approach placed more emphasis on creating one to three transformation strategies based on community engagement and economic analysis that addressed all of the Four Points mentioned previously. The framework shifted to guide communities in discovering a vision for their community and market understanding, followed by the creation of comprehensive transformation strategies, which in turn result in qualitative and quantitative outcomes (Main Street America, 2017, p. 7).



Transformation Strategy graphic, via National Main Street Center

The transformation strategies set forth by communities are often unique to their site based upon economic, social, and environmental contexts. By intersecting the context of existing conditions and the community vision for the future, transformation strategies provide a flexible organizational framework that sets out specific outcomes, activities, initiatives, or changes that can be categorized into the four points of community transformation (Main Street America, 2017, p. 8).

# Critiques of Main Street Approach

While the Main Street approach views urban transformation through a people-centric lens, it heavily favors the economic outcomes of planning and design. Without intentional and careful context-based considerations, Main Streets may favor interventions that lead to gentrification and establishing a false sense of identity that while increasing economic well-being, could price long-time residents out of their neighborhood or replace the existing character of a street.

## Main Street Approach Precedent De Laat Green City Center in Alkmaar, The Netherlands

The central shopping district of Alkmaar, de Laat, was transformed in 2023 through a redesign by Bureau B+B. The commercial corridor's excessive impervious pavement along the street caused the street to be vulnerable to flooding and heat stress, leading to a low-quality public space that failed to attract the public. Aiming to "create a sustainable, healthy, and livable city center that is climate-adaptive", the design began with a scenario-planning approach that resulted in the choice to adapt the infrastructure towards a pedestrian-oriented district (*De Laat, Alkmaar by Bureau B+B, 2024*). To support the resilience of and attraction to the pedestrian space, planting areas with trees and



Rendering of De Laat Green City Center, via Bureau B+B

Streetscape rendering, via Bureau B+B

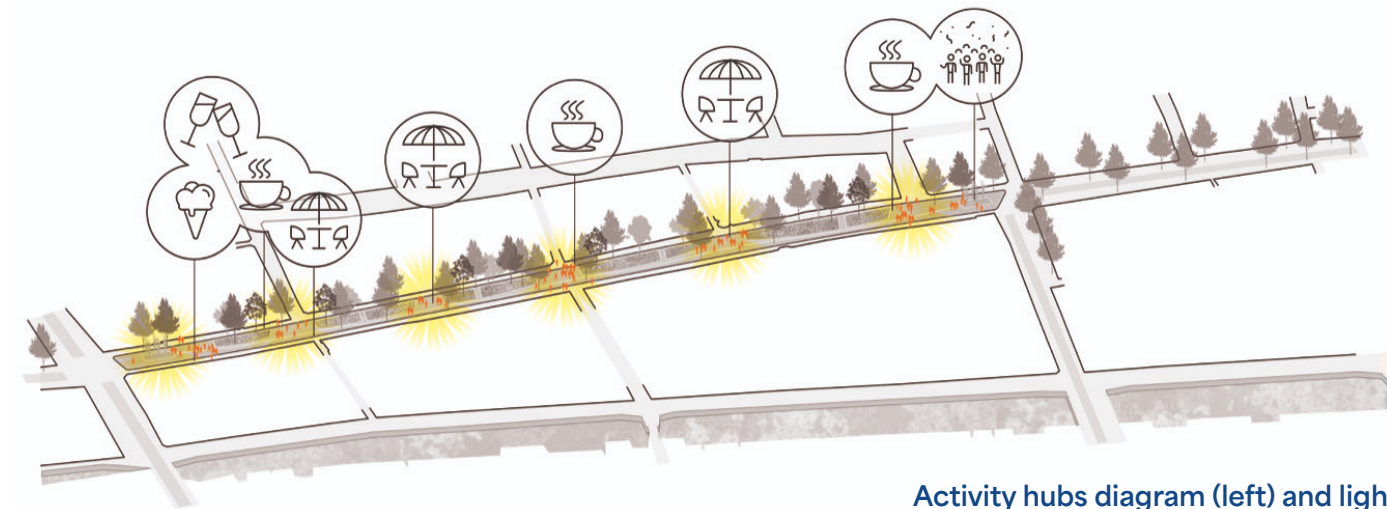


native plantings alternated between open spaces that created social interaction opportunities while mitigating flooding and stormwater runoff.

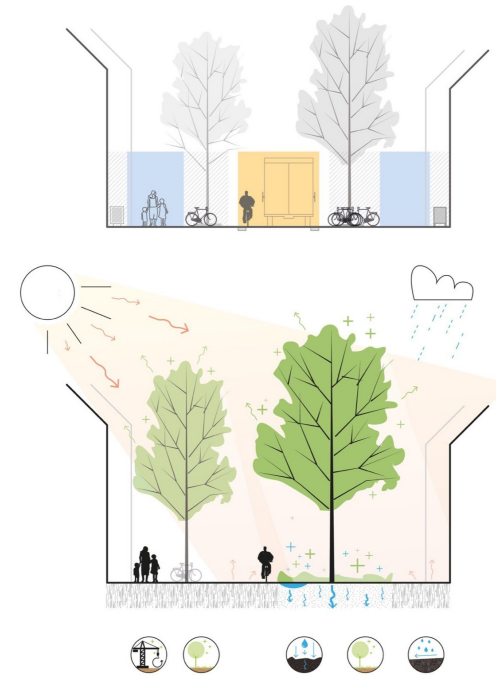
Tree plantings along the corridor border the pedestrian and bicycle paths, intentionally positioned with the sun angles and shadows to provide shaded seating spots that alternate with terraces and seating areas in sunny locations. The project

additionally created diagrams that highlighted the various activity hotspots along the street to identify where shading and seating may be needed the most.

De Laat Green City Center embodies the Main Street Approach’s emphasis on identifying diverse and specific activities within the transformation strategies that keep the economic vitality, design, promotion, and organization of the street alive. By identifying key social, cultural, and economic activity hubs along the corridor, the central shopping district of Alkmaar efficiently moves people comfortably between activity destinations.



Activity hubs diagram (left) and light/shadow sections (right), via Bureau B+B



# New Urbanism Theory

## History & Goals of the New Urbanism

New Urbanism, established as a movement in 1993, aims to implement human-scaled urban design through a planning and development-based approach (*CNU: What Is New Urbanism?*, 2015). Prior to the Congress’s founding, the principles of New Urbanism were established by designers, planners, and other professionals of the built environment worried about the progression of suburban sprawl, urban renewal and gentrification, and isolation from city centers. At its core, New Urbanism represents a future for walkable streets, daily needs in close proximity to residents, and accessible public spaces. Since the majority of America has been overdeveloped with sprawl and car-centric infrastructure, the New Urbanism movement has shifted the conversation towards “preserving, designing, developing, and restoring our regions, cities, and neighborhoods” for more walkable, affordable, and vibrant places (*CNU: The Movement*, 2015).

## Lessons from New Urbanism Principles

Regardless of the scale that New Urbanism is being planned for – residential, villages, towns, or cities – the movement aims to design “around a five-minute walk from center to edge” (*CNU: What Is New Urbanism?*, 2015). For the 25th annual Congress for the New Urbanism meeting, Robert Steuteville of CNU detailed a list of “25 Great Ideas of New Urbanism” from interviews with new urbanist professionals and takeaways from the discussions.

As suburban sprawl and traffic engineering shifted the social norm for residential spaces to become drive-only suburbs, New Urbanism has advocated for a reintroduction of walkable neighborhoods –

“pedestrian sheds” that encourage planning for homes and daily needs to be accessible in a 5-minute walk (Steuteville, 2018, p. 11). Suburban neighborhoods are also “missing middle housing”, offering little options between detached single-family houses and large apartment buildings (Steuteville, 2018, p. 142). Middle housing demonstrates the livable, diverse, low-rise density in a human-scaled neighborhood that is desired by people outside of the American nuclear family dynamic. To transition from a car-centric detached single-family neighborhood to a walkable neighborhood with a diverse mix of housing typologies, suburbs can be “retrofit” by creating a replicable, universal, step-by-step stencil of a walkable suburbia (Steuteville, 2018, p. 23).

In commercial zones, downtowns, or shopping districts where cars are still needed to transport people from their homes to work or daily errands, New Urbanism promotes a framework for rethinking parking. For off-street parking, structures such as garages or lots should be wrapped around the outside or behind the walking districts to keep pedestrians at the center of activity (Steuteville, 2018, p. 49). On-street parking, also referred to as curb parking, can be beneficial for walkable districts if designed practically. New Urbanism particularly emphasizes the “park-once strategy” – after parking in one location, people can walk to multiple errands or activities without needing to drive to find a closer parking spot (Steuteville, 2018, p. 48). To make on-street parking blend in with the adjacent public space, street trees can be placed in the parking lane between spots and protected by a curb around it, adding to the overall aesthetic and creating shade along the sidewalk.

In New Urbanism, cities are distinctly greater than the sum of its parts (Steuteville, 2018, p. 182). This applies to the city as an interconnected network of streets as well. To establish a strong street life, planning must extend “beyond any single street” and look at the adjacencies outside of the individual street at hand (Steuteville, 2018, p. 61). Furthermore, streets should be planned to accommodate the uses and activities

(both existing and desired) around them. Context-based street design is crucial to bring appropriate speeds and design specifications to an existing public space and make “people... feel comfortable walking again” (Steuteville, 2018, p. 55). New Urbanism emphasizes the need for more focus on how streets impact the social spheres, economic shifts, and environmental ecosystems within cities. While planning plays a dominant role in changing how streets are designed, tactical urbanism – another New Urbanism tool – advocates for quick and cost-effective methods implemented by the public that can make an impact sooner than Departments of Transportation (DOTs) can plan, fund, construct, and implement a brand new street design (Steuteville, 2018, p. 78).

## ***Critiques of New Urbanism***

While the New Urbanism aims to establish pedestrian-oriented, mixed-use spaces, its form-based design may lead to a lack of visual diversity, especially if one is already present in a place. Furthermore, New Urbanism has been critiqued on its ability to be implemented in existing urban environments, making it difficult to apply elsewhere without a concrete phasing plan that considers the existing contexts and makes intentional plans to retain the existing character of a neighborhood and its people. The commercial emphasis within New Urbanism’s mixed-use is often correlated with gentrification and higher-end retail and shopping, such as expensive coffee shops or name brand luxury stores. However, this may not fit the needs or even wants of existing residents - if a place does not have a grocery store within walking distance, the solution lies deeper than replacing existing businesses with upscale retail that price people out of their communities. Additionally, New Urbanism designs tend to lack sufficient green infrastructure, potentially to preserve the “aesthetic” and cleanliness of its architecture.

## New Urbanism Precedent Seaside Master Plan in Seaside, Florida

The iconic coastal town of Seaside, which began design in 1984 and “stood 95 percent complete” in 2010, marks the beginning of New Urbanism in America (Seaside, 2018). To meet the needs of walkability and easy access to daily needs such as grocery stores, New Urbanist architects Andrés Duany and Elizabeth Plater-Zyberk established a Form-Based Code (FBC) that unites urban design through the physical form of buildings and public spaces rather than their zoning uses and helps foster “mixed-use, people-oriented development patterns” (*What Is a Form-Based Code?*, n.d.). The FBC of Seaside regulates the cohesive visual identity of architectural styles and landscaping. These community-oriented approaches allowed for the coastal town to creatively adapt different building uses that meet the diverse needs of residents and visitors to the unique and identifiable character of Seaside (Dixon, 2013).



Seaside's Form-Based Code, via DPZ CoDesign



Duany and Plater-Zyberk's Master Plan for Seaside, via CNU

## General Theory of Walkability *Speck's General Theory of Walkability*

### Introduction

Jeff Speck's guiding argument for *Walkable City* introduces the idea that “if you want to make a change in the world, change your streets” (Speck & Sadik-Khan, 2022, p. xv). The place to start, therefore, is to change streets for the people using them. Walkability aims to prioritize the human experience throughout a city on a street-level scale. While walking is evidently the most common element of Speck's General Theory of Walkability, it acts as the primary step towards a multi-modal system that allows for users to choose between walking, biking, taking public transit, or driving. With a more walkability-focused design, pedestrians are given a “fighting chance” against cars through narrowed vehicular lanes, wider sidewalks, brighter crosswalks, and physical barriers between cars and pedestrians (Speck & Sadik-Khan, 2022, p. 5).

Through the General Theory of Walkability, simple design choices and low-cost interventions can create a successful streetscape that is “useful, safe, comfortable, and interesting” (Speck & Sadik-Khan, 2022, p. 11). These four principles form Speck's argument that walkability creates an overall positive experience for pedestrians. The first, a useful streetscape, refers to the planned proximity from a user's home to daily necessities, such as grocery stores, in which walking is a well-served means of transportation. Safe streetscapes are characterized by physical infrastructure that protects pedestrians from automobiles, but also considers how the built environment influences a pedestrian's perceived safety. The principle of a comfortable walk describes the built environment that transforms streets into “outdoor living rooms”, attracting pedestrians into a space rather than providing an empty, wide-open space (Speck & Sadik-

Khan, 2022, p. 11). An interesting walk typically lines the sidewalks with unique building facades, attractive pedestrian-scale businesses, and appealing landscapes, creating a welcoming atmosphere. Walkability-focused design additionally advocates for bicycle infrastructure, investment in efficient transit, and makes “downtown living attractive to a broader range of people” (Speck & Sadik-Khan, 2022, p. 5). Even in town centers or lower-density “downtowns,” urban design can create an environment that is attractive to residents, prospective residents, and visitors alike. This attractive, walkable community-building is known as “street life” – the “pedestrian culture that can only come from walkability” (Speck & Sadik-Khan, 2022, p. 17).

An immediate and abrupt transition to a car-free society would be beneficial for pedestrian culture and the environment, but America’s current transportation network requires a lengthy process for the reversal of decades-old, car-centric infrastructure choices in order to be accomplished. However, designing for a more walkable network that provides users with the *choice* to drive, or even live without a car, is attainable during our lifetime. The General Theory of Walkability, therefore, aims to accomplish this.



Photo of storefront sidewalk in Portland, Oregon by Susan Henderson, via *Placemakers*

## Economic Benefits of Walkability

Speck’s General Theory of Walkability addresses the multifaceted benefits of a walkable city through wealth, health, and sustainability – the “three principle arguments for making our city more walkable” (Speck & Sadik-Khan, 2022, p. 16). In order to convince municipalities to implement it, I argue that walkability must first be introduced to planners and policymakers by its economic benefits that outweigh the implementation costs. While economic benefits are not the only element that convinces municipalities in the decision-making process, it is useful to market people-centric design that gets people interested in the first place. I argue that in the capitalist society that we exist in currently, framing a community-first design as economically beneficial makes funding for these projects easier to obtain.

Framing walkability like this doesn’t have to be limited to just developers or city planners - it can extend to the people it impacts as well. For individuals, walkability provides users with the option to drive less, therefore reducing the “hidden costs” that come with car dependency, such as car payments, gas prices, oil changes, engine checks, time spent stuck in traffic, and commuting long distances. For communities, a collective reduction in vehicular use and hidden costs is proven to result in millions of dollars being retained in the local economy annually (Speck & Sadik-Khan, 2022, p. 31). Walkability and other mobility infrastructure additionally allows for greater job creation: transit, bike lanes, and sidewalks increase employment 60 to 100 percent better than road and highway construction (Peltier, 2010, as cited in Speck & Sadik-Khan, 2022). Another study found an inverse correlation between vehicle travel and productivity, in which less miles driven resulted in higher economic performance and productivity (Kooshian & Winkelman, 2011, as cited in Speck & Sadik-Khan, 2022).

## Health Benefits of Walkability

Walkability also provides a framework for health benefits for all users. By providing users with the ability to opt out of driving, excessive amounts of air pollution caused by car exhaust is removed from the atmosphere. Implementing walkability additionally moves more people out of a car-dominated space, reducing the number of cars present and the likelihood of vehicular fatalities. Non-driving transportation options, such as walking or biking, additionally benefit one's fitness through physical exercise to get to a destination. Our society is so car-centric that it not only physically endangers us, but mentally takes a toll every time we drive. Even sitting in stand-still traffic for 45 minutes, which is a common amount of time during rush hours between work and home for Americans, is correlated with an increase in blood pressure, higher heart rates, and lower frustration tolerance (Speck & Sadik-Khan, 2022, p. 47). Walkability, in contrast, provides users with more emotional freedom and less stressful transportation options. While the near future will likely not eliminate all of America's car-centric infrastructure, the objective of walkability is to give citizens the choice to walk, bike, drive, or take transit. Therefore, the application of walkability provides the option for healthier mobility, both physically and mentally.

## Sustainability Benefits of Walkability

As the discussion on vehicular impact in climate change shifts to promote electric vehicles, it is important to emphasize that "sustainable" car culture is still being prioritized over true sustainable alternatives to climate change, such as walkability. In fact, the argument for electric cars often fails to mention that the electrical grid charging the vehicles is powered by coal and other fossil fuels. While electric vehicles have slighter "clean energy" benefits, a highway packed with electric vehicles is still a highway packed with vehicles. A line of frustrated drivers in electric vehicles is still a line of people with

higher heart rates causing traffic. Most of all, an electric vehicle is no different than a gas-powered car if they both result in a combined 40,000 fatalities each year (*Fatality Facts 2023, 2025*). The sustainable alternative to vehicles, electric or not, is walkability, which includes biking and public transportation. Cars make suburban sprawl surprisingly convenient, which is framed as a freedom for people to own a large amount of space and advertised as individualism – the pinnacle of the American dream (Speck & Sadik-Khan, 2022, p. 55). As people spread out, driving distances between home, work, and daily activities, causing an excessive increase in emissions from vehicles. If walkability is difficult in places where sprawl prevents users from an efficient walk to work, public transportation acts as a middle ground where the number of people in a vehicle outweighs the emissions from the bus or train. Multi-modal transportation includes mobility options with varying weights of environmental impact, but the biggest contributor of these to environmental damage has been, and continues to be, cars.

## Speck's Ten Steps of Walkability



## Step 1: Put Cars in their Place

The majority of American drivers will tell you that they wish they could walk, bike, or take transit to their destinations, and yet they drive their cars to all destinations, whether a mile down the road to thirty minutes across town. Most of the time, it's not their attitude towards or against vehicles that prevent them from using any other mode of transportation, it's the environment and infrastructure around them. Historically, transportation planners and engineers have approached the problem of traffic congestion through building wider roads with more lanes and parking garages, which only exacerbates this issue (Speck & Sadik-Khan, 2022, p. 97). The cycle of traffic congestion – creating more space for vehicles and less space for other modes, forcing pedestrians and bicyclists into drivers, and therefore creating more traffic that “requires” more space – is a crucial dilemma to understand why American drivers are left with little options. In such a car-centric society, banning personal vehicles outright has and will continue to fail as long as we rely on the national network of roads that keeps our cities running. If any car-free pedestrian zone can succeed, it must rely on exceptional location, diverse demographics, and organization of the space rather than its streetscape (Speck & Sadik-Khan, 2022, p. 99). However, Speck claims that cars will unfortunately “remain a fixture of our communities for the remainder of our lifetimes”, which means we can't ignore or remove them – we must *limit* their power over the public realm of streets (Speck & Sadik-Khan, 2022, p. 75). While I believe that in our lifetimes, the elimination of cars from our everyday commutes is essential to promote community interaction, health, and environmental resilience, it won't happen overnight. To do this, cities must make other modes of transportation more useful and convenient in comparison to driving – which can only be accomplished with the following steps of walkability.

## Step 2: Mix the Uses

Cities must incorporate a diversity of land uses known as mixed use, also referenced under the useful walk. Speck's “mix the uses” step accounts for a harmony between different land use categories such as commercial and residential zoned together within one block. For a walk to be useful, a range of daily needs and activities must be easily accessible to walk between each one and a user's home. As the housing market continues to reduce affordable residential options, Speck suggests the implementation of “accessory dwelling units (ADUs)” – a small single-unit apartment or cottage for rent within the property lines of an existing house that creates a second income for homeowners (Speck & Sadik-Khan, 2022, p. 110). ADUs are commonly opposed by NIMBYs (not-in-my-backyard), a movement often linked with neoliberal politics that reject mixed-density housing developments due to concerns about property values within an individual's neighborhood (*NIMBYism Defined*, n.d.). For walkability, ADUs increase residential density often invisible from the street. With more residents per square mile, the argument for walkability, public transportation availability, and closer proximity to everyday needs becomes more viable (Speck & Sadik-Khan, 2022, p. 111). Speck discusses that to “mix the uses”, planners and developers must consider

**Future economic growth by providing market-rate housing and promoting resident needs *and* wants – “parks and playgrounds, supermarkets and farmers' markets, cafés and restaurants, and good schools”**

(Speck & Sadik-Khan, 2022, p. 113). However, the common denominator for each of these elements to succeed is an infrastructural framework of walkability.

### Step 3: Get the Parking Right

Speck’s third step emphasizes the need to “get the parking right”. In the majority of urban America, cities have been planning and working around parking rather than making parking work for our cities. American cities are characterized by plentiful parking spaces that can be used for very little, but the hidden costs of parking reveal a bigger story. To build the smallest parking space at 8 ½ feet by 18 feet, the cheapest price to pay begins at \$4,000 (Speck & Sadik-Khan, 2022, p. 116). With an estimated two billion parking spots in our country, America has paid at least *eight trillion dollars* on parking spots alone (Gaviola, 2020). When these parking spaces are free or cheap to use, drivers are made to feel as if they aren’t paying for this amenity. At face value, free parking seems like the most affordable option for drivers. However, the cost of free parking is factored into everyday expenses – after the developer pays the initial price, the majority of commercial transactions such as shopping and groceries rise because of this consideration for paying for parking (Speck & Sadik-Khan, 2022, p. 118). Furthermore, cheap on-street curbside parking causes traffic congestion as drivers circle around the block to find the rare spot as someone leaves. In addition to creating congestion, curbside parking worsens pollution, wastes time, causes emergency response delays, and reduces potential revenue for local businesses. According to the late economist and planner Donald Shoup, *metered* parking reduces overcrowding and increases turnover, resulting in higher rates of revenue with more visitors per hour (Speck & Sadik-Khan, 2022, p. 129). Drivers are more likely to drive shorter distances and periods of time to a parking lot walkable to their destination than drive around for longer periods of time in search for a single open parking spot. Shoup explains that “if nonresidents pay for curb(side) parking, and the city spends its money to benefit the residents, charging for curb(side) parking can become a popular policy rather than the political third rail it often is today” (Shoup, 2005, as cited in Speck & Sadik-Khan, 2022, p. 136). Two decades after his publication, Shoup’s argument holds strong –

residents are less likely to oppose metered curbside parking if the city plans around them, businesses are more likely to favor the higher turnover rates for increased revenue, visitors are encouraged to reroute to parking that doesn’t force them to drive around endlessly, and the city profits from the metered spots.

### Step 4: Let Transit Work

If a city’s transit system is lacking, so is its walkability. Statistically, American cities with stronger transit networks have higher rates of pedestrian traffic. Whether one uses transit or not, a city that implements it into their transportation infrastructure also implements walkability. Speck argues that for most American cities and towns, the transportation infrastructure “support(s) either driving or everything else” (Speck & Sadik-Khan, 2022, p. 140). Since most trips that involve taking transit start and end with a walk, walkability and strong transit systems support each other. In towns and smaller cities, transit and walkability begin at the neighborhood level. Neighborhoods are often defined around their center and their edge, surrounded by shared public spaces and small everyday amenities within walking distance. In the *General Theory of Walkability*, a successful neighborhood is “compact, diverse, and walkable” (Speck & Sadik-Khan, 2022, p. 144). Residential districts are transformed from successful neighborhoods to victims of suburban sprawl – spread-out, homogeneous, and designed specifically around the automobile. Without a walkable neighborhood to begin a trip from, transit becomes useless in the era of the personal vehicle. If we design our neighborhoods to be compact, diverse, and walkable, smaller-scale transit becomes feasible again. The two key forms of small transit systems are *nodal*, which connects a variety of walkable districts together, or the increasingly common *linear* form, which enhances a singular walkable corridor (Speck & Sadik-Khan, 2022, p. 150). Linear forms of transit systems are manifested as streetcars, trolleys, and trams – a slower form of rapid rail systems with more stops along the route to serve as “pedestrian accelerators” and placemakers (Speck & Sadik-Khan, 2022, p. 150). Since the majority of Americans reside within small-

or mid-sized cities, it is important to understand how to “make transit work” in drivable towns less dense than major cities. In order to design streets to create a “transit-and-walking culture in a place where driving is so easy,” transit must become the more convenient option as opposed to driving (Speck & Sadik-Khan, 2022, p. 154). Speck outlines four conditions that make this possible – urbanity, which refers to transit stops being in high activity places with walkability on both ends; clarity, which refers to the simplicity of a transit route with the least amount of diversions; frequency, which refers to the regularity of transit service schedules; and pleasure, which refers to the enjoyability of a transit trip (Speck & Sadik-Khan, 2022, pp. 155-156).

## Step 5: Protect the Pedestrian

Speck’s fifth step of walkability argues that in addition to the physical safety of pedestrians, their mental perception of street safety is just as crucial when creating policies and implementing plans that promote walkability. The systematic failure stems from two core issues – “a lack of concern for the pedestrian and a fundamental misunderstanding... about what makes streets safe” (Speck & Sadik-Khan, 2022, p. 163). While the former may be solved through sociopolitical change in attitudes towards pedestrians, the latter can be addressed through physical infrastructure changes. On a city scale, block size (defined by the shapes created inside the edges of streets) is an influential factor for both perceived and real pedestrian safety – cities with smaller block sizes are found to be known for their walkability and successful street life. Small block size results in more intersections, therefore creating more paths for pedestrians to take and shorter distances between destinations (Speck & Sadik-Khan, 2022, p. 165). By contrast, big block size results in fewer, but larger, streets that are unwelcoming to pedestrians. The Congress for New Urbanism, developers of the *Designing Walkable Urban Thoroughfares* framework, establishes a standard for ten-foot-wide vehicular lanes that psychologically force drivers to slow down, in contrast to the typical twelve-foot-

wide lanes typically seen on American streets (Speck & Sadik-Khan, 2022, p. 171). By narrowing vehicular lanes, more space may be allocated for sidewalks that benefit pedestrians and bicyclists. However, Speck argues that sidewalk design, specifically its width, is irrelevant to pedestrian safety. On-street parking provides a physical barrier between drivers and sidewalk users, such as pedestrians, those sitting on benches, and sidewalk diners. Sidewalks in our modern political climate have since been transformed into a literal walking contradiction. By replacing the protective barrier of on-street parking with bikeways and transit lines, “sacrificing one form of nonmotorized transportation for another” is merely reducing pedestrian comfort and safety while still prioritizing dangerous moving cars over pedestrians, bicyclists, and parked cars (Speck & Sadik-Khan, 2022, p. 182). Street trees can alleviate these problems, specifically tree canopies, by “visually narrowing the street” and making drivers more aware of their surroundings (White, 2022). Incorporating both a barrier of parked cars and a canopy of street trees will therefore create the safest pedestrian experience on the sidewalk.

## Step 6: Welcome Bikes

For the benefit of both bikers and pedestrians, bicycles create an in-between where drivers behave more cautiously and therefore are more careful around pedestrians. Biking, more so than walking, is an “efficient, health(y), empowering, and sustainable form of transportation” that serves as an alternative to driving (Speck & Sadik-Khan, 2022, p. 190). Statistically, if all Americans chose to switch one hour of their time spent driving per day to bike instead, gasoline consumption would be cut by more than a third and our decrease in greenhouse gas emissions would immediately fulfill the Kyoto Protocol of 1997 (Speck & Sadik-Khan, 2022, p. 191). Furthermore, climate and topography are shown to not play a significant role in the share of people who drive versus bike in a city, but making the conscious decision to bike requires a strong urban network full of dense, mixed-use development and safe cycling infrastructure – both of

which come with designing for walkability. Through the debate of bike lanes and their relationship with automobile lanes, Speck introduces the movement of “vehicular cyclists”, who advocate for using your bike as if it were a car. To vehicular cyclists, one must physically claim their space on the road, a rejection of bike lanes from the belief that they shove bicyclists to the side to prioritize motor vehicles (Speck & Sadik-Khan, 2022, p. 200). Pro-biking opponents of this movement, while both advocating for bikers, argue that many children, women, and elderly feel unsafe demanding their space on the road, which requires users to constantly be aware of their surroundings and understand that one mistake on their end, or a driver’s, would be fatal for them. Speck inserts the argument that vehicular cycling in America, according to Pucher and Buehler in their paper “Cycling for Few or for Everyone”, is the leading factor for low levels of bicycle use in our country (Pucher & Buehler, 2008, as cited in Speck & Sadik-Khan, 2022, p. 201). The three most common design choices for bicycle infrastructure therefore argue for bike lanes, separated paths, or shared routes. In larger cities where drivers speed and lanes are wide enough to drive carelessly, adding bike lanes often simultaneously address both issues by taking up the excess space and therefore reducing the visual space for drivers to speed. Bike lanes also attract more bikers by giving dedicated street infrastructure to them, but drivers tend to give cyclists less space when they pass bicyclists on a 5-foot bike lane as opposed to when they swerve around to pass them (Speck & Sadik-Khan, 2022, p. 202). Shared routes, which invite both drivers and cyclists to use the same lane, psychologically remind drivers to act more cautiously. However, they struggle to attract bikers without a deliberately-marked bike lane. Separated paths, which typically provide two 4-foot paths protected by a 3-foot buffer, are strategically placed between a sidewalk curb and the on-street parking. Separated paths are statistically the safest, but they create a barrier, both physically and visually, between cars and shops along Main Streets, especially when they replace curbside parking. Along mixed-use commercial districts, streets should aim to

## **“Create an environment of such slow driving that bikes and cars can mix comfortably at biking speeds”**

– Coined as a “shared route” with unmarked streets that double as bikeways and means of travel for all (Speck & Sadik-Khan, 2022, p. 204). Speck’s final argument for his position on bicycle infrastructure is that between bikers, pedestrians, drivers, business owners, residents, and shoppers, “everyone has to compromise if our cities are going to be any good and also if there are going to be affordable” (Speck & Sadik-Khan, 2022, p. 208).

### **Step 7: Shape the Spaces**

While the street is an important place to start to discuss walkability, the places and spaces we walk to and from are crucial to make walkability enticing. As pedestrians, we appreciate a long, outdoor, and open green space to walk between. As humans, we need a sense of enclosure to feel comfortable and safe – a discovery from evolutionary psychologists that draws us to walk between the high-visibility open green spaces that keep us aware of our surroundings and the physical walls that enclose us and psychologically protect us (Speck & Sadik-Khan, 2022, p. 213). Over the decades, inviting pedestrian environments filled with building facades that enclosed the pedestrian in have been destroyed in the name of empty parking lots. According to Speck, many planners see these lots as “missing teeth” – “it only takes one of them to wreck a place for walking” (Speck & Sadik-Khan, 2022, p. 214). Spatial definition of a walkable place is created by building facades with inviting storefronts, mixed-use activity, and infrastructure for all users. Many arguments against spatial definition stem from taller buildings that fail the “shadow studies” in which a building’s height shades too much of an urban area or towers over pedestrians, creating a hostile environment. In colder climates, some of these arguments are practical as the lack of sun and freezing

temperatures render a place too cold to walk comfortably. Speck argues, however, that in warmer cities such as Miami Beach, “shadows are what make summer walking possible” (Speck & Sadik-Khan, 2022, p. 215). A temporal war between traditional and modern urbanism argues that it is the figural space, or figural objects, respectively, that truly define a walkable urban environment. Traditional urbanism presents figural space as the enhancing of space between buildings that belongs in the public realm – these are the places that make or break a walkable street. Building shapes, sizes, character, architectural styles, and proportions are diversified to balance an “outdoor living room” where the urban environment frames a space designed for the pedestrian. Modern planning philosophy asserts that figural objects (such as large three-dimensional sculptures) create an urban environment. While this may be true to some extent, as found in larger public spaces that add artwork within and around the site, the environment is no longer a walkable one. Speck explains that the public realm, with the introduction of figural objects, has been rendered “residual..., meaningless, and inhospitable to pedestrians” (Speck & Sadik-Khan, 2022, p. 216). Jan Gehl, an architect and urban designer, forms an expression for designing public space: “when in doubt, leave some meters out” (Speck & Sadik-Khan, 2022, p. 218). In the rare occasion that planners are presented with a large amount of space, smaller may still be better. Even in the world’s largest cities, successful public spaces (Times Square in New York, for example) are at or under 180 feet long. Disney World’s Main Street in Orlando, Florida with 50 million visitors annually is famous for its walkable, nostalgic, and old-fashioned feel because of its design at three-quarters scale (“Walt Disney World Tourism Statistics,” 2025).

**Regardless of a city or street’s popularity or physical size, small public spaces are more likely to win over large, open, blank canvases of public spaces – and win over its pedestrians.**

## Step 8: Plant Trees

The American street tree is often the most neglected, underfunded, and underrated units that make up a walkable street. We’re constantly walking by them, if we are fortunate enough to have them lined on the sidewalk or in our neighborhoods, but they go unnoticed until the street no longer provides them. Street trees are the fundamental roots – literally – for offering pedestrian comfort in a multitude of ways. By providing shade, reducing atmospheric and ground temperatures, absorb carbon dioxide and car tailpipe emissions, collect and clean rainwater, reduce the impacts of heavy winds, slow down cars, and improve the pedestrian experience of enclosure discussed in the previous step, to name just a few, street trees more than make up for the cost of implementation (Speck & Sadik-Khan, 2022, p. 223). Since they additionally improve walkability and fulfill the comfortable aspect of a walk, street trees revitalize property values and local commercial and retail success. Humans biologically are drawn to have a connection with nature, which is complicated in our daily lives due to the reliance of spending all of our time in metal boxes commuting from one building box to another. If we improve walkability, and with this include street trees into the mix, humans are statistically more likely to “recover from stress within five minutes” just from visual exposure to trees (Ulrich et al., 1991, as cited in Speck & Sadik-Khan, 2022, p. 224). Even for automobile users, a drive with street trees is perceived as significantly shorter than one without them (Kulash 1994, as cited in Speck & Sadik-Khan, 2022, p. 224). For those who design for the street without experiencing it, such as transportation engineers, it is crucial to convince them to understand that “street trees make roadways safer for drivers as well as pedestrians” (Speck & Sadik-Khan, 2022, p. 225). To achieve this, we must first argue that pedestrian safety should be equally valued as driver safety is – often, engineers perceive sidewalks as the emergency route for swerving drivers, which then endangers pedestrians for the “safety” of irresponsible drivers.

## **Environmentally, street trees in tropical climates reduce the urban heat island effect and “lower pedestrian-level temperatures by up to 12 °C (53.6°F) through large radiation blockage and transpiration”**

(Li et al., 2024). Furthermore, a single street tree has the ability to cool a space as efficiently as “ten room-size air conditioners operating 24 hours a day” (Speck & Sadik-Khan, 2022, p. 226). With the current cycle between climate change causing higher air conditioning use, causing carbon pollution, causing climate change, street trees and dense tree canopies can save a street from this slippery slope. Especially on car-heavy streets, tree canopies absorb carbon dioxide emissions from vehicles in close proximity. The specifics of tree canopies depend on the environment they’re placed in, and although the intuition-turned-law that prevents cities from planting rows of the same species of tree will assist in diversifying the streetside environment, a self-sustaining, successful tree canopy will often be seen with one tree species – think Maple Street, Walnut Street, Elm Street, to name a few. Speck discusses the tendency of southern regions to plant palm trees for their visual association with warmer climates, but argues that since these are merely for decoration and only serve an aesthetic purpose, the environmental benefits that are crucial for hotter streets must come from trees with high canopy and shading potential, such as Live Oaks native to Florida.

### **Step 9: Make Friendly and Unique Faces**

When a street is designed to physically be safe, useful, and comfortable, it becomes capable of serving pedestrians and establishing a walkable environment. However, making it an interesting one is the

element that keeps pedestrians coming back to this mode of transportation. To establish an interesting walking environment, a strong street life must be created by enhancing the “core qualities of urbanity that draw people downtown in the first place” (Speck & Sadik-Khan, 2022, p. 238). As mentioned in the first step of walkability, parking must be put in its place in the context of the urban street environment. Oftentimes, this space is hidden away from the interesting elements of street life. Parking garages visually consume space with mundane, gray, rectangular box-like structures, but this architecture doesn’t need to be the only way to approach them. In recent years, mixed-use districts have been directing street-front commercial spaces on the ground floors of garages along the sidewalk, inviting pedestrian activity in and pushing vehicular activity out of sight while still providing the infrastructure to invite drivers too. Flat parking lots can achieve this invisibility too – only “25 feet of occupied building edge (is needed) to hide 250 feet of parking lot” (Speck & Sadik-Khan, 2022, p. 239). Jan Gehl, previously mentioned in step seven, introduces the concept of the “edge effect” to communicate how human activity is sustained through inviting edges of a space to sit, stand, eat, and spend time other than walking to and from the space.

## **Third spaces such as edges welcome people to exist in a place without the pressure of economic exchange.**

For buildings to attract pedestrians and those spending time in a space, the architecture must be porous – allowing for connection between the interior of the building and the sidewalk, such as windows and doors – and deep – providing spaces to seek shelter, lean against, sit down, and physically engage with the building, such as waist-height windowsills. To invite the public into a streetscape, “blurring the distinction between public and private (realms) while drawing out the experience of entering and exiting” communicates that people are welcome in all spaces (Speck & Sadik-Khan, 2022, p. 240).

## Step 10: Pick Your Winners

In an unrealistic world, all previous steps of walkability would be implemented instantly with no political or economic barriers. In a typical American city, neither the budget nor the political divides allow for this transformation in the urban environment. To solve this dilemma, planners in the public sector must ask where “spending the least money (can) make the most difference” (Speck & Sadik-Khan, 2022, p. 254). The most efficient use of time and money to invest in walkability is often found along streets with attractive building typologies with the potential to improve their pedestrian attractiveness. Speck translates this as taking an existing successful private realm full of commercial spaces and enhancing the opportunity for a successful public realm between the road and the buildings.

**Livable, enjoyable, and walkable streets draw pedestrians in through these hotspots**

(Including commercial pockets, shops, restaurants, and large buildings), referred to as “anchors”, and bring people to them through “paths” (Speck & Sadik-Khan, 2022, p. 255). The paths between these anchors are where planners should focus on implementing the steps of walkability. This planning philosophy may be applied to not only a downtown in a major city, but to all commercial scales: mixed-use districts, Main Streets, and neighborhood corner store areas. Even the smallest of walkable networks can enhance an entire city’s reputation of being a walkable area. Often, city planners and government officials will instinctively evenly distribute resources across a city, which takes resources away from small, attractive commercial districts with higher potential and allocate them to strip areas with unattractive, anti-pedestrian development that will not benefit from any amount of walkability infrastructure investment. However, if these resources were concentrated into a small number of areas with potential for inviting, walkable streetlife, the outcome

would create a lower number of strong walkable districts rather than a large amount of mundane, semi-walkable fragments (Speck & Sadik-Khan, 2022, p. 259). After creating these walkable districts, people from across the city are drawn to these places as they become “the only part of a city that belongs to everybody” (Speck & Sadik-Khan, 2022, p. 260). With a successful walkable district, one in which everyone in a city is welcome to, the image of the city becomes powerful enough to attract visitors even if they only envision the walkable district.

## Critiques of the General Theory of Walkability

While the General Theory of Walkability outlines a step-by-step process for transforming public spaces, it focuses primarily on larger urban areas. When thinking about scale in urban design, the approaches used for city-wide projects (such as mass transit) is often not effective or even feasible on street-scale planning (and vice versa). Jeff Speck’s book brings to light the impact of cars and buildings on our public spaces, but I argue that it would have been beneficial for him to discuss further the impact that people have on our spaces - using a human-centric perspective in design may be more effective in creating human-centric places. There was a lot of emphasis on the physical cityscape, which I agree is a crucial factor in how planning shapes our perception of public space, but it became difficult to decipher Speck’s stance on cars. If they truly are the “lifeblood of the American city” that will “remain a fixture of our communities for the remainder of our lifetimes,” then I intend to approach design as a visionary in a way that asserts that placemaking and urban life *can*, and *will*, exist without cars (Speck & Sadik-Khan, 2022, p. 75).

# Walkability Precedent

## Water Street Continuous Canopy in Tampa, Florida

Water Street’s urban shade framework, designed by Reed Hilderbrand (2023) creates a future for vibrant landscapes along a commercial corridor, distinguished from surrounding neighborhoods by its extensive tree canopy, walkable streets, and vegetated streetscapes.

The urban forest combats coastal heat through filling in the gaps of tree canopy beyond Water Street and throughout downtown to allow the city streets

to “become cooler, more inviting, and alive with possibility” (2025 ASLA Honor Award in Urban Design for Water Street Tampa, 2025). Other green infrastructure initiatives in the project include permeable surfaces, rain gardens, Florida Friendly and native tree species, and quality soil to support tree growth along the sidewalks. The Water Street design is resilient against intense stormwater from natural disasters and deploys green infrastructure strategies with co-benefits – single design choices with advantages for the



Street Tree and Connectivity Plans by Reed Hilderbrand, via ASLA

social, environmental, and economic spheres of Tampa. Water Street’s “live-work-play district” demonstrates the possibility for green infrastructure such as canopy trees to create welcoming pedestrian experiences (Generosity of Place: Water Street Tampa’s Continuous Canopy | ASLA 2025 Professional Awards, n.d.).



Streetscape section by Reed Hilderbrand, via ASLA

# Literature Review Summary

## Lessons & Takeaways from Theories & Precedents

After exploring the three theoretical frameworks and their real-life applications through precedent studies, I found nine common themes and conclusions that may be applicable to other sites.

1. Building shadows, shade trees, and green infrastructure initiatives that cool down public spaces are what make summer walking possible in hotter climates.
2. Site-specific design should aim for the cheapest, fastest, and least amount of physical change with the largest impact.
3. Walkability promotes the *option* to choose a mode of transportation rather than being forced to drive – multi-modal transportation prioritizes pedestrians, bicyclists, and transit users over car drivers.
4. People deserve to access their daily needs within a 5-minute walk of their home through walkable streets.
5. Street design should incorporate the context of adjacent land uses and existing, needed, and desired activities.
6. Cities are greater than the sum of their parts – streets are best designed as a network and beyond just one single street.
7. Planning and design should preserve the shared character and identity of a community.
8. Community transformation can be accomplished by establishing transformation strategies and exploring how to implement them through economic vitality, design, promotion, and organization.
9. By incorporating the existing conditions and context with the community vision for the future, transformation can be easily planned for and successful long-term.

While the precedent studies demonstrate how these theories may be actualized, I question how they may apply on a smaller-scale site with an urgent need to address coastal climate change. By examining both applications of these theories and gaps to fill with their limitations, I aim to propose a comprehensive framework for fostering better human experiences through urban design.

# SITE RESEARCH & ANALYSIS

## Site Selection

To identify a site with complex histories and existing conditions, I selected a street-level coastal case study. Florida provides a strong case to observe urban design and coastal climate change as its advantageous proximity to waterways made it desirable and played a key part in its history, from colonization to today's irreversible heavy development on the land.

New Smyrna Beach, located on the Eastern coast of central Florida within Volusia County, is an ideal site for opportunity to respond to coastal climate change through urban design as it is in urgent need to be addressed due to its pattern of unsustainable development and the impacts on not only the surrounding environment but the physical infrastructure, economic influences, and social dynamics in place.



Photo of New Smyrna Beach waterfront, via NSB Realty Team

## Site History

The land and waters of New Smyrna Beach are located in the occupied territory of the indigenous Timucua and Mayaca (a subgroup of the Ais people), as well as the Seminole, Mascogo, and Miccosukee in the greater New Smyrna Beach region (*About Volusia County, 2019; Native Land Maps, n.d.*). Along the coast of New Smyrna Beach, the early history of Turtle Mound represents a centuries-old structure comprised of two acres over fifty feet high of oyster shells - thought to serve as a lookout for early detection of danger, protection against the elements, and evidence of the indigenous Timucuan habitation in New Smyrna Beach thousands of years BC (*Turtle Mound Site - Canaveral National Seashore, 2024*).



Photo of Turtle Mound, via Florida Hikes

After the British occupation of east Florida in 1768, the struggling and disease-ridden colony of New Smyrna was abandoned in 1777 while surviving colonists fled to St. Augustine 75 miles north of New Smyrna Beach. The now-state became controlled by Spain in 1783, then sold to the United States in 1821 (*History of New Smyrna Colony - Origin and Demise, 2025*). After Volusia County was formalized in 1854, twelve years after the Second Seminole War, Henry Flagler's East Coast Railway made way to what is now New Smyrna Beach (*About Volusia County, 2019; History of Volusia County and Fast Facts, n.d.*). New Smyrna Beach continues to be a desirable landscape for existing and future residents, developers, business owners, and tourists.

As sea levels rise, the total beach area shrinks, reducing the capacity for tourists and residents alike and therefore threatening the tourist economy in New Smyrna. The hurricane season in Florida continues to expand, which has turned the June to September season into a May to November season – now more than half of the year and jeopardizing the peak summer season of Flagler Avenue. Hurricane Ian in September 2022 dropped a record 20 inches of rain on New Smyrna Beach in under 24 hours, resulting in monumental property damages from flooding (Cunningham, 2023). In January 2023 following Ian, New Smyrna Beach leaders voted unanimously to pause new residential development while they examined hurricane impacts (Green, 2023). However, the 2025 Senate Bill 180 prevents local governments from delaying new construction after natural disasters, even if it poses an environmental risk, and prevents them from adding development restrictions to its comprehensive plan (Grosso, 2025).



Photo of flooded New Smyrna Beach street by Patrick Connolly, via Orlando Sentinel

# Site Context

I argue that Flagler Avenue is the most notable streetscape in New Smyrna Beach, and is therefore a suitable case study site for exploring urban design strategies in the face of climate change. As of June 2023, the City Commission and Planning and Zoning Board designated Flagler Avenue as a mixed use district (Mixed Use Zoning Districts, n.d.). This zoning reclassification provides the street with an opportunity to promote a walkable and engaging boulevard that provides both daily needs and attractive destinations. While Flagler Avenue is already a popular destination, the transition into a mixed use district provides an opportunity to examine how urban design can enhance the community of local retail shops, art galleries, entertainment venues, hospitality accommodations, and restaurants. However, the mixed use designation comes with challenges, predominantly with the Mixed Use Zoning Districts Review of permitted uses within

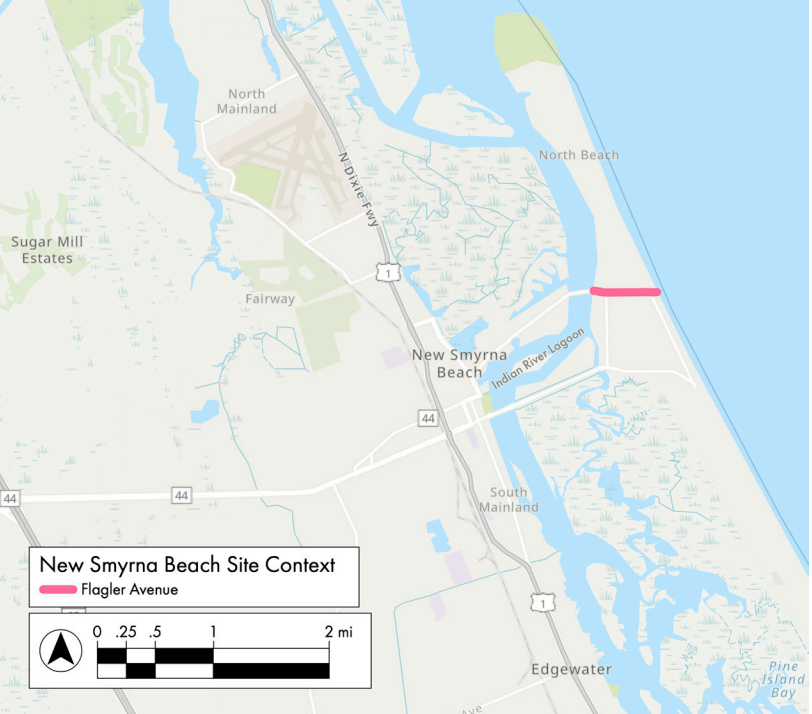


Photo of Flagler Avenue signage, via Inn On The Ave

the district and potential prohibited uses such as tattoo parlors (Mixed Use Zoning Districts, n.d.). This complicates the future of businesses and economic retention along Flagler Avenue.

New Smyrna Beach, nicknamed the “Shark Bite Capital of the World,” is characterized by its 17 miles of sandy beaches, 11 parks, iconic surfing spots, shopping districts, and unique geography situated next to the Indian River Lagoon (New Smyrna Beach, n.d.). In 2021, New Smyrna saw almost half a million visitors, matching the entire county’s residential population. Flagler Avenue is located on the northeastern portion of New Smyrna Beach, spanning five blocks from east to west between the Intracoastal Waterway (or Indian River Lagoon) and the Atlantic Ocean. Flagler Avenue is characterized by its restaurants, shops,



Aerial of Flagler Avenue Beachfront Park and Parking Lot, via Apple Maps

art galleries, entertainment, and sandy beachfront with vehicular access (Flagler Avenue, n.d.).

The car culture in New Smyrna Beach prioritizes isolated human experiences that revolve around personal vehicles. The beachfront access point on Flagler Avenue allows vehicles to drive and park directly on the sand for \$20 per day, eroding the shoreline, polluting the air, and endangering beachgoers walking or biking. In addition to reducing the waterfront’s capacity to protect and mitigate climate disaster impacts, the number of visitors with cars heavily outweighs the number of parking spaces, which are concentrated primarily on the large concrete metered parking lot adjacent to the beachfront and the free two-hour parking along the street. The current Flagler Avenue development

plans propose to address the parking dilemma with additional surface parking lots and parking garages, “citing data showing frequent parking deficits” (Parking & Mobility, n.d.). By examining Flagler Avenue as a case study for this thesis, I aim to advocate for a pedestrian-oriented mixed use corridor that limits the entitlement of private vehicles to a shared public space. Flagler Avenue will demonstrate how the urban theories may be realized in the planning and design of coastal streets in a complex environment with real economic, social, political, and cultural considerations. Through this thesis, I argue that Flagler Avenue is a site with the potential to foster enjoyable human experiences, bring communities together, and imagine sustainable climate futures.

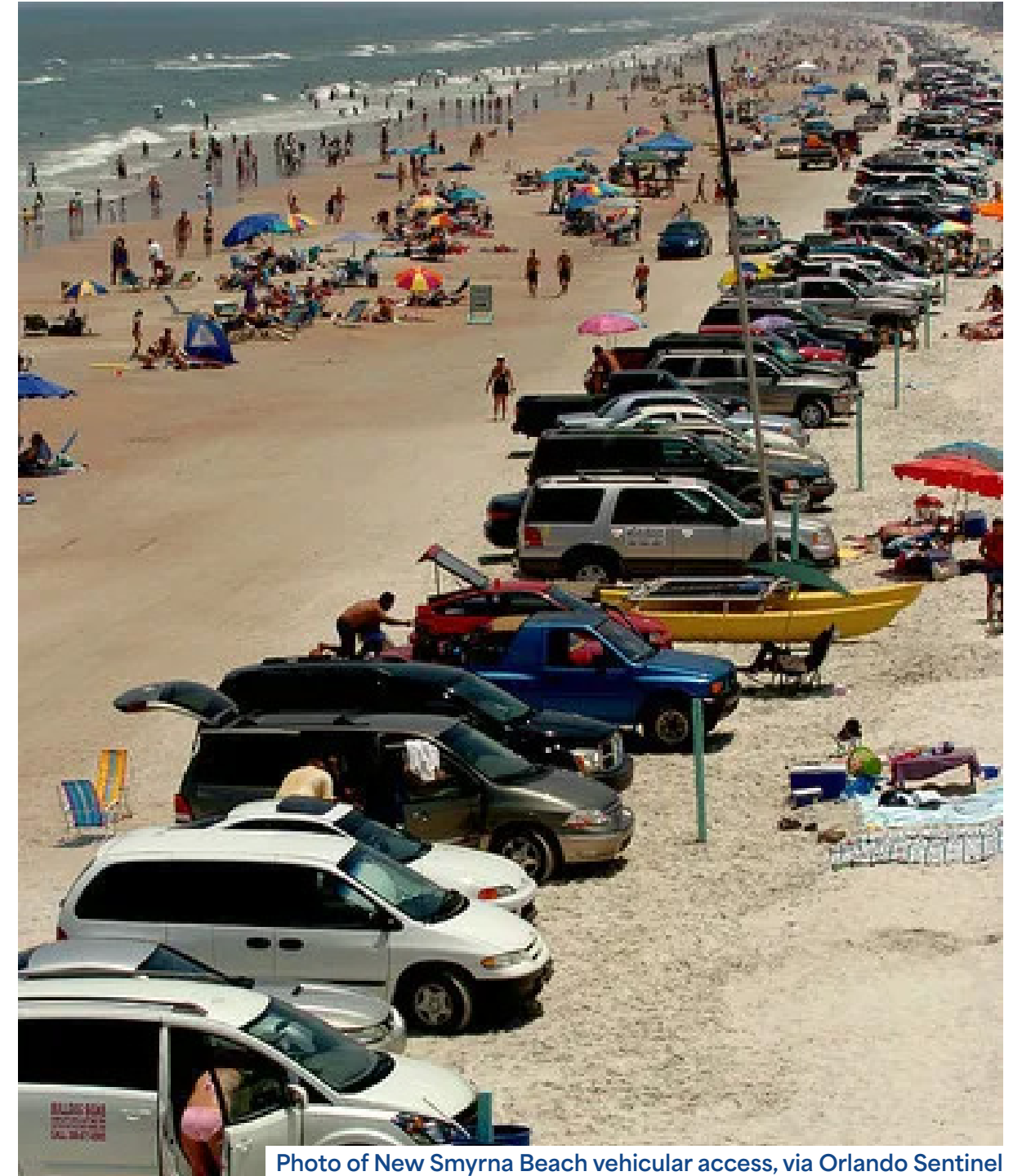
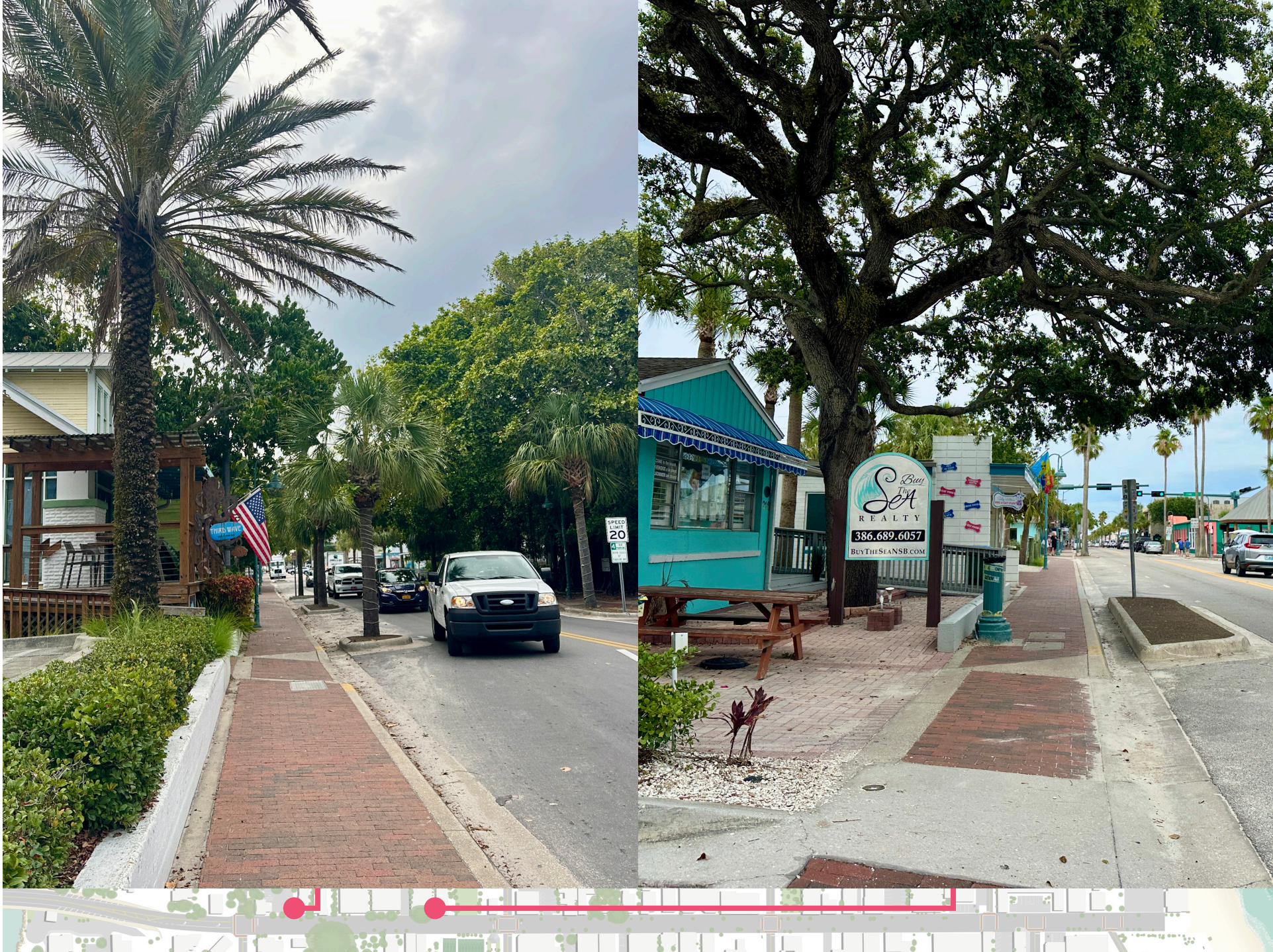


Photo of New Smyrna Beach vehicular access, via Orlando Sentinel

# Existing Conditions

During my site visit in May of 2025, I observed a transition from west to east, moving from extensive tree canopy and adequate vegetation to a concentration of palm trees with excessive pavement and little to no supportive green infrastructure.





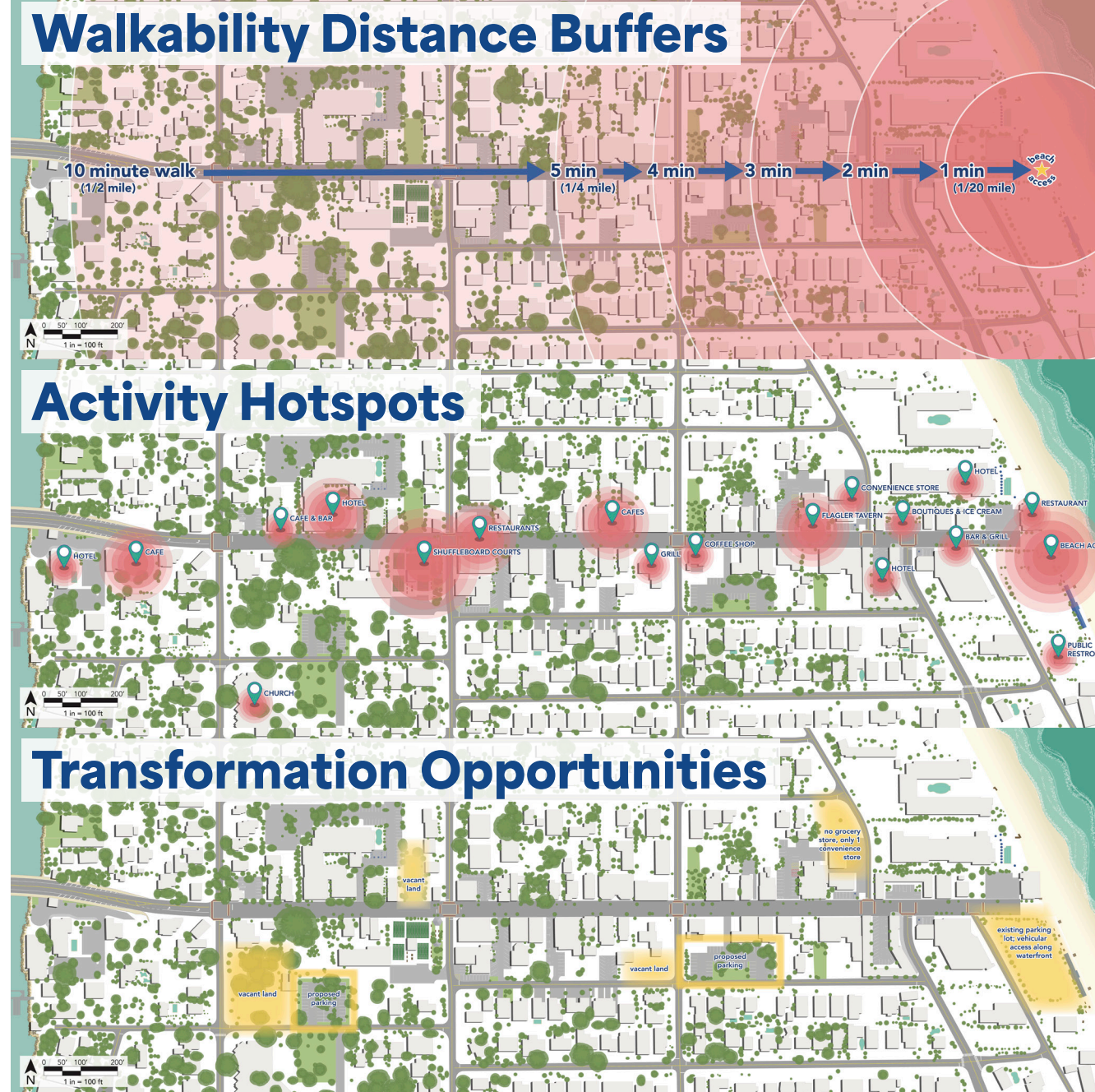
# Site Analysis

## Connectivity Beyond Flagler

Analyzing the adjacent connectivity helps visualize the walkability from Flagler Avenue to other activity hotspots, such as the Marine Discovery Center (approximately 25 minute walk west of Flagler), the A1A Commercial Strip (approximately 15 minute walk south of Flagler), and a larger park for recreation (approximately 12 minute walk north of Flagler).



# Site Analysis



Following my site visit, I conducted an extensive site analysis using GIS and spatial planning techniques. At an average walking pace, Flagler is walkable from end to end within 10 minutes.

Flagler's activity hotspots are made up of a mix of restaurants, cafes, bars, hotels and inns, shops and boutiques, and public amenities such as a shuffleboard court and public restrooms.

During my site research, I identified opportunities for placemaking transformation along Flagler's corridor, such as underutilized surface lots, parcels owned by the city, and other vacant land

# Preliminary Visions of Transformation

After conducting in-depth site analysis and walking the Flagler Avenue corridor myself, I created a series of quick renderings and collages that help visualize the possibilities of urban design interventions to foster resilient, inclusive, and vibrant public spaces.



Collage of tactical urbanism interventions, including benches and curb plantings



Collage of bioswales and public transit options along Flagler Avenue

Collage of a dedicated bike lane moving towards the beachfront

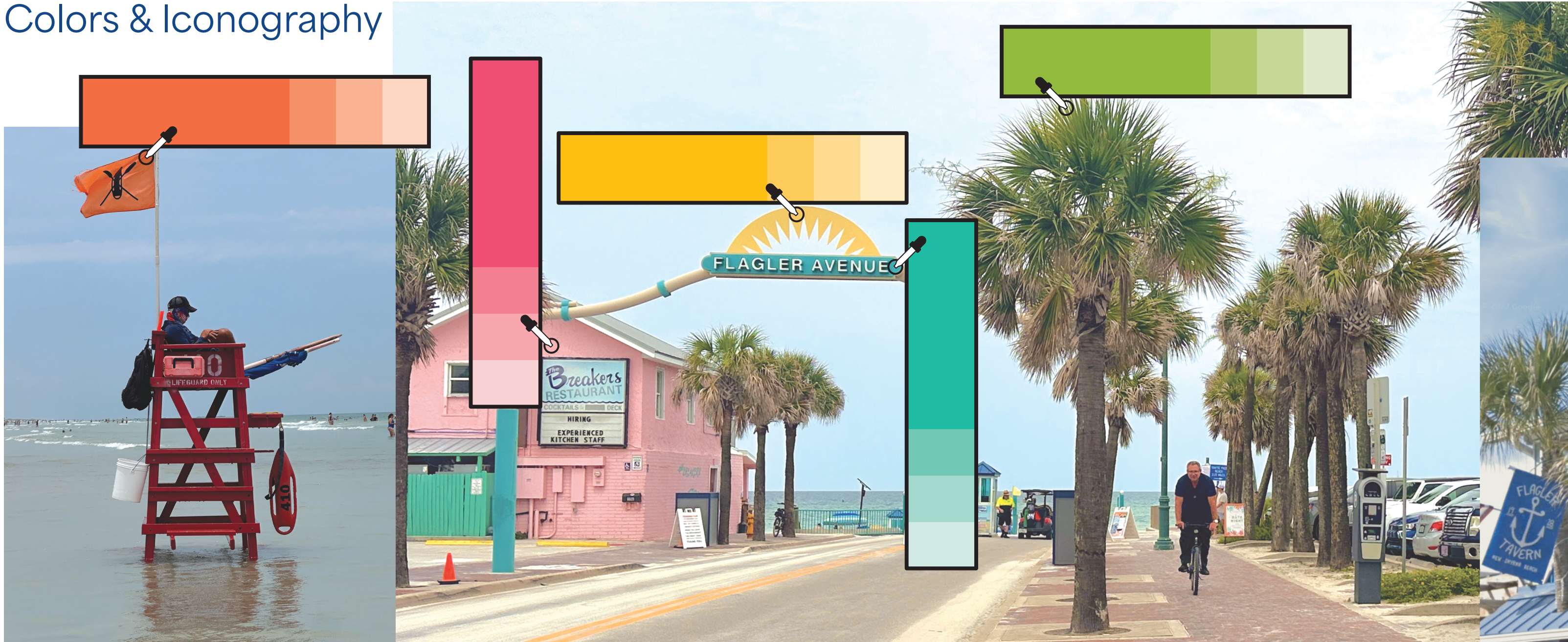


Collage of temporary outdoor seating that replaces parallel parking

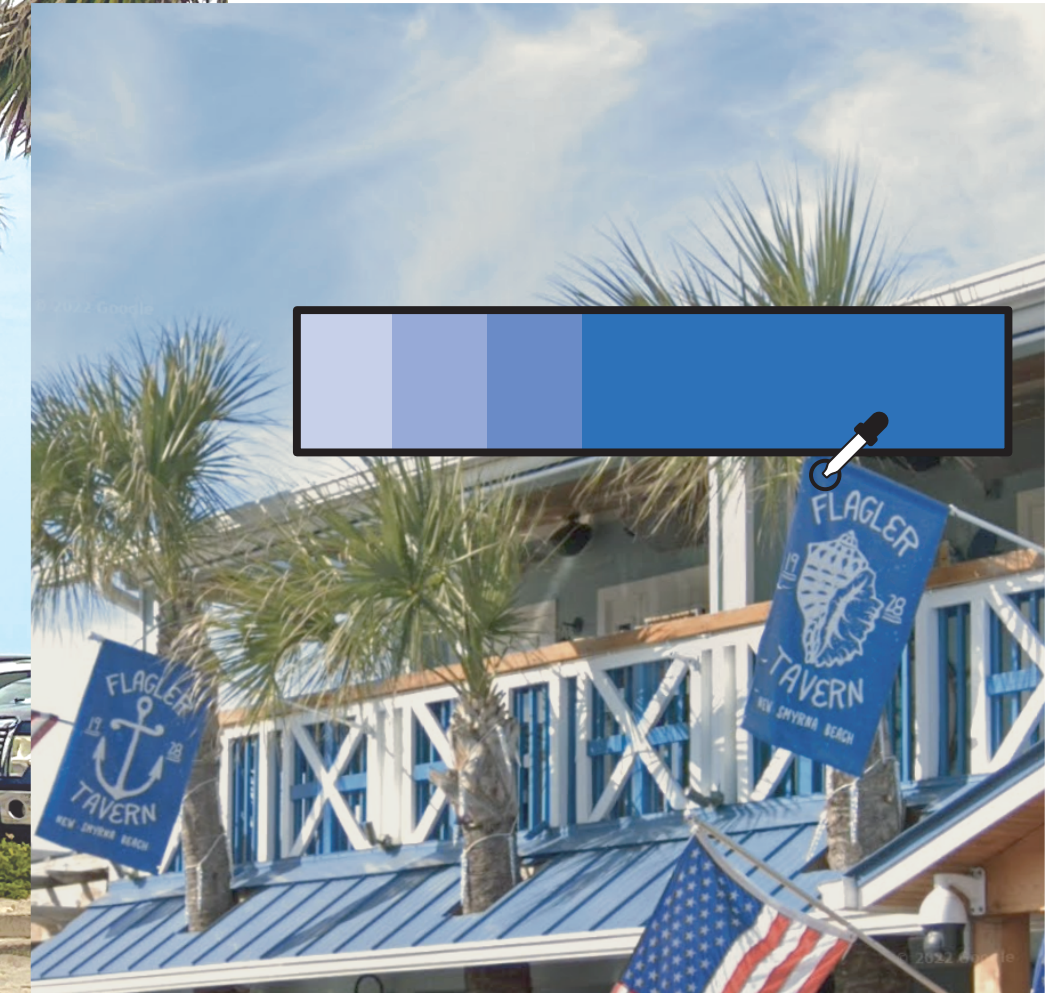
Collage of a pocket park with a pavilion to replace parking lot

# DESIGN COMMUNICATION

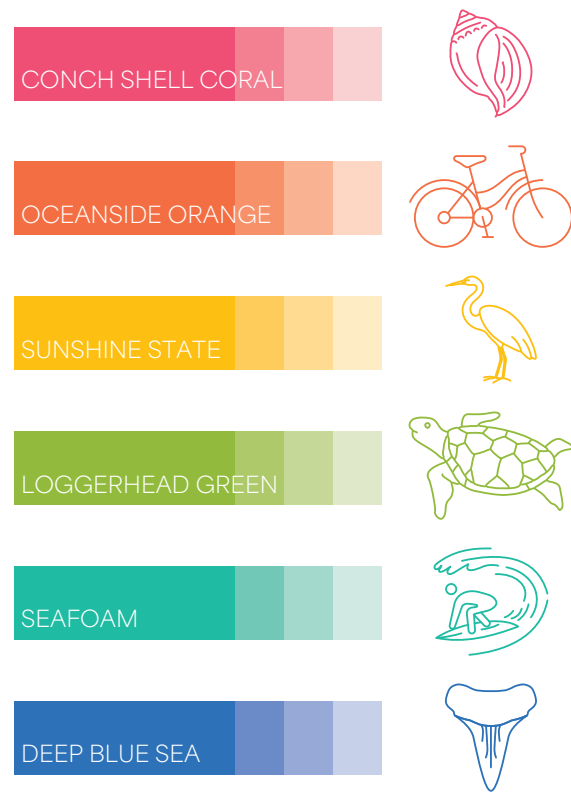
## Colors & Iconography



To use these and apply my findings to the site of Flagler Avenue, I explored the colors used in architecture, iconography, signs, landscaping, and logos along the site.



To communicate the design and planning while cohesively blending in with Flagler Avenue’s existing character and identity, this thesis takes an in-depth exploration at the colors and icons found in the site’s architecture, logos, brands, signs, and landscaping. Flagler Avenue’s built environment features vibrant and colorful forms, shapes, and physical elements. The coastal architecture embodies Flagler’s character through hues of pink and teal, popping against the green of palm trees and native shrubs. While on the site visit, I was drawn to the signs and logos – such as the *Third Wave*’s octopus sign, the Historic Business District’s surfing iconography, and the Flagler Avenue logo – that reflect the marine life, beach activity, and nature surrounding these destinations.



After an in-depth look at Flagler Avenue’s visual aesthetics, physical forms, and environmental features, I created a color scheme directly from those most common throughout the site that felt cohesive when placed together. Each of these colors were assigned names that felt engaging and unique to New Smyrna Beach. For example, the *loggerhead green* references the high populations of loggerhead sea turtles that hatch every year and draw in visitors from around the state.



# Transformation Strategy

As part of the Main Street framework, I established a transformation strategy that categorizes the streetscape as a Coastal Mixed-Use District. During my research on this theory, Main Street America highlighted that community transformation works best when it is applied as a systematic framework rather than a prescriptive, one-size-fits-all structure (Main Street America, 2017). Viewing Flagler Avenue’s transformation through the community vision lens as a guiding objective, I reflected upon examples of vision statements within the Main Street Community Development Guide and created a unique statement in which

**“Flagler Avenue aims to promote sustainable relationships between the built and natural environment, create comfortable multi-modal routes of movement between destinations, and foster vibrant and lively community experiences that stimulate the mixed-use district.”**

The Main Street framework emphasizes the importance of honoring four points of a community transformation strategy simultaneously – economic vitality, design, promotion, and organization. Economic vitality aims to build a diverse economic base made up of existing and future businesses with diverse typologies, such as hospitality or food services. Design focuses on creating inviting and inclusive public spaces through enhancing and celebrating existing elements of a space and bringing people to the center of design. Promotion highlights a street’s ability to become a social and economic activity hub and aims to establish a positive image of the unique characteristics of the community. Organization emphasizes

building a strong foundation with unique dynamics between participants of the community, such as those between and across residents, public organizations and private groups, government leaders and business owners, environmental advocates and developers, and other multi-sector partnerships. These four points were adapted to Flagler Avenue’s vision statement and pointed towards three current and future activities and needs within the community, as developed below.



Following the development of a unique community vision and a detailed transformation strategy, I came up with quantitative and qualitative outcomes that would demonstrate that community transformation was being implemented or in progress. These included retaining local economies and businesses, which may be measured through comparing annual revenue and business retention rates; creating exciting and welcoming public spaces, which may be measured through tourist counts and comparisons between peak season and off season economic growth; and encouraging human experiences over car-centric infrastructure, which may be measured by the Annual Average Daily Traffic (AADT) counts and adjusting it fluctuating annual economic statistics.

By creating a comprehensive transformation strategy through adapting the Main Street framework, the design and planning that follows is cohesive, connects back to a common vision unique to Flagler Avenue, and may be measured in its success through quantitative and qualitative outcomes.

# Wayfinding & Signage

To communicate the design and planning in a way that appeals to residents and visitors of all ages and backgrounds, this thesis recommends a signage framework that serves diverse needs and curiosities of the public. For some users, wayfinding provides a directional visual for identifying key destinations along the corridor. For others, educational sign boards promote learning and engage viewers of different audiences, such as those interested in how the proposed design responds to climate change, those curious about the Indigenous histories of New Smyrna Beach, and those wondering how the aquatic and terrestrial ecologies of Flagler Avenue interact with the built environment.

## Design Precedent

As a precedent, Avid Trail’s portfolio within the “Trail Signage and Wayfinding” section of their website depicts a collection of signs along trails that inspired the framework for Flagler Avenue’s signage (“Signage and Wayfinding,” n.d.).



# Wayfinding

Incorporating the color scheme developed earlier, wayfinding and directional signage along Flagler Avenue will provide pedestrians and cyclists with simple visual cues to guide them towards key destinations and amenities. As identified in the site activity hub analysis, these locations may include the shuffleboard courts, beach access, and the proposed pocket parks along the corridor.

# Civic Signage

FLAGLER AVENUE

## WILDLIFE CORRIDOR

New Smyrna Beach is home to a diverse ecosystem of animals and plants alike. Please do not disturb or touch any wildlife, and keep our sandy beaches and their habitats clean!

GREAT WHITE SHARK SANDPIPER LOGGERHEAD SEA TURTLE

Public signs can communicate rules and policies of city-owned property, such as park entrance rules, wildlife protection guidelines, and access or restricted areas. Using my color scheme and design precedent, I created three large-scale signs that represent the types of information Flagler Avenue might want to be easily accessible.



> SHUFFLEBOARD  
 > PUBLIC RESTROOMS  
 < POCKET PARK  
 ^ BEACH ACCESS

FLAGLER AVENUE

FITNESS STATION

## BEACHFRONT PARK RULES

Once a surface parking lot, Flagler Avenue's Beachfront Park now serves as a community green space!

Pets must be on leash  
Children must be supervised  
No alcohol or smoking  
No motorized vehicles  
No littering

With a playground, fenced-in dog park, shaded picnic tables, and fitness amenities, the park is designed for all ages.

FLAGLER AVENUE

## FLAGLER BOARDWALK RULES

As part of the Flagler Avenue Streetscapes project, the beachfront boardwalk is now integrated into the redesigned Beachfront Park.

Pets must be on leash  
Do not disturb wildlife  
Please walk bikes/skateboards  
No alcohol or smoking  
No motorized vehicles  
No littering

To encourage more livable public spaces, the boardwalk prioritizes walkability and accessibility.

FLAGLER AVENUE

# Educational Signage

Signage plays an important role in educating the public, which makes its design a critical element in order to attract readers. During the development of the educational signage framework, I identified four themes complete with a unique color and icon – planning and design, environmental education, historical education, and social and cultural activity.

planning & design environmental education historical education social & cultural activity

Additionally, three topic examples were established for each of the four themes. The planning and design theme will discuss topics such as green infrastructure, mixed use, and walkability, the latter of which I developed an example signage framework depicted below.

The environmental education theme will inform the public on topics such as the Urban Heat Island (UHI) effect, coastal climate change, and flora and fauna ecosystems ranging from Flagler’s historic banyan tree to the iconic sea turtle hatchings. The historical education theme will bring to light the Indigenous histories of the Timucua and Mayaca peoples, the nearby Turtle Mound historic site, and the origins of development along Flagler Avenue. The social and cultural activity theme will explore the local arts and culture in New Smyrna Beach, highlight the pop-up spaces proposed later in this project, and present the P.E.A.C.E. (Positive Education And Creative Expressions) Project, a local organization founded by Shyriaka Morris that promotes youth and young adult involvement in environmental conservation through artistic movement (Morris, n.d.).

**NEW SMYRNA BEACH**  
planning & design

**WHAT IS WALKABILITY?**  
Walkability aims to create a pleasant experience, but also improves a city’s economic, environment, and health!

For a street to be walkable, the experience must be **useful, safe, comfortable, and interesting.**

Walkability is a theory in urban planning from Jeff Speck’s book, *Walkable City*.

**NOT JUST WALKING!**  
Walkability works for everyone!  
Pedestrians, bicyclists, transit users, and even drivers.

**FLAGLER AVENUE**

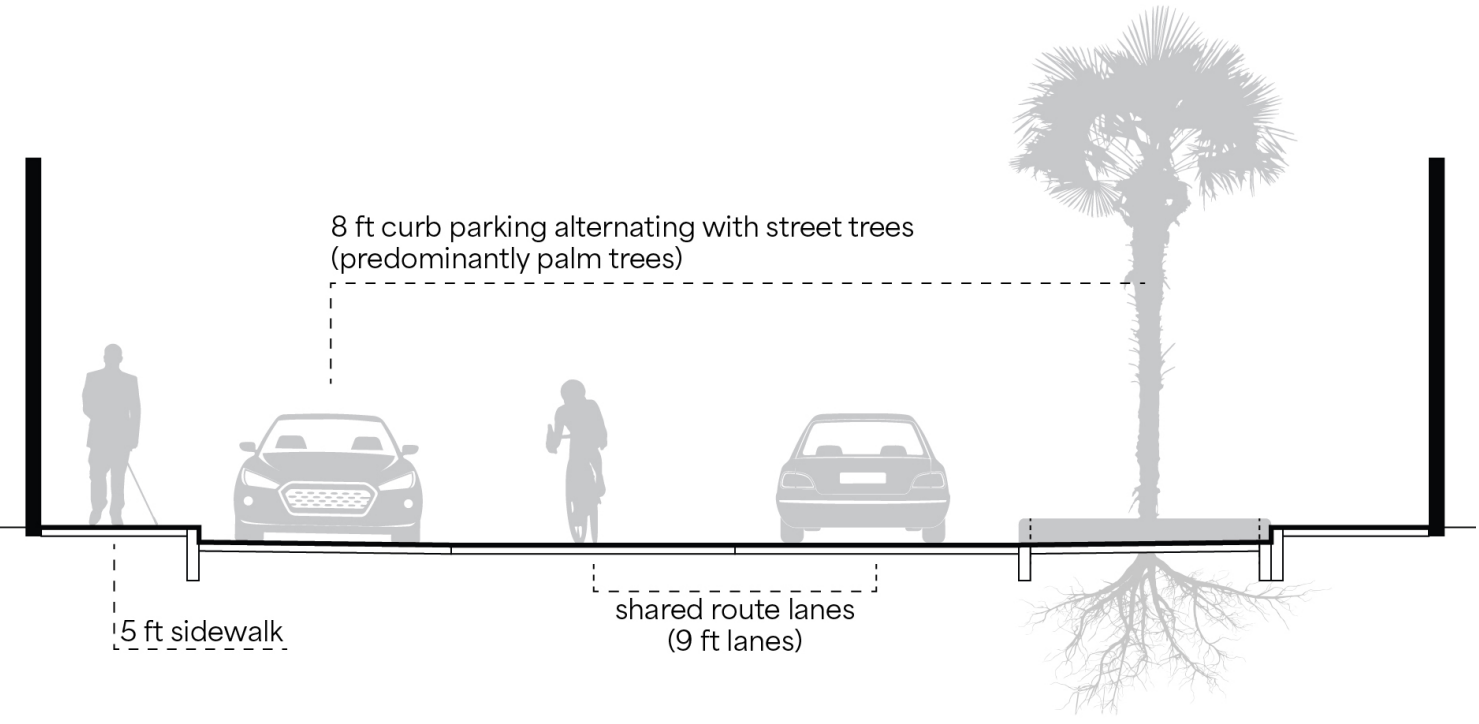
**WALKABILITY**

# STREET PLAN DESIGN

## Existing Conditions

### Auto-Oriented

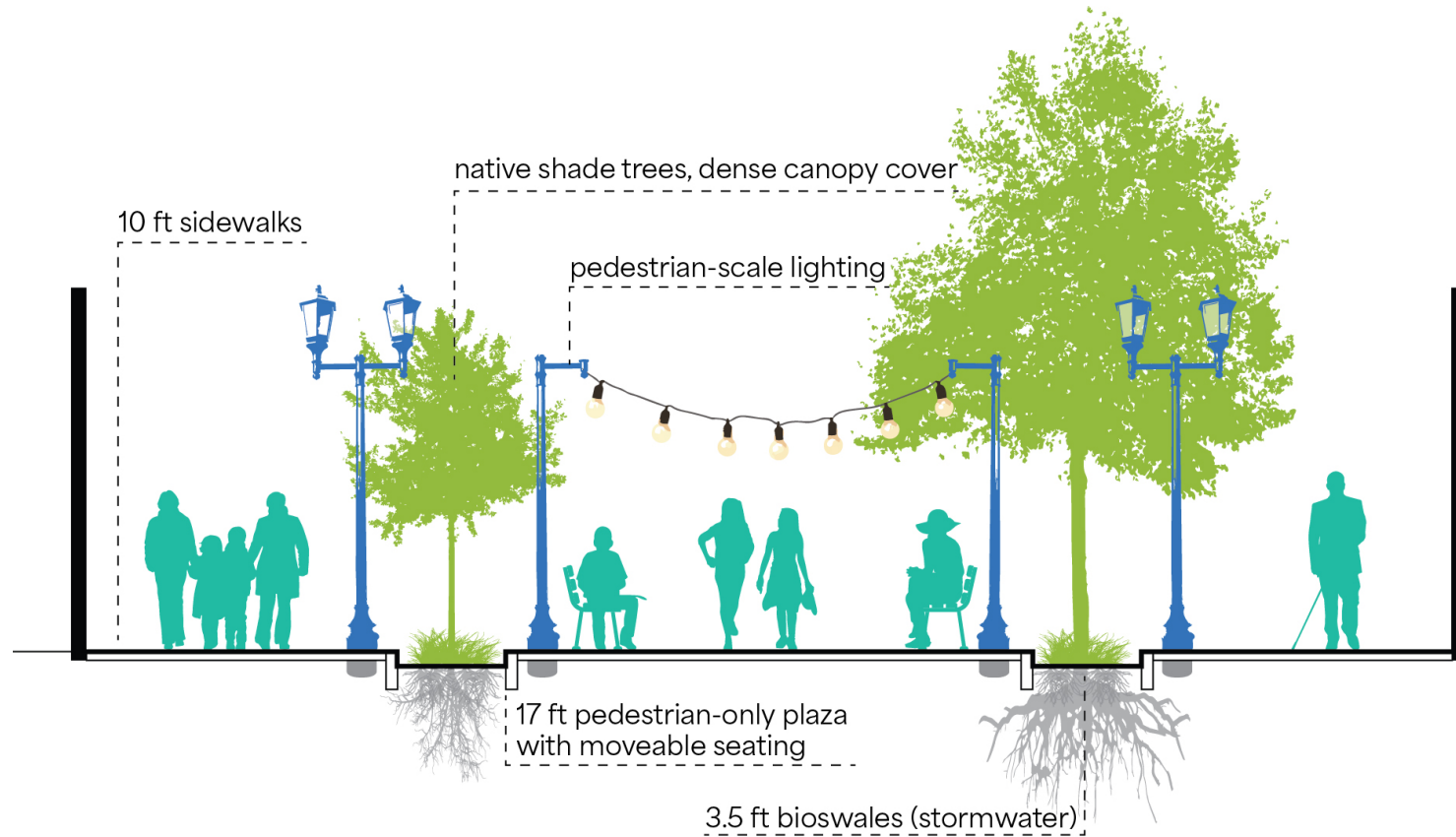
The existing street plan along Flagler Avenue is characterized by a standard 5-foot sidewalk on both sides of the road and parallel curb parking separating both sidewalks from wide vehicular lanes shared with bicyclists. Scattered throughout the street, parallel parking spots are infrequently replaced with street trees, although most are the of the iconic coastal palm tree species often associated with Florida that ironically do not provide significant shade cover, “cool down streets and sidewalks to help counter the urban heat island effect”, or sequester carbon at the rate of other native canopy trees (Chinchar, 2021). The detailed section below depicts Flagler’s current street. Auto-oriented street plans are primarily designed to move automobile traffic to and from activities, but should continue to provide convenient and safe sidewalks and crosswalks.



# Design Iterations

## Pedestrian Mall

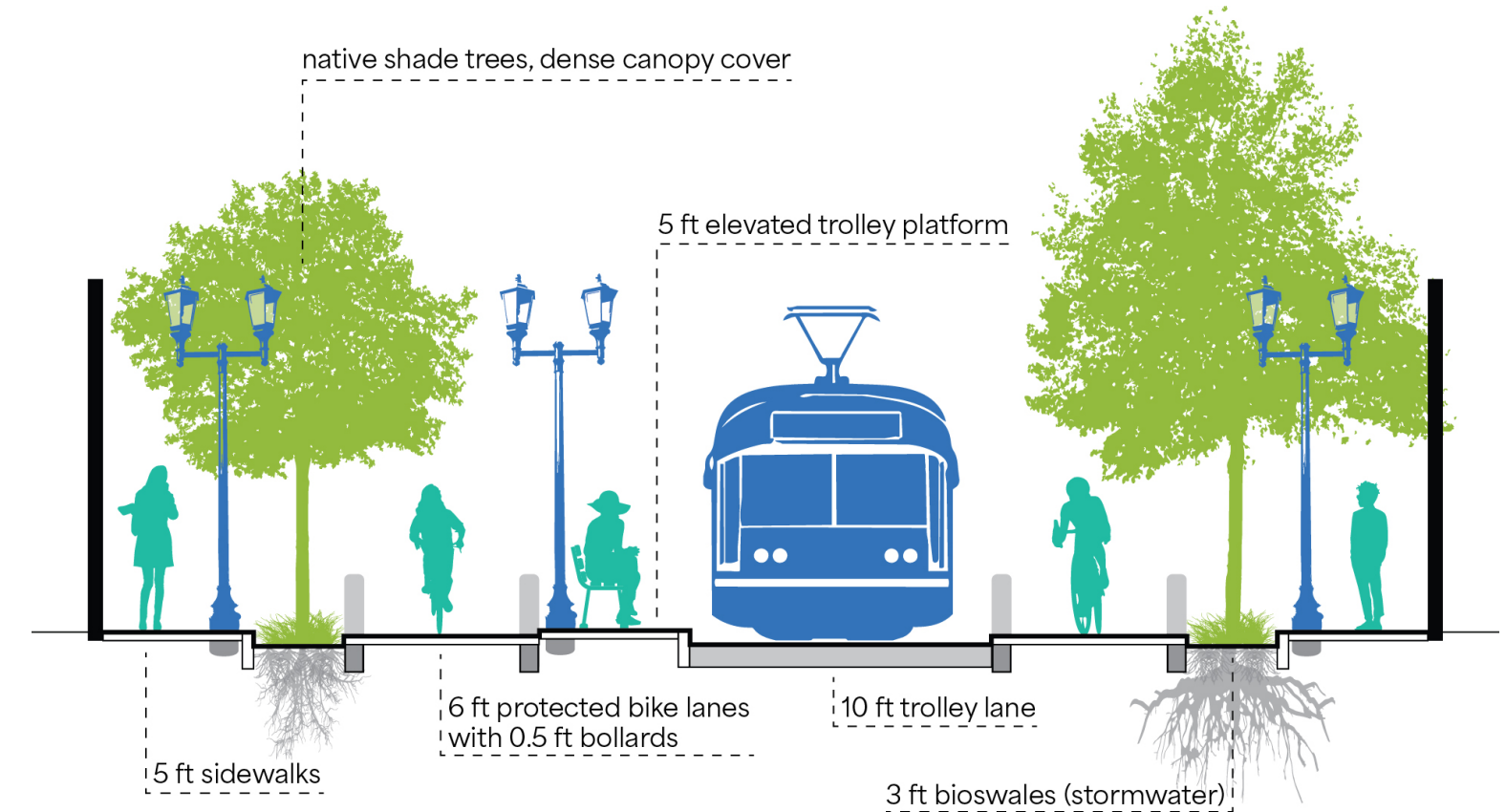
In an ideal scenario, I argue that cars would not be necessary - and less efficient - to move people throughout the corridor. A pedestrian mall, as depicted below, would provide a wider sidewalk along the storefronts, a bioswale barrier between transitional and stationary places, and a spacious pedestrian plaza with human-scale lighting and movable seating structures to follow the shade throughout the day and create a flexible programming space. Vegetation and intentional planting choices of native canopy trees would provide a visually appealing public space while effectively cooling the air and surface temperatures.



However, Flagler Avenue's car culture makes this iteration difficult to achieve without an extensive, long-term phasing plan and additionally raises questions of accessibility in terms of handicap transportation to and from the beachfront.

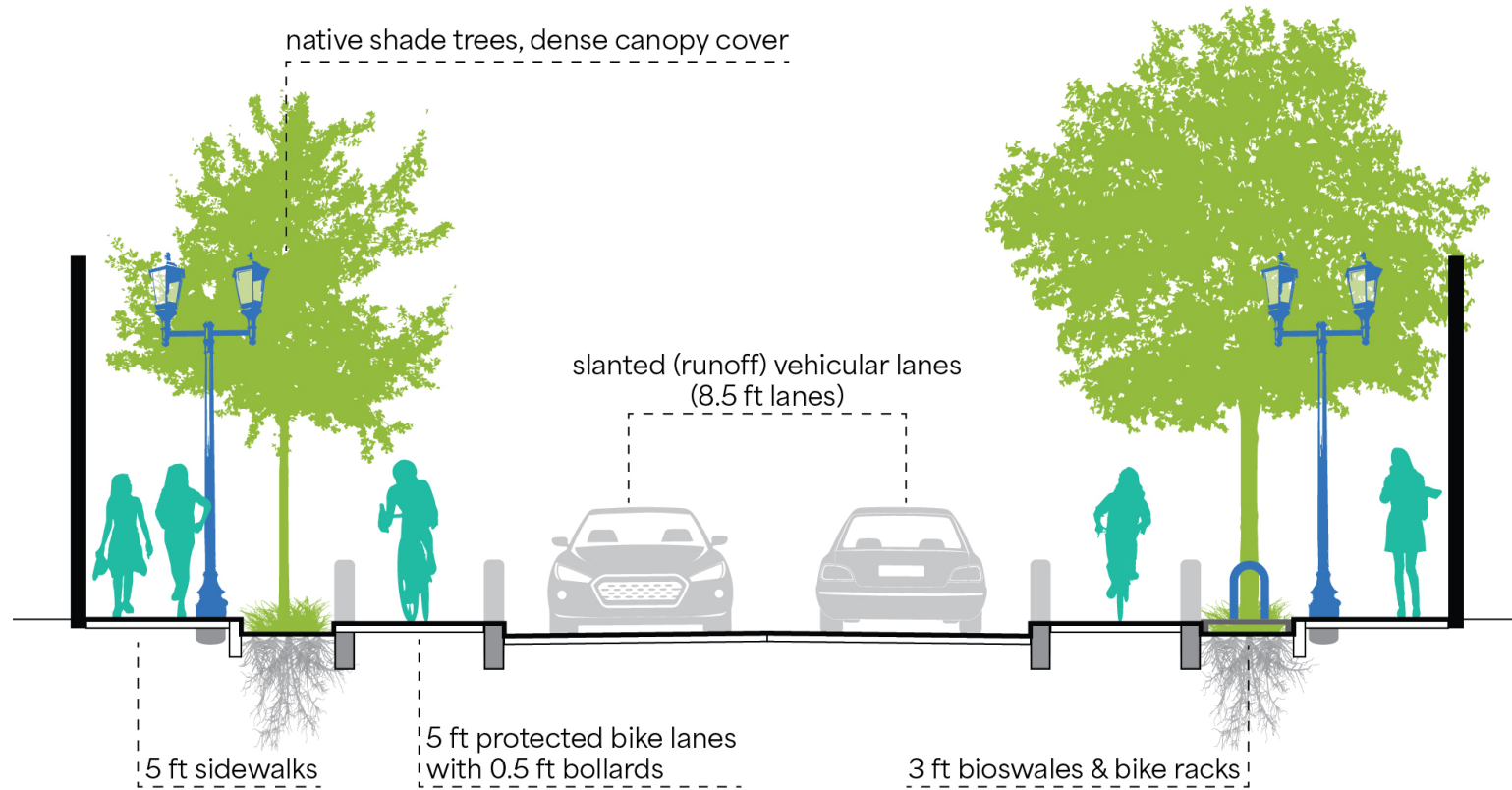
## Transit-Oriented

The second iteration during my design process incorporated a linear transit system, such as a trolley, that would run East-West along Flagler Avenue. The second iteration, depicted below, would feature protected bike lanes on both sides of the street and keep the existing sidewalk length. Transit-oriented streets aim to accommodate large volumes of transit vehicles and make public transit the most efficient mode of transportation, featuring interventions such as exclusive bus lanes, signal priority, and convenient bus or trolley stops. However, since Flagler is only a half-mile long, I argue that a transit system would be an inefficient use of resources and would be better allocated into pedestrian and bicyclist amenities.



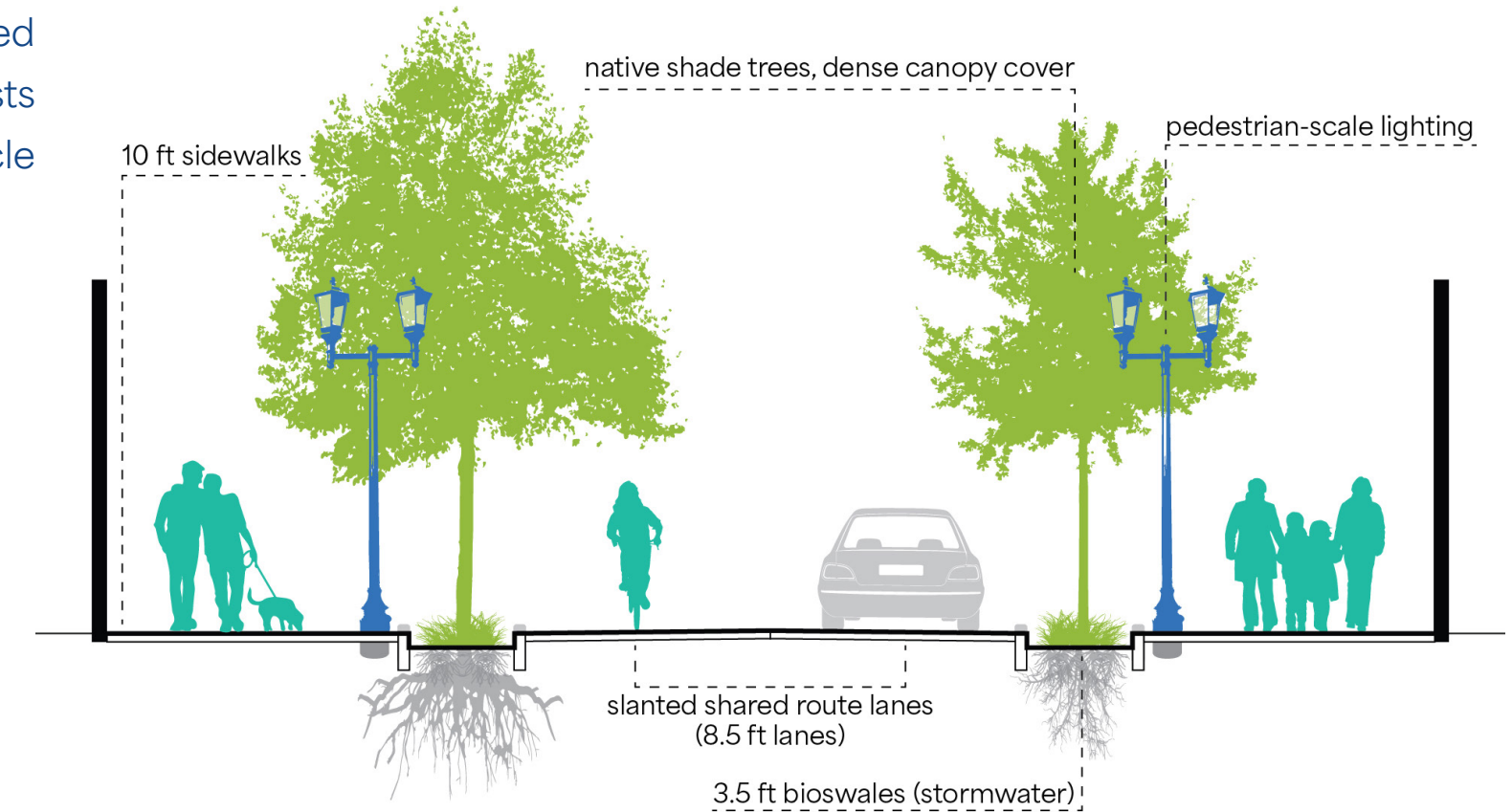
## Bicycle-Oriented

A bicycle-oriented streetscape, as depicted below, would continue to allocate space for vehicles, but narrow the driving lanes and dedicate the space from previous on-street parking to protected bike lanes on both sides and implement bike facilities, such as bike racks, along the street. However, biking is not as common of a mode of transportation as walking in New Smyrna, and cars on Flagler often respect bicyclists and provide space when passing.



## Pedestrian-Oriented

The final iteration explored during the design process oriented the streetscape around pedestrians, as depicted in Iteration 4 below. A pedestrian-oriented street would double the width of the sidewalk on both sides of the street to allocate space for those moving between destinations, those window-shopping at a slower speed, and those who are looking for places to sit while enjoying lunch or people-watching. The vehicular lanes are narrowed, and a bioswale along both sides of the street reintroduces the possibilities of ecological corridors in an urban space. At intersections, the bioswales alternate with curb extensions that both provide pedestrians with protection from moving vehicles and tree plantings in the bioswales provide shading for cars and people. While there are no protected bike lanes, this iteration works well along streets that have an established respect for bicyclists with reduced vehicle speeds.



# Chosen Street Plan Design

## *Pedestrian-Oriented*

I argue that a pedestrian-oriented streetscape is the most feasible and practical compromise with the most advantages for people-centric infrastructure. Drivers will continue to share the lanes with bicyclists and will retain the 20 mile-per-hour speed limit already enforced along the street. While on-street parking may be beneficial for walkable districts by acting as a physical barrier between moving vehicles and pedestrians, I argue that removing these spots dedicates more space to human-centered design, presents pedestrians with shade trees, abundant seating, rain gardens, and vegetation, and will be more practical in the long-term planning of Flagler Avenue. I propose that by moving the on-street parking to existing unused



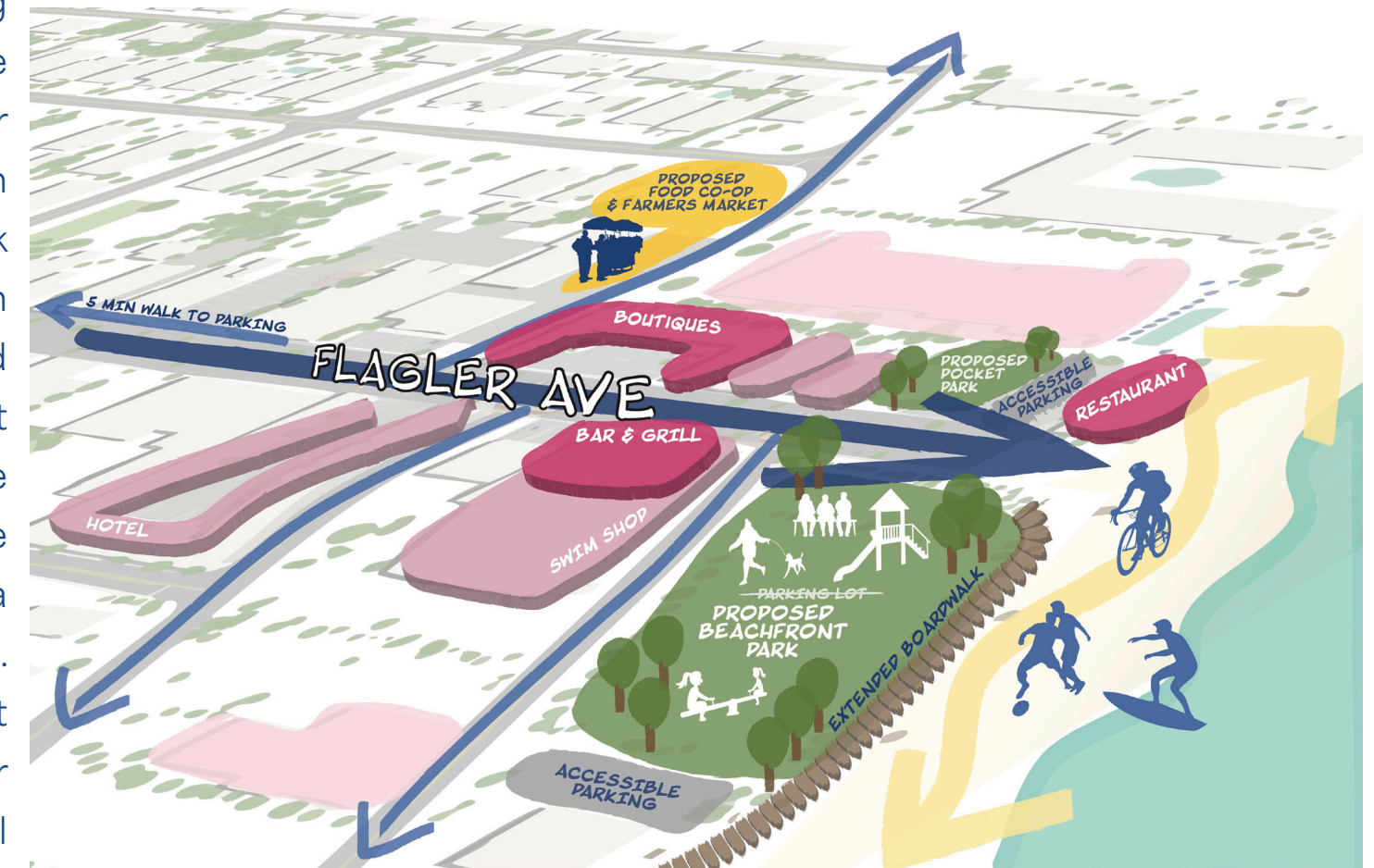
lots on the outside of Flagler, people will reduce time spent driving around looking for an on-street parking spot and become encouraged to “park-once” and walk throughout the corridor, a strategy emphasized by New Urbanism.

# CONNECTIVITY & PROGRAMMING

## Connection & Movement

To illustrate how human-scale urban design encourages users to move throughout the Flagler Avenue corridor, I created two connectivity diagrams situated on the two most prominent blocks of the streetscape.

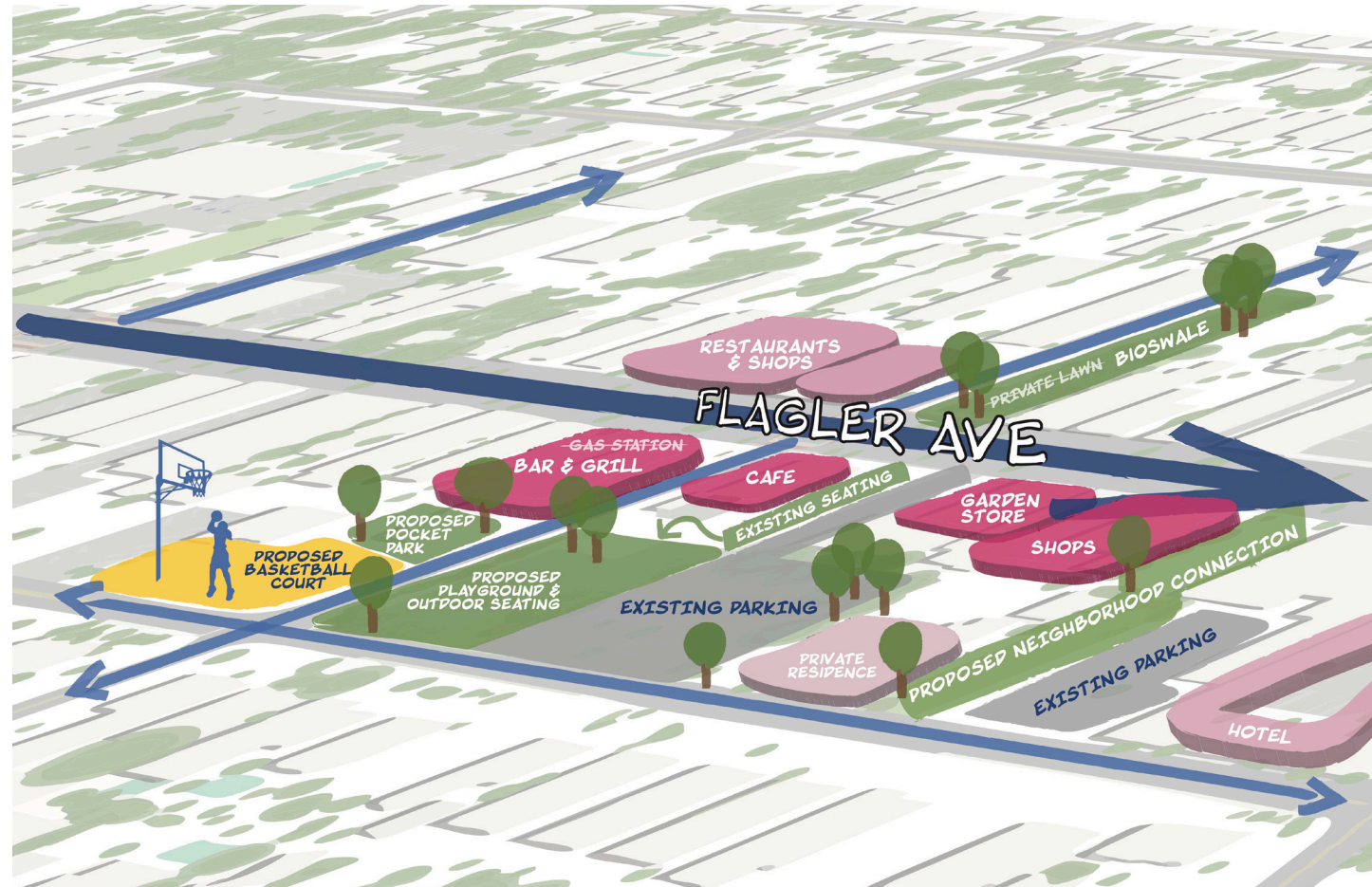
The first, which visualizes the easternmost block, depicts the movement of people through the beachfront, transforming the existing surface parking lot into a larger beachfront park with an extended boardwalk that expands human experiences beyond Flagler Avenue’s current “Boardwalk Park” made up of an incomplete boardwalk strip with a small covered pavilion. I also propose a pocket park next to popular restaurants, but still



allocate space to retain existing accessible parking spaces. The replaced parking lot is relocated west of the beachfront, only a few minutes walk away to enhance pedestrian experiences.

Furthermore, I propose in an ideal scenario to phase out vehicular access directly on the beach over time. However, due to Flagler's existing car-centric planning, I argue that it would be feasible to, at minimum, increase the fee for vehicular access per car, transition to an hourly fee, reduce the space designated for car parking on the sand, or create a capacity limit for car volumes on the beach.

ThesecondconnectivitydiagramvisualizesthecentralintersectionalongFlaglerAvenueanditsadjacent blocks. I argue that as the central economic hub of Flagler, existing unused lots owned by the city should

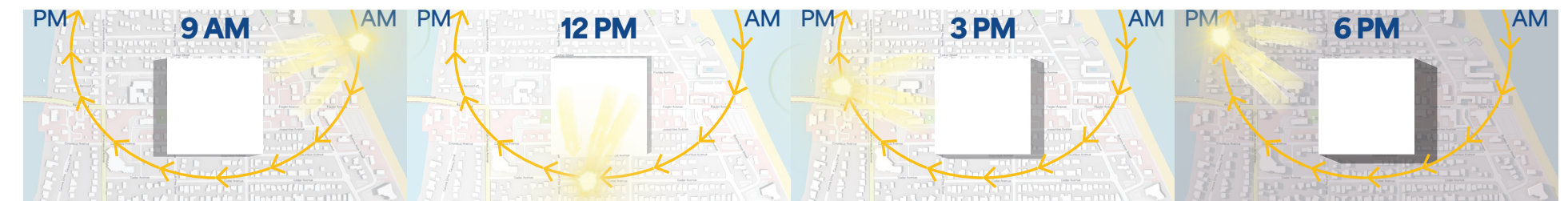


be transformed into pocket parks, ecological corridors, and activity centers such as a basketball court. Through this process, I located opportunities for linear vegetated connections between blocks and added seating for people moving between shops, cafes, and restaurants.

## Flexible & Permanent Infrastructure Framework

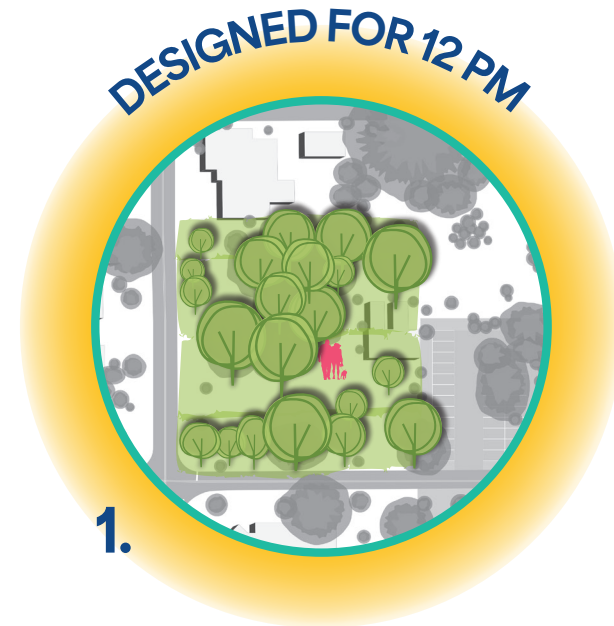
To design temporary and permanent public spaces, I used the General Theory of Walkability's emphasis that shade and shadows are what make summer walking possible. I researched sun angles and their impacts of buildings and shade trees with respect to the selected transformation spaces. During this process, I also explored the temporality of spaces and found gaps in which certain areas were underutilized. By implementing minimal permanent infrastructure and movable temporary infrastructure that supports the existing connectivity between spaces, the following designs establish a framework for programming that creates flexible, low-impact spaces without the need for a large budget, property, or time.

### SUN & SHADOWS DURING SUMMER



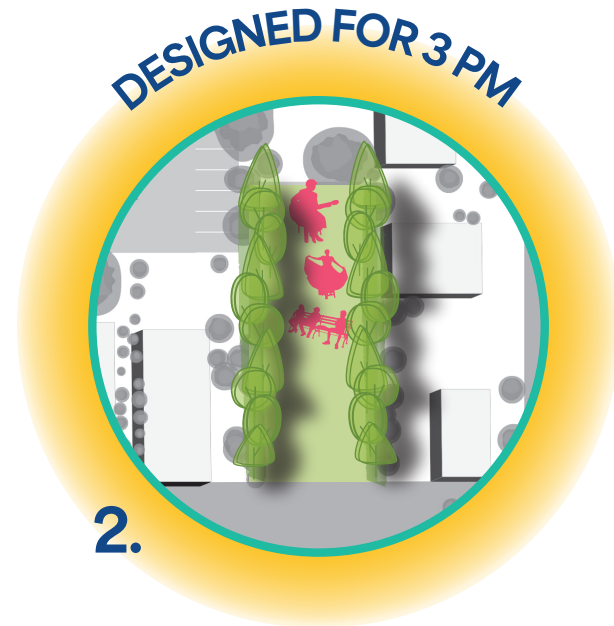
## Site 1: Coronado Community Park(ing)

The first site exists as a large field with a dispersed tree canopy, primarily used as overflow church parking on Sundays for the neighboring Coronado Community United Methodist Church. The existing canopy cover results in more shade throughout the day as the sun changes positions, and by adding movable benches and tables, formalizing a paved accessible parking space, and connecting the public space to the main Flagler streetscape, the site allows for flexible programming on weekdays and Saturdays for farmers markets, food trucks, full-day events, and recreation and relaxation spaces for people looking to enjoy a static space with shaded seating.



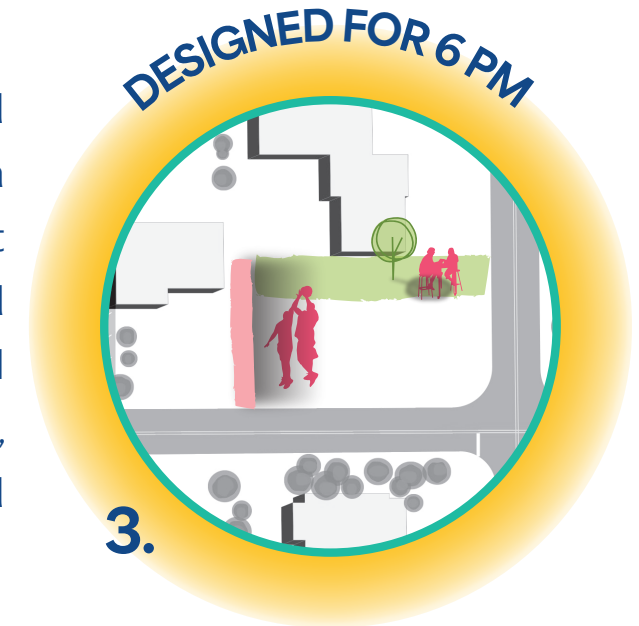
## Site 2: Pine Street Pocket Park

The second site is currently an empty lot owned by the city that is located directly on Flagler's streetscape and adjacent to N Pine Street. I propose that the two vertical edges of the lot become a linear tree canopy for shade throughout the day. The space would transform into a pocket park, complete with a permanent playground and fenced-in section for a dog park. The pocket park would additionally accommodate temporary and movable seating and games, such as cornhole or Connect 4, and have a small permanent stage-like platform for events and performances at the top of the site.



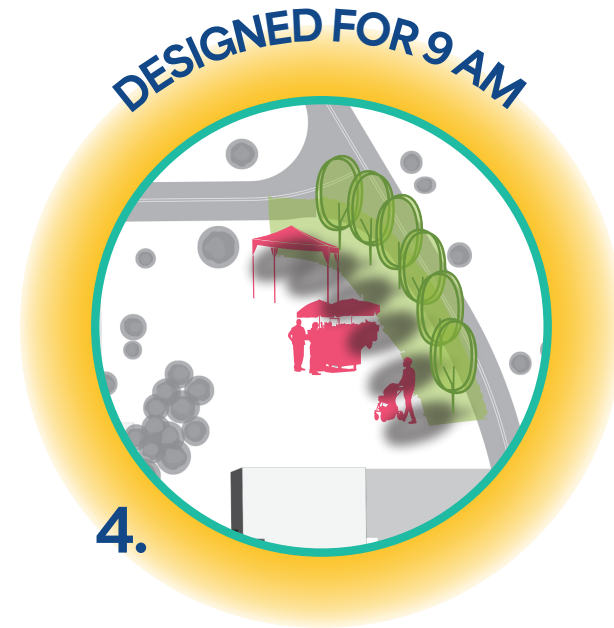
## Site 3: Jessamine Basketball Court

The third site is currently an overgrown empty surface lot blocked off by metal fences, tucked away from Flagler's streetscape behind a restaurant. With my proposal for a permeable surface basketball court (see rendering below), the space will be used primarily after school and working hours, therefore creating an argument for a vibrant mural wall featuring local artists, such as Shyriaka Morris of the P.E.A.C.E project, on the west side of the site that will provide shade in the afternoon and evenings.



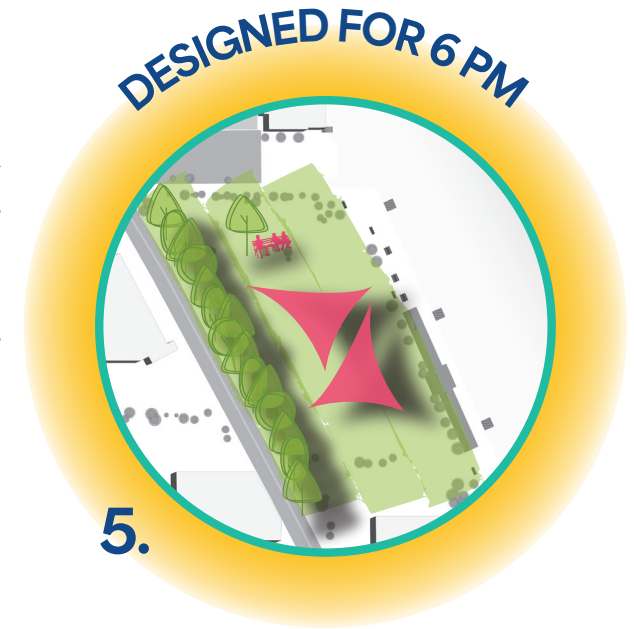
## Site 4: Atlantic Avenue Plaza

The fourth site is currently used as illegal temporary parking on a sandy, undeveloped concrete lot. I propose that with minimal permanent installations, including street trees on the east side that will shade the space during the morning and metal framing for easy tent set up or hanging lights. This space may be used for morning farmers markets, art shows, workshops, or other small events. This additionally serves the community as an opportunity to create a food co-op, as there is no grocery store nearby. In the rendering below, proposals for both a temporary pop-up farmers market and a more permanent architecture intervention for a grocery store visualize the option for community members to have a say in their daily needs.



## Site 5: Flagler Avenue Beachfront Park

The fifth site exists as a beachfront metered surface parking lot, adjacent to the incomplete boardwalk that the city designates as a “park”. By dedicating this space to people rather than cars, this beachfront park transforms into a play space for all ages, including the infrastructure for a volleyball net, 4-square court, bike racks, natural tiered seating, and isolated programmable sections that can be meshed together for larger events. To strengthen my argument, I located a vacant lot two blocks west from the beachfront and was able to redesign a parking lot that replaced all 112 parking spaces (see map below). The park additionally supports and retains the existing accessible parking spaces for access to the beach, the boardwalk, and the park.



## Site 5: Flagler Avenue Beachfront Park

In the renderings on the right, the extended boardwalk bridges activity centers along the beachfront, from access points to public amenities. The public art interventions depict colors and imagery associated with the unique identity and character of Flagler Avenue. The left rendering depicts a pedestrian-oriented end closed-off to vehicles.





### BEACHFRONT PARK

**RULES**

Pets must be on leash

Children must be supervised

No alcohol or smoking

No motorized vehicles

No littering

Once a surface parking lot, Flagler Avenue's Beachfront Park now serves as a community green space!

With a playground, fenced-in dog park, shaded picnic tables, and fitness amenities, the park is designed for all ages.










FLAGLER AVENUE

## Envisioning Resilient Placemaking

By examining connectivity and movement through the Flagler Avenue corridor, adjacent streets, and connecting routes, I argue that creating visually appealing and realistic visions of future designs allows people outside of the urban design profession to see what's possible.

Design communication is crucial to convince community members that change is necessary and will benefit all stakeholders - residents, visitors, businesses, biodiversity, and the strength to adapt to climate change impacts.

Furthermore, establishing flexible, adaptive, and low-impact spaces are a key component in building climate resiliency. By limiting the amount of physical change and simultaneously advancing the adaptable social and economic infrastructure, placemaking efforts can thrive.



# DISCUSSION & IMPLICATIONS

## Implications of Urban Design Proposals

Through this design process, I conclude that the theoretical frameworks of the Main Street approach, New Urbanism, and Walkability, may be used in urban design to address coastal climate change. While my proposal examines how we can transform public spaces on the street-level scale and through site-specific designs, my approach and methodologies are applicable to broader contexts, as long as they are treated as a framework for adaptation rather than a concrete prescription.

## Synthesis of Framework

My proposal framework that guided the design process and final intervention decisions argues three key conclusions. First, that decentralizing cars from public spaces can give more resources to pedestrians, bicyclists, and the environment. Second, that pleasant human experiences can foster community and interactions between people and the environment. Finally, sustainable and holistic approaches to urban design and planning provide opportunities for precarious urban landscapes to foster a resilient, inclusive, and vibrant climate future for coastal communities.



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