

SUBTROPICAL SUSTAINABLE

A Context Sensitive Design Approach to Redevelopment in Broward County

TRANSIT | HOUSING ORIENTED REDEVELOPMENT PILOT STUDY

Anthony Abbate

Florida Atlantic University College of Architecture Urban and Public Affairs Broward Community Design Collaborative

BROWARD
COMMUNITY
DESIGN
COLLABORATIVE

The mission of the Broward Community Design Collaborative (BCDC) at the College of Architecture, Urban and Public Affairs at Florida Atlantic University is to advance knowledge on issues related to urban form in South Florida by creating a forum for urban design oriented solutions at multiple scales, with the objective to help build healthy communities in Broward County that are walkable, livable, and equitable. While the Collaborative focuses its efforts on the local context, its academic mission is to study sustainable design solutions within the urban and suburban subtropical setting.

The BCDC mobilizes the efforts of FAU's unique community of faculty, students, professionals, community groups, and volunteers to:

STUDY innovative concepts, methods, and practices aimed at advancing knowledge about sustainable design solutions for built environments in the sub-tropical climate.

EDUCATE the public about the value of good design, planning and preservation. The Collaborative is a place for the exchange of information and the development of ideas linking the resources and expertise at Florida Atlantic University to needs in Broward County.

SERVE the community by providing resources and access to exemplary architectural, planning, and related technical information and services, and by working with existing community and governmental entities interested in improving the quality of our built environment.

TRAIN and develop community design skills, in an effort to promote meaningful community participation and effective design communication between communities and practitioners.

SUBTROPICAL
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Preface

Successful Context Sensitive Solutions result from a collaborative, multidisciplinary and holistic approach that incorporates transportation, housing, corridor design and planning, economic development, and redevelopment. The subject of climate change, price of oil, and increased population growth present opportunities to redesign our communities harmoniously to the environment. This document fittingly addresses the context sensitive design and solutions in the traditions of building in the subtropics.

The partnership between the University, County, Cities, and the Broward MPO were indispensable in steering this multidisciplinary strategy for the purpose of protecting existing neighborhoods by directing future growth along transit corridors. Through community involvement, the flexible use of design standards and guidelines with more attention to pedestrians, bicyclists, and transit creates a sense of place. The application of context sensitive design and solutions into transportation planning, compact development, and mixed land use scenarios pulls together a sustainability element that has a long-term redevelopment vision and plan.

John A. Ramos, MPA
Transportation Planner
Broward Metropolitan Planning Organization
Broward County, Florida

Forward

The urban form of the subtropics is not well understood in the 21st century. The impact of globalized design, characteristically insensitive to locality, is removing the traces of accumulated knowledge since the 16th century about design in various subtropical places around the world. This knowledge is not merely a localized vernacular but is an intriguing and, until recently, evolving heritage. It was one of the many considerations of the Spanish Laws of the Indies and informed the details of numerous new cities in the New World in the 18th and 19th centuries, including North America and Australia.

The THOR project is building on this knowledge by finding graphic ways to communicate subtropical urban design to the wider community so that informed discussion can take place about urban redevelopment. The techniques for community involvement in the THOR project are a contribution to all who are designing for subtropical places. The THOR project is important in that it is not just recreating nostalgic urban forms. It draws from the subtropical context and extends it with sensitive designs for sustainable living. Redevelopment in this way is indeed the cutting edge of design.

Infrastructure, understood as a key instrument in the formal definition of the public realm, is the focus of this excellent work, undertaken by the Broward Community Design Collaborative at Florida Atlantic University (FAU). The investigations and strategies presented here document a rich process of research and community engagement in the disciplines of design. They are based on a broad definition of sustainability – one that encompasses an understanding of regional climate and geography, mixed use zoning, and urban housing.

The project strengthens ties between FAU, a public, urban academic institution, and the Broward Metropolitan Planning Organization, a division of county government whose focus is regional transportation. The alliance clearly benefits both entities in ample measure: By engaging real urban problems, on real sites, for real clients in real regulatory environments, students expand the boundaries of traditional studio instruction. Their experience broadens and enriches the conventional mandate of the design professional to include the need to assume a significant leadership role in the betterment of their communities. In working with the academy, the Metropolitan Planning Organization benefits from access to substantial institutional and faculty expertise, while drawing upon the perspectives of a growing generation of designers and empowering them to ignite discussion and move public debate. Only better communities can result from engagements such as these.

Forward

Marilys Nepomechie AIA
Professor
School of Architecture
Florida International University

Forward

This monograph explores the development of new transit corridors in central Broward County, but more importantly it suggests an alternative planning model for understanding the crucial nexus of transportation, housing and redevelopment forces. Public transit is often understood simply as a solution to traffic gridlock, or as a commuting alternative to the car. This project offers a more nuanced perspective. In an urban context dependent on and calibrated to the automobile, improving transit may be the first step toward a finer grained network of urban function and accessibility. Transit can sponsor the development of pedestrian life, and by extension, the redevelopment of public spaces to accommodate mixed uses at a more human scale and with a sense of place. This ambitious project balances criteria like land values and development costs with regional planning objectives, urban design considerations and concern for environmental sustainability. It suggests a process whereby a coalition of parties can integrate and reconcile the diverse forces at work in a maturing city: an expression of leadership on the part of designers, planners, civic leaders and stakeholders. They have charged themselves with healing the city, the most important task facing tomorrow's leaders.

The Broward Community Design Collaborative at Florida Atlantic University is pleased to present this summary of the Transit | Housing Oriented Redevelopment (THOR) Pilot Study, combining student work and faculty research, undertaken during the spring semester of 2008.

The objectives of the study were to develop sustainable, context-sensitive design strategies for redevelopment and urban design through a public involvement process; and to test local development policies, regulations, and transportation and land use best practices in the context of a subtropical urban environment.

The study involved three graduate level architectural design studio sections that engaged the community through an ongoing conversation instigated by a series of workshops, lectures, and open studio sessions. Students worked individually and in groups as facilitators for a public workshop and a community design inventory. They evaluated the existing context and physical environment and designed Specific Area Plans for each of the two subject corridors in Broward County, Florida. Their work was continually evaluated and critiqued by faculty from the School of Architecture and planning professionals from the Broward County Planning and Redevelopment Division, the Broward Metropolitan Planning Organization, the municipalities of Davie, Fort Lauderdale, Lauderhill, and Plantation; transportation and transit officials; and community residents and business property owners.

The work demonstrates a design process for community redevelopment that expands the community design studio envisioned by the School of Architecture in fulfillment of the goal of “learning by doing.”

This study was made possible with the support of the Broward County Metropolitan Planning Organization and the Broward County Board of County Commissioners.

Introduction

Anthony Abbate AIA, LEED™ AP
Associate Graduate Professor in Architecture
Director, Broward Community Design Collaborative
College of Architecture, Urban and Public Affairs
Florida Atlantic University

THOR | Transit Housing Oriented Redevelopment



Climatological parameters inform student designs produced in the architectural design studios at the Florida Atlantic University School of Architecture. *(Images from left to right) Shaded sidewalk café (Meira); Internal cross-ventilated courtyard with aeroelastic flutter power generating screens (Hoofnagle); Transit shelter with bicycle storage and digital information center (Zylstra); Roof designed to collect solar energy and rainwater above residential units (Zylstra); Vertically layered indoor and outdoor spaces (Bici); Facade depth adjusts to geographical orientation (Del Rio.)*



A collaborative approach

The Broward Design Collaborative approaches the idea of local distinctiveness in the physical character of a city as a collaborative and interdisciplinary effort that begins with careful introspection. The first step in such a collaborative design process is to look within our local community to examine its history, resources, values, and qualities in order to arrive at a clear understanding of the context for any project. This study engaged a relatively young school in a relatively young community as they developed a deeper understanding of the physical environment in order to set out goals for a sustainable future.

Broward County's Transit | Housing Oriented Redevelopment (THOR) program is a multi-disciplinary planning strategy that incorporates transportation, housing, corridor design and planning, economic development, urban design, and redevelopment for the purpose of protecting existing neighborhoods by directing future growth along transit corridors consistent with local, state, and federal practices.

The THOR Pilot Study project brought various government, transportation, planning, and transit agencies together with the community and the FAU College of Architecture, Urban and Public Affairs to develop strategies for linking land use to transportation and to establish a process for context sensitive design. The initial Pilot Study involved communities situated along segments of Broward Boulevard and State Road 7 in central Broward County, Florida. Both areas were originally developed in the middle of the 20th century. The initial overriding theme of context sensitive solutions hence carried a subtheme that resonated across professions, specializations, and interests: subtropical sustainability.



Local knowledge is a key instrument of re-connection to place.

- Rosemary Kennedy

*The Centre for Subtropical Design,
Queensland University of Technology*

Top left: Broward Boulevard intersects with Interstate I-95, Tri-Rail, and Amtrak rail lines near the eastern end of the Pilot Study area.

Bottom left: State Road 7 intersects with Interstate 595 at the southern end of the Pilot Study area.

Designing for sustainability in the subtropics

Design is understood as both a process and a product. In this way context-sensitive design responds to the essential attributes of an existing environment as much as it contributes to the transformation of that environment. Decisions and actions taken by a property owner, a neighborhood, a jurisdiction, or a design professional can have fundamental implications that shape the context, form, and character of transportation and land development. Each has a role to play in designing the city.

Sustainable urbanism, Smart Growth¹, and other similar planning and design approaches have particular relevance today as the world faces unprecedented increases in the cost of fuel combined with measurable environmental degradation and the unpredictable effects and costs of climate change. The prospect for a more sustainable built environment is based on new models for the physical environment and building development designed specifically for pedestrians and mass transit. Additionally such new urban models illustrate the range of densities necessary to achieve affordable housing and enhanced local business opportunities supported by a functioning transportation system that is less reliant on automobiles.

The THOR project provided the opportunity to begin moving beyond conversation about sustainability in the physical and built environment and approach the notion of conservation, which is at the core of sustainable thinking, in the context of community redevelopment. Design according to conservationist ethic, whose modern foundation was laid by the writings of Henry David Thoreau², goes beyond concern for the natural environment. The conservation of our natural, physical and

human resources requires a broad based collaboration and a sustained creative engagement in our communities.

The environmental impacts of urbanization in the sub-tropics include the “urban heat island” effect of rising ambient temperatures, a reduction of the land area available for percolating storm water to recharge aquifers, and an intensification of carbon emissions. There are also technological challenges to implementing green building practices in the these regions. Photovoltaic solar energy collectors tend to be less efficient in warmer temperatures, and humid coastal air can have damaging effects on modern construction materials such as metals and gypsum materials.

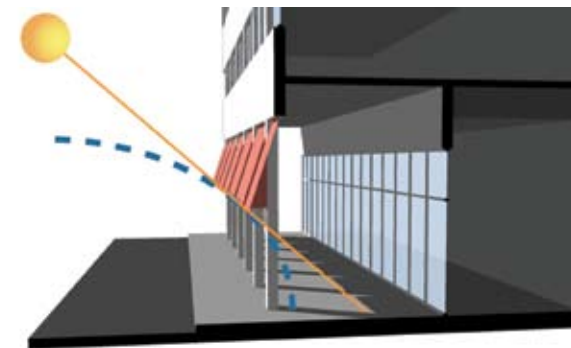
South Floridians are reminded of the fragility of the contemporary urban infrastructure after a hurricane. After a major storm we have limited access to fuel, no electric power, and an absence of signage. We find it difficult to occupy buildings designed to be air-conditioned, get around without a car, or find our way around a city without signage. What then constitutes a sustainable city in the subtropics? One idea, the notion of *passive survivability* introduced by Alex Wilson, refers to a building’s ability to maintain critical life-support conditions during a loss of power, fuel, and water services.³ It was an idea that came to him during the design *charrettes* that followed the devastation of hurricane Katrina in southern Mississippi and Louisiana. But the idea may not go far enough. The history of designing sustainable cities is as old as civilization.

Over twenty centuries ago, the Roman master builder Vitruvius wrote one of the earliest treatises on architecture and the design of cities. In it he dedicated entire chapters on the “*salubrity of sites*” and the “*arrangements of walls and alleys in a city to control ill winds and encourage beneficial breezes.*” He also dedicates an entire



TROPIC OF CANCER

TROPIC OF CAPRICORN



Top: Hot humid areas in the subtropics based on the Köppen classification of climate regions.

Above: Performance factors affecting the design of canopies, awnings, and arcades include protection of pedestrian sidewalks and storefronts from direct sunlight and wind driven rain for a range of building exposures, seasons, and times of day.

Top right: Segment of the State Road 7 corridor exhibiting the effects of road widening, frequent curb cuts, and haphazard parking facilities.

Bottom right: Melrose Park, a single family neighborhood, is bounded by Broward Boulevard on the north and State Road 7 on the west, the two corridors in the Pilot Study.



book on water supply. "We have to seek healthiness," Vitruvius wrote, "in laying out the walls of cities!"⁴

After 6000 years of building cities in step with the basic assumptions of *genus loci* such as those Vitruvius made known, we have spent the last 100 years designing our cities in ways that have become unsustainable and unhealthy. Our industrial and post industrial societies have developed more land, burned more fuel, and created globalized cultures of consumption without historical precedent. Even more significantly we have become complacent, even spoiled, in the experience of ourselves in an environment disconnected from nature. As we survey cities around the world, specifically those with similar climate conditions, we find that some of the oldest cities in the world are in hot-humid regions. These enduring cities that have sustained human life for generations, and have retained their urban fabric intact for the long run, amid all the changes and across time, are by definition "sustainable."⁵



The idea of subtropicality and the casual indoor-outdoor lifestyle that captured the imagination of mid-century Americans who migrated to South Florida has been replaced with more globalized and less localized notions of lifestyle: that of the mechanically air-conditioned and sealed office space, shopping mall, and home. The landscape of late 20th century is the landscape of the national retail outlet, office park, and suburban development, with design driven not by architects but by the cost of capital and the effect of tax laws and investment policies on real estate investments. Standardized patterns of design and development prevalent throughout the United States during much of the latter half of the twentieth century have eroded our sense of place. The particular sense of place of the subtropical environment, the feeling of connection between the built environment and the

natural environment, has been compromised by assumptions and practices that have placed priority upon automobiles and mechanical cooling and ventilation systems over the needs of the pedestrian and the functional capacity of urban and building forms to regulate climate conditions.

The work presented here represents a fundamental shift away from the norms of standardized development and a return to the notion of the subtropical city framed within the context of environmental and economic sustainability and the recuperation of our unique local sense of place. The local story of Broward County has relevance in the global context because the impacts of global practices operate in similar ways in any modern city. Our study begins with an introspective look at our own history of development and it expands to include a study of *Cartagena de Indias*, a city enjoying a subtropical climate on the northern coast of Colombia. Cartagena is over 450 years old, having survived centuries of pirate attacks, as well as economic and social upheavals. With a warm coastal climate similar to South Florida it provides an excellent study in sustainable urban fabric to draw on.

Broward County: A look within

The original city fabric in Broward County remains relatively intact only in a few areas. They include a handful of blocks in Fort Lauderdale, Dania Beach, Hollywood, Deerfield Beach and Pompano Beach built along the Florida East Coast railway prior to the introduction of the automobile. Despite their small size, these urban centers feature many characteristics of a typical subtropical building typology: a pervious city fabric and buildings with insulating walls, protected openings, arcades, and internal courtyards. In order to introduce students to the spatial and material

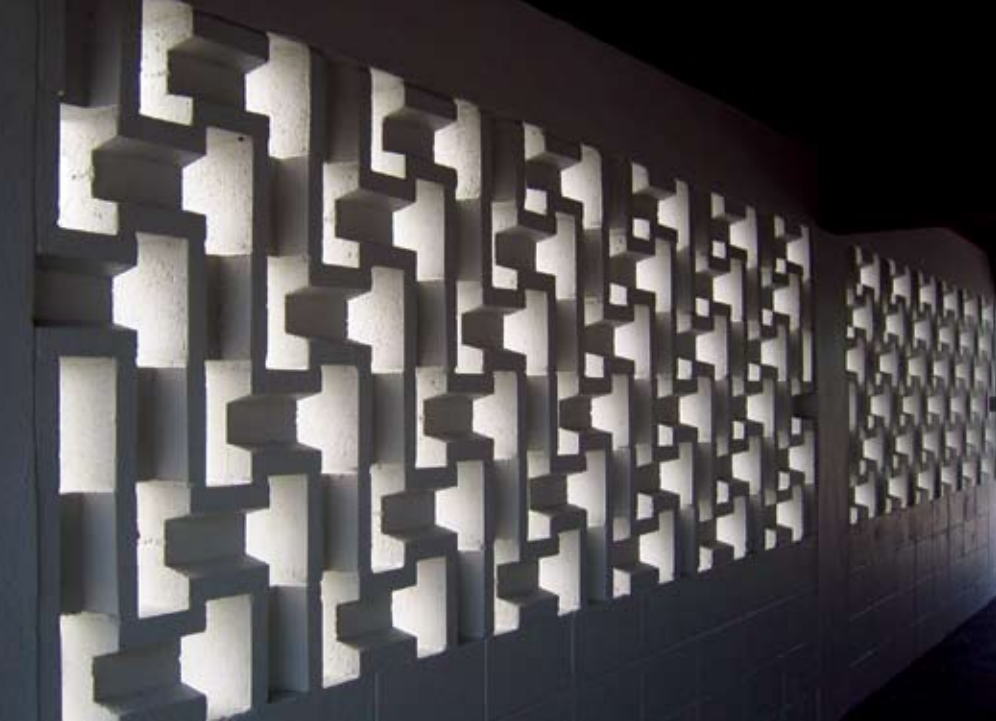


Above: The continuous sheltering canopy at Sears Town in Fort Lauderdale incorporates a transit facility still in use today. *Robert Law Weed, architect (1957).*

Top right: Ventilating masonry screen in a parking facility at the Sea Tower, Fort Lauderdale. *William F. Bigoney, architect (1958).*

Bottom right: Detail of hinged metal soffit panels that were designed to provide hurricane protection to the storefronts at Sears Town.

Following pages: Remnants of the original urban fabric of East Las Olas Boulevard in Fort Lauderdale feature breezeways, open courtyards, covered walks, and passageways between buildings. Despite the explosive growth of the region these spaces form the few remaining cells of the healthy organism of a subtropical city.

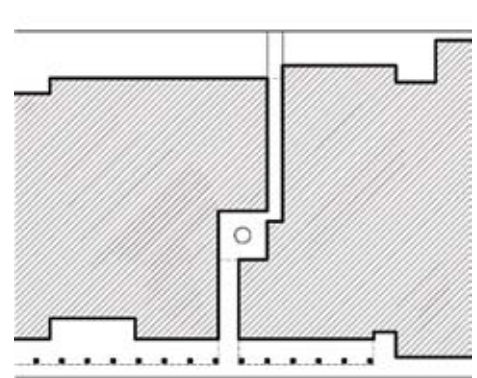
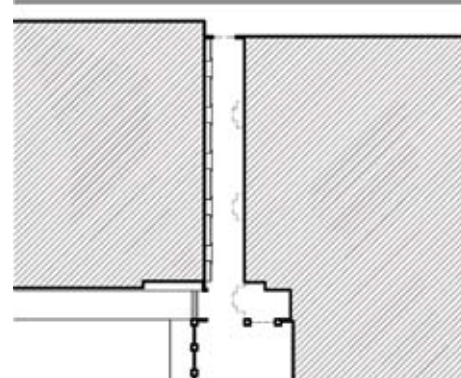
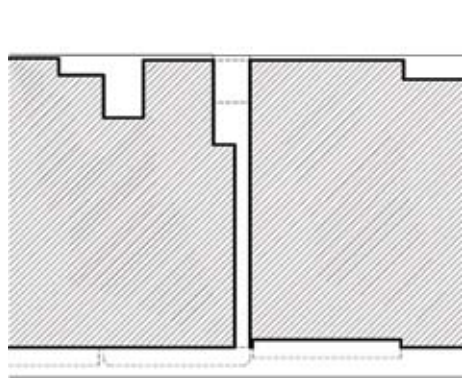
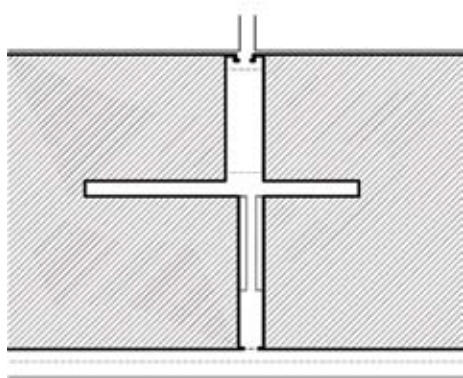
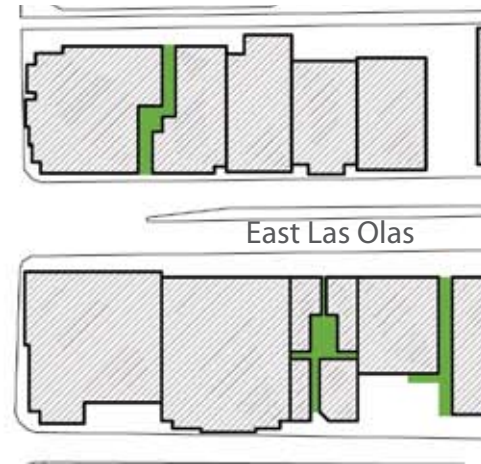
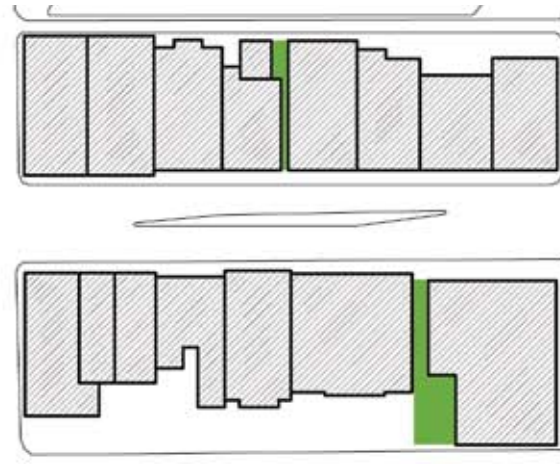
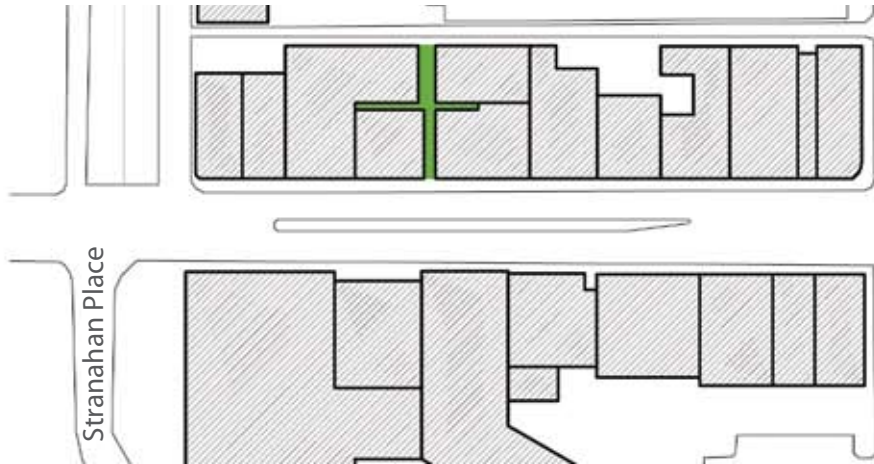


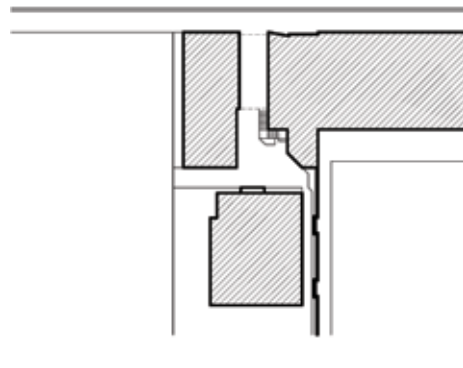
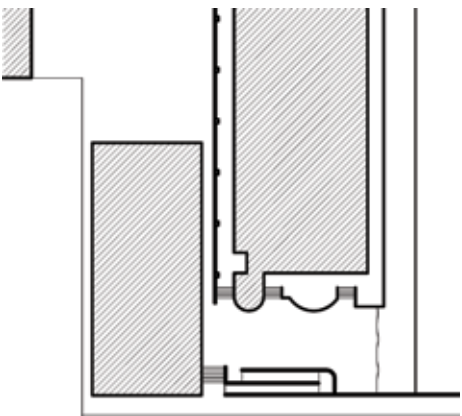
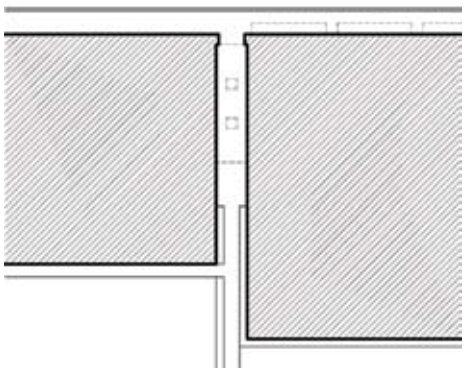
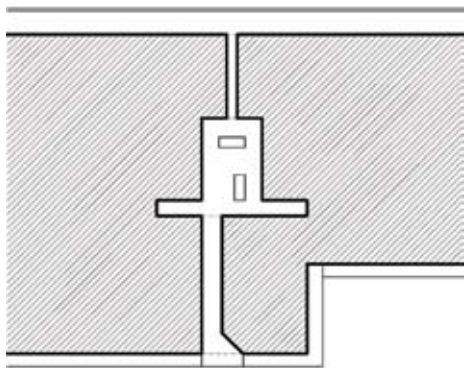
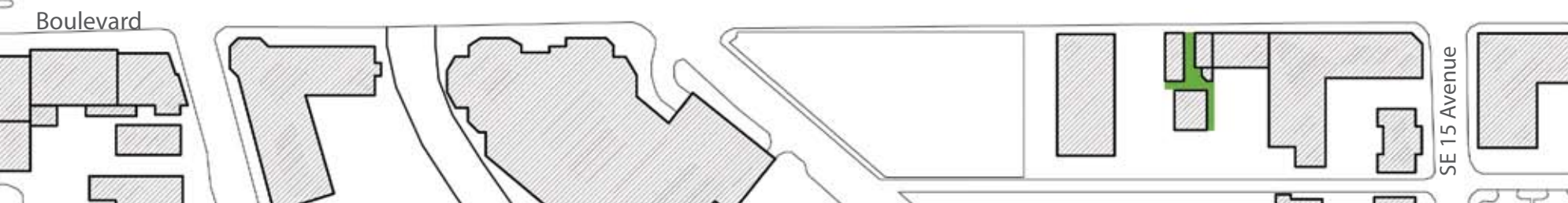
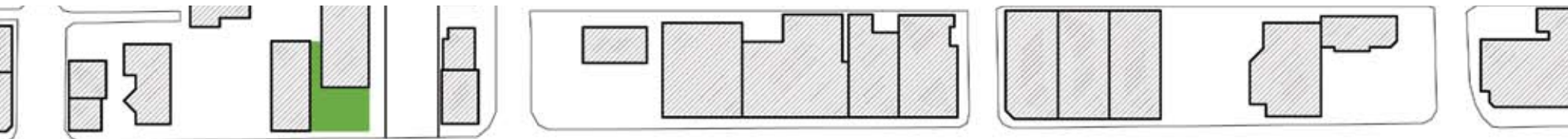
qualities of a subtropical urban environment the first studio exercise required a delineation and documentation of the climate responsive urban fabric still found in the original commercial blocks of Fort Lauderdale along Las Olas Boulevard.

Much of the recent literature on the design of cities and the crisis of the contemporary city is critical of the modern movement. Yet in some respects the spirit of modernism, at least in architectural design, was not always antagonistic to environmental concerns. From about 1940 to 1970 architects sought to adapt principles of modern architecture to local conditions. Regional approaches to design, including the work of better known Florida architects such as Paul Rudolph and Igor Polevitzky, contributed to the globalization of modern architecture by localizing it. During this same period, the work of Broward architects such as Chuck Reed, Robert Hansen, William Bigoney, Robert Law Weed, Donald Singer, and Dan Duckham demonstrated the importance of climate in shaping permeable outdoor spaces for circulating cooling breezes as well as for integrating buildings with the surrounding urban landscape. Many of these design themes are also found in subtropical cities around the world.

In the early 1960s Victor Olgay published *Design With Climate*, an extensive and thorough treatise on the bioclimatic design of buildings and cities. Olgay argued for collaboration between the biological and climatological sciences, engineering, and architecture to arrive at a orderly and systematic way to address the problem of passive (or zero-energy) climate control in the design of buildings and cities.⁶ Since the 1960s the passive functional role of architectural design for thermal comfort was displaced by mechanical cooling and ventilating systems. Yet Olgay's work deserves renewed attention today as we seek sustainable development alternatives.









Top: Partial figure ground plan (left) and image (right) of East Las Olas Boulevard in Fort Lauderdale. Even in the urban core, buildings and landscaping create fragmented and ambiguous spaces. The urban fabric is not very well defined and the public space is occupied with cars and landscaping.



Bottom left: Partial figure ground plan (left) of the historic center of Cartagena and view toward the Cathedral (right) from the Calle San Juan de Dios show how the urban fabric is formed by buildings. The public space is the domain of pedestrians.

Right (top and bottom): Oolitic limestone, locally known as coral stone, is a type of sedimentary rock found in the coastal regions of the Caribbean and Gulf of Mexico. The stones of Southern Florida and Cartagena are very similar in appearance and feature a varied density and porosity capable of absorbing moisture and supporting plant life.



Cartagena, like many old cities in hot climates, is a layered city - both vertically and horizontally.

- Rodolfo Ulloa

*Rodolfo Ulloa Vergara, Architect
Bogotá, DC Colombia*



Cartagena: lessons from a kindred climate

At the south end of the Caribbean rim, Cartagena features some geological and natural similarities to the environment of Southern Florida. The rock formations found in both places closely match each other. The local oolitic limestone, a variation of fossilized coral, is a material similar to that found in many hot-humid coastal regions in the Caribbean, east Africa, and the Pacific. In old coastal towns, such as Zanzibar, it was used as a building material to insulate from the heat and absorb the moisture from the humid coastal air because of its porosity and structure. We also share a balmy climate and a lush tropical vegetation. But the similarities end there. In contrast with a dispersed arrangement of free standing buildings in the landscape of Broward County, buildings in Cartagena, especially in the historic city center, stand together to form a compact yet pervious urban fabric shaping the public spaces and streets. The density of Cartagena is almost twice that of Broward County yet it is a very livable place, comfortable in its tropical setting.

The urban structure and buildings in Cartagena are adapted to a hot-humid coastal environment. Narrow streets provide shade during the day; and arcades, balconies and verandahs ensure additional shade and privacy, as well as protection from torrential rains. The public spaces of the city, its plazas and parks, are interconnected with pedestrian passageways and there is a languorous ease to deciphering the city, choosing its pathways, and the general rhythm of its public realm.

The city is spatially layered both horizontally and vertically in the manner of its Spanish-Moorish heritage. Its horizontal spatial arrangement consists of a doorway leading to a private internal passage, known as the *zaguan*, that connects to an internal verandah and a private courtyard. There is an ordered sequence of enclosed,



Top: The Andian Building (left) built in 1930 faces the Plaza de la Aduana. The patio of a colonial house (right) on the *Calle del Sargento Major* is surrounded by an arcade and a second story verandah.

Bottom: Green roof terrace viewed from the mirador at Casa del Mar (left); a *Palenquera* fruit vendor (right), representing Cartagena's intangible cultural heritage.

Right: Section through the *Casa del Mar*, illustrates the vertical and horizontal layering of an urban house in Cartagena. *Mario Villegas and Ernesto Moure Eraso, architects.*

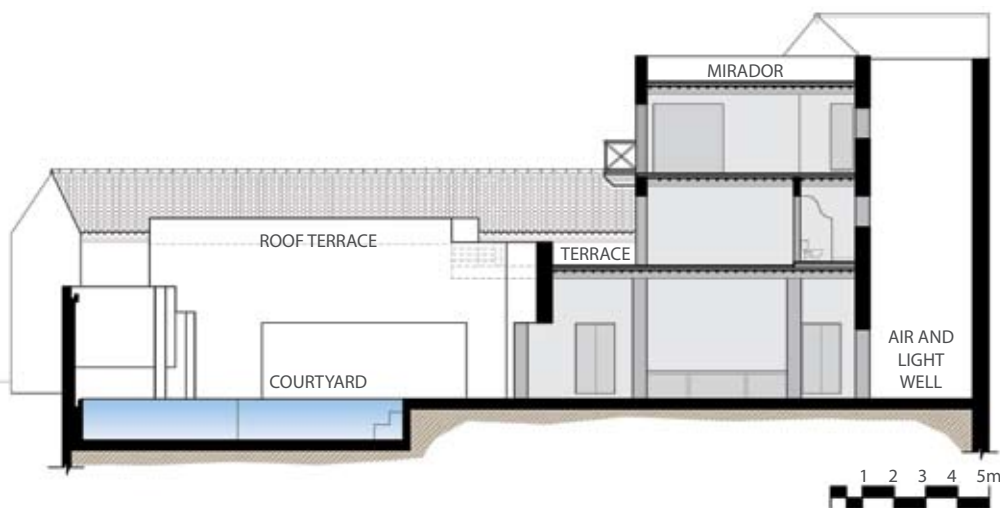
semi-enclosed, and open spaces used during various times of the day and night depending on the weather conditions. The internal gardens create a landscape of private outdoor spaces separate from the public space of the street. Vertically, the city is layered in the form of terraces, miradors, and roof gardens for entertaining or sleeping with varying degrees of privacy from the street and neighbors.

The typical subtropical urban house in Cartagena features deep window openings with overhangs, grillage, and internal shutters to shield sun and rain; a double height roof at the main living spaces and low shed roofs that surround an internal courtyard designed to collect rain water. A deep perimeter verandah surrounds the courtyard, sometimes with a double colonnade, providing a middle range of light between the shaded interior and the brilliant exterior. Vertical wells ensure air circulation. Finally, at the center of the house there is a lush garden or courtyard with a water cistern, fountain, or pool.

Even larger scale examples of modern multi-story development, such as the Andian office building, maintain many characteristic typological features suited to the subtropical climate: a continuous ground level arcade, deep bay windows, and an accessible covered roof terrace.

Contemporary cosmopolitan life has been accommodated as in many old cities yet one can still find, upon turning a corner, timeless places that bring to life the fictional spaces described by the celebrated authors Gabriel García Márquez, Edgardo Rodríguez Juliá, and others.

Cartagena is also a sustainable city because it safeguards its intangible cultural heritage, such as that of the *Palenqueras*, descended from African slaves who rebelled against that Spanish crown in the 18th century and declared their little village



independent. They continue their cultural traditions, including fruit cultivation and vending, to this day adding authentic vitality to this ancient city.

Despite the integrity of its historic patterns, modern Cartagena shares many of the same problems as any contemporary city, and the challenges of rapid urbanization and the effects of a fossil-fuel based economy are evident outside its historic center.

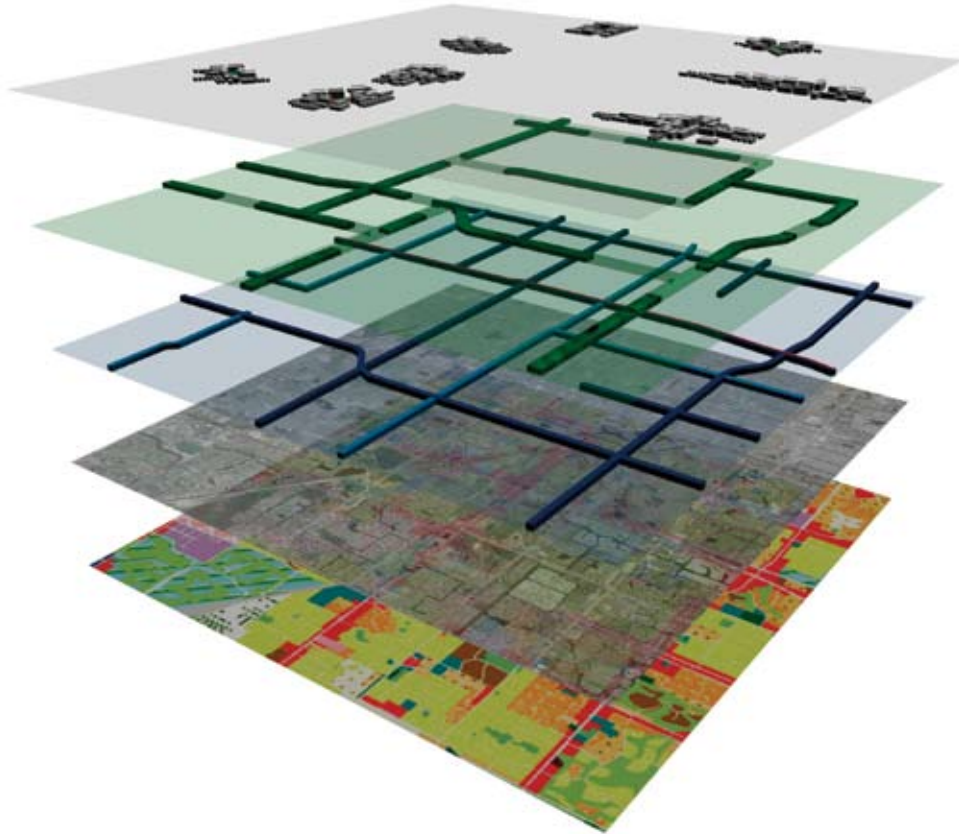
The modern spread and rate of urbanization is like a *metastasis* (from the Greek meaning displacement), changing the form and state of human settlements and cities. The means of dispersal is predicated on a combination of aggressive promotion of automobile ownership and the highway systems, development forms, and land uses to accommodate them; development financing practices and taxation policies; and, in the subtropics, a proliferation of air conditioners. These factors taken together challenge and compromise the functional sustainable fabric of the subtropical city.

An overriding vision

New forms of transportation and urban redevelopment are needed in South Florida to allow for continued growth and a sustainable quality of life. Essential changes in our transportation infrastructure to expand our choices for mobility will shape the future character of urban form in South Florida.

The foundation for the THOR initiative is a previous work entitled the Broward County County-wide Community Design Guidebook. The Guidebook established a set of patterns for sustainable sub-tropical design developed across five principal design





Above: Conceptual diagram of the Quilt-Net (top) relating future land-use and transit-oriented redevelopment throughout Broward County.

Left: Transit-oriented development is supported by an infrastructure for pedestrian circulation and an attractive, comfortable, and safe outdoor tropical and subtropical environments in Bogotá, Colombia (top) and Brisbane, Australia (bottom).

specializations: transportation, urban design, landscape design, architecture, and environmental graphics. The Guidebook was adopted by Broward County in 2005 as a strategic planning tool. It has since provided the basis for changes to existing local land development policies and regulations, the Trafficways Plan, and various municipal zoning ordinances.

The core redevelopment strategy of the Community Design Guidebook is the idea of the Quilt-Net: a network of transit and multimodal transportation corridors, greenways, and blueways, connecting new walkable urban centers that are superimposed on the existing patterns of development throughout the county. This superimposition creates a new organizing scheme for redevelopment that is more sustainable and sensitive to the environmental context. It maintains the integrity of existing single family land uses, while it transforms commercial and light industrial sites and regional activity centers into transit-oriented, mixed-use, sub-tropical, urban places accessible without the need for an automobile, from any other part of the county.

The general concept of the Quilt-Net provides a reference for examining possibilities for situating higher density development along existing county corridors that are newly designated for transit.⁷

Previous elements of the county transportation plan addressed only the efficiencies and effectiveness of moving traffic. The THOR Pilot Study introduces the possibility of new elements that address the qualitative aspects of subtropical context and design for a new transportation infrastructure suggesting new forms for sustainable redevelopment. To achieve this, the key challenge is to develop a community design process that is inclusive, multidisciplinary, and multi-jurisdictional.

Community designing community

The first step in the community design process involves taking a “design inventory” of a specific street or area. This method was adapted from the community design inventories developed by Jack Williamson.¹² The inventory engages students, community residents, local political leaders, government staff, local design professionals and developers in a series of walks within the study areas. Together on foot the groups conduct an active survey and assessment of the area, recording observations that cannot be identified or experienced from within a moving car. The collected notes, sketches, and photographs taken during the survey are then used by the group in a subsequent workshop to identify and describe the issues and priorities for improvements to be undertaken in the areas of transportation, urban design, landscape design, architecture, and environmental graphics.

These walks can reveal the vital signs of a local economy. This is important because a key objective is to ensure local participation and retain local features in any redevelopment within this program. This implies an acceptance of the informal economy and the kind of urbanism it generates. One of the initial THOR Pilot Study areas, at Broward Boulevard and NW 27th Avenue, provided examples of the vitality of such a local economy – the sense of “aliveness” described by Christopher Alexander.¹³ Hot Boyz Barbecue, an outdoor vendor that occupies a parking lot on weekends, is a transitory community place that embodies local cultural heritage. Another example is Tater Town, a community market that sells fresh local produce, which has been in existence for two generations. Its owners have struggled with changes in zoning regulations that have threatened to shut them down.





The accommodation of
difference is the key project
of contemporary democracy
. . . Democratic traffic
favors choice over flow.

- Michael Sorkin
*Traffic in Democracy*¹⁴

Top left: Participants in the first community design workshop for the Broward Boulevard corridor THOR Pilot Study.

Bottom left: Community design inventory conducted on foot, of the State Road 7 corridor.

Above: Hot Boyz Barbecue (top) and Tater Town Market (bottom) are local, vital enterprises that function as centers of social and economic exchange in the community, yet are being challenged to meet standard development patterns.

The typical development review process is designed to facilitate the norm and not the anomaly, so while fast food and retail franchises offer a normative template that is simple to implement, local businesses are more challenged to compete. The idiosyncratic and sometimes messy experimentation of authentic local initiatives reflects the vital reality of business owners and residents as they challenge normative development policies while adapting to changing economic, environmental, and political situations.

Implementing sustainable development practices requires not only political commitment, technical skills, resources, and willing developers; it also requires the power of social capital acting in a bottom-up manner. The struggle to survive within the current urban development framework is very much a part of the process toward building for sustainability. It is here, at Hot Boyz Barbecue and Tater Town, that we ultimately confront the entrenched and unsustainable practices of modern globalized development; and it is here that sense of place and local distinctiveness are most authentic. The problem with most redevelopment plans is the hidden risk of the dislocation and extinction of local culture. As much as communities must look for ways to encourage creativity to flourish in the arts as expressions of culture and heritage, there is also a pressing need to nourish and facilitate creativity in small business activities, cottage industries, urban agriculture, and community redevelopment.

The design professions serve society through specific markets. In this capacity, designers develop practices that ensure the successful implementation of a development project. In order to examine an emerging alternative market for context-sensitive localized redevelopment, students and community residents

challenged some of the conventional assumptions of mainstream design, construction, and building development practices. Some of the questions raised included, for example: Do all buildings need to be mechanically conditioned instead of naturally ventilated? Why is gypsum wallboard used uncritically as the standard interior finish material when it is vulnerable to humidity?

The students together with the local community gathered data and shared findings to raise critical awareness about historical and contemporary building practices. Among the issues raised was the notion that moisture control in a hot-humid climate is even more critical than energy performance. Unlike climates that experience greater temperature variations, the temperature difference between inside and outside in the subtropics is only between 10 and 25 degrees. Relative humidity is a greater concern, as is the dissipation of moisture laden air, especially carried by trade winds. Such issues that are applicable to subtropical climate conditions need further study and integration into the governing building standards and rating systems for green buildings.

The transparent studio

The students assembled and analyzed information about subtropical design precedents and the existing context, then generated concepts for transit-oriented master plans in the studios. During this phase of the project the students worked in small teams to facilitate group decision-making. The studios were conducted with transparency, meaning that as part of the community participation process the public had an open invitation to the school, and anyone could come at anytime to see what the designers were up to, ask questions, or challenge directions.





Top left: Final scorecard event and exhibition at the Sunview Park recreation center, April 2008.

Bottom left and above: Community design studios at the FAU School of Architecture, Spring 2008.

Subsequent presentations of speculative area redevelopment plans at mid-term were followed by a week-long exhibit and *scorecard* event, at which the public could rate the students work and comment on it. The scorecard comments were collected, tabulated, and fed back to the students as they worked on the final projects. The community response to the projects pointed to an incremental form of redevelopment to ensure community participation in the transformation of the corridors. Further, they suggested ways to benefit from the prospect of redevelopment. This included ideas such as rezoning prior to land acquisition, or for home and commercial property owners to join together to form a land management trust to assemble their land and redevelop it themselves in order to live and work in a new transit-oriented form of community. The phased redevelopment would increase residential density, recycle existing commercial buildings through adaptive reuse, provide affordable infill development, or in some cases, assemble land and replace the old commercial strip with higher density mixed-use projects. One of the most important ideas brought forth by the community was that new transit-oriented redevelopment, combined with a broader range of housing options developed along the corridor at the periphery of their existing neighborhoods, could be planned and designed in such a way to conserve the existing single-family neighborhoods enhancing property values for their families.

For the final design project students selected from a set of randomly assembled project briefs, consisting of combinations of programs, evoking the uncertainty and unpredictability of the contemporary urban context. Programs for mixed use buildings included both likely and unlikely combinations simulating the range of possibilities between existing and new urbanisms.¹¹ The students were encouraged to develop their projects by applying feedback gathered through the community

participation process and to apply ideas about subtropical and sustainable design in a variety of scales, from considerations of furniture, the room, the building, the sidewalk and courtyard, to the block and the corridor. The final projects represented a range of redevelopment possibilities and typological models that were similarly presented to the public, exhibited, and scored. The highest scoring projects were exhibited again at main lobby of the County Government Center.

Modern subtropical sustainability

The initial THOR Pilot Study provided a test case for the application of context driven planning and design principles including: a shared stakeholder vision to provide a basis for decisions; a comprehensive understanding of contexts; effective ongoing communication and collaboration; and, a flexible approach to shaping design solutions that preserve and enhance local community and natural environments.¹⁵

The work developed for the Pilot Study corridors by students at the FAU School of Architecture is shown on the following pages. While these reflexive investigations and speculations demonstrate varying levels of success, all share a common theme that the most promising design proposals for sustainable physical environments are shaped by response to community concerns as well as local (subtropical hot-humid) climate conditions.

To create a sense of place a distinction needs to be made between style and design. A local sense of place emerges when designers take their cues from the climate, the environment, and the human culture of a place. It's not about simply giving something motif or adopting a style.

To create a sense of place a distinction needs to be made between style and design. A local sense of place emerges when designers take their cues from the climate, the environment, and the human culture of a place.



Above: Sense of place captured at the public market in Adelaide, South Australia.

Right top: Neighborhood friendly transit facility and trolley in Seattle, Washington

Right bottom: Stations provide weather protection and efficient access to the Transmilenio Bus Rapid Transit (BRT) system in Bogotá, Colombia



Modernity – as a global and metropolitan phenomenon – enlarges the frame of reference as it mediates parochial prejudices and local ties. The divisive distinctions that are embodied in notions of regionalism no longer seem to apply. If we understand that achieving sustainability through urban redevelopment is about making conscious choices and a critical selection of available technologies and development models, then an engaged and informed community can be empowered to envision and remake its own future. For the subtropical sustainable city to successfully emerge it will ultimately need to call upon its architects, planners, design professionals, and administrators who fundamentally care about their city to rise a bit above mere self-interest and apply their critical knowledge, skill, and experience for the good of the local community and the local environment.¹⁶



A sustainable city, as the oldest cities in the world demonstrate, is like a palimpsest, partly erased with old patterns beneath the new. Perhaps the best way to describe the difference between a sustainable city and one that is not is to quote Italo Calvino, who in his *Invisible Cities*, recounts a fictional young Marco Polo describing the city of Zenobia, as he explains to the Tartar emperor Kublai Khan that it makes no sense to classify cities as happy or unhappy, but rather into another two categories:

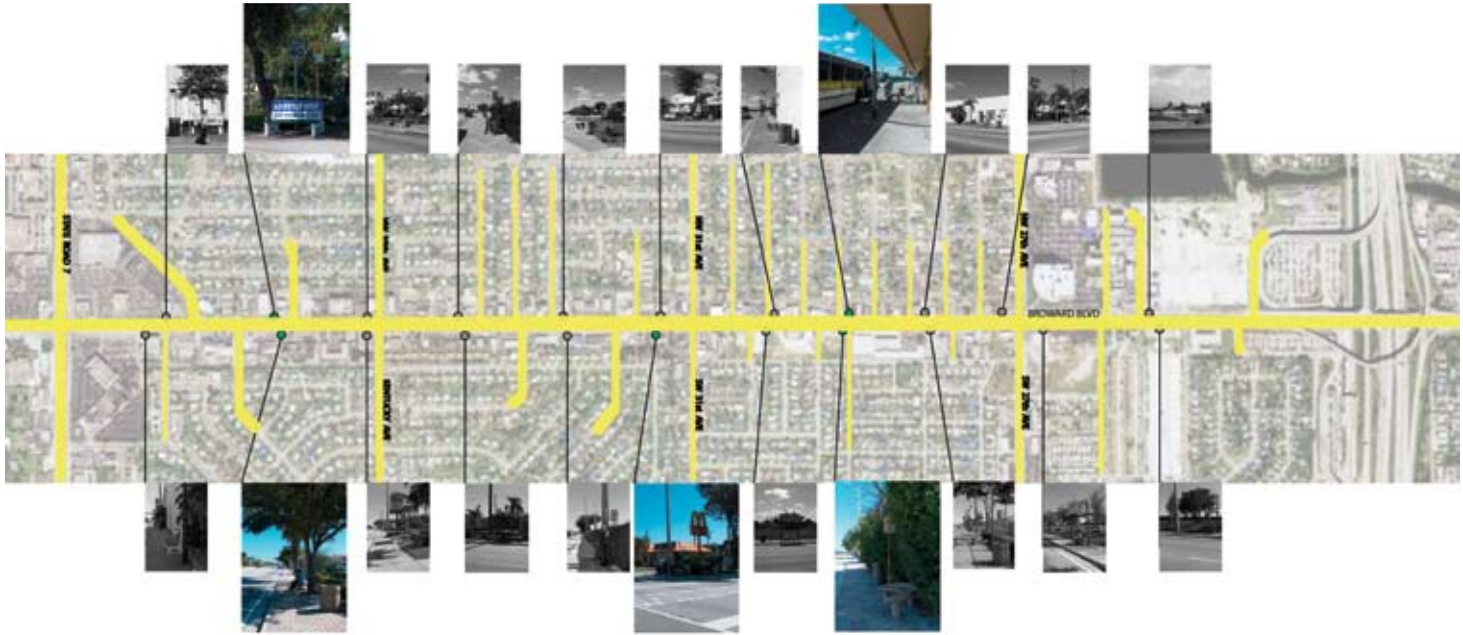
*"those that continue, through the years and the changes, to give form to their desires, and those in which desires either erase the city or are erased by it."*¹⁷

Notational systems for urban analysis



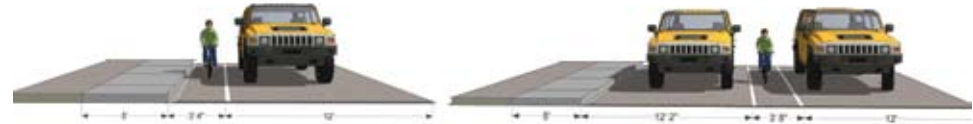
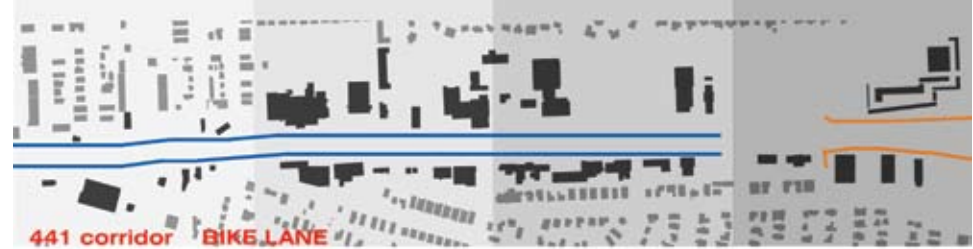
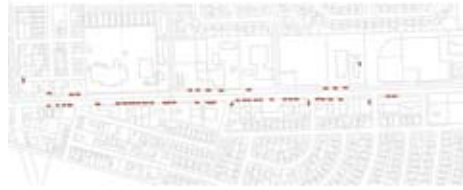
Above right: Student analysis of transit facilities along the Broward Boulevard corridor. *Miguez.*

Bottom (left to right): Student survey and photographic collage compositions describing signs of life, materials, maintenance, landscape, commercial uses, edges, wayfinding, and refuse assembled from a photographic survey of existing conditions at the Broward Boulevard corridor. *Duffey.*

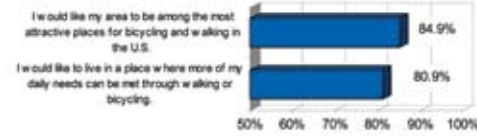




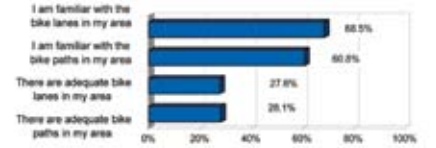
"It's like the Daytona 500 out here."



Importance of Cycling and Walking



Familiarity and Adequacy

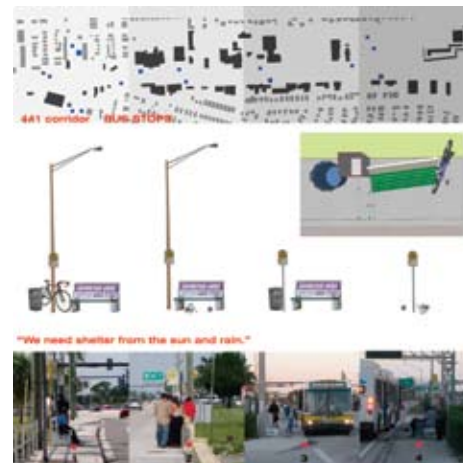
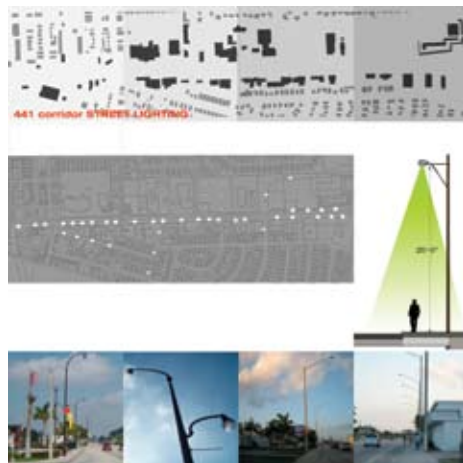
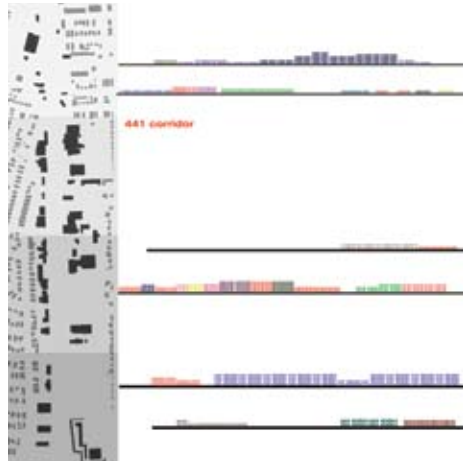


% Agree or Strongly Agree

"You would have to be crazy to use that bike lane."

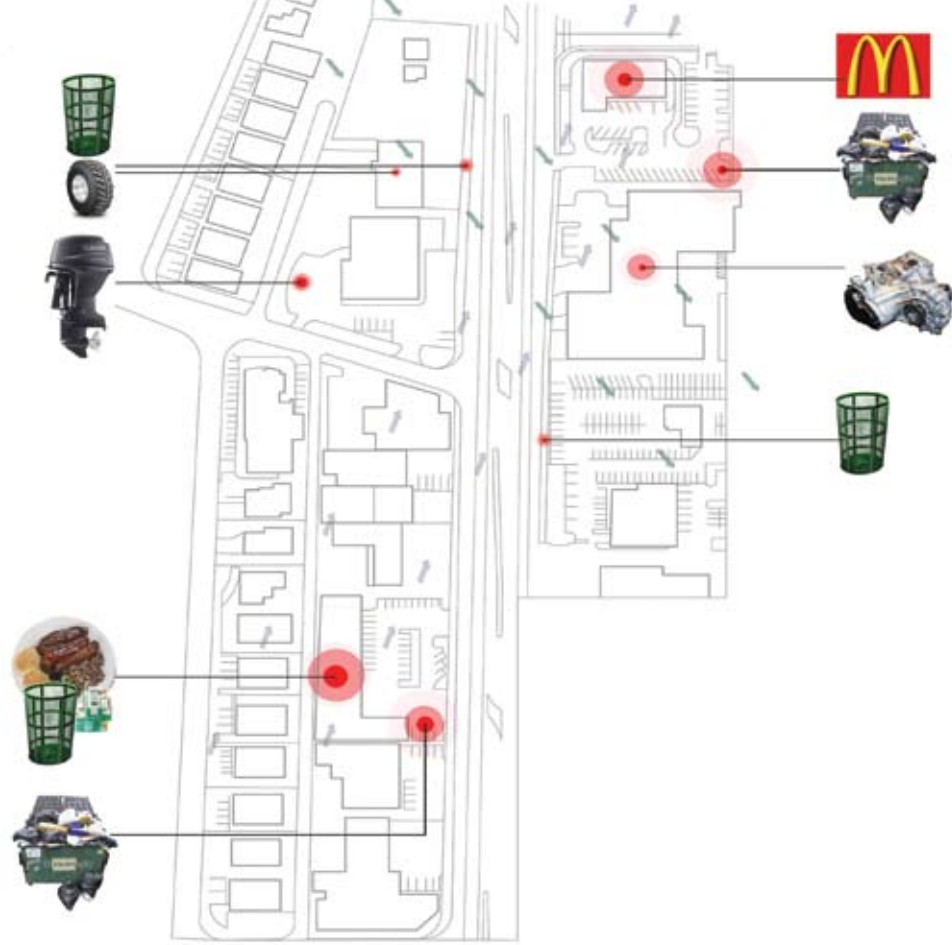


POST BICYCLING AND WALKING ATTITUDE SURVEY



"We need shelter from the sun and rain."





Designing information

Effective use of text and graphics is essential for communicating quantitative and qualitative information about the context. The objective of this assignment was to develop an effective graphic notational system for analyzing existing urban conditions and situations.⁸

Students worked collaboratively across studio sections to develop new conventions for notational systems to document their site analyses and the information gathered during the community design inventories with local residents and business owners.

Situations involving existing transportation, urban design, architecture, landscape and environmental graphics within the public realm of each corridor were mapped and documented.

Students were able to capture nuanced observations of the existing conditions and of the experience of pedestrians in an environment designed almost exclusively for vehicular use. This information provided the basis for establishing the programs for subsequent work in urban design and the development of context sensitive projects and typologies.

Resources for this assignment:

Christopher Alexander, Hajo Neis, Artemis Anninou, Ingrid King. *A New Theory of Urban Design*. Center for Environmental Structure Series. (New York: Oxford University Press) 1987.

Broward County Board of County Commissioners and Anthony Abbate. *Broward County County-wide Community Design Guidebook*. (Fort Lauderdale: Broward County Board of County Commissioners). 2007. <http://www.broward.org/planningservices/upi00117.htm>

Minke Themans. *Bergeweg: New notational systems for urban situations*. (Rotterdam: 010 Publishers) 2000.

Left: Student analyses of vehicular use, curb cut conflicts, bicycle use, 5 minute walking distances, use and occupancy, graphics, street lighting, transit facilities, and parking on the State Road 7 corridor. *Zylstra*.

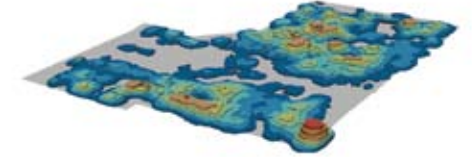
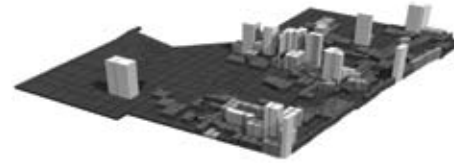
Above: Student analysis of smells on the State Road 7 corridor. *Urban*.

Scales in time: envisioning urban spaces and public places



Above right: Mapping county density, future land use, automobile ownership, and foreclosures. BCDC using GIS data from Broward County⁹.

Bottom (left to right): Illustrations from mid-term presentations. State Road 7 Specific Area Plan shaded plaza, plan detail, and transit shelter. Barberena, Bortz, Lasalde, and Zylstra; Broward Boulevard Specific Area Plan and detail of intersection. Afanador, Hernandez, Rojas, Roth, Quintana, and Curro; Detail of Broward Plan. Chong, Duthely, Martinez, Meira, and Vincent.



Peak employment density Peak residential density

Recreation	Low	Industrial	Commercial
Conservation	Medium		Employment Center
Agricultural	High		Regional Activity
Rural Estate	Residential		Center

0 150 400 600 800 2900
Households with zero vehicles per square mile

0 27 57 74 183 232
Residential foreclosures per square mile





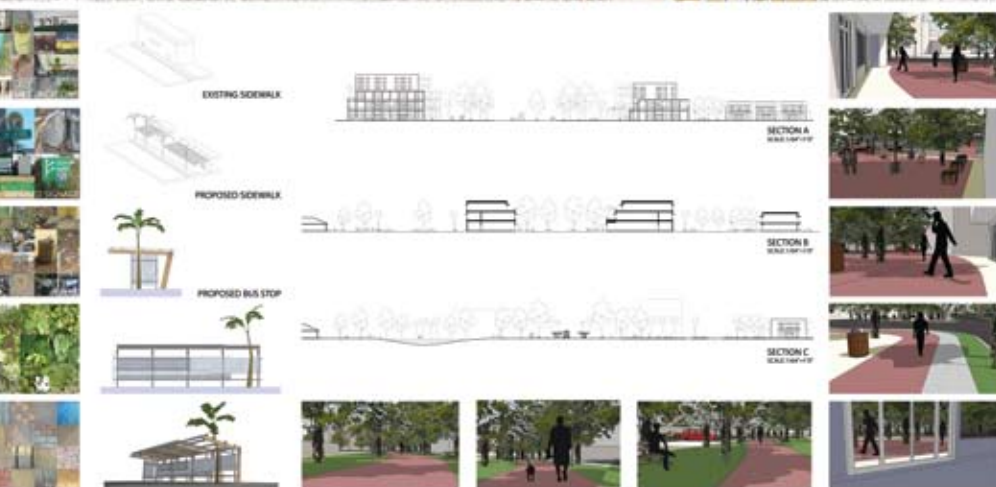
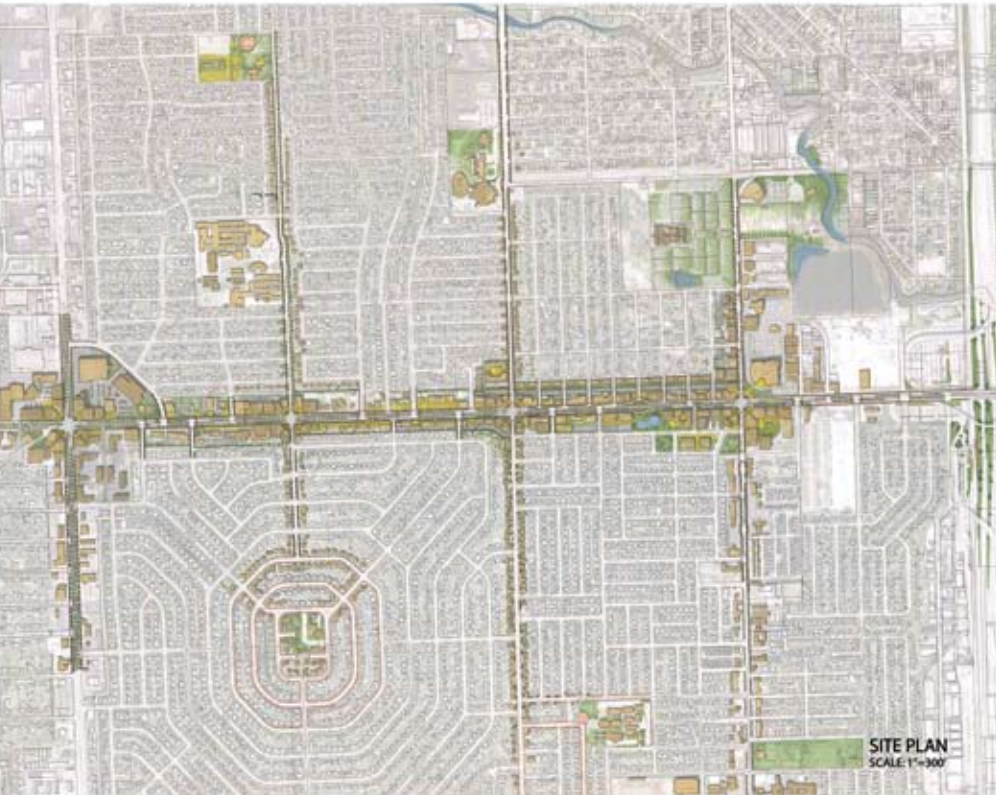
BROWARD BLVD REVITALIZATION PROJECT PHASE 1 - ARBANYE DESIGN 9

Hooplaugh Durfey Sauerl Miguz Smith DeRossi Acevedo McIntyre

Community Voices

- "Safety is a main concern."
- "More rural like green areas."
- "More transit options."
- "Inconsistencies in zoning not allowing for the growth of businesses."
- "Widening of the lanes and sidewalks."
- "Doubter that their voice will be heard."
- "Importance of outdoor grills and BBQ's."
- "Some just want to see their property and get out."
- "People are willing to give up their homes to live in affordable apartments."
- "Affordable night establishments for young people."
- "Checkers needs to go." (Corner Broward & 27th Ave.)
- "Single Family Housing must go."
- "No Bars and Liquor Stores"
- "Lot taken by the county left unattended"
- "Senior Citizen Center for the elderly."
- "Many homeless and mentally ill on the streets."
- "Better parking."
- "People in wheel chairs need their exercise too."
- More businesses: Bakeries, Grocery Stores, Farmers Market, Pharmacies, etc.





Urban parameters for design

Successful completion of this assignment depended on the ability of students to be good listeners, sensitive interpreters of the needs and desires of the community and keen observers of the context for each of the subject corridors.¹⁰

Working individually and in voluntary groups, students designed and graphically documented a Specific Area Plan (SAP) for each of the corridors. Each individual and group effort was critiqued and evaluated by faculty, student peers, and the community.

Emphasis was placed on design at many scales, integration of transportation, urban design, landscape, architecture, and environmental graphics, a vision for the whole of the public realm, and graphic excellence.

Modal transformations for sustainable subtropical urban development were proposed speculatively and as a critical localized response to the need for non-vehicular transportation, improved density, and legible urban space.

Resources for this assignment:

Christopher Alexander, Hajo Neis, Artemis Anninou, Ingrid King. *A New Theory of Urban Design*. Center for Environmental Structure Series. (New York: Oxford University Press) 1987.

Broward County Board of County Commissioners and Anthony Abbate. *Broward County County-wide Community Design Guidebook*. (Fort Lauderdale: Broward County Board of County Commissioners). 2007. <http://www.broward.org/planningservices/upi00117.htm>

Alcaldía Mayor de Bogotá, Lorenzo Castro Jaramillo, and Felipe Van Cotte Villa. *Taller del Espacio Público*. (Bogotá: Departamento Administrativo de Planeación Distrital) 2000.

Far left: State Road 7 corridor plan group project presentation. *Barberena, Bortz, Lasalde, and Zylstra*.

Near left: Broward Boulevard corridor plan group project presentation. *Acevedo, De Rossi, Duffey, Hoofnagle, McIntyre, Miguez, Smith, and Suriel*.

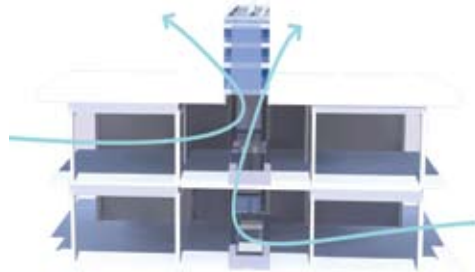
Production of place: a strategic agenda for architecture



Above right: Diagrams of parameters shaping design response. *Jäger, Zylstra.*

Bottom (left to right): Illustrations from final presentations. *Roth, Curro, Hernandez, Lasalde, Chong, and Barberena.*

Following pages (clockwise from top left): Final project exhibition boards. *Barberena, Hoofnagle, Zylstra, and Roth.*



Mixed-Use Community Development

Mixed-Use Community Development

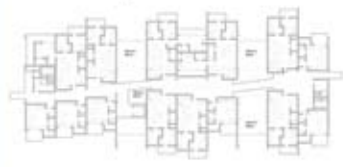
Text describing the project goals and context for the mixed-use community development.

Program

Residential Units	100
Commercial Space	5000
Office Space	10000
Public Space	2000
Green Space	1000
Other	500

Statistics

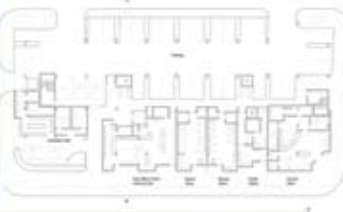
Site Area	10000
Building Footprint	5000
Height	40
Population	1000
Other	500



Third Floor Plan



Second Floor Plan



First Floor Plan



Windbelt Energy Walls

Text describing the Windbelt Energy Walls technology and its benefits for energy efficiency.



Section A-A

Text describing the architectural section A-A, showing the building's vertical structure and internal spaces.

Master Revitalisation Plan

Text describing the Master Revitalisation Plan for the surrounding area.



Site Plan



East Elevation



West Elevation



Street Front looking North

Production of Place: A Strategic Agenda for Architecture SR 7/441 Corridor Adult Day Care Center + Boys & Girls Club



Location Site Plan



Aerial View



First Floor Plan Second Floor Plan



Drop Off View



Southern View



South Elevation



North Elevation



East Elevation



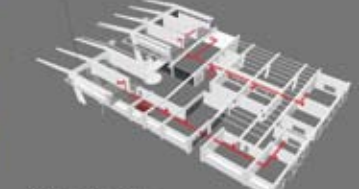
West Elevation Safety Room



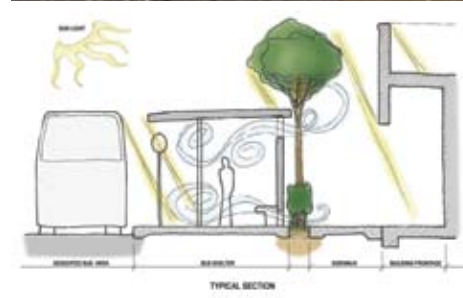
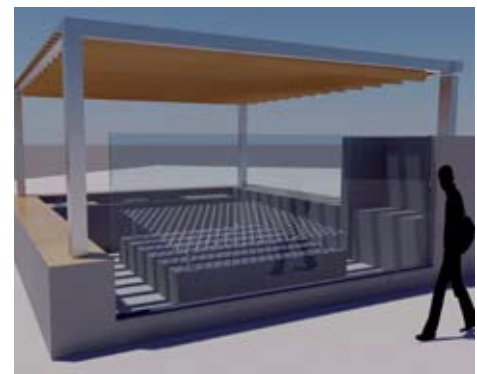
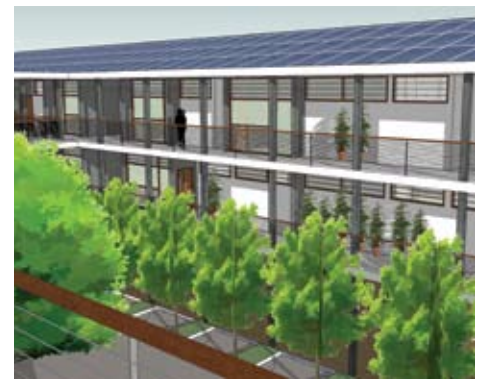
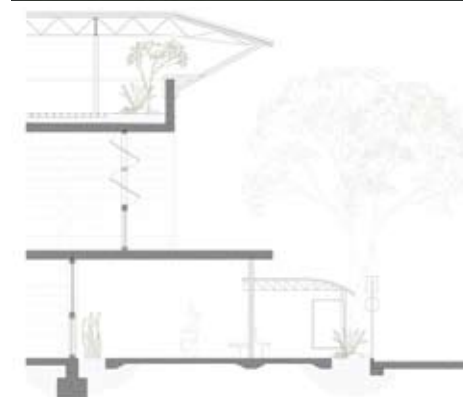
Boys & Girls Club North Entrance



Interior Courtyard Perspective



Mechanical Perspective





Resources for this assignment:

Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities: An ITE Proposed Recommended Practice. Institute of Transportation Engineers (ITE), and the Congress for the New Urbanism (CNU) (Washington DC: United States Department of Transportation Federal Highway Administration and the United States Environmental Protection Agency).

Left: Images from student presentations illustrating considerations for architectural design in the subtropics. *Urban, Del Rio, Miguez, Martinez, Vincent, Bici, Rodriguez, Torres, De Rossi, Afanador, Quintana, Zylstra, Suriel, Acevedo, McIntyre, Bortz, Torres, and Styles*.

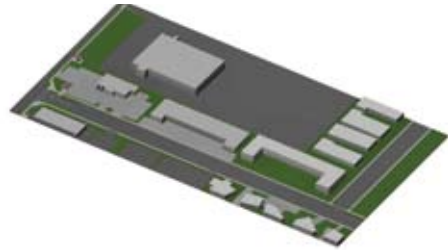
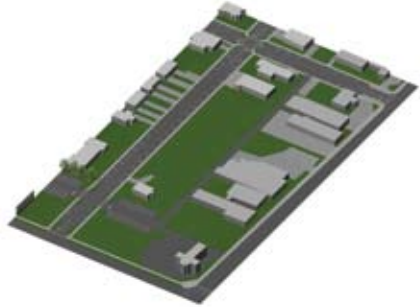
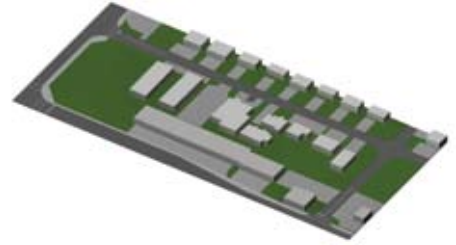
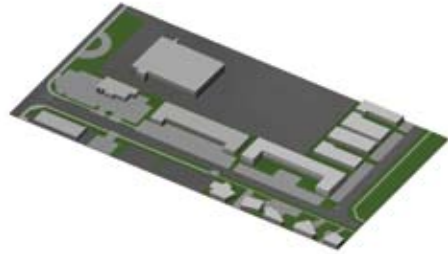
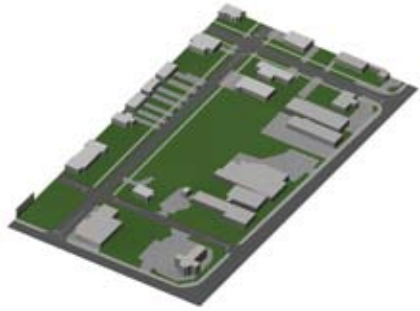
Above: Detail of aeroelastic flutter power generating sunscreen. *Hoofnagle*.

Typologies for a sustainable urban community

The final assignment consisted of developing agendas, programs, and prototypes to form the components of an integrated Transit|Housing Oriented Redevelopment (THOR) corridor scheme. Students were challenged to demonstrate how their designs and strategic agendas can contribute to healing the city.¹¹

Students working individually selected from a set programs developed randomly, combining a variety of uses and occupancies identified by the community as necessary for revitalization and redevelopment. These uses included: retail, indoor/outdoor dining, barber/beauty shop, post office/print shop, internet café, branch bank, professional offices, owner-occupied housing, neighborhood public safety facility, rental and owner-occupied housing for a diverse range of household types, neighborhood food sales, laundromat café, pharmacy and sundries, elderly housing, neighborhood health and wellness center, child day care, elderly day care, community meeting facility, Boys and Girls Club, auto sales showroom, community branch library, fresh produce market, outdoor barbecue, neighborhood cultural space, transit and parking facility.

Investigations into the horizontal and vertical layering of spaces and how urban places are assembled and composed in the subtropical realm led to reflections on the *topology* of a sustainable built environment. The students operating at a range of scales, from the construction detail to the organizing schemata of master plans preferred by the community, presented detailed proposals for redevelopment and reinvigorated prospects for a bioclimatic approach to re-designing the city. Context-sensitive typological elements were then extracted from these proposals to inform the preparation of redevelopment guidelines for the THOR corridors.

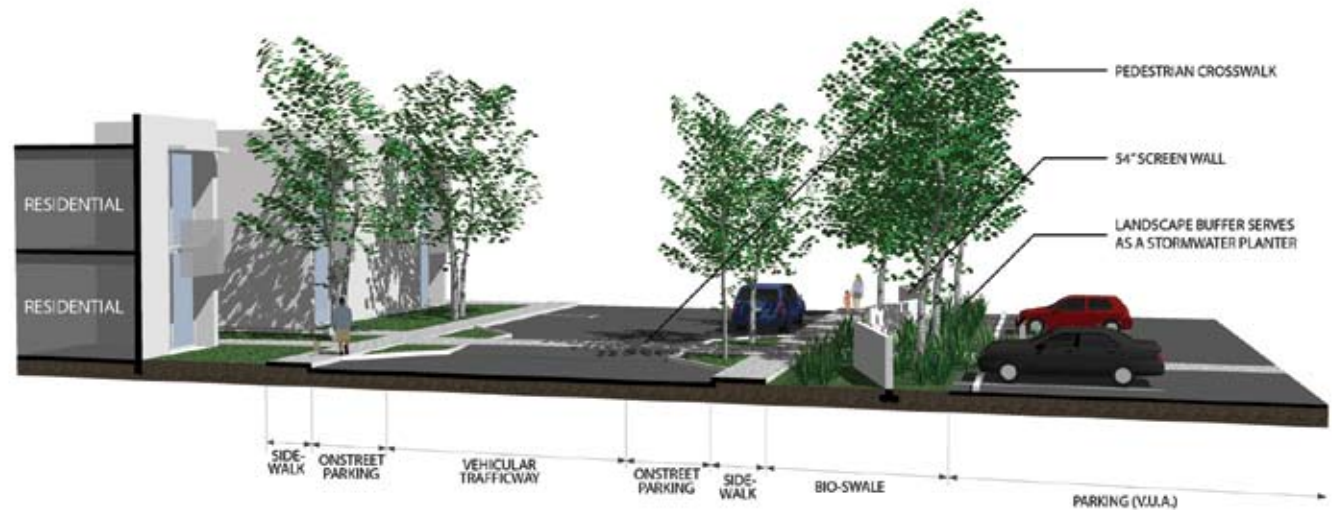


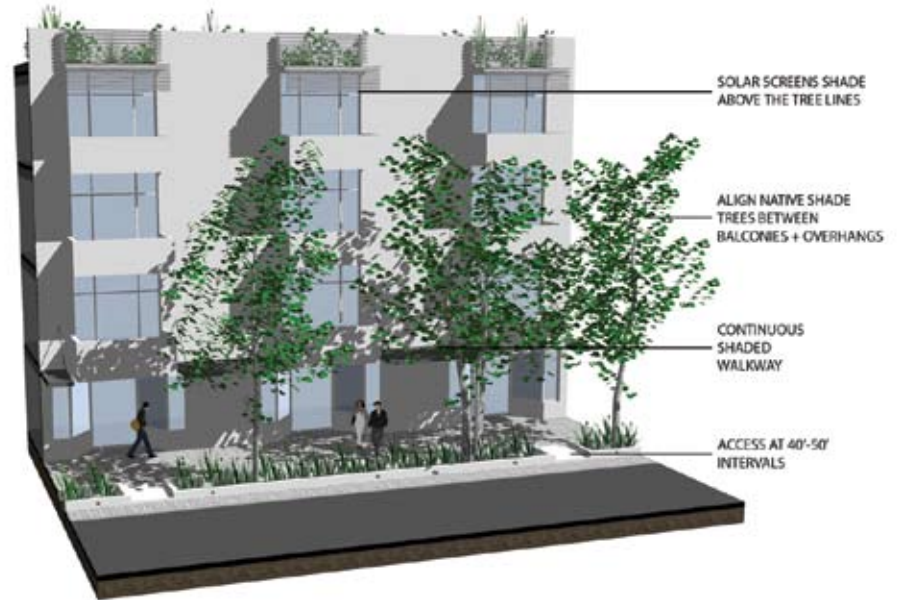
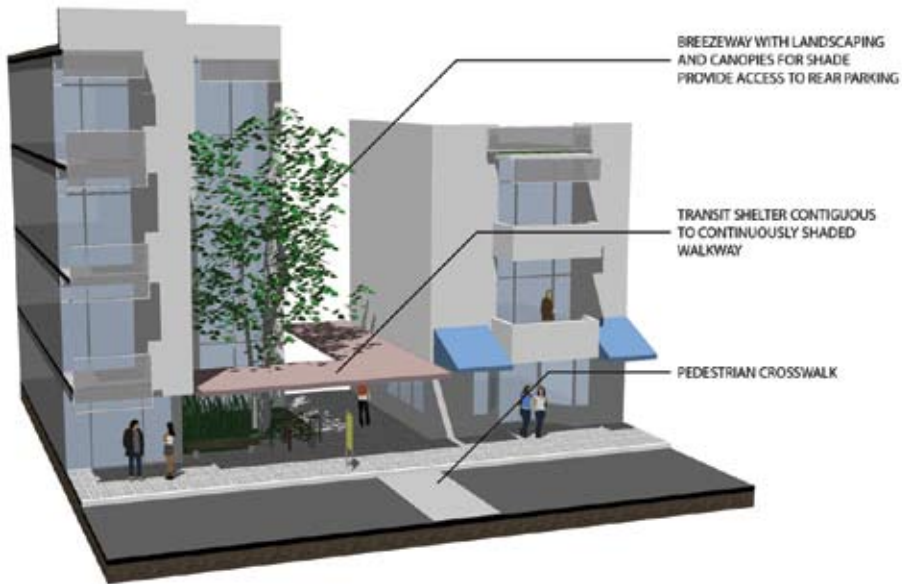


THOR context sensitive typologies

Left: Digital models show the sequence of proposed phased redevelopment on county transportation corridors involved in the initial THOR Pilot Study. (Columns from left to right) Broward Boulevard at NW 27th Avenue; State Road 7 at SW 16 Street; State Road 7 at SW 19 Street; and State Road 7 at Davie Boulevard. (Top to bottom) Existing block; urban infrastructure; adaptive reuse and infill; and, completed redevelopment.

Above and right: Typological elements extracted from redevelopment proposals developed in the design studios. Digital models illustrate pedestrian circulation between commercial and residential developments. Walls and landscaping are designed to screen views of parked cars in vehicular use areas.







Far left: Mixed use development model with integration of transit facility designed for local climate conditions.

Left: Mixed use development model on a corridor with convertible bicycle lane/on-street parking egress zone, and a storm water bio-swale for retention and drainage.

Above and right: Subtropical typology for mixed light-industrial, commercial, and residential use for redevelopment of business occupancies abutting residential districts. Features include roof shapes for collecting solar energy and storm water, shading devices, and continuous weather protecting canopies at the frontage sidewalk.



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¹ Smart Growth principles include: Create Range of Housing Opportunities and Choices, Create Walkable Neighborhoods, Encourage Community and Stakeholder Collaboration, Foster Distinctive, Attractive Communities with a Strong Sense of Place, Make Development Decisions Predictable, Fair, and Cost Effective, Mix Land Uses, Preserve Open Space, Farmland, Natural Beauty and Critical Environmental Areas, Provide a Variety of Transportation Choices, Strengthen and Direct Development Towards Existing Communities, Take Advantage of Compact Building Design. See the Smart Growth website at <http://www.smartgrowth.org/about/default.asp>. The basic concepts of context sensitive design (CSD) emerged from the May 1998 joint conference "Thinking Beyond the Pavement." The Maryland Department of Transportation, State Highway Administration, AASHTO, and FHWA. See the Context Sensitive Solutions (CSS), Center for Environmental Excellence by AASHTO website at http://environment.transportation.org/environmental_issues/context_sens_sol/

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Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.

*- "Our Common Future" United Nations World Commission on Environment and Development.
4 August 1987*

This book is set in Myriad Pro and Blur OT.

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