Civilizing Suburbia

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ABSTRACT

When I began my study of architecture ten years ago, I honestly believed that architecture could change the world. As I look back at how the American landscape has changed since then I realize that architecture has changed the world, but not necessarily in the way I imagined.

As our population has grown architecture has reflected the increasing emphasis on consumerism, a decreased interest in public life and even less interest in the natural environment. Consequently terms like suburban sprawl have adequately been coined to describe the spreading wave of decentralized settlement that characterizes our lanscape. Even though over 80% of the new homes schools and shopping facitlities are now located in the suburbs, many designers still do not consider the suburbs to be within the field of architectural practice.

I do not hold to this view and believe that this is where architecture can make the biggest difference and where the greatest opportunity for architects to shape the world may be found. What defines architecture today is not just a question of good or bad aesthetics, but is how the design impacts our culture. With each building, landscape or urban plan we create we have the opportunity to reinforce current values or to establish new vaules which can lead us to explore more sustainable solutions.

This thesis looks at a site in suburban Miami and demonstrates how we can redirect our growth toward the protection of our natural resources and contribute important public space that celebrates the value of our environment.

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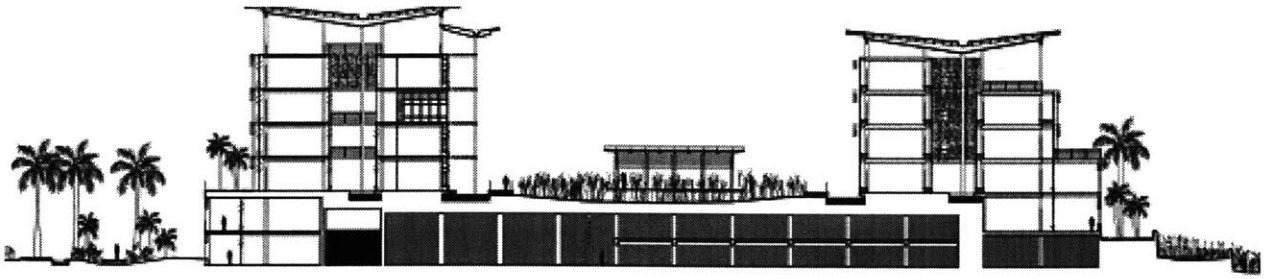


An Environmetal History of Southeast Florida

The environment of southeast Florida is home to one of the most complex ecosystems in the world. Prior to development the Everglades provided a natural drainage system for the region. In the original Everglades marsh the slope was so gradual that water could take up to one year on its journey from Lake Okeechobee through the River of Grass before reaching the Florida Straits. The Atlantic coastal ridge was an elevated limestone strip that ran along the eastern coast of Florida and protected the Everglades from storm surge and saltwater intrusion. The coastal ridge allowed rainfall to drain into the Everglades creating vast wetlands. The natural land cover of marsh grasses, saw palmettos and mangroves covered the landscape and provided habitat for nesting birds and numerous animal species. (Fig.1)

Today southeast Florida is in a state of ecological imbalance. The natural ecosystem of the area has been altered to the point that the existing natural resources are no longer able to perform adequately. In the natural system, the type of plants and animals were perfectly adapted to carry on the prosperity of this ecosystem. (Fig.1) The entire region acted like a giant sponge, retaining water and then releasing it slowly back into the atmosphere, recharging the aquifer, and carrying additional through a series of natural filters until reaching the ocean. Even the smallest creature participated in this process, contributing to the cleansing of the water.

"The greater part of Lower Florida was an unbroken wilderness....when I first resided in the state (in 1882) flamingos, roseate spoonbills, scarlet ibises and the beautiful plumed herons were abundant."
Written by naturalist Charles Torry Simpson in 1920

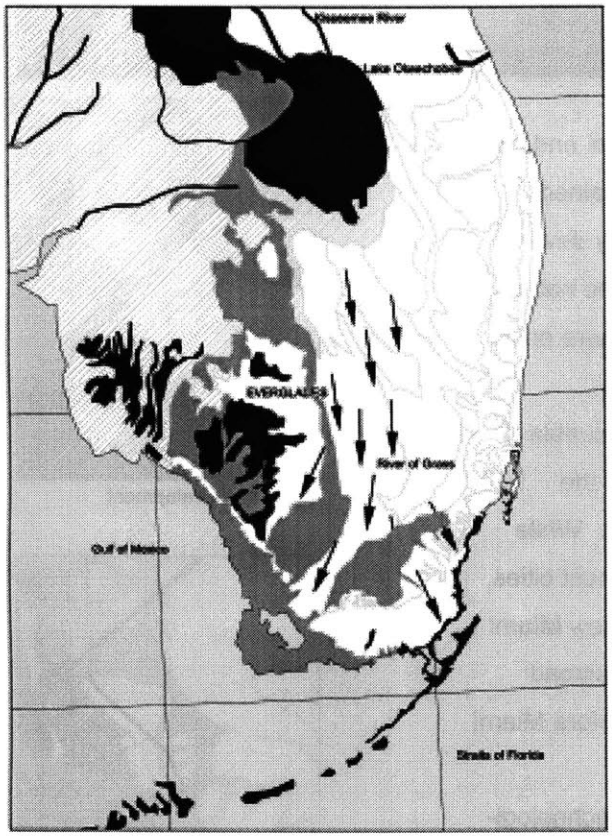


Fig.1 - Pre-Development Everglades- Natural Drainage Pattern

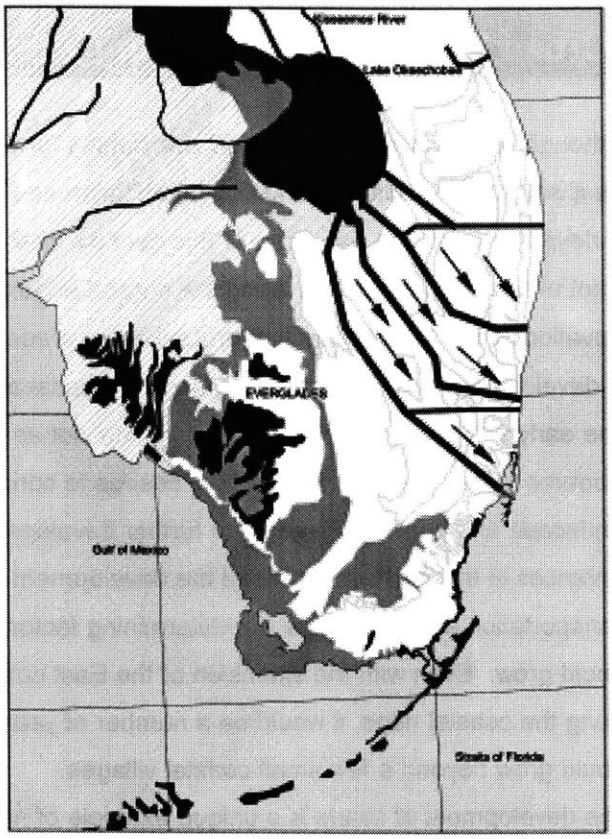
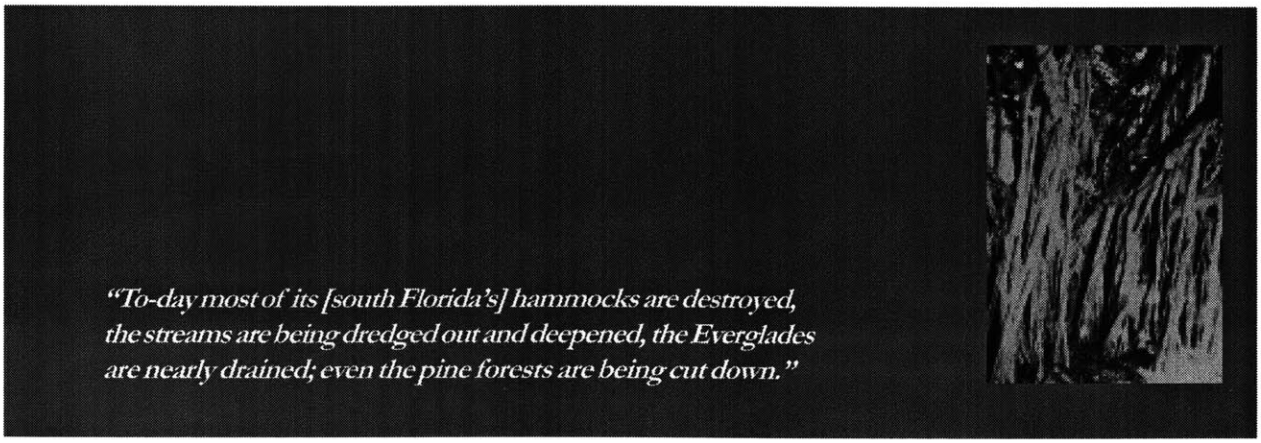


Fig.2 - Everglades Since 1945 - Constructed Drainage Pattern

In contrast, to this picture, the constructed drainage system implemented in the 1940's dramatically altered this ecosystem.(Fig. 2) The drainage canals serve to move the water as quickly as possible from Lake Okeechobee and deliver it swiftly to the Atlantic Ocean. Along the way this water aquires numerous pollutants from the urban areas and with no filtration sends it directly to the sea.



Urban Development of Miami

Although this environment provided rich habitat for animal and plant life it was not well suited for human inhabitation and remained undeveloped until the early part of this century. The early development of Miami concentrated along the coastal ridge as the natural elevation of this strip and lack of ground cover made it more open to development than the rest of the swampy landscape.

The early settlers considered the Everglades not as a valuable resource but as a barrier to their own desires to conquer the landscape and open this area up to further development. While advances in transportation shaped the development of most cities, transportation advances were not determining factor of how Miami would grow. Even with the extension of the East coast railroad along the coastal ridge, it would be a number of years before Miami would grow beyond a few small coastal villages.

The development of Miami is a unique example of how technological advances in hydrology have informed the evolution of the city. The railroad alone was not enough to bring development to the Florida coast and for nearly fifty years the coast of Florida consisted of small villages linked by the railroad and the ocean. Periodic flooding and the topographic features of the south Florida landscape threatened the existing communities at all times.

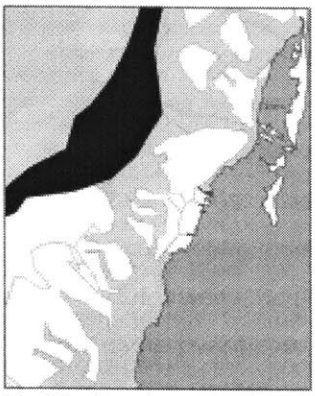


Fig.1 Pre-Development

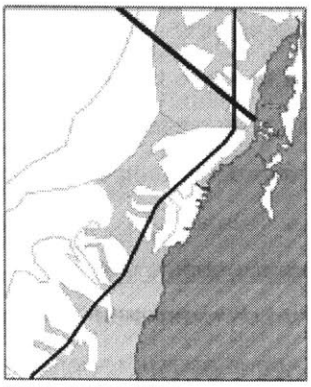
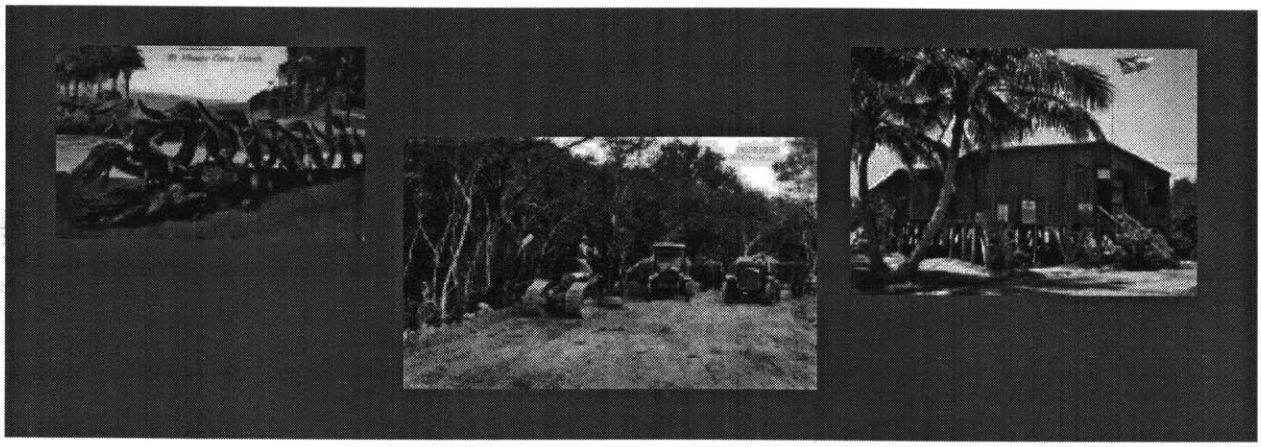


Fig.2 Early 1900's



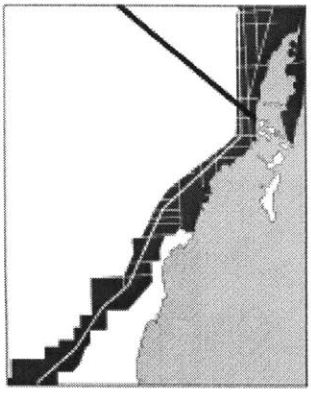


Fig.3 Prior to 1945

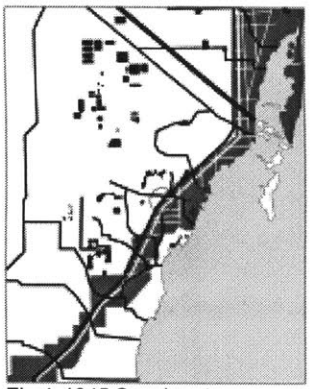


Fig.4 1945 Canal system

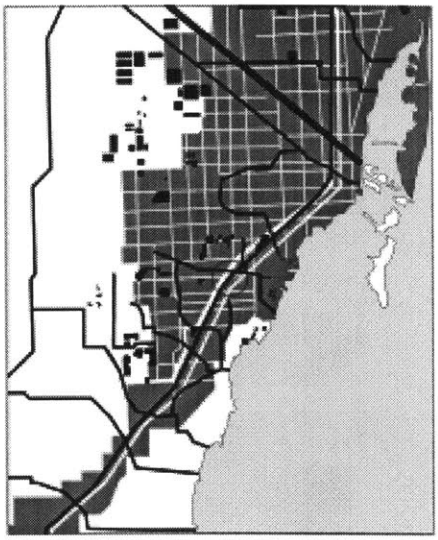
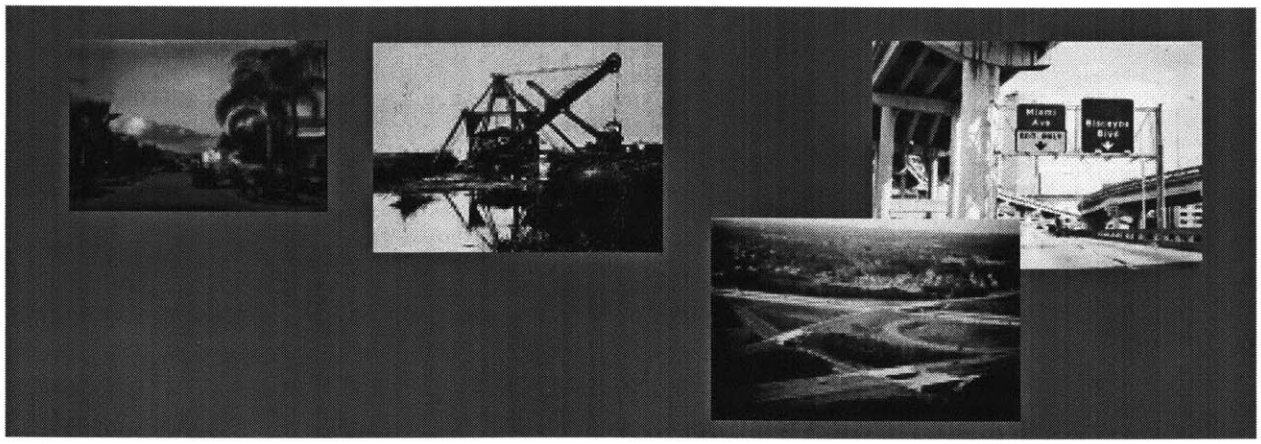


Fig.5 Since 1945

Following many years of great flooding, technological advances in dredging finally allowed the early residents to expand their settlements. During the 1940's Army Corps of Engineers constructed over 1500 miles of canals, straightened numerous rivers and completely reworked the natural ecology of the Everglades region. At once the barrier that had prevented development of the region had been lifted and the previous wilderness was now wide open for speculative development. During the years that followed, Miami was transformed from a swamp to a growing metropolis.



The Urban Plan for Kenadll Florida

By the time Miami was open to developers, the American landscape was already being transformed from an urban population toward decentralization connected by the interstate highway system. Consequently the type of development that has dominated the landscape of south Florida is characteristically suburban, defined by multi-laned highways, cul-de-sac subdivisions and strip retail centers. The early subdivisions offered people the opportunity to live separated from one's neighbors and promoted the single-family home as the model of suburban living.

More recent development (within the past ten years) has continued in the suburban tradition but has gravitated toward smaller lot sizes, which produce a higher return on the land. In this case the density has not produced the kind of community found in most urban centers, a consequence of rapid development and zoning ordinances that have promoted auto-oriented design.

While it would not be possible to restore the landscape to it's pre-development condition, it is imperative that we do not continue on with this type of development. There is a great opportunity for exploring new strategies of development that can not only prevent further damage but can also take an active role in healing this landscape. There is much support for this type of research in this area. Numerous organizations have been formed to look at the effects of suburban sprawl on both the natural and the built landscape. The Eastward Ho Initiative is a coalition dedicated to promoting denser, transit oriented development along the coastal ridge and reducing growth in the western suburbs of Miami. The next section describes how these efforts are being implemented to redirect suburban growth in the Miami suburb of Kendall.

The Evolution of the Miami Suburb - Kendall Florida

Once home to some of southeast Florida's most fertile soils and agricultural landscapes, the area known as Kendall has changed from dirt roads and farms to strip malls and subdivisions seemingly overnight. Just thirty years ago, Dadeland Mall was one of the first buildings to be built west of US 1 in what was still a rural landscape.

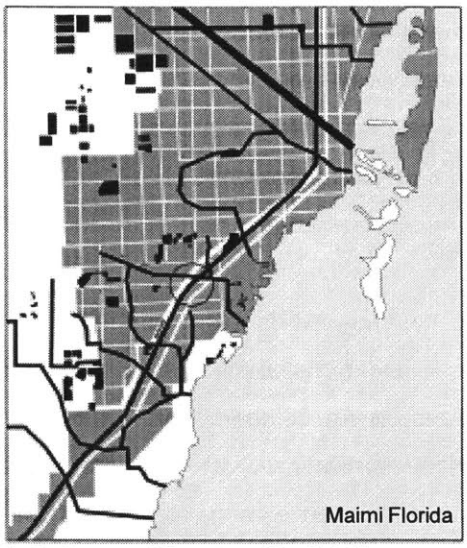
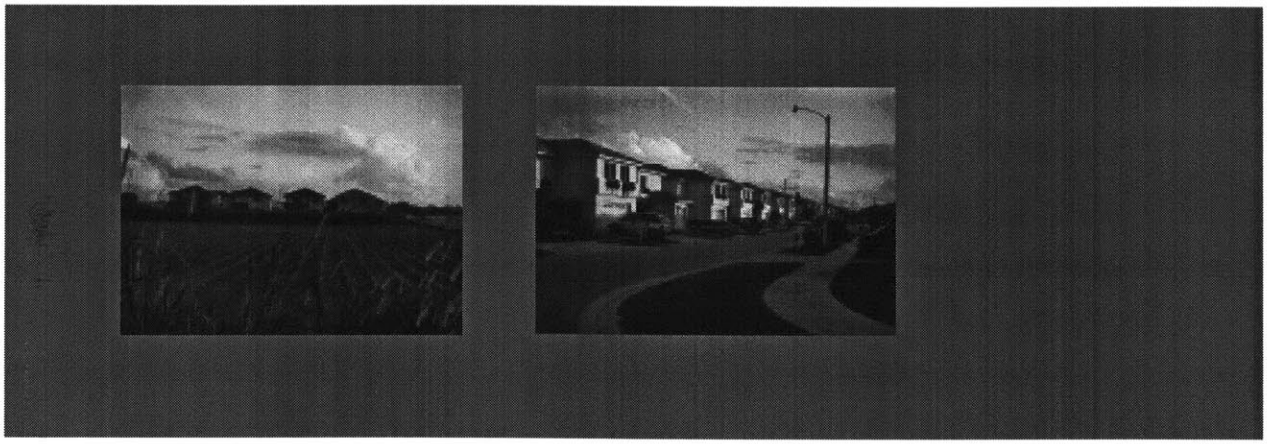


Fig 6 - Proposed Downtown Kendall Site

The opening of the Dadeland Mall in the 1960's was just the beginning of a wave of explosive growth that would continue to expand in all directions, particularly toward the Everglades in the west and southwest. The Kendall area, now notorious for traffic congestion and piecemeal, low-density sprawling development, has recently become the centerpiece in the effort to redirect Miami toward a sustainable future.

Recently the South Florida Regional Planning Council along with Eastward Ho and the Miami-Dade Transit authority, teamed with community groups and the firms of Duany-Platter Zyberk and Dover-Kohl to produce a master plan for the new "Downtown Kendall". In support of this plan a new zoning ordinance has just been passed which will require all new development to abide by the new plan and also requires that new renovations or additions also abide by the ordinance. The new zoning ordinance consists of a design code the all-new buildings must follow and puts the legal guidelines in place, which are necessary to reverse the



current trends. Upon completion of the master plan, the Kendall area will be transformed from a sprawling suburb, to a dense urban center. While many of the ideas of the plan are good, the plan does not adequately address the environmental issues of the area. Any development, New Urban or otherwise, that involves increasing the density of an area has the potential to put further strain on the existing natural systems. While creating denser development can free up land for natural areas, the potential for other problems are magnified. Issues of water quality, resource conservation, habitat protection and environmental restoration must become integral to any new development.

If the Downtown Kendall Plan is to truly be successful in curbing suburban sprawl than it must become a part of a regional solution that combines growth management, ecological sustainability, and social responsibility. This thesis uses the proposed plan as a starting point for implementing new sustainable design strategies which focus on water quality. The following section describes how Kendall represents a case of conventional development today and compares this with the traditional New Urbanist plan envisioned for Kendall's future. The final section describes how this projected evolution is brought forward with a new proposal to implement a new urban center focused on restoring the water quality.

The Existing Condition

Currently the site for the master plan is a wedge that is defined by 3 major highways, the Palmetto Expressway, US 1, and the Snapper Creek Expressway. Today the site represents a model example of conventional suburban development. The site includes the existing Dadeland Metro rail station to the west of US 1 and crosses US 1 to include a large vacant lot and a housing development n the eastern side. The Dadeland Mall is the primary focus of the existing area. Along Kendall Drive are a mixture of low density strip malls, big box retail, townhouse developments and light industrial. Though there is residential along Kendall there are no sidewalks. US 1/ South Dixie Highway is a notorious as the first US highway running from Florida to Maine. Over the years US had become a mega strip offering roadside attractions and hotels to travelers coming down from the north. Today US 1 is a primary north south artery with 8 lanes. Strip centers, offices and car dealerships predominate on US1. The Miami Metrorail, an elevated light rail system runs alongside US 1 on the site of the old Southeast railroad line. Although the Metro was intended to help reduce traffic volume, the

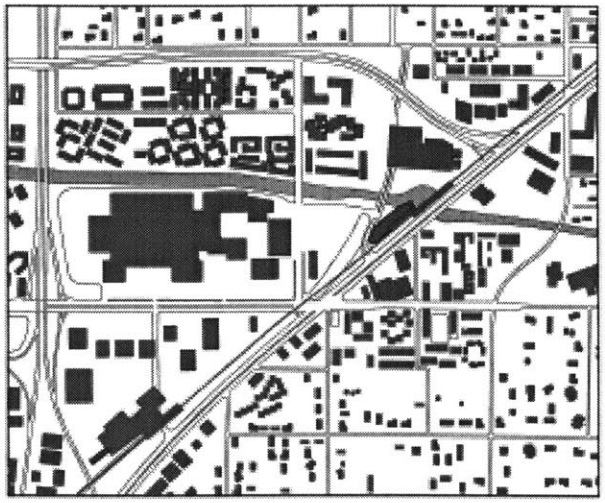


Fig 6 - Existing Siteplan of Kendall

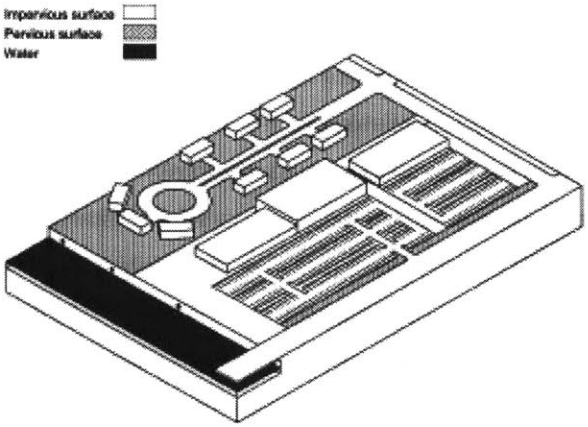


Fig 7 - Convetional Suburban Development Diagram

Fig 8 - View of Dadeland North and US 1

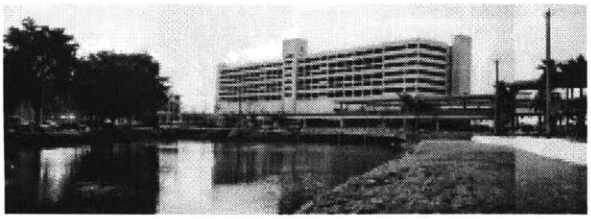
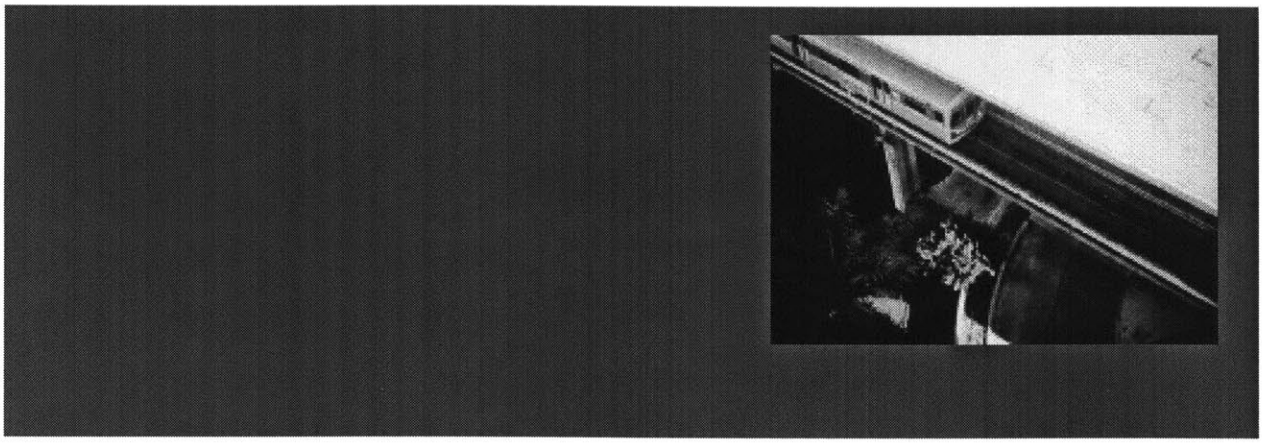


Fig 9 - View of Dadeland North from Snapper Creek Canal

Fig 10 - View of Dadeland North from Snapper Creek Canal

surrounding fabric makes it difficult to get to the station by any means other than driving. surrounding fabric makes it difficult to get to the station by any means other than driving. The Snapper Creek Canal is one of the numerous drainage canals dredged by the Army Corps of Engineers in the 1940's. Presently the canal serves as little more than drainage channel. With no restrictions on the type of development along the canal, the views from the canal are mainly toward the backs of the existing buildings, parking lots and service entries.

Convetional suburban development has had a devastating impact on the water quality of the region. Low-density development is often characterized by a high amount of impervious surfaces and a reduced amount of pervious ground cover. Parking lots, roofs, streets and sidewalks all contribute to the total amount of impervious surfaces. Impervious surfaces prevent water from the atmosphere from penetrating through the soil and recharging the aquifer. In addition pollutants from traffic and the atmosphere sit on the surface and are brought into immediate contact with stormwater which moves rapidly from the surface to stormgutter and, in Miami, directly to the canals which feed into the ocean. While many suburbs appear to be green, the manicured lawns referred to as "green asphalt" consist of non-native ground cover which requires intense fertilization and chemical pesticides. Also the soils are highly compacted and contribute to the rapid movement of water .

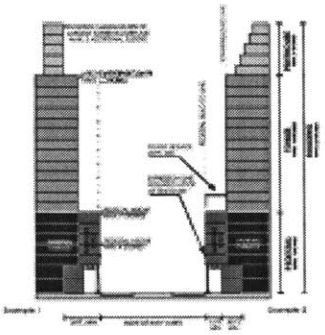


The Downtown Kendall Plan

The plan for Downtown Kendall exemplifies the principles of traditional neighborhood development or New Urbanism. The plan involves the transformation of the existing areas surrounding Dadeland Mall into a pedestrian oriented, mixed-use community. The plan shows a hierarchy of streets, pedestrian networks and green spaces with urban blocks and infill buildings. The early stages would involve the wrapping of the existing mall with new retail that faces toward the street. According to the Downtown Kendall Planning Document some of the changes which need to occur:

Fig 11 - Proposed Downtown Kendall Siteplan

Core Sub-District - "A" Street



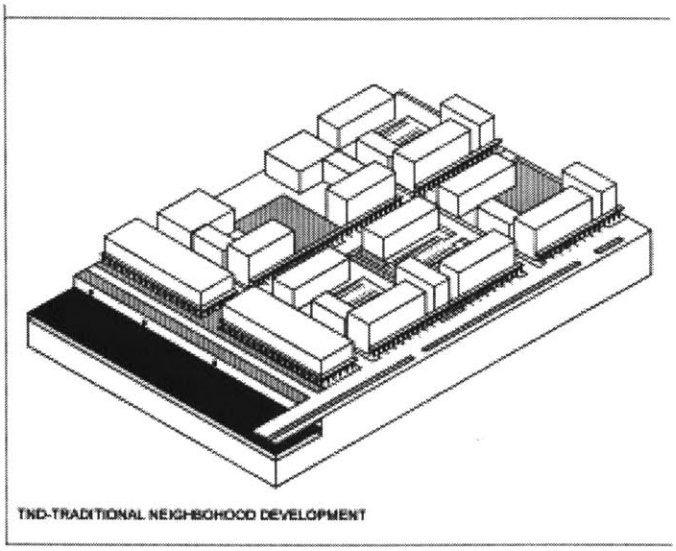
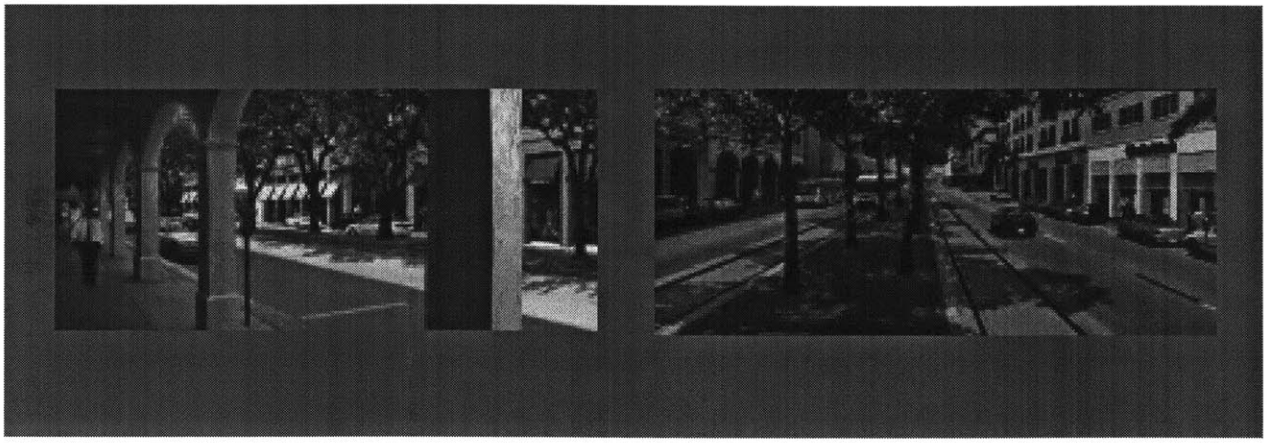
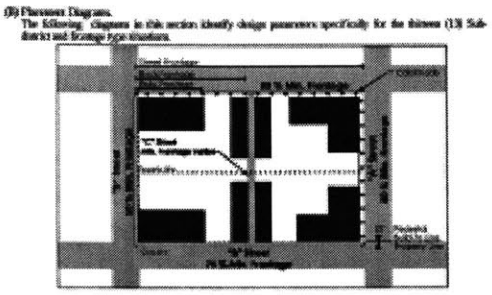
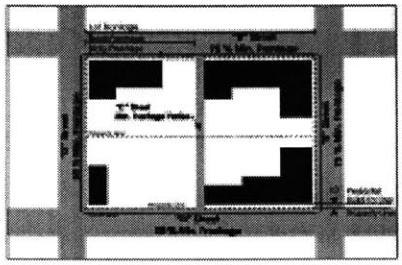


Fig 12 - Traditional Neighborhood Development Diagram



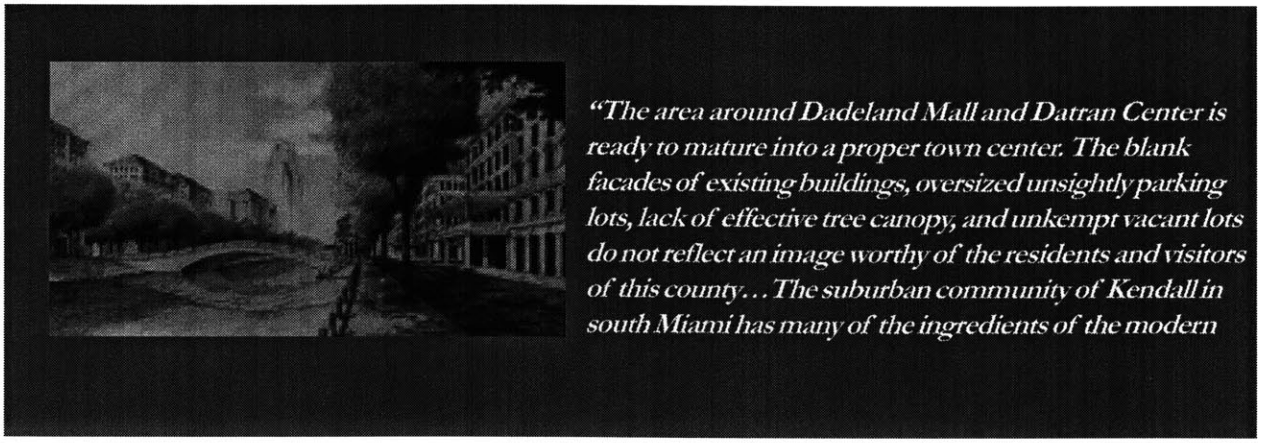




- *Buildings should be built along the street edges. Teaser parking spaces should be on the street with the balance of paring located behind the buildings*
- *Buildings should be tall enough to create a sense on enclosure and urban character.*
- *Sidewalks need to be wider and should be shades with colonnades or arcades incorporated into the building designs.*
- *Buildings should have a rich variety of architectural style and detailing. The sidewalks should be faced by active storefronts, doors and windows*

Advocating denser communities that are oriented toward the pedestrian is certainly a positive idea. Decreasing the amount of land and promoting shared public spaces would contribute to land conservation, freeing up more areas for natural conservation and green space. Both public space and green areas are desparately needed, but this is just a beginning.

The New Urbanist model describes a denser urban fabric which would provide more opportunity for the preservation of natural areas. Proposed green areas are incorporated as courtyards; increasing the amount of pervious surfaces within this dense built fabric above the conventional suburb. Unfortunately while the increase is positive for its social benefits, the effects on water quality may not be as dramatic. These green areas would not have much impact on water quality because the majority of the water still passes over impervious surfaces. Rooftops are certainly not as detrimental to the water quality as parking lots, but unless specifically designed to drain in green areas, the water from most rooftops ends up passing over other paved surfaces.



The Watershed Plan

The location of the site next to the US 1 and directly across from the Metro rail would be an ideal place to connect the neighborhoods with the proposed downtown and with public transportation. The Snapper Creek Canal bisects the site and provides the opportunity to demonstrate how responsible watershed planning can be incorporated into the design. This site is also in between the single family residential to the east and the commercial strip of US1(office and retail).

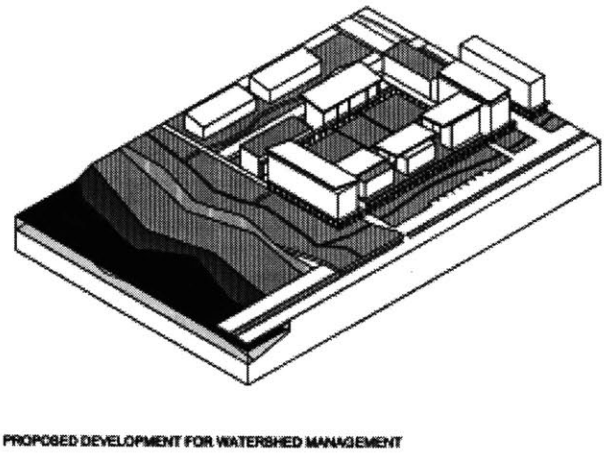


Fig 12 - Diagram of Watershed Planning

This part of the master plan can be developed in a way that encourages civic life, provides affordable housing, and promotes living with nature, not against it. It is important that people have the opportunity to experience nature in their everyday lives. They should also have the chance to live in an environment that is supportive and provides opportunities to learn and live and work and shop within their own neighborhood. The implementation of this master plan is a great step forward because it provides the basis for a more intensive investigation of achieving a true integration of the natural and the built environments.

The proposed addition to the master plan respects the downtown Kendall as the commercial center, but also provides a new center which is focuses on restoring health back to Snapper Creek. The site for the new intervention is to the east of US 1, across from Dadeland North station and alongside the Snapper Creek Canal. By locating the project on the other side of US 1 allows the downtown Kendall plan to exist as proposed and addresses some other important conditions of the area.

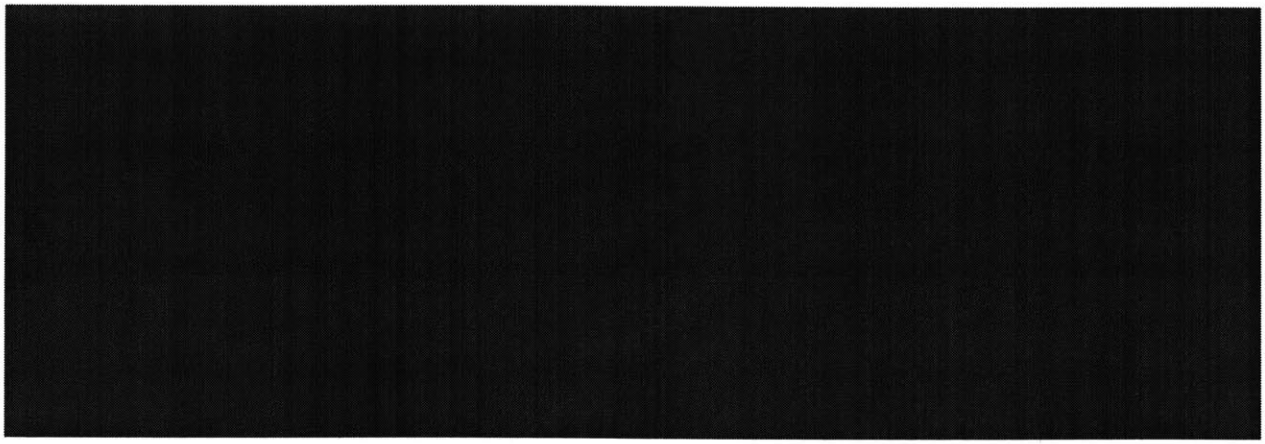
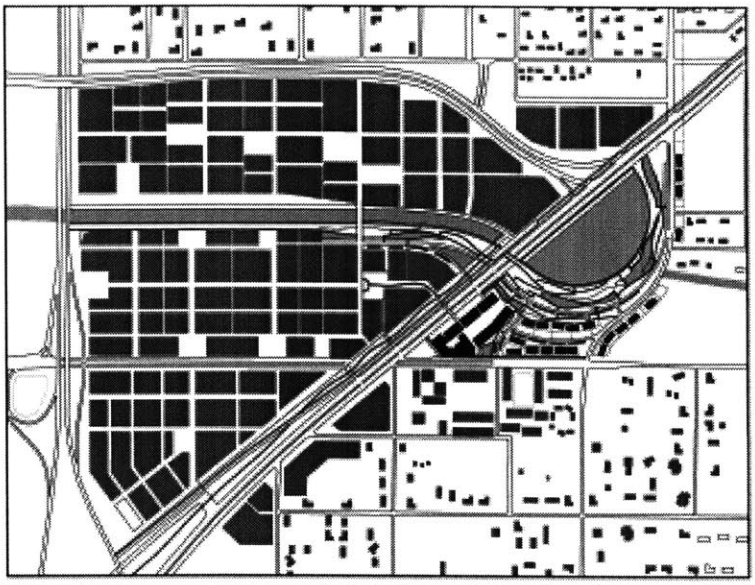
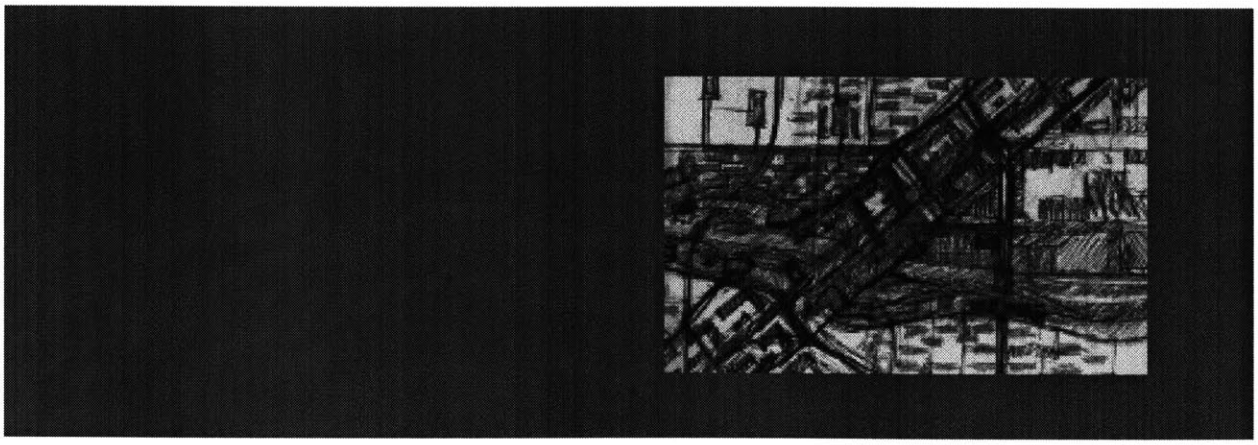


Fig 11 - Proposed Watershed Plan

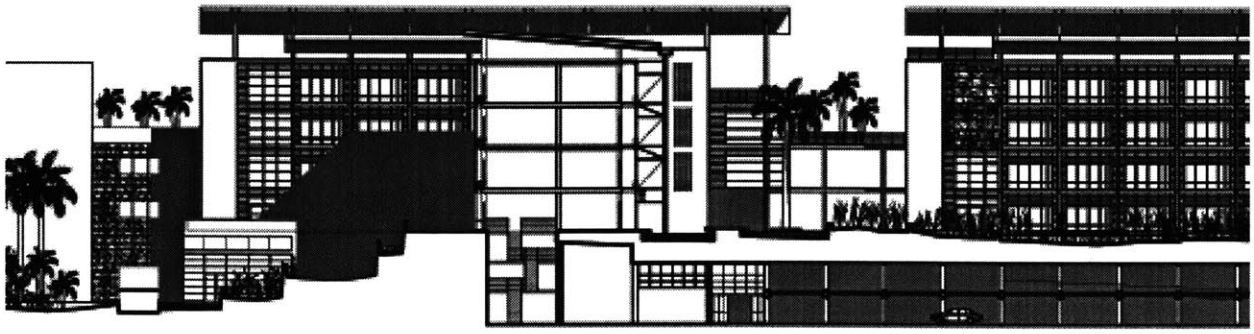


The essence of the project lies in the restoration of the Snapper Creek canal. The downtown Kendall plan already establishes the canal as an active urban waterfront. This project extends the park in a physical sense by bringing the park from Downtown Kendall, under US 1 by the Metro, and connects it with the existing neighborhoods to the east. A large boardwalk extends from the downtown, under US 1 and alongside the canal. This move creates a connection for pedestrians and cyclists to safely cross US1, and to access the downtown area without a car. The park also provides a contrast to the small dense courtyards proposed for the downtown by offering expansive views of a landscape. Here the tight straight canal is transformed into a large open body of water which provides relief from the density of the downtown.

Most importantly, the park is transformed from an urban garden to a working landscape which provides a collection point for stormwater from adjacent areas where it can be cleansed through a series of bio-filters, retention areas, and native plants. Opening up the canal provides a place for the water to adjust to natural conditions of weather and also slows down the speed so it can be cleansed by natural processes.



A New Center for Downtown Kendall



The chosen site for the architectural design project is at the intersection of US 1, Kendall Drive and adjacent to the proposed Snapper Creek Canal Park previously described By the prominent location , this site has the most connection with the existing plan and provides an opportunity to envision how US 1 could evolve to fit within the overall master plan. By bringing some of the development ideas from the commercial core across to the other side, the design refuses to allow US to be the barrier it has become. Placing emphasis on pedestrian connections allows the existing neighborhoods to become a part of the Downtown Kendall plan and also provides needed public space for the residents of the area.

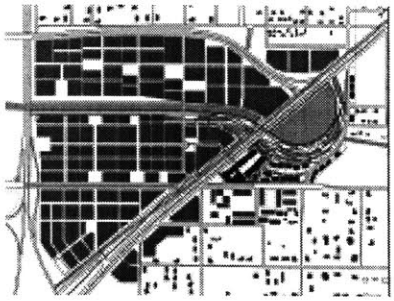
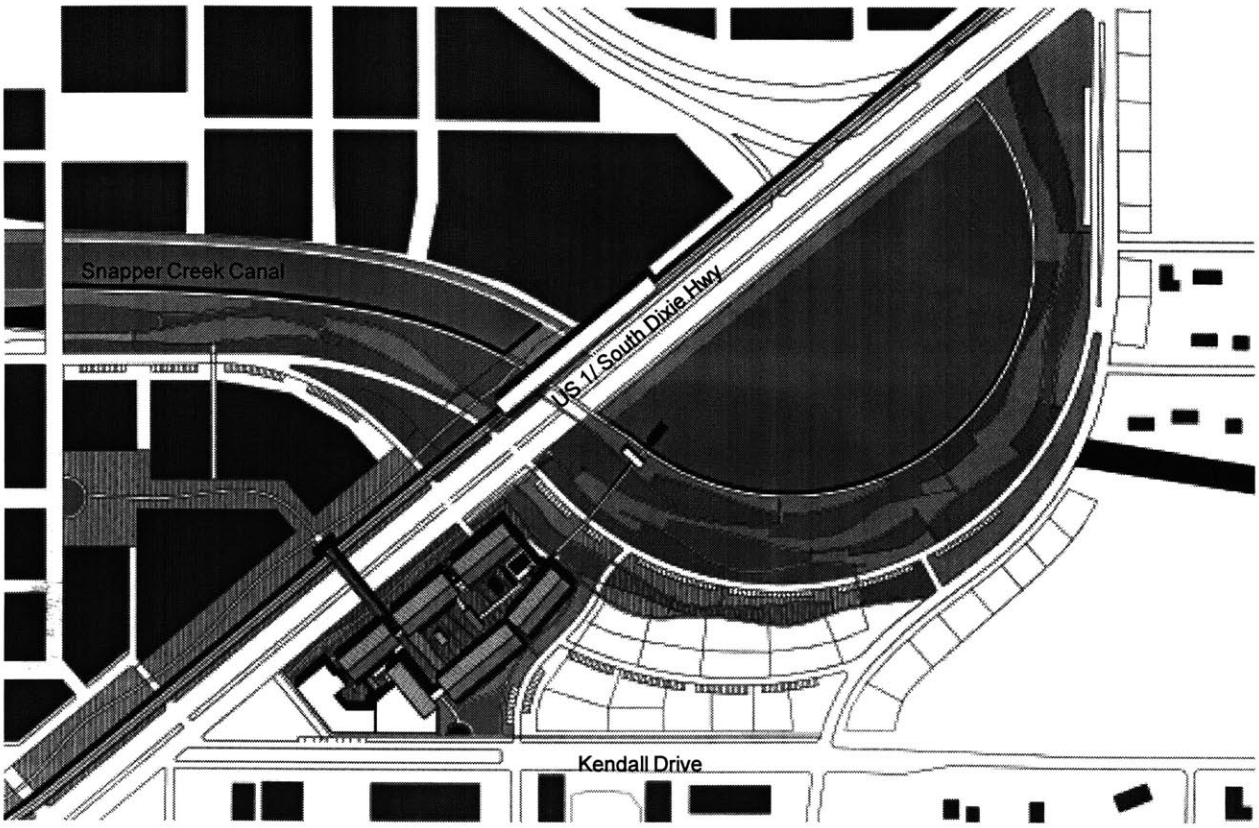


Fig. A1 - Enlarged Site Plan



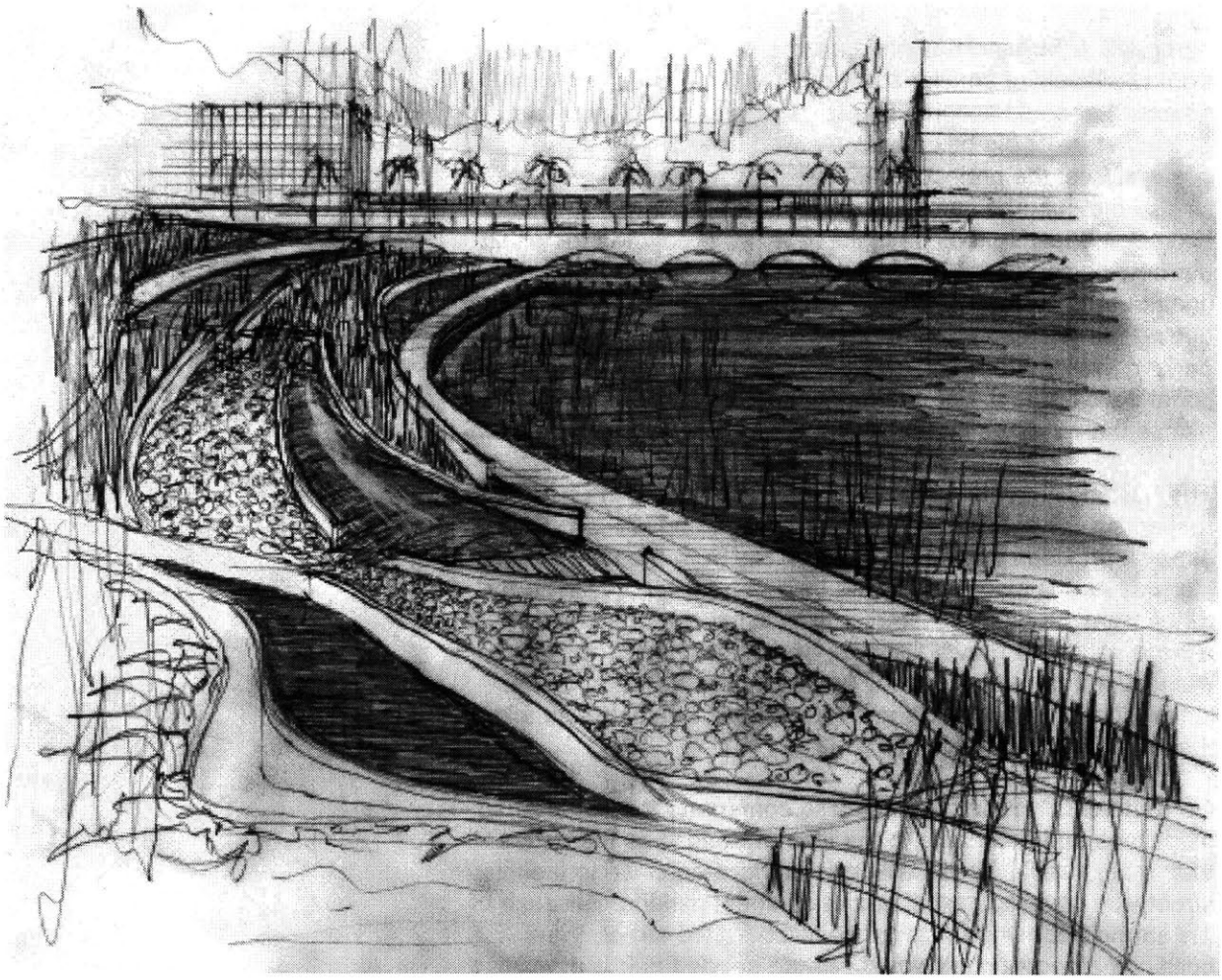
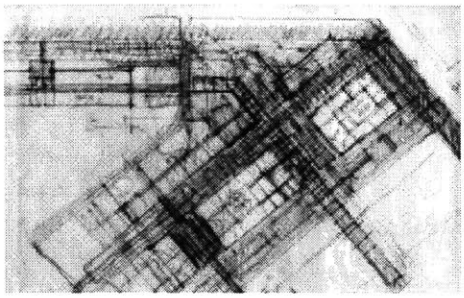


Fig. A2 - View of Metro and downtown from Snapper Creek Canal Park

The architecture along the park follows the model proposed in the watershed planning diagram previously discussed. The buildings surround an elevated courtyard which also performs the role of filtering rain water from the roofs of the building. This courtyard is connected by a pedestrian bridge over US 1 which connects to a green space located in from of a central retail area.

In effect, the proposed park combined with the existing green creates a pedestrian loop which would allow people to cross US 1 and access the Metro, downtown Kendall waterfront and the Snapper Creek Canal Park through a series of different outdoor spaces. Future development of the project would consist of housing that would overlook the Snapper Creek Canal Park and would have views toward the downtown.

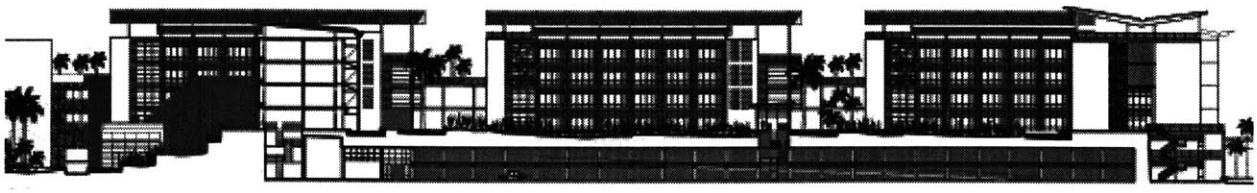


Along US 1 the buildings have a large retail zone that varies from two levels of smaller scale retail to large open one-story spaces that could accomodate larger retail spaces, such as grocery store or big box store. By accomodating for these larger stores, the project demonstrates how the conventional strip of the suburbs can be worked into an urban plan. This is important because if these places are not accounted for within our new designs here the unfortunate reality is that they will contribute to sprawl happening somewhere else. Immediately behind the retail zone are two levels of parking. Placing the parking behind the retail allows the convenience of conventional development, but de-emphasizes the automobile and places the buildings in the front.

The buildings maintain a 60-foot setback from the the highway, respecting the guideline of the Downtown Kendall Plan. This setback provides a buffer for pedestrians from the noise of the highway and is also designed to be a natural filtration area for runoff from the highway. Immediately adjacent to the highway is a large sand and gravel filter strip which intercepts the storm water runoff from the highway and channels the water into a landscape of native plants and topographic swales which allow the water to slowly drain into the soil.

On Kendall Drive the buildings also conform to the established guidelines and contribute to the idea of Kendall as the pedestrian main street. These buildings are located close to the street with covered canopies and off-street parking. Because of the strong pedestrian activity predicted for the street, the buildings along Kendall would provide needed public amenities for the area. Kendall Drive is envisioned here as the home of a new performing arts complex, with theater spaces and arts studios. This arts complex would also serve as a community center and creates a transition from the downtown Kendall to the residential neighborhoods.

Fig. A5 - Section Through Courtyard



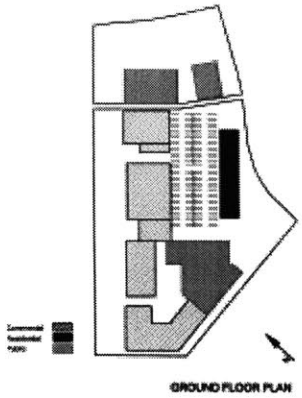


Fig. A4 - Street Level Plan 1Diagram

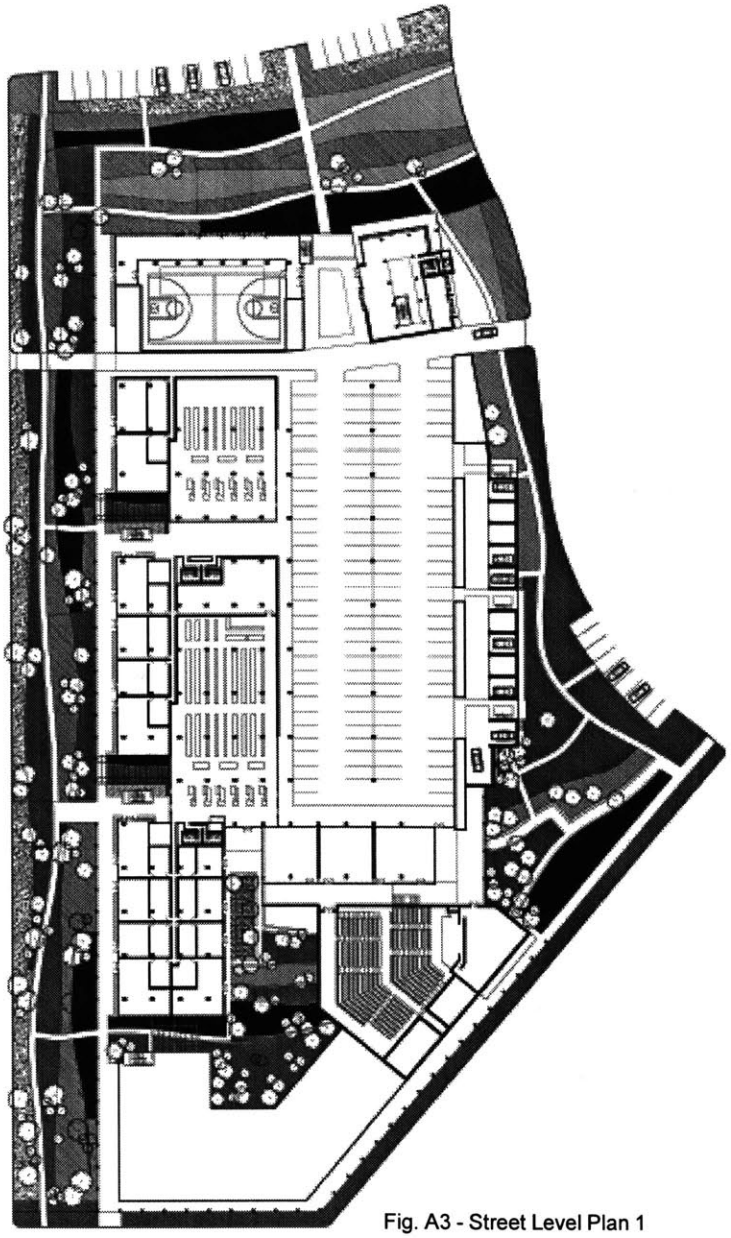
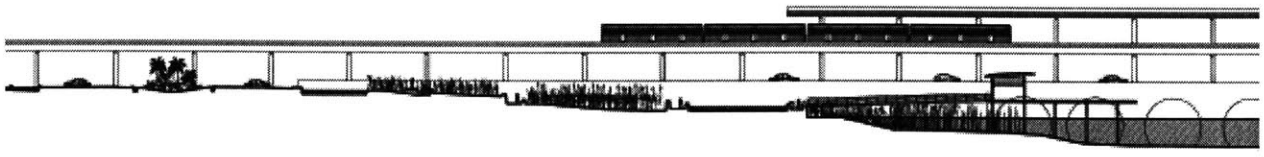


Fig. A3 - Street Level Plan 1



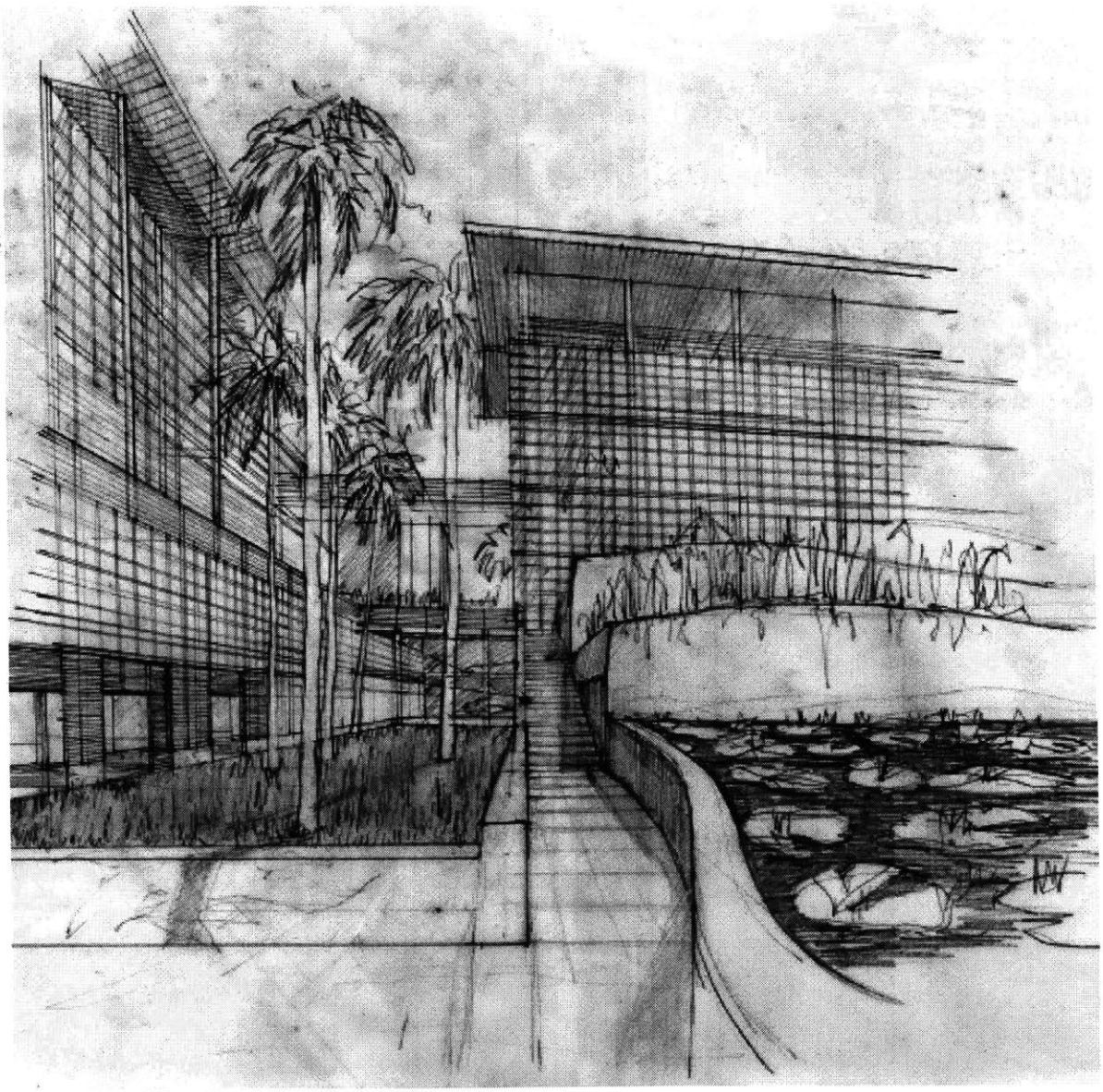
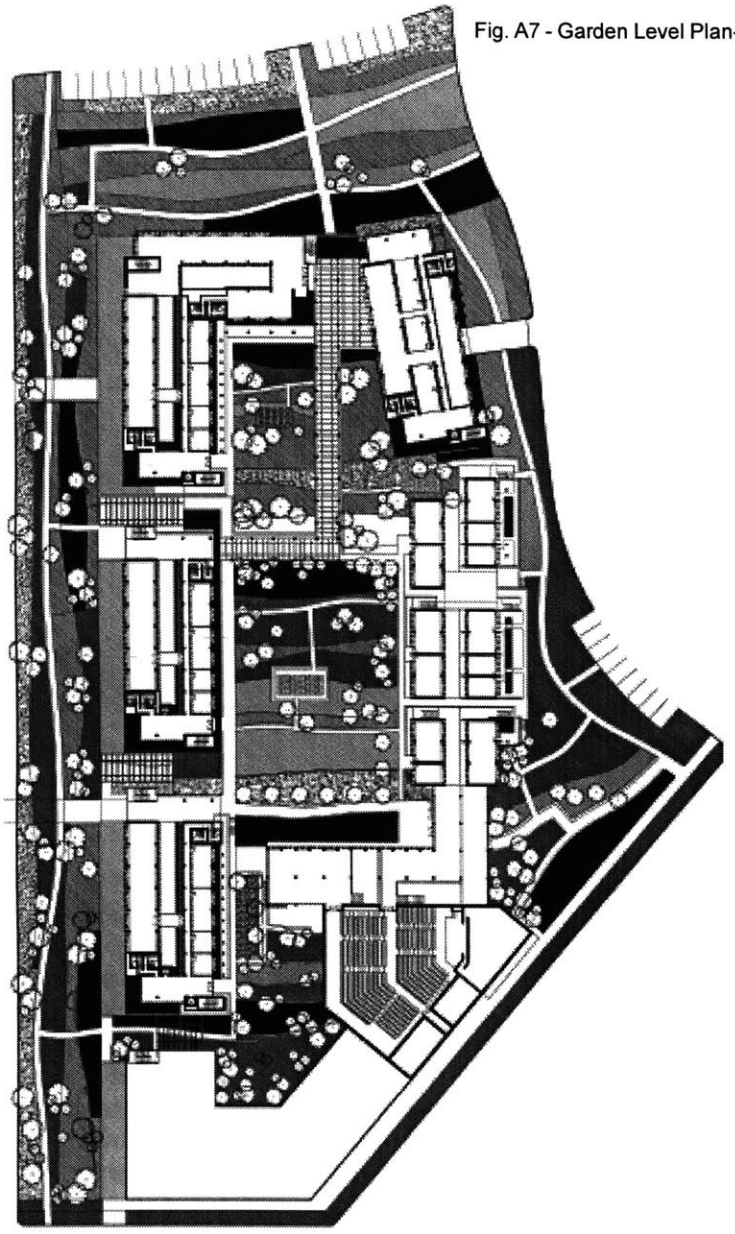


Fig. A6 - View of Entry Garden from Kendall Drive

Immediately adjacent to the Snapper Creek Park, at the intersection of Snapper Creek Drive and US1 there is a large recreation facility. From inside the facility there are view out over the park.By emphasizeing recreation beside the park, the program of the buildings are compatible with the program of the landscape, offering numerous opportunities to for people to utilze both. Adjacent to the Recreation area is a library. The library also complements the park by offering a meditative environment, with views overlooking the landscape. This library would also contain exhibits and special collections which would celebrate the environment of the region and sustainable design strategies. In this way, people could learn about the history of the area and the evolution of the site from suburban sprawl toward a healthy more sustaining landscape.

Fig. A7 - Garden Level Plan-2



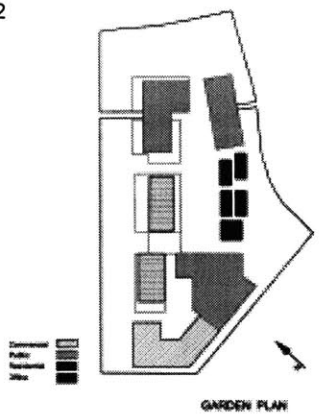
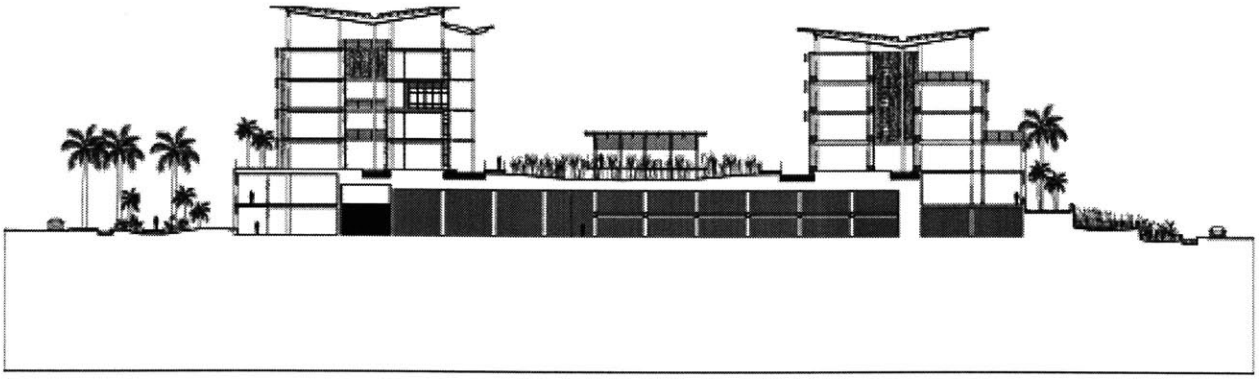
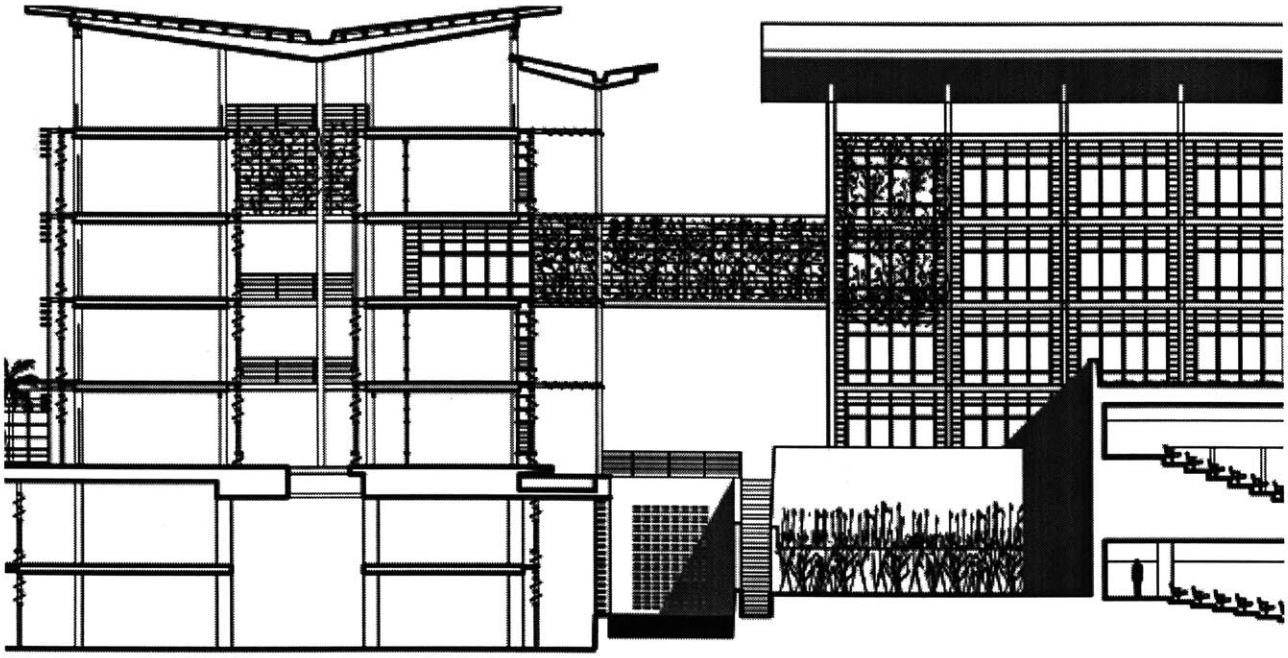


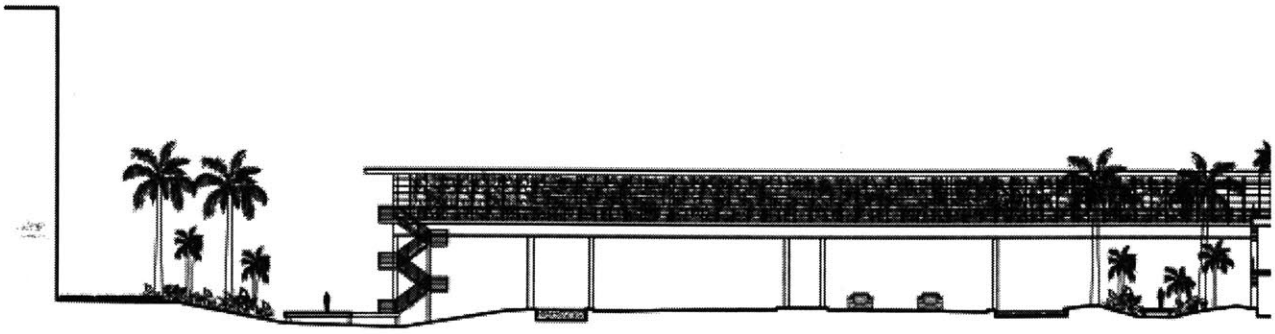
Fig. A8 - Garden Level Plan Diagram

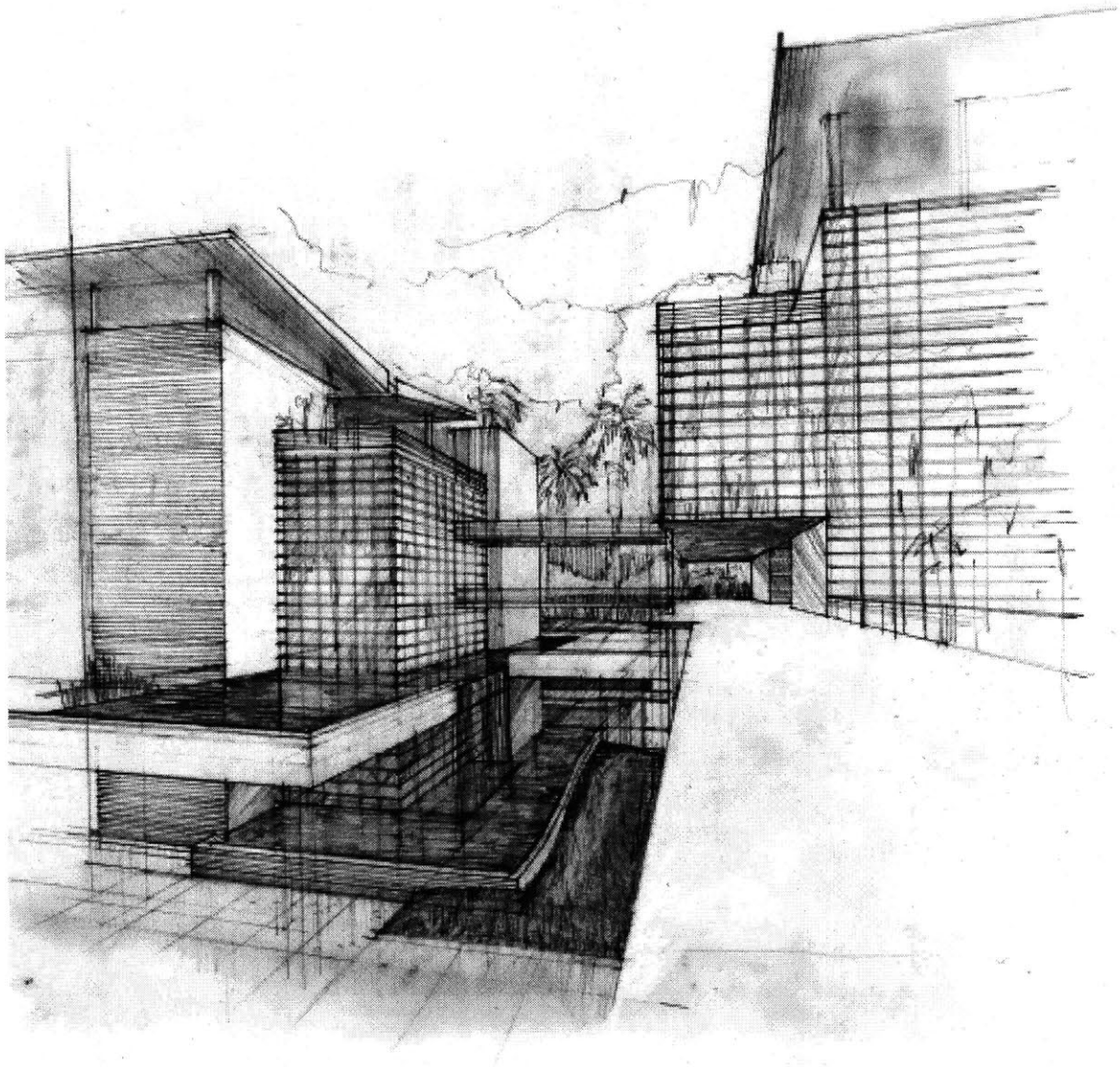
Fig. A9 - Section Through Courtyard Looking North

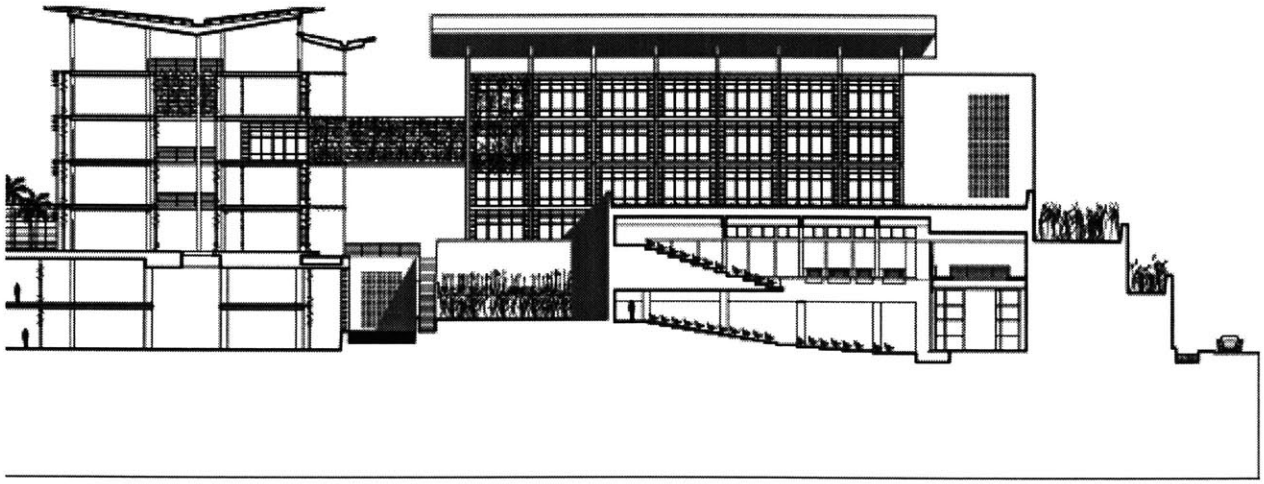




Above the street level the archiecture refocuses on the public garden which is on top of the parking garage. This garden can be accessed from the street and parking through a series of courtyards which contain stairs. It can also be approached from a pedestrian bridge that crosses US 1 and connets to the proposed urabn green network. Since there are few places to cross US 1, providing a bridge here would ensure that pedestrian would access this upper level garden. Following the model described, this graden is not a formal courtyad but a series of filters which allow rainwater from the roofs to collect and be transported to the canal. Above the retail areas there are offices which are entered from this garden along the eastern side of the site residential units would also have access to the garden forming an extended back yard. While the courtyard is part of the office complex, it is considerd to be a public space and the theater, recreation center and library have entrances on this space as well.







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Related websites

Florida Department of Environmental Protection
http://www.dep.state.fl.us/

Florida Internet Center for Understanding Sustainability (FICUS)
http://www.ficus.usf.edu/

Credits

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